Request for Quote	**Marshall University** **Office of Purchasing** **One John Marshall Drive** **Huntington, WV 25755-4100** **Direct all inquiries regarding this order to: (304) 696-2727**	**Bid # R2501527 (REBID)**

Vendor:

For information call:
Purchasing Contact:
Phone: (304) 696-2727
Email: michelle.wheeler@marshall.edu & bidquestions@marshall.edu

Sealed requests to bid for furnishing the supplies, equipment or services described below will be received by the Institution. TO RECEIVE CONSIDERATION FOR AWARD, UNLESS OTHERWISE NOTED, THE BID WILL BE SUBMITTED ON THIS FORM AND UPLOADED INTO THE MU BONFIRE PORTAL ON OR BEFORE THE DATE AND TIME SHOWN FOR THE BID OPENING. When applicable, prices will be based on units specified; and Bidders will enter the delivery date or time for items contained herein. The Institution reserves the right to accept or reject bids on each item separately or as a whole, to reject any or all bids, to waive informalities or irregularities and to contract as the best interests of the Institution may require. BIDS ARE SUBJECT TO THE GENERAL TERMS AND CONDITIONS AS SET FORTH HEREIN.

DATE	**MANDATORY VIRTUAL PRE-BID MEETING**	**DEPARTMENT REQUISITION NO.**	**BIDS OPEN:**	**BIDDER MUST ENTER DELIVERY DATE FOR EACH ITEM BID**
3/17/2025	A virtual mandatory pre-bid meeting will be held on 3/28/2025 @ 10:00 am EST at the following link: https://tinyurl.com/R2501527-REBID-Virtual-Prebid New vendors can contact Caleb Wise @ (304) 962-5540 to schedule a site visit prior to 3/28/2025.	**R2501527 (REBID)**	April 14, 2025 @ 3:00 PM EST at the following link: https://tinyurl.com/R2501527-REBID-CF4-Bid-Opening	

Item #	Quantity	Description	Unit Price	Extended Price
		Request for Quote **Marshall University** **CF4 - Subterranean Testing Facility** Marshall University, on behalf of the Board of Governors, invites sealed bids for CF4 - Subterranean Testing Facility. All technical questions must be submitted in writing to Michelle Wheeler via email at bidquestions@marshall.edu by 9:00 a.m., EST on April 3, 2025. All bids must be submitted in accordance with the Bidding Documents issued by Marshall University's Office of Purchasing.		
			Total	

To the Office of Purchasing,
In compliance with the above, the undersigned offers and agrees, if this offer is accepted within _____ calendar days (30 calendar days unless a different period is inserted by the purchaser) from the bid open date, specified above, to furnish any or all items upon which prices are offered, at the price set opposite each item, delivered at the designated point(s), within the time specified.

Bidder guarantees shipment from _____ within _____ days

FOB After receipt of order at address shown

Terms _____

Bidder's Name _____

Signed By _____

Typed Name _____

Title _____

Email _____

Street Address _____

City/State Zip _____

Date _____ Phone _____

FEIN _____

BOG 43

INSTRUCTIONS TO VENDORS

1. REVIEW DOCUMENTS THOROUGHLY: Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked, could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of a Vendor's bid.

2. MANDATORY TERMS: The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall" which identify a mandatory item or requirement. Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

3. PREBID MEETING: The item identified below shall apply to this Solicitation.

☐ A pre-bid meeting will not be held prior to bid opening.

☐ A **NON-MANDATORY** pre-bid meeting will be held at the following place and time:

☑ A **VIRTUAL MANDATORY** pre-bid meeting will be held at the following place and time:

A virtual mandatory pre-bid meeting will be held on 3/28/2025 @ 10:00 am EST at the following link: https://tinyurl.com/R2501527-REBID-Virtual-Prebid. New vendors can contact Caleb Wise @ (304) 962-5540 to schedule a site visit prior to 3/28/2025.

All Vendors submitting a written bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No person attending the pre-bid meeting may represent more than one (1) Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document attendance verification. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list his or her name and the name of the Vendor he or she is representing.

Additionally, the person attending the pre-bid meeting should include the Vendor's e-mail address, phone number, and fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. **Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.**

INSTRUCTIONS TO VENDORS

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid meeting.

If possible, questions submitted at least five (5) business days prior to a scheduled pre-bid meeting will be discussed at the pre-bid meeting. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. **VENDOR QUESTION DEADLINE:** Vendors may submit questions relating to this Solicitation to the Marshall University Office of Purchasing as directed below. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are nonbinding.

Submissions should include solicitation number in the subject line.

Question Submission Deadline (date and time): April 3, 2025 at 9:00 AM EST

Submit Questions to: Michelle Wheeler
Old Main 125
One John Marshall Drive
Huntington, WV 25755
Fax: (304) 696-3333 (Vendors should not use this fax number for bid submission)
Email: bidquestions@marshall.edu

5. **VERBAL COMMUNICATION:** Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Marshall University Office of Purchasing is binding.

6. **BID SUBMISSION:** All bids must be submitted electronically through Bonfire™ or signed and delivered by the Vendor to the Marshall University Office of Purchasing at the address listed above on or before the date and time of the bid opening. Any bid received by the Office of Purchasing staff is in the possession of the Office of Purchasing and will not be returned for any reason. The Office of Purchasing will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include electronic submission via Bonfire™, hand delivery, or delivery by courier.

INSTRUCTIONS TO VENDORS

A bid that is not submitted electronically through Bonfire™ should contain the information listed below on the face of the envelope or the bid may be rejected by the University.

SEALED BID: R2501527 (REBID)

CONTACT: Michelle Wheeler

SOLICITATION NAME: CF4 - Subterranean Testing Facility

SOLICITATION CLOSING DATE: April 14, 2025

SOLICIATION CLOSING TIME: 3:00 PM EST

7. **BID OPENING**: Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by Bonfire™ (in the case of electronic submission), when the bid is delivered via mail or courier and time stamped by the official Marshall University Office of Purchasing's time clock or when the bid and delivered and is time stamped by the official Marshall University Office of Purchasing's time clock.

Bid Opening Date and Time: April 14, 2025 at 3:00 PM EST
Teams Link: https://tinyurl.com/R2501527-REBID-CF4-Bid-Opening
Bid Opening Location: Marshall University Office of Purchasing
Old Main 125
One John Marshall Drive
Huntington, WV 25755

8. **ADDENDUM ACKNOWLEDGEMENT:** Changes or revisions to this Solicitation will be made by an official addendum issued by the University. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

9. **BID FORMATTING:** Vendor should type or electronically enter the information onto its written bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

INSTRUCTIONS TO VENDORS

10. **ALTERNATES:** Any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or Vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the University at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

11. **EXCEPTIONS AND CLARIFICATIONS:** The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

12. **COMMUNICATION LIMITATIONS:** In accordance with Marshall University Board of Governors Policy No. FA-9 Purchasing Policy, communication with Marshall University or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Marshall University Office of Purchasing, is strictly prohibited without prior Office of Purchasing approval for such communication.

13. **REGISTRATION:** Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the registration fee, if applicable.

14. **UNIT PRICE:** Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

15. **PREFERENCE:** Vendor Preference may be requested in purchases of motor vehicles or construction and maintenance equipment and machinery used in highway and other infrastructure projects. Any request for preference must be submitted in writing with the bid, must specifically identify the preference requested with reference to the applicable subsection of West Virginia Code
§ 5A-3-37, and should include with the bid any information necessary to evaluate and confirm the applicability of the requested preference. A request form to help facilitate the request can be found at: http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf. Please Note: Vendor Preference is not applicable to construction projects.

15A. **RECIPROCAL PREFERENCE**: The State of West Virginia applies a reciprocal preference to all solicitations for commodities and printing in accordance with W. Va. Code § 5A-3-37(b). In effect, if reciprocal preference is requested by a West Virginia resident vendor, non-resident vendors receiving a preference in their home states, will see that same preference granted to West Virginia resident vendors bidding against them in West Virginia. A request form to help facilitate the request can be found at:
http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf.

INSTRUCTIONS TO VENDORS

16. **SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES:** For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority- owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

17. **WAIVER OF MINOR IRREGULARITIES**: The Chief Procurement Officer reserves the right to waive minor irregularities in bids or specifications in accordance with Marshall University Board of Governors Policy No. FA-9 Purchasing Policy.

18. **ELECTRONIC FILE ACCESS RESTRICTIONS:** Vendor must ensure that its submission in Bonfire™ can be accessed and viewed by the University staff immediately upon bid opening. The University will consider any file that cannot be immediately access and viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires, and therefore unacceptable. A Vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening to make a file viewable if those documents are required with the bid. A Vendor may be required to provide document passwords or removed access restrictions to allow the University to print or electronically save documents provided that those documents are viewable by the University prior to obtaining the password or removing the access restriction.

19. **NON-RESPONSIBLE:** The Chief Procurement Officer reserves the right to reject the bid of any Vendor as Non-Responsible in accordance with Marshall University Board of Governors Policy No. FA-9 Purchasing Policy, when the Chief Procurement Officer determines that the Vendor submitting the bid does not have the capability to fully perform or lacks the integrity and reliability to assure good-faith performance.

20. **NON-RESPONSIVE:** The Chief Procurement Officer reserves the right to reject the bid of any Vendor as Non-Responsive in accordance with Marshall University Board of Governors Policy No. FA-9 Purchasing Policy, when the Chief Procurement Officer determines that the Vendor submitting the bid does not conform to the mandatory or essential requirements contained in the solicitation.

21. **ACCEPTANCE/REJECTION:** The University may accept or reject any bid in whole, or in part in accordance with Marshall University Board of Governors Policy No. FA-9 Purchasing Policy.

INSTRUCTIONS TO VENDORS

22. **YOUR SUBMISSION IS A PUBLIC DOCUMENT:** Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of Marshall University Board of Governors Policy No. FA-9 Purchasing Policy, §5-22-1 et seq., §5G-1-1 et seq., and the West Virginia Freedom of Information Act in W. Va. Code § 29B-1-1 et seq.

    DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET (S), OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

    Submission of any bid, proposal, or other document to the Marshall University Office of Purchasing constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The University may disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by W. Va. Code § 47-22-1 et seq. and subject to W. Va. Code 29B-1-4(a) (1). All submissions are subject to public disclosure without notice.

23. **PURCHASING AFFIDAVIT:** The University is prohibited from awarding a contract to any bidder that owes a debt to the State or political subdivision of the State. Vendors are required to sign, notarize, and submit the Purchasing Affidavit to the Marshall University Office of Purchasing affirming under oath that it is not in default on any monetary obligation owed to the State or a political subdivision of the State.
    http://www.state.wv.us/admin/purchase/vrc/pAffidavit.pdf

24. **INTERESTED PARTY DISCLOSURE**: West Virginia Code § 6D-1-4 requires that the vendor submit to the Marshall University Office of Purchasing a disclosure of interested parties to the contract for all contracts with an actual or estimated value of at least $1 million. That disclosure must occur on the form prescribed and approved by the WV Ethics Commission prior to contract award. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.
    http://www.state.wv.us/admin/purchase/VRC/Ethics_DisclosureInterestedParties_2018.pdf

25. **WITH THE BID REQUIREMENTS:** In instances where these specifications require documentation or other information with the bid, and a vendor fails to provide it with the bid, the Chief Procurement Officer reserves the right to request those items after bid opening and prior to contract award pursuant to the authority to waive minor irregularities in bids or specifications under Marshall University Board of Governors Policy No. FA-9 Purchasing Policy. This authority does not apply to instances where state law mandates receipt with the bid.

MARSHALL UNIVERSITY

GENERAL TERMS AND CONDITIONS

1. CONTRACTUAL AGREEMENT: Issuance of an Award Document constitutes acceptance of this contract (the Contract) made by and between Marshall University (University or Marshall) and the Vendor. Vendor's signature to the Contract signifies Vendor's agreement to be bound by and accept the terms and conditions contained in the Contract. Therefore, the parties agree that the following contractual terms and conditions are dominate over any competing terms made a part of the Contract. **IN THE EVENT OF ANY CONFLICT BETWEEN VENDOR'S FORM(S) AND THESE GENERAL TERMS AND CONDITIONS, THESE GENERAL TERMS AND CONDITIONS SHALL CONTROL**

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications, if applicable, included with the Solicitation/Contract.

2.1 "Award Document" means the document that identifies the Vendor as the Contract holder when signed by the Vendor and Marshall University's Office of Purchasing and, when necessary, approved as to form by the Attorney General.

2.2 "**Bid" or "Proposal"** means the Vendor's verbal bid or written bid provided in response to a solicitation by the University.

2.3 "Board" means the Governing Board of Marshall University.

2.4 "Buyer" means an individual designated by a Chief Procurement Officer to perform designated purchasing and acquisition functions as authorized by the Chief Procurement Officer.

2.5 "Chief Procurement Officer" means the individual designated by the President of Marshall University to manage, oversee and direct the purchasing and acquisition of supplies, equipment, services, and printing for the University**.**

2.6 "Contract" means the binding agreement that is entered between the University and the Vendor to provide requested goods and/or services requested in the Solicitation.

2.7 "Governing Board" means the Marshall University Board of Governors as provided for in the West Virginia state code.

2.8 "Higher Education Institution" means an institution as defined by Sections 401(f), (g) and (h) of the federal Higher Education Facilities Act of 1963, as amended.

2.9 "Office of Purchasing" means the section within Marshall University headed by the Chief Procurement Officer and its personnel.

2.10 "Purchasing Card" or "**P-Card"** means The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.

2.11 "Responsible Bidder" and **"Responsible Vendor"** mean a person and/or vendor who have the capability in all respects to perform contract requirements, and the integrity and reliability which will assure good faith performance.

2.12 "Responsive Bidder" and **"Responsive Vendor"** mean a person and/or a vendor who has submitted a bid which conforms in all material respects to the invitation to bid.

2.13 "Solicitation" means the notice of an opportunity to supply the University with goods and services.

2.14 "State" means the State of West Virginia and/or any of its agencies, commissions, boards, departments or divisions as context requires.

2.15 "University" means Marshall University or Marshall.

2.16 "Vendor" or **"Vendors"** means any entity providing either a verbal or written bid in response to the solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

2.17 "Will", "**Shall**" and "**Must**" identifies a mandatory item or requirement that concludes the duty, obligation or requirement imposed is mandatory, as opposed to being directory or permissive.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of the Contract shall be determined in accordance with the category that has been identified as applicable to the Contract below:

☐ **Term Contract**

Initial Contract Term: The Contract becomes effective on _____ _____and extends for a period of_____year(s).

Renewal Term: The Contract may be renewed upon the mutual written consent of the University and the Vendor. Any request for renewal should be submitted to the University thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Renewal of the Contract is limited to_____successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed _____months in total. Automatic renewal of the Contract is prohibited.

Any language that seeks to automatically renew, modify, or extend the Contract beyond the initial term or automatically continue the Contract period from term to term is deleted. The Contract may be renewed or continued only upon mutual written agreement of the Parties.

☐ **Alternate Renewal Term** – This contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor and Agency.

☐ **Fixed Period Contract:** The Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within_____.

☐ **Fixed Period Contract with Renewals:** The Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract must be completed within_____ days. Upon completion, the Vendor agrees that maintenance, monitoring, or warranty services will be provided for _____ successive one-year periods or multiple periods of less than one year provided that the multiple renewal periods do not exceed months in total.

☑ **One-Time Purchase:** The term of the Contract shall run from the issuance of the Award Document until all the goods contracted for have been delivered, but in no event, will the Contract extend for more than one fiscal year.

☐ **Other:** See attached.

4. NOTICE TO PROCEED: Vendor shall begin performance of the Contract immediately upon receiving notice to proceed unless otherwise instructed by the University. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

5. QUANTITIES: The quantities required under the Contract shall be determined in accordance with the category that has been identified as applicable to the Contract below.

☐ **Open End Contract:** Quantities stated in the solicitation are approximations only, based on estimates supplied by the University. It is understood and agreed that the Contract shall cover the quantities ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☐ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☑ **One-Time Purchase:** The Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under the Contract without an appropriate change order approved by the Vendor, University, and/or when necessary, the Attorney General's office.

6. EMERGENCY PURCHASES: The Chief Procurement Officer may suspend the use of a university wide mandatory contract (the University's Office of Purchasing has created standard specifications that are establish University wide contracts for commonly used commodities and services that are needed on a repetitive basis), or the competitive bidding process to allow a Department to purchase goods or services in the open market if for immediate or expedited delivery in an emergency.

Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work, provided that a required University emergency purchase with another vendor does not cause a breach of contract.

7. REQUIRED DOCUMENTS: All the items checked below must be provided to the University by the Vendor as specified below.

☑ **BID BOND** (Construction Only): Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

☑ **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of 100% of the contract. The performance bond must be received by the Marshall University Office of Purchasing Office prior to Contract award.

☑ **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be received by the Marshall University Office of Purchasing Office prior to Contract award.

☐ **MAINTENANCE BOND:** The successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and received by the Marshall University Office of Purchasing Office prior to Contract award.

☑ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the University.

☐ **INSERT ADDITIONAL CONDITIONS BELOW:**

Please include Contractor's License, Certificate of Insurance (COI), Purchasing Affidavit, Drug Free Workplace Certificate, Criteria for Selection of Lowest Qualified Bidder, and W-9 with your bid.

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications prior to Contract award regardless whether that requirement is listed above.

8. INSURANCE: The Vendor shall furnish proof of the insurance identified by a checkmark below prior to Contract award. Subsequent to contract award, and prior to the insurance expiration date, Vendor shall provide the University with proof that the insurance mandated herein has been continued. Vendor must also provide with immediate notice of any changes in its insurance policies mandated herein, including but not limited to, policy cancelation, policy reduction, or change in insurers. The insurance coverages identified below must be maintained throughout the life of the contract. The Vendor shall also furnish proof of any additional insurance requirements prior to the Contract award regardless of whether that insurance requirement is listed in this section.

Any provisions requiring the University to maintain any type if insurance for either of its or the Vendors benefit is deleted.

Vendor must maintain:

☑ **Commercial General Liability Insurance** in at least an amount of: $1,000,000.00 per occurrence and an aggregate of $3,000,000.00.

☑ **Automobile Liability Insurance** in at least an amount of: $1,000,000.00 per occurrence and an aggregate of $3,000,000.00.

☑ **Professional/Malpractice/Errors and Omission Insurance** in at least an amount of: $1,000,000.00 per occurrence and an aggregate of $3,000,000.00.

☐ **Commercial Crime and Third-Party Fidelity Insurance** in an amount of: _____ per occurrence and an aggregate of _____.

☐ **Cyber Liability Insurance** in an amount of: _____ per occurrence and an aggregate of _____. Coverage shall be sufficiently broad to respond to the duties and obligations as is undertaken by Vendor in performance of the Contract and shall include, but not limited to, claims involving infringement of intellectual property, including but not limited to infringement of copyright, trademark, trade dress, invasion of privacy violations, information theft, damage to or destruction of electronic information, release of private information, alteration of electronic information, extortion and network security. The policy shall provide coverage for breach response costs as well as regulatory fines and penalties as well as credit monitoring expenses with limits sufficient to respond to these obligations. The policy must include PCI (Payment Card Industry Data Security Standard) coverage / compliant coverage.

☐ **Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.
_____ per occurrence and an aggregate of _____.

9. WORKERS' COMPENSATION INSURANCE: The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. LIQUIDATED DAMAGES: This clause shall in no way be considered exclusive and shall not limit the University's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

_____ for _____

Liquidated Damages Contained in the Specifications

11. ACCEPTANCE: Vendor's signature on the certification and signature page, constitutes an offer to the University that cannot be unilaterally withdrawn, signifies that the product or service proposed by Vendor meets the mandatory requirements for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions unless otherwise indicated.

12. STATUTE OF LIMITATIONS - Any clauses limiting the time in which the State may bring suit against the Vendor or any other third party are deleted.

13. PRICING/BEST PRICE GUARANTEE: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation by the University. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization in the Solicitation to do so, may result in bid disqualification. Notwithstanding the foregoing, Vendor must extend any publicly advertised sale price to the University and invoice at the lower of the contract price or the publicly advertised sale price.

14. PAYMENT IN ARREARS: Payments for goods/services will be made in arrears only upon receipt of a proper invoice, detailing the goods/services provided or receipt of the goods/services, whichever is later. Notwithstanding the foregoing, payments for software licenses, subscriptions, or maintenance may be paid annually in advance.

15. PAYMENT METHODS: The Vendor must accept payment by electronic funds transfer or P-Card for payment of all orders under this Contract unless the box below is checked.

☑ Vendor is not required to accept the State of West Virginia's P-Card or by electronic funds transfer as payment for all goods and services for the reason(s) stated below:

Construction Projects not eligible for Pcard payment.

16. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract. Any references contained in the Contract, Vendor's bid, or in any American Institute of Architects documents obligating the University to pay to compensate Vendor, in whole or in part, for lost profit, pay a termination fee, pay liquidated damages if the Contract is terminated early, seeking to accelerate payments in the event of Contract termination, default, or non-funding, costs of collection, court costs, or attorney's fees, unless ordered by a court of competent jurisdiction is hereby deleted. Any language imposing and interest or charges due to late payment is deleted.

17. FEES OR COSTS: Any language obligating the State to pay costs of collection, court costs, or attorney's fees, unless ordered by a court of competent jurisdiction is deleted.

18. RISK SHIFTING: Any provision requiring the State to bear the costs of all or a majority of business/legal risks associated with this Contract, to indemnify the Vendor, or hold the Vendor or a third party harmless for any act or omission is hereby deleted.

19. LIMITING LIABILITY: Any language limiting the Vendor's liability for direct damages is deleted.

20. TAXES: The Vendor shall pay any applicable sales, use, personal property or other taxes arising out of the Contract and the transactions contemplated hereby. The University is exempt from federal and state taxes and will not pay or reimburse such taxes. The University will, upon request, provide a tax-exempt certificate to confirm its tax-exempt status.

21. FISCAL YEAR FUNDING: The Contract shall continue for the term stated herein, contingent upon funds being appropriated by the WV Legislature or otherwise being made available for this Contract. In the event funds are not appropriated or otherwise available, the Contract becomes of no effect and is null and void after June 30 of the current fiscal year. If that occurs, the University may notify the Vendor that an alternative source of funding has been obtained and thereby avoid the automatic termination. Non-appropriation or non-funding shall not be considered an event of default.

22. CANCELLATION/RIGHT TO TERMINATE: The University reserves the right to cancel/terminate the Contract immediately upon written notice to the Vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The University may also cancel any purchase or Contract upon thirty (30) days written notice to the Vendor. In the event of early cancellation, the University agrees to pay the Vendor only for all undisputed services rendered or goods received before the termination's effective date. All provisions are delete that seek to require the State to (1) compensate Vendor, in whole or in part, for loss profit, (2) pay a termination fee, or (3) pay liquidated damages if the Contract is terminated early.

In the event that a vendor fails to honor any contractual term or condition, the Chief Procurement Officer may cancel the contract and re-award the contract to the next lowest responsible and responsive bidder in accordance with the Marshall University Board of Governors Policy No. FA-9 Purchasing Policy, section 7.4.1

Any language seeking to accelerate payments in the event of Contract termination, default or non-funding is hereby deleted.

23. RIGHT OF FIRST REFUSAL Any language seeking to give the Vendor a Right of First Refusal is hereby deleted.

24. DISPUTES – Any language binding he University to any arbitration or to the decision of any arbitration board, commission, panel, or other entity is deleted; as is any requirement to waive a jury trial.

Any language requiring or permitting disputes under this Contract to be resolved in the courts of any state other than the State of West Virginia is deleted. All legal actions for damages brought by Vendor against the University shall be brought in the West Virginia Legislative Claims Commission. Other causes of action must be brought in the West Virginia Court authorized by statute to exercise jurisdiction over it.

Any language requiring the State to agree to, or be subject to, any form of equitable relief not authorized by the Constitution or laws of State of West Virginia is deleted.

25. TIME: Time is of the essence with regard to all matters of time and performance in the Contract.

26. DELIVERY -All deliveries under the Contract will be FOB destination unless the State expressly and knowingly agrees otherwise. Any contrary delivery terms are hereby deleted.

27. APPLICABLE LAW: The Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, W. Va. Code or Marshall University Board of Governors Policy No. FA-9 Purchasing Policy is void and of no effect. Any language requiring the application of the law of any state other than the State of West Virginia in interpreting or enforcing the Contract is deleted. The Contract shall be governed by the laws of the State of West Virginia

28. COMPLIANCE WITH GOVERNING LAWS: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances. Vendor shall notify all subcontractors providing commodities or services related to this Contract that, as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances.

29. ARBITRATION: Any references made to arbitration contained in the Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to the Contract are hereby deleted, void, and of no effect.

30. MODIFICATIONS: Notwithstanding anything contained in the Contract to the contrary, no modification of the Contract shall be binding without mutual written consent of the University, and the Vendor.

31. AMENDMENTS - The parties agree that all amendments, modifications, alterations or changes to the Contract shall be by mutual agreement, in writing, and signed by both parties. Any language to the contrary is deleted.

32. NO WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of the Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

Any provisions requiring the University to waive any rights, claims or defenses is hereby deleted.

33. SUBSEQUENT FORMS: The terms and conditions contained in the Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the University such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

34. ASSIGNMENT: Neither the Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the University and any other government or office that may be required to approve such assignments.

The Vendor agrees not to assign the Contract to any person or entity without the State's prior written consent, which will not be unreasonably delayed or denied. The State reserves the right to assign this Contract to another State agency, board or commission upon thirty (30) days written notice to the Vendor. These restrictions do not apply to the payments made by the State. Any assignment will not become effective and binding upon the State until the State is notified of the assignment, and the State and Vendor execute a change order to the Contract.

35. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by the Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the University; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

36. UNIVERSITY EMPLOYEES: University employees are not permitted to utilize the Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

37. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the University, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the University's policies, procedures, and rules.

Proposals are NOT to be marked as confidential or proprietary Any Provisions regarding confidential treatment or non-disclosure of the terms and conditions of the Contract are hereby deleted. State contracts are public records under the West Virginia Freedom of Information Act ("FOIA") (W.Va. Code §29B-1-1, et. seq.) and public procurement laws. This Contract and other public records may be disclosed without notice to the vendor at the University's sole discretion. The University shall not be liable in any way for disclosure of any such records

Any provisions regarding confidentiality of or non-disclosure related to contract performance are only effective to the extent they are consistent with FOIA and incorporated into the Contract through a separately approved and signed non-disclosure agreement.

38. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of W. Va. Code §18B-5-4 and the Freedom of Information Act in W.Va. Code Chapter 29B.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, CONTAINING A TRADE SECRET(S), OR IS OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Marshall University Office of Purchasing constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document.

39. LICENSING: Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local University of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state University or political subdivision. Upon request, the Vendor must provide all necessary releases to obtain information to enable the University to verify that the Vendor is licensed and in good standing with the above entities.

40. ANTITRUST: In submitting a bid to, signing a contract with, or accepting an Award Document from Marshall University, the Vendor agrees to convey, sell, assign, or transfer to the University all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by Marshall University. Such assignment shall be made and become effective at the time the University tenders the initial payment to Vendor.

41. THIRD-PARTY SOFTWARE: If this Contract contemplates or requires the use of third-party software, the vendor represents that none of the mandatory click-through, unsigned, or web-linked terms and conditions presented or required before using such third-party software conflict with any term of this Addendum or that is has the authority to modify such third-party software's terms and conditions to be subordinate to this Addendum. The Vendor shall indemnify and defend the State against all claims resulting from an assertion that such third-party terms and conditions are not in accord with, or subordinate to, this Addendum.

42. RIGHT TO REPOSSESSION NOTICE: Any provision for repossession of equipment without notice is hereby deleted. However, the State does recognize a right of repossession with notice.

43. VENDOR CERTIFICATIONS: By signing its bid or entering into the Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that the Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity

that could be considered a violation of law; and (4) that it has reviewed the Contract in its entirety; understands the requirements, terms and conditions, and other information contained herein. Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the University. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with the all State agencies as required.

44. VENDOR RELATIONSHIP: The relationship of the Vendor to the University shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by the Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the University for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing. Vendor shall hold harmless the State, and shall provide the State and University with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

45. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the University, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage, and hour laws.

46. PURCHASING AFFIDAVIT: In accordance with West Virginia Code §18B-5-5 and §5A-3-18 the University is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State, Vendors are required to sign, notarize, and submit the Purchasing Affidavit to the Marshall University Office of Purchasing affirming under oath that it is not in default on any monetary obligation owed to the state or a political subdivision of the state.

47. WEST VIRGINIA DRUG-FREE WORKPLACE CONFORMANCE AFFIDAVIT West Virginia Alcohol and Drug-Free Workplace Act requires public improvement contractors to have and implement a drug-free workplace policy that requires drug and alcohol testing. This act is applicable to any construction, reconstruction, improvement, enlargement, painting, decorating or repair of any public improvement let to contract for which the value of contract is over $100,000. No public authority may award a public improvement contract which is to be let to bid to a contractor unless the terms of the contract require the

contractor and its subcontractors to implement and maintain a written drug-free workplace policy and the contractor and its subcontractors provide a sworn statement in writing, under the penalties of perjury, that they maintain a valid drug-free workplace policy.

48. DISCLOSURE OF INTERESTED PARTIES A state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of $1,000,000 or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract.

49. CONFLICT OF INTEREST: Vendor, its officers, members, or employees shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the University.

50. MARSHALL UNIVERSITY'S INFORMATION TECHNOLOGY SERVICES AND SUPPORT DEPARTMENT (IT) FEES: If a vendor requires services through the Marshall University's IT Department, they must reimburse the University at the IT Rate Schedule which is located at: https://www.marshall.edu/it/rates/.

51. PUBLICITY: Vendor shall not, in any way or in any form, publicize or advertise the fact that Vendor is supplying goods or services to the University without the express written consent of the Marshall University Communications Department. Requests should be sent to ucomm@marshall.edu.

52. UNIVERSITY MARKS: Vendor shall not, in any way or in any form use the University's trademarks or other intellectual property without the express written consent of the Marshall University Communications Department. Requests should be sent to ucomm@marshall.edu.

53. INTELLECTUAL PROPERTY: The University will own all rights, title and interest in any and all intellectual property rights created in the performance or otherwise arising out of the agreement, and Vendor will execute any assignments of other documents necessary for the University to perfect such rights, provided that, for research collaboration pursuant to subcontracts under sponsored research agreements, intellectual property rights will be governed by the terms of the grant or contract to the University to the extent such intellectual property terms to apply to subcontractors.

54. FERPA: Vendor agrees to abide by the Family Education Rights and Privacy Act of 1974 ("FERPA). To the extent that Vendor receives personally identifiable information from education records as defined in (FERPA), Vendor agrees to abide by the limitations on re-disclosure set forth in which states that the officers, employees and agents of a party that receives education record information from Marshall may use the information, but only for the purposes for which the disclosure was made.

55. REPORTS: Vendor shall provide the University with the following reports identified by a checked box below:

☑ Such reports as the University may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by University, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by University.

56. PREFERENCE FOR THE USE OF DOMESTIC STEEL PRODUCTS IN STATE CONTRACT PROJECTS: Pursuant to W.Va. Code §5A-3-56, (a)(1) Except when authorized pursuant to the provisions of subsection (b) of this section, no contractor may use or supply steel products for a state contract project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W.Va. Code §5A-3-56. As used in this section (2):

(A) "State contract project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of any materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after the effective date of this section on or after June 6, 2001.

(B) "Steel products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more of such operations, from steel made by the open hearth, basic oxygen, electric furnace, bessemer or other steel making process.

(b) Notwithstanding any provision of subsection (a) of this section to the contrary, the Director of the West Virginia Department of Administration, Purchasing Division ("Director of the Purchasing Division") may, in writing, authorize the use of foreign steel products if:

(1) The cost for each contract item used does not exceed one tenth of one percent of the total contract cost or $2,500, whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

(2) The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

57. PREFERENCE FOR DOMESTIC ALUMINUM, GLASS AND STEEL PRODUCTS:

In Accordance with W. Va. Code § 5-19-1 et seq.,

(a) Every state spending unit, as defined in chapter five-a, shall require that every contract or subcontract for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works contain a provision that, if any aluminum, glass or steel products are to be supplied in the performance of the contract, or subcontract, only domestic aluminum, glass or steel products shall be supplied unless the spending officer, as defined in chapter five-a, determines, in writing, after the receipt of offers or bids, that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest or that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements: Provided,

That this article applies to any public works contract awarded in an amount more than $50,000, and with regard to steel only, this article applies to any public works contract awarded in an amount more than $50,000 or requiring more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a "substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products.

This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

ADDITIONAL TERMS AND CONDITIONS (Construction Contracts Only)

1. CONTRACTOR'S LICENSE: W. Va. Code § 30-42-2, requires that all persons desiring to perform contracting work in this state be licensed. The West Virginia Contractors Licensing Board is empowered to issue the contractor's license. Application for a contractor's license may be made by contacting the West Virginia Contractor Licensing Board.

The apparent successful Vendor must furnish a copy of its contractor's license prior to the issuance of a contract award document.

2. DRUG-FREE WORKPLACE AFFIDAVIT: W. Va. Code § 21-1D-5 provides that any solicitation for a public improvement contract requires each Vendor that submits a bid for the work to submit an affidavit that the Vendor has a written plan for a drug-free workplace policy. If the affidavit is not submitted with the bid submission, the Marshall University Office of Purchasing shall promptly request by telephone and electronic mail that the low bidder and second low bidder provide the affidavit within one business day of the request. Failure to submit the affidavit within one business day of receiving the request shall result in disqualification of the bid. To comply with this law, Vendor should complete the enclosed drug-free workplace affidavit and submit the same with its bid. Failure to submit the signed and notarized drugfree workplace affidavit or a similar affidavit that fully complies with the requirements of the applicable code, within one business day of being requested to do so shall result in disqualification of Vendor's bid. Pursuant to W. Va. Code § 21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

2.1. DRUG-FREE WORKPLACE POLICY: Pursuant to W. Va. Code § 21-1D-4, Vendor and its subcontractors must implement and maintain a written drug-free workplace policy that complies with said article. The awarding public authority shall cancel this contract if: (1) Vendor fails to implement and maintain a written drug-free workplace policy described in the preceding paragraph, (2) Vendor fails to provide information regarding implementation of its drug-free workplace policy at the request of the public authority; or (3) Vendor provides to the public authority false information regarding the contractor's drug-free workplace policy.

Pursuant to W. Va. Code §21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

3. DRUG FREE WORKPLACE REPORT: Pursuant to W. Va. Code § 21-1D-7b, no less than once per year, or upon completion of the project, every contractor shall provide a certified report to the public authority which let the contract. For contracts over $25,000, the public authority shall be the Marshall University Office of Purchasing. For contracts of $25,000 or less, the public authority shall be the Department issuing the contract. The report shall include:

(1) Information to show that the education and training service to the requirements of W. Va. Code § 21-1D-5 was provided;

(2) The name of the laboratory certified by the United States Department of Health and Human Services or its successor that performs the drug tests;

(3) The average number of employees in connection with the construction on the public improvement;

(4) Drug test results for the following categories including the number of positive tests and the number of negative tests: (A) Pre-employment and new hires; (B) Reasonable suspicion; (C) Post-accident; and (D) Random.

Vendor should utilize the attached Certified Drug Free Workplace Report Coversheet when submitting the report required hereunder. Pursuant to W. Va. Code §21-1D-2(b) and (k), this provision does not apply to public improvement contracts the value of which is $100,000 or less or temporary or emergency repairs.

4. AIA DOCUMENTS: All construction contracts that will be completed in conjunction with architectural services procured under Chapter 5G of the West Virginia Code will be governed by the attached AIA documents, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein.

4A. PROHIBITION AGAINST GENERAL CONDITIONS: Notwithstanding anything contained in the AIA Documents or the Supplementary Conditions, the State of West Virginia will not pay for general conditions, or winter conditions, or any other condition representing a delay in the contracts. The Vendor is expected to mitigate delay costs to the greatest extent possible and any costs associated with delays must be specifically and concretely identified. The state will not consider an average daily rate multiplied by the number of days extended to be an acceptable charge.

5. GREEN BUILDINGS MINIMUM ENERGY STANDARDS: In accordance with W. Va. Code § 22- 29-4, all new building construction projects of public agencies shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: Provided, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with the federal standards.

6. LOCAL LABOR MARKET HIRING REQUIREMENT: Pursuant to W.Va. Code §21-1C-1 et seq., Employers shall hire at least seventy-five percent of employees for public improvement construction projects from the local labor market, to be rounded off, with at least two employees from outside the local labor market permissible for each employer per project.

Any employer unable to employ the minimum number of employees from the local labor market shall inform the nearest office of Workforce West Virginia of the number of qualified employees needed and provide a job description of the positions to be filled.

If, within three business days following the placing of a job order, Workforce West Virginia is unable to refer any qualified job applicants to the employer or refers less qualified job applicants than the number requested, then Workforce West Virginia shall issue a waiver to the employer stating the unavailability of applicant and shall permit the employer to fill any positions covered by the waiver from outside the local labor market. The waiver shall be in writing and shall be issued within the prescribed three days. A waiver certificate shall be sent to both the employer for its permanent project records and to the public authority.

Any employer who violates this requirement is subject to a civil penalty of $250 per each employee less than the required threshold of seventy-five percent per day of violation after receipt of a notice of violation.

Any employer that continues to violate any provision of this article more than fourteen calendar days after receipt of a notice of violation is subject to a civil penalty of $500 per each employee less than the required threshold of seventy-five percent per day of violation.

The following terms used in this section have the meaning shown below.

(1) The term "construction project" means any construction, reconstruction, improvement, enlargement, painting, decorating or repair of any public improvement let to contract in an amount equal to or greater than $500,000. The term "construction project" does not include temporary or emergency repairs;

(2) The term "employee" means any person hired or permitted to perform hourly work for wages by a person, firm or corporation in the construction industry; The term "employee" does not include:(i) Bona fide employees of a public authority or individuals engaged in making temporary or emergency repairs;(ii) Bona fide independent contractors; or(iii) Salaried supervisory personnel necessary to assure efficient execution of the employee's work;

(3) The term "employer" means any person, firm or corporation employing one or more employees on any public improvement and includes all contractors and subcontractors;

(4) The term "local labor market" means every county in West Virginia and any county outside of West Virginia if any portion of that county is within fifty miles of the border of West Virginia;

(5) The term "public improvement" includes the construction of all buildings, roads, highways, bridges, streets, alleys, sewers, ditches, sewage disposal plants, waterworks, airports and all other structures that may be let to contract by a public authority, excluding improvements funded, in whole or in part, by federal funds.

7. DAVIS-BACON AND RELATED ACT WAGE RATES:

☑ The work performed under this contract is federally funded in whole, or in part. Pursuant to the Davis-Bacon Act, Vendors are required to pay applicable Davis-Bacon wage rates.

☐ The work performed under this contract is not subject to Davis-Bacon wage rates.

8. SUBCONTRACTOR LIST SUBMISSION: In accordance with W. Va. Code § 5-22-1, the apparent low bidder on a contract valued at more than $250,000.00 for the construction, alteration, decoration, painting or improvement of a new or existing building or structure shall submit a list of all subcontractors who will perform more than $25,000.00 of work on the project including labor and materials. (This section does not apply to any other construction projects, such as highway, mine reclamation, water or sewer projects.) The subcontractor list shall be provided to the Marshall University Office of Purchasing within one business day of the opening of bids for review. If the apparent low bidder fails to submit the subcontractor list, the Marshall University Office of Purchasing shall promptly request by telephone and electronic mail that the low bidder and second low bidder provide the subcontractor list within one business day of the request. Failure to submit the subcontractor list within one business day of receiving the request shall result in disqualification of the bid.

If no subcontractors who will perform more than $25,000.00 of work are to be used to complete the project, the apparent low bidder must make this clear on the subcontractor list, in the bid itself, or in response to the Marshall University Office of Purchasing's request for the subcontractor list.

a. Required Information. The subcontractor list must contain the following information:

i. Bidder's name

ii. Name of each subcontractor performing more than $25,000 of work on the project.

iii. The license number of each subcontractor, as required by W. Va. Code § 21-11- 1 et. seq.

iv. If applicable, a notation that no subcontractor will be used to perform more than $25,000.00 of work. (This item iv. is not required if the vendor makes this clear in the bid itself or in documentation following the request for the subcontractor list.)

b. Subcontractor List Submission Form: The subcontractor list may be submitted in any form, including the attached form, as long as the required information noted above is included. If any information is missing from the bidder's subcontractor list submission, it may be obtained from other documents such as bids, emails, letters, etc. that accompany the subcontractor list submission.

c. Substitution of Subcontractor. Written approval must be obtained from the State Spending Unit before any subcontractor substitution is permitted. Substitutions are not permitted unless:

i. The subcontractor listed in the original bid has filed for bankruptcy;

ii. The subcontractor in the original bid has been debarred or suspended; or

iii. The contractor certifies in writing that the subcontractor listed in the original bid fails, is unable, or refuses to perform his subcontract.

Subcontractor List Submission (Construction Contracts Only)

Bidder's Name: _____

☐ Check this box if no subcontractors will perform more than $25,000.00 of work to complete the project.

Subcontractor Name	License Number if Required by W. Va. Code § 30-42-14

Attach additional pages if necessary

Revised: 10/12/21

ADDITIONAL TERMS AND CONDITIONS
(Architectural and Engineering Contracts Only)

1. PLAN AND DRAWING DISTRIBUTION: All plans and drawings must be completed and available for distribution at least five business days prior to a scheduled pre-bid meeting for the construction or other work related to the plans and drawings.

2. PROJECT ADDENDA REQUIREMENTS: The Architect/Engineer and/or Agency shall be required to abide by the following schedule in issuing construction project addenda. The Architect/Engineer shall prepare any addendum materials for which it is responsible, and a list of all vendors that have obtained drawings and specifications for the project. The Architect/Engineer shall then send a copy of the addendum materials and the list of vendors to the State Agency for which the contract is issued to allow the Agency to make any necessary modifications. The addendum and list shall then be forwarded to the Marshall University Office of Purchasing buyer by the Agency. The Marshall University Office of Purchasing buyer shall send the addendum to all interested vendors and, if necessary, extend the bid opening date. Any addendum should be received by the Marshall University Office of Purchasing at least fourteen (14) days prior to the bid opening date.

3. PRE-BID MEETING RESPONSIBILITIES: The Architect/Engineer shall be available to attend any pre-bid meeting for the construction or other work resulting from the plans, drawings, or specifications prepared by the Architect/Engineer.

4. AIA DOCUMENTS: All construction contracts that will be completed in conjunction with architectural services procured under Chapter 5G of the West Virginia Code will be governed by the attached AIA documents, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein. The terms and conditions of this document shall prevail over anything contained in the AIA Documents or the Supplementary Conditions.

GREEN BUILDINGS MINIMUM ENERGY STANDARDS: In accordance with W. Va. Code § 22-29-4, all new building construction projects of public agencies that have not entered the schematic design phase prior to July 1, 2012, or any building construction project receiving state grant funds and appropriations, including public schools, that have not entered the schematic design phase prior to July1, 2012, shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: Provided, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to the Contract.

(Name, Title)

(Printed Name and Title)

(Address)

(Phone Number) (Fax Number)

(Email Address)

CERTIFICATION AND SIGNATURE: By signing below, I certify that I have reviewed this Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that the product or service proposed meets the mandatory requirements contained in the Contract for that product or service, unless otherwise stated herein; that the Vendor expressly accepts the terms and conditions contained in the Contract; **that Vendor understands and acknowledges that the terms and conditions contained in this contract take precedence over and any terms and conditions that Vendor seeks to be made a part of this contract (regardless of when the terms and conditions become effective) to the extent there is a conflict;** that I am authorized by the Vendor to execute and submit this Contract or any documents related thereto on Vendor's behalf; that I am authorized to bind the Vendor in a contractual relationship; and that to the best of my knowledge, the Vendor has/will properly register with the WV Purchasing Division and Marshall University.

(Company)

(Authorized Signature)

(Printed Name and Title of Authorized Representative)

(Date)

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: R2501527 (REBID)
(If Applicable) Marshall University
CF4 - Subterranean Testing Facility

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specifications, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

[ ] Addendum No. 1	[ ] Addendum No. 6
[ ] Addendum No. 2	[ ] Addendum No. 7
[ ] Addendum No. 3	[ ] Addendum No. 8
[ ] Addendum No. 4	[ ] Addendum No. 9
[ ] Addendum No. 5	[ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any University personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

_____
Company

_____
Authorized Signature

_____
Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

Revised: 7/15/21

REQUEST FOR QUOTE
Marshall University
CF4 - Subterranean Testing Facility
(items being sought for one-time purchase)

SPECIFICATIONS

1. **PURPOSE AND SCOPE:** The Marshall University Office of Purchasing is soliciting bids on behalf of the Marshall University Department of Civil Engineering to establish a contract for the one-time purchase of construction of a subterranean testing facility (CF4).

2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.

   2.1 "Contract Item" means completed subterranean testing facility as more fully described by these specifications.

   2.2 "Pricing Page" means the pages, contained in Bonfire, or attached as Exhibit A, upon which Vendor should list its proposed price for the Contract Items

   2.3 "Solicitation" means the official notice of an opportunity to supply the State with goods or services that is published by the Marshall University Office of Purchasing.

3. **GENERAL REQUIREMENTS:**

   3.1 Mandatory Contract Item Requirements: Contract Item must meet or exceed the mandatory requirements listed in the attached Exhibit A - MU CF4 Specifications document.

4. **CONTRACT AWARD:**

   4.1 Contract Award: The Contract is intended to provide the Department with a purchase price for the Contract Items. The Contract shall be awarded to the Vendor that provides the Contract Items meeting the required specifications for the lowest overall total cost as shown on the Pricing Pages.

   4.2 Pricing Page: Vendor should complete the Pricing Page by per line item delivered to Marshall University Vendor should complete the Pricing Page in full as failure to complete the Pricing Page in its entirety may result in Vendor's bid being disqualified.

   Vendor should type or electronically enter the information into the Pricing Page to prevent errors in the evaluation.

REQUEST FOR QUOTE
Marshall University
CF4 - Subterranean Testing Facility
(items being sought for one-time purchase)

5. PAYMENT:

5.1 Payment: Vendor shall accept payment in accordance with the payment procedures of Marshall University.

6. CONSTRUCTION:

6.1 Vendor shall construct the facility after being awarded this Contract and receiving a purchase order or notice to proceed.

6.2 Vendor shall begin construction within thirty (30) working days after receiving a purchase order or notice to proceed. Construction site located at:

Marshall University
MUSCRAT
UNIVERSITY HEIGHTS
1044 Norway Ave
Huntington, WV 25705

7. VENDOR DEFAULT:

7.1 The following shall be considered a vendor default under this Contract.

7.1.1 Failure to provide Contract Items in accordance with the requirements contained herein.

7.1.2 Failure to comply with other specifications and requirements contained herein.

7.1.3 Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.

7.1.4 Failure to remedy deficient performance upon request.

7.2 The following remedies shall be available to Department upon default.

7.2.1 Immediate cancellation of the Contract.

7.2.2 Immediate cancellation of one or more release orders issued under this Contract.

7.2.3 Any other remedies available in law or equity.

Exhibit A

MU CF4 Specifications

SPECIFICATIONS

Table of Contents

[THIS PAGE INTENTIONALLY LEFT BLANK.]

1.0 MOBILIZATION, DEMOBILIZATION AND CONSTRUCTION LAYOUT

1.1 DESCRIPTION

1.1.1 Mobilization and Demobilization

The work consists of the mobilization and demobilization of the contractor's forces and equipment necessary for performing the work required under the contract. It does not include mobilization and demobilization for specific items of work for which payment is provided elsewhere in the contract. Mobilization will not be considered as work in fulfilling the contract requirements for commencement of work.

Contractor shall mobilize to the site within 6 months of Notice to Proceed and shall be substantially complete and demobilized from the site within 12 months of Notice to Proceed.

1.1.2 Site Requirements

All power must be provided by Contractor.

The nearest water source is a hydrant located at 1035 Norway Ave in front of the CF1 tunnel site. The waterline is operated by WV American Water and the Contractor is responsible for arranging the water connection and paying all fees associated with the connection and water usage during construction. Contact: Henry R. Perkins, Engineering Project Manager, West Virginia American Water, 304-340-2986.

All construction will need to comply with the lease agreement and grant of easement with the Cabell County Board of Education, which does not include time of day restrictions. When school is in session, expect heavy traffic along the roadway from 7:00-8:00am and 2:30-3:30pm.

Construction will also need to comply with the Cabell County Noise Control Ordinance which can be found on the Cabell County Commission website.

1.1.3 Construction Layout

This work shall consist of furnishing all materials, equipment, labor, and incidentals necessary to perform this work. The work shall include, but not be limited to, the placing, replacing and maintaining of the construction layout stakes, primary control points, baseline stationing, and property location monuments. This item will also require determining the exact units of measure for payment and checking, and also making any field

adjustments to the plan grades and elevations and line lengths that may be necessary due to any variation in topography or compaction of the inconsistent materials encountered on the project.

Materials shall include all conventional survey stakes, flagging, drafting media, etc.

1.2 APPLICATION

1.2.1 Mobilization and Demobilization

Mobilization shall include all activities and associated costs for transportation of contractor's personnel, equipment, permits and operating supplies to the site; establishment of offices, buildings, and other necessary general facilities for the contractor's operations at the site; premiums paid for performance and payment bonds including coinsurance and reinsurance agreements as applicable; and other items as approved by the owner’s representative.

The Contractor shall obtain and comply with all required permits. A copy of the permits shall be provided to the OWNER.

Demobilization shall include all activities and costs for transportation of personnel, equipment, and supplies not required or included in the contract from the site; including the disassembly, removal, and site cleanup of offices, buildings, and other facilities assembled on the site specifically for this contract.

1.2.2 Construction Layout

The ENGINEER has established a benchmark (#10023) and control points (See Sheet C-01) on the drawings for the purpose of general layout of the work.

The CONTRACTOR shall complete the layout of the work and shall be responsible for all measurements that may be required for the execution of the work to the location and limit marks prescribed in the specifications or on the contract drawings, subject to such modifications as the ENGINEER may require to meet changed conditions or as a result of necessary modifications to the contract work.

The CONTRACTOR shall exercise care in preserving the original survey monuments and shall have the monuments reset, at no additional expense to the OWNER, when any are damaged, lost, displaced, or

removed. The CONTRACTOR shall use the primary control points for re-establishing the baseline stations, if applicable, wherever previously surveyed stations have been destroyed or removed. At a minimum, the CONTRACTOR shall confirm the location of existing baseline stations by field survey of each station's relationship to a suitable primary control point. Should any discrepancies be found, primary control points shall supersede any existing baseline stations.

The CONTRACTOR shall submit to the OWNER such a schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the OWNER may request concerning the work performed or to be performed under this contract.

The CONTRACTOR shall provide the OWNER existing ground line cross sections and notes for acceptance prior to any shaft activities and as-builts as soon as practical after the completion of construction. As-builts shall be provided to OWNER on clean black line set of drawings prior to issuance of final progress pay estimate. Station numbers, offset distances, elevations (where applicable), and types of the shaft, dates, responsible parties, and a legend shall be clearly illustrated.

All survey notes, calculations, cross sections, plans, or other documents produced pursuant hereto shall be certified as correct by the CONTRACTOR prior to submittal.

1.3 METHOD OF MEASUREMENT

The measurements for the units under this item are determined in the Estimated Quantities Table.

1.4 BASIS FOR PAYMENT

Payment for work performed under this item shall be paid per unit price of the bid items as listed in the Estimated Quantities Table. Payment shall be compensated for furnishing all the materials and performing all the work prescribed in an acceptable manner, including all labor, tools, equipment, supplies, and incidentals necessary to complete the work.

2.0 CLEARING AND GRUBBING

2.1 DESCRIPTION

Work under this item shall include all labor, material and equipment to perform all clearing and grubbing as shown on the plans and as specified herein.

2.2 MATERIAL

None.

2.3 CONSTRUCTION METHODS

In areas designated for surface improvements within the project area, all vegetation, trash, debris, stumps and other foreign matter shall be removed and disposed of by the CONTRACTOR in an area approved by the OWNER.

2.3.1 Clearing

The limits of clearing shown on the adopted plans shall be within the Limits of Disturbance (LOD). Disturbance beyond the LOD shall not occur without prior approval from the OWNER. The CONTRACTOR is not permitted to work outside of the Leased Boundary Line.

2.3.2 Grubbing

The limits of grubbing shall coincide with the LOD.

The CONTRACTOR shall remove all stumps, roots over four (4) inches in diameter, and matted roots within the LOD to the depths shown on the plans for the access road, pad and walk.

2.3.3 Disposal

Burning of materials on the site will not be permitted. The CONTRACTOR shall remove material from the site daily as it accumulates. Should the CONTRACTOR elect to continue work beyond normal working hours, material to be removed shall not be allowed to accumulate for more than 48 hours. Trees or shrubs not designated to remain shall be cut and removed. Material removed shall be disposed of at a site approved by the OWNER.

2.4 METHOD OF MEASUREMENT

The measurements for the units under this item are determined in the Estimated Quantities Table.

2.5 BASIS FOR PAYMENT

Payment for work performed under this item shall be paid per unit price of the bid items as listed in the Estimated Quantities Table. Payment shall be compensated for furnishing all the materials and performing all the work prescribed in an acceptable manner, including all labor, tools, equipment, supplies, and incidentals necessary to complete the work.

3.0 STONE SURFACING MATERIAL

3.1 DESCRIPTION

Under this item, the CONTRACTOR shall furnish, deliver, distribute and compact stone material as shown on the plans for the Access Road, Pad and Walk or as directed by the OWNER.

