901 PARDEE ST.
P.O. Box 59
JOHNSON CITY. TN. 37605-0059
Office 423.232.4784 • Fax 423.232.4789
TDD: 1-800-545-1833, EXT. 762
jchousing.org

Grading & Storm Drainage, E. Myrtle Court Ph.2

Invitation for Bid (IFB)

The Johnson City Housing Authority (JCHA) is serving as General Contractor for the construction project of E. Myrtle Phase 2 which entails construction of one single story building consisting of ten townhouses (units). The property's owner is JCHA's non-profit entity Keystone Development, Inc. The site location is 1904 E. Myrtle Ave. Johnson City, TN. 37601 and is adjacent to E. Myrtle Ph. 1 whose address is 505 Steel Street, Johnson City, TN. 37601. The site's frontage is E. Myrtle Avenue with Iron Street to the side. JCHA is seeking bids from qualified subcontractors for the following scope of work:

Grading & Storm Drainage.

IFB Number:	**IFB-GSD 10-2025**
Issue Date:	**October 2, 2025**
Bid Opening Date/Time:	**November 4, 2025 / 2:00 P.M. EST**
Bid Opening Location:	**1212 East Watauga Avenue** **Johnson City, TN. 37601**
Pre-Bid Conference:	**October 15, 2025 / 2:00 P.M. EST** Please read this document prior to the meeting. Attendance is not mandatory but recommended.
Pre-Bid Location:	**1212 East Watauga Avenue** **Johnson City, TN. 37601**
Availability & Award Results:	The IFB documents are posted and available at JCHA's webpage at: www.jchousing.org Award results will also be posted at conclusion of IFB process.

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SECTION 1- IFB COVER LETTER

Sealed Bids for: **IFB: Grading & Storm Drainage, E. Myrtle Ph. 2**

Will be received at the following address:

Keystone Development, Inc.
1212 East Watauga Avenue
Johnson City, TN 37601

until 2:00 p.m. EST, on November 4, 2025. Bids shall be presented on the form prescribed by the Housing Authority, be enclosed in a sealed envelope clearly displaying the **Outer Bid Envelope Information Page** as provided in the Bid Documents, and subject to the General Conditions, Terms, and Specifications as contained in the Bid Documents. All Bids received by the deadline, will be publicly opened, read aloud, and recorded at 2:00 p.m. on November 4, 2025.

A Pre-Bid Conference will be held at 2:00 pm. EST October 15, 2025 at the offices of the Keystone Development, Inc., 1212 East Watauga Ave., Johnson City, TN 37601.

By submission of a Bid, the bidder agrees, if its Bid is accepted, to enter into a Subcontract with the Housing Authority for the Subcontract Price and within the Subcontract Time indicated in the attached IFB. The bidder further accepts all of the terms and conditions of the IFB.

The IFB must be independently arrived at and be prepared in accordance with the bid documents.

The bid prices shall be included as provided in the attached IFB. All prices shall be on a firm-fixed-price basis and are not subject to adjustment based on costs incurred (base bid and non-base bid). The Housing Authority reserves the right to reject any and/or all bids.

Bidders should be advised that, prior to award of any Subcontract, the Housing Authority reserves the right to conduct a pre-award survey for the purpose of determining the bidder's responsibleness and capacity to perform the contract. This survey may include, but is not necessarily limited to, a review of subcontracting agreements, financial capacity, and quality of work performed on other subcontracts.

All bidders must be licensed Contractors in the State of Tennessee **if applicable** and as required by the Contractors' Licensing Act of 1994 (TCA Title 62), as revised.

Bid, payment and performance bonds are required IF the total bid exceeds $100,000.

- A bid bond made payable to the Johnson City Housing Authority in the amount of 5% of the total Bid price, (if bid exceeds $100,000).
- Performance and payment bonds for 100% of the contract price for the successful bidder, (if subcontract exceeds $100,000).
- All bonding companies must be listed in the "Federal Register, Department of the Treasury Fiscal Service, Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies; Notice". Companies licensed to do business in the state of Tennessee must issue all required bonds.

All bids must be signed and dated; if a joint venture is submitting the bid, each joint venturer must sign the bid.

Addendums (if applicable) will be posted at JCHA's website. It is the responsibility of the entity submitting a bid and/or proposal to obtain posted Addendum and check appropriate box on "Section 2 Bid/Price Form".

Bid Documents may be obtained at JCHA's administrative office, or at JCHA's website. Questions regarding the IFB are to be submitted no later than 4:30 PM on October 22, 2025 in writing, including email to travisc@jchousing.org.

The Authority reserves the right to reject any and/or all bids.

Sam Edwards
CEO/Executive Director

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SECTION 2 - BID / PRICE FORM (RETURN WITH BID)

PROJECT: IFB: **Grading & Storm Drainage, E. Myrtle Ph. 2**

Bidder's Company Name: _____

Bidder's Address: _____

Representative Name (Print): _____

Representative Name (Signature): _____

Representative Phone Number: _____

Representative Email: _____

The Bidder, hereby proposes to furnish all labor, materials, and supplies to perform and complete the noted project in strict accordance with the drawings, specifications, and addendums prepared by the Architect & Engineers, and according to bid and subsequent contract documents within the time set forth therein, and at the price stated below.

A. **Base Bid Sum:**

The Base Firm-Fixed Bid Sum (Total Base Bid) for this Project is:

_____**Dollars**

($_____)

B. **Unit Prices (as applicable):**

Trench Rock: _____ **(Dollars, Cu/Yd.)**

Mass Rock: _____ **(Dollars, Cu/Yd.)**

Excavation & Replacement of Poor Soils: _____ **(Dollars, Cu/Yd.)**

C. **Received Addendums (check all that apply):**

□None □Addendum 1 □Addendum 2 □Addendum 3 □Addendum 4 □Addendum 5

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SECTION 3 – DESCRIPTION OF WORK

Provide site grading and site storm drainage, in preparation for construction of a single story building consisting of ten (10) townhouses (units) in accordance with the drawings, specifications, and addendums prepared by the Architect & Engineers, and according to bid and subsequent subcontract documents.

SECTION 4 – INCLUSIONS

a. **Subcontractor shall be responsible for field verification of all measurements and elevations including any necessary "construction staking".**
b. **Subcontractor to obtain all required permits, including right-of-way permits, DOT permits, etc., if necessary for this project.**
c. **Subcontractor to provide and maintain silt fencing and comply with approved SWPP throughout the entire project.**
d. **Subcontractor to provide gravel at site entrance and take necessary steps to keep excessive mud and dirt off of existing streets.**
e. **Subcontractor responsible for locating and protecting all existing utility services on the project site and for repairs of any existing utilities damaged by Subcontractor's operations.**
f. **Subcontractor shall provide Storm Water Quality Management throughout duration of project.**
g. **Subcontractor shall remove any identified poor/unsuitable soil off site.**
h. **Subcontractor shall provide fine grading to a "Pad Ready" condition.**
i. **Subcontractor to supply and install all materials for storm drainage and gutter drainage.**
j. **Subcontractor shall backfill and replace topsoil at the direction of the General Contractor. Strip and store existing topsoil in areas as directed by General Contractor preferably on site or at neighboring Fairview site and re-spread at a later date.**
k. **Subcontractor to perform a "final grade" at a later date including seed and straw as applicable.**
l. **Subcontractor shall shape the finished surface to drain away from Buildings or structures as directed by General Contractor.**
m. **Project to be completed within 65 days of Notice to Proceed unless approved weather delays as determined by General Contractor, except for "final grade" phase which comes at a later date and is to be completed with 35 days of Notice to Proceed unless approved weather delays as determined by General Contractor.**
n. **Subcontractor to provide "As-Built" documents to General Contractor as applicable.**

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SECTION 5 – GENERAL CONDITIONS & SPECIAL CONDITIONS

ARTICLE 1

Progress payments per an acceptable monthly pay request from the Subcontractor, less retainage of 5% as applicable, shall be made to the Subcontractor for Work satisfactorily performed no later than ten (10) days after receipt of application for payment or approved invoice for large scale and on-going projects. Subcontractor's Schedule of Values must be approved prior to submitting first Pay Request. Progress payments will not be applicable to work projects lasting less than one calendar month and to be billed after work completion as one lump sum, paid within "net 30" of approved invoice. These payments are subject to receipt for such lien waivers, affidavits, warranties and guarantees required by the Contract Documents or Contractor.

ARTICLE 2

SCHEDULE OF WORK. Time is of the essence. Subcontractor shall provide General Contractor with any requested scheduling information of Subcontractor's work. The Schedule of Work, including that of this Contract shall be prepared by General Contractor and may be revised as the work progresses. The schedule must be agreeable with the Subcontractor.

Subcontractor recognizes that changes may be made in the Schedule of Work and agrees to comply with such changes without additional compensation. Subcontractor shall coordinate its work with all other subcontractors, and suppliers on the Project so as not to delay or damage their performance, work or the Project.

ARTICLE 3

CHANGES: General Contractor, without nullifying this Agreement, may direct Subcontractor in writing to make changes to Subcontractor's work. Adjustment, if any, in the contract price or contract time resulting from such changes shall be set forth in a Contract Change Order pursuant to the Contract Documents.

ARTICLE 4

FAILURE OF PERFORMANCE. Should Subcontractor fail to satisfy contractual deficiencies within three (3) working days from receipt of General Contractor's written notice, then the General Contractor, without prejudice to any right or remedies, shall have the right to take whatever steps it deems necessary to correct said deficiencies and deduct cost from unpaid balance of subcontract amount.

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ARTICLE 5

INSURANCE. The Subcontractor shall at all times indemnify and save the General Contractor and Owner harmless from all claims on this job and from any or all damage, loss or expense that may be incurred by the General Contractor by reason of any damage to its property or by reason of any injuries or death to its employees or third persons, or from any damage to the property that may be caused by or result from the performance of the work by the Subcontractor. Subcontractors shall purchase and maintain during the entire project and during the warranty period, insurance with the minimum limits and coverage shown below or greater (if required by the Subcontract Documents), from insurance companies acceptable to **General Contractor - Johnson City Housing Authority.**

GENERAL LIABILITY: *Subcontractor shall carry standard ISO General Liability coverage, written on an occurrence basis - including Completed Operations. The coverage must be endorsed to name* ***General Contractor - Johnson City Housing Authority (including the Architect and others as required in contract documents)*** *as an "additional insured" providing "Your Work" coverage (i.e. ongoing operations and Completed Operations) "arising out of" work performed for the General Contractor by the Subcontractor. The "Additional Insured" form shall also state that this insurance shall be primary without right of contribution from any other insurance available to the "additional insureds".*

The CGL must be written on an occurrence basis, with minimum limits of:

Each Occurrence	$1,000,000
General Aggregate - Per Project	$2,000,000
Products and Completed Operations Aggregate	$1,000,000
Personal/Advertising Injury	$1,000,000
Medical Payments	$5,000

COMPREHENSIVE AUTOMOBILE LIABILITY on occurrence basis covering all Owned, Non-Owned and Hired Vehicles for limits of liability equal to $1,000,000 Combined Single Limit.

WORKER'S COMPENSATION including Occupations Disease insurance meeting the statutory requirements of the State in which work is to be performed together with a Broad Form All States Endorsement and containing **Employer's Liability** insurance in an amount of at least $100,000 Each Accident / $500,000 Disease – Policy Limit / $100,000 Disease – Each Employee. Workers Compensation shall waive the rights of subrogation in favor of all additional insureds.

A certificate of insurance form must be filed with **General Contractor - Johnson City Housing Authority** prior to the commencement of any work and must state coverage will not be altered, cancelled or allowed to expire without thirty (30) days written notice by certified mail to **General Contractor - Johnson City Housing Authority** If any of the above coverages are subject to or are in excess of any deductibles or self-retention, these amounts must be stated on the certificate, and said deductibles and self-retention will be the sole responsibility of Subcontractor.

It is understood and agreed that the insurance coverage and limits, required above, shall not limit the extent of Subcontractor's responsibilities and liabilities specified within Subcontract Documents or by law. It is understood and agreed that authorization is hereby granted to refuse entry to job site and to withhold payments to Subcontractor until a properly executed Certificate of Insurance is received by **General Contractor - Johnson City Housing Authority.**

Subcontractor's Insurance Requirements set forth herein shall become and be part of any purchase order or contract issued by **General Contractor - Johnson City Housing Authority** to Subcontractor as though fully set forth in said purchase order or contract.