3.2 MATERIALS

Stone or aggregate for the Pad shall be of a grade that meets the West Virginia Department of Highways specifications for the various applications requiring crushed aggregate or stone surfacing materials. The minimum total thickness of five (5) inches is required.

Stone surfaced areas disturbed by construction operations and used for off-street parking and maintained by private residents shall be resurfaced with stone of the type and gradation of that removed from the area.

The separation fabric shall be Mirafi 600X geotextile fabric or equal.

3.3 INSTALLATION

A. The CONTRACTOR shall distribute the stone material evenly over the area to be covered and then compact the stone with a roller or hand tamper.

B. Thickness of the stone material on the Access Road, Pad and Walk shall be a minimum as shown on the drawings.

C. The separation fabric shall be placed between the stone and subgrade.

D. After the initial stone material is placed, any additional materials placed because of settlement shall be placed at the CONTRACTOR'S expense.

3.4 METHOD OF MEASUREMENT

The measurements for the units under this item are determined in the Estimated Quantities Table.

3.5 BASIS FOR PAYMENT

Payment for work performed under this item shall be paid per unit price of the bid items as listed in the Estimated Quantities Table. Payment shall be compensated for furnishing all the materials and performing all the work prescribed in an acceptable manner, including all labor, tools, equipment, supplies, and incidentals

necessary to complete the work.

4.0 STORM SEWER INSTALLATION

4.1 DESCRIPTION

This work shall consist of the construction of storm sewer pipe within the existing streambed in accordance with detail shown on Sheet C-06 and in reasonably close conformity with the lines, grades, dimensions, and locations shown on the plans.

4.2 METHOD OF MEASUREMENT

The measurements for the units under this item are determined in the Estimated Quantities Table.

4.3 BASIS FOR PAYMENT

Payment for work performed under this item shall be paid per unit price of the bid items as listed in the Estimated Quantities Table. Payment shall be compensated for furnishing all the materials and performing all the work prescribed in an acceptable manner, including all labor, tools, equipment, supplies, and incidentals necessary to complete the work.

5.0 SUBTERRANEAN RESEARCH FACILITY EXCAVATION

5.1 GENERAL

5.1.1 Summary

A. The Work, in general, consists of the following:

1. The intent of this project is to construct a simulated abandoned mine for research to test various field locating methodologies.

2. The subterranean research facility will consist of a mine shaft which includes an access portal.

3. The shaft will be 340 LF from access portal to end. The main shaft can be constructed via hand-mining or a bored excavation.

   a. Hand-Mining: The dimensions are 6’-0” high (minimum clearance) by 4’-8” wide (minimum clearance), supported with 8”x8” timber sets, as needed based on field conditions. The minimum clearance at the locations of the timber is 4’-8”.

   b. Bored Shaft: The minimum excavated dimension for a bored shaft is 6’-0” diameter. Once excavated, the casing shall be removed. As the casing is removed, shotcrete shall be applied to stabilize and support the shaft as necessary.

   c. An allowance line item of $200,000.00 is included for support of the shaft and the face of the entrance portal that may be required. This ALLOWANCE FOR SUPPORT will be used as a contingency budget to pay for the costs of timber sets for the hand-mined shaft or for the costs associated with shotcrete lining of the bored shaft. Rock bolts and other rock support can also be covered by this item. This item would be paid for as outlined in Section 5.5 of this specification.

4. The access portal on the shaft is anticipated to be excavated from the surface until full face rock is encountered. A culvert headwall / retaining wall shall be constructed to provide adequate stability to the shaft entrance and slope retainage to support the final grading. The Contractor shall be responsible for the design of the

headwall. The final dimensions can be adjusted as required, but the design shall conform to the requirements of the West Virginia Department of Transportation Division of Highways Standard Detail DR2 for Pipe Culvert Wingwalls. Additional rock stabilization may be required to stabilize the entrance portal face on both the exterior and interior. This would be paid for under the Allowance item discussed in 5.1.1.A.3.c and in 5.5 B.

5. A 7’ x 7’ wooden fence gate shall be installed to secure the opening to the shaft, per the detail on the plans.

6. Permanent support of excavation and final shaft support systems shall be non-metallic. Timber, lumber, cementitious grout, cementitious shotcrete, GRP/FRP rock bolts, etc. are all acceptable and can be left in place permanently. Metallic fasteners are acceptable.

B. Provide all labor, materials, and equipment necessary for the facility excavation.

C. Contractor shall provide all engineering for the design of initial / final support systems for the shaft.

1. Hand-mining: Timber sets consisting of 8” x 8” treated lumber shall be used as required to maintain a safe, supported shaft. Side lagging shall be utilized as needed to support the sidewalls from blocky rock falling into the excavated shaft. A minimum of 2’x2’ open, uncovered rock every 45 LF along the shaft shall be accommodated. These openings shall be provided on the floor, walls, and ceiling of the shaft. This work shall be covered by the timber set allowance item.

2. Bored shaft: Bored excavation shall utilize a steel casing pipe for the excavation stage, and shotcrete support for the final support. Shotcrete shall provide for a minimum of 2’x2’ open, uncovered rock every 45 LF along the shaft (7 minimum). These openings shall be provided on the bottom, sides, and top of the shaft. Partial circumferential coverage may be acceptable pending the contractor’s design and submittal verification.

3. As noted above, the ALLOWANCE FOR SHAFT AND PORTAL FACE SUPPORT will be used as a contingency

budget to pay for the support system utilized in the shaft as outlined in Section 5.5.

4. The tunnel support, including shotcrete and timber specification, shall be determined by the Contractor's tunnel design engineer.

D. No blasting is permitted. Accelerants are permitted to fracture rock with no limitations.

5.1.2 REFERENCES

A. Reference Standards:

1. OSHA, 29 CFR Part 1926, Safety and Health Regulations for Construction

2. National Fire Protection Association (NFPA)

a. NFPA 70, National Electrical Code (NEC)

b. NFPA 79, Electrical Standards for Industrial Machinery

5.1.3 SUBMITTALS

A. Submittals are required for all of the materials and equipment necessary for shaft excavation.

B. Submittals are required for all permanent mechanical components associated with the project (Fence gates, air ventilation piping and fasteners, etc.).

C. A copy of this Section, with any addendum updates included, and all referenced and applicable Sections, with each paragraph check-marked to indicate compliance or marked to indicate requested deviations.

D. Qualifications: Resumes of the following personnel demonstrating that the requirements of Paragraph 5.1.4.B. herein have been met:

1. Superintendent

2. Surveyor

3. Shaft Excavation Engineer

E. Excavation Work Plans as outlined in Paragraph 5.3.1.A of this Section.

F. Design Calculations, Drawings and Product Data: Prepare and submit detailed Shop Drawings, descriptions, data, specifications, schedules, calculations, and other pertinent information for all items to be incorporated into the Work.

G. Certifications that all materials, testing, and equipment used in the CONTRACTOR's work conform with the design requirements of the CONTRACTOR's working drawings, calculations, and Work Plan.

H. Submit the following shaft excavation system details:

1. The details of shaft and shaft lighting, ventilation systems (temporary), gas monitoring, shaft safety provisions, communications, emergency evacuation procedures, and electrical systems specified in OSHA regulatory requirements for safety. Provide details of air quality monitoring.

2. The survey methods and procedures proposed for alignment and grade control.

I. Reports and Records:

Prepare a General Shift Report of the shaft excavation work for each shift worked and provide the OWNER with one copy of the shift report on the following workday. The following information shall be included in these reports:

1. Time and location of shaft face(s) by station or shaft bench elevations at start and end of each work shift.

2. Method(s) of shaft excavation utilized, and their associated location limits.

3. Type, quantity, and location of initial support installed.

4. Initial support system measurements, including records of any observed deformation.

5. Survey records of shaft excavation including the offset from design line-and-grade, including corrective action for line and grade deviations.

6. Description of the ground, its behavior, shaft face mapping sketch, and notes regarding occurrences such as work stoppages, delays, and equipment malfunction, including the station or location and time of each occurrence.

7. Documentation of groundwater inflows encountered, and water control measures implemented.

8. Location of gas inflows, including recorded gas levels, and action undertaken, if any.

9. Location of grouting performed, volume of grout pumped, weight of dry cement used, and visually observed effectiveness of grout. Include linear feet of rock drilled for grouting purposes.

10. Location and length of test holes and location, length, and drilling angle of exploratory test holes.

11. Crew size and employee classification.

12. Downtime and causes of downtime.

J. Design Calculations and Procedures:

1. Prior to beginning of work, submit detailed procedures, including design calculations and working drawings for review by the ENGINEER, indicating proposed methods of excavation and support.

2. Proposed procedures shall provide for immediate and adequate support of rock and adjacent structures and other facilities.

K. Working Drawings:

Prepare and submit working drawings, product data sheets, technical specifications, schedules, and other pertinent information associated with the shaft construction. Information shall include, but not be limited to:

Temporary and permanent ventilation systems and equipment including capacities and exchange rates; site power and lighting system; drilling equipment for rock bolts and brow bolts; excavation equipment & muck handling; and all other related information required to completely describe the work.

L. Contingency Plans: Prepare written documents with supporting drawings containing procedures to address the potential conditions described in Paragraph 5.3.1.B of this Section.

5.1.4 QUALITY ASSURANCE

A. Safety:

1. The entire length of the shaft is classified as “Potentially Gassy.”

2. Comply with all applicable provisions of 29 CFR Part 1926, Subpart S, “Underground Construction” Standard Number 1926.800 by OSHA.

3. Perform all work in accordance with all current applicable regulations and codes of federal, state, and local agencies.

B. Qualifications:

1. Superintendent: Minimum of 10 years of shaft excavation construction experience.

2. Surveyor: Licensed Professional Land Surveyor registered in the State of West Virginia, with a minimum of 5 years of experience in underground construction.

3. Shaft Excavation Engineers: Minimum of 5 years of experience in underground construction, 3 years of experience in shaft construction. Responsible for identifying rock geologic conditions in the field. The Shaft Excavation Engineer shall classify the ground on a weekly basis at a minimum and issue any changes to the excavation sequence and Ground Support, if considered by the CONTRACTOR’s design, based on field observations. One Shaft Engineer is required to be on site weekly at a minimum, to ensure the construction follows the Excavation Work Plan, that adequate monitoring and survey controls are performed, and that contingency plans are implemented as needed.

4. Certify, through records of training and a written statement that CONTRACTOR’s crew are prepared

and equipped to apply or install all support measures required and/or as shown on CONTRACTOR's submittal drawings.

5.1.5 DELIVERY, STORAGE AND HANDLING

Have adequate supply of required materials ready for application at all times during excavation as follows:

A. Groundwater Controls: As determined necessary by the CONTRACTOR's Work Plan have sufficient face drains, drainage mats, pipes, hoses, pumps and other materials for installation and operation of water control available on site before commencing excavation.

B. Support of Excavation: As determined to be necessary by the CONTRACTOR's Work Plan, have sufficient materials to support the excavation as the work progresses. The contractor shall have the support installation equipment and enough material on hand to install shaft support within a minimum of 10% of the shaft (either shotcrete 34 LF of bored shaft or timber sets at 4' spacing for 34 LF). The intent is to avoid any potential delays in the event the supports are required based on the actual conditions encountered.

5.1.6 PROJECT/SITE CONDITIONS

A. Geological and hydro-geological conditions are presented in the Geotechnical Report, where the boring logs, laboratory testing results, and geotechnical data are presented.

B. Hazardous Gas:

1. Classification: Shafts are classified as "Potentially Gassy."

2. Assume sole responsibility for development and implementation of measures to control gas emissions and for proposing alternative or more stringent means, if necessary, to accomplish the objectives of these provisions.

5.2 PRODUCTS

5.2.1 MATERIALS

A. Structural Supports: Final Support of Excavation systems shall be non-metallic. Treated lumber, timber sets, shotcrete, grout, GRP/FRP rock bolts, etc. are all acceptable structural support components. Metallic fasteners are acceptable.

B. Pre-excavation Grouting: Can be used as desired by the Contractor.

5.2.2 MANUFACTURED UNITS

A. Permanent air ventilation piping: Provide 340 LF of 12” non-metallic (polyester or PVC) ventilation piping, to be installed within the shaft with non-metallic fasteners where indicated on Sheet T-02. Contractor to submit material to Engineer for approval.

5.2.3 EQUIPMENT (*USED DURING CONSTRUCTION*)

A. All equipment necessary to execute the CONTRACTOR’s Work Plan. At a minimum, the following criteria shall be used for support system design and equipment selection:

1. Electrical and Lighting Systems:

a. Primary lighting system for the entire length of the shaft to be NEC Class I, Division 2 standard.

b. Emergency lighting system for the entire length of the shaft to be NEC Class I, Division 1 standard.

c. Additional lighting in shaft shall be sufficient for inspection of construction operations by the OWNER.

d. Flashlights and Cap Lights: Meeting OSHA permissible requirements.

e. Ventilation, air quality monitoring and alarm systems: Rated for use in NEC Class 1 Division 1 hazardous locations.

f. All other equipment: Rated for use in NEC Class 1 Division 2 hazardous locations.

2. Ventilation System (for use during mining):

a. Meet all 29 CFR 1926 regulatory requirements, and in accordance with NEC standards for Class I, Division 1 areas.

b. Fully reversible with ability to meet all performance and air quality criteria in exhaust or intake mode.

c. Make main ventilation duct of non-combustible materials.

d. Locate exhaust stacks of the ventilation system to prevent recirculation of exhaust air into the air intake shaft or shaft excavation.

e. Design:

(1) Unless otherwise indicated, meet or exceed minimum requirements of OSHA 29 CFR 1926.

(2) Design and equip the ventilation system with silencers as needed to meet local noise standards with maximum necessary air flows.

f. Ensure power to the primary ventilation system is not interrupted in the event of a gas detection system alarm. Use primary ventilation and booster fans for shaft ventilation and related electrical equipment and cables located within the shaft excavations approved for use in gassy locations.

3. An air quality monitoring and alarm system to monitor gas concentrations including but not limited to, carbon monoxide, nitrogen oxides, hydrogen sulfide, oxygen, methane and airborne particulate concentrations at each excavation.

a. Place sensors at locations that provide the most effective measurement of combustible and toxic gases. Do not place sensors within a fresh air stream.

5.3 EXECUTION

5.3.1 PREPARATION

A. Excavation Work Plan:

Submit the work plan for the excavation to the OWNER a minimum of 15 days before the start of the work. Work plan to include:

1. Statement of anticipated rock conditions.

2. Initial and final support designs. Note that the payment for shaft support will be monitored and paid for under the ALLOWANCE FOR SHAFT SUPPORT budget, as outlined in Section 5.5.

3. A tunnel portal stabilization plan that discusses how thin rock at the top of the portal will be permanently stabilized, if necessary. If necessary, this stabilization work will be paid for under the ALLOWANCE for SHAFT SUPPORT budget, as outlined in Section 5.5.

4. Review and actions levels for convergence monitoring.

5. Construction schedule, groundwater management, excavation, initial support system, installation of any needed final support system improvements, and culvert headwall.

6. Proposed materials, facilities, and equipment to be used including clearances of the equipment for the excavation sizes proposed.

7. Details of temporary ventilation and air quality monitoring.

8. Details of final ventilation system.

9. Key excavation plan including proposed excavation and support sequence, including:

    A. Sequence and timing of pre-support installation, top heading and bench/invert (if any) excavation, max lengths, and anticipated advance rates.

    B. Methods of construction including support of excavation installation details, and all pre-support and ground support elements.

    C. Pre-Excavation grouting plan, if used.

    D. Methods of controlling groundwater inflows.

10. Information for the equipment proposed by the CONTRACTOR, including but not limited to:

    A. Excavation equipment for all excavations including make and model numbers, manufacturer's literature, and maintenance record.

    B. Shotcrete batching plants, pumps, and associated delivery equipment (where used to stabilize rock face).

    C. Drilling equipment.

    D. Face and wall drain equipment.

    E. Grouting equipment, if used.

    F. Air quality monitoring and alarm system.

11. Plans detailing in-shaft water control measures to be used including drain pipes, drainage mats, temporary sumps, construction drains, pumps, procedures to be followed, and standby power supply.

12. Product data for all Ground Support elements including, but not limited to, rock bolts, treated timbering components, shotcrete, pre-support and face support elements that will be incorporated into the work.

13. Instrument installation and/or observation plan to monitor for shaft deformations and support damage during the excavation.

B. Contingency Plan:

1. Submit the Contingency Plan with the Excavation Work Plan. Contingency plan to include:

    a. Unanticipated face instability.

    b. Unanticipated groundwater inflows exceeding normal anticipated flows.

    c. Actions for in the event shaft deformations or support damage occurs.

2. Include steps used to assess conditions that require additional measures not described herein.

3. Address modifications in the proposed excavation sequences and support requirements, that would be needed to address each of the unanticipated conditions.

4. Include in each Contingency Plan:

   a. Name and qualification of personnel responsible for implementing contingency procedures.

   b. Surveillance during stoppages such as weekends and holidays as well as directed stoppages.

   c. Measures required to be put in place prior to the re-start of excavation.

5.3.2 APPLICATION

A. General:

1. Methods of excavation shall be in accordance with standard practice for the equipment selected with additional requirements specified herein.

2. Excavate shaft and support of surrounding rock in such a manner as to minimize disturbance or movement of rock beyond the intended excavation limits. Take all necessary precautions to prevent damage, injury or loss to existing properties, utilities, and structures.

3. Provide support types for ground as described in the Contractor's approved Work Plan.

4. Blasting shall not be used on this project.

B. Excavation and Support:

1. Assess all ground and groundwater conditions, ground movement, and support system deflection during the construction. Immediately install remedial support when movements may lead to instability of the excavation.

2. Use equipment and methods that do not damage previously placed shaft supports.

3. Supports:

   a. Installation: Conform to approved Shop Drawings.

   b. Inspection: Check supports in previously excavated sections for continuous structural integrity, but not less frequently than every 48 hours. Document observations and clearly indicate the absence of signs of distress such as drummy shotcretes, spalling, cracks, new rocks in the invert, dished face plates, or if distress is observed or suspected, document conditions and immediately report same to supervision.

   c. Maintenance: Re-tighten and re-block supports as necessary.

4. Follow the excavation and support sequence and maximum lengths for shaft as designed. At a minimum, the Work Plan shall include the following steps in the excavation and support sequence:

   1. Evaluate the ground conditions encountered and confirm that the appropriate Ground Support is installed.

   2. Continuously review conditions encountered as the shaft excavation is advanced. CONTRACTOR to ensure shaft support is installed per CONTRACTOR's design, and monitoring instruments are functioning and reporting accurate measurements.

   3. The OWNER may suspend excavation and associated activities at any location where observations indicate excessive ground movement or distress in initial support.

5. If the Shaft Engineer observes field conditions different than design assumptions, the OWNER shall be consulted. No adjustments to the approved Work Plan shall be made without written authorization from the ENGINEER.

6. In case of emergency or work stoppage likely to endanger excavation stability or adjacent structures, continuously maintain full work force 24 hours per day including weekends and holidays until emergency or hazardous conditions no longer jeopardize stability of the excavation.

C. Test Hole Drilling:

1. The CONTRACTOR may use Test Hole drilling ahead of the excavation face that are intended to confirm the predicted geological conditions and to detect groundwater.

D. In-Shaft Water Control:

1. Drain and/or pump out of the shaft all infiltrating groundwater during construction. It is intended that all groundwater flows can drain out of the shafts by gravity. Perched groundwater may present short term increases in flow.

2. Remove groundwater and construction water from the operation as quickly as possible.

3. Collect water seepage and drain away by means of drain hoses or other approved means. Install and maintain at all times drainage systems to divert all inflow of water out of the excavated shaft and provide adequate runoff pollution prevention controls to eliminate excessive erosion or siltation on the site.

E. Associated Operations:

1. Emergency Measures: Continuous 24-hour operations, seven days a week shall be performed when the stability of the excavation or adjacent structures are in danger.

F. Utilities:

1. Arrange for and provide all utilities necessary to perform the work required in this Section.

5.3.3 CONSTRUCTION

A. General:

1. Perform work in accordance with the approved Work Plan.

2. Excavate to the lines and grades shown on the Drawings.

B. Re-Installation:

Immediately replace any damaged rock support element by installing a like element as close to the location of the damaged element as practical.

5.4 METHOD OF MEASUREMENT

The measurements for the units under this item are determined in the Estimated Quantities Table.

5.5 BASIS FOR PAYMENT

A. Payment for work performed under this specification shall be based on units as established in the Estimated Quantities Table.

B. The ALLOWANCE FOR SHAFT SUPPORT will be used as a contingency budget to pay for the required shaft and portal face support system(s). It is generally anticipated that the rock being mined is strong enough to stand up on its own, but it is recognized that support may be required in portions of the shaft or at the entrance portal.

The ALLOWANCE item shall be monitored and paid for as follows:

1. The Contractor is required to submit an Excavation Work Plan and Contingency Plan. This will outline the support system being utilized.

2. A detailed equipment, material, and labor cost breakdown associated with the installation of the support system shall be submitted along with the Excavation Work Plan. The approved cost breakdown shall be used as a basis for monitoring the support system installation work actually required and the payment for it.

   a. Labor: The Contractor shall supply the wage rates that apply for the project and for the support system installation work. The OWNER will pay a 15% mark-up for overhead and profit on labor.

   b. Materials: Material costs shall be based upon actual invoice costs, including applicable taxes and freight charges for Engineer-approved materials. The OWNER

will pay a 15% mark-up for overhead and profit on materials.

c. Equipment: Payment for required support system installation shall be based on established rates given in Equipment Watch Cost Recovery (formerly Rental Rate Blue Book) for equipment in actual operation and ½ that rate for equipment that is idle. Equipment or tools that cost less than $500 will not be reimbursed. The schedule for equipment must be approved prior to any reimbursement. Actual invoices may be used for rental equipment. The OWNER will pay a 5% mark-up for overhead and profit on rental equipment.

d. The OWNER will pay a 5% mark-up for administrative costs associated with work performed by an approved subcontractor.

3. The Contractor is required to have the installation equipment and enough material on hand to provide support for at least 10% of the shaft. The Contractor will be paid for having the installation equipment on site and for the support materials required for up to 10% of the shaft. Labor will be tracked on an hourly basis for actual installation work.

4. The equipment operation, material, and labor work required above the initial 10% will be tracked by the OWNER and paid for based on the approved equipment rates, material invoices, and labor rates.

Attachment A

REPORT OF GEOTECHNICAL EXPLORATION

MARSHALL CF4 TUNNEL DESIGN
HUNTINGTON, CABELL COUNTY, WEST VIRGINIA

TRIAD PROJECT NO. 04-23-0374

PREPARED FOR:

MARSHALL UNIVERSITY
COLLEGE OF ENGINEERING AND COMPUTER SCIENCE
ONE JOHN MARSHALL DRIVE, WAEC 2301
HUNTINGTON, WEST VIRGINIA 25755

PREPARED BY:

TRIAD ENGINEERING, INC.

10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WEST VIRGINIA 25560
WWW.TRIADENG.COM

AUGUST 8, 2024

August 8, 2024

Ms. Brie Salmons
Marshall University College of Engineering and Computer Sciences
One John Marshall Drive, WAEC 2301
Huntington, WV 25755

RE: Report of Geotechnical Exploration
Marshall CF4 Tunnel Design
Huntington, WV
Triad Project No. 04-23-0374

Dear Ms. Salmons:

Authorization to proceed with this project was provided by receipt of Subconsultant Agreement dated September 7, 2023 between DLZ, Ohio, Inc. (DLZ) and Triad Engineering, Inc. (Triad), with an updated cost estimate submittal February 2, 2024. The subsurface exploration was performed to evaluate the subsurface conditions encountered near the proposed testing facility for the limited purposes of preparing a geotechnical data report to be used for design of the project. It is emphasized that subsurface conditions may vary between borings, and Triad makes no representations as to subsurface conditions other than those encountered at the specific test boring locations.

This report has been prepared for the exclusive use of Marshall University College of Engineering and Computer Sciences and DLZ for specific application to the evaluation of the Marshall CF4 Tunnel in Huntington, West Virginia. Triad's responsibilities and liabilities are limited to our client and apply only to their use of our report for the purposes described above. To observe compliance with design concepts and specifications, and to facilitate design changes if subsurface conditions differ from those anticipated prior to construction, it is recommended that Triad be retained to provide continuous engineering and testing services during the earthwork and foundation construction phases of the work.

We appreciate the opportunity to assist you on this project and trust this report satisfies your needs currently. Please feel free to contact us if you have questions concerning this report, or if we can provide further assistance.

Sincerely,

TRIAD ENGINEERING, INC.

Kelley Cusick
Staff Geologist

David W. Hooper, P.E.
Principal Engineer

DAVID W. HOOPER
REGISTERED
13515
STATE
OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

Report of Geotechnical Exploration
Marshall CF4 Tunnel Design
Huntington, Cabell County, WV

TABLE OF CONTENTS

APPENDICES

Report of Geotechnical Exploration
Marshall CF4 Tunnel Design
Huntington, Cabell County, WV

SITE AND PROJECT DESCRIPTION

It is our understanding that the US Army Corps of Engineers Engineering Research and Development Center (ERDC) has sponsored research in the area of subterranean mapping and detection of illicit tunnels. The objective is to deploy recently developed and to further develop additional geophysical technologies to be used in identifying, navigating, and mapping subterranean features in an urban environment. Tunnel CF4 is proposed to be constructed into the side of a slope near the intersection of Norway Avenue and Cabell County Vocational Center Road in Huntington, Cabell County, West Virginia. The approximate site location is illustrated on Figure A-1 in Appendix A.

It is our understanding that the structure will consist of two tunnels that will meet in the middle. The dimensions of the larger tunnel will be approximately 6 feet in diameter and 323 feet in length, while the dimensions of the smaller will be 3 feet in diameter and 340 feet in length.

Triad was contracted to perform the geotechnical exploration and testing and is assisting DLZ for the tunnel design, and development of construction drawings. The conceptual layout of the tunnel location and conceptual elevation view of the proposed tunnel can be seen in Figures A-2 included in Appendix A.

GEOLOGY

Surficial Geology

According to the *Geologic Map of West Virginia,* published in 1968 by the West Virginia Geological and Economic Survey (WVGES), the subject site is mapped within the boundaries of a Quaternary alluvium deposit. Alluvium is generally described as detrital deposits made by streams on riverbeds and floodplains. These deposits typically consist of unconsolidated and stratified clay, silt, sand, gravel, cobbles, and boulders.

Bedrock Geology

Although the bedrock unit underlying the site is concealed by alluvium on available geologic maps, we have inferred from coal bed elevations and the abovementioned geological map that the alluvium is likely underlain by the Conemaugh Group of the of the Pennsylvanian Subperiod. The Conemaugh Group consists of non-marine, cyclic sequences of red and gray shale, siltstone, and sandstone with thin limestones and

coals. It extends from the base of the Pittsburgh coal to the top of the Upper Freeport coal, both of which are economically important and heavily mined coal beds. The unit includes the Elk Lick, Harlem, Bakerstown, and Mahoning coals, as well as the Ames Limestone.

Coal Resources

We researched available mine maps provided by the WVGES to ascertain what minable coal beds are present below the site and to determine if past surface or underground mining operations have been conducted. In performing this evaluation, we could not identify any documented surface or underground mining at or beneath the project site.

It should be noted that the WVGES mine mapping database may be incomplete due to the limited number of years requiring permitting and mapping. As such, the lack of identified mines at the subject site does not constitute a guarantee of a mine free area.

SUBSURFACE EXPLORATION

Seven (7) test borings were drilled at the approximate location of the proposed tunnel between May 21 and June 26, 2024. The boring locations were determined by DLZ while on-site. Surface elevations of the borings were surveyed after completion of the borings. Figure A-2 in Appendix A depicts the locations of the test borings drilled for the project.

A representative of Triad was present full time during the drilling to direct the drilling crew, log all recovered soil samples, and observe groundwater and rock conditions. Triad transported the recovered soil samples to our laboratory for further testing. Detailed descriptions of materials encountered in the test borings are documented on the boring logs in Appendix B. Figures B-1 and B-2 in Appendix B describe the classification system and terminology utilized.

SUBSURFACE CONDITIONS

Detailed information and descriptions of the materials, as well as encountered groundwater levels, are contained on the boring logs in Appendix B. Boring log keys are provided as Figures B-1 and B-2 in Appendix B. The test boring logs were developed by visually classifying the samples obtained during the exploration and performing laboratory classification testing of select samples. The various substrata revealed by the borings are briefly described below.

Topsoil: Topsoil was encountered in all borings except B-5 and ranged from 0.2 to 0.7 feet thick.

Fill: Fill was encountered in boring B-5 at the surface to a depth of approximately 2.5 feet below existing grade. The fill consisted of a heterogeneous mixture of clay and sand. Standard Penetration Test (SPT) N-values obtained within the fill was 6 blows per foot, which indicates a medium stiff relative density, while the pocket penetrometer value indicated the fill was soft to medium stiff.

Alluvium: Alluvium was encountered beneath the topsoil in borings B-2, B-3, B-4, B-6, and B-7 extending to depths of 2.5 to 7.5 feet below existing grades. The alluvium consisted of clay, or clay with lesser amounts of sand, or clay with lesser amounts of sand and gravel, or sand with lesser amounts of clay. The Standard Penetration Test (SPT) N-value obtained within the sandy alluvium was 10 blows per foot (bpf), which indicates a loose relative density. Pocket penetrometer values obtained within the clayey alluvium indicate a medium stiff to stiff consistency.

Residuum: Residual soils were encountered at all borings underlying the topsoil (B-1), fill (B-5), or alluvium (B-2, B-3, B-4, B5, B-6). The residual soils consisted of clay with lesser amounts of gravel or clay with lesser amounts of sand and gravel that extended to depths of approximately 6 to 21 feet below the ground surface, at which point weathered shale (B-1, B-2, B-6, B-7) or weathered claystone (B-3, B-4, B-5) was encountered. Sampler refusal was encountered in each boring at depths between 7.8 and 31.3 feet below existing grades.

Bedrock: Once sampler refusal was attained, borings B-2, B-3, B-4, B-5, and B-7 were advanced to a termination depth of 20.2 to 82.5 feet below existing grade utilizing rock coring techniques. The bottom elevation of each cored boring ranged from 559.4 to 581.5 feet, which corresponds to a depth of about 10 feet below the proposed bottom of tunnel grade.

The bedrock encountered below the residuum consisted of interbedded strata of shale, siltstone, sandstone, and claystone. Core recoveries ranged from 84 to 100 percent, and Rock Quality Designation (RQD) ranged from 0 to 100 percent. Unconfined compressive strength tests were performed on 28 samples of rock core recovered from borings B-2, B-3, B-4, B-5, and B-7.

Groundwater: Groundwater levels were measured both during and after drilling operations. Groundwater levels are documented on the boring logs in Appendix B. Water was encountered in borings B-1 and B-7 at depths of 15.0 and 7.5 feet, respectively; water was not encountered during drilling of borings B-2, B-3, B-4, B-5 or B-6. Water was present at depths ranging from 4.6 to 7.6 feet below existing grade immediately upon completion of drilling of B-2, B-3, B-4, B-5, and B-7, while borings B-1 and B-6 were dry. The table below summarizes the water level readings in each boring.

GROUNDWATER INFORMATION			
Boring	**Water Depth First Noted (feet)**	**Water Depth at Completion (feet)**	**Water Depth at 24 Hours (feet)**
B-1	15.0	Dry	*
B-2	n/a	7.6	*
B-3	n/a	6.1	7.1
B-4	n/a	6.8	9.3
B-5	n/a	5.7	8.4
B-6	n/a	Dry	*
B-7	7.5	4.6	*

*Borehole Backfilled

It is noted that the introduction of water was necessary for the coring of bedrock. It is emphasized that fluctuations in true groundwater levels can occur due to variations in seasonal and climatic conditions that were not evident at the time measurements were taken and recorded.

LABORATORY TESTING

Laboratory tests were performed on selected soil and rock samples to aid in classification and provide a basis for estimating their engineering properties. The laboratory tests were performed in general accordance with ASTM standard test methods. Individual test results are shown on the test boring logs in Appendix B, and detailed results are contained in Appendix C. The results are summarized in the following table:

TEST TYPE	TEST RESULTS
Moisture Content	5.13 to 26.27%
Atterberg Limits	Liquid Limit: 27 - 40 Plasticity Index: 7 – 17
Percent Passing No. 200 Sieve	53% - 97%
USCS Classification	CL and CL-ML
Unconfined Compressive Strength of Rock (psi)	Sandstone: 4306 – 9943 Claystone: 244 – 2794 Siltstone: 3729 – 7288 Shale: 5700 Limestone: 6347

LIMITATIONS

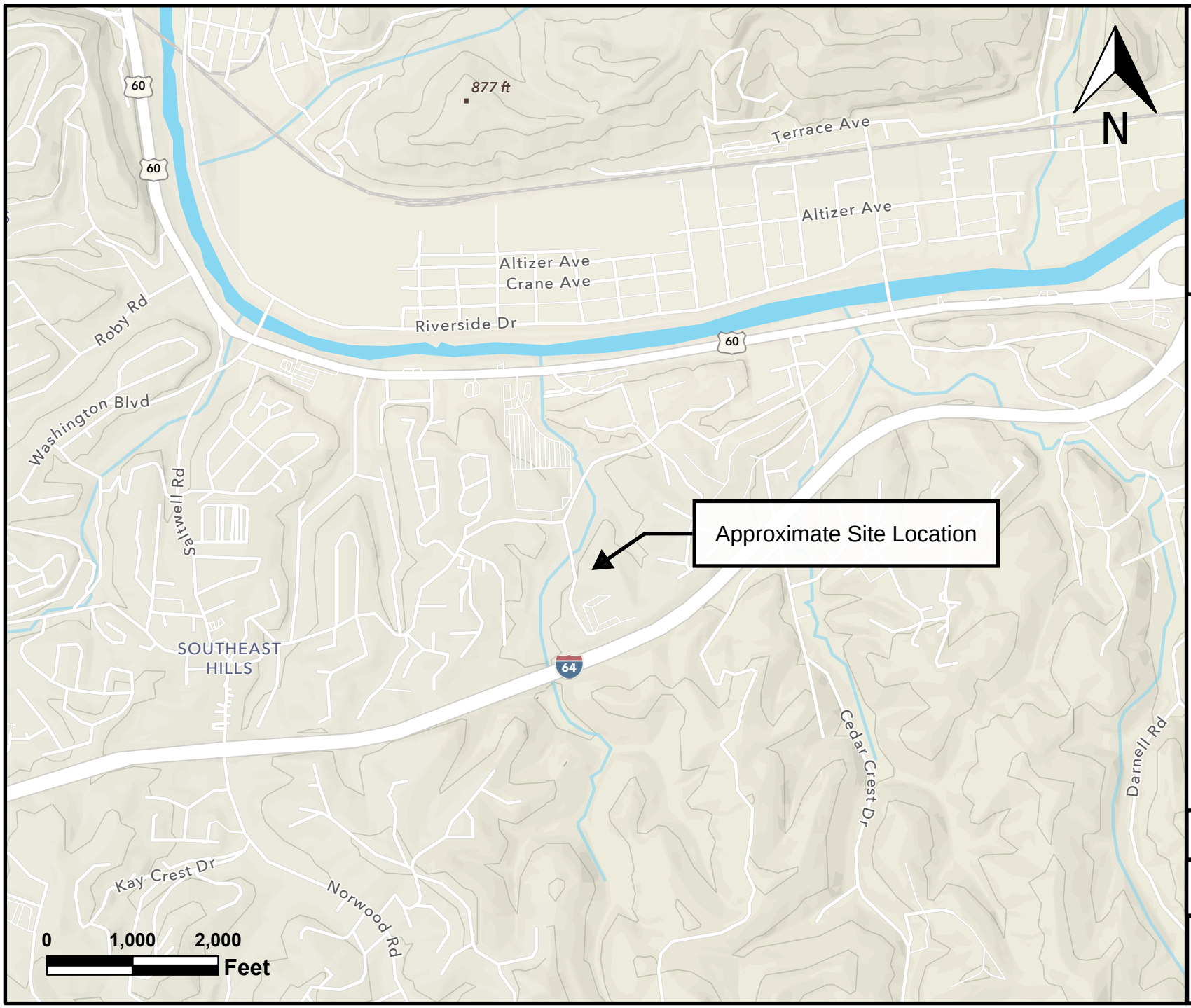
This report has been prepared for the exclusive use of Marshall University College of Engineering and Computer Sciences and DLZ Ohio, Inc. for specific application to the Marshall CF4 Tunnel Design in Huntington, Cabell County, West Virginia. Triad's responsibilities and liabilities are limited to our client and apply only to their use of our report for the purposes described above.

It is emphasized that encountered conditions may vary dramatically across different areas of the site, and Triad makes no representations as to subsurface conditions other than those encountered at the specific testing locations.

TRIAD ENGINEERING, INC.

APPENDIX A

Figures



TRIAD ENGINEERING, INC.
www.triadeng.com

GENERAL SITE VICINITY
Marshall CF4 Tunnel Design
Cabell County, West Virginia
Outdoor Map (ESRI)

PREPARED BY:	CHECKED BY:
MAR	DWH

PROJECT NUMBER:
04-23-0374

FIGURE
A-1

B-4
652.75

B-3
629.75

B-2
605.06

B-1
565.92

B-5
651.98

B-6
612.18

B-7
601.70

72" SHAFT

36" SHAFT

SANITARY MANHOLE
RIM ELEV: 573.28
INV.: ELEV:

ENERGY DISSIPATER
D_{50}=12" CLEAN/WASHED
STONE

72" SHAFT
DRILL PAD
(SEE SHT. C-03 FOR
ENLARGEMENT)

(3) 36" CULVERTS
& STREAM

SANITARY MANHOLE
RIM ELEV: 568.99
INV.: ELEV:

LIMITS OF
DISTURBANCE
.66 AC

GRAVEL ACCESS

72" C.M.P.
INV. ELEV. 563.06

VOCATIONAL CENTER RD.

LIMITS OF
DISTURBANCE
.10 AC

TEMPORARY 6"
CULVERT PIPE AS NEEDED

36" SHAFT
DRILL PAD
(SEE SHT. C-03 FOR
ENLARGEMENT)

SANITARY MANHOLE
RIM ELEV: 574.70
INV. ELEV:

ROADWAY TO BE
INSPECTED/
SURVEYED /
PHOTOGRAPHED
PRIOR TO
CONSTRUCTION.

ROADWAY TO BE
INSPECTED/
SURVEYED /
PHOTOGRAPHED
PRIOR TO
CONSTRUCTION.

72" C.M.P.
INV. ELEV. 563.14

LIMITS OF
DISTURBANCE
.02 AC.

NORWAY
AVE.

CHAIN LINK FENCE
TO BE REMOVED AND
REINSTALLED AFTER
CONSTRUCTION.

LAYDOWN AREA
(ADD GRAVEL AS NEEDED)

OVERALL SITE PLAN

30 15 0 30 60

DRAWING SCALE: 1"=30'

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PH: 304.755.0721 FAX: 304.755.1880
OFFICE LOCATIONS
MARYLAND ◇ PENNSYLVANIA ◇ VIRGINIA ◇ WEST VIRGINIA ◇ OHIO

REV. #	DATE	DESCRIPTION	BY

CADD FILE: 23-0374 DESIGN.dwg
DRAWN BY: jhy
CHECKED BY: dm
DATE: 8/8/2024
SCALE: 1" = 30'

JAMES R. CRUM II
REGISTERED
2418
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

MARSHALL CF4
CABELL, WV

OVERALL SITE PLAN

TRIAD ENGINEERING, INC.
www.triadeng.com

SHEET NUMBER:
A-2

PROJECT No.: 04-23-0374

Plotted by: jyoung
J:\dw_ra_04\2023_3_ 04-23-0374 cf3 tunnel design\civil\triad\23-0374 design.dwg

TRIAD ENGINEERING, INC.

Water Level First Noted

Water Level Upon Completion

Water Level 24 Hours

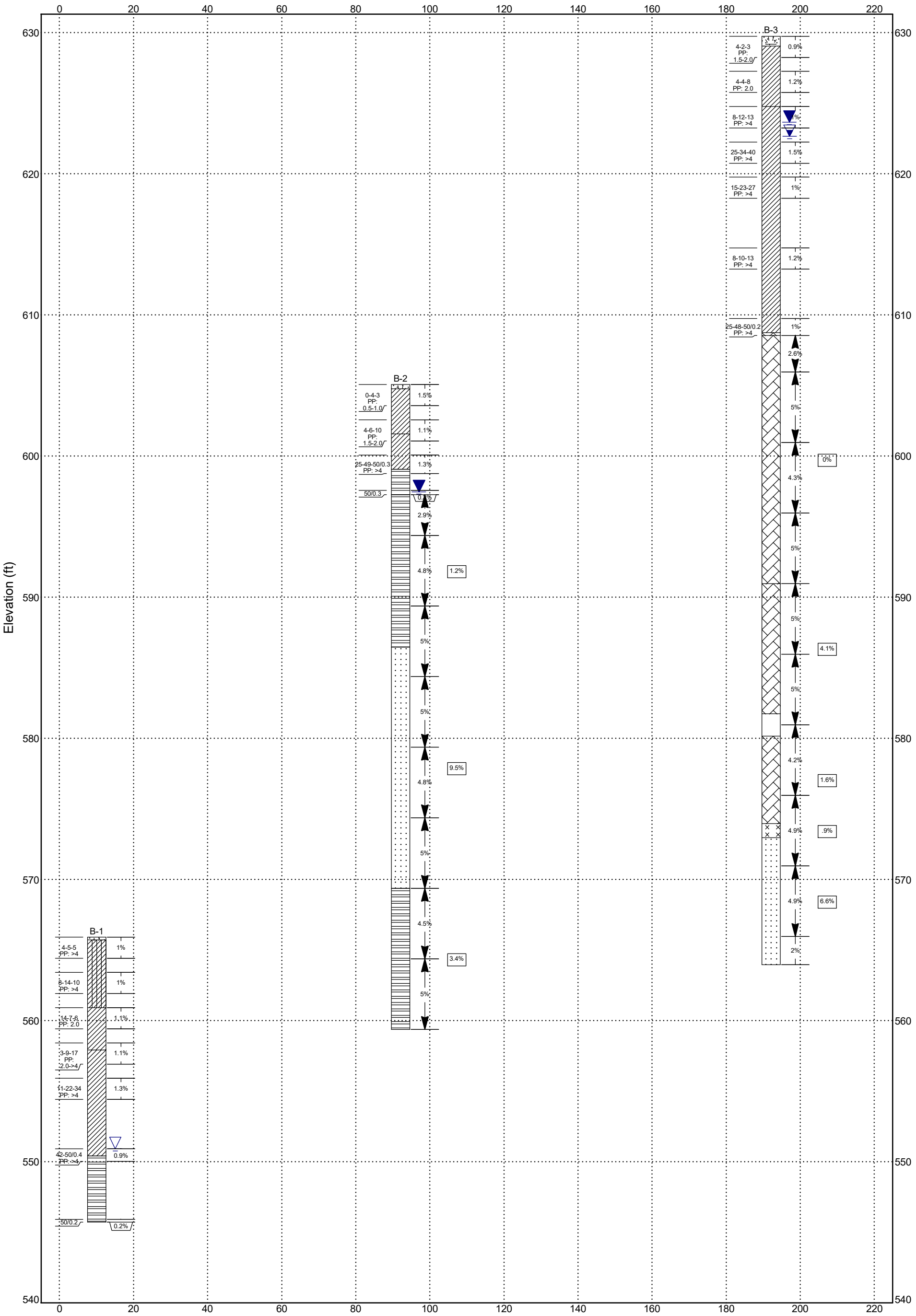
SUBSURFACE DIAGRAM
Figure A-3: B-1, B-2, B-3 Stick Diagrams

CLIENT Marshall University College of Engineering and Computer Science

PROJECT NUMBER 04-23-0374

PROJECT NAME Marshall CF4 Tunnel Design

PROJECT LOCATION Huntington, Cabell County, West Virginia



Note: Lines between borings are generalized approximations

TRIAD ENGINEERING, INC.

Water Level First Noted

Water Level Upon Completion

Water Level 24 Hours

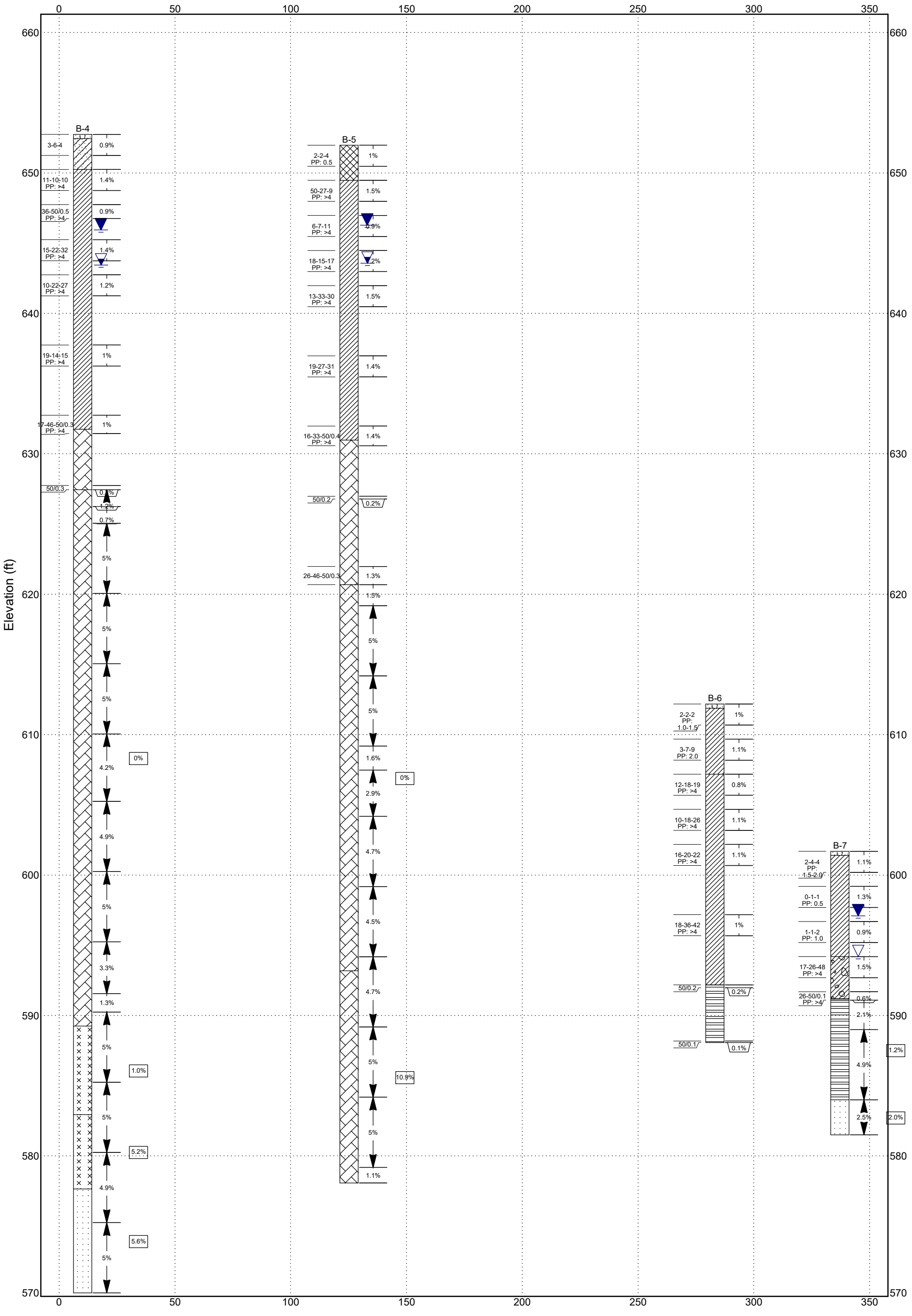
SUBSURFACE DIAGRAM
Figure A-4: B-4, B-5, B-6, B-7 Stick Diagrams

CLIENT Marshall University College of Engineering and Computer Science

PROJECT NUMBER 04-23-0374

PROJECT NAME Marshall CF4 Tunnel Design

PROJECT LOCATION Huntington, Cabell County, West Virginia



Note: Lines between borings are generalized approximations

TRIAD ENGINEERING, INC.

APPENDIX B

Field Exploration

KEY TO IDENTIFICATION OF SOIL AND WEATHERED BEDROCK SAMPLES

Descriptor Sequence	
1	Color
2	Primary Component
3	Fractions
4	Moisture
5	Descriptors
6	Plasticity
7	Consistency/ Relative Density
8	Deposition Type

1. Color	
Gray	Tan
Brown	Black
Orange	Red
Green	Yellow
Purple	Blue
Modifiers	
Light	Lighter side of color range
Dark	Darker side of color range
Mottled	Irregularly marked with spots of different colors
Banded	Alternating shades or colors

2. Primary Component	
Component	Grain Size (USCS)
Boulders	≥ 12 inches
Cobbles	3 to 12 inches
Gravel	#4 to 3 inches
Sand	#200 to #4
Silt/Clay	≤ #200

3. Fractions	
And	≥ 35%
Some	20 to 35%
Little	10 to 20%
Trace	< 10%

4. Moisture	
Dry	Dry to touch
Damp	Slightly moist
Moist	No visible free water
Wet	Visible free water

5. Descriptors	
Fissile	Splits easily along closely spaced parallel planes (breaks into plates)
Hackly	Jagged or irregular fracture planes
Slickensided	Polished and striated surfaces that result from friction along a fault plane
Laminated	Alternating thin layers of varying material or colors less than ¼" thick
Lensed	Inclusion of small pockets of different soils
Saprolitic	Completely weathered rock that retains the appearance of the original rock structure but has only a trace of the original bond strength
Micaceous	Containing mica minerals
Varved	Laminated sediment consisting of alternating layers of fine sand and silt or clay deposited in still water

6. Plasticity of Fine-Grained Soils

Fine-Grained Component	Plasticity	Estimated Plasticity Index (PI)	Smallest Thread Diameter	Thread Characteristics	Dilatancy
Primarily Silt	Non-Plastic	0 - 2%	Ball cracks	Dries rapidly; a 1/8-inch thread cannot be rolled at any water content	Moist ball sheds water when shaken giving a glossy appearance
Primarily Clay	Low Plasticity	3 - 10%	$^1/_8$ to $^1/_4$ inch	Feels powdery when drying out during rolling; thread can barely be rolled	Moist ball retains water or sheds water slowly when shaken
	Medium Plasticity	> 10 - 20%	$^1/_{16}$ inch	Thread cannot be rerolled after reaching plastic limit	
	High Plasticity	> 20%	$^1/_{32}$ inch	Thread can be rerolled after reaching plastic limit	Moist ball retains water when shaken

7a. Relative Density of Granular Coarse-Grained Soils

Descriptor	N-Value
Very Loose	≤ 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

7b. Consistency of Fine-Grained Soils

Descriptor	Pocket Penetrometer (tons/ft^2)	N-Value
Very Soft	≤ 0.25	≤ 2
Soft	≥ 0.25 - 0.5	3 - 4
Medium Stiff	> 0.5 - 1.0	5 - 8
Stiff	> 1.0 - 2.0	9 - 15
Very Stiff	> 2.0 - 4.0	16 - 30
Hard	> 4	≥ 31

8. Type of Deposit	
Alluvium	Sediment deposited by moving water
Colluvium	Sediment deposited by gravity
Fill	Manmade deposit
Fluviomarine	Stratified materials formed by the combined action of river and sea processes
Glacial Outwash	Sediment deposited by glacial meltwater; commonly sand and gravel
Glacial Till	Unsorted sediment deposited by glacier
Glacial Drift	Collective term for all sediment transported and deposited by a glacier or glacial meltwater
Residuum	Insoluble material remaining from weathered rock
Weathered Bedrock	Bedrock that has been weathered

FIGURE B-1

KEY TO IDENTIFICATION OF HARD BEDROCK SAMPLES

Descriptor Sequence	
1	Color
2	Rock Type
3	Interbedding
4	Descriptors
5	Weathering
6	Fracturing
7	Fracture Angle
8	Hardness

1. Color	
Gray	Tan
Brown	Black
Orange	Red
Green	Yellow
Purple	Blue
Modifiers	
Light	Lighter side of color range
Dark	Darker side of color range
Mottled	Irregularly marked with spots of different colors
Banded	Alternating shades or colors

2. Rock Type	
Common Regional Rocks	
Sandstone	Siltstone
Mudstone	Shale
Coal	Claystone
Limestone	Dolostone

3. Interbedding/Fractions	
And	≥ 50%
Some	15 to 40%
Few	0 to 15%

4. Descriptors	
Arenaceous	Sedimentary rock containing sand sized particles
Argillaceous	Pertaining to a sedimentary rock which contains an appreciable amount of clay
Calcareous	Containing calcium carbonate; when applied to a rock name, it implies that as much as 50% of the rock is calcium carbonate
Carbonaceous	A rock rich in carbon
Cross Bedded	Original depositional layering is inclined
Ferruginous	A rock having a red or rusty color due to the presence of ferric oxide
Fissile	Splits easily along closely spaced parallel planes
Fossiliferous	Containing fossils
Hackly	Jagged or irregular fracture planes
Micaceous	Containing mica minerals
Nodule	A small rounded mass of a mineral or mineral aggregate different in composition from the enclosing rock
Pyritic	Containing the mineral pyrite
Slickenside	Polished and striated surface that results from friction along a fault plane
Vein	An epigenetic mineral filling of a fault or other fracture
Vuggy	Containing voids usually lined with crystals of a different mineral composition from the enclosing rock

5. Degree of Weathering	
Descriptor	**Criteria**
Fresh	No visible sign of weathering, discoloration, or oxidation
Slightly Weathered	Slight weathering, discoloration, or oxidation **impacting <20% of rock mass**
Weathered	Significant weathering, discoloration, or oxidation **impacting 20 to 60% of rock mass**
Highly Weathered	Major weathering, discoloration, or oxidation **impacting >60% of rock mass**

6. Degree of Fracturing	
Descriptor	**Spacing**
Very Broken	≤ 2 inches
Broken	2 to 8 inches
Blocky	8 inches to 2 feet
Slightly Fractured	2 to 6 feet

7. Angle of Fracture Planes	
Fracture Planes	**Degrees**
Flat	< 5°
Shallow	5 to 15°
Moderate	15 to 30°
Steep	30 to 45°
Very Steep	45 to 60°
Sheer	60 to 90°
Vertical	90°

8. Rock Hardness	
Descriptor	**Test Criteria for Hand Specimen**
Very Soft	Indented with thumb or scratched by fingernail
Soft	Gouged deeply or carved with a knife blade
Medium Hard	Readily scratched by knife blade, scratch leaves heavy trace of dust
Hard	Scratched by knife blade with difficulty, scratch produces little powder and is faintly visible
Very Hard	Not scratched by a knife blade

FIGURE B-2

Triad Engineering, Inc.

Field Exploration

A representative of Triad was present to direct the drill crew, log recovered samples and observe groundwater conditions. The borings were drilled utilizing a CME-55 rotary auger drill rig. Samples of in-situ soil and weathered bedrock were obtained using a split-barrel sampler while performing Standard Penetration Tests (ASTM D 1586). The results of these tests (N-values) are commonly interpreted to provide an index to strength, consistency or relative density of the sampled materials and their ability to support foundations.

Once auger or sampler refusal on harder rock was encountered, select borings were further advanced using rock coring techniques. Continuous rock core samples were obtained from auger/sampler refusal depth to the boring termination depth. The harder rock materials were penetrated and sampled using a conventional, double-tubed core barrel and diamond coring bit, producing a rock core sample a nominal two (2) inches in diameter. The rock coring was performed to assess the type, quality and continuity of the bedrock at the drilled locations. The Rock Quality Designation (RQD) noted on the logs provides an indication of the relative quality and soundness of a specific bedrock stratum by measuring the lengths of intact rock core (unbroken core samples) that are larger than twice the core sample diameter for a specific rock stratum and/or core run and dividing the sum of the cumulative lengths by the thickness of the stratum and/or core run.

Groundwater levels were checked both during and after drilling operations and are recorded on the individual logs. Water levels indicated after rock coring operations are not considered representative of true groundwater levels, due to the introduction of water into the borehole during rock coring. It is emphasized that groundwater levels typically vary and are dependent upon climatic conditions and other environmental factors.

It is also emphasized that the lines shown on the logs are estimates of the changes in material. Actual changes may be gradual and may vary from those indicated on the logs, and the subsurface conditions between the borings may differ from those depicted on the logs. The boreholes were backfilled upon completion of the drilling with auger cuttings. Samples were transported to our office for temporary storage and additional analysis. The samples will be discarded after a period of 60 days unless other arrangements are made.

TEST BORING LOG

Sheet 1 of 1

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-1**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 6/26/24 Drill/Method: CME-55

Date Completed: 6/26/24 Driller: HL (TRIAD) Ground Elev.: 565.92

Shelby Tube | Standard Split Spoon | Water Level First Noted 15.0 ft. | Core Sample | Auger Probe

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	S-1		4-5-5 PP: >4	67%		0.2	**TOPSOIL**				565.7
							Brown, tan, and gray **SILTY CLAY**, some sand, little gravel, moist, saprolitic, micaceous, low to medium plasticity, hard, **residuum** - From 0.0 to 1.5 feet: W=11.0% - From 2.5 to 4.0 feet: W=11.9%, LL=27, PL=20, PI=7, Gravel=10%, Sand=25%, Fines=65%, CL-ML				
	S-2		8-14-10 PP: >4	67%							
5.0						5.0					560.9
	S-3		14-7-6 PP: 2.0	73%			Tan, brown, and red **CLAY**, some sand, little to some gravel, damp, low to medium plasticity, very stiff, **residuum** - From 5.0 to 6.5 feet: W=5.1%, LL=30, PL=19, PI=11, Gravel=20%, Sand=27%, Fines=53%, CL				
	S-4		3-9-17 PP: 2.0->4	73%		8.0					557.9
							Brown and tan **CLAY**, some sand, little gravel, moist to wet, saprolitic, low to medium plasticity, hard, **residuum** - From 7.5 to 9.0 feet: W=26.30%				
10.0	S-5		11-22-34 PP: >4	87%			- Gray from 10.0 feet - From 10.0 to 11.5 feet: W=10.5%				
15.0	S-6		42-50/0.4 PP: >4	100%		15.5	- Wet from 15.0 feet		▽		550.4
							Gray and brown **SHALE**, wet, very dense, **weathered bedrock**				
20.0	S-7		50/0.2	100%		20.2	- Dry from 20.0 feet				545.7
							Boring terminated at 20.2 feet				
25.0											

Remarks: Boring dry upon completion.

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-2**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/31/24 Drill/Method: CME-55

Date Completed: 5/31/24 Driller: HL (TRIAD) Ground Elev.: 605.06

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 7.6 ft.

Core Sample | Auger Probe

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	S-1		0-4-3 PP: 0.5-1.0	100%		0.3	**TOPSOIL**				604.8
							Brown **CLAY**, moist, medium plasticity, medium stiff to stiff, **alluvium**				
	S-2		4-6-10 PP: 1.5-2.0	73%		3.5					601.6
5.0							Brown and tan **CLAY**, some sand, little gravel, moist, saprolitic, low to medium plasticity, stiff to hard, **residuum**				
	S-3		25-49-50/0.3 PP: >4	100%		6.0					599.1
							Tan and gray **SHALE**, dry, very dense, **weathered bedrock**				
	S-4		50/0.3	100%		7.8					597.3
	R-1			100%	0%		Brown, gray, and tan **SHALE**, few claystone interbeds, fissile, weathered to highly weathered, very broken to broken, flat to shallow fracture planes, very soft to soft				
10.0											
	R-2			96%	8%			11%			
15.0											
	R-3			100%	26%	18.6					586.5
							Gray, tan, and brown **SANDSTONE**, some shale interbeds, slightly weathered to highly weathered, very broken to blocky, flat fracture planes, medium hard to hard				
20.0								56%			
	R-4			100%	38%		- Highly weathered, very broken from 18.6 to 26.7 feet				
25.0											

Remarks:

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-2**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/31/24 Drill/Method: CME-55

Date Completed: 5/31/24 Driller: HL (TRIAD) Ground Elev.: 605.06

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 7.6 ft.

Core Sample | Auger Probe

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
				100%	38%		Gray, tan, and brown **SANDSTONE**, some shale interbeds, slightly weathered to highly weathered, very broken to blocky, flat fracture planes, medium hard to hard (continued)				
	R-5			96%	74%		- From 26.7 to 27.3 feet: UCS=4,306 psi				
30.0							- From 29.6 to 30.1 feet: UCS=7,145 psi	56%			
	R-6			100%	68%		- From 30.7 to 31.2 feet: UCS=7,348 psi - From 31.2 to 31.6 feet: CAI=1.9				
35.0							- From 33.7 to 34.1 feet: UCS=9,943 psi				
						35.7					569.4
	R-7			90%	34%		Dark gray interbedded **SILTSTONE** and **SHALE**, fissile, carbonaceous, slightly weathered, very broken to broken, flat fracture planes, very soft to medium hard - From 36.0 to 36.4 feet: UCS=5,158 psi				
40.0							- From 39.3 to 39.8 feet: UCS=5,700 psi	34%			
	R-8			100%	22%						
45.0						45.7					559.4
							Boring terminated at 45.7 feet				
50.0											

Remarks:

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-3**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/29/24 Drill/Method: CME-55

Date Completed: 5/30/24 Driller: HL (TRIAD) Ground Elev.: 629.75

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 6.1 ft. | Core Sample | Auger Probe | Water Level After 24 Hours 7.1 ft.

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	S-1		4-2-3 PP: 1.5-2.0	60%		0.7	**TOPSOIL**				629.1
							Brown **CLAY**, little sand, moist, low to medium plasticity, stiff, **alluvium**				
	S-2		4-4-8 PP: 2.0	80%							
5.0						5.0					624.8
	S-3		8-12-13 PP: >4	67%			Tan, brown, and gray **CLAY**, little to some sand, trace to little gravel, damp, saprolitic, hard, **residuum**				
	S-4		25-34-40 PP: >4	100%							
10.0							- Micaceous from 10 feet				
	S-5		15-23-27 PP: >4	67%							
15.0							- Red from 15 feet				
	S-6		8-10-13 PP: >4	80%							
20.0											
	S-7		25-48-50/0.2 PP: >4	83%		21.0					608.8
						21.2	Brown and gray **CLAYSTONE**, damp, very dense, **weathered bedrock**				608.6
	R-1			100%	0%		Brown, gray, and tan **CLAYSTONE**, few shale interbeds, weathered to highly weathered, very broken to broken, moderate fracture planes, very soft to medium hard	0%			
25.0				100%	0%						

Remarks: Boring offset 7 feet to the east due to tree and driller needing room to work.

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-3**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/29/24 Drill/Method: CME-55

Date Completed: 5/30/24 Driller: HL (TRIAD) Ground Elev.: 629.75

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 6.1 ft. | Core Sample | Auger Probe | Water Level After 24 Hours 7.1 ft.

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	R-2			100%	0%		Brown, gray, and tan **CLAYSTONE**, few shale interbeds, weathered to highly weathered, very broken to broken, moderate fracture planes, very soft to medium hard (continued)				
30.0	R-3			86%	0%			0%			
35.0	R-4			100%	0%	38.8					591.0
40.0	R-5			100%	54%		Gray interbedded **CLAYSTONE** and **SHALE**, few sandstone interbeds, fissile, slightly weathered to highly weathered, very broken to broken, flat to moderate fracture planes, very soft to soft	45%			
45.0	R-6			100%	44%		- From 45.8 to 46.3 feet: UCS=1,953 psi				
						48.0					581.8
50.0				84%	22%	49.6	Tan and gray **SANDSTONE**, weathered, very broken to broken, flat to moderate fracture, hard - From 48.5 to 48.8 feet: UCS=7,720 psi	26%			580.2

Remarks: Boring offset 7 feet to the east due to tree and driller needing room to work.

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-3**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/29/24 Drill/Method: CME-55

Date Completed: 5/30/24 Driller: HL (TRIAD) Ground Elev.: 629.75

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 6.1 ft. | Core Sample | Auger Probe | Water Level After 24 Hours 7.1 ft.

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
							- From 48.8 to 49.1 feet: UCS=9,664 psi				
55.0	R-7			84%	22%		Gray interbedded **CLAYSTONE** and **SHALE**, few sandstone interbeds, fissile, slightly weathered to highly weathered, very broken to broken, flat to moderate fracture planes, very soft to soft (continued) - From 52.2 to 52.8 feet: UCS=244 psi	26%			
	R-8			98%	50%	55.8	Gray **SILTSTONE**, weathered, very broken to broken, flat to moderate fracture planes, medium hard to hard - From 55.8 to 56.8 feet: UCS=5,062 psi, CAI=0.7	90%			574.0
60.0						56.8	Gray **SANDSTONE**, fresh to slightly weathered, very broken to blocky, flat fracture planes, hard - From 57.6 to 58.1 feet: UCS=8,004 psi - From 58.3 to 58.5 feet: CAI=1.5 - From 59.0 to 59.6 feet: UCS=7,428 psi				573.0
	R-9			98%	94%			73%			
65.0	R-10			100%	90%		- From 62.8 to 63.3 feet: UCS=7,606 psi				
						65.8	Boring terminated at 65.8 feet				564.0
70.0											
75.0											

Remarks: Boring offset 7 feet to the east due to tree and driller needing room to work.

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-4**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/22/24 Drill/Method: CME-55

Date Completed: 5/24/24 Driller: HL (TRIAD) Ground Elev.: 652.75

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 6.8 ft. | Core Sample | Auger Probe | Water Level After 24 Hours 9.3 ft.

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	S-1		3-6-4	60%		0.3	**TOPSOIL** Tan and brown **SAND** and **CLAY**, moist, loose, **alluvium**				652.5
	S-2		11-10-10 PP: >4	93%		2.5	Tan, gray, and orange **CLAY**, little to some sand, trace to little gravel, damp, saprolitic, micaceous, low plasticity, hard, **residuum**				650.3
5.0	S-3		36-50/0.5 PP: >4	90%							
	S-4		15-22-32 PP: >4	93%							
10.0	S-5		10-22-27 PP: >4	80%							
15.0	S-6		19-14-15 PP: >4	67%							
20.0	S-7		17-46-50/0.3 PP: >4	77%		21.0	Gray, brown, and red **CLAYSTONE**, dry, very dense, **weathered bedrock**				631.8
25.0											

Remarks:

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-4**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/22/24 Drill/Method: CME-55

Date Completed: 5/24/24 Driller: HL (TRIAD) Ground Elev.: 652.75

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 6.8 ft. | Water Level After 24 Hours 9.3 ft.

Core Sample | Auger Probe

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	S-8		50/0.3	100%		25.3					627.5
	R-1			100%	0%		Brown, gray, and red interbedded **CLAYSTONE** and **SILTSTONE**, weathered to highly weathered, very broken to broken, hackly fracture planes, very soft to medium hard				
	R-2			58%	0%						
30.0	R-3			100%	0%						
35.0	R-4			100%	0%						
40.0	R-5			100%	0%			0%			
45.0	R-6			88%	0%						
50.0				98%	0%						

Remarks:

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-4**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/22/24 Drill/Method: CME-55

Date Completed: 5/24/24 Driller: HL (TRIAD) Ground Elev.: 652.75

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 6.8 ft. | Core Sample | Auger Probe | Water Level After 24 Hours 9.3 ft.

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	R-7			98%	0%		Brown, gray, and red interbedded **CLAYSTONE** and **SILTSTONE**, weathered to highly weathered, very broken to broken, hackly fracture planes, very soft to medium hard (continued)				
55.0	R-8			100%	0%			0%			
	R-9			89%	0%		- Mostly medium hard from 57.5 to 61.2 feet - From 58.1 to 58.5 feet: UCS=713 psi				
60.0	R-10			100%	0%		- From 60.6 to 61.0 feet: UCS=529 psi				
						63.5	- From 62.8 to 63.2 feet: UCS=2,794 psi				589.3
65.0	R-11			100%	20%		Gray **SILTSTONE**, some gray shale interbeds, weathered to highly weathered, very broken to broken, hackly fracture planes, very soft to medium hard - From 63.9 to 64.4 feet: UCS=5,086 psi - From 65.8 to 66.1 feet: CAI=1.2	16%			
						69.8					583.0
70.0	R-12			100%	50%		Gray interbedded **SILTSTONE** and **CLAYSTONE**, fissile, slightly weathered to weathered, broken, flat to shallow fracture planes, soft (claystone) to hard (siltstone) - From 69.8 to 70.2 feet: UCS=7,288 psi - From 72.0 to 72.5 feet: UCS=1,379 psi	98%			
75.0				98%	54%						

Remarks:

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-4**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/22/24 Drill/Method: CME-55

Date Completed: 5/24/24 Driller: HL (TRIAD) Ground Elev.: 652.75

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 6.8 ft. | Water Level After 24 Hours 9.3 ft.

Core Sample | Auger Probe

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	R-13			98%	54%	75.1	Gray **SANDSTONE**, fresh, blocky to slightly fractured, flat fracture planes, hard - From 75.1 to 75.8 feet: UCS=7,154 psi - Vertical fracturing at 76.0 feet - From 76.9 to 77.5 feet: UCS=6,238 psi	76%			577.7
80.0	R-14			100%	100%	82.5					570.3
							Boring terminated at 82.5 feet				
85.0											
90.0											
95.0											
100.0											

Remarks:

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-5**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/28/24 Drill/Method: CME-55

Date Completed: 5/29/24 Driller: HL (TRIAD) Ground Elev.: 651.98

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 5.7 ft. | Core Sample | Auger Probe | Water Level After 24 Hours 8.4 ft.

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	S-1		2-2-4 PP: 0.5	67%			Brown **CLAY**, some sand, moist, low to medium plasticity, medium stiff, **fill**				
						2.5					649.5
	S-2		50-27-9 PP: >4	100%			Brown and tan **CLAY**, little sand, trace gravel, moist, saprolitic, micaceous, low plasticity, hard, **residuum**				
5.0	S-3		6-7-11 PP: >4	60%							
	S-4		18-15-17 PP: >4	80%							
10.0	S-5		13-33-30 PP: >4	100%			- No longer micaceous from 10.0 feet				
15.0	S-6		19-27-31 PP: >4	93%			- Red and tan from 15.0 feet				
20.0	S-7		16-33-50/0.4 PP: >4	100%							
						21.0					631.0
							Tan, red, and brown **CLAYSTONE**, moist, very dense, **weathered bedrock**				
25.0											

Remarks: Boring offset 20 feet to the northwest due to instructions on BLP. Elevation estimated from Google Earth DEM data.

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-5**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/28/24 Drill/Method: CME-55

Date Completed: 5/29/24 Driller: HL (TRIAD) Ground Elev.: 651.98

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 5.7 ft. | Water Level After 24 Hours 8.4 ft.

Core Sample | Auger Probe

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	S-8		50/0.2	100%			Tan, red, and brown **CLAYSTONE**, moist, very dense, **weathered bedrock** (continued)				
30.0	S-9		26-46-50/0.3	100%		31.3					620.7
	R-1			100%	0%		Gray, brown, and red **CLAYSTONE**, weathered to highly weathered, very broken to broken, hackly fracture planes, very soft to soft				
35.0	R-2			100%	0%						
40.0	R-3			100%	0%			0%			
	R-4			94%	0%						
45.0	R-5			88%	0%						
				94%	0%						
50.0							- Gray from 49.4 feet				

Remarks: Boring offset 20 feet to the northwest due to instructions on BLP. Elevation estimated from Google Earth DEM data.

TRIAD ENGINEERING, INC.

TEST BORING LOG

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-5**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/28/24 Drill/Method: CME-55

Date Completed: 5/29/24 Driller: HL (TRIAD) Ground Elev.: 651.98

Shelby Tube | Standard Split Spoon | Water Level Upon Completion 5.7 ft.

Core Sample | Auger Probe | Water Level After 24 Hours 8.4 ft.

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
	R-6			94%	0%		Gray, brown, and red **CLAYSTONE**, weathered to highly weathered, very broken to broken, hackly fracture planes, very soft to soft (continued) - Very soft to medium hard from 51.0 feet				
55.0	R-7			90%	0%		- From 53.7 to 54.0 feet: UCS=1,846 psi - From 55.1 to 55.7 feet: Limestone interbed, UCS=6,347 psi	0%			
						58.8					593.2
60.0	R-8			94%	56%		Gray interbedded **CLAYSTONE** and **SILTSTONE**, fissile, weathered, very broken to broken, flat fracture planes, very soft to soft - From 59.1 to 59.6 feet: UCS=1,829 psi - From 61.9 to 62.3 feet: UCS=2,590 psi - From 62.3 to 62.8 feet: CAI=0.9				
65.0	R-9			100%	76%		- From 64.7 to 65.2 feet: UCS=4,075 psi - From 66.1 to 66.5 feet: UCS=3,729 psi	72%			
70.0	R-10			100%	86%						
	R-11			100%	0%						
						73.9					578.1
75.0							Boring terminated at 73.9 feet				

Remarks: Boring offset 20 feet to the northwest due to instructions on BLP. Elevation estimated from Google Earth DEM data.

TRIAD ENGINEERING, INC.

TEST BORING LOG

Sheet 1 of 1

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-6**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/22/24 Drill/Method: CME-55

Date Completed: 5/22/24 Driller: HL (TRIAD) Ground Elev.: 612.18

Shelby Tube | Standard Split Spoon | Core Sample | Auger Probe

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
						0.3	**TOPSOIL**				611.9
	S-1		2-2-2 PP: 1.0-1.5	67%			Red, brown, and tan **CLAY**, little sand, little gravel, damp to moist, medium plasticity, stiff to very stiff, **alluvium**				
	S-2		3-7-9 PP: 2.0	73%			- From 2.5 to 4.0 feet: W=15.8%				
5.0						5.0					607.2
	S-3		12-18-19 PP: >4	53%			Red and brown **CLAY**, trace to little sand, trace gravel, damp to moist, medium plasticity, saprolitic, hard, **residuum** - From 5.0 to 6.5 feet: W=12.6%, LL=34, PL=22, PI=12, Gravel=0%, Sand=6%, Fines=94%, CL - From 7.5 to 9.0 feet: W=12.6%, LL=40, PL=23, PI=17, Gravel=2%, Sand=1%, Fines=97%, CL				
	S-4		10-18-26 PP: >4	73%							
10.0											
	S-5		16-20-22 PP: >4	73%			- From 10.0 to 11.5 feet: W=10.1%				
15.0											
	S-6		18-36-42 PP: >4	67%			- From 15.0 to 16.5 feet: W=9.2%, LL=38, PL=21, PI=17, Gravel=6%, Sand=12%, Fines=82%, CL				
20.0						20.0					592.2
	S-7		50/0.2	100%			Tan and gray **SHALE**, dry, very dense, **weathered bedrock**				
						24.1					588.1
	S-8		50/0.1	100%			Boring terminated at 24.1 feet				
25.0											

Remarks: Boring offset 9.0 feet to the northeast due to utilities.
Boring dry upon completion.

TRIAD ENGINEERING, INC.

TEST BORING LOG

Sheet 1 of 1

Project Number: **04-23-0374** Project Name: **Marshall CF4 Tunnel Design** Boring No.: **B-7**

Logger: CW Boring Location: See Boring Location Plan

Date Started: 5/21/24 Drill/Method: CME-55

Date Completed: 5/21/24 Driller: HL (TRIAD) Ground Elev.: 601.70

Shelby Tube | Standard Split Spoon | Water Level First Noted 7.5 ft. | Water Level Upon Completion 4.6 ft.

Core Sample | Auger Probe

Depth (feet)	Sample No.	Sample Type	Blow Counts	Recovery (%)	RQD (RUN)	Strata Depth (ft)	MATERIAL DESCRIPTION	RQD (Strata)	Water Level	Graphic Log	Strata Elevation
						0.3	**TOPSOIL**				601.4
	S-1		2-4-4 PP: 1.5-2.0	73%			Brown and tan **CLAY**, little to some sand, trace to little gravel, moist, medium plasticity, soft to stiff, **alluvium** - From 0.0 to 1.5 feet: W=17.0%				
	S-2		0-1-1 PP: 0.5	87%			- From 2.5 to 4.0 feet: W=17.8%, LL=38, PL=21, PI=17, Gravel=4%, Sand=22%, Fines=74%, CL				
5.0	S-3		1-1-2 PP: 1.0	60%			- From 5.0 to 6.5 feet: W=17.7%, LL=36, PL=22, PI=14, Gravel=14%, Sand=15%, Fines=71%, CL				
						7.5					594.2
	S-4		17-26-48 PP: >4	100%			Brown and tan **CLAY**, little sand, little gravel, moist to wet, hard, **residuum** - From 7.5 to 9.0 feet: W=17.5%				
10.0	S-5		26-50/0.1 PP: >4	100%		10.5					591.2
	R-1			100%	0%	10.6	Tan and gray **SHALE**, dry, very dense, **weathered bedrock**				591.1
							Gray and brown **SHALE**, some gray sandstone interbeds, fissile, weathered to highly weathered, very broken to broken, flat to shallow fracture planes, soft	17%			
15.0	R-2			98%	24%						
						17.7					584.0
	R-3			100%	80%		Gray **SANDSTONE**, fresh, broken to blocky, flat fracture planes, hard	80%			
20.0						20.2					581.5
							Boring terminated at 20.2 feet				
25.0											

Remarks:

TRIAD ENGINEERING, INC.

TRIAD ENGINEERING, INC.

APPENDIX C

Laboratory Testing

Triad Engineering, Inc.

Laboratory Testing

The samples obtained from the test borings were visually classified in the field by geotechnical engineering personnel from Triad. The recovered soils were further evaluated by laboratory testing. Laboratory soils tests were conducted in accordance with applicable ASTM Standards as listed below:

1. Moisture content tests were performed in accordance with ASTM D 2216.

2. Atterberg Limits tests, consisting of the liquid limit, plastic limit, and plasticity index, were performed in accordance with ASTM D 4318.

3. Sieve analyses with washed No. 200 sieve tests were performed in accordance with ASTM D 1140.

4. Hydrometer analyses were performed in accordance with ASTM D 422.

5. Rock core compression tests were performed in accordance with ASTM D 7012.

6. Cerchar Abrasivity tests were performed in accordance with ASTM D 7625.

A summary and details of the laboratory test results are included on the following pages of this appendix.

TRIAD ENGINEERING, INC.

LABORATORY DATA SUMMARY

SAMPLE ID	SAMPLE DEPTH (ft)	SAMPLE TYPE	NATURAL MOISTURE (%)	ATTERBERG LIMITS			GRADATION			USCS SOIL CLASS.	Unconfined Compressive Strength (PSI)	Cerchar Abrasivity Index (CAI)
				LL	PL	PI	% GRAVEL	% SAND	% FINES			
B-1	0.0 - 1.5	SS	11.0									
B-1	2.5 - 4.0	SS	11.9	27	20	7	10	25	65	CL-ML		
B-1	5.0 - 6.5	SS	5.1	30	19	11	20	27	53	CL		
B-1	7.5 - 9.0	SS	26.3									
B-1	10.0 - 11.5	SS	10.5									
B-6	2.5 - 4.0	SS	15.8									
B-6	5.0 - 6.5	SS	12.6	34	22	12	0	6	94	CL		
B-6	7.5 - 9.0	SS	12.6	40	23	17	2	1	97	CL		
B-6	10.0 - 11.5	SS	10.1									
B-6	15.0 - 16.5	SS	9.2	38	21	17	6	12	82	CL		
B-7	0.0 - 1.5	SS	17.0									
B-7	2.5 - 4.0	SS	17.8	38	21	17	4	22	74	CL		
B-7	5.0 - 6.5	SS	17.7	36	22	14	14	15	71	CL		
B-7	7.5 - 9.0	SS	17.5									
			Rock Description									
B-2	26.7 - 27.3	RC	Sandstone								4306	
B-2	29.6 - 30.1	RC	Sandstone								7145	
B-2	30.7 - 31.2	RC	Sandstone								7348	
B-2	31.2 - 31.6	RC	Sandstone									1.9
B-2	33.7 - 34.1	RC	Sandstone								9943	
B-2	36.0 - 36.4	RC	Siltstone								5158	
B-2	39.3 - 39.8	RC	Shale								5700	
B-3	45.8 - 46.3	RC	Claystone								1953	
B-3	48.5 - 48.8	RC	Sandstone								7720	
B-3	48.8 - 49.1	RC	Sandstone								9664	
B-3	52.2 - 52.8	RC	Claystone								244	
B-3	55.8 - 56.8	RC	Siltstone								5062	0.7
B-3	57.6 - 58.1	RC	Sandstone								8004	
B-3	58.3 - 58.5	RC	Sandstone									1.5
B-3	59.0 - 59.6	RC	Sandstone								7428	
B-3	62.8 - 63.3	RC	Sandstone								7606	
B-4	58.1 - 58.5	RC	Claystone								713	
B-4	60.6 - 61.0	RC	Claystone								529	
B-4	62.8 - 63.2	RC	Claystone								2794	
B-4	63.9 - 64.4	RC	Siltstone								5086	
B-4	65.8 - 66.1	RC	Siltstone									1.2
B-4	69.8 - 70.2	RC	Siltstone								7288	
B-4	72.0 - 72.5	RC	Claystone								1379	
B-4	75.1 - 75.8	RC	Sandstone								7154	
B-4	76.9 - 77.5	RC	Sandstone								6238	
B-5	53.7 - 54.0	RC	Claystone								1846	
B-5	55.1 - 55.7	RC	Limestone								6347	
B-5	59.1 - 59.6	RC	Claystone								1829	
B-5	61.9 - 62.3	RC	Claystone								2590	
B-5	62.3 - 62.8	RC	Claystone									0.9
B-5	64.7 - 65.2	RC	Siltstone								4075	
B-5	66.1 - 66.5	RC	Siltstone								3729	

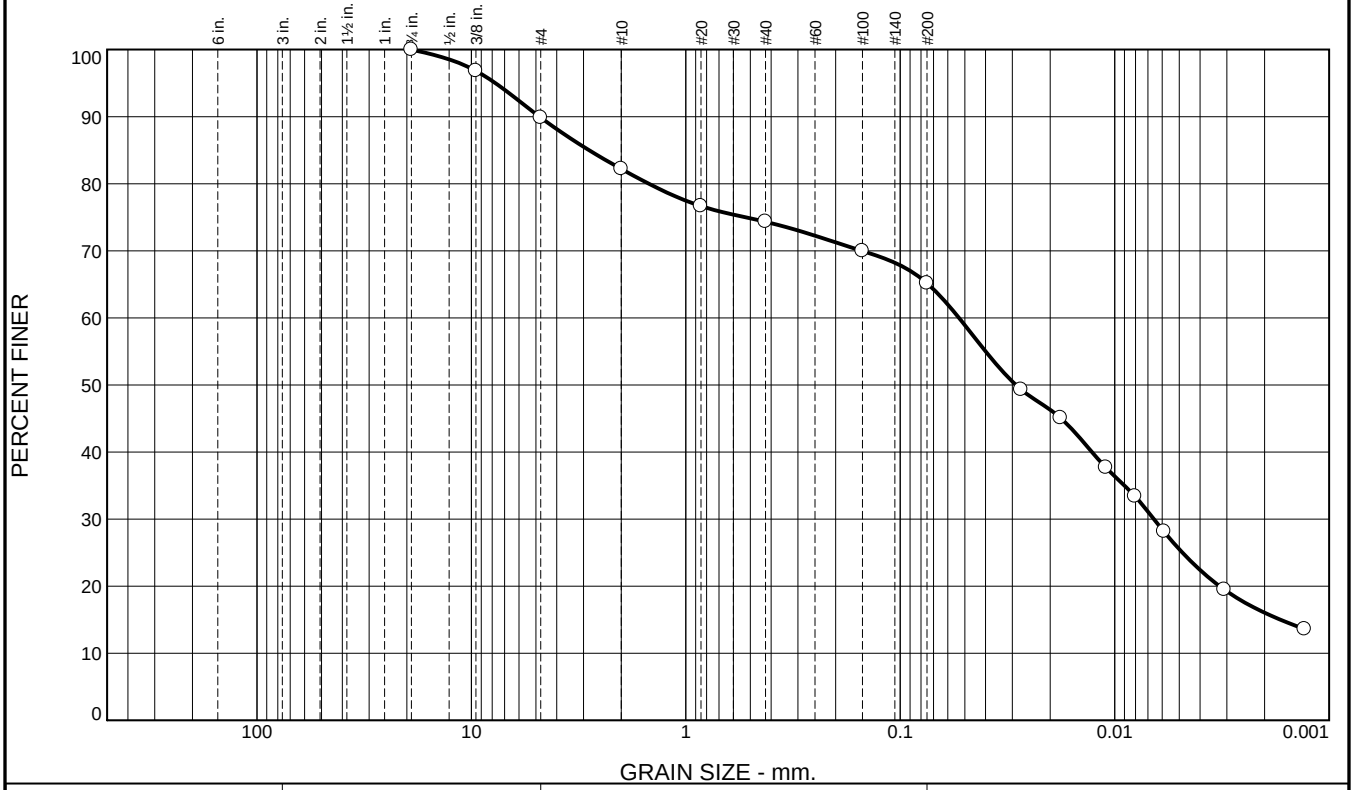
TRIAD ENGINEERING, INC.

Notes:
1) Soil tests performed in accordance with recognized ASTM testing standards.
2) SS = Split Spoon
RC = Rock Core
3) Rock Decription based on boring logs and labs

PROJECT NUMBER: 04-23-0374
PROJECT NAME: Marshall CF4 Tunnel Design
LOCATION: Cabell County, West Virginia

FIG. C-1

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	10	8	8	9	39	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
3/8"	97		
#4	90		
#10	82		
#20	77		
#40	74		
#100	70		
#200	65		
0.0273 mm.	49		
0.0179 mm.	45		
0.0110 mm.	38		
0.0080 mm.	33		
0.0059 mm.	28		
0.0031 mm.	19		
0.0013 mm.	14		

* (no specification provided)

Soil Description

BROWN SANDY SILTY CLAY

Atterberg Limits

PL= 20 LL= 27 PI= 7

Coefficients

D_{90}= 4.8131 D_{85}= 2.8256 D_{60}= 0.0532
D_{50}= 0.0289 D_{30}= 0.0066 D_{15}= 0.0017
D_{10}= C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(3)

Remarks

Location: B-1
Sample Number: S-2 **Depth:** 2.5' - 4.0' **Date:** 7/16/24

Triad Engineering, Inc.

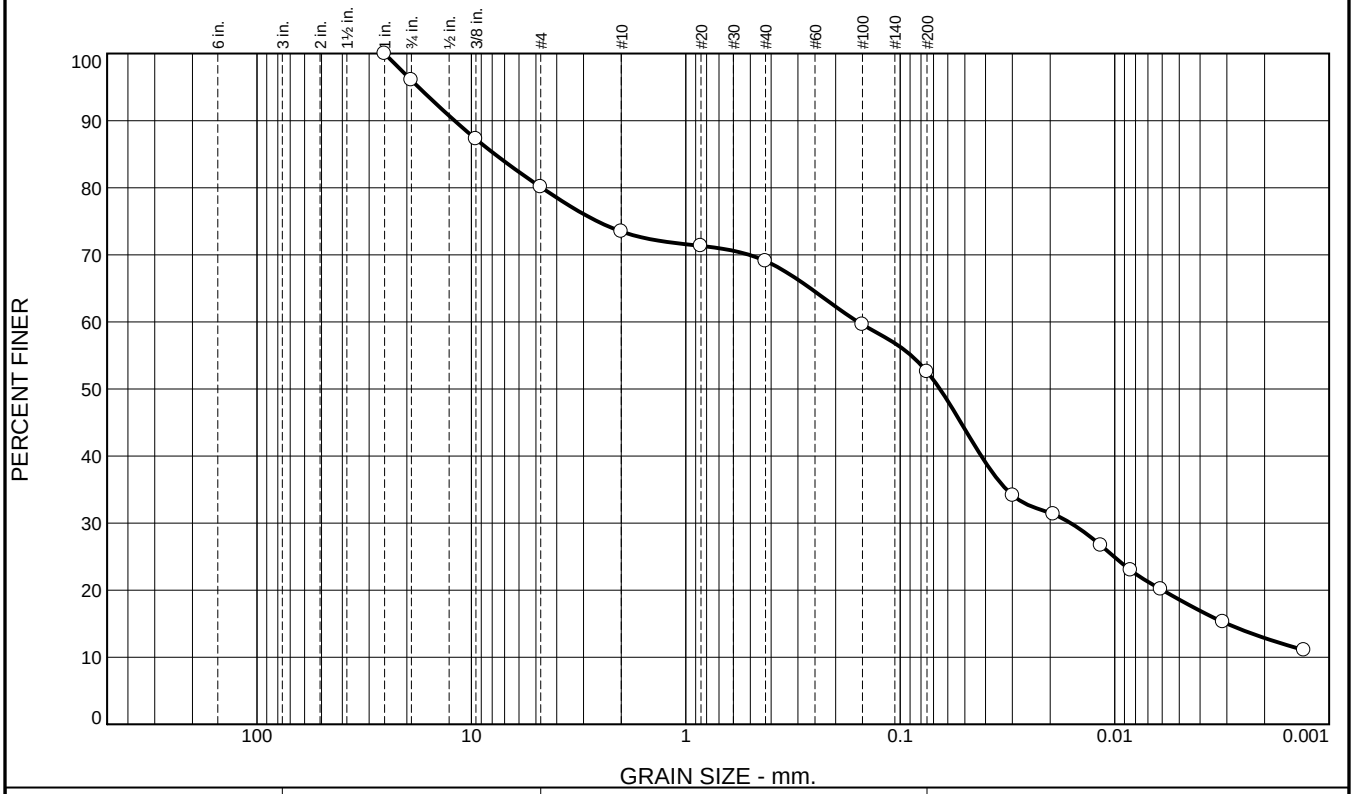
St. Albans, WV

Client: DLZ OHIO INC
Project: CF-4 TUNNEL DESIGN

Project No: 04-23-0374 **Figure** C-2

Tested By: NRC **Checked By:** BRETT MORRIS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	4	16	7	4	16	34	19

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.0"	100		
3/4"	96		
3/8'	87		
#4	80		
#10	73		
#20	71		
#40	69		
#100	60		
#200	53		
0.0298 mm.	34		
0.0193 mm.	31		
0.0116 mm.	27		
0.0084 mm.	23		
0.0061 mm.	20		
0.0031 mm.	15		
0.0013 mm.	11		

* (no specification provided)

Soil Description

REDDISH BROWN SANDY LEAN CLAY WITH GRAVEL

Atterberg Limits

PL= 19 LL= 30 PI= 11

Coefficients

D_{90}= 11.9826 D_{85}= 7.7641 D_{60}= 0.1571
D_{50}= 0.0654 D_{30}= 0.0160 D_{15}= 0.0030
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(3)

Remarks

Location: B-1
Sample Number: S-3 **Depth:** 5.0' - 6.5' **Date:** 7/16/24

Triad Engineering, Inc.

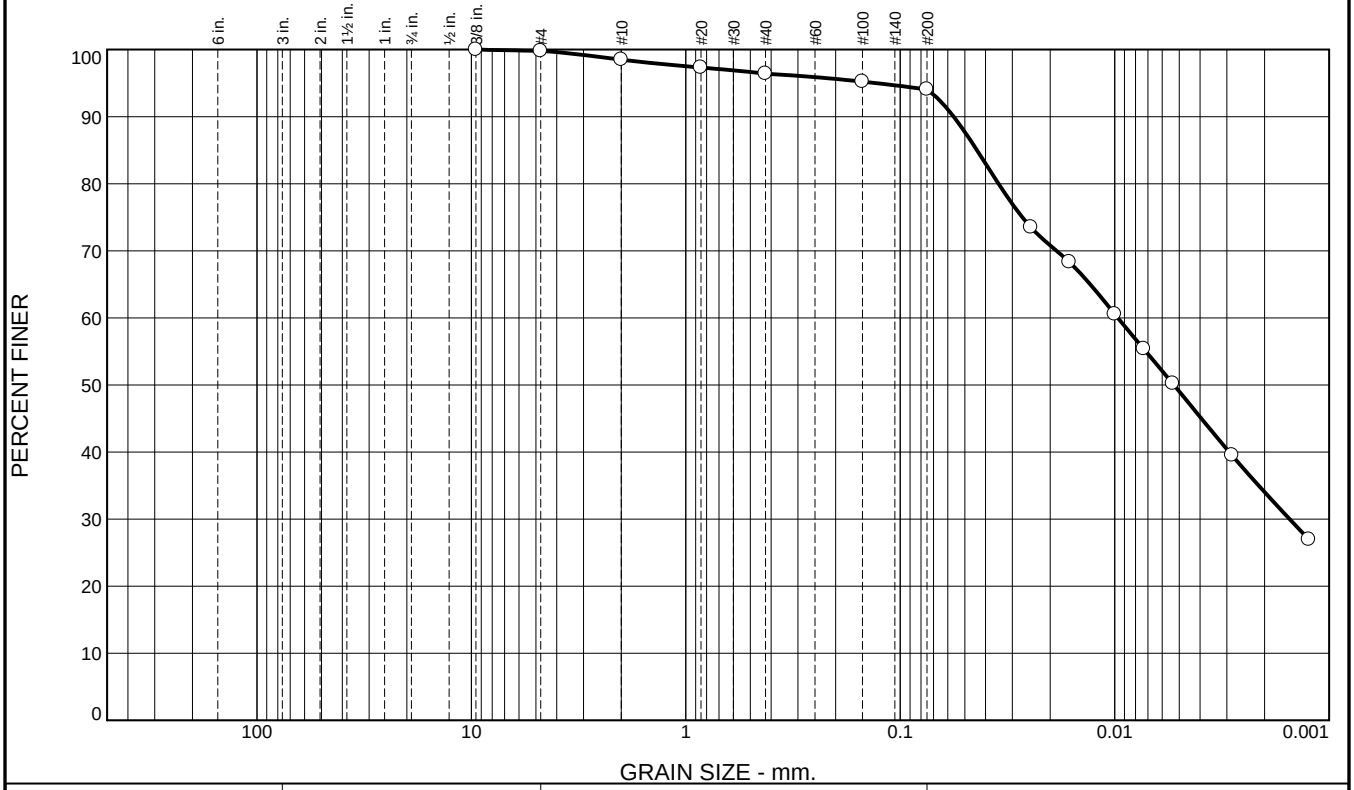
St. Albans, WV

Client: DLZ OHIO INC
Project: CF-4 TUNNEL DESIGN

Project No: 04-23-0374 **Figure** C-2

Tested By: NRC **Checked By:** BRETT MORRIS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	2	2	2	45	49

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100		
#4	100		
#10	98		
#20	97		
#40	96		
#100	95		
#200	94		
0.0246 mm.	74		
0.0163 mm.	68		
0.0100 mm.	61		
0.0073 mm.	55		
0.0054 mm.	50		
0.0028 mm.	40		
0.0012 mm.	27		

* (no specification provided)

Soil Description

REDDISH BROWN LEAN CLAY

Atterberg Limits

PL= 22 LL= 34 PI= 12

Coefficients

D_{90}= 0.0564 D_{85}= 0.0439 D_{60}= 0.0097
D_{50}= 0.0053 D_{30}= 0.0015 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(12)

Remarks

Location: B-6
Sample Number: S-3 **Depth:** 5.0' - 6.5' **Date:** 7/16/24

Triad Engineering, Inc.

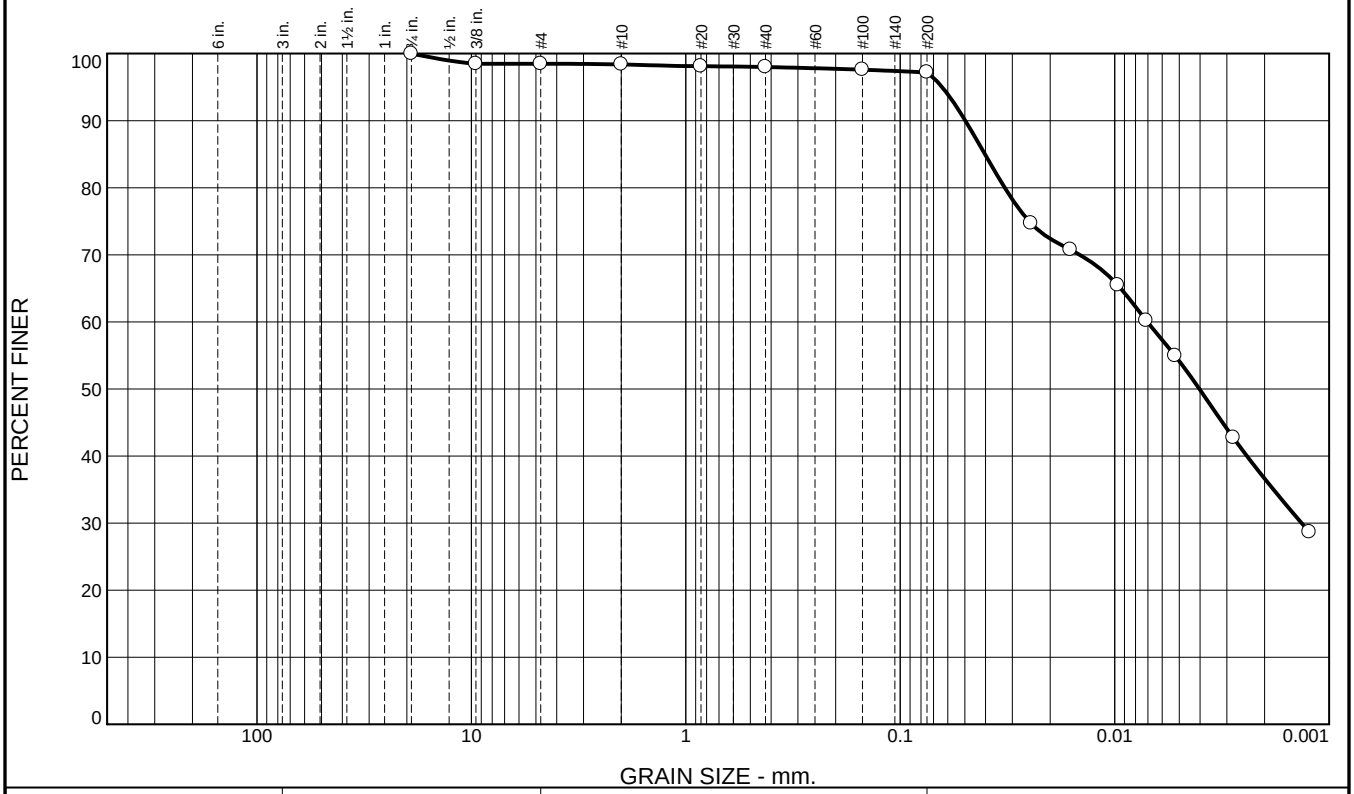
St. Albans, WV

Client: DLZ OHIO INC
Project: CF-4 TUNNEL DESIGN

Project No: 04-23-0374 **Figure** C-2

Tested By: NRC **Checked By:** BRETT MORRIS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	0	0	1	43	54

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
3/8"	98		
#4	98		
#10	98		
#20	98		
#40	98		
#100	98		
#200	97		
0.0246 mm.	75		
0.0161 mm.	71		
0.0097 mm.	65		
0.0071 mm.	60		
0.0052 mm.	55		
0.0028 mm.	43		
0.0012 mm.	29		

* (no specification provided)

Soil Description

REDDISH BROWN LEAN CLAY

Atterberg Limits

PL= 23 LL= 40 PI= 17

Coefficients

D_{90}= 0.0497 D_{85}= 0.0403 D_{60}= 0.0070
D_{50}= 0.0040 D_{30}= 0.0013 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(18)

Remarks

Location: B-6
Sample Number: S-4 **Depth:** 7.5' - 9.0' **Date:** 7/16/24

Triad Engineering, Inc.

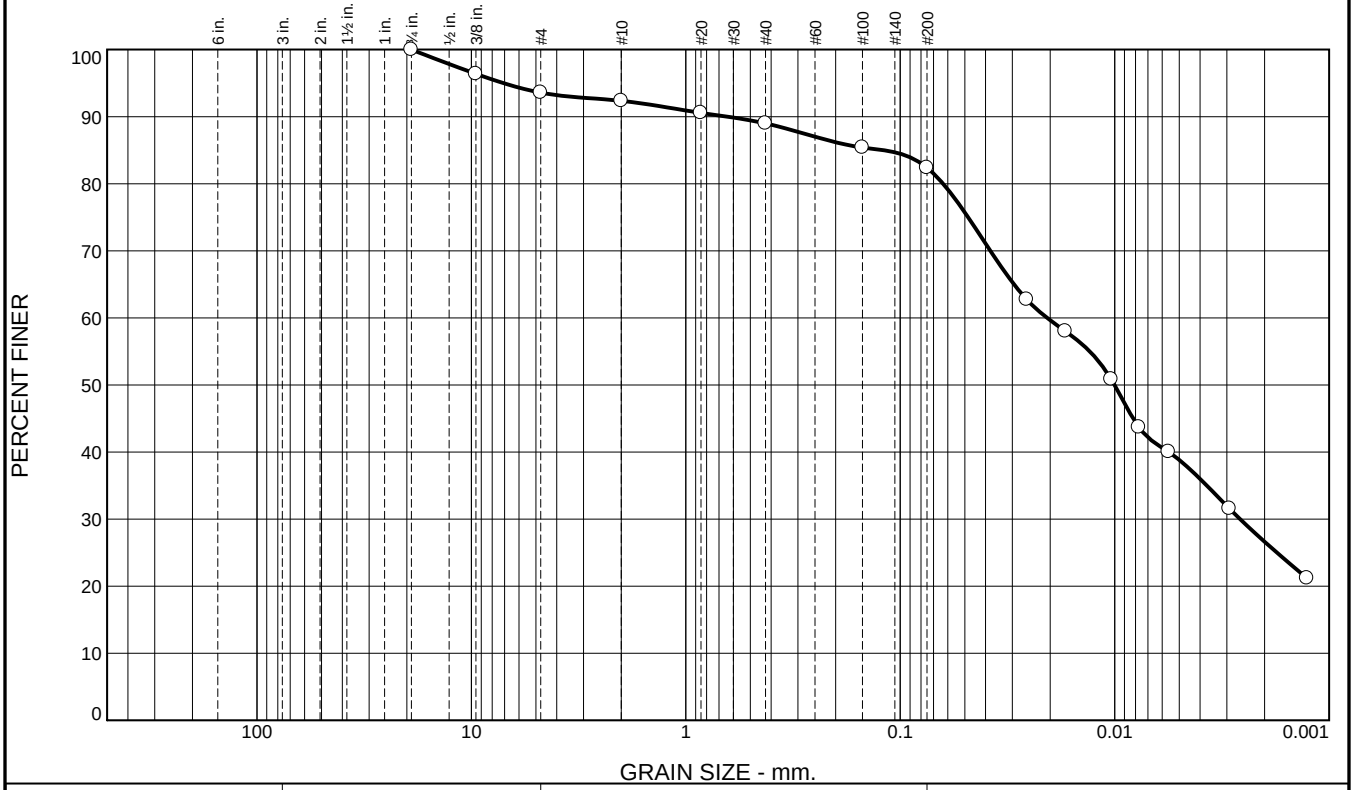
St. Albans, WV

Client: DLZ OHIO INC
Project: CF-4 TUNNEL DESIGN

Project No: 04-23-0374 **Figure** C-2

Tested By: NRC **Checked By:** BRETT MORRIS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	2	3	7	43	39

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
3/8"	96		
#4	94		
#10	92		
#20	91		
#40	89		
#100	85		
#200	82		
0.0257 mm.	63		
0.0170 mm.	58		
0.0104 mm.	51		
0.0077 mm.	44		
0.0056 mm.	40		
0.0029 mm.	32		
0.0013 mm.	21		

* (no specification provided)

Soil Description

TANNISH BROWN LEAN CLAY WITH SAND

Atterberg Limits

PL= 21 LL= 38 PI= 17

Coefficients

D_{90}= 0.6432 D_{85}= 0.1200 D_{60}= 0.0207
D_{50}= 0.0100 D_{30}= 0.0026 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(14)

Remarks

Location: B-6
Sample Number: S-6 **Depth:** 15.0' - 16.5' **Date:** 7/16/24

Triad Engineering, Inc.

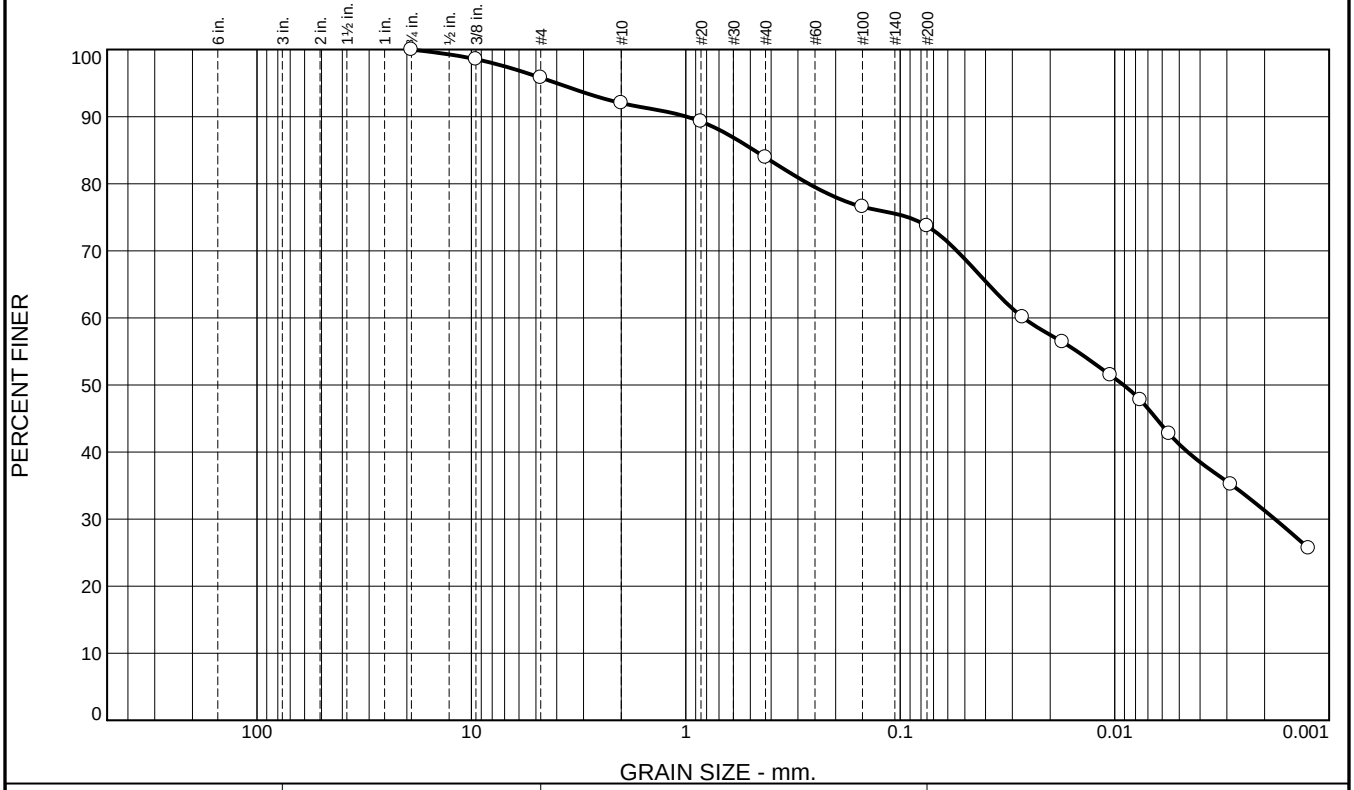
St. Albans, WV

Client: DLZ OHIO INC
Project: CF-4 TUNNEL DESIGN

Project No: 04-23-0374 **Figure** C-2

Tested By: NRC **Checked By:** BRETT MORRIS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	4	8	10	33	41

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
3/8"	99		
#4	96		
#10	92		
#20	89		
#40	84		
#100	77		
#200	74		
0.0269 mm.	60		
0.0175 mm.	56		
0.0105 mm.	51		
0.0076 mm.	48		
0.0056 mm.	43		
0.0029 mm.	35		
0.0012 mm.	26		

* (no specification provided)

Soil Description

BROWN LEAN CLAY WITH SAND

Atterberg Limits

PL= 21 LL= 38 PI= 17

Coefficients

D_{90}= 0.9911 D_{85}= 0.4804 D_{60}= 0.0266
D_{50}= 0.0091 D_{30}= 0.0018 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(12)

Remarks

Location: B-7
Sample Number: S-2 **Depth:** 2.5' - 4.0' **Date:** 7/16/24

Triad Engineering, Inc.