Should Subcontractor fail or neglect to provide the required insurance, **General Contractor - Johnson City Housing Authority** shall have the right, but not the duty, to provide such insurance and deduct from any money that may be due or become due to Subcontractor for any and all premium or costs **General Contractor - Johnson City Housing Authority** incurs. Equivalent insurance coverage must be obtained from each Subcontractor, if any, before permitting them on the site of the project. Otherwise, such insurance for Subcontractors must be included within Subcontractor's insurance policies.

ARTICLE 6

INDEMNIFICATION. The Subcontractor shall secure, defend, protect, hold harmless and indemnify the (General Contractor, Owner, Construction Manager, Architect) and any of their respective agents, servants and employees against any liability, loss, claims, demands, suits, costs, fees and expenses whatsoever arising from bodily injury, sickness, disease (including death resulting there from), of any persons, or damage or destruction of any property, including loss of use, arising out of or in connection with the performance of any work relating to this Subcontract, including extra work assigned to the Subcontractor, based upon any act or omission, negligent or otherwise, of (a) the Subcontractor or any of its agents, employees or servants, (b) any subcontractor, supplier or material men of the Subcontractor or any agents, employees, or servants thereof, (c) any other person or persons.

The obligations of indemnification contained herein shall exclude only those matters in which the claim arises out of the sole negligence of the (General Contractor, Construction Manager, Architect) or any of their respective agents, employees or servants.

ARTICLE 7

WARRANTY. Subcontractor warrants its work against all deficiencies and defects in material and/or workmanship and agrees to satisfy same without cost to General Contractor for a period of one (1) year from the date of Substantial Completion of the Project or per Subcontract Documents, whichever is longer.

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ARTICLE 8

SAFETY. The prevention of accidents on or in the vicinity of its Work is the Subcontractor's responsibility, even if General Contractor establishes a safety program implementing safety measures, policies, and standards conforming to those required or recommended by governmental and quasi-governmental authorities having jurisdiction and by the General Contractor, including, but not limited to, requirements imposed by the Subcontract Documents. Subcontractor shall comply with the reasonable recommendations or insurance companies having an interest in the Project, and shall stop any part of the Work in which General Contractor deems unsafe until corrective measures satisfactory to subcontractor have been taken. General Contractor's failure to stop Subcontractor's unsafe practices shall not relieve Subcontractor of the responsibility there for. Subcontractor shall notify General Contractor immediately following any accident and promptly confirm the notice in writing. A detailed written report shall be furnished if requested by the General Contractor. Subcontractor shall indemnify General Contractor for fines, damages or expenses incurred by the General Contractor because of the Subcontractor's failure to comply with safety requirements any amounts due or to become due the Subcontractor.

The Subcontractor shall satisfy itself as to the safety of any facility, equipment or conveyances placed on the project by the General Contractor when used by the Subcontractor, and shall assume the entire responsibility for liability for any bodily injury (including death) to any person or of injury to and property occasioned by such use.

ARTICLE 9

CLEANUP. The Subcontractor shall follow the General Contractor's cleanup and safety directions, and (a) at all times keep the building and premises free from debris and unsafe conditions resulting from the Subcontractor's Work; and (b) broom clean each work area prior to discontinuing work in the same. If the Subcontractor fails to immediately commence compliance with clean up duties within twenty-four hours after written notification from the General Contractor of noncompliance, the General Contractor may implement such cleanup measures without further notice and deduct the cost thereof from any amounts due or to become due the Subcontractor.

ARTICLE 10

INITIAL DISPUTE RESOLUTION PROCESS. If a dispute arises out of or relates to this Agreement or its breach, the Parties shall endeavor to settle the dispute first through direct discussions. If the dispute cannot be settled through direct discussions, the Parties shall endeavor to settle the dispute by mediation under the current Construction Industry Mediation Rules of the American Arbitration Association before recourse to any binding dispute resolution procedures.

BINDING DISPUTE RESOLUTION. If the matter is unresolved after submission of the matter to mediation, the Subcontractor and General Contractor shall submit the matter to arbitration using the current Construction Industry Arbitration Rules of the American Arbitration Association or the Parties may mutually agree to select another set of arbitration rules. The administration of the arbitration shall be as mutually agreed by the Parties. The costs of any binding dispute resolution procedures shall be borne by the non-prevailing Party, as determined by the adjudicator of the dispute. The venue of any binding dispute resolution procedure shall be the location of the Project, unless the Parties agree on a mutually convenient location.

ARTICLE 11

Liquidated damages may apply at $100.00 per calendar day for each day beyond the scheduled completion date. The Housing Authority will consider explanatory information if it provides a valid reason for delays in schedule and may choose to waive liquidated damages if deemed applicable.

ARTICLE 12

The Bidder certifies by bid submission that it is not included on the list created pursuant to Tenn. Code Ann. § 12-12-106 of the Iran Divestment Act.

ARTICLE 13

Subcontractor will, in providing labor for the Project, comply with the provisions of the Tennessee Lawful Employment Act, including without limitation maintaining and making available for inspection by Subcontractor and General Contractor, as they may deem necessary, appropriate Form I-9's for all employees assigned to the Project. Subcontractor must not knowingly utilize the services of illegal immigrants in the performance of a subcontract for good or services.

SPECIAL CONDITIONS:

1. **General Contractor - Johnson City Housing Authority** enforces a zero tolerance Drug Free Workplace. Subcontractors are required to also comply accordingly.
2. The Subcontractor shall furnish all equipment, and tools required to perform services stated in this Subcontract.
3. All state and local permits are a part of this Subcontract and shall be furnished by the Subcontractor.
4. Subcontractor is responsible for temporary power and water however JCHA may provide such items if readily available.
5. Time is of the essence in this subcontract. Any penalties assessed, as a result of time delays on this project will be passed on to the Subcontractor responsible for the delays and the completion of this Subcontract.

6. Certificates of insurance and W-9 form must be in General Contractors possession before any work begins.
7. Invoices may be submitted monthly for work properly performed and/or at project completion. Retainage will be applicable if deemed necessary by General Contractor.
8. Before work begins, and in order for the first application for payment to be processed, the subcontractor must have furnished:
   A. Insurance Certificate's in accordance with Article 5 regarding:
      1. General Liability
      2. Comprehensive Automobile Liability
      3. Worker's Compensation

      Limits shall be in the amount specified in the general conditions of the contract between the General Contractor and **Subcontractor.**

   B. Performance and payment bonds, if required, on the face of the Subcontract.

   C. Subcontractor's application for payment.
      1. Form of application supplied by General Contractor - Johnson City Housing Authority unless approved otherwise by General Contractor.
      2. In the event the subcontract amount exceeds $10,000, the approved breakdown schedule of values showing various materials by type, identifying stored materials, and/or segments of the work totaling the full amount of the subcontract may be required by General Contractor. The schedule of values shall include a line item value for preparation of operation and Maintenance Manuals and As-Built Drawings if applicable as determined by General Contractor.
   D. Safety Data Sheet (SDS) for material placed on the job during the current month and those expected within the next month as applicable.
   E. Signed acknowledgement copy of the subcontract.
   F. Subcontractor to furnish a copy of business license and/or subcontractor's license as applicable.

9. **General Contractor - Johnson City Housing Authority's** Project Managers' are Adam Warren and Dwight Harrell.
10. No extras will be accepted unless covered by a fully executed Change Order to this subcontract.
11. All subcontractors shall comply with OSHA safety requirements. Any subcontractor OSHA violation fee is to be paid by subcontractor.
12. Shop drawings and submittals shall be submitted within 3 weeks of receipt of the subcontract in order to meet the construction progress schedule, if applicable.
13. All correspondence, instruction, questions, etc. shall be sent through **General Contractor - Johnson City Housing Authority.**
14. The project schedule is based on a 5-day work week at 8 hours per day, however extended days and/or hours are permitted (and maybe necessary) with **General Contractor - Johnson City Housing Authority's approval.** All subcontractors are required to adhere to project work schedule.
15. Project Meetings: Project Manager may hold periodic project meetings to discuss applicable scope of work and/or progress with applicable subcontractors. Meeting schedules will be announced in advance and Project Superintendents will be expected to attend.

16. Comply with Executive Order 11246 regarding Equal Employment Opportunity
17. Comply with a Drug-Free Workplace in accordance with Federal and/or State guidelines And provide certification through contract signature or other forms, as provided by Housing Authority.
18. Comply with the latest building codes, state and federal laws, relative to public works subcontracts including the American with Disabilities Act.
19. Comply with Section 3 of the HUD act of 1968 and encourage utilization of Minority and Women Business Enterprises as feasible.
20. Subcontractor agrees to abide by requirements set forth by applicable funding agencies, such as Tn. Housing Development Agency (THDA) and Federation of Appalachian Housing Enterprises, Inc. (FAHE) including the following mandated contract clause: The sub-grantee, subcontractor, successor, transferee, and assignee shall comply with Title VI of the Civil Rights Act of 1964, which prohibits recipients of federal financial assistance from excluding from a program or activity, denying benefits of, or otherwise discriminating against a person on the basis of race, color, or national origin (42 U.S.C. § 2000d et seq.), as implemented by the Department of the Treasury's Title VI regulations, 31 CFR Part 22, which are herein incorporated by reference and made a part of this contract (or agreement). Title VI also includes protection to persons with "Limited English Proficiency" in any program or activity receiving federal financial assistance, 42 U.S.C. § 2000d et seq., as implemented by the Department of the Treasury's Title VI regulations, 31 CFR Part 22, and herein incorporated by reference and made a part of this contract or agreement.
21. Subcontractor agrees to abide by THDA's "Federal Construction Requirements" as noted on THDA's 2024-2 HOME Rental Development Round Program on THDA's website www.thda.org and includes Section 3 requirements that ensures employment and other economic opportunities generated by certain HUD financial assistance shall, to the greatest extent feasible, and consistent with existing Federal, State, and local laws and regulations, be directed to low-and very low income persons, particularly those who are recipients of government assistance for housing, and to business concerns which provide economic opportunities to low- and very low-income persons.

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SECTION 6- NOTICE TO BIDDERS

In a **sealed 10" x 13" envelope**, clearly marked with the Outer Bid Envelope Information (Section 6) provided, **each bidder is to complete and provide the following**:

1. Bid / Price Form (SECTION 2). Information is to be filled in on all pages of this Form.

2. A completed *Representations, Certifications, and Other Statements of Bidders* (form HUD 5369-A), (SECTION 7).

3. Bid Bond for bids over $100,000 (5% of the total Contract Amount) **Note** Bid bonds cannot be business or personal checks.

4. Current Certificates of Insurance for Workman's Compensation, Liability, and Automobile coverage.

5. A signed "Non-Collusive Affidavit" form (SECTION 8).

NOTE: Failure to provide the above-listed documents, *properly executed*, may render the bid non-responsive and a contract may not be awarded.

IF APPLICABLE-All bidders must be licensed Contractors in the State of Tennessee as required by the Contractors' Licensing Act of 1994 (TCA Title 62, Chapter 6), as revised. The sealed envelope containing the bid must provide the following information: The Subcontractor's name, address, license number, expiration date, license classification and license limits. Failure of any bidder to comply therewith may void such bid. See "Outer Bid Envelope Information" within this packet.

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SECTION 7 - OUTER BID ENVELOPE INFORMATION

Date_____

Bid Documents
for
Johnson City Housing Authority
Johnson City, Tennessee

INVITATION FOR BID:
Grading & Storm Drainage, E. Myrtle Court Ph. 2

Bid Opening:
11/4/2025 / 2:00 p.m. EST

Bidder's Company Name _____

Bidder's Address _____

State Contractor's License Number (IF APPLICABLE) _____

Classification (IF APPLICABLE) _____

Expiration Date (IF APPLICABLE) _____

$ Limit of License (IF APLICABLE) _____

Note: This page will be furnished to each bidder and **shall be taped to the bid envelope.** All blanks to be filled in.

End of Outer Bid Envelope Information

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SECTION 8 – Non-Collusive Affidavit (Return with Bid)

State of _____

County of _____

_____, being first duly sworn, deposes and says:

That he/she is _____
The party making for foregoing proposal or bid, that such proposal or bid is genuine and not collusive or; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person to put in a sham bid or to refrain from bidding, and has not in any matter, directly or indirectly sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of any other bidder, to fix overhead, profit or cost element of said bid price, or that of any other or to secure any advantage against the Housing Authority or any person interested in the proposed contract; and that all statements in said proposal or bid are true.

Signature of:

_____
(Bidder, if the bidder is an Individual)

_____
(Partner, if the bidder is a Partnership)

_____
(Officer, if the bidder is a Corporation)

Subscribed and sworn to before me
this _____ day
of _____, 20_____.

My Commission Expires: _____

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SECTION 9 – Site Map

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Attachments to IFB GSD 10-2025

- Soil Borings Report Dated 9/25/25
- Site Plans, Approved by City on 9/16/25
- Site Plans Revision (with Dumpster Pad) Revised on 9/19/25 (Submitted to City and awaiting approval)

SOIL BORINGS REPORT, 9-25-25

Cross Engineering

Geotechnical - Environmental - Materials Testing and Inspections

GEOTECHNICAL EVALUATION REPORT
JCHA MYRTLE PHASE 2

PROJECT LOCATION:
1904 E. Myrtle Avenue
Johnson City, Tennessee

CLIENT:
Rothe Architecture + Planning

CROSS ENGINEERING PROJECT ID:
25546

DATE:
September 25, 2025

Cross Engineering LLC ▪ PO Box 864 ▪ Johnson City, Tennessee 37605 ▪ 423.202.7395

Cross Engineering

Geotechnical - Environmental - Materials Testing and Inspections

September 25, 2025

Uwe Rothe - AIA, LEED AP, NCARB
Principal Architect
Rothe Architecture + Planning
112 E. Myrtle Ave. Ste. 105
Johnson City, TN. 37601

Project: **Geotechnical Evaluation Report**
JCHA Myrtle Phase 2
Myrtle Avenue
Johnson City, Tennessee
CE Project ID.: 25546

Mr. Rothe:

Per your authorization of CE Proposal 25-159, we have completed a geotechnical evaluation for the above-referenced site. The purpose of our evaluation was to gather site and subsurface information from which to provide engineering recommendations concerning site preparation methods, embankments, foundation design, slab-on-grade design, seismic site classification, and other construction and design considerations. The following report presents our findings, assessment, and recommendations.

We appreciate the opportunity to provide our geotechnical engineering and testing services. If you have any questions regarding the information within this report, please contact us at your convenience.

Sincerely,
Cross Engineering, LLC

GEORGE R. CROSS REGISTERED ENGINEER AGRICULTURE COMMERCE No. 104229 STATE OF TENNESSEE

09/25/2025

Nick Cross, P.E.
Geotechnical Engineer
TN No: 124084

George R. Cross, P.E.
Sr. Geotechnical Engineer
TN No: 104229

NGC/GRC/kec

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Boring Location Plan
Test Boring Logs
USGS Topographic Map (1959)
Area Geologic Map (1997)
Lab Data
Test Descriptions
General Notes

1.0 Executive Summary

The proposed project includes new building construction at the project site on Myrtle Avenue in Johnson, Tennessee. Our findings, assessment, and recommendations are summarized below. This summary should not be used in lieu of the entire report for design purposes.

- The proposed project includes construction of 10 new townhouse units consisting of attached, single story structures, associated parking and drive areas, and a stormwater management pond.
- The project site was previously residential property. Four houses have been removed from the property and yard backfill grading and seeding have been performed. Currently the property is a grass covered 0.78 acre field .
- The subsurface conditions on the site were evaluated with the use of five (5) soil test borings.
- Fill (manmade) soil was not encountered but may exist on the site due to the past use. Surficial fill soil is anticipated in locations of previous structures.
- Residual (native) soils were encountered at all the test locations. The soil was generally encountered as red and tan, low and high plasticity clay with some sand, chert and iron staining. The measured soil consistency was generally stiff to medium and in a moist to wet condition.
- Refusal to auger drilling, which was interpreted as the top of bedrock, was encountered at two (2) test locations (B-2 and B-3) ranging from 5 to 12 feet below the existing ground surface. The remaining borings were terminated at 15 feet in depth.
- Groundwater was encountered at one (1) test location (B-3) at 10 feet below the ground surface.
- Based on our findings, it is our opinion that the site could be developed for the intended use. The risk factors for consideration regarding the subsurface conditions include the possible presence of soft/wet soil, fill soil, and the site's location in a geologic formation that can support karst activity.
- Subgrade Preparation - All areas of development should be cleared of organic soil, old fill soil, and soft or wet soil prior to placement of new fill soil or new construction. After stripping organic soils, the ground surface should be reworked to improve stability including tilling/disturbing of the upper subgrade soil materials to facilitate drying and then compaction. The existing subgrade soils should be evaluated by proofroll test methods prior to the placement of new fill soil or aggregate base materials.

  Based on the history of the site, we anticipate that the site grading will encounter loose pockets of surficial fill soil, especially around old house locations. We recommend using unit pricing to account for removal and replacement of unsuitable soil with approved compacted fill soil.

- Foundations - Based on our findings, the proposed relatively lightly loaded buildings are recommended for support on shallow foundations. Soft soils encountered during foundation construction should be removed and replaced. The replacement materials should consist of selected crushed aggregate or flowable fill concrete.
- Based on our evaluation and provided the subgrade preparation and earthwork operations are completed in accordance with the recommendations of this report, we recommend an allowable soil bearing pressure for shallow foundation design of 2,000 psf. Concrete slabs-on-grade can be designed using a modulus of subgrade reaction (k) of 100 pounds per cubic inch (pci). An IBC 2018 seismic code Site Class "D" is recommended for the project design.
- The site grading and foundation construction should be performed under the observation of a geotechnical engineer and/or their representative to assist with continued evaluation of soil conditions.
- This summary should be used in conjunction with the entire report for design purposes. The entire report should be read in its entirety for a comprehensive understanding of the items contained herein. The section titled "General Qualifications" should be read for an understanding of the report limitations.

2.0 Scope of Services

ITEM	DESCRIPTION
INFORMATION REVIEWED	• USGS Topographic Mapping - Johnson City, TN Quadrangle (1959) • Geologic Map and Mineral Resources Summary of the Johnson City Quadrangle, Tennessee Division of Geology (1997) • 2018 International Building Code • Historical Satellite Images (1997 to 2024) • Preliminary Civil Plans, DTWood Engineering (dated August 4, 2025)
SITE RECON OBSERVATIONS FOR:	• Topographic features • Drainage patterns • Ground surface cover • Surface improvements • Exposed rock • Ground instability
SOIL TEST LOCATIONS	• Soil test locations located in the field by Cross Engineering using the preliminary site mapping provided • Five (5) soil test borings • Soil consistency estimated using Standard Penetration Testing (SPT)

	• Soil borings placed with an all-terrain CME 55 and Hollow Stem Augers • Observation of soil samples for type, consistency, and moisture content • Backfilled test locations with soil cuttings
GROUNDWATER	• Groundwater measurements made at the time of test boring drilling
LABORATORY TESTING	• Natural Moisture Contents test (19) • Atterberg Limits (2)

3.0 Project Description

ITEM	DESCRIPTION
PROJECT LOCATION	1904 East Myrtle Avenue Johnson City, Tennessee
PROJECT INFORMATION	**General** - Based on the information provided, the development will include: • Eight (8) - One bedroom units • Two (2) - Two bedroom units • Single Level, wood framed, concrete slab on grade townhouse structure • Parking Lot • Stormwater management pond **Finished Floor Elevations** - 1599.0 to 1603.0 ft. **Loads** - Max Column Load (assumed) = 50 kips - Max Wall Load (assumed) = 2 kips/ft. **Excavation** - Less than 5 ft. **Fill Placement** - Less than 5 ft. **Retaining Walls** - NA **Pavement** - Asphalt, light and heavy duty **Stormwater Management** - Detention pond

4.0 Site Description

ITEM	DESCRIPTION
CURRENT/ PAST SITE USE	**Description** - The site is 0.78 acres, originally comprised of residential lots and now a grassed covered field **Ground Cover** - Grass **Drainage Patterns** - Surface flow towards north direction **Exposed Bedrock** - None observed

	Karst Activity - None observed, karst depression (sinkholes) are present in the vicinity. **Embankment** - Stable **Past Use** - The property appears to have been developed for 4 residential structures approx. 80 to 90 years ago. According to a local resident, the houses had crawlspace foundations. In the last few years, the houses have been demolished and the site seeded. The following picture depicts the previous site conditions.  Historical Photograph (Google Earth 2019)
TOPOGRAPHY	**USGS Mapping (20 ft. contours)** - The regional topography throughout the surrounding area consists of alternating valleys and ridges. The site is mapped north of Tannery Knobs within a relatively low area that includes a regional fall in elevation to the northeast. The project area is mapped near to the 1600 ft. ground contour with downward relief towards the north direction across the project area. A blue line drainage feature is not mapped on the subject site.

	No closed ground contours or depressions were mapped on the site or nearby area. A review of the published topographic mapping of the surrounding area indicates that karst topography is present in the vicinity of the site. The USGS topography is depicted on the Area Topographic Map included with this report. **Site Survey Provided (1 ft contours)** - The subject property is mapped approximately between the 1605 and 1595 foot ground contour lines. The site includes a gradual fall in elevation to the north/northeast direction. No closed ground contours or depressions were mapped on the site on nearby area. The site topography is depicted on the Boring Location Map included with this report.
REGIONAL GEOLOGY	The project location is mapped within the Valley and Ridge physiographic province of northeast Tennessee. Published geologic mapping, "Geologic Map of East Tennessee, with Explanatory Text", Tennessee Division of Geology (Rogers, 1953) shows the site is located in an Undivided Knox Group of Lower Ordovician and Upper Cambrian age. A published nearby "Geologic Map and Mineral Resources Summary of the Johnson City quadrangle", Tennessee Division of Geology, Jule 1997, describes the Knox Group Undifferentiated as primarily limestone, gray to blue gray, fine to very fine grained, medium, thick, and massive bedded with occasional thin beds. Reticulated thin partings or "ribbons" occur in the limestones. These may occur throughout the entire section but appear to be more common in the lower third of the unit. Chert is extremely rare, where present it is normally black. Frosted sand grains occur but are not common. Gray, fine grain dolomites and calcareous dolomites occur but make up a very small percentage of the overall unit. No fossils or dolomite were observed during the field mapping but may exist within the limestone formations. Localized concentration of bedding planes; fractures and other discontinuities often result in weathering and decomposition extending to greater depths into the subsurface profile. Lenses of weathering resistant rock form pinnacles and ledges of unweathered rock extending nearly to the ground surface.

	The localized greater depths of decomposition, solution cavities and rock pinnacles all combine to form what is a highly irregular rock surface profile. Residuum overburden soils are typically composed of fine grained, silt and clays with variable amount of sand and chert. **Karst Considerations** - Sedimentary bedrock containing dolomite and limestone material is subject to karst activity or the formation of closed ground depressions or sinkholes.

5.0 Subsurface Description

The following is a brief summary of the soil encountered at the soil test locations. Additional subsurface details may be seen on the attached *Soil Boring Logs*. Subsurface stratification indicated on the test boring records is approximate and represents our interpretation of the soils encountered at the sample/test locations.

STRATA	DESCRIPTION
GROUND COVER	**Topsoil** - Generally up to 6 inches **Note:** Surficial veneer thickness will vary across the site
FILL SOIL	**Origin** - Manmade, placed during past construction activities **Test Locations** - None **Comments -** Fill soil was not encountered but may exist on the site due to the past use.
RESIDUAL SOIL	**Origin** - Residual, byproduct of the in place weathering of the parent bedrock **Test Locations** - All **Description** - Gray , tan and red, low and high plasticity, clay with some sand, chert and iron staining **Consistency** - Stiff and Medium **Moisture Condition** - Moist to Wet
TEST BORING REFUSAL/TERM	**Auger Refusal** - B-2 at 5.5 feet, B-3 at 12 feet **Termination** - B-1, B-4 and B-5 at 15 feet **Refusal Material** - Weathered limestone bedrock
GROUNDWATER	**Locations** - B-3 at 10 feet **Comments** - Groundwater depths will vary in response to seasonal conditions

6.0 Laboratory Testing

6.1 Soil Classification

The soil types present on the site have been identified as fine-grained and coarse soils. The results of Atterberg limits and Gradation testing are shown in the appendix and table below.