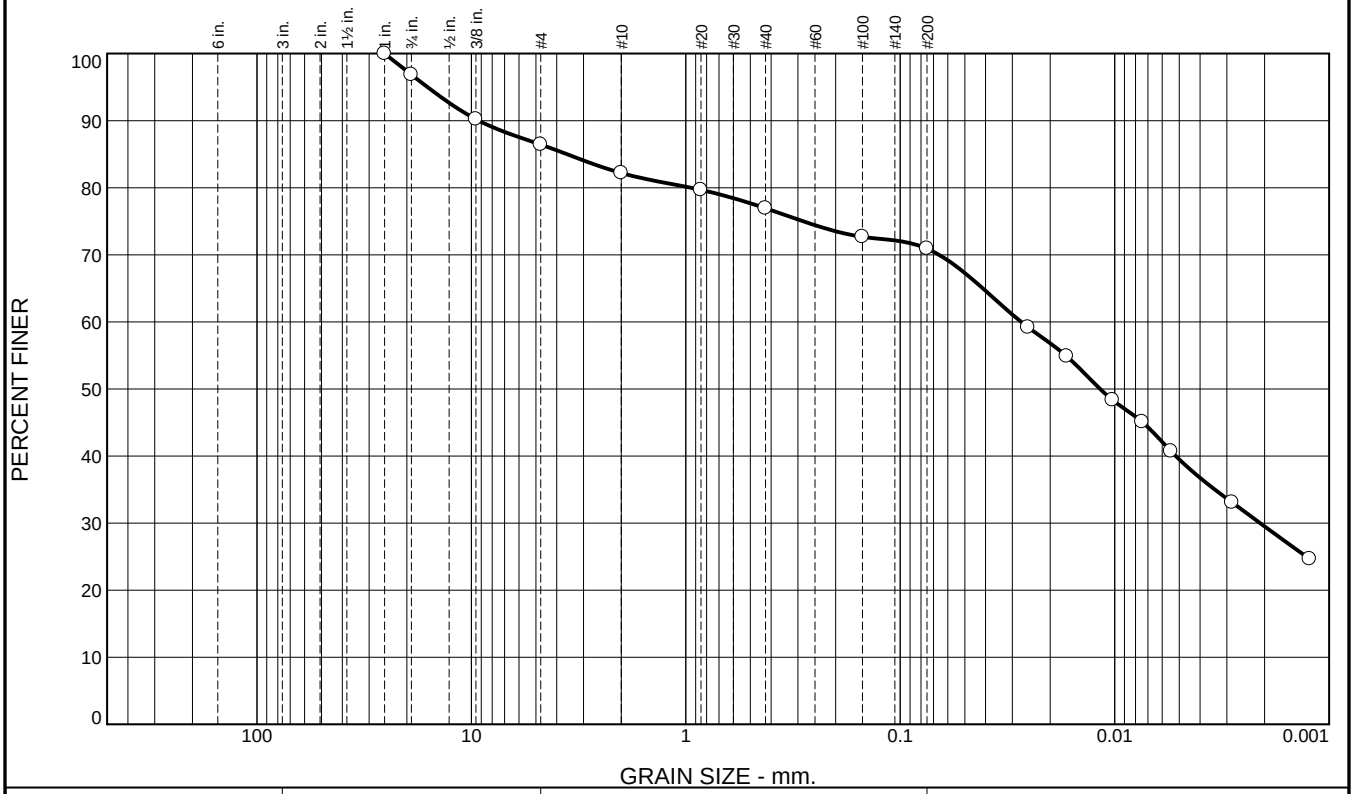
St. Albans, WV

Client: DLZ OHIO INC
Project: CF-4 TUNNEL DESIGN

Project No: 04-23-0374 **Figure** C-2

Tested By: NRC **Checked By:** BRETT MORRIS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	3	11	4	5	6	32	39

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.0"	100		
3/4"	97		
3/8"	90		
#4	86		
#10	82		
#20	80		
#40	77		
#100	73		
#200	71		
0.0253 mm.	59		
0.0167 mm.	55		
0.0102 mm.	48		
0.0074 mm.	45		
0.0055 mm.	41		
0.0028 mm.	33		
0.0012 mm.	25		

* (no specification provided)

Soil Description

BROWN LEAN CLAY WITH SAND

Atterberg Limits

PL= 22 LL= 36 PI= 14

Coefficients

D_{90}= 9.2543 D_{85}= 3.5883 D_{60}= 0.0273
D_{50}= 0.0117 D_{30}= 0.0021 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(9)

Remarks

Location: B-7
Sample Number: S-3 **Depth:** 5.0' - 6.5' **Date:** 7/16/24

Triad Engineering, Inc.

St. Albans, WV

Client: DLZ OHIO INC
Project: CF-4 TUNNEL DESIGN

Project No: 04-23-0374 **Figure** C-2

Tested By: NRC **Checked By:** BRETT MORRIS

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

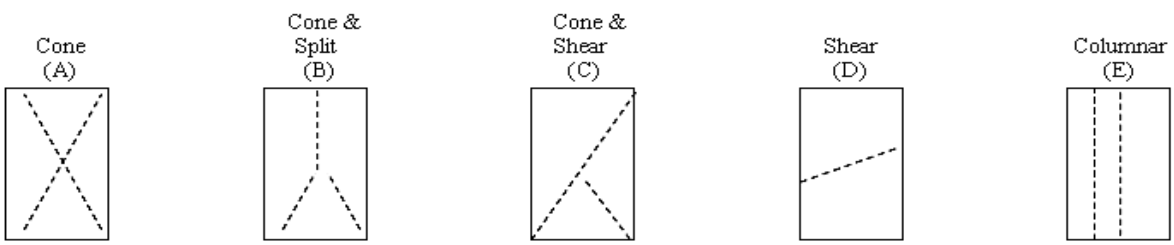
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-2 Depth: 26.7' - 27.3'

Sample Description: BROWN SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	3.979	1.946
#2	3.976	1.948
#3	3.977	1.949
Avg.	3.977	1.948

Length to Diameter Ratio :	**2.04**		Correction Factor:	**1**
Area:	**2.9793**	in^2	Flatness of Sample:	FLAT
Load:	**12830**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**4306**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**310**	$tons/ft^2$	Deformation Rate:	103 s
Corrected Strength :	**4306**	lbs/in^2	Type of Break:	C
Corrected Strength :	**310**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet

ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

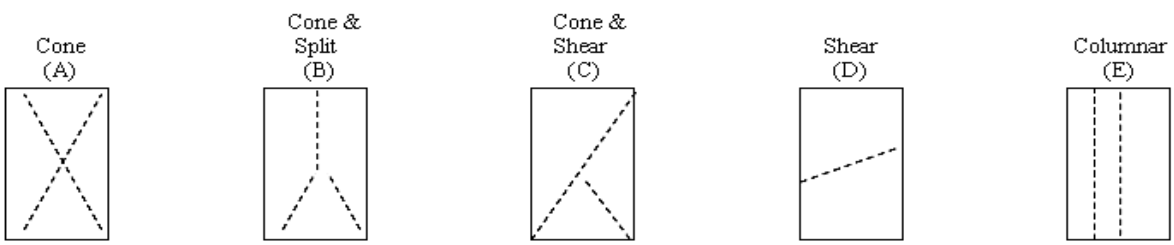
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-2 Depth: 29.6' - 30.1'

Sample Description: GRAY SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	4.005	1.955
#2	4.007	1.953
#3	4.006	1.953
Avg.	4.006	1.954

Length to Diameter Ratio :	**2.05**		Correction Factor:	**1**
Area:	**2.9977**	in^2	Flatness of Sample:	FLAT
Load:	**21420**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**7145**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**514**	$tons/ft^2$	Deformation Rate:	116 s
Corrected Strength :	**7145**	lbs/in^2	Type of Break:	B
Corrected Strength :	**514**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet

ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

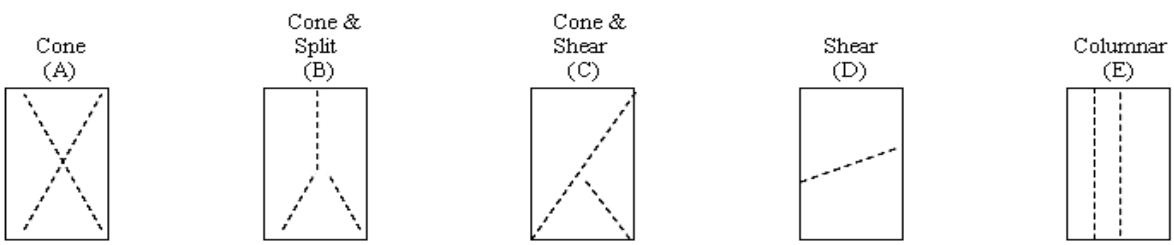
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-2 Depth: 30.7' - 31.2'

Sample Description: GRAY SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	3.962	1.953
#2	3.962	1.953
#3	3.964	1.954
Avg.	3.963	1.953

Length to Diameter Ratio :	**2.03**		Correction Factor:	**1**
Area:	**2.9967**	in^2	Flatness of Sample:	FLAT
Load:	**22020**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**7348**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**529**	$tons/ft^2$	Deformation Rate:	118 s
Corrected Strength :	**7348**	lbs/in^2	Type of Break:	B
Corrected Strength :	**529**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

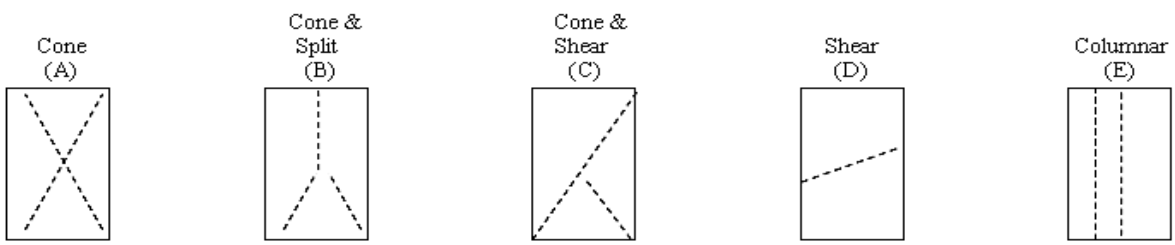
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-2 Depth: 33.7' - 34.1'

Sample Description: GRAY SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	3.905	1.958
#2	3.902	1.958
#3	3.903	1.958
Avg.	3.903	1.958

Length to Diameter Ratio :	**1.99**		Correction Factor:	**1**
Area:	**3.0110**	in^2	Flatness of Sample:	FLAT
Load:	**29940**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**9943**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**716**	$tons/ft^2$	Deformation Rate:	121 s
Corrected Strength :	**9943**	lbs/in^2	Type of Break:	B
Corrected Strength :	**716**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

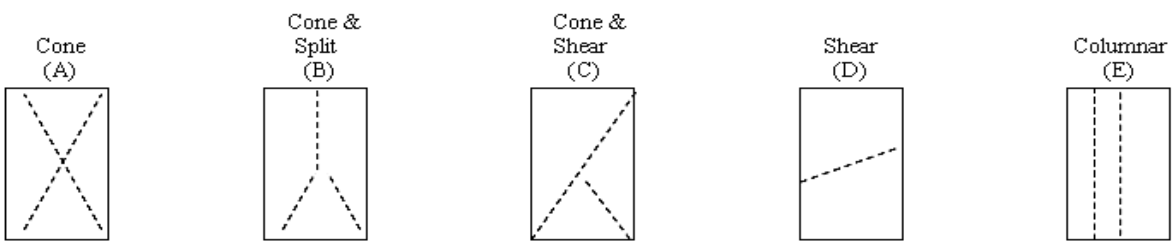
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-2 Depth: 36.0' - 36.4'

Sample Description: GRAY SILTSTONE

Measurements (inches)		
	Length	Diameter
#1	3.985	1.944
#2	3.983	1.944
#3	3.986	1.944
Avg.	3.985	1.944

Length to Diameter Ratio :	**2.05**		Correction Factor:	**1**
Area:	**2.9681**	in^2	Flatness of Sample:	FLAT
Load:	**15310**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**5158**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**371**	$tons/ft^2$	Deformation Rate:	114 s
Corrected Strength :	**5158**	lbs/in^2	Type of Break:	C
Corrected Strength :	**371**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet

ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

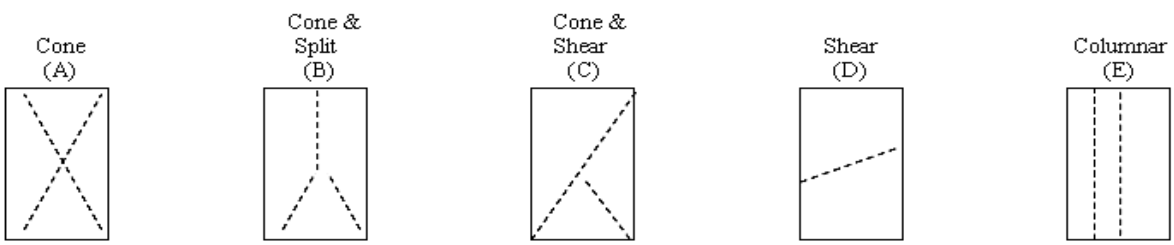
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-2 Depth: 39.3' - 39.8'

Sample Description: DARK GRAY SHALE

Measurements (inches)		
	Length	Diameter
#1	4.084	1.949
#2	4.083	1.952
#3	4.086	1.947
Avg.	4.084	1.949

Length to Diameter Ratio :	**2.10**		Correction Factor:	**1**
Area:	**2.9844**	in^2	Flatness of Sample:	FLAT
Load:	**17010**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**5700**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**410**	$tons/ft^2$	Deformation Rate:	116 s
Corrected Strength :	**5700**	lbs/in^2	Type of Break:	D
Corrected Strength :	**410**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet

ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

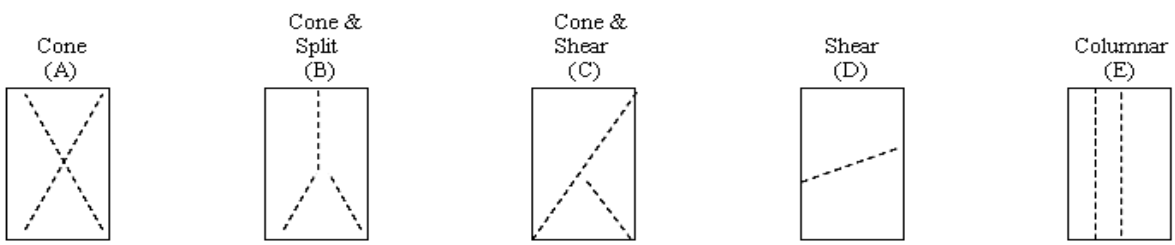
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-3 Depth: 45.8' - 46.3'

Sample Description: GRAY CLAYSTONE

Measurements (inches)		
	Length	Diameter
#1	4.230	1.955
#2	4.234	1.952
#3	4.233	1.956
Avg.	4.232	1.954

Length to Diameter Ratio :	**2.17**		Correction Factor:	**1**
Area:	**2.9998**	in^2	Flatness of Sample:	FLAT
Load:	**5860**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**1953**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**141**	$tons/ft^2$	Deformation Rate:	82 s
Corrected Strength :	**1953**	lbs/in^2	Type of Break:	D
Corrected Strength :	**141**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet

ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

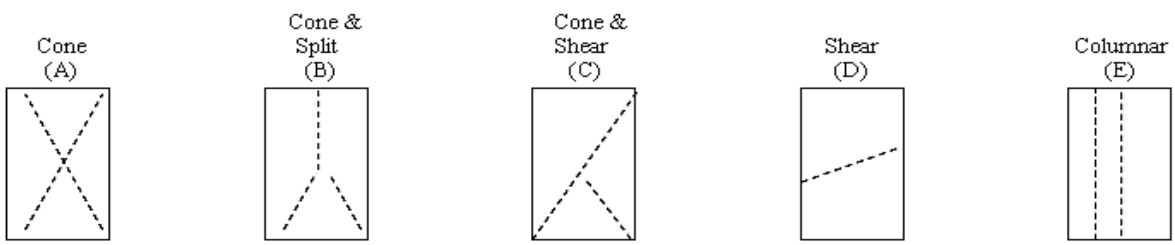
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-3 Depth: 48.5' - 48.8'

Sample Description: BROWN SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	3.045	1.966
#2	3.041	1.962
#3	3.042	1.964
Avg.	3.043	1.964

Length to Diameter Ratio :	**1.55**		Correction Factor:	**0.964**
Area:	**3.0295**	in^2	Flatness of Sample:	FLAT
Load:	**24260**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**8008**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**577**	$tons/ft^2$	Deformation Rate:	113 s
Corrected Strength :	**7720**	lbs/in^2	Type of Break:	B
Corrected Strength :	**556**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

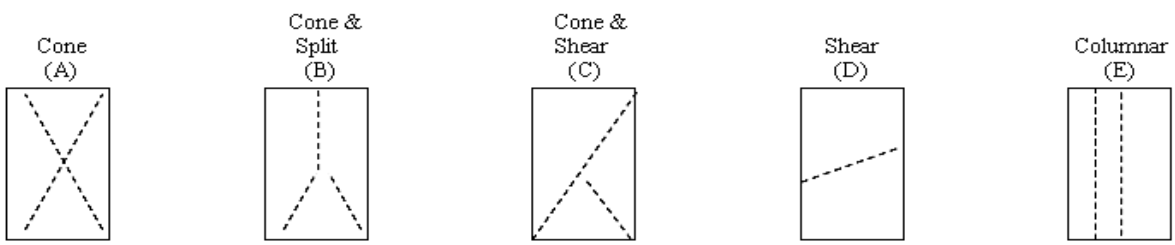
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-3 Depth: 48.8' - 49.1'

Sample Description: GRAY SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	2.502	1.965
#2	2.498	1.961
#3	2.499	1.963
Avg.	2.500	1.963

Length to Diameter Ratio :	**1.27**		Correction Factor:	**0.932**
Area:	**3.0264**	in^2	Flatness of Sample:	FLAT
Load:	**31380**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**10369**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**747**	$tons/ft^2$	Deformation Rate:	121 s
Corrected Strength :	**9664**	lbs/in^2	Type of Break:	B
Corrected Strength :	**696**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

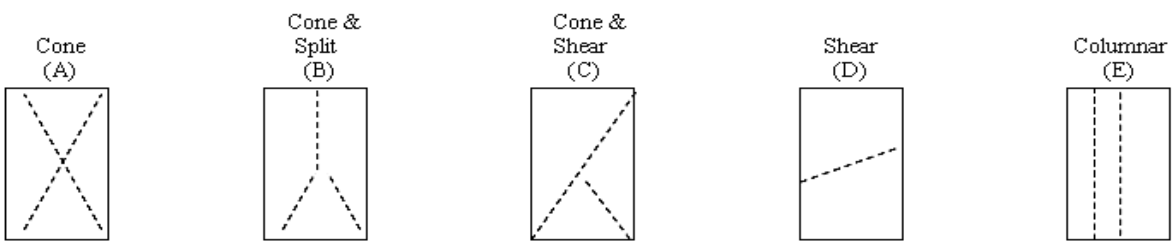
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-3 Depth: 52.2' - 52.8'

Sample Description: GRAY CLAYSTONE

Measurements (inches)		
	Length	Diameter
#1	2.628	2.044
#2	2.623	2.045
#3	2.625	2.047
Avg.	2.625	2.045

Length to Diameter Ratio :	**1.28**		Correction Factor:	**0.934**
Area:	**3.2856**	in^2	Flatness of Sample:	FLAT
Load:	**860**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**262**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**19**	$tons/ft^2$	Deformation Rate:	74 s
Corrected Strength :	**244**	lbs/in^2	Type of Break:	C
Corrected Strength :	**18**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

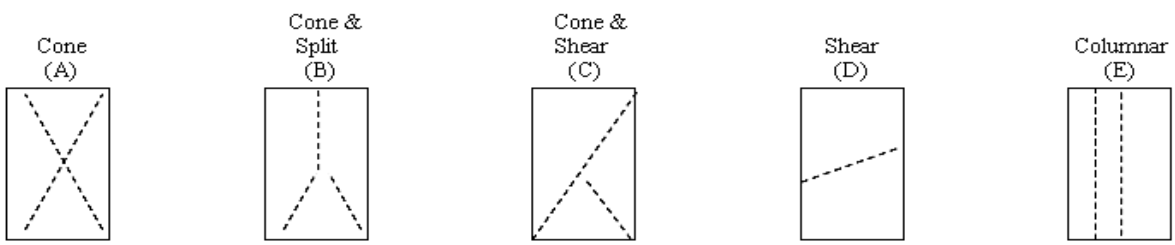
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-3 Depth: 56.0' - 56.5'

Sample Description: GRAY SILTSTONE

Measurements (inches)		
	Length	Diameter
#1	3.374	1.957
#2	3.370	1.955
#3	3.372	1.959
Avg.	3.372	1.957

Length to Diameter Ratio :	**1.72**		Correction Factor:	**0.978**
Area:	**3.0080**	in^2	Flatness of Sample:	FLAT
Load:	**15570**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**5176**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**373**	$tons/ft^2$	Deformation Rate:	98 s
Corrected Strength :	**5062**	lbs/in^2	Type of Break:	B
Corrected Strength :	**364**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet

ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

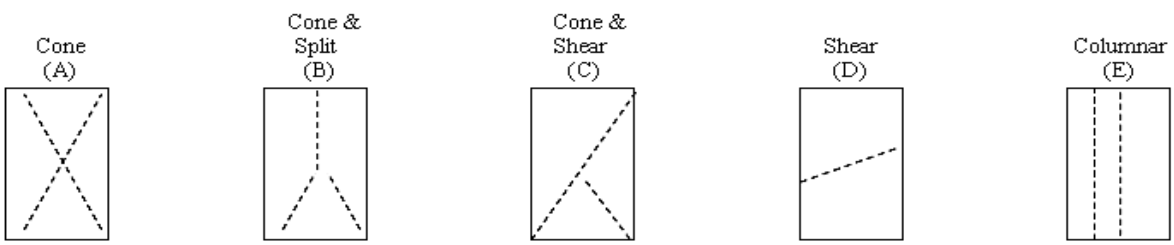
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-3 Depth: 57.6' - 58.1'

Sample Description: GRAY SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	3.956	1.958
#2	3.953	1.954
#3	3.953	1.956
Avg.	3.954	1.956

Length to Diameter Ratio :	**2.02**		Correction Factor:	**1**
Area:	**3.0049**	in^2	Flatness of Sample:	FLAT
Load:	**24050**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**8004**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**576**	$tons/ft^2$	Deformation Rate:	115 s
Corrected Strength :	**8004**	lbs/in^2	Type of Break:	C
Corrected Strength :	**576**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

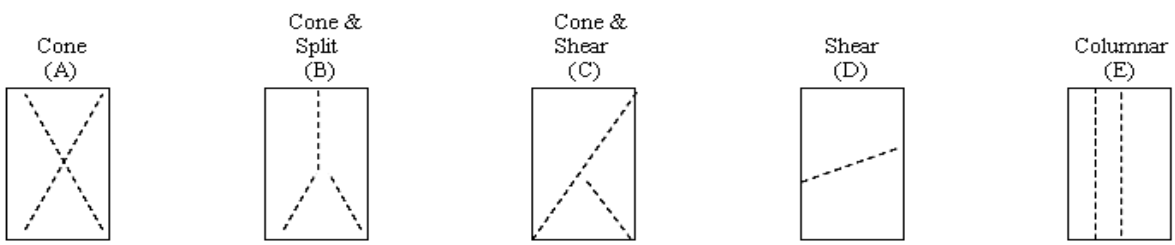
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-3 Depth: 59.0' - 59.6'

Sample Description: GRAY SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	3.830	1.952
#2	3.827	1.951
#3	3.828	1.949
Avg.	3.828	1.951

Length to Diameter Ratio :	**1.96**		Correction Factor:	**1**
Area:	**2.9885**	in^2	Flatness of Sample:	FLAT
Load:	**22200**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**7428**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**535**	$tons/ft^2$	Deformation Rate:	112 s
Corrected Strength :	**7428**	lbs/in^2	Type of Break:	C
Corrected Strength :	**535**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet

ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

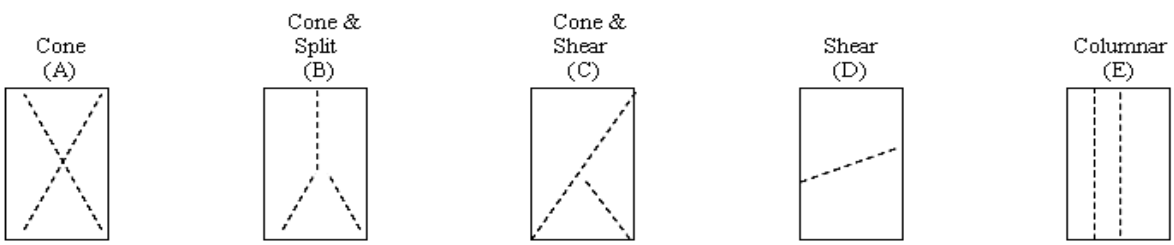
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-3 Depth: 62.8' - 63.3'

Sample Description: GRAY SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	4.046	1.948
#2	4.047	1.951
#3	4.044	1.953
Avg.	4.046	1.951

Length to Diameter Ratio :	**2.07**		Correction Factor:	**1**
Area:	**2.9885**	in^2	Flatness of Sample:	FLAT
Load:	**22730**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**7606**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**548**	$tons/ft^2$	Deformation Rate:	107 s
Corrected Strength :	**7606**	lbs/in^2	Type of Break:	C
Corrected Strength :	**548**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

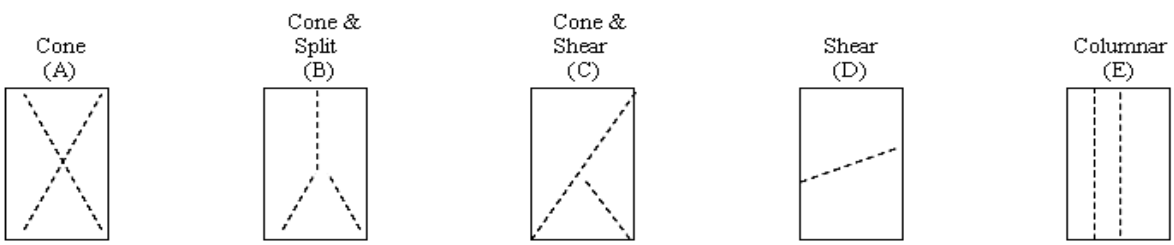
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-4 Depth: 58.1' - 58.5'

Sample Description: GRAY AND BROWN SILTSTONE AND CLAYSTONE

Measurements (inches)		
	Length	Diameter
#1	3.316	1.930
#2	3.310	1.925
#3	3.313	1.931
Avg.	3.313	1.929

Length to Diameter Ratio :	**1.72**		Correction Factor:	**0.978**
Area:	**2.9215**	in^2	Flatness of Sample:	FLAT
Load:	**2130**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**729**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**52**	$tons/ft^2$	Deformation Rate:	82 s
Corrected Strength :	**713**	lbs/in^2	Type of Break:	D
Corrected Strength :	**51**	$tons/ft^2$		



Remarks: SHEARED ALONG LINE SEPARATING CLAYSTONE AND SILTSTONE

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

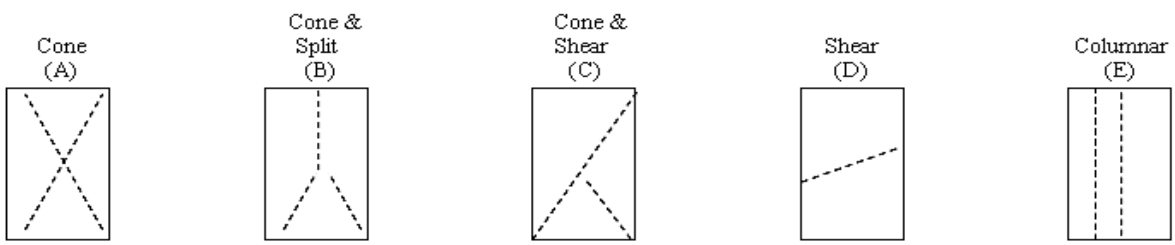
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-4 Depth: 60.6' - 61.0'

Sample Description: GRAY CLAYSTONE

Measurements (inches)		
	Length	Diameter
#1	2.967	1.933
#2	2.965	1.932
#3	2.969	1.932
Avg.	2.967	1.932

Length to Diameter Ratio :	**1.54**		Correction Factor:	**0.963**
Area:	**2.9326**	in^2	Flatness of Sample:	FLAT
Load:	**1610**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**549**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**40**	$tons/ft^2$	Deformation Rate:	78 s
Corrected Strength :	**529**	lbs/in^2	Type of Break:	C
Corrected Strength :	**38**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

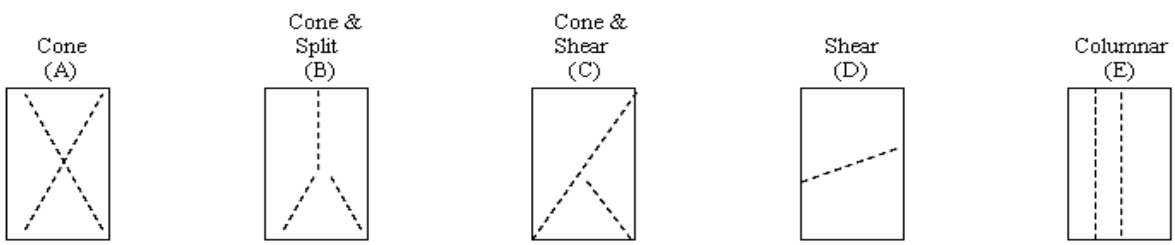
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-4 Depth: 62.8' - 63.2'

Sample Description: GRAY CLAYSTONE

Measurements (inches)		
	Length	Diameter
#1	3.681	1.956
#2	3.685	1.955
#3	3.682	1.955
Avg.	3.683	1.955

Length to Diameter Ratio :	**1.88**		Correction Factor:	**0.994**
Area:	**3.0028**	in^2	Flatness of Sample:	FLAT
Load:	**8440**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**2811**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**202**	$tons/ft^2$	Deformation Rate:	95 s
Corrected Strength :	**2794**	lbs/in^2	Type of Break:	C
Corrected Strength :	**201**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

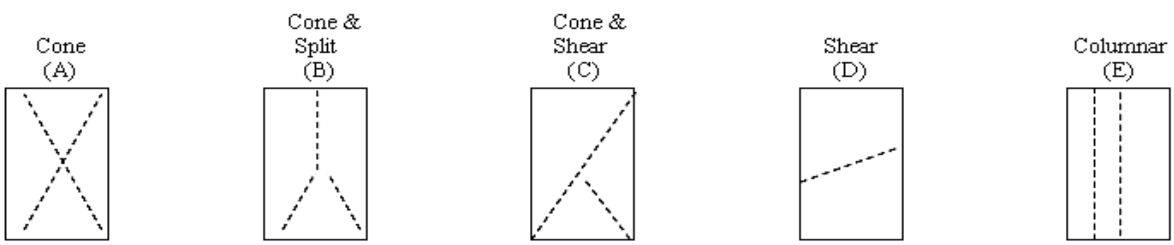
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-4 Depth: 63.9' - 64.4'

Sample Description: GRAY SILTSTONE

Measurements (inches)		
	Length	Diameter
#1	3.185	1.956
#2	3.188	1.956
#3	3.187	1.955
Avg.	3.187	1.956

Length to Diameter Ratio :	**1.63**		Correction Factor:	**0.97**
Area:	**3.0039**	in^2	Flatness of Sample:	FLAT
Load:	**15750**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**5243**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**378**	$tons/ft^2$	Deformation Rate:	98 s
Corrected Strength :	**5086**	lbs/in^2	Type of Break:	B
Corrected Strength :	**366**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

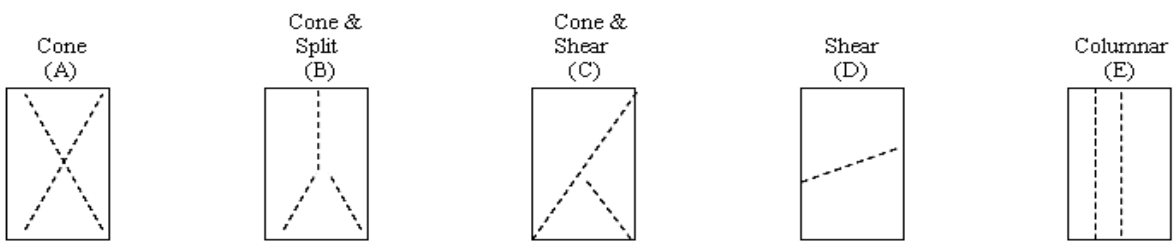
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-4 Depth: 69.8' - 70.2'

Sample Description: GRAY SILTSTONE

Measurements (inches)		
	Length	Diameter
#1	3.828	1.957
#2	3.826	1.959
#3	3.824	1.956
Avg.	3.826	1.957

Length to Diameter Ratio :	**1.95**		Correction Factor:	**1**
Area:	**3.0090**	in^2	Flatness of Sample:	FLAT
Load:	**21930**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**7288**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**525**	$tons/ft^2$	Deformation Rate:	108 s
Corrected Strength :	**7288**	lbs/in^2	Type of Break:	B
Corrected Strength :	**525**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet

ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

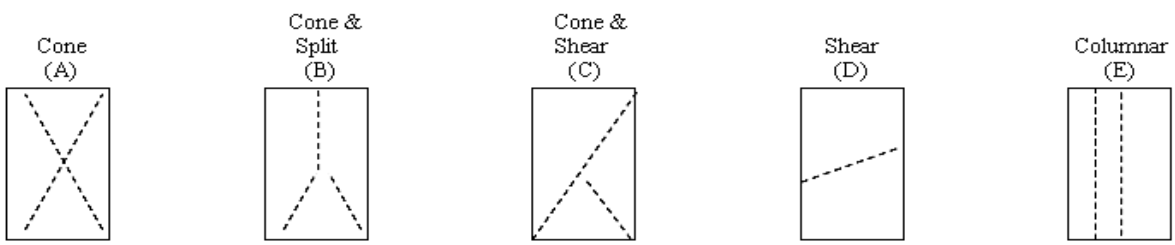
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-4 Depth: 72.0' - 72.5'

Sample Description: GRAYISH BROWN CLAYSTONE

Measurements (inches)		
	Length	Diameter
#1	3.916	1.959
#2	3.912	1.956
#3	3.914	1.957
Avg.	3.914	1.957

Length to Diameter Ratio :	**2.00**		Correction Factor:	**1**
Area:	**3.0090**	in^2	Flatness of Sample:	FLAT
Load:	**4150**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**1379**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**99**	$tons/ft^2$	Deformation Rate:	87 s
Corrected Strength :	**1379**	lbs/in^2	Type of Break:	C
Corrected Strength :	**99**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

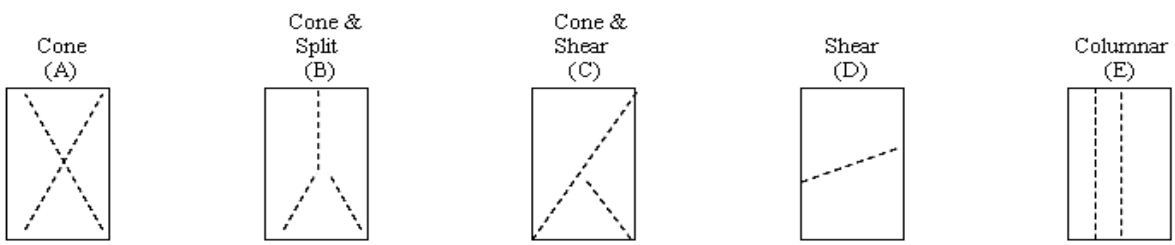
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-4 Depth: 75.1' - 75.8'

Sample Description: GRAY SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	3.911	1.956
#2	3.909	1.957
#3	3.910	1.954
Avg.	3.910	1.956

Length to Diameter Ratio :	**2.00**		Correction Factor:	**1**
Area:	**3.0039**	in^2	Flatness of Sample:	FLAT
Load:	**21490**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**7154**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**515**	$tons/ft^2$	Deformation Rate:	107 s
Corrected Strength :	**7154**	lbs/in^2	Type of Break:	C
Corrected Strength :	**515**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet

ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

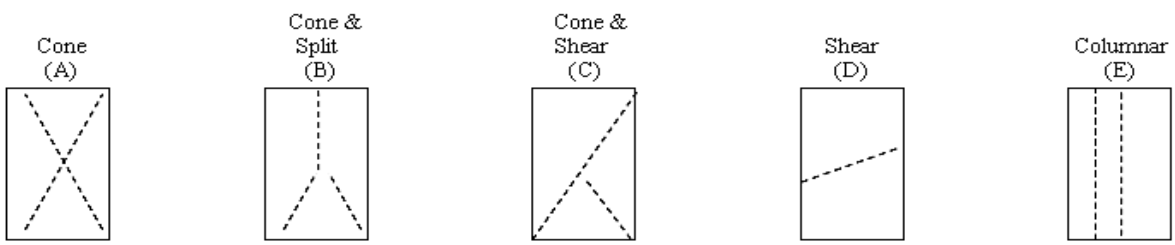
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-4 Depth: 76.9' - 77.5'

Sample Description: GRAY SANDSTONE

Measurements (inches)		
	Length	Diameter
#1	3.919	1.940
#2	3.916	1.938
#3	3.914	1.942
Avg.	3.916	1.940

Length to Diameter Ratio :	**2.02**		Correction Factor:	**1**
Area:	**2.9559**	in^2	Flatness of Sample:	FLAT
Load:	**18440**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**6238**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**449**	$tons/ft^2$	Deformation Rate:	102 s
Corrected Strength :	**6238**	lbs/in^2	Type of Break:	C
Corrected Strength :	**449**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

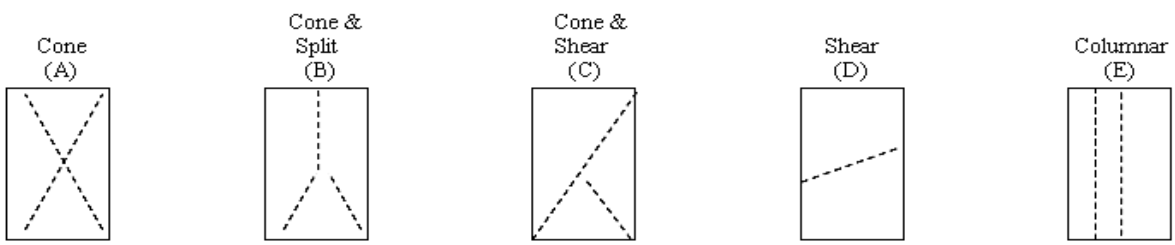
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-5 Depth: 53.7' - 54.0'

Sample Description: GRAY CLAYSTONE

Measurements (inches)		
	Length	Diameter
#1	3.477	1.942
#2	3.476	1.942
#3	3.479	1.944
Avg.	3.477	1.943

Length to Diameter Ratio :	**1.79**		Correction Factor:	**0.984**
Area:	**2.9641**	in^2	Flatness of Sample:	FLAT
Load:	**5560**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**1876**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**135**	$tons/ft^2$	Deformation Rate:	89 s
Corrected Strength :	**1846**	lbs/in^2	Type of Break:	B
Corrected Strength :	**133**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

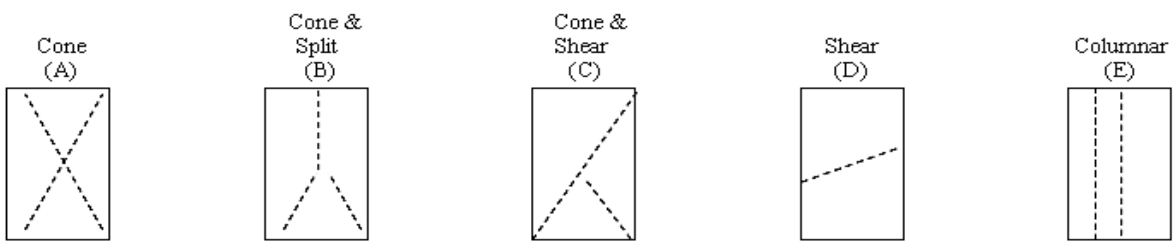
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-5 Depth: 55.1' - 55.7'

Sample Description: GRAYISH BROWN LIMESTONE

Measurements (inches)		
	Length	Diameter
#1	3.999	1.960
#2	3.994	1.960
#3	3.996	1.960
Avg.	3.996	1.960

Length to Diameter Ratio :	**2.04**		Correction Factor:	**1**
Area:	**3.0172**	in^2	Flatness of Sample:	FLAT
Load:	**19150**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**6347**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**457**	$tons/ft^2$	Deformation Rate:	105 s
Corrected Strength :	**6347**	lbs/in^2	Type of Break:	B
Corrected Strength :	**457**	$tons/ft^2$		



Remarks: NORMAL HCL REACTION, FOSSIL FRAGMENTS PRESENT

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet

ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

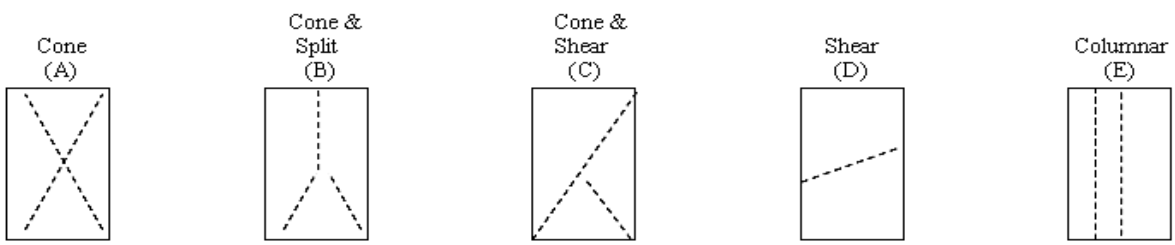
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-5 Depth: 59.1' - 59.6'

Sample Description: GRAY CLAYSTONE

Measurements (inches)		
	Length	Diameter
#1	4.117	1.943
#2	4.115	1.943
#3	4.114	1.942
Avg.	4.115	1.943

Length to Diameter Ratio :	**2.12**		Correction Factor:	**1**
Area:	**2.9641**	in^2	Flatness of Sample:	FLAT
Load:	**5420**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**1829**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**132**	$tons/ft^2$	Deformation Rate:	90 s
Corrected Strength :	**1829**	lbs/in^2	Type of Break:	C
Corrected Strength :	**132**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

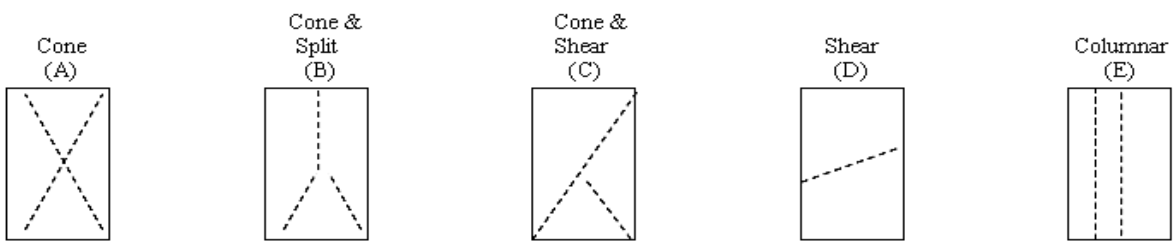
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-5 Depth: 61.9' - 62.3'

Sample Description: GRAY CLAYSTONE

Measurements (inches)		
	Length	Diameter
#1	4.273	1.943
#2	4.271	1.948
#3	4.269	1.946
Avg.	4.271	1.946

Length to Diameter Ratio :	**2.20**		Correction Factor:	**1**
Area:	**2.9732**	in^2	Flatness of Sample:	FLAT
Load:	**7700**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**2590**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**186**	$tons/ft^2$	Deformation Rate:	92 s
Corrected Strength :	**2590**	lbs/in^2	Type of Break:	B
Corrected Strength :	**186**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

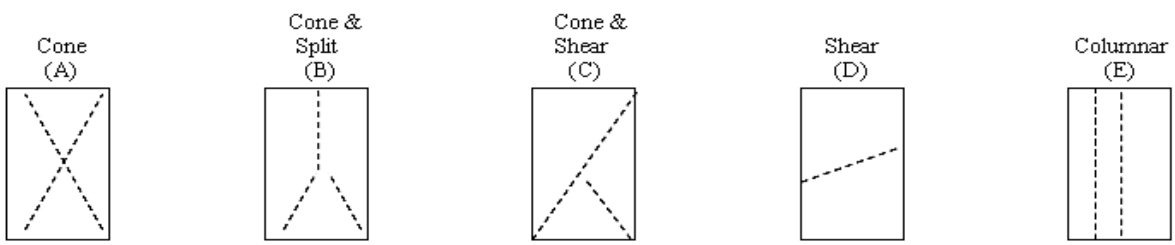
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-5 Depth: 64.7' - 65.2'

Sample Description: GRAY SILTSTONE

Measurements (inches)		
	Length	Diameter
#1	3.799	1.940
#2	3.796	1.936
#3	3.797	1.938
Avg.	3.797	1.938

Length to Diameter Ratio :	**1.96**		Correction Factor:	**1**
Area:	**2.9498**	in^2	Flatness of Sample:	FLAT
Load:	**12020**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**4075**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**293**	$tons/ft^2$	Deformation Rate:	101 s
Corrected Strength :	**4075**	lbs/in^2	Type of Break:	B
Corrected Strength :	**293**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PHONE NO. (304) 755-0721
FAX NO. (304) 755-1880

Triad Engineering, Inc.

Rock Core Compressive Strength Worksheet
ASTM D7012

Project Name: CF-4 TUNNEL DESIGN

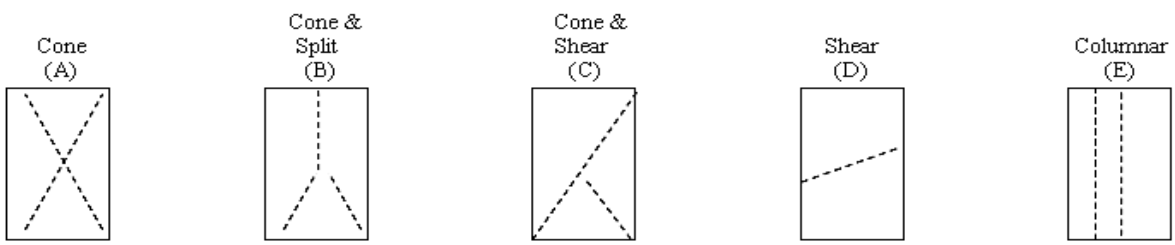
Project # : 04-23-0374 Date : 7/16/2024

Core # : B-5 Depth: 66.1' - 66.5'

Sample Description: GRAY SILTSTONE

Measurements (inches)		
	Length	Diameter
#1	4.079	1.944
#2	4.081	1.946
#3	4.080	1.945
Avg.	4.080	1.945

Length to Diameter Ratio :	**2.10**		Correction Factor:	**1**
Area:	**2.9712**	in^2	Flatness of Sample:	FLAT
Load:	**11080**	lbs	Surface Straightness:	STRAIGHT
Compressive Strength:	**3729**	lbs/in^2	Moisture Condition:	DRY
Compressive Strength:	**268**	$tons/ft^2$	Deformation Rate:	100 s
Corrected Strength :	**3729**	lbs/in^2	Type of Break:	B
Corrected Strength :	**268**	$tons/ft^2$		



Remarks:

Tested by: NRC Checked by: BRETT MORRIS

Figure C

Earth Mechanics Institute

Colorado School of Mines

Client: Triad Engineering

Mining Engineering Department

Project: 765

Date:7/10/2024

Cerchar Abrasivity Test

ASTM D7625

Sample ID	Rock Type	Cerchar Abrasivity Index (CAIs)*
B-2 31.2' - 31.6'	Sedimentary	1.89
B-3 55.8' - 56.8'	Sedimentary	0.70
B-3 58.3' - 58.5'	Sedimentary	1.45
B-4 65.8' - 66.1'	Sedimentary	1.24
B-5 62.3' - 62.8'	Sedimentary	0.87

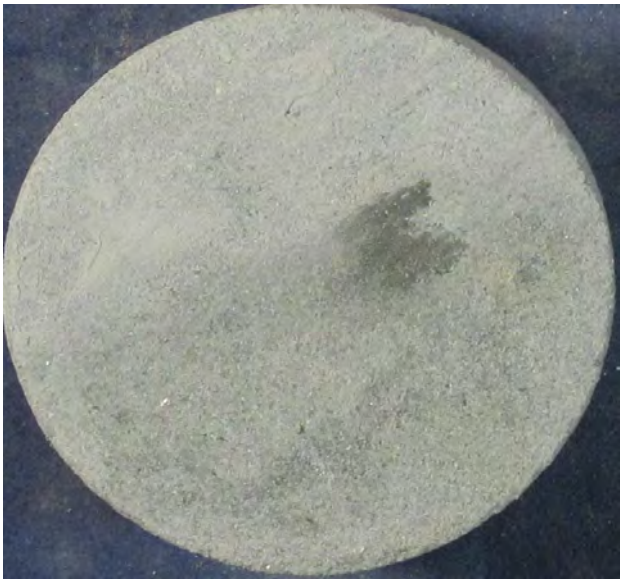
* CERCHAR tests have been run on saw cut surface. No correction factor has been added to the results.