The results of the natural moisture content determination, shown in the appendix, indicate that the moisture varied from 18.4% to 39.1% at the selected sample intervals.

A summary of the classification testing is included in the table below.

Soil Classification Testing Summary							
Sample Information		Atterberg Limits		Gradation			USCS Soil Classification
Sample Location	Sample Depth (Feet)	Liquid Limit (%)	Plasticity Index	% Gravel	% Sand	% Fines	
B-2	0 - 5	37	19	-	-	-	CL
B-5	0 - 5	51	25	-	-	-	CH

6.2 Testing Summary

The primary soil types present on the site are classified as low and plasticity clay (CL and CH) with varying amounts of sand based on the field and laboratory assessment using the USCS soil classification system. The plasticity will vary across the site based on the clay fraction percentage of the soil.

These soil types have a generally low to high potential for volume change due to changing moisture contents.

Such soils have fair compaction characteristics, with compaction typically achieved using a vibratory sheepsfoot roller.

The results of the soil laboratory testing indicate that some *moisture conditioning (drying) will be required* to achieve specified compaction density. The onsite soil will generally exist at a moisture content that is generally 0% to 10% above the optimum moisture as determined by laboratory testing.

Unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. Should unstable subgrade conditions develop, stabilization measures will need to be employed.

7.0 Assessment

- Based on our findings, it is our opinion that the site could be developed for the intended use. The risk factors for consideration regarding the subsurface conditions include the possible presence of soft/wet soil, fill soil, and the site's location in a geologic formation that can support karst activity.
- Subgrade Preparation - All areas of development should be cleared of organic soil, old fill soil, and soft or wet soil prior to placement of new fill soil or new construction. After stripping organic soils, the ground surface should be reworked to improve stability including tilling/disturbing of the upper subgrade soil materials to facilitate drying and then compaction. The existing subgrade soils should be evaluated by proofroll test methods prior to the placement of new fill soil or aggregate base materials.

  Based on the history of the site, we anticipate that the site grading will encounter loose pockets of surficial fill soil, especially around old house locations. We recommend using unit pricing to account for removal and replacement of unsuitable soil with approved compacted fill soil.
- Foundations - Based on our findings, the proposed relatively lightly loaded buildings are recommended for support on shallow foundations. Soft soils encountered during foundation construction should be removed and replaced. The replacement materials should consist of selected crushed aggregate or flowable fill concrete.
- Based on our evaluation and provided the subgrade preparation and earthwork operations are completed in accordance with the recommendations of this report, we recommend an allowable soil bearing pressure for shallow foundation design of 2,000 psf. Concrete slabs-on-grade can be designed using a modulus of subgrade reaction (k) of 100 pounds per cubic inch (pci). An IBC 2018 seismic code Site Class "D" is recommended for the project design.
- The site grading and foundation construction should be performed under the observation of a geotechnical engineer and/or their representative to assist with continued evaluation of soil conditions.
- Once project design plans are available, we request the opportunity for review to assess the development conditions with respect to the subsurface conditions encountered.
- All subsurface investigations are limited to the discrete nature of the sampling performed. Even with a subsurface investigation having been performed, pockets of deleterious material buried within the fill soil can go undetected. If these materials are unknowingly left in place within the foundation soils, geotechnical consolidation estimates have no way to predict the amount of settlement that the foundation may experience.

8.0 Recommendations

8.1 Site Area Preparation

The site area should be cleared of any construction debris. Prior to the placement of new fill soil, the soil subgrade should be proofrolled with a fully loaded dump truck (minimum load of 20 tons) in a slow crossing pattern across the site. Proofroll testing should be performed under the observation of a geotechnical engineer to evaluate the subgrade and provide recommendations for any unsuitable areas encountered.

Soft or wet soil conditions revealed by proofroll testing or other methods should be evaluated by the geotechnical engineer and stabilized accordingly. The best method of subgrade stabilization can be recommended in the field at the time of the proofroll evaluation.

Fill soil was not encountered but may exist on the site due to the past use. Surficial fill soil is anticipated in locations of previous structures.

8.2 Seismic Site Classification

Code Used	**Site Classification**
2018 International Code (IBC)[1]	C[2]
1. In general accordance with the 2018 International Building Code, Section 1613.3.2.	
2. The 2018 International Building Code (IBC) requires a site soil profile determination extending a depth of 100 ft for seismic site classification. This seismic class definition considers that the conditions encountered at the test locations are representative for this entire depth.	

8.3 Shallow Foundations

Description	**Recommendation**
Allowable bearing pressure[1]	2,000 psf
Suitable Bearing Material	Stiff Native Soil and/or Approved Fill
Minimum dimensions	24"
Minimum embedment below finished grade for frost protection[2]	18"
Approximate total, differential settlement [3]	<1", <1/2" over 40 ft.
1. Assumes that foundation subgrade testing and preparation are performed according to the recommendations provided in this report.	

2. For perimeter footing and footings beneath unheated areas. Also, to reduce the effects of seasonal moisture variations in the subgrade soils.
3. The foundation settlement will depend upon the variations within the subsurface soil profile, the structural loading conditions, the embedment depth of the footings, the thickness of compacted fill, the quality of the earthwork operations and the variability of the subsurface conditions.

8.4 Parking and Drive

It is common for site grading to be completed for some time prior to placing aggregate base and asphalt paving material. We strongly recommend that just prior to placement of the aggregate base course that the subgrade be proof rolled. This will allow any softened and/or disturbed areas to be identified and properly reworked and recompacted.

We recommend that the asphalt pavement section consists of the following minimum compacted thickness of aggregate base and asphalt. A California Bearing Ratio (CBR) value of 4% has been assumed for the soil types present on the site.

Asphalt Pavement Section			
Pavement Course	Thickness, inches		
	Light Duty Asphalt Pavement	Heavy Duty Asphalt Pavement	Portland Cement Concrete (PCC) Pavement
Asphalt Surface Course - TDOT 411 D or E[1,2]	1.25	1.5	-
Asphalt Base Course - TDOT 307 Modified[1,3]	2.0	3.0	-
Portland Cement Concrete[5]	-	-	6.0
Aggregate Base Course - TDOT 303D[4]	6.0	8.0	6.0
1. The asphaltic surface and base courses should be compacted to a specified % of the maximum theoretical density (MTD), ASTM D-2041 per TDOT Section 407, Bituminous Plant Mix Materials.			
2. The asphalt surface course should meet the specifications of TDOT 411, Asphaltic Concrete Surface, the aggregates for the mixture meeting the requirements of Grading "D or E".			
3. The asphaltic base course should meet specifications of TDOT, Section 307, Bituminous Plant Mix Base. The aggregates for the base courses should meet the gradation requirements of Grading "B" Modified.			
4. The aggregate base should consist of a crushed limestone meeting the requirements of the Tennessee Department of Transportation (TDOT) specification for Mineral Aggregate Base, Section 303 for Type "A" base, Class "A" aggregates, utilizing aggregate gradation "D". The aggregate base should be compacted to a minimum of 100% of its maximum dry density, as determined by Standard Proctor Test, ASTM D-698.			

5. The concrete should have a minimum compressive strength of 4500 psi at 28 days. A minimum concrete thickness of 6" is recommended. We recommend a minimum of 4" of compacted crushed stone underlie the concrete pavement. Materials and construction methods should conform to the (TDOT) Tennessee Department of Transportation Road and Bridge Specifications.

8.5 Cut and Fill Embankments

All excavated embankments that are less than 15 feet in height should be constructed with a slope geometry of no steeper than **2H:1V**. Slopes greater than 15 feet in height should be evaluated for stability

All fill embankments less than 15 feet in height should be constructed with a slope geometry of no steeper than **2H:1V**. All fill embankments greater than 15 feet in height should be evaluated for stability. For embankments that will be permanently maintained as grassed or lawn areas, the embankments should not exceed a slope geometry of 3H:1V.

All new fill soil should be placed and compacted to the recommended density. Fill soil placed in areas sloping greater than 5H:1V should use a series of horizontal benches or terraces to tie the existing soil and proposed new fill together. The benching operation should begin at the toe of the slope. Benched areas should be stripped of organics and soft or wet soil conditions.

fill areas should be proof rolled and evaluated under the observation of a geotechnical engineer prior to the initial backfill soil placement.

9.0 Construction Considerations

9.1 Earthworks Specifications

Engineer Fill Description and Recommended Uses		
Fill Type[1]	**USCS Classification**	**Acceptable Location for Placement**
Engineered Fill	Various (LL<50 & PI<25)	All Locations, U.N.O.
Well graded granular	GW[2]	All Locations, U.N.O.

1. Controlled, compacted, engineered fill should consist of approved materials that are free of organic matter, debris, particles greater than 4". Frozen material should not be used, and fill should not be placed on a frozen subgrade. Minimum Standard Proctor (ASTM D-698) dry unit weight of 95 lb/ft^3. Each soil type should be submitted to the geotechnical engineer for evaluation.

2. Similar to TDOT 303 Grade D crushed limestone aggregate. A natural aggregate comprising well-graded, hard, angular particles.

Item	**Description**
Fill Lift Thickness	8" or less in loose thickness when heavy, self-propelled compaction equipment is used
	4" to 6" in loose thickness when hand-guided equipment

	(i.e., jumping jack or plate compactor) is used
Building Areas	At least 98% of the Standard Proctor max. dry density (ASTM D 698)
Pavement Areas	At least 98% of the Standard Proctor max. dry density (ASTM D 698)
Non-Structural Areas	At least 98% of the Standard Proctor max. dry density (ASTM D 698)
General	Compaction all fill soil plus 5 ft. beyond the perimeter in locations supporting structures
Trench Lines	Per the above depending upon location/elevation
Moisture Content Cohesive Soil	Within the range of 2% below to 2% above the optimum moisture content value as determined by the standard Proctor test at the time of placement and compaction
Testing Frequency	1 test per 5,000 ft^2 or less of fill area for each soil fill lift.
Testing Personnel	A qualified soil technician, under the direction of a geotechnical engineer, should perform the soil density testing.
Soil Subgrade Approval	Prior to fill placement, the soil subgrade should be proofrolled under the observation of a geotechnical engineer for approval to begin fill placement.

9.2 Undocumented Fill Soil

A fill soil is a soil material which was removed from its natural place of deposition and moved and placed in its current location by past construction activities. Undocumented fill is fill soil where no documentation exists which reports the quality control that took place to ensure its contents meet standard specifications or that the method of placement was performed adequately. There is inherent risk when constructing over undocumented fill due to its uncertain nature.

This risk particularly arises when compressible and/or unsuitable inclusions are buried in the fill which can lead to excessive foundation settlement and structural damage. Such inclusions can include organic soils, tree debris, solid waste, or soil not placed in a suitable manner.

All subsurface investigations are limited to the discrete nature of the sampling performed. Even with a subsurface investigation having been performed, pockets of unsuitable material buried within the fill can go undetected. If these materials are unknowingly left in place within the foundation soils, geotechnical consolidation estimates have no way to predict the amount of settlement which the foundation may experience.

9.3 Moisture Sensitive Soil Considerations

Unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. Should unstable subgrade conditions develop, stabilization measures will need to be employed.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become frozen, desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction.

9.4 Site Drainage Considerations

Drainage should be controlled during construction and once the site is completed to prevent ponding of surface water. If necessary, pumps, ditches or other grading methods should be used to prevent ponding surface water. Roof water should be collected into piping and conducted away from the building areas to prevent moisture related soil movements.

9.5 Shallow Groundwater

The groundwater elevations will vary depending on wet weather conditions. Shallow groundwater conditions are not expected to be encountered during the grading or development of this site.

9.6 Construction Observation

The site grading and foundation construction should be performed under the observation of a geotechnical engineer and/or their representative to assist with continued evaluation of soil and bedrock conditions during the construction process.