Pictures of Sample Before and After
Cerchar Abrasivity Index

Client Name: Triad Engineering **EMI#** 765

Project Name: CF4 Tunnel Design **Date:** 7/10/2024

Sample ID: B-2 31.2' - 31.6'



Before

After

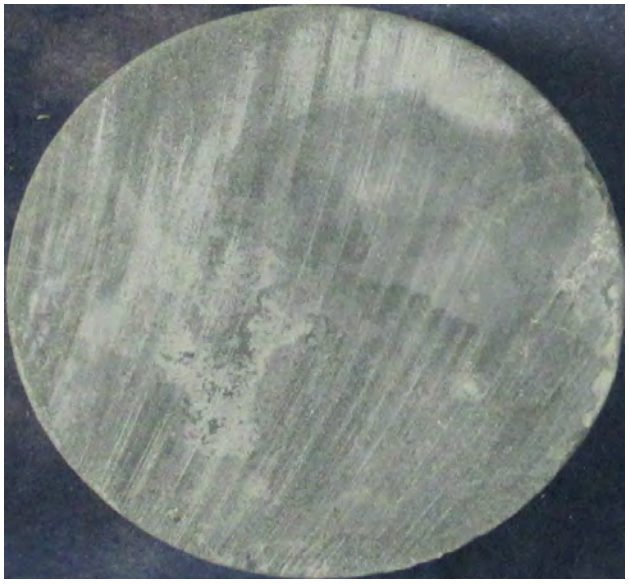
Operator:	DL, RA	**Date:**	7/10/2024
Supervisor/QA:	KZ	**Date:**	7/18/2024
Principal Investigator:	-	**Date:**	-

Pictures of Sample Before and After
Cerchar Abrasivity Index

Client Name: Triad Engineering **EMI#** 765

Project Name: CF4 Tunnel Design **Date:** 7/10/2024

Sample ID: B-3 55.8' - 56.8'



Before

After

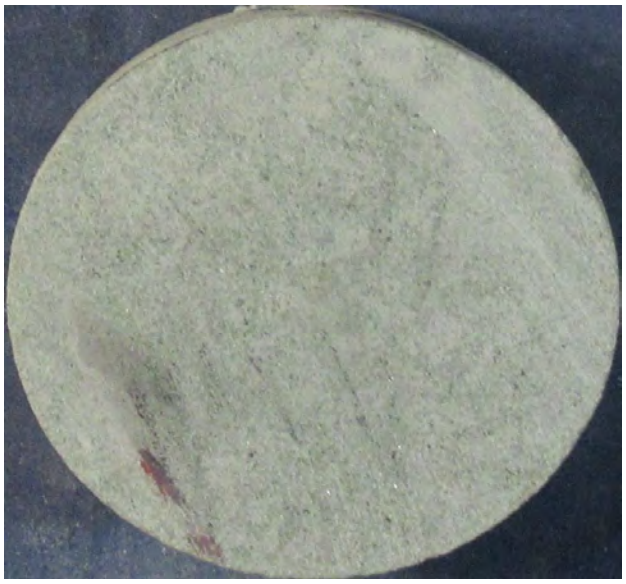
Operator:	DL, RA	**Date:**	7/10/2024
Supervisor/QA:	KZ	**Date:**	7/18/2024
Principal Investigator:	-	**Date:**	-

Pictures of Sample Before and After
Cerchar Abrasivity Index

Client Name: Triad Engineering **EMI#** 765

Project Name: CF4 Tunnel Design **Date:** 7/10/2024

Sample ID: B-3 58.3' - 58.5'



Before

After

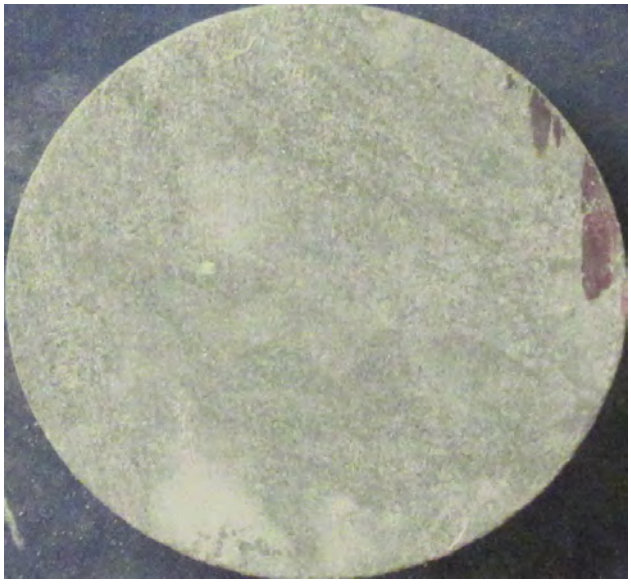
Operator:	DL, RA	**Date:**	7/10/2024
Supervisor/QA:	KZ	**Date:**	7/18/2024
Principal Investigator:	-	**Date:**	-

Pictures of Sample Before and After
Cerchar Abrasivity Index

Client Name: Triad Engineering **EMI#** 765

Project Name: CF4 Tunnel Design **Date:** 7/10/2024

Sample ID: B-4 65.8' - 66.1'



Before

After

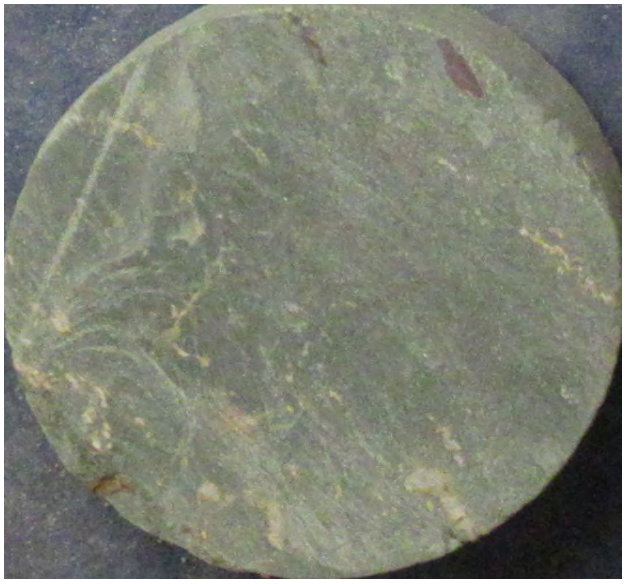
Operator:	DL, RA	**Date:**	7/10/2024
Supervisor/QA:	KZ	**Date:**	7/18/2024
Principal Investigator:	-	**Date:**	-

Pictures of Sample Before and After
Cerchar Abrasivity Index

Client Name: Triad Engineering **EMI#** 765

Project Name: CF4 Tunnel Design **Date:** 7/10/2024

Sample ID: B-5 62.3' - 62.8'



Before

After

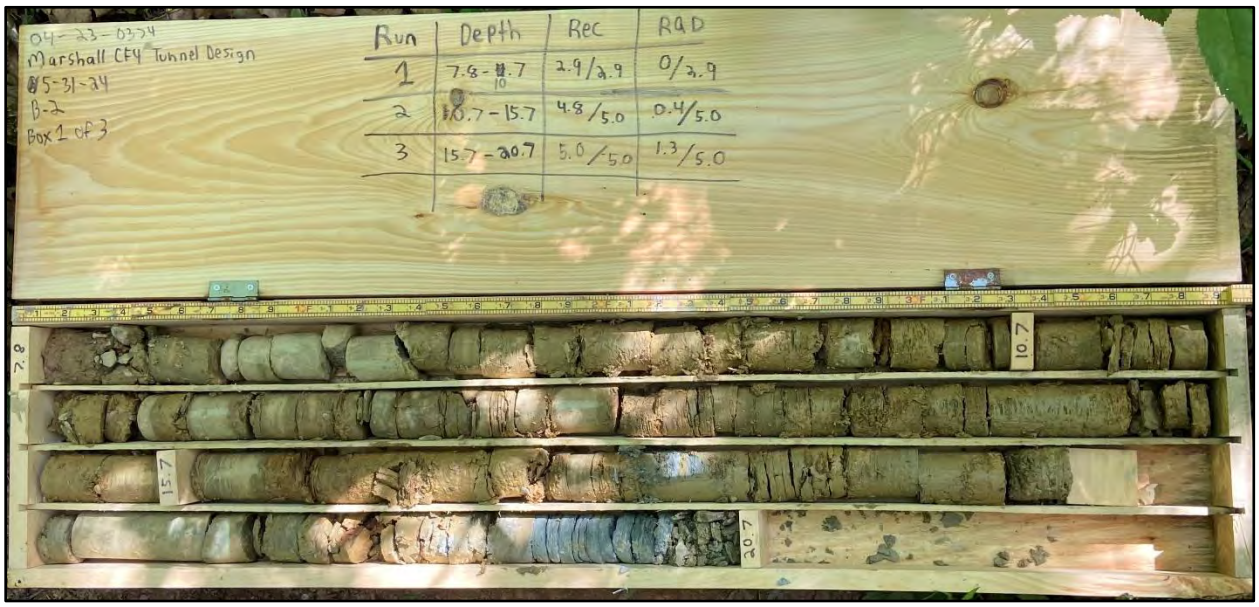
Operator:	DL, RA	**Date:**	7/10/2024
Supervisor/QA:	KZ	**Date:**	7/18/2024
Principal Investigator:	-	**Date:**	-

TRIAD ENGINEERING, INC.

APPENDIX D

Rock Core Photographs

ROCK CORE PHOTOGRAPHS



Boring B-2: Box 1 of 3

Boring B-2: Box 2 of 3

ROCK CORE PHOTOGRAPHS

Boring B-2: Box 3 of 3

Boring B-3: Box 1 of 3

ROCK CORE PHOTOGRAPHS

Boring B-3: Box 2 of 3

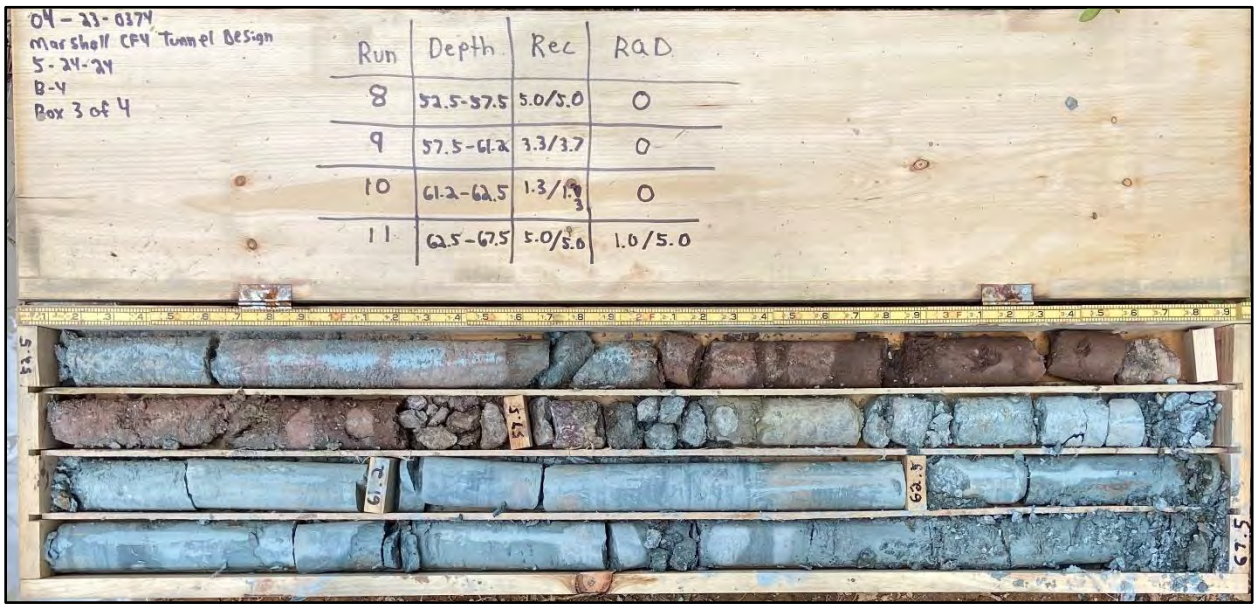
Boring B-3: Box 3 of 3

ROCK CORE PHOTOGRAPHS

Boring B-4: Box 1 of 4

Boring B-4: Box 2 of 4

ROCK CORE PHOTOGRAPHS



Boring B-4: Box 3 of 4

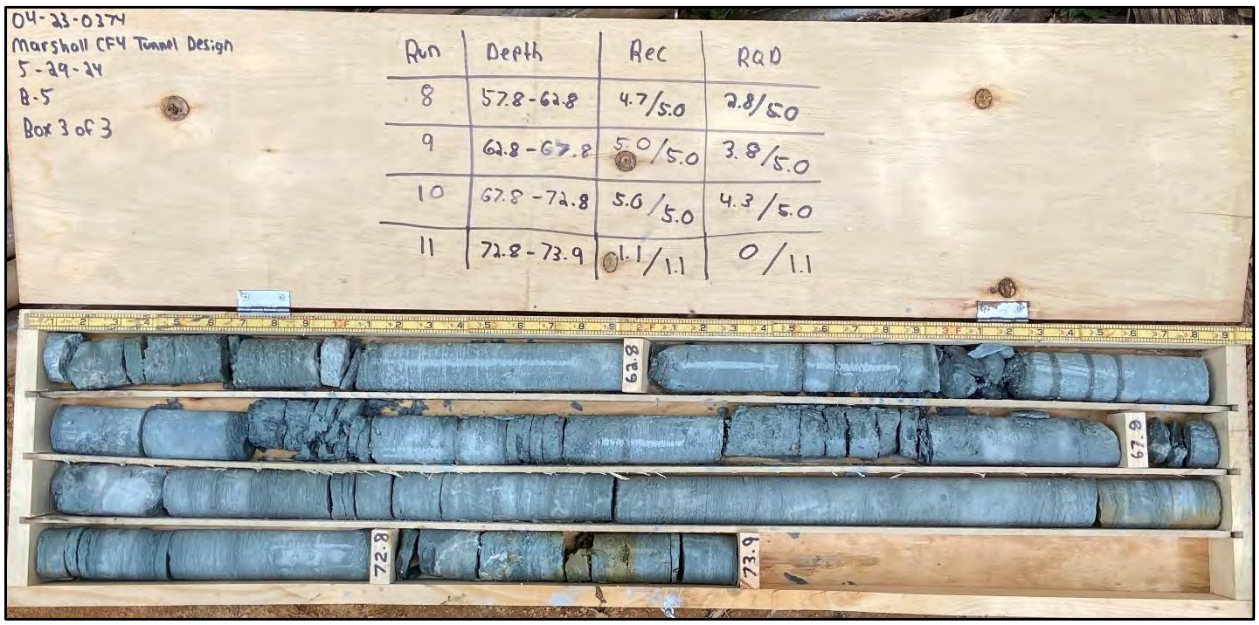
Boring B-4: Box 4 of 4

ROCK CORE PHOTOGRAPHS

Boring B-5: Box 1 of 3

Boring B-5: Box 2 of 3

ROCK CORE PHOTOGRAPHS



Boring B-5: Box 3 of 3

Boring B-7: Box 1 of 1

Attachment B

September 4, 2024

Office of Land and Streams
RIGHT OF ENTRY

Marshall University
Attention: Grant Wooten
Triad Engineering, Inc.
10541 Teays Valley Road
Scott Depot, WV 25560

Re: R-2024-V-06-17323

To Whom It May Concern:

The West Virginia Division of Natural Resources (WVDNR) hereby authorizes for a term of 25 years, from the date hereof, a Right of Entry for the purpose of cleaning out the stream and stabilizing the stream banks for 110' (Marshall CF4), along Guyandotte River, near Huntington, in Cabell County, West Virginia.

The issuance of this Right of Entry by the WVDNR does not preclude the necessity to obtain permits from the U.S. Army Corps of Engineers (USACE), W.V. Department of Environmental Protection (WVDEP), or the W.V. Division of Homeland Security and Emergency Management (WVDHSEM). This Right of Entry does not negate the need to comply with the West Virginia Water Pollution Control Act and/or the State Environmental Quality Board's administrative regulations.

It is advised to contact the following agencies for additional guidelines and/or regulations:

1. The USACE [Huntington District (304-399-5210) or the Pittsburgh District (412-395-7155)] may require either an Individual Clean Water Act 404 permit or a Nationwide Permit.
   http://www.lrh.usace.army.mil/Missions/Regulatory.aspx

2. The WVDNR Environmental Coordination Unit (304-637-0245) should be contacted for the Mussel survey requirements for streams with mussel populations as described in the West Virginia Mussel Survey Protocol
   http://www.wvdnr.gov/Mussels/West%20Virginia%20Mussel%20Survey%20Protocols%20APR2016.pdf

3. The WVDEP (304-926-0499) may require the following permits:
   a. A Clean Water Act Section 401 Water Quality Certification
      http://www.dep.wv.gov/WWE/Programs/Pages/401Certification.aspx

   b. Construction Stormwater Site Registration and Notice of Intent. Not needed if disturbance less than (1) acre.
      http://dep.wv.gov/WWE/Programs/stormwater/Pages/sw_home.aspx

4. The Division of Water and Waste Management, (304-926-0495) should be contacted for the WVDEP Erosion and Sediment Control Best Management Practice Manual, Revised 2016, that it requires to be followed.
   http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/ESC_BMP.aspx

5. The WVDHSEM (304-957-2571) may require a Floodplain Permit.

6. The U.S. Fish and Wildlife Service Field Office (304-636-6568) should be contacted for any activity in waterways listed in Appendix A of the 2017 USACE Nationwide Permits for threatened or endangered aquatic species identified by the U.S. Fish and Wildlife Service.
   http://www.lrp.usace.army.mil/Portals/72/docs/regulatory/2017%20Public%20Notices/West%20Virginia%20-%20NWP%20March%202017%20PN.pdf?ver=2017-03-22-095505-870

7. The local Conservation District for the district where the work is to be performed should be contacted for technical support.

This Right of Entry does not allow in-stream work to be performed during the cold-water fish spawning season (September 15- March 31) and warm-water fish spawning season (April 1 - June 30). Spawning waivers may be obtained from the WVDNR Environmental Coordination Unit (304-637-0245).

This Right of Entry does not allow work outside the requested boundaries. The WVDNR does not assume any liability for your construction activities. By accepting this Right of Entry, you assume liability for any and all damage caused by this activity to both upstream and downstream landowners.

This Right of Entry does not authorize any rights or privileges, or permission to enter upon, or to cross the property of any other person, nor does it authorize removal of any material that lies upon the property of another person.

All work authorized under this Right of Entry should be completed as soon as possible, but no longer than one year from the date hereof.

There is no fee for this Right of Entry.

Please notify the Office of Land and Streams in writing when the in-stream work is complete.

Sincerely,

Brett W. McMillion
Director

BWM: lp

Nathan Dickman, P.E.

From: Dave Meadows <dmeadows@triadeng.com>
Sent: Tuesday, October 15, 2024 12:57 PM
To: Joe Young; John Haynes; Lloyd Kirk; Caleb Wise; Greg Michaelson; Nathan Dickman, P.E.; Jeffrey Coffey; Salmons, Brie; Mark Kessinger; Arka Chattopadhyay; Brian E. Mott, P.G.; Dave Meadows; Grant Wooten
Subject: Fw: Marshall CF4 - Fish Spawning Waiver
Attachments: FishSpawningWaiver.xlsx

FYI - See below

David F. Meadows, P.E., P.S., F.ASCE, F.SAME
ASCE Region 4 Governor
Chief Technical Officer / Triad Engineering, Inc.
304-546-3481

From: Joe Young <jyoung@triadeng.com>
Sent: Tuesday, October 15, 2024 12:55 PM
To: Dave Meadows <dmeadows@triadeng.com>
Subject: Fwd: Marshall CF4 - Fish Spawning Waiver

Fish spawning approved.
Sent from my iPhone

Begin forwarded message:

> **From:** "Wakeford, Anne M" <anne.m.wakeford@wv.gov>
> **Date:** October 15, 2024 at 12:44:18 PM EDT
> **To:** Grant Wooten <gwooten@triadeng.com>, Joe Young <jyoung@triadeng.com>, Jeff L Hansbarger <jeff.l.hansbarger@wv.gov>
> **Subject: Fwd: Marshall CF4 - Fish Spawning Waiver**

Your fish spawning waiver request is approved.

This email serves as your approval.

Please contact me if you have any questions or concerns.

Regards,

Anne

Anne M. Wakeford
Coordination Biologist
WVDNR/EOC
738 Ward Rd.
PO Box 67
Elkins, WV 26241
304-630-0360 (direct)
304-637-0245 ext 00360
Anne.M.Wakeford@wv.gov

---------- Forwarded message ---------
From: **Grant Wooten** <gwooten@triadeng.com>
Date: Tue, Oct 15, 2024 at 11:55 AM
Subject: RE: Marshall CF4 - Fish Spawning Waiver
To: Wakeford, Anne M <anne.m.wakeford@wv.gov>
Cc: Joe Young <jyoung@triadeng.com>

See attached. Please let us know if you have any questions or if additional information is needed.

Thanks, Grant

From: Wakeford, Anne M <anne.m.wakeford@wv.gov>
Sent: Thursday, October 10, 2024 1:20 PM
To: Grant Wooten <gwooten@triadeng.com>; Joe Young <jyoung@triadeng.com>
Subject: Re: Marshall CF4 - Fish Spawning Waiver

Attached are the fish spawning waiver excel spreadsheet and instructions.

Please fill out the form and email it back to me.

Thanks

Anne

Anne M. Wakeford
Coordination Biologist
WVDNR/EOC
738 Ward Rd.
PO Box 67
Elkins, WV 26241
304-630-0360 (direct)
304-637-0245 ext 00360
Anne.M.Wakeford@wv.gov

On Tue, Oct 8, 2024 at 9:28 AM Grant Wooten <gwooten@triadeng.com> wrote:

> Hello,
>
> I recently spoke with someone from the Elkins office regarding the process for obtaining a fish spawning waiver. We have received a Right of Entry permit from the Office of Land and Streams, but it does not allow in-stream work between September 15-March 15 and April 1-June 30. How can we obtain approval for in-stream work during these months?
>
> Thanks, Grant
>
> **Grant Wooten**
> **Staff Engineer**
>
> **Triad Engineering, Inc.**
> 304-755-0721 (Office)
> 304-610-8103 (Mobile)
> LinkedIn | Facebook | www.triadeng.com
>
>

Attachment C

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, HUNTINGTON DISTRICT
502 8TH STREET
HUNTINGTON, WV 25701-2018

October 15, 2024

Regulatory Division
Energy Resource Branch
LRH-2024-00643-GUY-UNT Guyandotte River

NATIONWIDE PERMIT NO. 33 VERIFICATION

Caleb Wise
Marshall University
1 John Marshall Drive
Huntington, West Virginia 25755

Dear Caleb Wise:

I refer to the pre-construction notification (PCN) requesting a Department of the Army (DA) authorization for the discharge of dredged and/or fill material into waters of the United States (U.S.) in association with the construction of the MU Subterranean Testing Facility Project. The project is located in the city of Huntington, Cabell County, West Virginia. The proposed activity is located at approximately 38.405556°N, 82.373397°W. Your PCN has been assigned the following file number: LRH-2024-00643-GUY-UNT Guyandotte River. Please reference this number on all future correspondence related to this project.

The U.S. Army Corps of Engineers' (Corps) authority to regulate waters of the U.S. is based on the definitions and limits of jurisdiction contained in 33 CFR 328 and 33 CFR 329. Section 404 of the Clean Water Act (Section 404) requires a DA permit be obtained prior to discharging dredged and/or fill material into waters of the U.S., including wetlands. Section 10 of the Rivers and Harbors Act of 1899 (Section 10) requires a DA permit be obtained for any work in, on, over or under a navigable water.

The proposed project, as described in the submitted information, has been reviewed in accordance with Section 404 and Section 10. Based on your description of the proposed work, and other information available to us, it has been determined that this project will not involve activities subject to the requirements of Section 10. However, this project will include the discharge of dredged and/or fill material into waters of the U.S. subject to the requirements of Section 404.

In the submitted PCN materials, you have requested a DA authorization for the temporary discharge of dredged and/or fill material into 110 linear feet (0.04 acre) of one (1) stream, in association with construction of the MU Subterranean Testing Facility Project. The proposed project would include the temporary installation of three (3) culverts and clean engineered fill in an unnamed tributary of the Guyandotte River to facilitate access for the construction of a subterranean testing facility. The culverts and engineered fill will be removed once construction

of the tunnel is completed. All work will be conducted in accordance with the PCN received in this office on August 8, 2024.

Based on the provided information, it has been determined the proposed project meets the criteria for Nationwide Permit (NWP) No. 33 (enclosed) under the December 27, 2021 Federal Register (FR), Issuance and Reissuance of NWPs (86 FR 73522) provided you comply with all terms and conditions of the enclosed material, the enclosed special conditions, and the Section 401 Water Quality Certifications (401 WQC) issued by the West Virginia Department of Environmental Protection.

Please be aware this NWP verification does not obviate the requirement to obtain other local, state, and/or federal authorizations required by law for these activities. This verification is valid until the expiration date of the NWPs, unless the NWP authorization is modified, suspended, or revoked. The verification will remain valid if the NWP authorization is reissued without modification or the activity complies with any subsequent modification of the NWP authorization. The 2021 NWPs are scheduled to be modified, reissued, or revoked on March 14, 2026. Prior to this date, it is not necessary to contact this office for re-verification of your project unless the plans for the proposed activity are modified. Furthermore, if you commence or under contract to commence this activity before March 14, 2026, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

Enclosed is a copy of the NWPs and the 401 WQC to be kept at the project site during construction. You shall supply a copy of these documents to your project engineer responsible for construction activities.

Upon completion of the work, the enclosed certification must be signed and returned to this office. If you have any questions concerning the above, please contact Rachel McCarty of the Energy Resource Branch at 304-399-5207, by mail at the above address, or by email at: rachel.a.mccarty@usace.army.mil.

Sincerely,

Kimberly Courts-Brown

Kimberly Courts-Brown
Regulatory Project Manager
Energy Resource Branch

Enclosures

Nationwide Permit No. 33 Verification Special Conditions for the Marshall University – MU Subterranean Testing Facility Project LRH-2024-00643-GUY-UNT Guyandotte River 1 of 2

1. All work will be conducted in accordance with the submitted pre-construction notification (PCN) for the MU Subterranean Testing Facility Project received in this office on August 8, 2024.

2. Enclosed is a copy of Nationwide Permit 33, which will be kept at the site during construction. A copy of the nationwide permit verification, special conditions, and the attached construction plans must be kept at the site during construction. The permittee will supply a copy of these documents to their project engineer responsible for construction activities.

3. Upon completion of the activity authorized by this Nationwide Permit verification, the enclosed certification must be signed and returned to this office along with as-built drawings showing the location and configuration, as well as all pertinent dimensions and elevations of the activity authorized under this Nationwide Permit verification.

4. Construction activities will be performed during low flow conditions to the maximum extent practicable. Additionally, appropriate site-specific best management practices for sediment and erosion control will be fully implemented during construction activities at the site.

5. No area for which grading has been completed will be unseeded or unmulched for longer than 14 days. All disturbed areas will be seeded and/or revegetated with native species and approved seed mixes (where practicable) after completion of construction activities for stabilization and to help preclude the establishment of non-native invasive species.

6. All water resources and their buffers, which are to be avoided on-site, must be clearly indicated on the site plans and drawings, demarcated in the field, and protected with suitable material prior to site disturbance. These materials must remain in place and be maintained throughout the construction process.

7. In the event any previously unknown historic or archaeological sites or human remains are uncovered while accomplishing the activity authorized by this nationwide permit authorization, the permittee must cease all work in waters of the U.S. immediately and contact local, state and county law enforcement offices (only contact law enforcement on findings of human remains), the Corps at 304-399-5610 and Ohio State Historic Preservation Office at 614-298-2000. The Corps will initiate the Federal, state and tribal coordination required to comply with the National Historic Preservation Act and applicable state and local laws and regulations. Federally recognized tribes are afforded a government-to-government status as sovereign nations and consultation is required under Executive Order 13175 and 36 CFR Part 800.

Nationwide Permit No. 33 Verification Special Conditions for the Marshall University – MU Subterranean Testing Facility Project LRH-2024-00643-GUY-UNT Guyandotte River 2 of 2

8. The project site lies within the range of the Indiana bat (Myotis sodalis). Several factors have contributed to the species decline, including habitat loss, fragmentation of habitat and the disease White Nose Syndrome. During winter, the bat species hibernate in caves and abandoned mines. Suitable summer habitat for Indiana bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥ three (3) inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. The permittee shall preserve wooded/forested habitats exhibiting any of the characteristics listed above wherever possible. Should suitable habitat be present that cannot be saved during construction activities, any trees ≥ three (3) inches dbh shall only be cut between November 15 – March 31.

9. This Department of the Army Permit authorization does not authorize the "take" of a threatened or endangered species as defined under the Endangered Species Act (ESA). In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the United States Fish and Wildlife Service (USFWS), both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS or their World Wide Web page at http://www.fws.gov/r9endspp/endspp.html.

10. Section 7 obligations under the Endangered Species Act (Section 7) must be reconsidered if new information reveals impacts of the project that may affect Federally-listed species or critical habitat in a manner not previously considered, the proposed project is subsequently modified to include activities which were not considered during Section 7 consultation with the United States Fish and Wildlife Service , or new species are listed or critical habitat designated that might be affected by the subject project.

11. Should new information regarding the scope and/or impacts of the project become available that was not submitted to this office during our review of the proposal, the permittee will submit written information concerning proposed modification(s) to this office for review and evaluation, as soon as practicable.

COMPLETION OF WORK FORM

Permit: LRH-2024-00643-GUY-UNT Guyandotte River
MU Subterranean Testing Facility Project

Name of Permittee: Caleb Wise
Marshall University
1 John Marshall Drive
Huntington, West Virginia 25755

Date of Issue: October 15, 2024

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

Huntington District
U.S. Army Corps of Engineers
502 8th Street
Huntington, WV 25701-2070
Attn: Rachel A. McCarty RDE

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

_____

Signature of Permittee Date

NATIONWIDE PERMITS FOR THE STATE OF WEST VIRGINIA

U.S. ARMY CORPS OF ENGINEERS (CORPS) REGULATORY PROGRAM REISSUANCE AND ISSUANCE OF NATIONWIDE PERMITS WITH WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WV DEP) SECTION 401 WATER QUALITY CERTIFICATION

NATIONWIDE PERMIT (NWP) 33

NWP 33. Temporary Construction, Access, and Dewatering. Temporary structures, work, and discharges of dredged or fill material, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites, provided that the associated primary activity is authorized by the Corps of Engineers or the U.S. Coast Guard. This NWP also authorizes temporary structures, work, and discharges of dredged or fill material, including cofferdams, necessary for construction activities not otherwise subject to the Corps or U.S. Coast Guard permit requirements. Appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding. Fill must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. The use of dredged material may be allowed if the district engineer determines that it will not cause more than minimal adverse environmental effects. Following completion of construction, temporary fill must be entirely removed to an area that has no waters of the United States, dredged material must be returned to its original location, and the affected areas must be restored to pre-construction elevations. The affected areas must also be revegetated, as appropriate. This permit does not authorize the use of cofferdams to dewater wetlands or other aquatic areas to change their use. Structures left in place after construction is completed require a separate section 10 permit if located in navigable waters of the United States. (See 33 CFR part 322.)

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if the activity is conducted in navigable waters of the United States (*i.e.,* section 10 waters) (see general condition 32). The preconstruction notification must include a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions. (Authorities: Sections 10 and 404)

Corps NWP 33 Specific Regional Condition:

- The applicant must submit a PCN to the Corps in accordance with NWP General Condition 32 whenever the work is conducted in a perennial tributary or is expected to take more than one (1) year to complete to allow the Corps to consider the temporal effects of the regulated activity.

NWP 33 West Virginia Section 401 Water Quality Certification Special Condition:

An individual water quality certification is required for use of this permit to construct temporary causeways in Section 10 waters, or for fills in any water anticipated to exceed one (1) year. This condition is required to ensure that the activity has no significant adverse impact to water resources, fish and wildlife, recreation, critical

habitats, wetlands and other natural resources in accordance with; Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-1, et seq. (2016), the Antidegradation Implementation Procedures, W.Va. C.S.R. §60-5-1, et seq. (2008), and Individual State Certification of Activities Requiring a Federal Permit, W.Va. C.S.R. §47-5A-1, et seq (2014).

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for a NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR §§ 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. *Navigation*.

(a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. *Aquatic Life Movements*. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. *Spawning Areas*. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical

destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. *Migratory Bird Breeding Areas*. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. *Shellfish Beds.* No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. *Suitable Material*. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. *Water Supply Intakes*. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. *Adverse Effects From Impoundments*. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. *Management of Water Flows*. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. *Fills Within 100-Year Floodplains*. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. *Equipment*. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. *Soil Erosion and Sediment Controls*. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. *Removal of Temporary Structures and Fills*. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued.

Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. *Proper Maintenance*. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. *Single and Complete Project*. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. *Wild and Scenic Rivers*.

(a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ''study river'' for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ''study river'' for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. *Tribal Rights*. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. *Endangered Species*.

(a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which ''may affect'' a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or

critical habitat has been completed. See 50 CFR 402.02 for the definition of ‘‘effects of the action’’ for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding ‘‘activities that are reasonably certain to occur’’ and ‘‘consequences caused by the proposed action.’’

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity ‘‘may affect’’ or will have ‘‘no effect’’ to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have ‘‘no effect’’ on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the ‘‘take’’ of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with ‘‘incidental take’’ provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where ‘‘take’’ means to harass, harm, pursue, hunt, shoot, wound, kill, trap,

capture, or collect, or to attempt to engage in any such conduct. The word ‘‘harm’’ in the definition of ‘‘take’’ means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.
(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http:// www.fws.gov/ipac and http:// www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. ***Migratory Birds and Bald and Golden Eagles***. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether ‘‘incidental take’’ permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. ***Historic Properties*****.**

(a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section

106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre- construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties.

Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)).

When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: No historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non- Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally

significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/ THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. *Discovery of Previously Unknown Remains and Artifacts*. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. *Designated Critical Resource Waters*. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. *Mitigation*. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre- construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre- construction notification, the district engineer may determine on a case-by- case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre- construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre- construction notification, the district engineer may determine on a case-by- case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult- to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee- responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2- acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee- responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee- responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. *Safety of Impoundment Structures*. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. *Water Quality*.

(a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer.

The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. *Coastal Zone Management*. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. *Regional and Case-By-Case Conditions*. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. *Use of Multiple Nationwide Permits*. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1⁄3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1⁄2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. *Transfer of Nationwide Permit Verifications*. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification

must be attached to the letter, and the letter must contain the following statement and signature:

> *‘‘When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.’’*
>
> (Transferee)
>
> (Date)

30. *Compliance Certification*. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. *Activities Affecting Structures or Works Built by the United States*. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a ‘‘USACE project’’), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. *Pre-Construction Notification*.

(a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer;
or
(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is ''no effect'' on listed species or ''no potential to cause effects'' on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.
(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project and does not change those non-PCN NWP activities into NWP PCNs.
(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ''study river'' for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the ''study river'' (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) Form of Pre-Construction Notification: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) Agency Coordination:

(1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) All NWP activities that require pre-construction notification and result in the loss of greater than 1⁄2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater

than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre- construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on

the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45

calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) That the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term ‘‘discharge’’ means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water’s surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National

Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non- tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of ‘‘open waters’’ include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre- construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re- establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: Re- establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term ''single and complete project'' is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term ''single and complete project'' is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of ''independent utility''). Single and complete non-linear projects may not be ''piecemealed'' to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: (1) Held in trust by the United States for the benefit of any Indian tribe or individual; or (2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a ‘‘water of the United States.’’ If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

Nationwide Permits Regional General Conditions for the State of West Virginia

1. **Threatened and Endangered Species:** Section 7(a)(2) of the Endangered Species Act (ESA) states that each federal agency shall, in consultation with the Secretary, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Section 7 of the ESA, called "Interagency Cooperation," is the mechanism by which Federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the continued existence of any federally or proposed federally listed species. Consistent with NWP General Condition 18, information for federally threatened and endangered species must be provided in the PCN to determine the proposed

activity's compliance with NWP General Condition 18 and to facilitate project-specific coordination with the USFWS. All relevant information obtained from the USFWS must be submitted with the PCN.

2. All regulated activities located in high-quality waterways listed below require PCN in accordance with NWP General Condition 32:

    - New River, which includes all river miles contained in the boundaries of the New River Gorge National Park and Preserve;
    - Bluestone River from the upstream boundary of Pipestem Park to Bluestone Reservoir;
    - Meadow River from an area near the US 19 Bridge to its junction with the Gauley River;
    - All streams within the Monongahela National Forest designated as National Wild and Scenic Study Rivers;
    - All streams and other bodies of water in State and National Forests and Recreation Areas (included are streams and bodies of water located within the Spruce Knob, Seneca Rocks and Gauley River National Recreation Areas); and
    - Streams and their tributaries as contained within the boundaries of the designated National Wilderness Areas or the headwaters of such rivers and their tributaries, including but not limited to: Cranberry River, Red Creek, Laurel Fork and Otter Creek.

    The Corps will consult, as necessary, with the National Park Service and/or the U.S. Forest Service upon receipt of the PCN.

3. Due to the ecological significance of the following waterways protection under the Natural Streams Preservation Act (WV Code Chapter 22 Article 13), all regulated activities located in these waterways require PCN in accordance with NWP General Condition 32:

    - Greenbrier River from its confluence with Knapps Creek to its confluence with the New River;
    - Anthony Creek from its headwaters to its confluence with the Greenbrier River;
    - Cranberry River from its headwaters to its confluence with the Gauley River;
    - Birch River from Cora Brown Bridge in Nicholas County to its confluence with the Elk River; and
    - New River from its confluence with the Greenbrier River to its confluence with the Gauley River, which includes the length of the New River contained in the boundaries of the New River Gorge National Park and Preserve.

    The Corps will consult, as necessary, with the National Park Service and/or the U.S. Forest Service upon receipt of the PCN.

4. **Historic Properties:** Under the National Historic Preservation Act (NHPA), the Corps must ensure no federal undertaking, including a Corps permit action, which may affect historic resources, is commenced before the impacts of such action are considered and the Advisory Council on Historic Preservation and the State Historic Preservation Office (SHPO) are provided an opportunity to comment as required by the NHPA, 36 CFR 800, and 33 CFR 325, Appendix C. Consistent with NWP General Condition 20, historic properties information must be provided in the PCN if the proposed undertaking might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. All relevant information obtained from the SHPO must be submitted with the PCN.

HELPFUL INFORMATION FOR COMPLIANCE WITH THE 2021 NWP GENERAL CONDITIONS

DISCLAIMER: The below information is intended to provide helpful contact information and other submittal recommendations. Contact the appropriate local, state, or federal agency for the most updated links to ensure compliance with the NWP General Conditions.

General Condition 1 (Navigation)

List of Section 10 Navigable Waters of the United States:

Huntington District –
https://www.lrh.usace.army.mil/Missions/Regulatory/Section-10-Streams/

Pittsburgh District –
https://www.lrp.usace.army.mil/Portals/72/docs/regulatory/RegulatoryBoundaries/PN12-2.pdf

Navigation Charts:

Huntington District –
https://www.lrh.usace.army.mil/Missions/Civil-Works/Navigation/

Pittsburgh District –
https://www.lrp.usace.army.mil/Missions/Navigation/Navigation-Charts/

Locks and Dams:

Huntington District
https://www.lrh.usace.army.mil/Missions/Civil-Works/Locks-and-Dams/
Pittsburgh District
https://www.lrp.usace.army.mil/Missions/Navigation/Locks-and-Dams/#:~:text=Locks%20and%20Dams%20%20%20Allegheny%20River%20,Locks%20%26%20Dam%20%205%20more%20rows%20

Notice to Navigation Interests Request Sheets:

Huntington District
https://www.lrh.usace.army.mil/Portals/38/docs/navigation/Notice%20Info%20sheet.pdf
Pittsburgh District
https://www.lrp.usace.army.mil/Portals/72/docs/regulatory/NavNoticeRequestForm.pdf

General Condition 3 (Spawning Areas)

In stream work in designated warm water streams and their adjacent tributaries during the fish spawning season, April - June and trout waters and their adjacent tributaries during the trout water fish spawning season September 15 to March 31 requires a spawning season waiver from the West Virginia Division of Natural Resources Coordination Unit, at (304) 637-0245. For information about specific stream designations contact West Virginia Department of Environmental Protection, Water Quality Standards Section at (304) 926-0495.

General Condition 5 (Shellfish Beds)

Shellfish beds in West Virginia include concentrations of freshwater mussels. All mussels are protected in the State of West Virginia pursuant to West Virginia §20-2-4 and CSR 58-605.11. In addition, nine (9) federally endangered freshwater mussel species are known to occur in the state. These species are protected by the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). All streams that contain mussels or potential mussel habitat must be surveyed prior to any proposed streambed disturbance. Please contact the West Virginia Department of Natural Resources (WVDNR) and/or the USFWS for assistance in determining if a mussel survey is or is not required. The WVDNR contact information can be found at: http://www.wvdnr.gov/contact.shtm. Currently accepted protocol and supporting materials can be found at the WVDNRs' website:
http://www.wvdnr.gov/Mussels/Main.shtm

General Condition 7 (Water Supply Intakes)

Locations of public water supply intakes can be found at the following link:
http://gis.wvinfrastructure.com/

General Condition 10 (Fills Within 100-year Floodplains)

The following website provides a statewide listing of Floodplain Managers in West Virginia: http://www.dhsem.wv.gov/MitigationRecovery/Pages/Floodplain-Management.aspx

General Condition 16 (Wild and Scenic Rivers)

The following website provides information on wild and scenic rivers within West Virginia:

https://www.rivers.gov/west-virginia.php

General Condition 18 (Endangered Species)

To obtain the most up to date information on federally threatened and endangered species applicants are encouraged to utilize the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation System (IPaC) found at https://ecos.fws.gov/ipac/

Prior to the submittal of a PCN, applicants may also contact the USFWS, West Virginia Field Office, Ecological Services at:

Address: 6263 Appalachian Highway
Davis, West Virginia 26260

Email: fw5_wvfo@fws.gov

The West Virginia Mussel Survey Protocol may be found at the following link:

http://www.wvdnr.gov/Mussels/Main.shtm

General Condition 4 (Migratory Bird Breeding Areas) and General Condition 19 (Migratory Birds and Bald and Golden Eagles)

Prior to the submittal of a PCN, information to assist in complying with NWP General Conditions 4 and 19 may be obtained from the USFWS, West Virginia Field Office, Ecological Services at:

Address: 6263 Appalachian Highway
Davis, West Virginia 26260

Email: fw5_wvfo@fws.gov

The West Virginia Division of Natural Resources Coordination Unit may be contacted at (304) 637-0245.

General Condition 20 (Historic Properties)

The West Virginia National Register of Historic Places can be found at the following link: https://wvculture.org/research/national-register-of-historical-places/

The West Virginia State Historic Preservation Office (SHPO) Interactive Map Viewer can be found at the following link: https://mapwv.gov/shpo/

When reviewing a PCN, the Corps will scope appropriate historic property identification efforts and if applicable work with the applicant to take into account the effect of the proposed activity on historic properties. In these instances, information and coordination may include:

- Requesting comments directly from the West Virginia Division of Culture and History SHPO on the effect the proposed regulated activity may have on historic properties. The West Virginia Division of Culture and History SHPO may be contacted at:

  Address: 1900 Kanawha Blvd E
  Charleston, West Virginia 25305
  Phone: (304) 558-0220

- To identify potential historic properties that may be affected by a proposed project, the following historic properties information may be reviewed and/or provided with the PCN when applicable:
  - A detailed description of the project site in its current condition (i.e. prior to construction activities) including information on the terrain and topography of the site, the acreage of the site, the proximity of the site to major waterways, and any known disturbances within the site.
  - A detailed description of past land uses in the project site.
  - Photographs and mapping showing the site conditions and all buildings or structures within the project site and on adjacent parcels are useful. Photographs and maps supporting past land uses should be provided as available.
  - Information regarding any past cultural resource studies or coordination pertinent to the project area, if available.
  - U.S. Geological Survey (USGS) 7.5' series topographic maps;
  - West Virginia Division of Culture and history files including:
    - Historic Property Inventory Form;
    - Archaeological Site Forms;
    - Cemetery Inventory Forms;
    - National Register of Historic Places nomination forms including Historic Districts; and
    - County atlases, histories and historic USGS 15' series topographic map(s).

- When needed to evaluate effects to historic properties, the applicant is encouraged to consult with professionals meeting the Professional Qualification Standards as set forth in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716) during this data gathering process. These professionals can assist with compiling the project information discussed above and should provide recommendations as to whether the proposal has the potential to affect historic properties and if further effort is needed to identify or assess potential effects to historic properties. These professionals can also compile preliminary review information to submit to the district engineer as part of the PCN.

General Condition 23 (Mitigation)

Information pertaining to mitigation can be found at the following link:

https://www.lrh.usace.army.mil/Missions/Regulatory/Mitigation.aspx

General Condition 25 (Water Quality)

The West Virginia Department of Environmental Protection may be contacted at:

Address: 601 57th Street
Charleston, West Virginia 25304

Phone: (304) 926-0440

Information pertaining to the West Virginia Department of Environmental Protection water quality certification (WQC) program, including the Section 401 Clean Water Act WQC application form, can be obtained at the following link:
https://dep.wv.gov/WWE/Programs/Pages/401Certification.aspx

General Condition 32 (Pre-Construction Notification)

The nationwide permit pre-construction notification form (Form ENG 6082) may be obtained at the following link:

https://www.publications.usace.army.mil/Portals/76/Eng_Form_6082_2019Oct.pdf?ver=2019-10-22-081550-710/

A checklist of information that must be provided in a pre-construction notification can be obtained at the following link:

https://www.lrh.usace.army.mil/Missions/Regulatory/How-to-Apply-for-a-Permit/Nationwide-Permits/

Electronic Submittal:

- PCNs should be saved as a PDF document, and then submitted as an attachment in an email to the appropriate Regulatory Office:

  Huntington District – LRH.permits@usace.army.mil
  Pittsburgh District – Regulatory.Permits@usace.army.mil

- Electronic documents must have sufficient resolution to show project details. The PCN and supporting documents submitted electronically must not exceed 10 megabytes (10MB) per email. Multiple emails may be required to transmit documents to ensure the 10MB limit is not exceeded. Alternatively, use of the Department of Defense Secure Access File Exchange (DoD SAFE) service to transfer large files may be requested in your email.

- For tracking and processing purposes, the email should include the following:

  - Email Subject Line: include the name of the applicant, type of NWP request, and location (County and State). Example: RE: Doe, John, NWP (or Pre-Construction Notification) and Section 401 WQC

Request, Cabell County, West Virginia;
    - Email Body: 1) Brief description of the proposed project, 2) contact information (phone number, mailing address, and email address) for the applicant and/or their agent, and 3) the project location: Address and Latitude/Longitude in decimal degrees (e.g. 42.92788°, -88.36257°).

- If you do not have internet access, information may be submitted through the U.S. Postal Service to the appropriate Regulatory Office:

  U.S. Army Corps of Engineers, Huntington District
  ATTN: Regulatory Division
  502 Eighth Street
  Huntington, West Virginia 25701-2070
  Phone: (304) 399-5610
  Fax: (304) 399-5805

  U.S. Army Corps of Engineers, Pittsburgh District
  ATTN: Regulatory Division
  William S. Moorhead Federal Building
  1000 Liberty Avenue
  Pittsburgh, Pennsylvania 15222-4186
  Phone: (412) 395-7155
  Fax: (412) 644-4211

Standard Conditions of State 401 Water Quality Certification Applicable to the 2021 Nationwide Permits

1. To ensure project compliance with state water quality requirements applicable to these Nationwide Permits, notification is to be provided prior to construction to West Virginia Department of Environmental Protection (WV DEP) for any permitted activity for which the U.S. Army Corps of Engineers (USACE) requires pre-construction notification (PCN), in accordance with Nationwide Permit General Condition 32. This condition is required through authority provided in State Certification of Activities Requiring a Federal License or Permit, 40 C.F.R §121.3 (2020) and WV Water Pollution Control Act, W.Va. Code §22-11-1, et seq. (2014).

2. To compensate for unavoidable impacts to aquatic resources as a result of the discharge of dredge or fill material, the applicant must provide proof of compensatory mitigation (as outlined in Standard Condition 16 below) to WV DEP prior to construction, for an activity resulting in cumulative permanent impacts to streams greater than 300 linear feet or causing the loss of greater than 1/10 acre of wetlands. This condition is required in accordance with the following; Rules for Individual State Certification of Activities Requiring a Federal Permit, W.Va. C.S.R. §47-5A-6 (2014), Antidegradation Implementation Procedures, W.Va. C.S.R §60-5-1, et seq. (2008), and Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-1 et seq. (2016).

3. To protect the biological integrity of the aquatic ecosystem, culverted crossings shall be sized and installed in a manner to allow the passage of aquatic life and freely pass bankfull flows. Exceptions to this requirement would be when culvert placement is on bedrock, or when stream gradient is equal to or greater than 4%, or when bankfull elevation is greater than final surface elevation. This condition is required in accordance with Antidegradation Implementation Procedures, W.Va. C.S.R §60-5-1, et seq. (2008), and Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-1, et seq. (2016).

4. To protect the designated uses of waters of the state, the permittee shall investigate for the presence of water supply intakes or other activities within 1/2 mile downstream of the activity, which may be affected by increased suspended solids and turbidity, caused by work in the watercourse. The permittee shall give notice to operators of any such water supply intakes and such other water quality dependent activities as necessary before beginning work in the watercourse in sufficient time to allow preparation for any change in water quality. This condition is required in accordance with Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-7.2.a.2 (2016) and Antidegradation Implementation Procedures, W.Va. C.S.R §60-5-1, et seq (2008).

5. To ensure that temporary stream and wetland crossings have no significant adverse impact to aquatic resources, the following procedures and requirements shall be followed and met in accordance with Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-3.2 (2016) and Antidegradation Implementation Procedures, W.Va. C.S.R. §60-5-1, et seq. (2008). At each stream crossing, substrate in the channel will be removed and stockpiled separately from other excavated material. This native material must be reused in restoration of the stream channel, which is to be completed within 72 hours or as soon as practicable after completion of the crossing. Upon final stream bed restoration, the stream must have similar physical characteristics to include substrate, pattern, profile, dimension and embeddedness of the original stream channel. At each wetland crossing, any excavated material from the top 12 inches of soil will be removed and stockpiled separately from other excavated material. This native material must be reused in restoration of the wetlands temporarily impacted by the open cut crossing and restoration must be completed within 72 hours or as soon as practicable after completion of the crossing. Stream crossings will be conducted as close to a right angle to the watercourse as practicable and the area of in stream activity will be limited to reduce disturbance.

6. Spoil materials from the watercourse or onshore operations, including sludge deposits, shall not be dumped in the watercourse, or deposited in wetlands or other areas where the deposit may adversely affect the surface waters of the state consistent with the requirements set forth in WV Water Pollution Control Act, W.Va. Code §22-11-4.a.16 (2014) and Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-1, et seq. (2016).

7. To protect aquatic resources from unauthorized discharge of pollutants, storage and refueling areas shall not be located within any surface water body. All spills shall be promptly reported to the State Center for Pollution, Toxic Chemical and

Oil Spills, 1-800-642-3074. This condition is required in accordance with; Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-3 (2016) and WV Water Pollution Control Act, W.Va. Code §22-11-8 (2014).

8. To reduce sedimentation of aquatic resources and increased turbidity, it is required that proper stabilization of all disturbances below the ordinary high-water mark of waters shall be installed within 24 hours or as soon as practicable to prevent erosion. Where possible, stabilization shall incorporate revegetation using bioengineering as an alternative to riprap. If riprap is utilized, it must be of such weight and size that bank stress or slump conditions shall not be created due to its placement. Fill must be clean, nonhazardous and of such composition that it shall not adversely affect the biological, chemical or physical properties of the receiving waters. Unsuitable materials include but are not limited to: copper chromium arsenate (CCA) and creosote treated lumber, car bodies, tires, large household appliances, and asphalt. To reduce potential slope failure and/or erosion behind the material, fill containing concrete must be of such weight and size that promotes stability during expected high flows. Loose large slab placement of concrete sections from demolition projects greater than thirty-six (36) inches in its longest dimension are prohibited. Rebar or wire in concrete shall not protrude further than one (1) inch. All activities require the use of clean and coarse non-erodible materials with 15% or less of like fines that is properly sized to withstand expected high flows. This condition is required in accordance with; Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-3 (2016), WV Water Pollution Control Act, W.Va. Code §22-11-8 (2014) and Antidegradation Implementation Procedures, W.Va. C.S.R. §60-5-1, et seq. (2008).

9. To protect the water quality of aquatic resources, runoff from any storage areas or spills shall not be allowed to enter storm sewers without acceptable removal of solids, oils and toxic compounds. Discharges from retention/detention ponds must comply with permit requirements of the National Pollutant Discharge Elimination System permit program of the WV DEP. This condition is required in accordance with; WV Water Pollution Control Act, W.Va. Code §22-11-4.a.16 (2014) and Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-1, et seq. (2016).

10. To protect aquatic resources from discharge associated with land disturbance activities, which are one (1) acre or greater in total area, the project proponent must comply with the National Pollutant Discharge Elimination System or other state stormwater permit requirements as established by the WV DEP, if applicable. Any land disturbances are required to use Best Management Practices for Sediment and Erosion Control, as described in the latest West Virginia Department of Environmental Protection’s Erosion and Sediment Control Best Management Practice Manual, or similar documents prepared by the West Virginia Division of Highways. These handbooks are available from the respective agency offices. This condition is required in accordance with; WV Water Pollution Control Act, W.Va. Code §22-11-4.a.16 (2014) and Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-3 (2016).

11. To protect aquatic resources from unpermitted discharges consistent with the requirements of WV Water Pollution Control Act, W.Va. Code §22-11-4.a.16 (2014) and Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-1, et seq. (2016), concrete shall not be permitted to enter the watercourse unless contained by tightly sealed forms or cells. Concrete handling equipment shall not discharge waste washwater into wetlands or watercourses at any time without adequate wastewater treatment as approved by the WV DEP.

12. To maintain the biological integrity of the state's fisheries, a spawning waiver is required for in-stream work in designated warm water streams and their adjacent tributaries during the fish spawning season of April to June and for trout waters and their adjacent tributaries during the trout water fish spawning season of September 15 to March 31. Fish spawning waivers may be requested from West Virginia Division of Natural Resources (WV DNR) Coordination Unit, at (304) 637-0245. For information about specific stream designations contact West Virginia Department of Environmental Protection, Water Quality Standards Section at (304) 926-0440. This condition is required in accordance with Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-3.2 (2016) and Wildlife Resources Declaration of Policy, W.Va. Code §20-2-4 (2017).

13. To protect stream stability and avoid unnecessary degradation of aquatic resources, the project proponent should avoid removal of riparian vegetation to the greatest extent practicable. This condition is required in accordance with Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-3 (2016) and Antidegradation Implementation Procedures, W.Va. C.S.R. §60-5-1, et seq. (2008).

14. To protect aquatic life and reduce turbidity and disturbance to aquatic resources, the operation of equipment in-stream shall be minimized and accomplished during low flow periods when practical. Ingress and egress for equipment outside the immediate work area requires prior approval of the WV DNR Office of Land and Stream. This condition is required in accordance with; Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-3 (2016) and Wildlife Resources Declaration of Policy, W.Va. Code §20-2-4 (2017).

15. To ensure the protection of West Virginia's high quality and special aquatic resources, notification must be provided to the WV DEP 60-days prior to construction describing the project purpose, location, and impacts for use of any Nationwide Permit(s) resulting in work in streams set forth in Sections A, B, and C below. The WV DEP will provide applicant coordination within 15 days of receipt of a complete notification.