9.7 Karst Construction Considerations

The natural geology at this site is conducive to the development of sinkholes. It is important to note, however, that this is not unique to this site. Sinkholes are relatively common across northeast Virginia in areas underlain by soluble bedrock and therefore all sites in this region have the potential for sinkhole development.

There is some inherent risk associated with building on any site underlain by carbonate rock. By employing construction methods that take the potential for sinkhole activity into consideration, this risk can be reduced but not eliminated.

Construction can increase or decrease the development of sinkholes, depending on several factors. It has been our experience that most informed owners are willing to accept such risk in exchange

for the substantial monetary savings arising from using conventional shallow foundations bearing on soil in lieu of expensive deep foundations bearing on bedrock.

On a site located within carbonate rock geology, sinkhole activity is most likely in areas of excavation, as removal of the surface soils exposes subsurface soil fissures to rainfall and runoff. The cause of sinkhole activity is water passing through natural fissures in the soil structure. As water passes through these fissures, it erodes the sides causing soil loss and voids in the soil structure. As such, the contractor should continually review the site for positive drainage.

Areas where the surface soil is disturbed are of concern as the upper soil layers provide a natural seal over the subsurface cracking. When this layer is removed, the fissures in the soil structure are exposed to rainfall and surface water, increasing the potential for sinkhole activity. Conversely, areas that receive fill soil are sealed with compacted soil material.

We recommend that the following construction practices be adopted for sites underlain by carbonate rock:

- Always maintain positive drainage throughout the site. Avoid creating localized low spot that allow water to pond.
- *Backfill utility trenches with compacted crushed stone with fines or soil. We do not recommend the use of open graded aggregate such as #57 stone as backfill material.*
- Upon reaching the subgrade elevation in excavated areas, we recommend that the upper twelve in of soil be scarified and recompacted to remold the subgrade and provide a seal over the subsurface soils.
- Design stormwater drains to operate during construction and raise as necessary upon completion of paving.
- If sinkhole activity is observed during construction, the contractor should notify the engineer immediately so that the sinkhole can be evaluated.

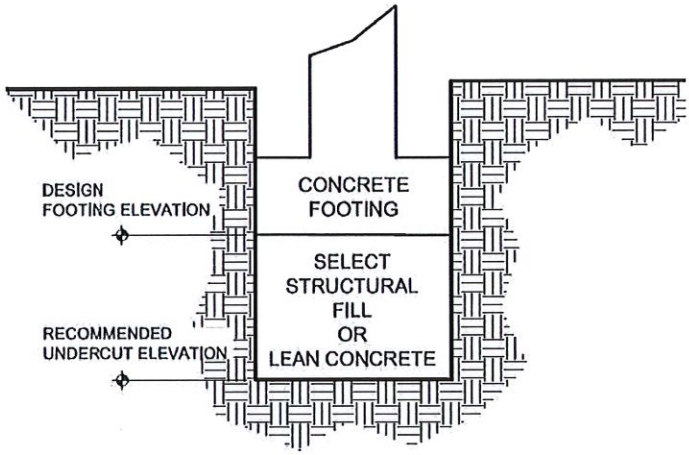
9.8 Foundation Excavation - Observation/Testing

Foundation construction should begin as soon as possible after foundation excavations are performed. A geotechnical engineer should observe all foundation excavations at the time of construction to confirm that the soil conditions are suitable for the recommended design parameters. Dynamic Cone Penetrometer (DCP) testing should be performed in foundation excavations to verify that the specified bearing capacity exists in the foundation excavations.

Soil that is encountered with less than a stiff consistency as revealed by Dynamic Cone Penetrometer (DCP) Testing should be evaluated by the geotechnical engineer. Undercutting to a depth determined in the field based on the local soil data obtained may be recommended. Undercut depths are related to the soil strength and foundation size. Typical depths range from ½ to 1 time the foundation width.

In undercut locations, flowable fill concrete or select crushed stone backfill should be used as backfill. Select crushed stone should be placed in loose horizontal lifts not to exceed 6 inches in

thickness. Compaction of the stone should be performed until at least 95% of its Standard Proctor Density is achieved.



TYPICAL UNDERCUT DETAIL

NOTE: Excavations in sketch shown vertical for convenience. Excavations should be sloped as necessary for safety.

10.0 General Qualifications

This report has been prepared for the exclusive use of Rothe Architecture + Planning for the proposed site and building design at the JCHA Mrytle Phase 2 project in Johnson City, Tennessee. This report has been prepared in accordance with generally accepted geotechnical engineering practice for specific application to this project. The conclusions contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

Cross Engineering, LLC is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of this report's subsurface data or engineering analysis without our express written authorization.

The analyses and professional opinions submitted herein are based, in part, upon the data obtained from the subsurface evaluation. The nature and extent of subsurface variations between the test locations will not become evident until construction.

Once project design plans are available, we request the opportunity for review to assess the development conditions with respect to the subsurface conditions encountered.

We strongly recommend that the services of a geotechnical engineer be obtained for the construction phase of the project to provide engineering evaluation and testing services.

11.0 Appendices

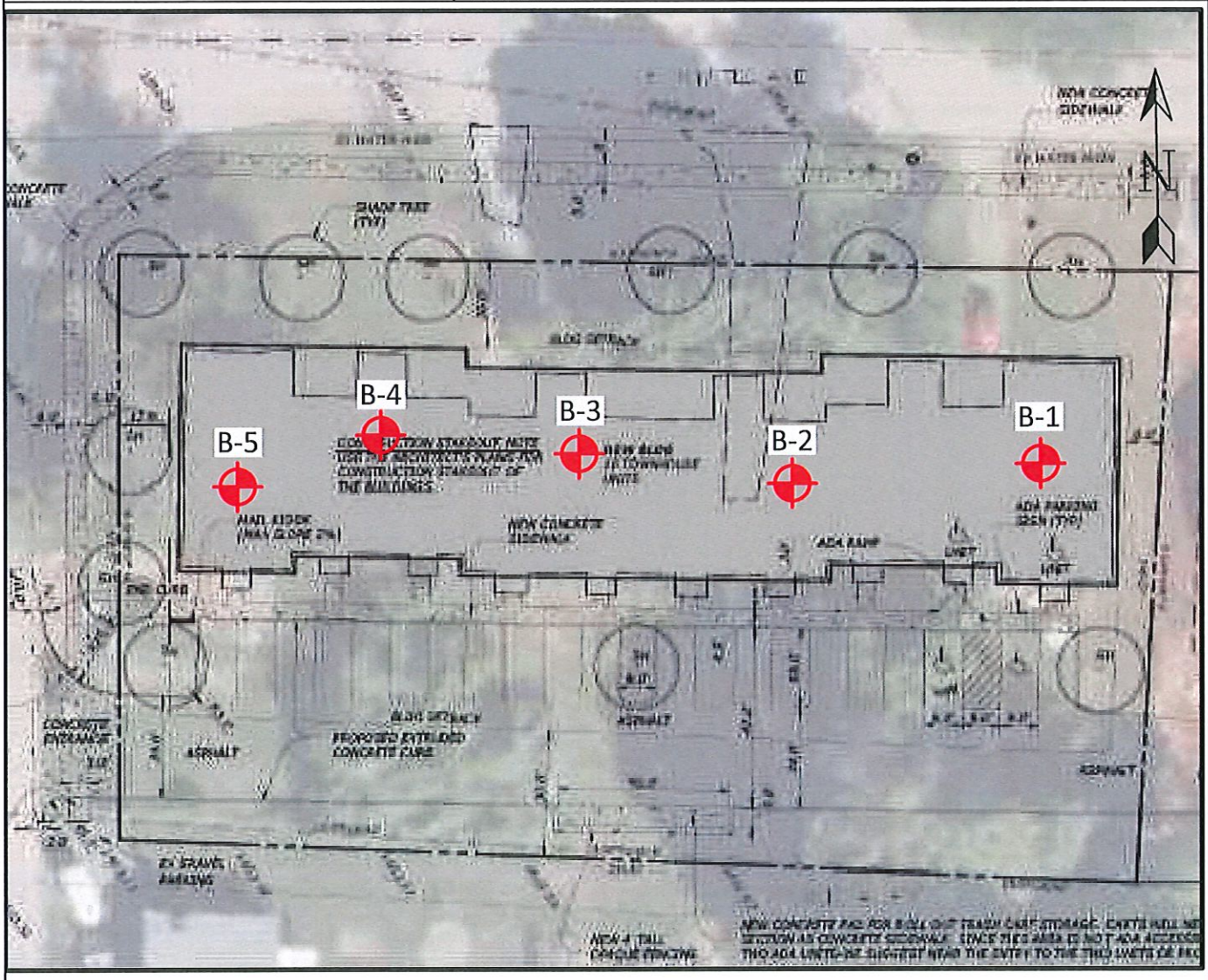
Boring Location Plan
Test Boring Logs
USGS Topographic Map (1959)
Area Geologic Map (1997)
Lab Data
Test Descriptions
General Notes

Cross Engineering
Geotechnical - Environmental - Materials Testing and Inspections

BORING LOCATION PLAN

JCHA Myrtle Phase 2
1904 E. Myrtle Avenue
Johnson County, Tennessee

CLIENT: Rothe Architecture + Planning	DRAWN BY: KEC
PROJECT NO.: 25546	DATE: 09/25/2025



Notes: Adapted from drawing provided. Locations shown are approximate.

Project: **JCHA Myrtle Phase 2** Project Location: **Myrtle Avenue, Johnson City, TN** Client: **Rothe Architecture + Planning**	Log of Boring B-1 **Sheet 1 of 1**

Date(s) Drilled **9/19/2025**	Logged By **Donnie Hamilton**	CE Project ID **25546**
Drilling Method **HSA**	Checked By **Will Anderson**	Total Depth of Borehole (ft.) **15**
Drill Rig Type	Drilling Contractor **Total Depth Drilling**	Approximate Surface Elevation (ft.) **1596**
Borehole Backfill **Soil Cuttings**	Sampling Method(s) **SPT**	Approximate Groundwater Depth (ft.)
	Notes	

Elevation (feet)	Depth (feet)	Sample Type	Sampling Resistance, blows/ft	Water Content, %	Percent Fines	Liquid Limit, %	Plastic Index	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
1596	0									Topsoil	
			8	21.2				CL		Residual, Moist, Stiff, Red Silty Clay with trace chert, trace sand, and trace iron staining	
			7	21.6							
1591	5										
			12	18.9				CH		Residual, Very Moist, Stiff, Red-Gray Silty Clay, with heavy iron staining and layering, mottled	
			15	19.5							
1586	10										
			6	37.1				CL		Residual, Very Moist to Wet, Medium, Red-Tan Silty Clay/Clayey Silt, with heavy iron staining, trace chert/sand	
1581	15									Boring Terminated at 15 feet.	
1576	20										

Project: **JCHA Myrtle Phase 2** Project Location: **Myrtle Avenue, Johnson City, TN** Client: **Rothe Architecture + Planning**	Log of Boring B-2 **Sheet 1 of 1**

Date(s) Drilled **9/20/2025**	Logged By **Donnie Hamilton**	CE Project ID **25546**
Drilling Method **HSA**	Checked By **Will Anderson**	Total Depth of Borehole (ft.) **5**
Drill Rig Type	Drilling Contractor **Total Depth Drilling**	Approximate Surface Elevation (ft.) **1597**
Borehole Backfill **Soil Cuttings**	Sampling Method(s) **SPT**	Approximate Groundwater Depth (ft.)
	Notes **Offset boring 5 ft., refusal at 5.5 feet**	

Elevation (feet)	Depth (feet)	Sample Type	Sampling Resistance, blows/ft	Water Content, %	Percent Fines	Liquid Limit, %	Plastic Index	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
1597	0							CL		Topsoil	
			11			37	18			Residual, Moist, Stiff, Brown-Tan Silty Clay with trace sand, trace organics and trace iron staining	
			50/2								
1592	5									Auger Refusal at 5 feet on Gray Limestone.	
1587	10										
1582	15										
1577	20										

Project: **JCHA Myrtle Phase 2** Project Location: **Myrtle Avenue, Johnson City, TN** Client: **Rothe Architecture + Planning**	Log of Boring B-3 **Sheet 1 of 1**

Date(s) Drilled **9/20/2025**	Logged By **Donnie Hamilton**	CE Project ID **25546**
Drilling Method **HSA**	Checked By **Will Anderson**	Total Depth of Borehole (ft.) **12**
Drill Rig Type	Drilling Contractor **Total Depth Drilling**	Approximate Surface Elevation (ft.) **1601**
Borehole Backfill **Soil Cuttings**	Sampling Method(s) **SPT**	Approximate Groundwater Depth (ft.) **10 ft at TOD**
	Notes	

Elevation (feet)	Depth (feet)	Sample Type	Sampling Resistance, blows/ft	Water Content, %	Percent Fines	Liquid Limit, %	Plastic Index	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
1601	0							CH		Topsoil	
			13	32.7						Residual, Very Moist, Stiff to Medium, Red-Tan/Tan Red Silty Clay with trace sand, trace chert, and iron staining	
			9	35.5							
1596	5										
			8	37.5							
			6	35.5							
1591	10									▽	
										Auger Refusal at 12 feet.	
1586	15										
1581	20										

Project: **JCHA Myrtle Phase 2** Project Location: **Myrtle Avenue, Johnson City, TN** Client: **Rothe Architecture + Planning**	Log of Boring B-4 **Sheet 1 of 1**

Date(s) Drilled **9/20/2025**	Logged By **Donnie Hamilton**	CE Project ID **25546**
Drilling Method **HSA**	Checked By **Will Anderson**	Total Depth of Borehole (ft.) **15**
Drill Rig Type	Drilling Contractor **Total Depth Drilling**	Approximate Surface Elevation (ft.) **1602**
Borehole Backfill **Soil Cuttings**	Sampling Method(s) **SPT**	Approximate Groundwater Depth (ft.)
	Notes	

Elevation (feet)	Depth (feet)	Sample Type	Sampling Resistance, blows/ft	Water Content, %	Percent Fines	Liquid Limit, %	Plastic Index	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
1602	0									Topsoil	
								CH		Residual, Moist, Stiff, Red Silty Clay with trace sand, trace chert, and trace iron staining	
			16	31.4							
			12	30.4							
1597	5										
			8	28.9							
			6	39.1				CL		Residual, Very Moist to Wet, Medium to Soft, Red-Tan Silty Clay/Clayey Silt with sand, iron staining, layering, trace chert	
1592	10										
			5	36.9							
1587	15									Boring Terminated at 15 feet.	
1582	20										

Project: **JCHA Myrtle Phase 2** Project Location: **Myrtle Avenue, Johnson City, TN** Client: **Rothe Architecture + Planning**	Log of Boring B-5 **Sheet 1 of 1**

Date(s) Drilled **9/22/2025**	Logged By **Donnie Hamilton**	CE Project ID **25546**
Drilling Method **HSA**	Checked By **Will Anderson**	Total Depth of Borehole (ft.) **15**
Drill Rig Type	Drilling Contractor **Total Depth Drilling**	Approximate Surface Elevation (ft.) **1604**
Borehole Backfill **Soil Cuttings**	Sampling Method(s) **SPT**	Approximate Groundwater Depth (ft.)
	Notes	

Elevation (feet)	Depth (feet)	Sample Type	Sampling Resistance, blows/ft	Water Content, %	Percent Fines	Liquid Limit, %	Plastic Index	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
1604	0									Topsoil	
			13	18.4		51	25	CH		Residual, Moist, Stiff, Red Silty Clay with trace sand, trace chert, and trace iron staining	
1599	5		12	20.3							
			9	20.5							
			2	20.0				CL		Residual, Very Moist, Medium to Soft, Red-Tan Silty Clay/Clayey Silt with sand, iron staining, layering, trace chert	
1594	10										
			4	19.3							
1589	15									Boring Terminated at 15 feet.	
1584	20										

Project: **JCHA Myrtle Phase 2**
Project Location: **Myrtle Avenue, Johnson City, TN**
Client: **Rothe Architecture + Planning**

Key to Log of Boring

Sheet 1 of 1

Elevation (feet)	Depth (feet)	Sample Type	Sampling Resistance, blows/ft	Water Content, %	Percent Fines	Liquid Limit, %	Plastic Index	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

1 Elevation (feet): Elevation (MSL, feet).
2 Depth (feet): Depth in feet below the ground surface.
3 Sample Type: Type of soil sample collected at the depth interval shown.
4 Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
5 Water Content, %: Water content of the soil sample, expressed as percentage of dry weight of sample.
6 Percent Fines: The percent fines (soil passing the No. 200 Sieve) in the sample. WA indicates a Wash Sieve, SA indicates a Sieve Analysis.
7 Liquid Limit, %: Liquid Limit, expressed as a water content.
8 Plastic Index: Plastic Limit, expressed as a water content.
9 Material Type: Type of material encountered.
10 Graphic Log: Graphic depiction of the subsurface material encountered.
11 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
12 REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

Fat CLAY, CLAY w/SAND, SANDY CLAY (CH)

Lean CLAY, CLAY w/SAND, SANDY CLAY (CL)

TYPICAL SAMPLER GRAPHIC SYMBOLS

Auger sampler
Bulk Sample
3-inch-OD California w/ brass rings
CME Sampler
Rock Core
Grab Sample
2.5-inch-OD Modified California w/ brass liners
Pitcher Sample
2-inch-OD unlined split spoon (SPT)
Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

Water level (at time of drilling, ATD)
Water level (after waiting, AW)
Minor change in material properties within a stratum
Inferred/gradational contact between strata
Queried contact between strata

GENERAL NOTES

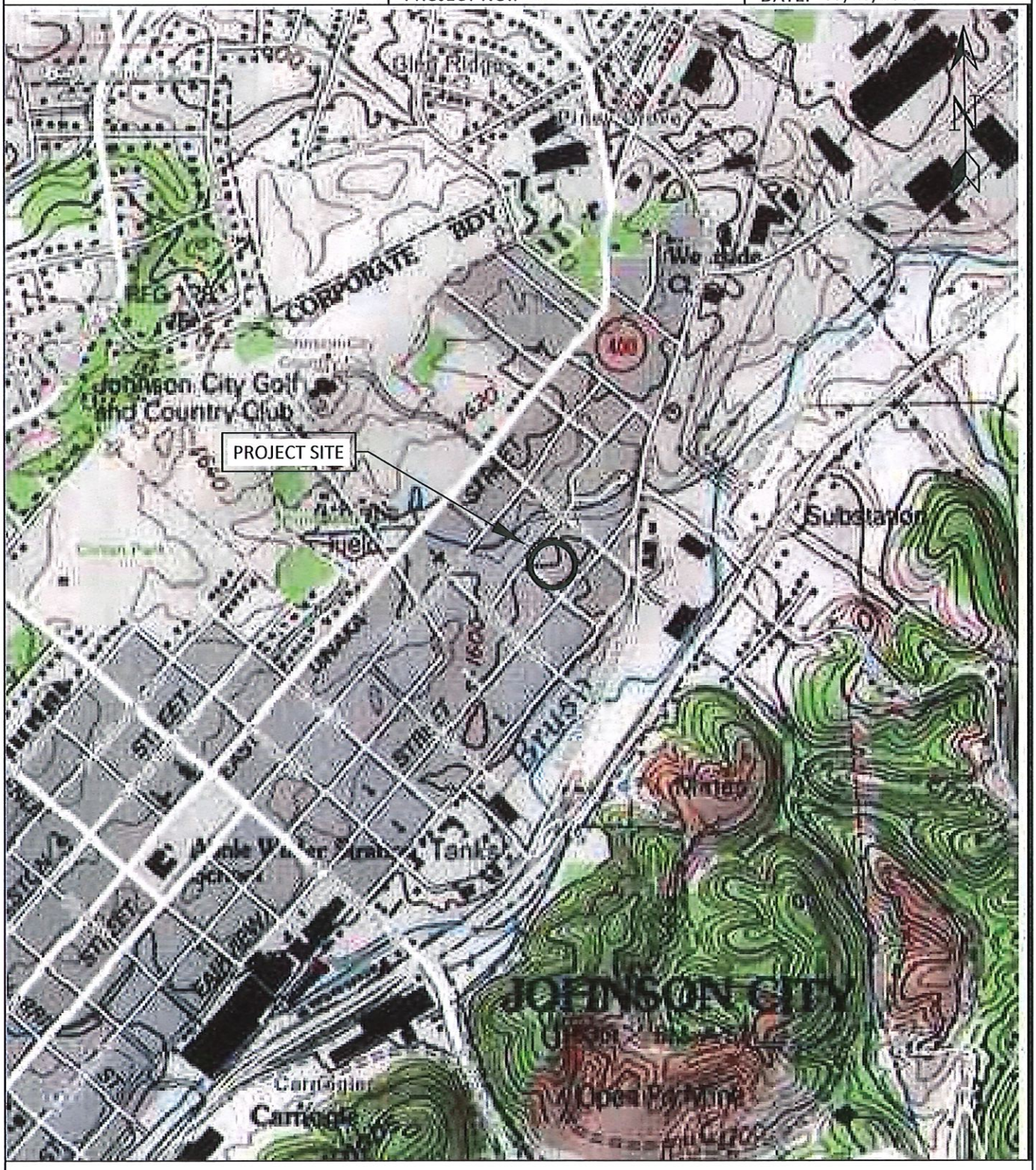
1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

Figure B-1

Cross Engineering
Geotechnical - Environmental - Materials Testing and Inspections

TOPOGRAPHY MAP
JCHA Myrtle Phase 2
1904 E. Myrtle Avenue
Johnson County, Tennessee

CLIENT: Rothe Architecture + Planning	DRAWN BY: KEC
PROJECT NO.: 25546	DATE: 09/25/2025



Notes: USGS Topographic Mapping, Johnson City, TN Quad (1959)

Cross Engineering
Geotechnical - Environmental - Materials Testing and Inspections

GEOLOGY MAP

JCHA Myrtle Phase 2
1904 E. Myrtle Avenue
Johnson County, Tennessee

CLIENT: Rothe Architecture + Planning	DRAWN BY: KEC
PROJECT NO.: 25546	DATE: 09/25/2025

Notes: 1997, Geologic Map and Mineral Resources Summary of the Johnson City Quadrangle, Tennessee Division of Geology

Cross Engineering

Project Name:	JCHA Myrtle Phase 2
Project Number:	25546
Sample ID:	B-2 0' - 5'
Sample Description:	Tan Silty Clay

Atterberg Limits
ASTM D4318

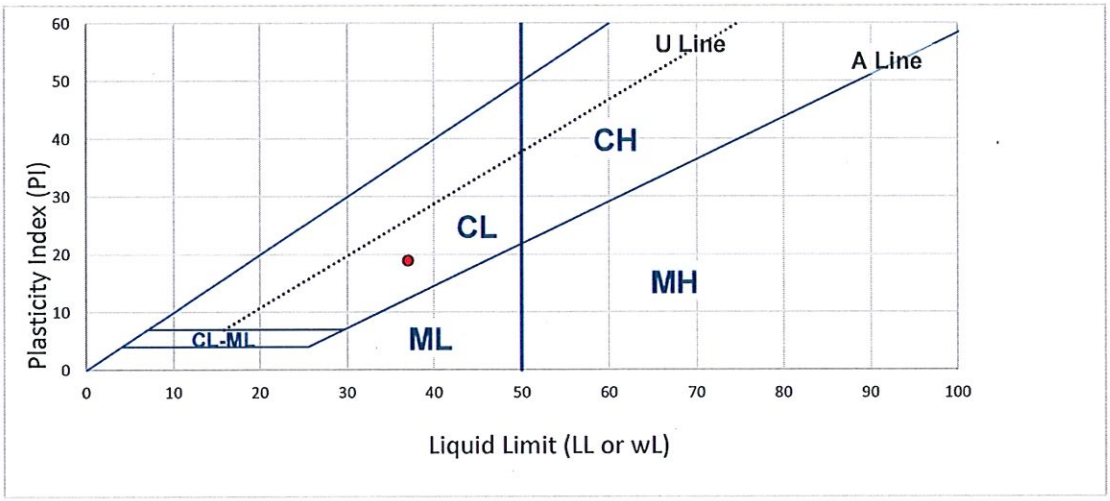
Report Date: 9/22/2025
Tested By: Guthrie Butler
Reviewed By: Will Anderson