    A. Tier 3 Protection is provided for aquatic resources in accordance with West Virginia Code of State Regulations, Requirements Governing Water Quality Standards, Antidegradation Policy, Title 47, Series 2, Section 4 for Outstanding National Resource Waters to include, but are not limited to, all streams and rivers within the boundaries of Wilderness Areas designated by The Wilderness Act (16 U.S.C. §1131, et seq.) within the state, all federally designated rivers under the Wild and Scenic Rivers Act, 16 U.S.C. §1271, et

seq.; all streams and other bodies of water in state parks which are high quality waters or naturally reproducing trout streams; waters in national parks and forests which are high quality waters or naturally reproducing trout streams; waters designated under the National Parks and Recreation Act of 1978, as amended; and pursuant to W.Va. C.S.R. §§60-5-6, 7 (2008) those waters whose unique character, ecological or recreational value, or pristine nature constitutes a valuable national or state resource. This condition is required in accordance with Tier 3 Protection Review Procedures, W.Va. C.S.R. §§60-5-6, 7 (2008). The listing of Tier 3 streams is located at: https://dep.wv.gov/WWE/Programs/wqs/Documents/Tier%203%20Info/WVTier_3_Nov2013_web.xlt

B. Naturally-Reproducing Trout Streams are protected to ensure the continued propagation and maintenance of naturally-reproducing trout. For information about specific streams contact WV DEP, Water Quality Standards, at 304-926-0440. This condition is required in accordance with Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-1, et seq. (2016) and Antidegradation Implementation Procedures, W.Va. C.S.R. §60-5-1, et seq. (2008).

C. West Virginia Natural Stream Preservation Act identifies the following streams or rivers as protected from activities that would impound, divert or flood the body of water: Greenbrier River from its confluence with Knapps Creek to its confluence with the New River, Anthony Creek from its headwaters to its confluence with the Greenbrier River, Cranberry River from its headwaters to its confluence with the Gauley River, Birch River from Cora Brown Bridge in Nicholas County to the confluence of the river with the Elk River, and New River from its confluence with the Greenbrier River to its confluence with the Gauley River. This condition is required consistent with the authority and requirements of the Natural Streams Preservation Act, W.Va. Code §22-13-1, et seq. (2011).

16. The following mitigation guidelines are established to ensure no significant adverse impact to the chemical, physical, hydrologic, or biological integrity of wetlands and streams without compensating for the aquatic resource functions that will be lost as a result of the permitted activity. The discharge of dredged or fill material into a stream or wetland is authorized based upon the following criteria:

A. Greater than one-tenth (1/10) acre of cumulative permanent impact to wetland(s) (including wetland type conversion) requires prior notification describing the project location, impacts, and plan for mitigation to be submitted to the WV DEP.

B. The amount of fill in a wetland, wetland complex or wetland system without mitigation is not to cumulatively exceed 1/10 acre.

C. Cumulative permanent impacts to stream(s) greater than 300 linear feet requires prior notification describing the project location, impacts, and plan for mitigation to be submitted to the WV DEP. The West Virginia Stream Wetland

Valuation Metric (SWVM) is the preferred assessment methodology to assist with the determination of required mitigation. The metric is available at the Huntington and Pittsburgh USACE web sites.

In all instances, mitigation for all impacts incurred through use of these Nationwide Permits must first be directed to elimination of the impacts, then minimization of the impacts and lastly through compensatory mitigation. In many cases, the environmentally preferable compensatory mitigation may be provided through an approved mitigation bank or the West Virginia In-Lieu Fee Program. Permittee responsible compensatory mitigation may be performed using the methods of; restoration, enhancement, establishment, and in certain circumstances, preservation. In general, the required compensatory mitigation should be located in the same watershed as the impact site and located where it is most likely to successfully replace lost functions and services as the impacted site. However, the use of mitigation banks or in-lieu fee for in-kind replacement is not restricted to the same watershed in which the impact has occurred until such time as mitigation banks or in-lieu projects are developed in each major watershed.

Wetlands. When permittee responsible in-kind replacement mitigation is used, it is to be accomplished at the following ratios until such time an approved functional assessment methodology is established for the state of West Virginia.

Permanent impacts to open water wetlands are to be one (1) acre replaced for one (1) acre impacted.
Permanent impacts to wet meadow/emergent wetlands are to be two (2) acres replaced for one (1) acre impacted.
Permanent impacts to scrub-shrub and forested wetlands are to be three (3) acres replaced for one (1) acre impacted.

In instances where compensatory in-kind mitigation is completed 12 months prior to the impact of the aquatic resource, the replacement ratio may be reduced to as low as one (1) acre created/restored to every one (1) acre impacted.

NOTE: The ratio of created/restored wetlands to impacted wetlands not only ensures no net loss but assures the adequate replacement of the impacted wetlands functions and values at the level existing prior to the impact. For many of the more complicated type wetlands, such as scrub-shrub and forested, the values and functions cannot readily be replaced through creation. Furthermore, not all wetland creation is successful.

In certain instances, the WV DEP DWWM may consider the acquisition of existing wetlands. Acquisition ratios include the following:

Five (5) to one (1) for open water wetlands;
Ten (10) to one (1) for wet meadow/emergent wetlands; and
Fifteen (15) to (1) for scrub-shrub and forested wetlands.

Under extenuating circumstances, the Secretary may accept lower ratios for high quality wetlands under significant threat of development.

All wetlands acquired, using the acquisition method of mitigation, shall either be deeded to the WVDNR Public Land Corporation for management by the Wildlife Resources Section or placed under a conservation casement and be protected from disturbance by the permittee or their designee. Third party oversight of the conservation easement by a non-profit conservation organization is preferred.

Streams. When proposing permittee responsible compensatory mitigation, projects shall attempt to replace lost functions for permanent stream impacts. Mitigation shall be determined on a case-by-case basis based on the pre- and post- condition stream quality and complexity of the mitigation project preferably utilizing the most current version of the SWVM worksheets. Compensatory mitigation may require protection through deed restrictions or conservation easements by the permittee or their designee.

These requirements are established in accordance with; Antidegradation Implementation Procedures, W.Va. C.S.R. §60-5-1, et seq, (2008), Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-3 (2016), WV Water Pollution Control Act, W.Va. Code §22-11-1, et seq. (2014), Rules for Individual State Certification of Activities Requiring a Federal Permit, W.Va. C.S.R. §47-5A-6 (2014), and Compensatory Mitigation for Losses of Aquatic Resources; Final Rule, 33 C.F.R. §332 (2008).

17. To protect mussel populations in accordance with state and federal requirements, should native freshwater mussels be encountered during the use of any Nationwide Permit, all activity reasonably expected to jeopardize the population is to cease immediately and the WV DNR Wildlife Resources Section, Wildlife Diversity Program is to be contacted (304-637-0245) to determine significance of the mussel population and the action to be taken. This condition is required in accordance with; Rules for Individual State Certification of Activities Requiring a Federal Permit, W.Va. C.S.R. §47-5A-3.1 (2014), Requirements Governing Water Quality Standards, W.Va. C.S.R. §47-2-1, et seq. (2016), Possession of Wildlife, W.Va. Code §20-2-4 (2017) and Fishing Regulations W.Va. C.S.R. §58-60-5.11 (2020).

Attachment D

Lease No._____

LEASE AGREEMENT AND GRANT OF EASEMENT

THIS LEASE AGREEMENT AND GRANT OF EASEMENT ("Agreement"), dated as of the 16th (Rev.) day of January, 2025, ("Instrument Date") is entered into by CABELL COUNTY BOARD OF EDUCATION, a municipality of the State of West Virginia (hereinafter referred to as "Landlord"), and MARSHALL UNIVERSITY BOARD OF GOVERNORS, an instrumentality of the State of West Virginia (hereinafter referred to as "Tenant").

WITNESSETH:

WHEREAS, Tenant wishes to lease and obtain an easement for ingress and egress to and from, from Landlord certain real property, for the purpose of construction and operation of tunnels pursuant to the Marshall University Subterranean Testing Facility Project, described more fully herein below and within the documents appended hereto as Exhibits;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which being hereby acknowledged, and in consideration of the mutual covenants herein made, and intending to be legally bound hereby, the parties agree as follows:

1. **Demised Premises.**

a. **The Property**: Landlord hereby leases to Tenant and Tenant hereby leases from Landlord that certain parcel of real property containing approximately 4.787 acres, located in Huntington, Cabell County, West Virginia, as described within the Triad Engineering, Inc. Boundary Description attached hereto as **Exhibit B**, and as further designated as the "Proposed Lease Area" on the Triad Engineering, Inc. Survey drawing attached hereto as **Exhibit C**, together with and including all rights of access to and use of the surface and subsurface to a depth sufficient to construct, place and maintain the tunnels pursuant to the Marshall University Subterranean Testing Facility Project which constitute the Permitted Use under this Agreement, which is collectively referred to herein as "The Property."

b. **The Easement**: Landlord hereby grants an Easement across its property on which Tenant shall be permitted to construct and maintain a gravel access road of approximate dimensions identified on the above-referenced Exhibit C, ("The Easement") for purposes of ingress and egress to the Property.

c. **The Premises**: Collectively, The Property and The Easement shall constitute, and herein may be collectively referred to as, "The Premises."

2. **Term and Termination.**
The initial term of this Agreement will commence on the Lease Commencement Date, which shall be the date on which Landlord delivers possession of the Premises in compliance with the requirements set forth in Paragraph 4, and shall consist of three consecutive but separate phases, the "Construction Phase," the "Occupancy Phase" and the "Closure Phase."

a. **Construction Phase**: The "Construction Phase" shall commence on the Lease Commencement Date and shall continue for a reasonable period of time projected to approximate up to one hundred eighty (180) days therefrom, which period of time may be extended by Landlord at request of Tenant, which request shall not be unreasonably denied by Landlord. During the Construction Phase, Tenant shall cause to be constructed a tunnel to facilitate the discharge of dredged and/or fill material into one (1) stream, in association with the Marshall University Subterranean Testing Facility Project, including construction of gravel road access to the tunnel site and the temporary installation of three (3) culverts and clean engineered fill in an unnamed tributary of the Guyandotte River to facilitate access for the construction of a subterranean testing facility pursuant to the Easement granted under this Agreement. The date on which the Construction Phase is completed shall be the Occupancy Commencement Date. Landlord and Tenant agree that when the actual Lease Commencement Date is determined, they will execute, upon the request

of either party, a Commencement Agreement in the form and content as set forth in **Exhibit A**.

i. The culverts and engineered fill shall be removed following completion of construction of the tunnel at a date to be agreed upon by the Parties, which date may be at the conclusion of the Construction Phase or later up until the Expiration Date, depending upon the agreement of the Parties yet to be determined.

b. **Occupancy Phase**: The Occupancy Phase shall begin on the Occupancy Commencement Date. The term of the Occupancy Phase shall continue for a term of five (5) years following the Occupancy Commencement Date, expiring at midnight of the day before the fifth anniversary of the Occupancy Commencement Date. During the Occupancy Phase, the Tenant shall utilize the tunnel system constructed during the Construction Phase to conduct data collection activities under the Permitted Use, and shall continue to enjoy the rights of access to the Premises granted under this Agreement.

c. **Closure Phase**: The Closure Phase shall commence on the next day following the expiration of the Occupancy Phase, and shall continue for a reasonable period of time projected to approximate up to ninety (90) days therefrom, which period of time may be extended by Landlord at request of Tenant, which request shall not be unreasonably denied by Landlord. During the Closure Phase, Tenant shall close the tunnel, including:
   a. closing both ends of the tunnel with concrete or block walls;
   b. installing any support structures necessary, in Tenant's judgment, to stabilize the tunnel; and
   c. returning the road and Premises to a condition and at least as good as that of the quality in which the road and Premises existed as of the Lease Commencement Date.

d. **Termination**: This Agreement shall expire at midnight on the final day of the Closure Phase, hereinafter the "Expiration Date," unless sooner terminated as herein provided.

e. **Extension**: The Term shall not be extended unless by way of mutual express written consent of the Parties.

3. **Rental**.
As good and valuable consideration for entering into this Agreement, and commencing with the Lease Commencement Date, Tenant shall pay Landlord, on or before the tenth (10th) day following the Lease Commencement Date or, after the first year, the anniversary of the Lease Commencement Date, annual Rent in advance, in the amount of **One Dollar ($1.00) per year** ("Rent").

4. **Delivery of Possession.**
Landlord will deliver possession of the Premises to Tenant on the Lease Commencement Date. The parties agree to sign an acknowledgement of the Lease Commencement Date (**Exhibit A**).

5. **Taxes and Assessments.**
Landlord shall continue to pay when due all real property taxes and assessments upon the Premises.

6. **Use.**
Tenant shall use and occupy the Premises for all purposes necessary for and in furtherance of the "Permitted Use", which Permitted Use shall be defined as: the construction, placement, maintenance, utilization and access to certain underground tunnels pursuant to the Marshall University Subterranean Testing Facility Project, as referenced within Paragraphs 1 and 2 herein and as further described within the following attached **Exhibit D** (Nationwide Permit No. 33 Verification issued on October 15, 2024 by the U.S. Army Corps of Engineers, Huntington District) and Exhibit E (West Virginia Department of Natural Resources Office of Land and Streams Right of Entry dated Sept. 4, 2024) . The scope of the Permitted Use shall include not only non-destructive testing inside the subject tunnel but also in and around the exterior of the tunnel and surface land above the tunnel. Tenant shall not use or occupy the Premises for any use or purpose other than Permitted Use without the prior written consent of the Landlord.

7. **Compliance with Legal Requirements.**

a. Tenant will comply with all applicable laws, statutes, ordinances, rules, and regulations of all federal, state, county, city and local departments and agencies having jurisdiction over the Premises ("Legal Requirements") insofar as they pertain solely to the use of the Premises by Tenant.

b. Tenant shall not cause or permit to occur:

i. Any violation of any federal, state or local law, ordinance, or regulation now or hereafter enacted, related to environmental conditions on, under or about the Premises, arising from Tenant's use or occupancy of the Premises; or

ii. The use, generation, release, manufacture, refining, production, processing, storage or disposal of any Hazardous Substance on, under or about the Demised Premises, or the transportation to or from the Premises of any Hazardous Substance.

iii. The term "Hazardous Substances", as used in this Agreement, shall include, without limitation, flammables, explosives, radioactive materials, asbestos, polychlorinated biphenyls (PCB's), chemicals known to cause cancer or reproductive toxicity, pollutants, contaminants, hazardous wastes, toxic substances or related materials, petroleum and petroleum products, and substances declared to be hazardous or toxic under any law or regulation now or hereafter enacted or promulgated by any governmental authority.

8. **Repairs and Maintenance.**

a. During the Term, Landlord will, subject to the provisions of Paragraph 8(b), continue to perform at its sole cost and expense and in a good and workmanlike manner all normal, routine maintenance and care of the Premises that is customary and necessary in the course of Landlord's ownership of the Premises prior to the Lease Commencement Date.

b. During the Term, to the extent that Tenant's operations on the Premises create the necessity for maintenance and care of the Premises that is greater than or in addition to that normal, routine maintenance and care for which Landlord was already responsible prior to the Term, Tenant will at its sole cost and expense be responsible for performing - or alternatively as the Parties may agree, reimburse Landlord for the expense of - only that additional maintenance and care of the Premises necessitated by Tenant's operations of the Premises. Tenant shall be responsible for removal of all trash or refuse resulting from Tenant's operations on the Premises, *provided* that Tenant may place said refuse and trash in receptacles provided or owned by Landlord, if the consent of Landlord is first obtained.

9. **Services and Utilities.**

Tenant will be responsible for furnishing and shall pay for all electricity, telephone and other communications, data, internet, and other like services or utilities required by Tenant for carrying out the Permitted Use.

10. **Alterations.**

a. Landlord shall not be obligated to make any alterations to the Premises during the Term of this Agreement other than as may be expressly agreed and memorialized in writing by the parties. Tenant may, at its own cost and expense, (l) with Landlord's prior written consent, make non-structural changes, alterations, additions or improvements to the Premises ("Tenant Alterations"), and (2) without Landlord's prior consent, bring onto and use upon the Premises Tenant's removable personal property and equipment as will, in the judgment of Tenant, best adapt the Premises for its needs, provided that Tenant, in each case, complies with the following provisions:

i. The Tenant Alterations will not result in a violation of law or cause an increase in the premium cost of the Landlord's then existing insurance coverage on the Premises.

ii. The appearance of the Premises will not be adversely affected; and, such Tenant Alterations will not weaken or impair the structure of, or lessen the value of, the Premises.

b. Tenant agrees that all Tenant Alterations will at all times comply with all applicable legal requirements and that Tenant, at its expense, will (i) obtain all necessary municipal and other governmental permits, authorizations, approvals and certificates for the commencement and prosecution of such Tenant Alterations, (ii) deliver copies of all governmental permits, authorizations, approvals and certificates to Landlord and (iii) cause all improvements to be performed in a good and workmanlike manner. Tenant, at its expense, will promptly procure the cancellation or discharge of all notices of violation arising from or otherwise connected with Tenant Alterations issued by any public authority having or asserting jurisdiction.

c. Throughout the making of all Tenant Alterations (other than mere decorations), Tenant, at its sole cost and expense, will carry or cause its contractors and subcontractors to carry (i) workers' compensation insurance in statutory limits covering all persons employed in connection with such Tenant Alterations, (ii) comprehensive liability insurance covering any occurrence in or about the Premises in connection with such Tenant Alterations which complies with the requirements of Paragraph 12.

d. Tenant will not subject Landlord's interest in the Property to any mechanic's lien or any other lien whatsoever. If any mechanic's lien or other lien, charge or order for payment of money will be filed as a result of the act or omission of Tenant, Tenant will cause such lien, charge or order to be discharged or appropriately bonded or otherwise reasonably secured ("Secured") within sixty (60) days after notice from Landlord thereof. If Tenant will fail to cause the lien or encumbrance to be Secured within the sixty (60) day period, then Landlord will be entitled, but not obligated, to discharge or bond same. If Tenant fails to cause any such lien to be discharged within the period aforesaid, then, in addition to any other right or remedy, Landlord may discharge the same either by paying the amount claimed to be due or by deposit or bonding proceedings. Any amount so paid by Landlord, and all costs and expenses incurred by Landlord in connection therewith, will be payable by Tenant within thirty (30) days of demand.

e. Upon the termination or expiration of this Agreement, all improvements, Tenant Alterations, and additions placed on the Premises or affixed thereto by Tenant (other than Tenant's signage, trade fixtures, and equipment) shall become the property of Landlord without any obligation of further payment on the part of Landlord. Notwithstanding the foregoing, at the termination or expiration of this Agreement, Tenant may remove all of Tenant's trade fixtures and equipment which can be removed without costly injury to or undue defacement of the Premises; provided, that all Rents stipulated in the Agreement are paid in full and Tenant is not otherwise in default under this Agreement. Any and all damage to the Premises resulting from or caused by such removal shall be promptly repaired at Tenant's sole expense.

11. **Assignment and Sublease.**
Tenant shall not transfer or assign this Agreement or sublet the Premises without the express written consent of the Landlord, except that Tenant reserves the right to assign this Agreement to another State agency, board or commission upon thirty (30) days written notice to Landlord. Landlord shall not sell, assign or otherwise transfer its interest in this Agreement without first obtaining Tenant's prior written consent, which consent shall not be unreasonably denied.

12. **Insurance.**

a. Landlord will maintain, at its own cost and expense, during the Term, fire insurance, with standard "all risk" coverage for the Property on terms and in amounts determined by Landlord.

b. Tenant will maintain, at its own cost and expense, during the Term, commercial general liability insurance having a minimum limit of liability of $1,000,000 combined single limit for bodily injury or death/property damage arising out of any one occurrence and Workers' Compensation Insurance as required by law. Tenant will name the Landlord as an additional insured under its general liability policy. Tenant will require its insurance company to give at least thirty (30) days prior written notice of termination or cancellation of the policy or reduction in coverage to the additional insured, except for termination or cancellation for non-payment of premium, which notice will be ten (10) days. Tenant will, at its own cost and expense, maintain a policy of standard fire and extended coverage insurance on all of Tenant's personal property and Tenant's improvements and alterations in, on, or about the Premises, in such amounts and on such terms as Tenant may elect, in its sole discretion. Tenant acknowledges that Landlord has no obligation to provide such insurance on Tenant's property.

By no later than the Lease Commencement Date, the Tenant shall submit to the Landlord insurance certificates demonstrating the required policies.

13. **Subordination and Non-Disturbance**
This Agreement is subject and subordinate to all Deeds of Trust which may now or hereafter affect the Premises, and to all renewals, modifications, consolidations, replacements and extensions thereof. This clause shall be self-operative, and no further instrument or subordination shall be required; provided, however, that the Tenant shall execute promptly any instrument that the Landlord may request confirming such subordination.

15. **Landlord's Right of Entry**.

a. Landlord has the right to enter the Premises at any reasonable time upon at least twenty-four (24) hours prior notice to Tenant, or without notice in case of emergency, provided however, Tenant is notified as soon thereafter as practicable, for the purpose of performing maintenance, repairs, and replacements to the Premises as are permitted under this Agreement.

b. In exercising its rights under this Paragraph, Landlord will not interfere with or disrupt the normal operation of Tenant's Permitted Use.

16. **Signs.**
Tenant shall not place signage on the Premises or the Building except in compliance with applicable laws and regulations, including zoning laws. Upon vacating the Premises, Tenant shall remove any and all signage placed by the Tenant and repair any damage caused by such placement or removal.

17. **Security of Premises.**
Landlord and Tenant agree that the Tenant shall have the right, at Tenant's sole expense, to secure the Premises by any reasonable means which in Tenant's reasonable opinion will successfully secure the operations of Tenant. Tenant shall provide the Landlord with a copy of all keys, cards, and passcodes.

18. **Rules and Regulations.**
Landlord reserves the right to establish written rules and regulations applicable to the Premises; provided that all such rules and regulations will not unreasonably interfere with Tenant's Permitted Use of the Premises and will not materially modify or alter the rights of Tenant granted by this Agreement.

19. **Waiver.**
The waiver by Landlord or Tenant of any breach of any term, covenant or condition herein contained will not be deemed to be a waiver of such term, covenant or condition on any subsequent breach of the same or any other term, covenant or condition herein contained. The subsequent acceptance of Rent by Landlord will not be deemed to be a waiver of any preceding breach by Tenant of any term, covenant or condition of this Agreement, regardless of Landlord's knowledge of such preceding breach at the time of acceptance of such Rent. Additionally, no covenant, term or condition of this Agreement will be deemed to have been waived by Landlord or Tenant, unless such waiver be in writing signed by the party to be bound thereby.

20. **Tenant's Default: Rights and Remedies.**

a. The occurrence of any one or more of the following constitutes an "Event of Default" by Tenant under this Agreement:

i. failure by Tenant to pay Rent within thirty (30) business days after Tenant's receipt of written notice from the Landlord of such failure to pay when due.

ii. failure by Tenant to observe or perform any other covenant, agreement, condition or provision of this Agreement, if such failure continues for thirty (30) days after receipt of written notice from Landlord to Tenant, except that if such default cannot be cured within such thirty (30) day period, it will not be considered a default if Tenant commences to cure such default within such thirty (30) day period and proceeds diligently thereafter to seek to effect such cure.

b. If an Event of Default by Tenant occurs, then the Landlord may terminate this Agreement, by giving

Tenant not less than thirty (30) days written notice of the Landlord's election to do so, in which event the Term will end, and all right, title and interest of the Tenant hereunder will expire, on the date stated in such notice.

c. If this Agreement and the Term and estate hereby granted are terminated for an Event of Default, as provided in Paragraph 20(b), then Landlord and Landlord's agents may thereupon reenter the Premises or any part thereof and may repossess the Premises and dispossess Tenant and any other persons therefrom and remove any and all of its or their property and effects from the Premises.

21. **Landlord's Default; Rights and Remedies.**
The occurrence of the following constitutes an "Event of Default" by Landlord under this Agreement: failure by Landlord to observe or perform any covenant, agreement, condition or provision of this Agreement, if such failure continues for thirty (30) days after receipt of written notice from Tenant to Landlord, except that if such default cannot be cured within such thirty (30) day period, this period will be extended, provided that Landlord commences to cure such default within such thirty (30) day period and proceeds diligently thereafter to seek to effect such cure. In the event Landlord shall fail to timely cure the default as aforesaid, then Tenant may thereafter, as its sole remedy, elect to terminate this Agreement upon giving at least thirty (30) days written notice to Landlord of Tenant's intention to terminate the Agreement and the grounds for termination, in which event this Agreement shall terminate upon the date fixed in the notice unless Landlord shall have meanwhile cured such default.

22. **Quiet Enjoyment.**
Landlord covenants that if and for so long as Tenant pays the Rent and performs the covenants and conditions of the Agreement, Tenant will have peaceful and quiet enjoyment and possession of the Premises for the Term.

23. **Mutual Representation of Authority.**

a. Landlord and Tenant represent and warrant to each other that they have full right, power and authority to enter into this Agreement without the consent or approval of any other entity or person and make these representations knowing that the other party will rely thereon, except that Tenant's acceptance of the terms of this Agreement are subject to review and approval by the Office of the Attorney General prior to execution.

b. The signatories on behalf of Landlord and Tenant further represent and warrant that they have full right, power and authority to act for and on behalf of Landlord and Tenant in entering into this Agreement.

24. **Estoppel Certificate.**

a. Tenant agrees, upon not less than ten (10) business days prior written request by Landlord, to deliver to Landlord a statement in writing signed by Tenant certifying (i) that this Agreement is unmodified and in full force and effect (or if there have been modifications, identifying the modifications); (ii) the date upon which Tenant began paying Rent and the dates to which the Rent has been paid; (iii) that, to the best of Tenant's knowledge, the Landlord is not in default under any provision of this Agreement, or, if in default, the nature thereof; and (iv) that there has been no prepayment of Rent other than that provided for in this Agreement.

b. Landlord, upon not less than ten (10) business days prior written request from Tenant, will furnish a statement in writing to Tenant covering the matters set forth in Paragraph 24(a), to the extent applicable to Landlord.

25. **Partial Invalidity.**
If any term, covenant or condition of this Agreement or the application thereof to any person or circumstance will to any extent be invalid or unenforceable, the remainder of this Agreement or the application of such term, covenant or condition to persons or circumstances other than those as to which it is held invalid or unenforceable will not be affected thereby and each term, covenant and condition of this Agreement will be valid and enforced to the fullest extent permitted by law.

26. **Governing Law.**
This Agreement will be construed and interpreted in accordance with the laws of the State of West Virginia without reference to its conflicts of law principles. The parties hereby irrevocably and exclusively submit to the jurisdiction of the State of West Virginia over any action or proceeding arising out of or relating to this Agreement.

27. **Notices**
Any notice, consent, approval or other communication given pursuant to the provisions of this Agreement will (except where otherwise expressly permitted by this Agreement) be in writing and will be (i) mailed by certified mail or registered mail, return receipt requested, postage prepaid, or (ii) delivered by a nationally recognized overnight courier, U.S. Post Office Express Mail, or similar overnight courier which delivers only upon signed receipt of the addressee, and addressed as follows:

If to Landlord:
Tim Hardesty
Superintendent
Cabell County Schools
2850 5th Avenue
Huntington, West Virginia 25702

If to Tenant:
H. Toney Stroud, Esq.
Chief Legal Officer and Vice President of
Strategic Initiatives and Corporate Relations
Marshall University
One John Marshall Drive
Huntington, West Virginia 25545

The time of the giving of any notice will be the time of receipt by the addressee or any agent of the addressee, except that in the event the addressee or such agent of the addressee will refuse to receive any notice given by registered mail, certified mail, or by nationally recognized overnight courier or U.S. Post Office Express Mail or similar overnight courier which delivers only upon signed receipt of the addressee, as above provided, the time of the giving of such notice will be the time of such refusal. Any party hereto may, by giving five (5) days written notice to the other party hereto, designate any other address in substitution of the foregoing address to which notice will be given.

28. **Captions.**
The captions and paragraph numbers appearing in this Agreement are inserted only as a matter of convenience and in no way define, limit, construe, or describe the scope or intent of such paragraphs of this Agreement nor in any way affect this Agreement.

29. **Use of Pronouns.**
The use of the neutral singular pronoun to refer to Landlord or Tenant will be deemed a proper reference even though Landlord or Tenant may be an individual, a partnership, a limited liability company, a Corporation, or a group of two or more individuals or corporations. The necessary grammatical changes required to make the provisions of this Agreement apply in the plural sense where there is more than one Landlord or Tenant and to either corporations, associations, partnerships, limited liability companies, or individuals, males or females, will in all instances be assumed as though in each case fully expressed.

30. **Counterparts.**
This Agreement may be executed in multiple copies, each of which will be deemed an original, and all of such copies will together constitute one and the same instrument.

31. **Force Majeure.**
Notwithstanding anything to the contrary contained in this Agreement, if Landlord or Tenant is delayed or prevented from performing any act which it is obligated to perform (except for the payment of Rent) under this Agreement for causes beyond its reasonable control (including, without limitation, repair, restoration and/or maintenance obligations) related to acts of God, war, epidemics, pandemics, governmental restrictions, terroristic acts, or the inability to procure the necessary labor or materials, (hereinafter "Force Majeure"), then Landlord or Tenant's time for performance of such obligation(s) hereunder will be reasonably extended by the period during which Landlord or Tenant was unable to perform, and the non-performing party will have no liability to the other party, other than the payment of monies which shall not be thereby excused, (nor will either party be entitled to terminate this Agreement or claim any abatement under this Agreement) on account of any such delay.

32. **Entire Agreement.**
This Agreement constitutes the entire agreement between the parties, there being no other terms, oral or written, except as herein expressed. No modification of this Agreement will be binding on the parties unless it is in writing and signed by both parties hereto.

33. **Construction and Interpretation.**
Landlord and Tenant acknowledge having the opportunity to participate fully and equally in the negotiation and preparation of this Agreement and to have had the assistance of their respective legal counsel. This Agreement, therefore, shall not be more strictly construed, nor shall any ambiguities within this Agreement be resolved, against either party based on authorship. The words "include," "includes" and "including" when used herein shall be deemed in each case to be followed by the words "without limitation." The word "herein" and similar references mean, except where a specific Section or Paragraph reference is expressly indicated, the entire Agreement rather than any specific Section or Paragraph. All reference to "days" as used in this Agreement, will mean calendar days unless otherwise so designated in this Agreement. References to "business days" shall mean any day that is not a Saturday, Sunday, or other day on which national banks are authorized or required to be closed. In computing any period of time prescribed or allowed by this Agreement, the day of the notice, act or other event from which the period of time begins to run is not included, and the last day is included, unless it is a Saturday, Sunday, or a legal holiday for national banks in the United States, in which event the period runs until the close of business on the next day which is not one of such days. Otherwise, Saturdays, Sundays and legal holidays are included even though the time prescribed or allowed is less than seven days.

34. **Survivability**
The terms and provisions of this Agreement which are intended to survive, and all provisions related to the interpretation and enforcement thereof, shall survive the termination of this Agreement as necessary to give full force and effect thereto.

[*signature blocks on next page; remainder of this page left intentionally blank*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement as of the day and year first above written.

LANDLORD:

CABELL COUNTY BOARD OF EDUCATION

Title: Superintendent
Date: January 16, 2025

This Lease Agreement was sworn to or affirmed before me on the 16 day of January, 2025.

ISABELLA O'NEAL MCCOY
Notary Public Official Seal
State of West Virginia
My Comm. Expires Aug 7, 2028
7 Gloucester ct Barboursville WV 25504

Isabella O. McCoy
Notary Public/ Other Official

My commission expires: August 7th, 2028

TENANT:

MARSHALL UNIVERSITY BOARD OF GOVERNORS

Title: CFO
Date: 1-22-25

This Lease Agreement was sworn to or affirmed before me on the 22nd day of January, 2025.

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Jodi S. Zimmerman
Marshall University
One John Marshall Drive
Huntington, WV 25755
My Commission Expires May 20, 2028

Jodi S. Zimmerman
Notary Public/ Other Official

My commission expires: May 20, 2028

List of Exhibits:

Exhibit A - Commencement Agreement

Exhibit A

Commencement Agreement

ACKNOWLEDGEMENT OF COMMENCEMENT DATES

Landlord; Cabell County Board of Education

Tenant: Marshall University Board of Governors

Premises: As identified within Paragraph 1 of the **Lease Agreement and Grant of Easement** to which this Commencement Agreement is appended as Exhibit A.

Landlord and Tenant are the parties to the **Lease Agreement and Grant of Easement** dated January 16th (cwl), 2025 (the "Agreement"). All capitalized terms used in this Acknowledgment are as defined in the Agreement. Landlord has tendered possession of the Premises to Tenant. The **Lease Commencement Date** shall be _____, **2025**. The initial term of the Lease will terminate as set forth within Paragraph 2 of the Agreement.

Tenant acknowledges that Landlord has fulfilled all of Landlord's obligations regarding delivery of the Premises to Tenant.

LANDLORD:

CABELL COUNTY BOARD OF EDUCATION

_____

Title: Superintendent
Date: January 16, 2025

TENANT:

MARSHALL UNIVERSITY BOARD OF GOVERNORS

_____

Title:
Date: 1-22-25

EXHIBIT B

TRIAD ENGINEERING, INC.

TRIAD Leading Designs & Delivery

BOUNDARY DESCRIPTION

AS SURVEYED

A portion of that certain parcel of land situate in the Lower Guyandotte watershed, being the Cabell County Board of Education property described in Deed Book 781 at Page 586, of record in the office of the Cabell County Clerk, and lying in the Huntington-Guyandotte Corporate District of Cabell County, and also identified as Tax Parcel 1 as shown on Tax Map 106 as published by the Cabell County Assessor, said portion to be set aside for leasing and is more particularly described as follows:

FROM a bare 1/2-inch diameter iron pin found at a point-of-curvature in the southerly right-of-way line of Norwood Avenue and being also a common corner of the Marshall University Board of Governors property as described in Deed Book 1149 at Page 434, of record in the office of the Cabell County Clerk, and the aforementioned Cabell County Board of Education property, with said common corner being also the true POINT OF BEGINNING;

THENCE, with and as the southerly right-of-way line of Norway Avenue, as a curve to the left with a radius of 120.81 feet and an arc length of 149.59 feet, having a chord that bears N 59° 18' 39" E for a distance of 140.22 feet to a Mag Spike with a stainless-steel washer stamped Triad Engineering set in the asphalt of a paved access drive at the point-of-tangency in said right-of-way line;

THENCE, leaving the southerly right-of-way line of Norway Avenue, as new lines defining the portion of the property to be leased, the following three calls;

S 58° 18' 19" E for a distance of 237.15 feet to a point;

S 26° 54' 59" E for a distance of 443.59 feet to a point;

S 46° 38' 35" W for a distance of 593.51 feet to a 5/8" rebar with a plastic identification cap marked Triad Engineering set at a common corner of the aforementioned Marshall University Board of Governors property

THENCE, with and as the common line of the Marshall University Board of Governors property, N 24° 28' 33" E for a distance of 190.00 feet to a Mag Spike with a stainless-steel washer stamped Triad Engineering set in the asphalt of a paved access drive at another common corner of said Marshall University property;

THENCE, continuing as a common line of the Marshall University Board of Governors property, N 0° 38' 12" W for a distance of 165.17 feet to a Mag Spike with a stainless-steel washer stamped Triad Engineering set in the asphalt of a paved access drive at another common corner of said Marshall University property;

THENCE, continuing as a common line of the Marshall University Board of Governors property, N 13° 15' 35" W for a distance of 478.06 feet to a 5/8" rebar with a plastic identification cap marked Potesta, found at another common corner of said Marshall University property;

THENCE, continuing as a common line of the Marshall University Board of Governors property, N 48° 12' 24" W for a distance of 78.97 feet to the POINT OF BEGINNING and thus containing 208,509.41 square feet or 4.787 acres, as surveyed and depicted on a plat of survey entitled "BOUNDARY RETRACEMENT SURVEY SHOWING PROPOSED LEASE AREA FOR MARSHALL UNIVERSITY" prepared by Triad Engineering Inc., dated November 23, 2024, and bearing the signature and seal of the undersigned surveyor of record.

The preceding description was prepared by Lloyd A. Kirk, a West Virginia Professional Surveyor, and is a true and accurate representation of the subject property, as surveyed.

11-23-24

Lloyd A. Kirk, PS WVPS #2247

EXHIBIT C

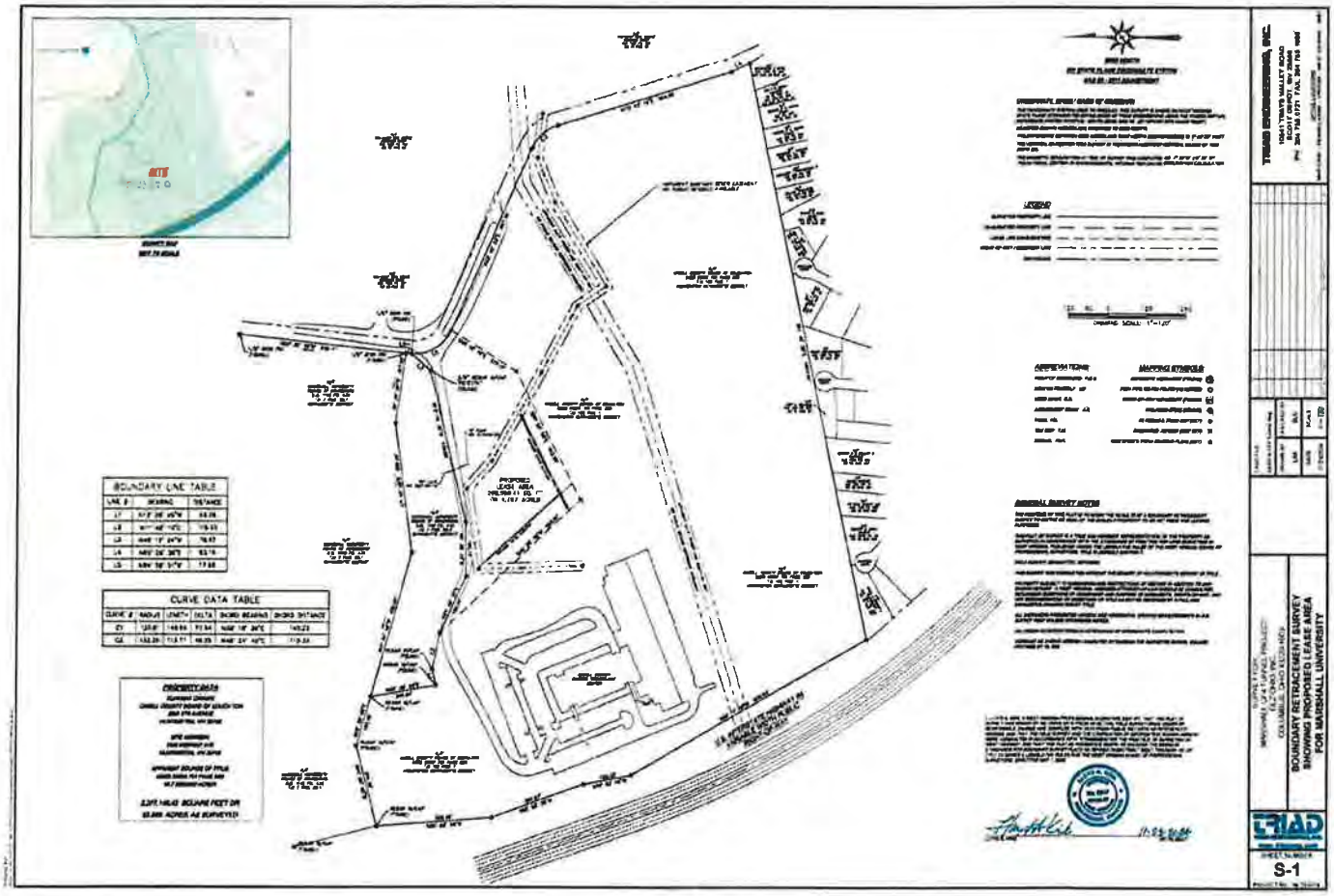

BOUNDARY LINE TABLE
CURVE DATA TABLE
BOUNDARY RETRACEMENT SURVEY
SHOWING PROPOSED LEASE AREA
FOR MARSHALL UNIVERSITY
S-1

EXHIBIT D

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, HUNTINGTON DISTRICT
502 8TH STREET
HUNTINGTON, WV 25701-2018

October 15, 2024

Regulatory Division
Energy Resource Branch
LRH-2024-00643-GUY-UNT Guyandotte River

NATIONWIDE PERMIT NO. 33 VERIFICATION

Caleb Wise
Marshall University
1 John Marshall Drive
Huntington, West Virginia 25755

Dear Caleb Wise:

I refer to the pre-construction notification (PCN) requesting a Department of the Army (DA) authorization for the discharge of dredged and/or fill material into waters of the United States (U.S.) in association with the construction of the MU Subterranean Testing Facility Project. The project is located in the city of Huntington, Cabell County, West Virginia. The proposed activity is located at approximately 38.405556°N, 82.373397°W. Your PCN has been assigned the following file number: LRH-2024-00643-GUY-UNT Guyandotte River. Please reference this number on all future correspondence related to this project.

The U.S. Army Corps of Engineers' (Corps) authority to regulate waters of the U.S. is based on the definitions and limits of jurisdiction contained in 33 CFR 328 and 33 CFR 329. Section 404 of the Clean Water Act (Section 404) requires a DA permit be obtained prior to discharging dredged and/or fill material into waters of the U.S., including wetlands. Section 10 of the Rivers and Harbors Act of 1899 (Section 10) requires a DA permit be obtained for any work in, on, over or under a navigable water.

The proposed project, as described in the submitted information, has been reviewed in accordance with Section 404 and Section 10. Based on your description of the proposed work, and other information available to us, it has been determined that this project will not involve activities subject to the requirements of Section 10. However, this project will include the discharge of dredged and/or fill material into waters of the U.S. subject to the requirements of Section 404.

In the submitted PCN materials, you have requested a DA authorization for the temporary discharge of dredged and/or fill material into 110 linear feet (0.04 acre) of one (1) stream, in association with construction of the MU Subterranean Testing Facility Project. The proposed project would include the temporary installation of three (3) culverts and clean engineered fill in an unnamed tributary of the Guyandotte River to facilitate access for the construction of a subterranean testing facility. The culverts and engineered fill will be removed once construction

of the tunnel is completed. All work will be conducted in accordance with the PCN received in this office on August 8, 2024.

Based on the provided information, it has been determined the proposed project meets the criteria for Nationwide Permit (NWP) No. 33 (enclosed) under the December 27, 2021 Federal Register (FR), Issuance and Reissuance of NWPs (86 FR 73522) provided you comply with all terms and conditions of the enclosed material, the enclosed special conditions, and the Section 401 Water Quality Certifications (401 WQC) issued by the West Virginia Department of Environmental Protection.

Please be aware this NWP verification does not obviate the requirement to obtain other local, state, and/or federal authorizations required by law for these activities. This verification is valid until the expiration date of the NWPs, unless the NWP authorization is modified, suspended, or revoked. The verification will remain valid if the NWP authorization is reissued without modification or the activity complies with any subsequent modification of the NWP authorization. The 2021 NWPs are scheduled to be modified, reissued, or revoked on March 14, 2026. Prior to this date, it is not necessary to contact this office for re-verification of your project unless the plans for the proposed activity are modified. Furthermore, if you commence or under contract to commence this activity before March 14, 2026, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

Enclosed is a copy of the NWPs and the 401 WQC to be kept at the project site during construction. You shall supply a copy of these documents to your project engineer responsible for construction activities.

Upon completion of the work, the enclosed certification must be signed and returned to this office. If you have any questions concerning the above, please contact Rachel McCarty of the Energy Resource Branch at 304-399-5207, by mail at the above address, or by email at: rachel.a.mccarty@usace.army.mil.

Sincerely,

Kimberly Courts-Brown

Kimberly Courts-Brown
Regulatory Project Manager
Energy Resource Branch

Enclosures

Nationwide Permit No. 33 Verification Special Conditions for the Marshall University – MU Subterranean Testing Facility Project LRH-2024-00643-GUY-UNT Guyandotte River 1 of 2

1. All work will be conducted in accordance with the submitted pre-construction notification (PCN) for the MU Subterranean Testing Facility Project received in this office on August 8, 2024.

2. Enclosed is a copy of Nationwide Permit 33, which will be kept at the site during construction. A copy of the nationwide permit verification, special conditions, and the attached construction plans must be kept at the site during construction. The permittee will supply a copy of these documents to their project engineer responsible for construction activities.

3. Upon completion of the activity authorized by this Nationwide Permit verification, the enclosed certification must be signed and returned to this office along with as-built drawings showing the location and configuration, as well as all pertinent dimensions and elevations of the activity authorized under this Nationwide Permit verification.

4. Construction activities will be performed during low flow conditions to the maximum extent practicable. Additionally, appropriate site-specific best management practices for sediment and erosion control will be fully implemented during construction activities at the site.

5. No area for which grading has been completed will be unseeded or unmulched for longer than 14 days. All disturbed areas will be seeded and/or revegetated with native species and approved seed mixes (where practicable) after completion of construction activities for stabilization and to help preclude the establishment of non-native invasive species.

6. All water resources and their buffers, which are to be avoided on-site, must be clearly indicated on the site plans and drawings, demarcated in the field, and protected with suitable material prior to site disturbance. These materials must remain in place and be maintained throughout the construction process.

7. In the event any previously unknown historic or archaeological sites or human remains are uncovered while accomplishing the activity authorized by this nationwide permit authorization, the permittee must cease all work in waters of the U.S. immediately and contact local, state and county law enforcement offices (only contact law enforcement on findings of human remains), the Corps at 304-399-5610 and Ohio State Historic Preservation Office at 614-298-2000. The Corps will initiate the Federal, state and tribal coordination required to comply with the National Historic Preservation Act and applicable state and local laws and regulations. Federally recognized tribes are afforded a government-to-government status as sovereign nations and consultation is required under Executive Order 13175 and 36 CFR Part 800.

Nationwide Permit No. 33 Verification Special Conditions for the Marshall University – MU Subterranean Testing Facility Project LRH-2024-00643-GUY-UNT Guyandotte River 2 of 2

8. The project site lies within the range of the Indiana bat (Myotis sodalis). Several factors have contributed to the species decline, including habitat loss, fragmentation of habitat and the disease White Nose Syndrome. During winter, the bat species hibernate in caves and abandoned mines. Suitable summer habitat for Indiana bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥ three (3) inches diameter at breast height (dbh) that have any exfoliating bark, cracks, crevices, hollows and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. The permittee shall preserve wooded/forested habitats exhibiting any of the characteristics listed above wherever possible. Should suitable habitat be present that cannot be saved during construction activities, any trees ≥ three (3) inches dbh shall only be cut between November 15 – March 31.

9. This Department of the Army Permit authorization does not authorize the "take" of a threatened or endangered species as defined under the Endangered Species Act (ESA). In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the United States Fish and Wildlife Service (USFWS), both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS or their World Wide Web page at http://www.fws.gov/r9endspp/endspp.html.

10. Section 7 obligations under the Endangered Species Act (Section 7) must be reconsidered if new information reveals impacts of the project that may affect Federally-listed species or critical habitat in a manner not previously considered, the proposed project is subsequently modified to include activities which were not considered during Section 7 consultation with the United States Fish and Wildlife Service , or new species are listed or critical habitat designated that might be affected by the subject project.

11. Should new information regarding the scope and/or impacts of the project become available that was not submitted to this office during our review of the proposal, the permittee will submit written information concerning proposed modification(s) to this office for review and evaluation, as soon as practicable.

EXHIBIT E

WEST VIRGINIA
DNR

Governor Jim Justice

Director Brett W. McMillion

September 4, 2024

Office of Land and Streams
RIGHT OF ENTRY

Marshall University
Attention: Grant Wooten
Triad Engineering, Inc.
10541 Teays Valley Road
Scott Depot, WV 25560

Re: R-2024-V-06-17323

To Whom It May Concern:

The West Virginia Division of Natural Resources (WVDNR) hereby authorizes for a term of 25 years, from the date hereof, a Right of Entry for the purpose of cleaning out the stream and stabilizing the stream banks for 110' (Marshall CF4), along Guyandotte River, near Huntington, in Cabell County, West Virginia.

The issuance of this Right of Entry by the WVDNR does not preclude the necessity to obtain permits from the U.S. Army Corps of Engineers (USACE), W.V. Department of Environmental Protection (WVDEP), or the W.V. Division of Homeland Security and Emergency Management (WVDHSEM). This Right of Entry does not negate the need to comply with the West Virginia Water Pollution Control Act and/or the State Environmental Quality Board's administrative regulations.

It is advised to contact the following agencies for additional guidelines and/or regulations:

1. The USACE [Huntington District (304-399-5210) or the Pittsburgh District (412-395-7155)] may require either an Individual Clean Water Act 404 permit or a Nationwide Permit.
   http://www.lrh.usace.army.mil/Missions/Regulatory.aspx

2. The WVDNR Environmental Coordination Unit (304-637-0245) should be contacted for the Mussel survey requirements for streams with mussel populations as described in the West Virginia Mussel Survey Protocol
   http://www.wvdnr.gov/Mussels/West%20Virginia%20Mussel%20Survey%20Protocols%20APR2016.pdf

3. The WVDEP (304-926-0499) may require the following permits:
   a. A Clean Water Act Section 401 Water Quality Certification
   http://www.dep.wv.gov/WWE/Programs/Pages/401Certification.aspx

   b. Construction Stormwater Site Registration and Notice of Intent. Not needed if disturbance less than (1) acre.
   http://dep.wv.gov/WWE/Programs/stormwater/Pages/sw_home.aspx

4. The Division of Water and Waste Management, (304-926-0495) should be contacted for the WVDEP Erosion and Sediment Control Best Management Practice Manual, Revised 2016, that it requires to be followed.
   http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/ESC_BMP.aspx

5. The WVDHSEM (304-957-2571) may require a Floodplain Permit.

6. The U.S. Fish and Wildlife Service Field Office (304-636-6568) should be contacted for any activity in waterways listed in Appendix A of the 2017 USACE Nationwide Permits for threatened or endangered aquatic species identified by the U.S. Fish and Wildlife Service.
   http://www.lrp.usace.army.mil/Portals/72/docs/regulatory/2017%20Public%20Notices/West%20Virginia%20-%20NWP%20March%202017%20PN.pdf?ver=2017-03-22-095505-870

7. The local Conservation District for the district where the work is to be performed should be contacted for technical support.

This Right of Entry does not allow in-stream work to be performed during the cold-water fish spawning season (September 15- March 31) and warm-water fish spawning season (April 1 - June 30). Spawning waivers may be obtained from the WVDNR Environmental Coordination Unit (304-637-0245).

This Right of Entry does not allow work outside the requested boundaries. The WVDNR does not assume any liability for your construction activities. By accepting this Right of Entry, you assume liability for any and all damage caused by this activity to both upstream and downstream landowners.

This Right of Entry does not authorize any rights or privileges, or permission to enter upon, or to cross the property of any other person, nor does it authorize removal of any material that lies upon the property of another person.

All work authorized under this Right of Entry should be completed as soon as possible, but no longer than one year from the date hereof.

There is no fee for this Right of Entry.

Please notify the Office of Land and Streams in writing when the in-stream work is complete.