Liquid Limit (LL or w_L) (%):	37
Plastic Limit (PL or w_P) (%):	18
Plasticity Index (PI) (%):	19
USCS Classification:	CL

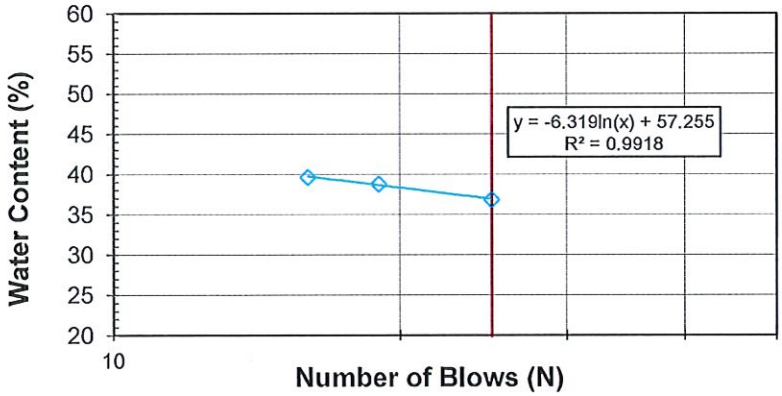
PI at "A" Line = 0.73(LL-20)

One Point Liquid Limit Calculation:

$LL = w_n (N/25)^{0.12}$



PROCEDURE USED	
	Wet Preparation Multipoint
X	Dry Preparation Multipoint
X	Procedure A Multipoint
	Procedure B One-Point



Estimated percentage of sample retained on 425µm (No, 40) Sieve: 10%

Notes:

Cross Engineering

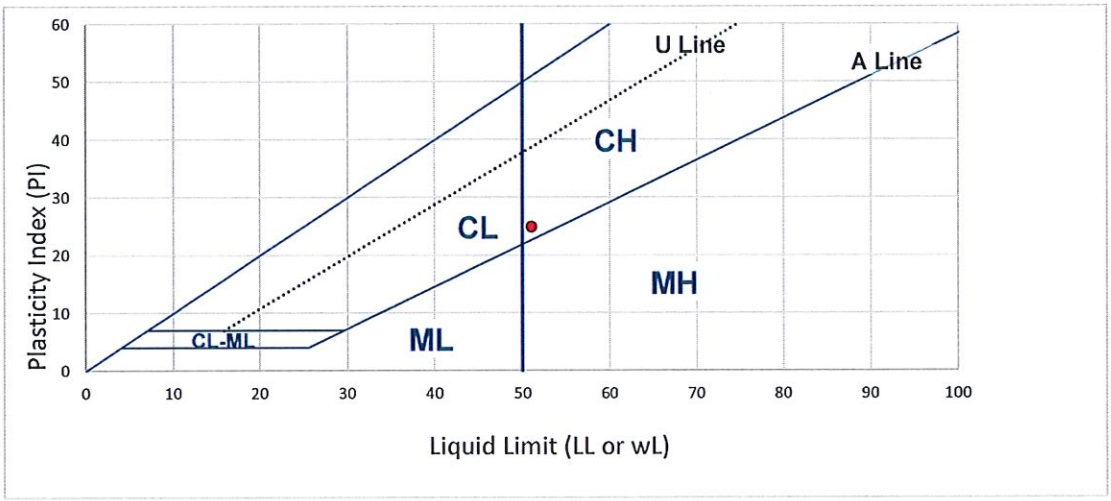
Project Name:	JCHA Myrtle Phase 2
Project Number:	25546
Sample ID:	B-5 0' - 5'
Sample Description:	Tan Silty Clay

Atterberg Limits
ASTM D4318

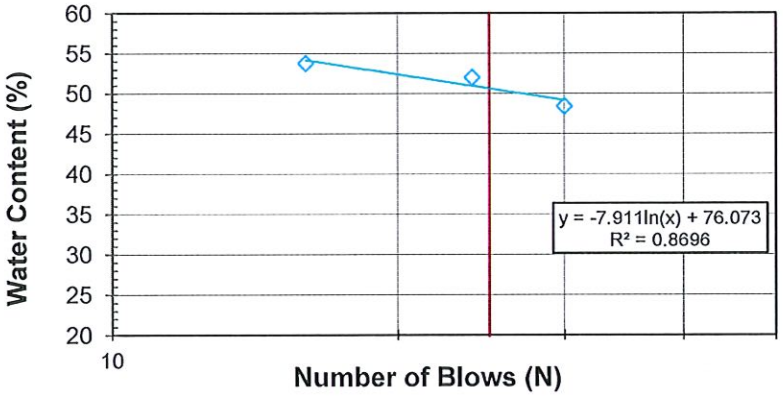
Report Date: 9/22/2025
Tested By: Guthrie Butler
Reviewed By: Will Anderson

Liquid Limit (LL or w_L) (%):	51
Plastic Limit (PL or w_P) (%):	26
Plasticity Index (PI) (%):	25
USCS Classification:	CH

PI at "A" Line = 0.73(LL-20)
One Point Liquid Limit Calculation:
$LL = w_n (N/25)^{0.12}$



PROCEDURE USED	
	Wet Preparation Multipoint
X	Dry Preparation Multipoint
X	Procedure A Multipoint
	Procedure B One-Point



Estimated percentage of sample retained on 425µm (No, 40) Sieve: 5%

Notes:

Cross Engineering

Project:	JCHA Myrtle Phase 2
	Myrtle Ave, Johnson City, TN
CE Project ID:	25546
Sample Date:	9/19 - 9/22, 2025

Natural Moisture Contents Test - ASTM D4643/D2216

Boring	Depth (ft)	Wmoist (g)	Wdry (g)	Tare (g)	% Moisture
B-1	1-2.5	156.32	129.55	3.05	21.2
B-1	3.5-5	159.16	131.41	3.05	21.6
B-1	6-7.5	192.57	162.40	3.05	18.9
B-1	8.5-10	151.66	127.36	3.05	19.5
B-1	13.5-15	155.13	113.94	3.05	37.1
B-3	1-2.5	127.59	96.89	3.05	32.7
B-3	3.5-5	134.28	99.92	3.05	35.5
B-3	6-7.5	125.71	92.26	3.05	37.5
B-3	8.5-10	148.47	110.41	3.05	35.5
B-4	1-2.5	142.55	109.24	3.05	31.4
B-4	3.5-5	134.07	103.49	3.05	30.4
B-4	6-7.5	114.07	89.15	3.05	28.9
B-4	8.5-10	142.75	103.50	3.05	39.1
B-4	13.5-15	132.67	97.72	3.05	36.9
B-5	1-2.5	124.55	105.63	3.05	18.4
B-5	3.5-5	143.9	120.14	3.05	20.3
B-5	6-7.5	144.83	120.75	3.05	20.5
B-5	8.5-10	135.06	113.02	3.05	20.0
B-5	13.5-15	170.86	143.75	3.05	19.3

TEST DESCRIPTIONS

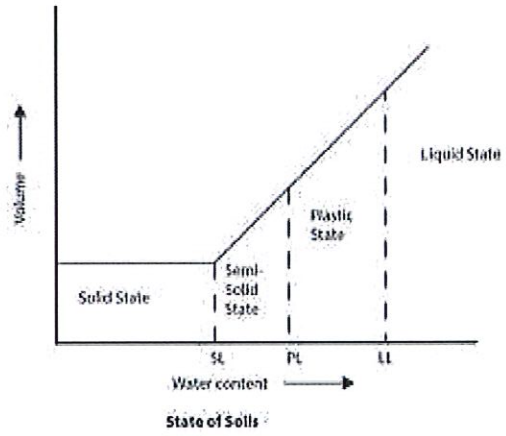
ATTERBERG LIMITS — ASTM D4318-10

The objective of the Atterberg Limits test is to obtain basic index information about the soil used to estimate strength and settlement characteristics. It is the primary form of classification for cohesive soils.

Fine-grained soil is tested to determine the liquid and plastic limits, which are moisture contents that define boundaries between material consistency states. These standardized tests produce comparable numbers used for soil identification, classification, and correlations to strength.

The liquid (LL) and plastic (PL) limits define the water content boundaries between non-plastic, plastic, and viscous fluid states. The plasticity index (PI) defines the complete range of plastic state. Figure 1 illustrates it nicely.

Figure 1: Atterberg limits illustration.



Liquid Limit (LL)

The liquid limit defines the boundary between plastic and viscous fluid states. It is determined using a standard "Liquid Limit Device," which drops a shallow cupfull of soil 1 cm consistently. When a groove cut through the sample closes 1/2", the number of drops is recorded and a moisture content sample processed.

Repeating the procedure for a total of four drop-count ranges provides enough data to plot on a semi-log scale. From the plot, the moisture content at 25 drops defines the Liquid Limit.

Plastic Limit (PL)

The plastic limit defines the boundary between non-plastic and plastic states. It is determined simply by rolling a thread of soil and adjusting the moisture content until it breaks at 1/8 inch diameter.

TEST DESCRIPTIONS

STANDARD PENETRATION TEST (SPT) — ASTM D1586-11

This test uses a thick-walled sample tube, with an outside diameter of 2 inches, an inside diameter of 1 3/8 inches, and a length of around 32 inches. This tube is driven into the ground at the bottom of a borehole by blows from a slide hammer with a weight of 140 lb falling through a distance of 30 in. The sample tube is driven into the ground and then the number of blows needed for the tube to penetrate each 6 inch increment up to a depth of 18 inches is recorded. The sum of the number of blows required for the second and third 6 inches of penetration is termed the "standard penetration resistance" or the "N-value".

In cases where 50 blows are insufficient to advance it through a 6 inch interval the penetration after 50 blows is recorded. The blow count provides an indication of the soil consistency and can be correlated to the bearing capacity of the soil.

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) — ASTM D2487

The Unified Soil Classification System (USCS) is a nationally recognized standard for classifying soils in accordance with their engineering properties. The parameters considered in this system are:

- Particle Size
- Water Holding and Plasticity
- Organic Content

The system identifies three major soil divisions; coarse-grained soils, fine-grained soils, and highly organic soils. These three divisions are further subdivided into a total of 15 basic soil groups. Based on the results of visual observations and prescribed laboratory tests, the soil is cataloged into basic soil groups, which include variations of gravel, sands, silty, clays and highly organic soils.

GENERAL NOTES

WATER LEVEL MEASUREMENT

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soil, the accurate determination of groundwater levels may not be suitable with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine grained soils on the basis of their consistency.