Sincerely,

Brett W. McMillion
Director

BWM: lp

Exhibit B

CF4 Final Draft Plans

CONSTRUCTION DRAWINGS
FOR
MU SUBTERRANEAN TESTING FACILITY (CF4)
MARSHALL UNIVERSITY RESEARCH CORPORATION
CITY OF HUNTINGTON, CABELL COUNTY, WEST VIRGINIA

PROJECT CONTACTS:

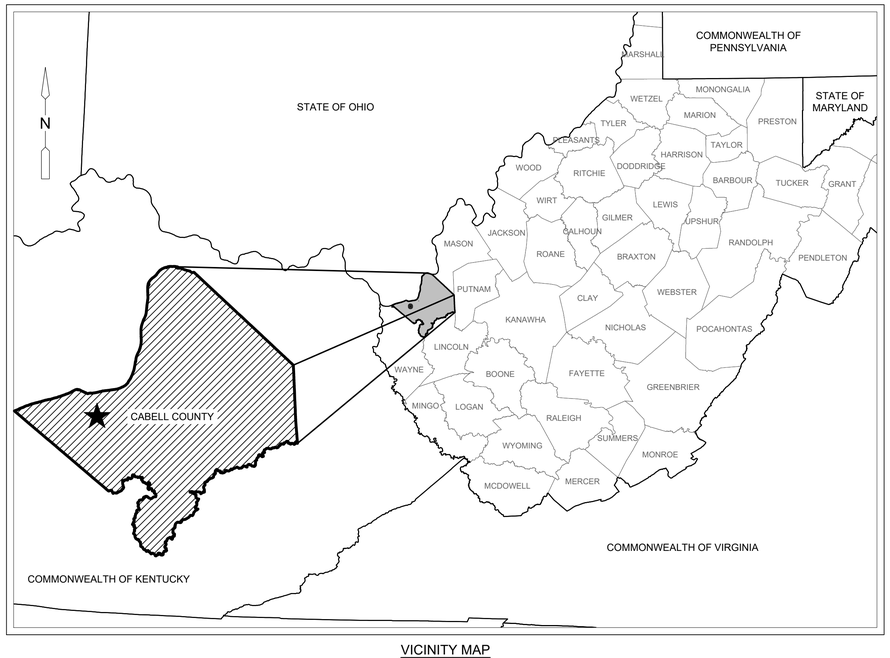
SITE CIVIL & GEOTECHNICAL:

TRIAD ENGINEERING, INC.
JOE YOUNG / JAMES CRINITI
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
JYOUNG@TRIADENG.COM
BCRINITI@TRIADENG.COM

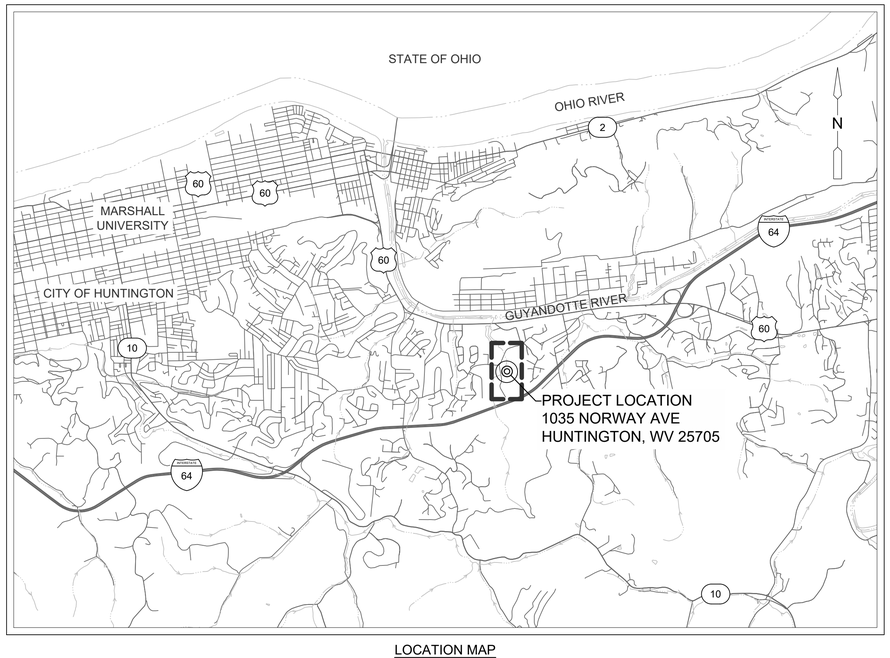
SHAFT (TUNNELING):

DLZ CORPORATION
JEFF COFFEY / NATHAN DICKMAN
6121 HUNTLEY ROAD
COLUMBUS, OH 43229
JCOFFEY@DLZ.COM
NDICKMAN@DLZ.COM

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
G-01	TITLE SHEET
G-02	LEGEND AND ABBREVIATIONS
C-01	EXISTING CONDITIONS
C-02	OVERALL SITE PLAN
C-03	SITE LAYOUT AND GRADING PLAN
C-04	EROSION AND SEDIMENT CONTROL PLAN
C-05	RECONSTRUCTION PLAN
C-06	DETAILS
T-01	OVERALL PLAN AND PROFILE
T-02	72 INCH SHAFT ENTRY PORTAL PLAN AND PROFILE



VICINITY MAP
SCALE: 1" = 150,000'



LOCATION MAP
SCALE: 1" = 3,000'

DLZ CORPORATION
6121 HUNTLEY ROAD
COLUMBUS, OH 43229
PH: 614.888.0040 FAX: 614.431.3854
OFFICE LOCATIONS
ILLINOIS INDIANA KENTUCKY MICHIGAN OHIO PENNSYLVANIA WISCONSIN

REV. #	DATE	DESCRIPTION	BY

CADD FILE: TITLE SHEET.DWG
DRAWN BY: AJM
CHECKED BY: NTD
DATE: 3/12/2025
SCALE: AS SHOWN

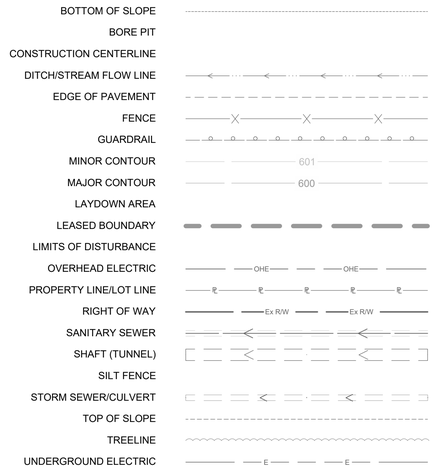
WILLIAM THOMAS DICKMAN REGISTERED 26479 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

MARSHALL UNIVERSITY CF4
CABELL COUNTY, WEST VIRGINIA

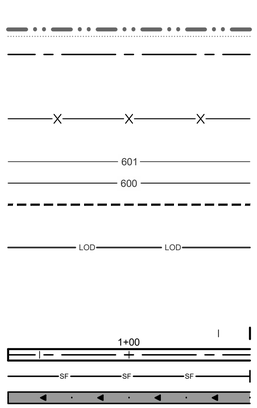
TITLE SHEET

SHEET NUMBER:
G-01

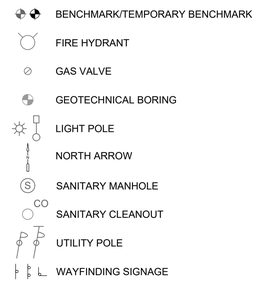
EXISTING CONDITIONS LINETYPES



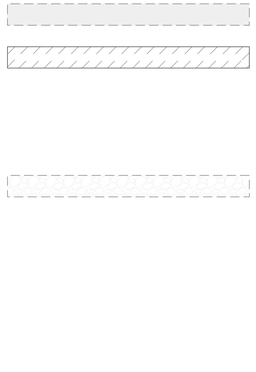
PROPOSED CONDITIONS LINETYPES



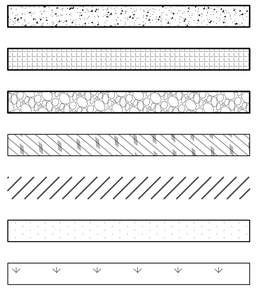
EXISTING CONDITIONS SYMBOLS



EXISTING CONDITIONS HATCHING



PROPOSED CONDITIONS HATCHING



SYMBOLS

&	AND
@	AT
'	FEET, MINUTES
"	INCHES, SECONDS
#	NUMBER
%	PERCENT
±	PLUS OR MINUS
Ø	ROUND, DIAMETER
Δ	DEGREE OF CURVATURE ALONG THE ARC OR ANGLE OF DEFLECTION (DEGREES)

ABBREVIATIONS

ABAND, ABND	ABANDON(ED)
ADD	ADDENDUM
ADD'L	ADDITIONAL
APPX, APPROX	APPROXIMATE(LY)
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AVE	AVENUE
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BH	BULKHEAD
BLDG	BUILDING
BLVD	BOULEVARD
BM	BENCH MARK
BOT	BOTTOM
CATV	CABLE TELEVISION
CB	CATCH BASIN
CDF	CONTROLLED DENSITY FILL
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CIP	CAST IRON PIPE
C/L, CL	CENTER LINE
CLR	CLEAR OR CLEARANCE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT, COMPANY
COMM	COMMUNICATIONS
CONC, CON	CONCRETE
CT	COURT
CTR	CENTER
CWA	CONCRETE WASHOUT AREA
CY	CUBIC YARD(S)
C&G	CURB AND GUTTER
C/C	CENTER TO CENTER
DEG	DEGREE
DEMO	DEMOLITION, DEMOLISH
DEPT	DEPARTMENT
DIA	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DND	DO NOT DISTURB
DWG	DRAWING(S)
E&SC	EROSION & SEDIMENT CONTROL
E	EAST, ELECTRIC
EA	EACH
EL	ELEVATION (VERTICAL DISTANCE ABOVE MEAN SEA LEVEL)
ELEC	ELECTRICAL, ELECTRIC
EOP, E/P	EDGE OF PAVEMENT
ESMT	EASEMENT
EST	ESTIMATE(D)
ETC	ET CETERA AND SO FORTH
EXIST,EXST,EX	EXISTING
FAB	FABRICATE(D)
FCDF	FLOWABLE CONTROLLED DENSITY FILL
FDN	FOUNDATION
FEN	FENCE
FH	FIRE HYDRANT
FM	FORCE MAIN
FO	FIBER OPTIC
FPS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED POLYMER OR PLASTIC
FRPM	FIBERGLASS REINFORCED POLYMER MORTAR
FT	FOOT OR FEET
F/GRADE	FINISH GRADE
GAL	GALLON(S)
GND	GROUND
GPM	GALLONS PER MINUTE
GRAV	GRAVEL
HDPE	HIGH-DENSITY POLYETHYLENE
HORIZ	HORIZONTAL
HR	HOUR(S)
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
HWL	HIGH WATER LEVEL
HWY	HIGHWAY
ID	INSIDE DIAMETER
IN	INCH(ES)
INV	INVERT
IP	IRON PIPE
LAT	LATERAL
LB	POUND(S)
LF	LINEAR FEET
LS	LUMP SUM
LT	LEFT
MAX	MAXIMUM
ME M/E	MATCH EXISTING
MFR	MANUFACTURE(R)
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MI	MILE(S)
MIN	MINIMUM, MINUTE(S)
MISC	MISCELLANEOUS
MNS	MAG NAIL SET
MOD	MODIFIED
MON	SURVEY MONUMENT
MOT	MAINTENANCE OF TRAFFIC
MPH	MILES PER HOUR
MTL	METAL
N	NORTH
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
NB	NORTH BOUND
NE	NORTHEAST
NF	NOT FOUND
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NO.	NUMBER
NOI	NOTICE OF INTENT
NPDES	NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM
NTS	NOT TO SCALE
NW	NORTHWEST
N/A	NOT APPLICABLE
OC	ON CENTER, ODOR CONTROL
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OHE	OVERHEAD ELECTRIC
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
O&M	OPERATION AND MAINTENANCE
PC	POINT OF CURVATURE
PH	PHASE
PID	PARCEL IDENTIFICATION
P/L	PROPERTY LINE
PKF	PK (NAIL) FOUND
PKS	PK (NAIL) SET
PROP, PR	PROPOSED
PSI	POUNDS FORCE PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PW	POTABLE WATER
Q	FLOW
QTY	QUANTITY
RCE	ROCK CONSTRUCTION ENTRANCE
RCP	REINFORCED CONCRETE PIPE, ROCK CHANNEL PROTECTION
RD	ROAD
REBAR	REINFORCING BAR, REINFORCING STEEL
REF	REFERENCE
REINF	REINFORCE(D), (ING), (MENT)
REQ'D	REQUIRED
RP	RECORD PLAN
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RT	RIGHT
R/W	RIGHT-OF-WAY
S	SOUTH
SAN	SANITARY
SB	STORM BASIN, SOUTH BOUND
SD	STORM DRAIN, STANDARD DRAWING
SDR	STANDARD DIMENSION RATIO
SE	SOUTHEAST
SEC	SECONDARY, SECOND(S)
SECT	SECTION
SF/SQ FT	SQUARE FOOT OR FEET
SHT	SHEET
SL	SPRING LINE, SERVICE LINE
SPEC	SPECIFICATION(S)
SQ	SQUARE
SR	STATE ROUTE
SS	SANITARY SEWER, STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STM	STORM SEWER
SW	SOUTHWEST, SWITCH
SY	SQUARE YARD(S)
S/W	SIDEWALK
TBA	TO BE ABANDONED
TBM	TEMPORARY BENCH MARK
TBR	TO BE REMOVED
TBRL	TO BE RELOCATED
TBRR	TO BE REMOVED AND REPLACED
TDH	TOTAL DYNAMIC HEAD
TEL	TELEPHONE
TEMP	TEMPORARY
TOB	TOP OF BANK
TOC	TOP OF CURB
TOT	TOTAL
TR	TRAFFIC/TRANSPORTATION
TYP	TYPICAL
TC T/C	TOP OF CONCRETE OR CASTING
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UNK	UNKNOWN
USACE	UNITED STATES ARMY CORPS OF ENGINEERS
USGS	UNITED STATES GEOLOGICAL SURVEY
VCP	VITRIFIED CLAY PIPE
VERT	VERTICAL
VF	VERTICAL FOOT
W	WEST
WL	WATER LINE
WM	WATER MAIN, WATER METER
WT	WEIGHT
WWF	WELDED WIRE FABRIC
WWTP	WASTEWATER TREATMENT PLANT
W/	WITH
W/O	WITHOUT
XFER	TRANSFER
YD	YARD(S)
YR	YEAR(S) YR

SHEET NUMBERING CONVENTION

EACH SHEET CONTAINS AN IDENTIFYING LETTER THAT COMES FIRST, THIS LETTER DEFINES THE GROUP OF DRAWINGS EACH SHEET BELONGS TO AS FOLLOWS:

G	GENERAL PLANS, NOTES, AND DETAILS
C	SITE CIVIL PLANS, NOTES, AND DETAILS
T	SHAFT (TUNNEL) PLANS, PROFILES, NOTES, AND DETAILS

EACH IDENTIFYING LETTER IS FOLLOWED BY A DASH AND THE A TWO NUMBER SEQUENCE IN ORDER (01, 02, 03, ETC)

DLZ CORPORATION
6121 HUNTLEY ROAD
COLUMBUS, OH 43229
PH: 614.888.0040 FAX: 614.431.3854
OFFICE LOCATIONS
ILLINOIS INDIANA KENTUCKY MICHIGAN OHIO PENNSYLVANIA WISCONSIN

BY	DESCRIPTION	DATE	REV. #

CADD FILE: LEGEND AND ABBREVIATIONS.DWG
DRAWN BY: AJM
CHECKED BY: NTD
SCALE: AS SHOWN
DATE: 3/12/2025

WILLIAM THOMAS DICKINSON REGISTERED 26479 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

MARSHALL UNIVERSITY CF4
CABELL COUNTY, WEST VIRGINIA

LEGEND AND ABBREVIATIONS

DLZ

SHEET NUMBER:
G-02

LIDAR CONTROL POINT #8
AERIAL PANEL & NAIL (SET)
N: 515097.341
E: 1575188.628
ELEV: 556.766

SANITARY STRUCTURE
INVERTS NOT SURVEYED

DRAINAGE

TREE LINE

UNNAMED CREEK

SANITARY MANHOLE
RIM ELEV: 573.28
INVERT: 560.50

LEASED BOUNDARY

AS DRILLED BORING B-3
GROUND: 629.746'
N: 514538.156
E: 1575080.566

BOTTOM OF MOUNTAIN

TOP OF EMBANKMENT

AS DRILLED BORING B-1
GROUND: 565.919'
N: 514698.034
E: 1574994.172

AS DRILLED BORING B-2
GROUND: 605.06'
N: 514629.8500
E: 1575040.1250

BORING B-8
GROUND: 556.262'
N: 514769.247
E: 1574967.383

12" SAN (RCP)

CREEK BOTTOM OF BANK

CREEK TOP OF BANK

LIMITS OF TOPOGRAPHIC GROUND SURVEY

ASPHALT

SANITARY MANHOLE
RIM ELEV: 568.99
INVERT: 560.84

TREE LINE

UNNAMED CREEK

CABELL COUNTY CAREER TECHNOLOGY
CENTER SIGN

NORWAY AVE

LIDAR CONTROL POINT #6
AERIAL PANEL & NAIL (SET)
N: 514851.277
E: 1574753.792
ELEV: 579.285

OVERHEAD ELECTRIC

SANITARY MANHOLE
RIM ELEV: 574.70
12" INVERT: 561.48
6" INVERT: 570.40
8" INVERT: 562.41

12" SAN (RCP)

8" SAN (PVC)

6" SAN (PVC)

DITCH

ASPHALT

VOCATIONAL CENTER ROAD

GATE

72" STM CULVERT (CMP)

CHAIN LINK FENCE

OVERHEAD ELECTRIC

TREE LINE

CHAIN LINK FENCE

LIMITS OF LIDAR GROUND SURVEY

CREEK TOP OF BANK

LIMITS OF TOPOGRAPHIC GROUND SURVEY
(MU SUBTERRANEAN TESTING FACILITY - 2023)

GRAVEL DRIVE

UNNAMED CREEK

CONCRETE BLOCK HEADWALL
AND SECURITY GATE

72" SHAFT TUNNEL

TREE LINE

NORWAY AVE
OWNER: MARSHALL UNIVERSITY BD OF GOV
TAX PARCEL ID: 04 7005500010000
LOT AREA: 73.74 ACRES
D.B. 1149 PG. 434

LIMITS OF LIDAR GROUND SURVEY

TREE LINE

AS DRILLED BORING B-4
GROUND: 652.751'
N: 514409.391
E: 1575130.205

LIDAR CONTROL POINT #4
AERIAL PANEL & NAIL (SET)
N: 514371.769
E: 1575119.795
ELEV: 654.595

TREE LINE

LEASED BOUNDARY

AS DRILLED BORING B-5
GROUND: 651.977'
N: 514339.956
E: 1575038.182

6" SAN (PVC)

SEWER PIPE (GPR)

AS DRILLED BORING B-6
GROUND: 612.176'
N: 514240.007
E: 1574915.709

AS DRILLED BORING B-7
GROUND: 601.701'
N: 514209.217
E: 1574871.69

SANITARY MANHOLE
RIM ELEV: 602.70
INVERT: 595.63

LIMITS OF TOPOGRAPHIC GROUND SURVEY

DITCH TOP OF BANK

LIDAR CONTROL POINT #5
AERIAL PANEL & NAIL (SET)
N: 514183.328
E: 1574840.196
ELEV: 604.521

DITCH

TREE LINE

NORWAY AVE
OWNER: MARSHALL UNIVERSITY BD OF GOV
TAX PARCEL ID: 04 7005500020000
LOT AREA: 3.94 ACRES
D.B. 1149 PG. 434

1035 NORWAY AVE
OWNER: BOARD OF EDUCATION
TAX PARCEL ID: 06 106000100000000
LOT AREA: 50.86 ACRES

TREE LINE

SANITARY STRUCTURE
INVERTS NOT SURVEYED

ASPHALT

PARKING LOT

DRAINAGE

TREE LINE

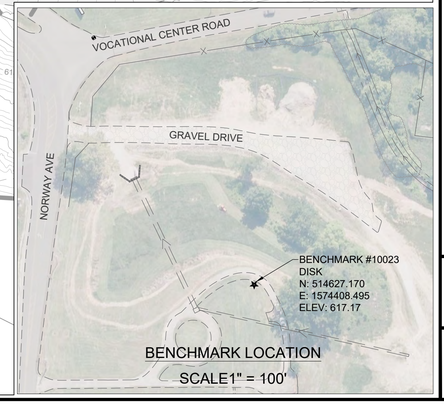
ASPHALT

TREE LINE

VOCATIONAL CENTER ROAD

HORIZONTAL 1" = 40'

40' 20' 0' 40'



BENCHMARK LOCATION
SCALE1" = 100'

DLZ CORPORATION
6121 HUNTLEY ROAD
COLUMBUS, OH 43229
PH: 614.888.0040 FAX: 614.431.3854
OFFICE LOCATIONS
ILLINOIS INDIANA KENTUCKY MICHIGAN OHIO PENNSYLVANIA WISCONSIN

REV. #	DATE	DESCRIPTION	BY

CADD FILE: EXISTING CONDITIONS.DWG
DRAWN BY: AJM
CHECKED BY: NTD
DATE: 3/12/2025
SCALE: AS SHOWN

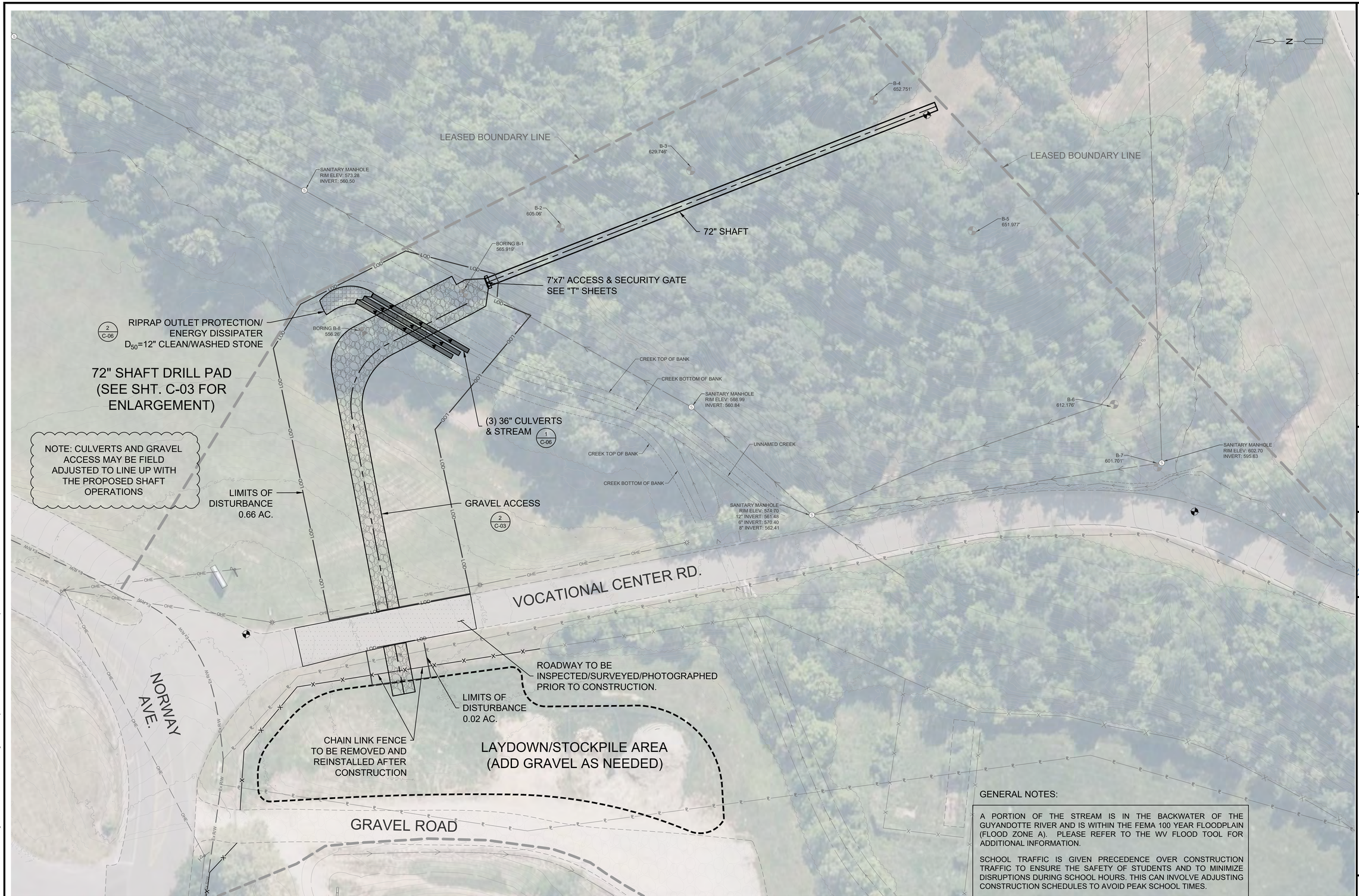
WILLIAM THOMAS DICKINSON
REGISTERED
26479
STATE OF WEST VIRGINIA
PROFESSIONAL ENGINEER

MARSHALL UNIVERSITY CF4
CABELL COUNTY, WEST VIRGINIA

EXISTING CONDITIONS

DLZ

SHEET NUMBER:
C-01



OVERALL SITE PLAN

GENERAL NOTES:

A PORTION OF THE STREAM IS IN THE BACKWATER OF THE GUYANDOTTE RIVER AND IS WITHIN THE FEMA 100 YEAR FLOODPLAIN (FLOOD ZONE A). PLEASE REFER TO THE WV FLOOD TOOL FOR ADDITIONAL INFORMATION.

SCHOOL TRAFFIC IS GIVEN PRECEDENCE OVER CONSTRUCTION TRAFFIC TO ENSURE THE SAFETY OF STUDENTS AND TO MINIMIZE DISRUPTIONS DURING SCHOOL HOURS. THIS CAN INVOLVE ADJUSTING CONSTRUCTION SCHEDULES TO AVOID PEAK SCHOOL TIMES.

VOCATIONAL CENTER ROAD TO BE INSPECTED PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE THE VOCATIONAL CENTER ROAD, ALL DAMAGE SHALL BE REPAIRED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.

HORIZONTAL 1" = 30'

30' 20' 10' 0' 30'

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PH: 304.755.0721 FAX: 304.755.1880
OFFICE LOCATIONS
MARYLAND PENNSYLVANIA VIRGINIA WEST VIRGINIA OHIO

REV. #	DATE	DESCRIPTION	BY

CADD FILE: SITE CIVIL PLAN.DWG
DRAWN BY: jhy
CHECKED BY: dm
SCALE: AS SHOWN
DATE: 3/12/2025

JAMES R. CRINER REGISTERED PROFESSIONAL ENGINEER 21418 STATE OF WEST VIRGINIA

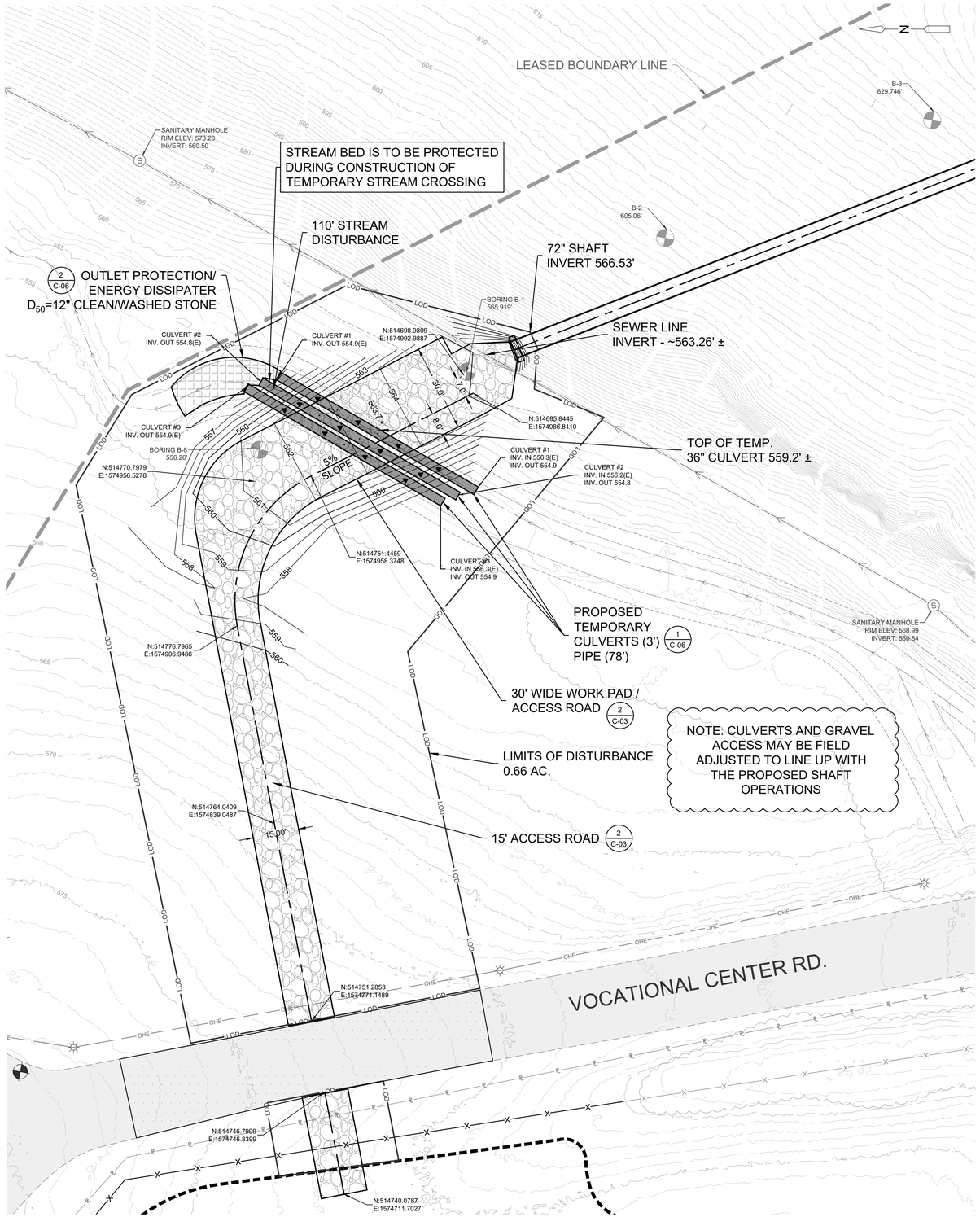
MARSHALL UNIVERSITY CF4
CABELL COUNTY, WEST VIRGINIA

OVERALL SITE PLAN

TRIAD ENGINEERING, INC.
www.triadeng.com

SHEET NUMBER:
C-02

PROJECT No.: 04-23-0374



SITE / LAYOUT / GRADING PLAN

HORIZONTAL 1" = 20'

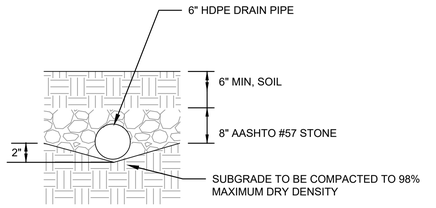
20' 10' 0' 20'

SHEET NOTES:

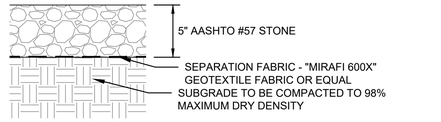
1. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND VERIFYING ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
2. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING UTILITIES DURING CONSTRUCTION AND ALL DAMAGE SHALL BE REPAIRED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER, CITY, OR COUNTY.
3. ALL CONSTRUCTION METHODS AND MATERIAL MUST CONFORM TO CURRENT STANDARDS AND SPECIFICATIONS OF THE FEDERAL, STATE, COUNTY, CITY OR LOCAL REQUIREMENTS, WHICHEVER HAS JURISDICTION.
4. ALL DISTURBED AREAS ARE TO BE SEEDED. SEE SPECIFICATIONS.

DEWATERING GENERAL NOTE (SEE DETAIL 3, SHEET C-06):

THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE DEWATERING MEASURES TO MANAGE WATER DISCHARGE FROM CONSTRUCTION ACTIVITIES. DEWATERING BAGS SHALL BE USED IN A STABILIZED AREA DOWNSTREAM OF THE TEMPORARY STREAM CROSSING TO FILTER SEDIMENT FROM WATER BEFORE IT IS DISCHARGED. THE CHOSEN DEWATERING AREA MUST BE STABLE, PROPERLY GRADED, AND PROTECTED AGAINST EROSION TO MAINTAIN WATER QUALITY AND PREVENT DOWNSTREAM SEDIMENTATION. ALL DEWATERING OPERATIONS SHALL COMPLY WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND BEST MANAGEMENT PRACTICES TO MINIMIZE IMPACTS ON THE SURROUNDING ECOSYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR MONITORING AND MAINTAINING DEWATERING EQUIPMENT TO ENSURE EFFECTIVE PERFORMANCE THROUGHOUT THE PROJECT DURATION.



1 C-03 — 6" HDPE DRAIN PIPE — N.T.S.



2 C-03 — GRAVEL ACCESS ROAD SECTION — N.T.S.

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PH: 304.755.0721 FAX: 304.755.1880
OFFICE LOCATIONS
MARYLAND PENNSYLVANIA VIRGINIA WEST VIRGINIA OHIO

REV. #	DATE	DESCRIPTION	BY

CADD FILE: SITE CIVIL PLAN.DWG
DRAWN BY: jhy
CHECKED BY: dm
SCALE: AS SHOWN
DATE: 3/12/2025

JAMES R. CRINER — REGISTERED — 21418 — STATE OF WEST VIRGINIA — PROFESSIONAL ENGINEER

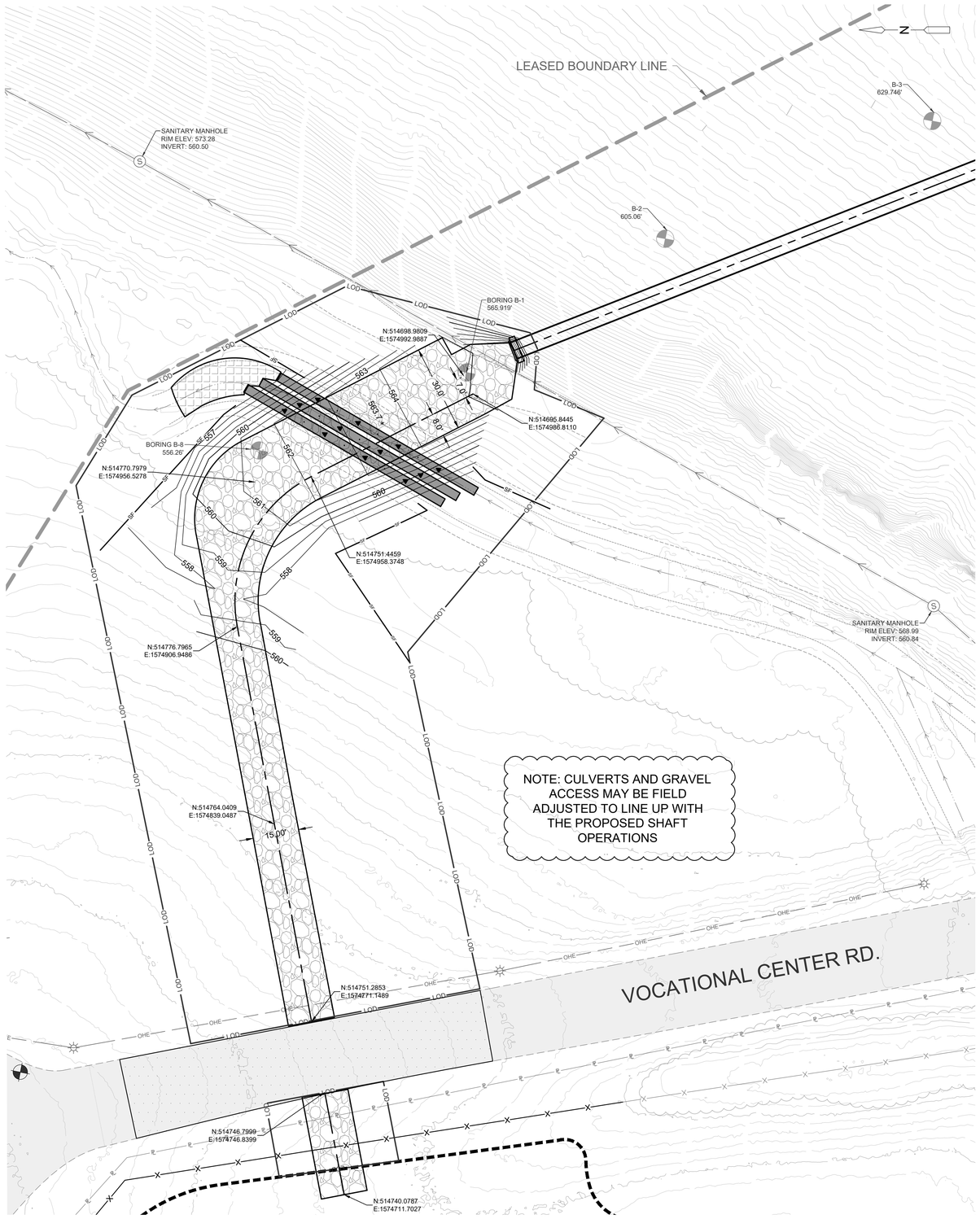
MARSHALL UNIVERSITY CF4
CABELL COUNTY, WEST VIRGINIA

SITE LAYOUT AND GRADING PLAN

TRIAD ENGINEERING, INC.
www.triadeng.com

SHEET NUMBER:
C-03
PROJECT No.: 04-23-0374

X:\Projects\2023\23210\05100 Marshall Tunnel CF3\1000 Design\CAD\Sheet Files\Site Civil Plan.dwg, Last Saved By: amitchell, 3/12/2025 12:11 PM Last Printed By: Aaron Mitchell, PE, 3/12/2025 1:12 PM



EROSION AND SEDIMENT CONTROL PLAN

DEWATERING GENERAL NOTE (SEE DETAIL 3, SHEET C-06):

THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE DEWATERING MEASURES TO MANAGE WATER DISCHARGE FROM CONSTRUCTION ACTIVITIES. DEWATERING BAGS SHALL BE USED IN A STABILIZED AREA DOWNSTREAM OF THE TEMPORARY STREAM CROSSING TO FILTER SEDIMENT FROM WATER BEFORE IT IS DISCHARGED. THE CHOSEN DEWATERING AREA MUST BE STABLE, PROPERLY GRADED, AND PROTECTED AGAINST EROSION TO MAINTAIN WATER QUALITY AND PREVENT DOWNSTREAM SEDIMENTATION. ALL DEWATERING OPERATIONS SHALL COMPLY WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND BEST MANAGEMENT PRACTICES TO MINIMIZE IMPACTS ON THE SURROUNDING ECOSYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR MONITORING AND MAINTAINING DEWATERING EQUIPMENT TO ENSURE EFFECTIVE PERFORMANCE THROUGHOUT THE PROJECT DURATION.

GENERAL NOTES:

UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO THE STANDARDS AND SPECIFICATIONS OF THE WEST VIRGINIA EROSION AND SEDIMENT CONTROL BMP MANUAL. THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED AT THE SITE AT ALL TIMES. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

SITE GRADING IS TO DRAIN TO THE SEDIMENT TRAPPING DEVICES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED. ALL EROSION AND CONTROL STRUCTURES MUST BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND AFTER EVERY STORM EVENT OF 0.5 INCHES OR GREATER. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY. INITIAL EFFORTS SHOULD BE TO LIMIT THE AMOUNT OF AREA DISTURBED BY MAINTAINING AS MUCH OF THE ORIGINAL VEGETATIVE COVER AS POSSIBLE. SEDIMENT CONTROL MEASURES SHALL REMAIN ACTIVE UNTIL ALL DISTURBED AREAS HAVE BEEN SATISFACTORY STABILIZED. ALL STATE AND LOCAL REQUIREMENTS SHALL BE MET CONCERNING FENCING AND SIGNS WARNING THE PUBLIC OF THE HAZARDS OF SOFT, SATURATED SEDIMENT AND FLOOD WATERS. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 4 DAYS OF REACHING FINAL GRADE. TEMPORARY STABILIZATION IS ALSO TO BE APPLIED WITHIN 4 DAYS OF A WORK STOPPAGE OF 14 DAYS OR MORE. INSPECTION OF ALL BMP'S ONCE EVERY 4 CALENDAR DAYS AND WITHIN A 24 HOURS OF A PRECIPITATION/RUNOFF EVENT OF MORE THAN 0.25" IN A 24 HOUR PERIOD.

THE CONTRACTOR SHALL PROVIDE A DETAILED PLAN AND SCHEDULE FOR ALL ELEMENTS OF THE EROSION CONTROL PLAN. THE PLAN SHOULD BE POSTED AT THE JOB SITE AND STRICTLY FOLLOWED. THE MINIMUM STANDARD OF PERFORMANCE WILL BE A PLAN THAT REQUIRES THAT AN INSPECTION OF ALL PLAN ELEMENTS BE CONDUCTED AT LEAST ONCE EVERY FOUR DAYS, UPON REPORT OF AN OBSERVED FAILURE, OR WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 INCHES OF RAIN PER 24 HOUR PERIOD. SPECIAL ATTENTION SHOULD BE GIVEN TO AREAS OF EQUIPMENT FUELING AND CLEANING. MITIGATION MEASURES SUCH AS WATER DIVERSION AND CONTAINMENT, ETC. SHOULD BE EMPLOYED TO MINIMIZE THE POTENTIAL FOR CONTAMINANTS TO REACH SURFACE WATERS. INSPECTION OF GROUNDWATER FACILITIES ARE REQUIRED QUARTERLY, AT MINIMUM.

HORIZONTAL 1" = 20'

20' 10' 0' 20'

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PH: 304.755.0721 FAX: 304.755.1880
OFFICE LOCATIONS
MARYLAND PENNSYLVANIA VIRGINIA WEST VIRGINIA OHIO

REV. #	DATE	DESCRIPTION	BY

CADD FILE: SITE CIVIL PLAN.DWG
DRAWN BY: jhy
CHECKED BY: dm
SCALE: AS SHOWN
DATE: 3/12/2025

JAMES R. CRUM II, REGISTERED, 22418, STATE OF WEST VIRGINIA, PROFESSIONAL ENGINEER

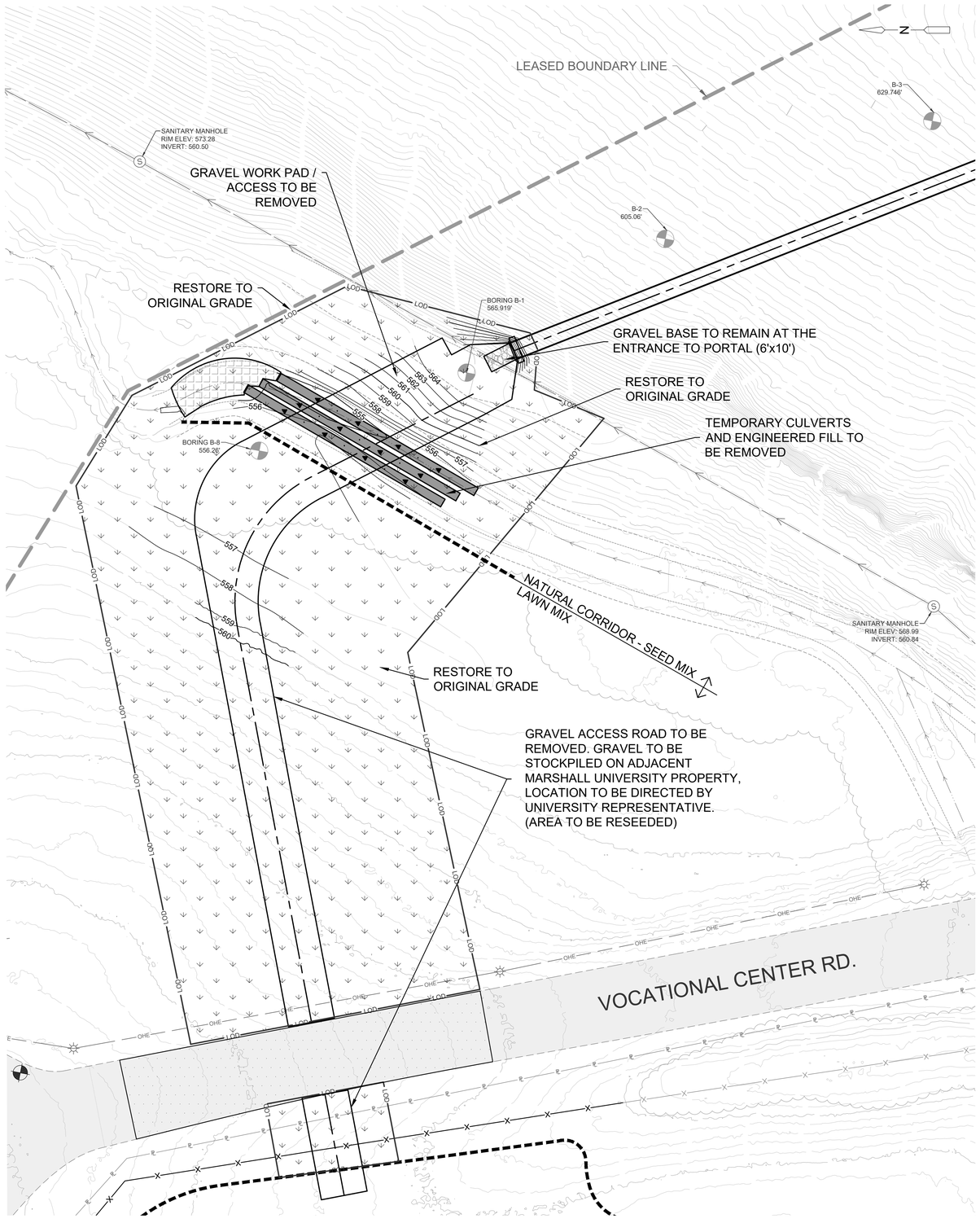
MARSHALL UNIVERSITY CF4
CABELL COUNTY, WEST VIRGINIA

EROSION AND SEDIMENT CONTROL PLAN

TRIAD ENGINEERING, INC.
www.triadeng.com

SHEET NUMBER:
C-04

PROJECT No.: 04-23-0374



RECONSTRUCTION PLAN

SLOPE STABILITY & NATURAL CORRIDORS SEED MIX

SEE SPECIFICATIONS FOR MEAN AND METHODS

TEMPORARY MATRIX		
OZ/AC	GRASSES	
512	AVENA SATIVA	SEED OATS
160	LOLIUM MULTIFLORUM	ANNUAL RYEGRASS
PERMANENT MATRIX		
OZ/ACRE	GRASSES	
16	ANDROPOGON GERARDII	BIG BLUESTEM
16	BOUTELOUA CURTIPENDULA	SIDE-OATS GRAMA
48	ELYMUS CANADENSIS	CANADA WILE RYE
48	ELYMUS VIRGINICUS	VIRGINIA WILD RYE
32	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM
16	SORGHASTRUM NUTANS	INDIAN GRASS
OZ/ACRE	FORBS	
1	MONDARDA FISTULOSA	BERGAMOT
2	COREOPSIS LANCEOLATA	LANCELEAF COREOPIS
4	RUDBECKA HIRTA	BLACK-EYED SUSAN
2	SOLIDAGO NEMORALIS	GREY GOLDENROD
2	SOLIDAGO SPECIOSA	SHOWY GOLDENROD

LAWN MIX - SUN TO PARTIAL SHADE

LBS/ACRE	GRASSES	
20	LOLIUM MULTIFLORUM	ANNUAL RYEGRASS
100	POA PRATENSIS	KENTUCKY BLUEGRASS
100	LOLIUM PERENNE	PERENNIAL RYEGRASS

HORIZONTAL 1" = 20'

20' 10' 0' 20'

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PH: 304.755.0721 FAX: 304.755.1880
OFFICE LOCATIONS
MARYLAND PENNSYLVANIA VIRGINIA WEST VIRGINIA OHIO

REV. #	DATE	DESCRIPTION	BY

CADD FILE: SITE CIVIL PLAN.DWG
DRAWN BY: jhy
CHECKED BY: dm
SCALE: AS SHOWN
DATE: 3/12/2025

JAMES R. GRUNDY
REGISTERED
21418
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

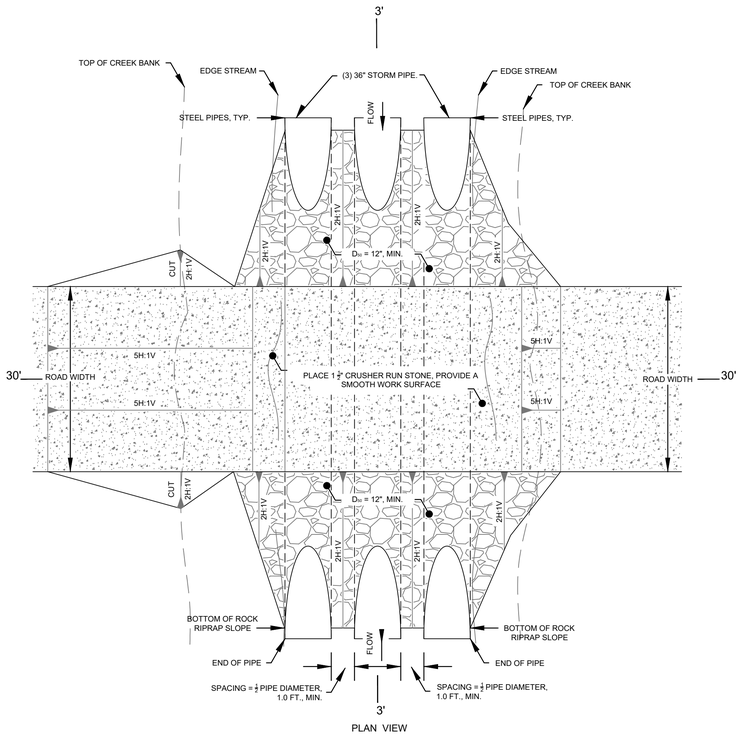
MARSHALL UNIVERSITY CF4
CABELL COUNTY, WEST VIRGINIA

RECONSTRUCTION PLAN

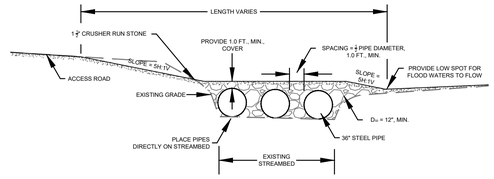
TRIAD ENGINEERING, INC.
www.triadeng.com

SHEET NUMBER:
C-05

PROJECT No.: 04-23-0374

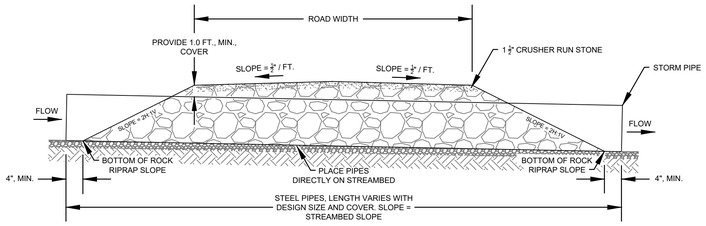


PLAN VIEW



CROSS SECTION A - A

N.T.S.



CROSS SECTION B - B

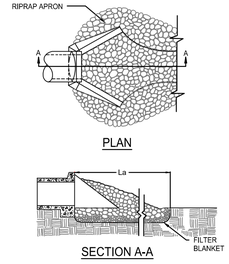
NOTES:

1. 1 1/2" CRUSHER RUN STONE SHALL MEET THE GRADATION REQUIREMENTS FOR CLASS 1 AGGREGATE IN TABLE 704.6.2A OF THE WVDOH SPECIFICATIONS FOR ROADS AND BRIDGES.
2. AFTER ALL RECLAMATION OPERATIONS ARE COMPLETE USING THE TEMPORARY CROSSING, THE CONTRACTOR SHALL REMOVE AND DISCARD ALL INSTALLED COMPONENTS (PIPE AND STONE) AND RESTORE THE CREEK BED AND BANKS TO PRE-CONSTRUCTION CONDITIONS ALL TO THE SATISFACTION OF THE ENGINEER.

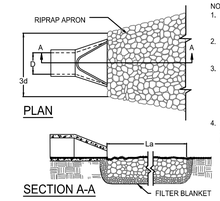
1 C-06

TEMPORARY STREAM CROSSING

N.T.S.



PIPE OUTLET TO FLAT AREA -- NO WELL DEFINED CHANNEL



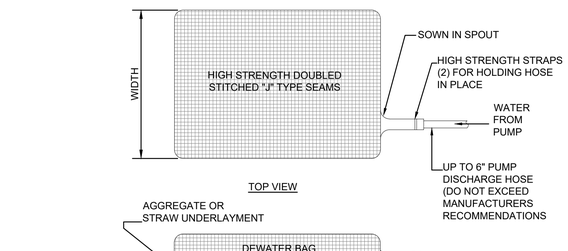
NOTES:
1. La IS THE LENGTH OF THE RIPRAP APRON.
2. D = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS).
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND THE SOIL FOUNDATION.

PIPE OUTLET TO WELL DEFINED CHANNEL

2 C-06

RIPRAP OUTLET PROTECTION

N.T.S.



PROPERTIES	TEST METHOD	ENGLISH*
GRAB TENSILE	ASTM D-4632	250 lbs.
PUNCTURE	ASTM D-4833	165 lbs.
FLOW RATE	ASTM D-4491	70 gal/min/s.f.
PERMITIVITY	ASTM D-4491	1.3 sec.-1
MULLEN BURST	ASTM D-3786	550 lbs/s.i.
UV	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	100%

* ALL PROPERTIES ARE A MINIMUM AVERAGE ROLL VALUE.

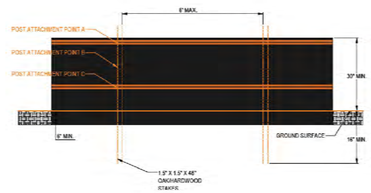
NOTES:

1. THE BAG SHALL BE INSTALLED ON A VERY SLIGHT SLOPE SO INCOMING WATER FLOWS DOWNHILL THROUGH THE BAG WITHOUT CREATING MORE EROSION..
2. THE NECK OF THE FILTER BAG SHALL BE TIGHTLY STRAPPED (MINIMUM TWO STRAPS) TO THE DISCHARGE HOSE.
3. THE BAG SHOULD BE PLACED ON AN AGGREGATE OR HAY BALE BED TO MAXIMIZE WATER FLOW THROUGH THE ENTIRE SURFACE AREA OT THE BAG.
4. THE FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR PASS WATER AT A REASONABLE RATE.
5. FLOW RATES VARY DEPENDING ON THE SIZE OF THE DEWATERING DEVICE, AMOUNT OF SEDIMENT DISCHARGED INTO THE DEWATERING DEVICE, THE TYPE OF GROUND, ROCK OR OTHER SUBSTANCE UNDER THE BAG AND THE DEGREE OF THE SLOPE ON WHICH THE BAG LIES. THE FILTER BAG SHOULD BE SIZED TO ACCOMMODATE THE ANTICIPATED FLOW RATES FROM THE TYPE OF PUMP USED. TYPICALLY, FILTER BAGS CAN HANDLE FLOW RATES OF UP TO 1,000 GALLONS PER MINUTE, BUT IN ALL CASES FOLLOW THE MANUFACTURER'S RECOMMENDATIONS FOR FLOW RATES.
6. USE OF EXCESSIVE FLOW RATES OR OVERFILLING THE DEWATERING DEVICE WITH SEDIMENT WILL CAUSE RUPTURES OF THE BAG OR FAILURE OF THE HOSE ATTACHEMENT STRAPS.
7. THE FILTER BAG CAN BE LEFT IN PLACE AFTER CUTTING THE TOP OFF AND SEEDING AND MULCHING THE ACCUMULATED SEDIMENT, OR REMOVED AND DISPOSED OF OFFSITE IN AN APPROVED LANDFILL.
8. EACH STANDARD DEWATERING DEVICE SHALL HAVE A FILL SPOUT LARGE ENOUGH TO ACCOMMODATE THE DISCHARGE HOSE. USE TWO STAINLESS STEEL STRAPS TO SECURE THE HOSE AND PREVENT PUMPED WATER FROM ESCAPING WITHOUT BEING FILTERED.
9. THE DEWATERING DEVICE SHALL BE A NON-WOVEN BAG WHICH IS SEWN WITH A DOUBLE NEEDLE STITCHING USING A HIGH STRENGTH THREAD.
10. THE DEWATERING DEVICE SEAMS SHALL HAVE AND AVERAGE WIDE WIDTH STRENGTH PER ASTM D 4884 OF 100 LB/IN (1.14 kg/meter).
11. THE GEOTEXTILE FABRIC SHALL BE A NON-WOVEN FABRIC.

3 C-06

DEWATERING BAG

N.T.S.



4 C-06

SMART FENCE DETAIL

SMART FENCE 36" INSTALLATION NOTES:

STEP 1: EXCAVATE TRENCH A MAXIMUM OF 2" WIDE AND 4" DEEP. THE TRENCH SHALL BE HAND-CLEANED FOLLOWING EXCAVATION TO REMOVE BULKY DEBRIS SUCH AS ROCKS, STICKS, AND SOIL CLODS FROM THE TRENCH. DRIVE HARDWOOD POSTS, HAVING MINIMUM 1" X 2" CROSS-SECTION DIMENSIONS AND 48" LONG, INTO THE GROUND. DRIVE POST INTO GROUND A MINIMUM OF 16" DEPTH. POST SPACING MUST BE NO GREATER THAN 6 FT MAXIMUM.

STEP 2: LAYOUT SMARTFENCE® 36 ALONG PROPOSED FENCE LINE NEXT TO ANCHOR TRENCH. LOCATE ONE END OF THE SMARTFENCE® 36 AND POSITION NEAR THE INITIAL POST. POSITION SMARTFENCE® 36 VERTICALLY ALONG THE INITIAL POST.

STEP 3: FOR THE INITIAL POST, PLACE THE END OF SMARTFENCE® 36 ALONG THE POST HEIGHT AND ROTATE THE POST 360 DEGREES, MAINTAINING TENSION ON THE FENCE SYSTEM. SECURE THE FENCE TO THE POST USING HEAVY-DUTY WIRE STAPLES (HAVING ½ INCH LENGTH AND 1" WIDTH) AT THE TWO (2) ORANGE-COLORED BAND LOCATIONS AND AT A LOCATION HALFWAY BETWEEN THE TWO ORANGE BANDS (MINIMUM 3 ATTACHMENT LOCATIONS). ALTERNATE STAPLES MAY BE USED OF A SIZE AND TYPE AS APPROVED BY THE STATE DOT.

STEP 4: DRIVE THE INITIAL POST WITH THE ATTACHED FENCE INTO THE GROUND TO 16" DEPTH.

STEP 5: DRIVE THE INTERIOR POSTS OF THE FENCE SYSTEM INTO THE GROUND AT LEAST 16".

STEP 6: MOVE TO THE NEXT POST WHILE PULLING SMARTFENCE® 36 TIGHTLY. POSITION THE SMARTFENCE® 36 IN FRONT OF THE ADJACENT POST IN PREPARATION FOR FASTENING THE FENCE TO THE POST. SECURE THE FENCE TO THE POST USING STAPLES AT THE TWO (2) ORANGE-COLORED BAND LOCATIONS AND AT A LOCATION HALFWAY BETWEEN THE TWO ORANGE BANDS (MINIMUM 3 ATTACHMENT LOCATIONS) AS INSTRUCTED IN STEP 3.

STEP 7: AFTER THE INTERIOR POSTS HAVE BEEN FASTENED TO THE SMARTFENCE® 36, SECURE THE FENCE TO THE FINAL POST BY PULLING THE FINAL SECTION OF FENCING TAUT. THEN ROTATING THE POST 360 DEGREES, MAINTAINING TENSION ON THE FENCE SYSTEM. SECURE THE FENCE TO THE POST USING STAPLES AT THE TWO (2) ORANGE-COLORED BAND LOCATIONS AND AT A LOCATION HALFWAY BETWEEN THE TWO ORANGE BANDS (MINIMUM 3 ATTACHMENT LOCATIONS) AS INSTRUCTED IN STEP 3. DRIVE THE FINAL POST INTO THE GROUND TO 16" DEPTH.

STEP 8: PLACE BOTTOM 6 INCHES OF FABRIC INTO THE TRENCH. BACKFILL TRENCH (OVERFILL) WITH SOIL PLACED AROUND FABRIC. COMPACT SOIL BACKFILL WITH EITHER MANUAL TAMPING (OR OTHER MANUAL MEANS) OR VIA MECHANICAL EQUIPMENT SUCH AS THE FRONT WHEEL OF A TRACTOR, SKID STEER, ROLLER, OR OTHER DEVICE (PER NOTE 5 OF ASTM D 6462 STANDARD PRACTICE FOR SILT FENCE INSTALLATION). DO NOT DAMAGE THE FABRIC DURING COMPACTION (DAMAGED FABRIC SHALL BE REPLACED).

TRIAD ENGINEERING, INC.
10541 TEAYS VALLEY ROAD
SCOTT DEPOT, WV 25560
PH: 304.755.0721 FAX: 304.755.1880
OFFICE LOCATIONS
MARYLAND PENNSYLVANIA VIRGINIA WEST VIRGINIA OHIO

REV. #	DATE	DESCRIPTION	BY

CADD FILE: SITE CIVIL PLAN.DWG
DRAWN BY: jhy
CHECKED BY: dm
DATE: 3/12/2025
SCALE: AS SHOWN

JAMES R. CRINER, REGISTERED, 21418, STATE OF WEST VIRGINIA, PROFESSIONAL ENGINEER

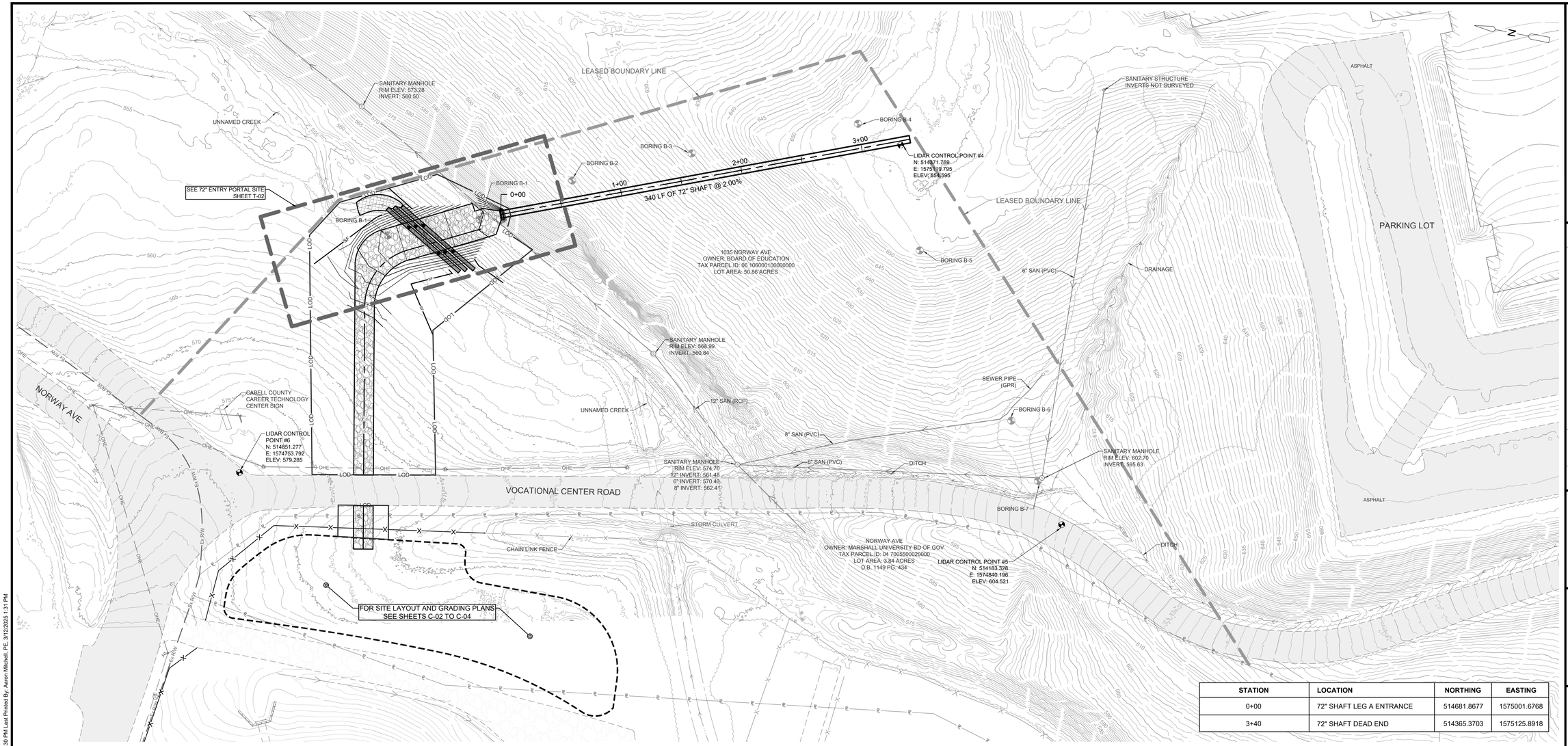
MARSHALL UNIVERSITY CF4
CABELL COUNTY, WEST VIRGINIA

DETAILS

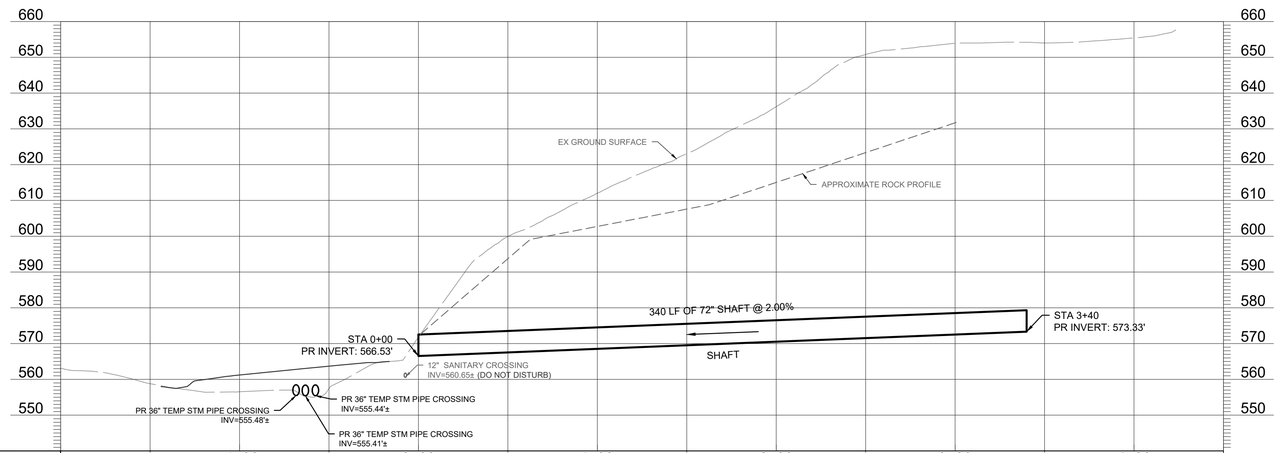
TRIAD ENGINEERING, INC.
www.triadeng.com

SHEET NUMBER:
C-06
PROJECT No.: 04-23-0374

X:\Projects\2023\23216051100 Marshall Tunnel CF3\1000 Design\CADD\Sheet Files\Site Civil Plan.dwg, Last Saved By: amitchell, 3/12/2025 12:11 PM Last Printed By: Aaron Mitchell, PE, 3/12/2025 1:21 PM



STATION	LOCATION	NORTHING	EASTING
0+00	72" SHAFT LEG A ENTRANCE	514681.8677	1575001.6768
3+40	72" SHAFT DEAD END	514365.3703	1575125.8918



STATION	-1+00	0+00	1+00	2+00	3+00	4+00
EX GROUND	556.53	571.83	612.02	636.19	653.92	655.42
PIPE INVERT	556.53	566.53	568.53	570.53	572.53	
CUT TO INVERT	0.00	5.30	43.49	65.66	81.39	

VERTICAL 1" = 10'
10' 5' 0' 10'

HORIZONTAL 1" = 40'
40' 20' 0' 40'

DLZ CORPORATION
6121 HUNTLEY ROAD
COLUMBUS, OH 43229
PH: 614.888.0040 FAX: 614.431.3854
OFFICE LOCATIONS
ILLINOIS INDIANA KENTUCKY MICHIGAN OHIO PENNSYLVANIA WISCONSIN

REV. #	DATE	DESCRIPTION	BY

CADD FILE: PROPOSED MODEL DWG
DRAWN BY: AJM
CHECKED BY: NTD
DATE: 3/12/2025
SCALE: AS SHOWN

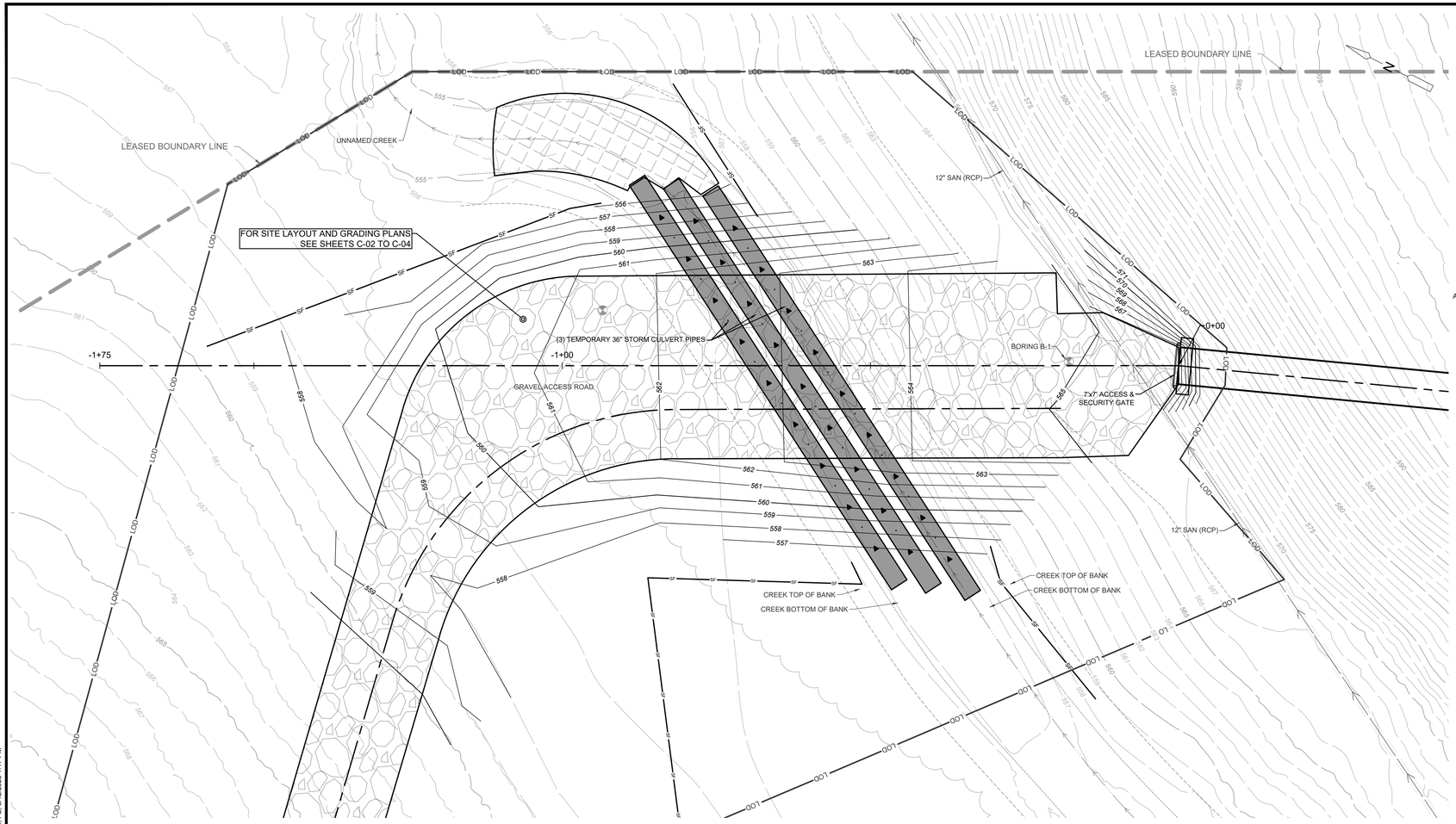
NATHAN THOMAS DILLMAN REGISTERED 26479 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

MARSHALL UNIVERSITY CF4
CABELL COUNTY, WEST VIRGINIA

OVERALL PLAN AND PROFILE

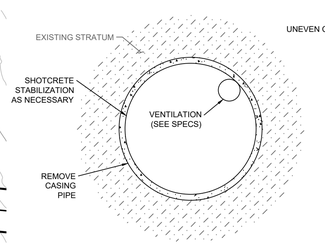
DLZ

SHEET NUMBER:
T-01

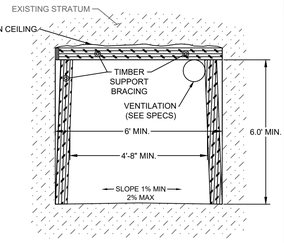


SHEET NOTES:

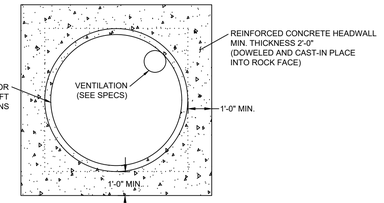
1. THE TOPOGRAPHY AT THE 72" ENTRY PORTAL IS AN EXISTING ROCK OUTCROP WITHIN THE HILLSIDE (SEE APPROXIMATE PHOTO LOCATION THIS SHEET). THE CONTRACTOR IS RESPONSIBLE FOR EXCAVATING AND PREPARING THE ROCK FACE FOR SHAFT CONSTRUCTION. CONTRACTOR TO PROVIDE A TUNNEL PORTAL STABILIZATION SHOP DRAWING FOR REVIEW BY THE ENGINEER BASED ON THE CONDITIONS ENCOUNTERED. SEE SPECIFICATIONS.
2. PRIOR TO SHAFT CONSTRUCTION, CONTRACTOR SHALL LOCATE AND EXPOSE THE EXISTING 12" SANITARY SEWER AT THE 72" ENTRY PORTAL TO VERIFY THE ELEVATION OF THE PIPE. THE CONTRACTOR SHALL INSTALL A STEEL PLATE AND PROTECT THE SEWER AT ALL TIMES.
3. FOR THE 72" ENTRY PORTAL, THE CONTRACTOR SHALL CONSTRUCT THE SHAFT PER THE 72" JACK & BORE CROSS SECTION OR THE HAND MINED CROSS SECTION. SEE DETAILS THIS SHEET.
4. IF CONSTRUCTION OCCURS VIA JACK & BORE, CONSTRUCTION OF A BACKSTOP IS ANTICIPATED. THE BACKSTOP SHALL BE CONSTRUCTED TO AVOID IMPACTS TO THE PROPOSED CULVERT PIPES. ALL INFRASTRUCTURE RELATED TO THE BACKSTOP SHALL BE REMOVED WHEN CONSTRUCTION IS COMPLETE.



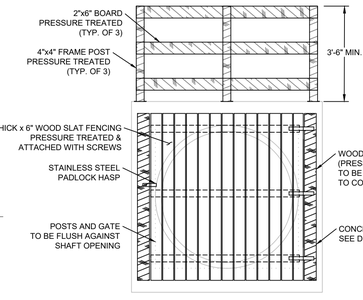
72" JACK & BORE CROSS SECTION
SCALE: 1"=3'



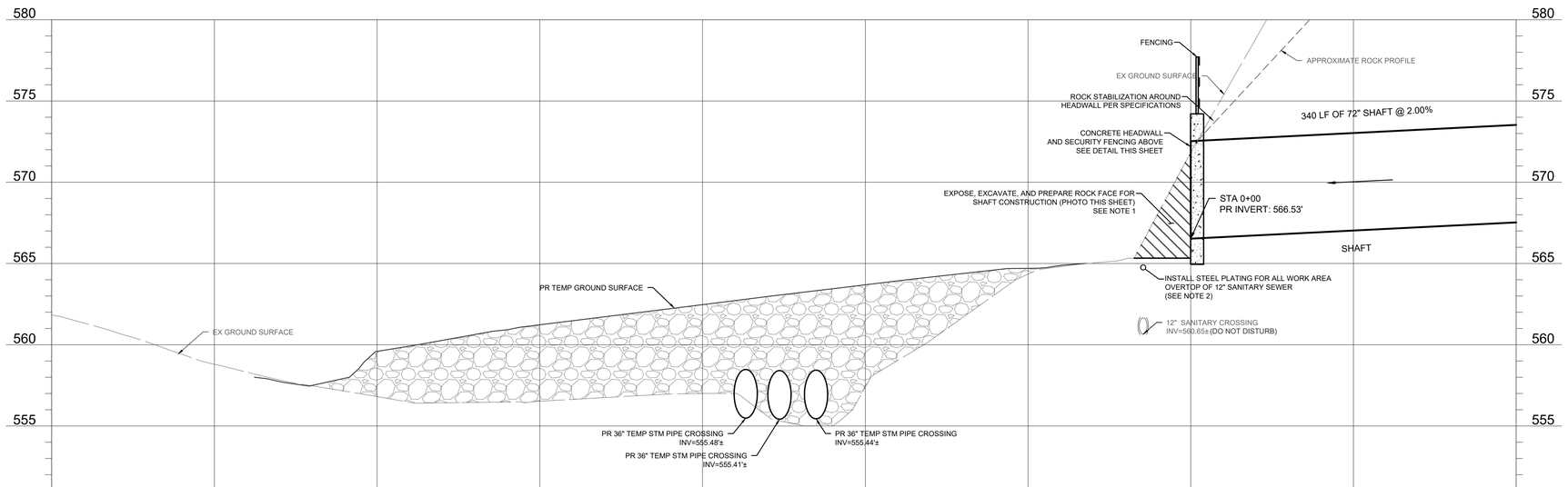
HAND MINED CROSS SECTION
SCALE: 1"=3'



ENTRANCE PORTAL
SCALE: 1"=3'



7'x7' ACCESS GATE AND SAFETY FENCE
SCALE: 1"=3'



STATION	-1+50	-1+25	-1+00	-0+75	-0+50	-0+25	0+00	0+25
EX GROUND	558.80	556.81	556.53	557.00	557.39	564.34	571.83	589.30
PR GROUND		559.59	561.23	562.47	563.69	564.70		

SITE PHOTO - APPROXIMATE LOCATION OF ENTRANCE PORTAL

VERTICAL
1" = 4'
0' 4'

HORIZONTAL 1" = 10'
10' 5' 0' 10'

DLZ CORPORATION
6121 HUNTLEY ROAD
COLUMBUS, OH 43229
PH: 614.888.0040 FAX: 614.431.3854
OFFICE LOCATIONS
ILLINOIS INDIANA KENTUCKY MICHIGAN OHIO PENNSYLVANIA WISCONSIN

REV. #	DATE	DESCRIPTION	BY

CADD FILE: PROPOSED MODEL DWG
DRAWN BY: AJM
CHECKED BY: NTD
SCALE: AS SHOWN
DATE: 3/12/2025

MARSHALL UNIVERSITY CF4
CABELL COUNTY, WEST VIRGINIA

72 INCH SHAFT ENTRY PORTAL PLAN AND PROFILE

DLZ

SHEET NUMBER:
T-02

Exhibit C

Criteria for Selection of
Lowest Qualified Bidder
and
Bid Document Examples

MARSHALL UNIVERSITY
CRITERIA FOR SELECTION OF LOWEST
RESPONSIBLE AND RESPONSIVE BIDDER FOR CONSTRUCTION PROJECTS

Pursuant to the laws of the State of West Virginia and Marshall University's Board of Governors Policy FA-9, Purchasing Policy, construction projects over $100,000.00 must award bids only to the lowest responsible and responsive vendor. Therefore, Marshall University must consider the following factors, and the information from the Contractor's Qualification Statement (AIA Document A305-2020), when making a determination as to whether a contractor's bid is not only the lowest, but is also responsible and responsive. Therefore, the apparent low vendor with the lowest bid must respond in writing to the following thirteen (13) items and provide a completed AIA Document A305-1986 (Contractors Qualification Statement) to the Facilities Planning & Management, and the Office of Purchasing within twenty-four (24) hours after the bid opening. These documents will be used in the bid evaluation process to determine if the Vendor is both responsible and responsive. For all responses, please include any other company/vendor names that you have operated under that are included in the responses provided. Also include the years of experience the company/vendor has in the construction, renovation, or building repair business.

1. The company/vendor's participation in a drug program that meets the objectives, applicable laws and regulations for a drug free workplace including the use of tobacco and alcohol on school properties.

_____

_____

_____

2. The continuity, experience, and skill of the company/vendor's work force and that of the company/vendor's designated subcontractors.

_____

_____

_____

3. The company/vendor's performance on similar construction projects. Please list the three (3) most current similar projects.

_____

_____

_____

4. The company/vendor's ability to successfully complete projects within the proposed schedules and deadlines.

5. The company/vendor's participation in a *bona fide* joint apprenticeship program that is approved by the US Department of Labor, US Bureau of Apprenticeship Training and is administered in compliance with the rules and regulations of the WV Department of Labor. [See DOL 42-7-3.1(i)]

6. The company/vendor's history of compliance with Worker's Compensation and Unemployment Compensation laws.

7. The company/vendor's history of compliance with OSHA requirements.

8. The company/vendor's subcontractor's compliance with state regulatory agencies i.e. WV Department of Labor, the WV Insurance Commission, Workforce WV, WV Secretary of State' Office, etc.

9. The company/vendor's local hiring plan and history of compliance with the WV Jobs Act, (W. Va. Code, Chapter 21, Article 1C) regarding use of the local labor market.

10. The bonding record of the company/vendor.

11. The company/vendor's participation as a party in any legal action where an awarded liability could negatively impact the ability of the company/vendor to complete this project.

12. The company/vendor's financial stability and its impact on the company's ability to complete the project.

13. Response from company/vendor's references and recommendations of other owners for whom the company/vendor has worked.

Additional space for responses. Please number which question/answer you are adding to.

All of the factors, as outlined above as supported by the accompanying Contractors Qualification Statement, will be considered by Marshall University in determining the "best" responsible and responsive Vendor.

_____

Company

_____

Authorized Signature

_____

Printed Name and Title of Authorized Representative

_____

Date

_____ _____

Phone Number Fax Number

Note: Your responses should be submitted with the bid to expedite document processing.

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
09/23/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
West Virginia Board of Risk & Insurance Management 1124 Smith Street Suite 4300 Charleston WV 25301	PHONE (A/C, No, Ext): 304-766-2646	FAX (A/C, No): 304-558-6004
	E-MAIL ADDRESS: brim.underwriting@wv.gov	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A: National Union Fire Co of Pittsburgh PA	19445
INSURED BLANK Forms	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	[X] COMMERCIAL GENERAL LIABILITY			L	07/01/2021	07/01/2022	EACH OCCURRENCE	$	1,000,000
	[ ] CLAIMS-MADE [X] OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$	
	[X] WRONGFUL ACT						MED EXP (Any one person)	$	
	[X] PROFESSIONAL						PERSONAL & ADV INJURY	$	INCLUDED
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$	$3,000,000
	[X] POLICY [ ] PRO-JECT [ ] LOC						PRODUCTS - COMP/OP AGG	$	NONE
	OTHER:							$	
A	AUTOMOBILE LIABILITY			L	07/01/2021	07/01/2022	COMBINED SINGLE LIMIT (Ea accident)	$	1,000,000
	ANY AUTO						BODILY INJURY (Per person)	$	
	[X] OWNED AUTOS ONLY [X] SCHEDULED AUTOS						BODILY INJURY (Per accident)	$	
	[X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$	
								$	
	[ ] UMBRELLA LIAB [ ] OCCUR						EACH OCCURRENCE	$	$1,000,000
	[ ] EXCESS LIAB [ ] CLAIMS-MADE						AGGREGATE	$	$3,000,000
	DED RETENTION $							$	
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY			L	07/01/2021	07/01/2022	[ ] PER STATUTE [ ] OTH-ER		
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [X] N/A			STOP GAP			E.L. EACH ACCIDENT	$	1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$	1,000,000
							E.L. DISEASE - POLICY LIMIT	$	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Subject to the Provisions, Conditions and Exclusions of the policies listed above, it is agreed that the Certificate Holder is an "Additional Insured" with respects to:

CERTIFICATE HOLDER

MARSHALL UNIVERSITY
ONE JOHN MARSHALL DRIVE
HUNTINGTON, WV 25755

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

M. Dunn

ACORD

CERTIFICATE OF PROPERTY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

PRODUCER	CONTACT NAME:	
INSURANCE AGENCY'S NAME AND ADDRESS	PHONE (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
	PRODUCER CUSTOMER ID:	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
CONTRACTOR'S NAME AND ADDRESS	INSURER A : INSURER'S NAME	
	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

LOCATION OF PREMISES / DESCRIPTION OF PROPERTY (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	COVERED PROPERTY	LIMITS
	☐ PROPERTY CAUSES OF LOSS / DEDUCTIBLES ☐ BASIC — BUILDING ☐ BROAD — CONTENTS ☐ SPECIAL ☐ EARTHQUAKE ☐ WIND ☐ FLOOD				☐ BUILDING ☐ PERSONAL PROPERTY ☐ BUSINESS INCOME ☐ EXTRA EXPENSE ☐ RENTAL VALUE ☐ BLANKET BUILDING ☐ BLANKET PERS PROP ☐ BLANKET BLDG & PP	$ $ $ $ $ $ $ $ $ $
A	☒ INLAND MARINE CAUSES OF LOSS ☐ NAMED PERILS	TYPE OF POLICY POLICY NUMBER			☒ BUILDING ☒ TRANSIT ☒ OFF-SITE STORAGE	$ CONTRACT AMOUNT $ 20% $ 20% $
	☐ CRIME TYPE OF POLICY					$ $ $
	☐ BOILER & MACHINERY / EQUIPMENT BREAKDOWN					$ $
						$ $

SPECIAL CONDITIONS / OTHER COVERAGES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

PROJECT NAME AND ADDRESS

MARSHALL UNIVERSITY IS AN ADDITIONAL INSURED

CERTIFICATE HOLDER

MARSHALL UNIVERSITY
ONE JOHN MARSHALL DRIVE
HUNTINGTON, WV 25755

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

BID BOND PREPARATION INSTRUCTIONS

AGENCY (A)_____
RFQ/RFP#_____(B)_____

(A)	WV State Agency (Stated on Page 1 "Spending Unit")
(B)	Request for Quotation Number (upper right corner of page #1)
(C)	Your Business Entity Name (or Individual Name if Sole Proprietor)
(D)	City, Location of your Company
(E)	State, Location of your Company
(F)	Surety Corporate Name
(G)	City, Location of Surety
(H)	State, Location of Surety
(I)	State of Surety Incorporation
(J)	City of Surety's Principal Office
(K)	Minimum amount of acceptable bid bond is 5% of total bid. You may state "5% of bid" or a specific amount on this line in words.
(L)	Amount of bond in numbers
(M)	Brief Description of scope of work
(N)	Day of the month
(O)	Month
(P)	Year
(Q)	Name of Business Entity (or Individual Name if Sole Proprietor)
(R)	Seal of Principal
(S)	Signature of President, Vice President, or Authorized Agent
(T)	Title of Person Signing for Principal
(U)	Seal of Surety
(V)	Name of Surety
(W)	Signature of Attorney in Fact of the Surety

NOTE 1: **Dated Power of Attorney with Surety Seal must accompany this bid bond.**

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned, _____**(C)**_____ of _____**(D)**_____, _____**(E)**_____, as Principal, and _____**(F)**_____ of _____**(G)**_____, _____**(H)**_____, a corporation organized and existing under the laws of the State of _____**(I)**_____ with its principal office in the City of _____**(J)**_____, as Surety, are held and firmly bound unto The State of West Virginia, as Obligee, in the penal sum of _____**(K)**_____ ($_____**(L)**_____) for the payment of which, well and truly to be made, we jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns.

The Condition of the above obligation is such that whereas the Principal has submitted to the Purchasing Section of the Department of Administration a certain bid or proposal, attached hereto and made a part hereof to enter into a contract in writing for _____

_____

_____**(M)**_____

_____

_____

NOW THEREFORE

(a) If said bid shall be rejected, or

(b) If said bid shall be accepted and the Principal shall enter into a contract in accordance with the bid or proposal attached hereto and shall furnish any other bonds and insurance required by the bid or proposal, and shall in all other respects perform the agreement created by the acceptance of said bid then this obligation shall be null and void, otherwise this obligation shall remain in full force and effect. It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated

The Surety for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of time within which the Obligee may accept such bid: and said Surety does hereby waive notice of any such extension.

WITNESS, the following signatures and seals of Principal and Surety, executed and sealed by a proper officer of Principal and Surety, or by Principal individually if Principal is an individual, the _(N)___day of __(O)_____, 20_(P)_.

Principal Seal

(R)

_____**(Q)**_____
(Name of Principal)

By_____**(S)**_____
(Must be President, Vice President, or Duly Authorized Agent)

_____**(T)**_____
Title

Surety Seal

(U)

_____**(V)**_____
(Name of Surety)

_____**(W)**_____
Attorney-in-Fact

IMPORTANT – Surety executing bonds must be licensed in West Virginia to transact surety insurance, must affix its seal, and must attach a power of attorney with its seal affixed.

Agency_____
REQ.P.O#_____

BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned, _____ _____ of _____, _____, as Principal, and _____ _____of _____, _____, a corporation organized and existing under the laws of the State of ___ _____ with its principal office in the City of _____, as Surety, are held and firmly bound unto the State of West Virginia, as Obligee, in the penal sum of _____ ($_____) for the payment of which, well and truly to be made, we jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns.

The Condition of the above obligation is such that whereas the Principal has submitted to the Purchasing Section of the Department of Administration a certain bid or proposal, attached hereto and made a part hereof, to enter into a contract in writing for

_____

_____

_____

NOW THEREFORE,

(a) If said bid shall be rejected, or

(b) If said bid shall be accepted and the Principal shall enter into a contract in accordance with the bid or proposal attached hereto and shall furnish any other bonds and insurance required by the bid or proposal, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be null and void, otherwise this obligation shall remain in full force and effect. It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for the value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Obligee may accept such bid, and said Surety does hereby waive notice of any such extension.

WITNESS, the following signatures and seals of Principal and Surety, executed and sealed by a proper officer of Principal and Surety, or by Principal individually if Principal is an individual, this_____day of _____, 20____.

Principal Seal

_____
(Name of Principal)

By_____
(Must be President, Vice President, or
Duly Authorized Agent)

_____
(Title)

Surety Seal

_____
(Name of Surety)

_____
Attorney-in-Fact

IMPORTANT – Surety executing bonds must be licensed in West Virginia to transact surety insurance, must affix its seal, and must attach a power of attorney with its seal affixed.

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____

(Contractor name, complete address including ZIP Code and legal title)

as Principal, hereinafter called Contractor, and _____

(Surety name and complete address including ZIP Code)

_____ a corporation organized and existing under

the laws of the State of _____ , with its principal office in the City of _____

as Surety, hereinafter called Surety, are held firmly bound unto _____

(Owner name, complete address including ZIP Code and legal title)

_____

as Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined in the amount of

_____ Dollars (_____),

for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated _____

_____ entered into a contract with Owner for

_____

_____

in accordance with drawings and specifications prepared by _____

_____

which contract is by reference made a part hereof, and is hereinafter referred to as the CONTRACT.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall, well and truly perform the contract, and shall pay off, satisfy and discharge all claims of subcontractors, labors, materialmen and all persons furnishing material or doing work pursuant to the CONTRACT and shall save Owner and its property harmless from any and all liability over and above the contract price thereof, between the Owner and the Contractor, for all of such labor and material, and shall fully pay off and discharge and secure the release of any and all mechanics liens which may be placed upon said property by any such subcontractor, laborer or materialmen, then this obligation shall be null and void. Otherwise, it shall remain in full force and effect.

Signed and sealed this * _____ day of _____ 20_____.

Principal Corporate Seal

_____ (Seal)

(Contractor Name)

BY: _____ (Seal)

(Must be President, Vice President, Owner, Partner, Manager, Member, or other duly Authorized Agent)

_____

(Title)

Surety Corporate Seal

_____

(Surety)

BY: _____ (Seal)

NOTE: Please attach Power of Attorney.

NOTE: Applicable sections of attached acknowledgments must be completed and returned as part of the bond.

*Power of Attorney must be certified on this date or later.

APPROVED AG 09-12-16

ACKNOWLEDGMENTS

Acknowledgment by Principal if individual or Partnership

1. STATE OF _____
2. County of _____ to-wit:
3. I, _____, a Notary Public in and for the
4. county and state aforesaid, do hereby certify that _____
   whose name is signed to the foregoing writing, has this day acknowledged the same before me in my said county.
5. Given under my hand this _____ day of _____ 20 _____
6. Notary Seal
7: _____
(Notary Public)
8. My commission expires on the _____ day of _____ 20 _____

Acknowledgment by Principal if Corporation

9. STATE OF _____
10. County of _____ to-wit:
11. I, _____, a Notary Public in and for the
12. county and state aforesaid, do hereby certify that _____
13. who as, _____ signed the foregoing writing for
14. a corporation, has this day, in my said county, before me, acknowledged the said writing to be the act and deed of the said corporation.
15. Given under my hand this _____ day of _____ 20 _____
16. Notary Seal
17: _____
(Notary Public)
18. My commission expires on the _____ day of _____ 20 _____

Acknowledgment by Surety

19. STATE OF _____
20. County of _____ to-wit:
21. I, _____, a Notary Public in and for the
22. county and state aforesaid, do hereby certify that _____
23. who as, _____ signed the foregoing writing for
24. _____ a corporation,
    has this day, in my said county, before me, acknowledged the said writing to be the act and deed of the said corporation.
25. Given under my hand this _____ day of _____ 20 _____
26. Notary Seal
27: _____
(Notary Public)
28. My commission expires on the _____ day of _____ 20 _____

Sufficiency in Form and Manner of Execution Approved

Attorney General

This_____day of_____20____.

By: _____
(Deputy Attorney General)

ACKNOWLEDGMENT PREPARATION INSTRUCTIONS

1. IF PRINCIPAL IS AN INDIVIDUAL OR PARTNERSHIP, HAVE NOTARY COMPLETE LINES (1) THROUGH (8).
2. IF PRINCIPAL IS A CORPORATION, HAVE NOTARY COMPLETE LINES (9) through (18).
3. SURETY MUST HAVE NOTARY COMPLETE LINES (19) through (28).
4. **Notaries must:**

ACKNOWLEDGMENT BY PRINCIPAL, IF INDIVIDUAL OR PARTNERSHIP

1. Enter name of State.
2. Enter name of County.
3. Enter name of Notary Public witnessing transactions.
4. Enter name of principal covered by bond if individual or partnership. (Must be Owner or General Partner of Sole Proprietorship or Partnership)
5. Notary enters date bond was witnessed. Must be the same as or later than signature date.
6. Affix Notary Seal.
7. Notary affixes his/her signature.
8. Notary enters commission expiration date.

ACKNOWLEDGMENT BY PRINCIPAL IF CORPORATION

9. Enter name of State.
10. Enter name of County.
11. Enter name of Notary Public witnessing transactions.
12. Enter name of Corporate Officer signing bond.
13. Enter Title of Corporate Officer signing bond. (Must be President or Vice President of Corporation; Manager or Managing Member of Limited Liability Company)
14. Enter name of Company or Corporation.
15. Notary enters date bond was witnessed. Must be the same as or later than signature date.
16. Affix notary Seal.
17. Notary affixes his/her signature.
18. Notary enters commission expiration date.

ACKNOWLEDGMENT BY SURETY

19. Enter name of State.
20. Enter name of County.
21. Enter name of Notary Public witnessing transactions.
22. Enter name of person having power of attorney to bind Surety Company.
23. Enter Title of person binding Surety Company.
24. Enter name of Insurance Company (Surety).
25. Notary enters date bond was witnessed. Must be the same as or later than signature date.
26. Affix Notary Seal.
27. Notary affixes his/her signature.
28. Notary enters commission expiration date.

POWER OF ATTORNEY INSTRUCTIONS

Power of attorney for surety must be attached showing that it was in full force and effect on signature date indicated on the face of the bond. A corporate seal must also be affixed to the Power of Attorney form.

a. Name of attorney in fact must be listed.
b. Power of Attorney may not exceed imposed limitations.
c. Certificate date, the signature date of bond must be entered.
d. Signature of authorizing official must be affixed. (Signature may be facsimile).
e. **Seal must be affixed.**

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____

(Contractor name, complete address including ZIP Code and legal title)

as Principal, hereinafter called Contractor, and _____

(Surety name and complete address including ZIP Code)

_____ a corporation organized and existing under the laws of the State of _____ , with its principal office in the City of _____ as Surety, hereinafter called Surety, are held firmly bound unto _____

(Owner name, complete address including ZIP Code and legal title)

_____ as Obligee, hereinafter called Owner, in the amount of _____

Dollars (_____), for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contractor has by written agreement dated _____ _____ entered into a contract with Owner for _____ _____ in accordance with drawings and specifications prepared by _____ _____ which contract is by reference made a part hereof, and is hereinafter referred to as the CONTRACT.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if Contractor shall, promptly and faithfully Perform and CONTRACT, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be in default under the CONTRACT, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the CONTRACT in accordance with its terms and conditions, and
2. Shall save the Owner harmless from any claims, judgments, or liens arising from the Surety's failure to either remedy the default or to complete the CONTRACT in accordance with its terms and conditions in a timely manner.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner named herein or the successors of Owner.

Signed and sealed this * _____ day of _____ 20_____.

Principal Corporate Seal

_____ (Seal)
(Contractor Name)

BY: _____ (Seal)
(Must be President, Vice President, Owner, Partner, Manager, Member, or other duly Authorized Agent)

_____
(Title)

Surety Corporate Seal

_____
(Surety)

BY: _____ (Seal)

NOTE: Please attach Power of Attorney.

NOTE: Applicable sections of attached acknowledgments must be completed and returned as part of the bond.

*Power of Attorney must be certified on this date or later.

APPROVED AG 09-12-16

ACKNOWLEDGMENTS

Acknowledgment by Principal if individual or Partnership

1. STATE OF _____
2. County of _____ to-wit:
3. I, _____, a Notary Public in and for the
4. county and state aforesaid, do hereby certify that _____
   whose name is signed to the foregoing writing, has this day acknowledged the same before me in my said county.
5. Given under my hand this _____ day of _____ 20 _____
6. Notary Seal
7. _____
   (Notary Public)
8. My commission expires on the _____ day of _____ 20 _____

Acknowledgment by Principal if Corporation

9. STATE OF _____
10. County of _____ to-wit:
11. I, _____, a Notary Public in and for the
12. county and state aforesaid, do hereby certify that _____
13. who as, _____ signed the foregoing writing for
14. a corporation, has this day, in my said county, before me, acknowledged the said writing to be the act and deed of the said corporation.
15. Given under my hand this _____ day of _____ 20 _____
16. Notary Seal
17. _____
    (Notary Public)
18. My commission expires on the _____ day of _____ 20 _____

Acknowledgment by Surety

19. STATE OF _____
20. County of _____ to-wit:
21. I, _____, a Notary Public in and for the
22. county and state aforesaid, do hereby certify that _____
23. who as, _____ signed the foregoing writing for
24. _____ a corporation,
    has this day, in my said county, before me, acknowledged the said writing to be the act and deed of the said corporation.
25. Given under my hand this _____ day of _____ 20 _____
26. Notary Seal
27. _____
    (Notary Public)
28. My commission expires on the _____ day of _____ 20 _____

Sufficiency in Form and Manner of Execution Approved

This_____day of_____20____.

Attorney General

By: _____

(Deputy Attorney General)

ACKNOWLEDGMENT PREPARATION INSTRUCTIONS

1. IF PRINCIPAL IS AN INDIVIDUAL OR PARTNERSHIP, HAVE NOTARY COMPLETE LINES (1) THROUGH (8).
2. IF PRINCIPAL IS A CORPORATION, HAVE NOTARY COMPLETE LINES (9) through (18).
3. SURETY MUST HAVE NOTARY COMPLETE LINES (19) through (28).
4. **Notaries must:**

ACKNOWLEDGMENT BY PRINCIPAL, IF INDIVIDUAL OR PARTNERSHIP

1. Enter name of State.
2. Enter name of County.
3. Enter name of Notary Public witnessing transactions.
4. Enter name of principal covered by bond if individual or partnership. (Must be Owner or General Partner of Sole Proprietorship or Partnership)
5. Notary enters date bond was witnessed. Must be the same as or later than signature date.
6. Affix Notary Seal.
7. Notary affixes his/her signature.
8. Notary enters commission expiration date.

ACKNOWLEDGMENT BY PRINCIPAL IF CORPORATION

9. Enter name of State.
10. Enter name of County.
11. Enter name of Notary Public witnessing transactions.
12. Enter name of Corporate Officer signing bond.
13. Enter Title of Corporate Officer signing bond. (Must be President or Vice President of Corporation; Manager or Managing Member of Limited Liability Company)
14. Enter name of Company or Corporation.
15. Notary enters date bond was witnessed. Must be the same as or later than signature date.
16. Affix notary Seal.
17. Notary affixes his/her signature.
18. Notary enters commission expiration date.

ACKNOWLEDGMENT BY SURETY

19. Enter name of State.
20. Enter name of County.
21. Enter name of Notary Public witnessing transactions.
22. Enter name of person having power of attorney to bind Surety Company.
23. Enter Title of person binding Surety Company.
24. Enter name of Insurance Company (Surety).
25. Notary enters date bond was witnessed. Must be the same as or later than signature date.
26. Affix Notary Seal.
27. Notary affixes his/her signature.
28. Notary enters commission expiration date.

POWER OF ATTORNEY INSTRUCTIONS

Power of attorney for surety must be attached showing that it was in full force and effect on signature date indicated on the face of the bond. A corporate seal must also be affixed to the Power of Attorney form.

a. Name of attorney in fact must be listed.
b. Power of Attorney may not exceed imposed limitations.
c. Certificate date, the signature date of bond must be entered.
d. Signature of authorizing official must be affixed. (Signature may be facsimile).
e. **Seal must be affixed.**

WV-73
Approved / April 30, 2020

State of West Virginia
DRUG FREE WORKPLACE CONFORMANCE AFFIDAVIT
West Virginia Code §21-1D-5

I, _____, after being first duly sworn, depose and state as follows:

1. I am an employee of _____; and,
(Company Name)

2. I do hereby attest that _____
(Company Name)

maintains a written plan for a drug-free workplace policy and that such plan and policy are in compliance with ***West Virginia Code*** §21-1D.

The above statements are sworn to under the penalty of perjury.

Printed Name: _____

Signature: _____

Title: _____

Company Name: _____

Date: _____

STATE OF WEST VIRGINIA,

COUNTY OF _____, TO-WIT:

Taken, subscribed and sworn to before me this _____day of _____, _____.

By Commission expires _____

(Seal)

_____
(Notary Public)

Rev. July 7, 2017

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: _____

Authorized Signature: _____ Date: _____

State of _____

County of _____, to-wit:

Taken, subscribed, and sworn to before me this ___ day of _____, 20___.

My Commission expires _____, 20___.

AFFIX SEAL HERE

NOTARY PUBLIC _____

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

Pursuant to W. Va. *Code* § 6D-1-2, a state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of $1 million or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract. In addition, the business entity awarded a contract is obligated to submit a supplemental Disclosure of Interested Parties reflecting any new or differing interested parties to the contract within 30 days following the completion or termination of the applicable contract.

For purposes of complying with these requirements, the following definitions apply:

"Business entity" means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation, but does not include publicly traded companies listed on a national or international stock exchange.

"Interested party" or *"Interested parties"* means:

(1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors;
(2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract. (This subdivision does not apply to a publicly traded company); and
(3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency. (This subdivision does not apply to persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.)

"State agency" means a board, commission, office, department or other agency in the executive, judicial or legislative branch of state government, including publicly funded institutions of higher education: Provided, that for purposes of W. Va. Code § 6D-1-2, the West Virginia Investment Management Board shall not be deemed a state agency nor subject to the requirements of that provision.

The contracting business entity must complete this form and submit it to the contracting state agency prior to contract award and to complete another form within 30 days of contract completion or termination.

This form was created by the State of West Virginia Ethics Commission, 210 Brooks Street, Suite 300, Charleston, WV 25301-1804. Telephone: (304)558-0664; fax: (304)558-2169; e-mail: ethics@wv.gov; website: ethics.wv.gov.

Revised June 8, 2018

West Virginia Ethics Commission

Disclosure of Interested Parties to Contracts

(Required by *W. Va. Code* § 6D-1-2)

Name of Contracting Business Entity: _____ **Address:** _____

_____

Name of Authorized Agent: _____ **Address:** _____

Contract Number: _____ **Contract Description:** _____

Governmental agency awarding contract: _____

☐ **Check here if this is a Supplemental Disclosure**

List the Names of Interested Parties to the contract which are known or reasonably anticipated by the contracting business entity for each category below *(attach additional pages if necessary)*:

1. **Subcontractors or other entities performing work or service under the Contract**
   ☐ Check here if none, otherwise list entity/individual names below.

2. **Any person or entity who owns 25% or more of contracting entity (not applicable to publicly traded entities)**
   ☐ Check here if none, otherwise list entity/individual names below.

3. **Any person or entity that facilitated, or negotiated the terms of, the applicable contract (excluding legal services related to the negotiation or drafting of the applicable contract)**
   ☐ Check here if none, otherwise list entity/individual names below.

Signature: _____ Date Signed: _____

Notary Verification

State of _____, County of _____:

I, _____, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledge that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this _____ day of _____, _____.

_____
Notary Public's Signature

To be completed by State Agency:

Date Received by State Agency: _____
Date submitted to Ethics Commission: _____
Governmental agency submitting Disclosure: _____

Revised June 8, 2018

Exhibit D

Pricing Page

ESTIMATE OF PROBABLE CONSTRUCTION COST
MU - CF4 SUBTERRANEAN TESTING FACILITY

CONTRACTOR SHALL VERIFY ALL QUANTITIES DURING BID PHASE

BID ITEM	SITE ITEM	QUANTITY	UNIT	UNIT COST	EXTENDED COST
1	MOBILIZATION / DEMOBILIZATION	1	LS		
2	CONSTRUCTION LAYOUT	1	LS		
3	CHAIN LINK FENCE TEMPORARY REMOVAL AND REPLACEMENT	1	LS		
4	CLEARING & GRUBBING	1	LS		
5	SMARTFENCE® 36	250	LF		
6	TOPSOIL, SEEDING AND MULCHING	10,000	SF		
7	SEPARATION FABRIC	7,200	SF		
8	AASHTO #57 STONE (DRIVE)	110	TON		
9	D50=12" MIN CLEAN/WASHED STONE	1,200	TON		
10	36" CULVERT PIPE - TEMPORARY	234	LF		
11	6" CULVERT PIPE - TEMPORARY	45	LF		
12	CULVERT REMOVAL, STONE REMOVAL, STREAM RESTORATION	1	LS		
13	HAND-MINED (6' x 6') OR BORED SHAFT (72" DIAMETER)	340	LF		
14	LAUNCH PIT WITH BACKSTOP	1	LS		
15	PARTIAL FACE EXCAVATION / ENTRANCE PORTAL, RETAINING WALLS & GRADING	1	EA		
16	ACCESS GATE & SAFETY FENCING	1	EA		
				SUBTOTAL	

17	CONTINGENCY ITEM: ASPHALT MILLING & REPLACEMENT, 1.5" THICKNESS	75	TON	ALLOW.	$ 10,000.00
18	ALLOWANCE FOR SHAFT AND PORTAL FACE SUPPORT (SHOTCRETE OR TIMBER SETS)	1	LS	ALLOW.	$ 200,000.00
				TOTAL WITH ALLOWANCES	

MARSHALL UNIVERSITY

R2501527 (REBID) - Marshall University CF4 - Subterranean Testing Facility

Submission Instructions for Suppliers

Please follow these instructions to submit via our Public Portal.

1. Prepare your submission materials:

Requested Information

Name	Type	# Files	Requirement
Proposal	File Type: PDF (.pdf)	Multiple	Required

Requested Documents:

Please note the type and number of files allowed. The maximum upload file size is 1000 MB.

Please do not embed any documents within your uploaded files, as they will not be accessible or evaluated.

2. Upload your submission at:

https://marshall.bonfirehub.com/opportunities/177776

Your submission must be uploaded, submitted, and finalized prior to the Closing Time of **Apr 14, 2025 3:00 PM EDT.** We strongly recommend that you give yourself sufficient time and **at least ONE (1) day** before Closing Time to begin the uploading process and to finalize your submission.

Important Notes:

Each item of Requested Information will only be visible after the Closing Time.

Uploading large documents may take significant time, depending on the size of the file(s) and your Internet connection speed.

You will receive an email confirmation receipt with a unique confirmation number once you finalize your submission.

Minimum system requirements: Microsoft Edge, Google Chrome, or Mozilla Firefox. Javascript must be enabled. Browser cookies must be enabled.

Need Help?

Marshall University uses a Bonfire portal for accepting and evaluating proposals digitally. Please contact Bonfire at Support@GoBonfire.com for technical questions related to your submission. You can also visit their help forum at https://vendorsupport.gobonfire.com/hc/en-us