CONSISTENCY OF FINE-GRAINED SOILS

Unconfined Compressive Strength. Qu, psf	Standard Penetration or N-value (55) Blows/Ft.	Consistency
< 500	0 - 1	Very Soft
500-1,000	2 - 4	Soft
1,000 - 2,000	4 - 8	Medium Stiff
2,000 - 4,000	8 - 15	Stiff
4,000 - 8,000	15 - 30	Very Stiff
8,000+	> 30	Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Standard Penetration or N-value (SS) Blows/Ft.	Relative Density
0 - 3	Very Loose
4 - 9	Loose
10 - 29	Medium Dense
30 - 50	Dense
>50	Very Dense

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75mm)
Sand	#4 to #200 sieve (4.75 to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

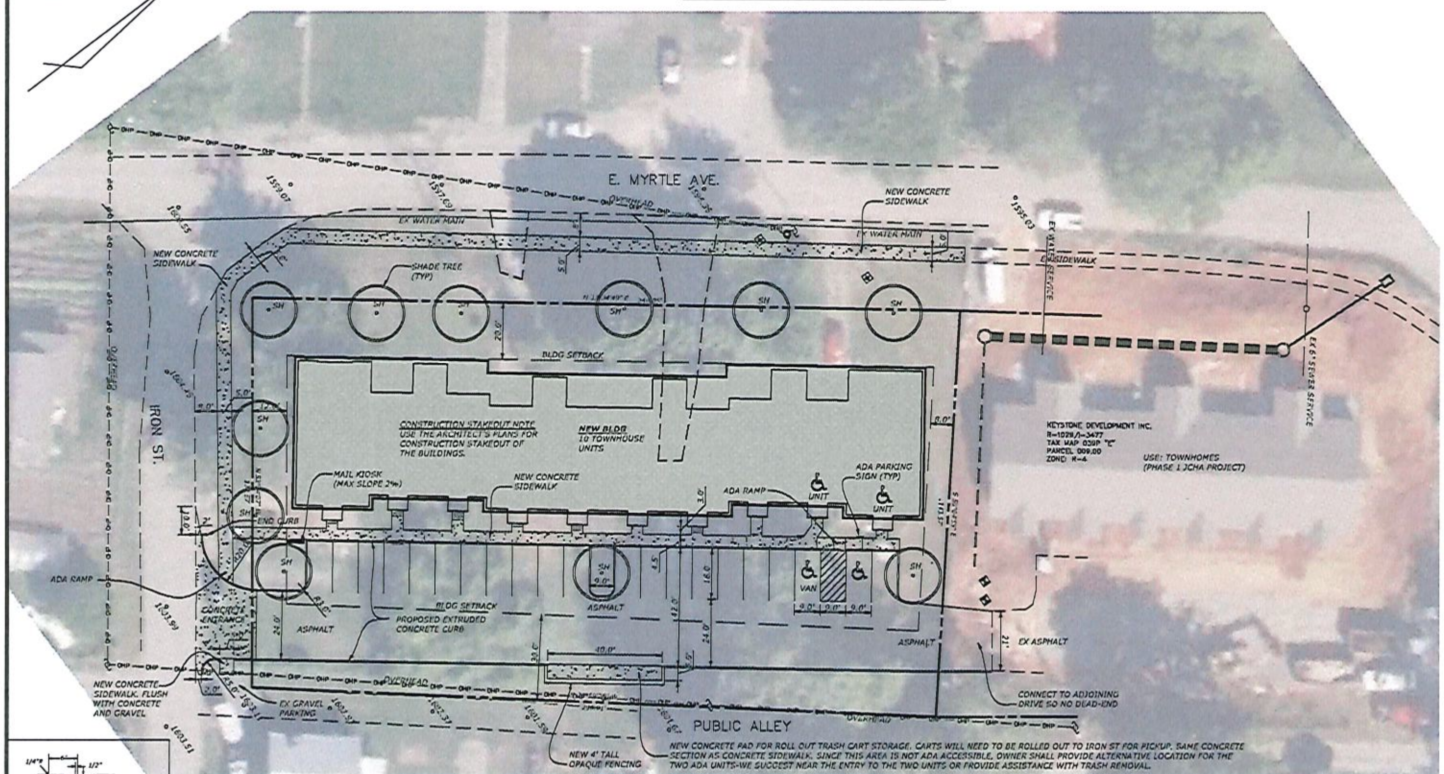
RELATIVE PROPORTION SOF FINE S

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	<5
With	5 -12
Modifier	> 12

PLASTICITY DE SCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

SITE PLANS APPROVED, 9-16-25



SITE LIGHTING NOTE
SEE ARCHITECTURAL/MEP PLANS FOR EXTERIOR BUILDING LIGHTING AND PARKING LOT LIGHTING. LIGHTING AND PHOTOMETRIC PLAN IS BY OTHERS, SHALL MEET JOHNSON CITY LIGHTING ORDINANCE, AND SHALL BE APPROVED FOR ANY LIGHTING IS INSTALLED.

LOT COVERAGE

BUILDING AREA	HEIGHT TO ROOF PEAK
11,385 SF OR 0.26 AC	26'±

LOT COVERAGE=0.26 AC/0.78 AC=33% (35% ALLOWABLE)

SOLID WASTE NOTE
TRASH COLLECTION BY ROLL-OUT CARTS. NO DUMPSTER PROPOSED.

SITE NOTES

1. ZONE: R-4
2. SITE AREA: 0.78± ACRES
3. EXISTING USE: SINGLE FAMILY
4. PROPOSED USE: 10 **TOWNHOMES**
   - 4.1. 8-1 BEDROOM UNITS
   - 4.2. 2-2 BEDROOM UNITS
5. DENSITY
   - 5.1. ALLOWABLE: 14 DU/AC X 0.78 AC=10 DU
   - 5.2. PROPOSED: 10 DU
6. PARKING REQUIRED BY CITY CODE: 16
   - 6.1. 1 BR: 8 DU X 1.5/DU=12 SPACES
   - 6.2. 2 BR: 2 DU X 2/DU=4 SPACES
7. PARKING PROVIDED: 21
   - 7.0.1. 21 SPACES INCLUDING 2 HANDICAP SPACES
8. SETBACKS: FRONT: 20', REAR: 30', SIDE: 8', CORNER: 12'
9. PROPERTY OWNER N/F:
   JOHNSON CITY HOUSING AUTHORITY
   901 PARDEE ST, JOHNSON CITY, TN 37601
10. PROPERTY INFORMATION:
   - 10.1. TAX MAP 39, PARCELS 6.00, 6.01, 7.00, 8.00
     ADDRESS:1904 E. MYRTLE AVE
11. THERE IS NO FEMA FLOODPLAIN LOCATED ON THIS PROPERTY PER FIRM #47179C0179D DATED SEPTEMBER 29, 2006

LANDSCAPE CALCULATIONS

1. FRONTAGE LANDSCAPING
   - 1.1. MYRTLE AVE REQUIRED= 1 TREE/50' X 248'=5
   - 1.2. MYRTLE AVE PROVIDED= 5 SHADE TREES
   - 1.3. STEEL ST REQUIRED: 1 TREE/50' X 137'=3
   - 1.4. STEEL ST PROVIDED: 3 SHADE TREES
2. PARKING LOT
   - 2.1. TREES REQUIRED: 1 TREE/10 PS X 21 PS=3
   - 2.2. TREES PROVIDED: 3
3. PARKING LOT GREEN SPACE
   - 3.1. GREEN SPACE REQUIRED: 35 SF/PS X 21 PS=735 SF
   - 3.2. GREEN SPACE PROVIDED: 740 SF
4. BUFFER (NONE REQUIRED)

COPY SHALL BE KEPT AT JOBSITE
REVIEWED FOR CODE COMPLIANCE
Riley Pushey
09/10/2025
JOHNSON CITY
CODE ENFORCEMENT DIVISION

PLANT LIST

QUANTITY	KEY	NAME	SIZE
11	SH	SHADE TREE	2" CAL.

NOTES:
1. THIS SCHEDULE IS A GUIDE ONLY. CONTRACTOR SHALL VERIFY PLANT QUANTITIES BASED ON THE PLAN AND NOT RELY SOLELY ON THIS SCHEDULE.
2. THE SHADE TREES MAY BE RED MAPLE, WILLOW OAK, OTHER OAK, RIVER BIRCH, BALD CYPRESS, OR OTHER TREE ON THE JOHNSON CITY APPROVED TREE LIST.
3. PROVIDE AT LEAST 2 SPECIES OF SHADE TREES.

HANDICAP RAMP NOTE:
HR=HANDICAP RAMP. PROVIDE HANDICAP RAMP WITH MAXIMUM SLOPE OF 1:12 AT ALL HANDICAP PARKING AISLE INTERSECTIONS WITH CURBING AND AT THE SIDEWALK INTERSECTIONS WITH THE DRIVEWAY ENTRANCES. THE MAXIMUM SLOPE OUTSIDE OF RAMPS FROM THE HANDICAP SPACES TO THE DOORS IN THE TENANT SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION.

IMPERVIOUS AREAS = 0.6 ACRES

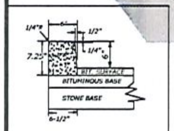
PAVING MATERIALS

STANDARD DUTY ASPHALT
6" AGGREGATE BASE
1.75" BINDER COURSE
1.25" SURFACE COURSE

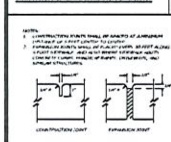
CONCRETE ENTRANCE
4" AGGREGATE BASE
8" 4000 PSI @28 DAYS CONCRETE

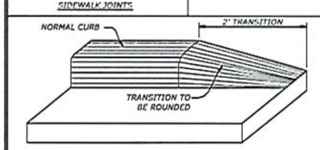
CONCRETE SIDEWALK
4" AGGREGATE BASE
4" 4000 PSI @28 DAYS CONCRETE

BUILDING SIDEWALK NOTE
THE SIDEWALKS ALONG THE PARKING LOT MAY BE EITHER EXTRUDED CURB WITH SIDEWALK POURED BEHIND OR A MONOLITHIC TURNED DOWN CONCRETE SLAB AS THE CURB AND SIDEWALK.

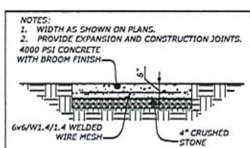


EXTRUDED 6" CONCRETE CURB

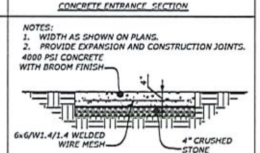

SIDEWALK JOINTS



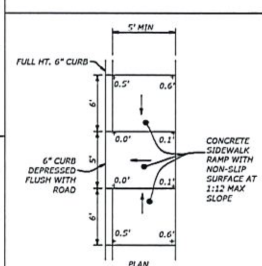
CURB NOSE DOWN DETAIL AT ENTRANCE



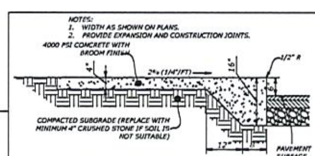
CONCRETE ENTRANCE SECTION



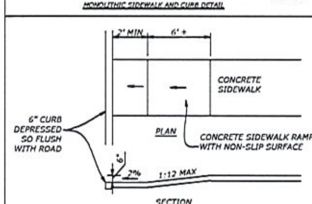
CONCRETE SIDEWALK SECTION



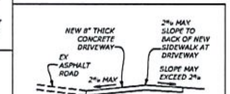
90° HANDICAP RAMP



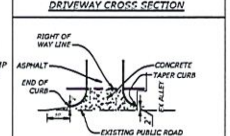
MONOLITHIC SIDEWALK AND CURB DETAIL



LONGITUDINAL HANDICAP RAMP



DRIVEWAY CROSS SECTION



DRIVEWAY CURB TRANSITION DETAIL

PARKING SPACE NOTES

1. REGULAR SPACES
   - 1.1. WIDTH=9'
   - 1.2. DEPTH=18'
2. HANDICAP SPACES
   - 2.1. WIDTH SHOWN=9'
   - 2.2. DEPTH=18'
   - 2.3. AISLE WIDTH SHOWN=9' (MAY BE 5' MINIMUM)
   - 2.4. VAN AISLE WIDTH=9' (MAY BE 8' MINIMUM)
3. STRIPING
   - 3.1. 4" WIDE WHITE TRAFFIC PAINT
   - 3.2. PROVIDE STRIPING AND SYMBOL (WHERE APPLICABLE) FOR HANDICAP SPACES PER DETAILS AND PLAN.
4. SIGNAGE
   - 4.1. PROVIDE HANDICAP SIGNAGE AT EACH HANDICAP SPACE AND PER DETAILS.

SURVEY NOTE
SURVEY INFORMATION PROVIDED BY:

TENNESSEE PROFESSIONAL SURVEYING, INC.
JOHNSON CITY, TN

EXISTING UNDERGROUND UTILITIES

CONTACT TENNESSEE ONE CALL AT 811 AT LEAST 3 DAYS BEFORE STARTING ANY EARTHWORK OR CONSTRUCTION FOR LOCATION OF EXISTING UNDERGROUND UTILITIES.

SHEET INDEX

C1	SITE AND LANDSCAPE PLAN
C2	GRADING & STORMWATER PLAN
C3	UTILITY PLAN
C4	EROSION & SEDIMENT CONTROL PLAN
C5	DETAILS

DAVID TODD WOOD
STATE OF TENNESSEE
8-4-25

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Land Development Design & Consulting
PO Box 4373, Johnson City, Tennessee 37602-4373
423-791-4733 todd@dtwoodengineering.com

NO.	REVISIONS	BY	DATE

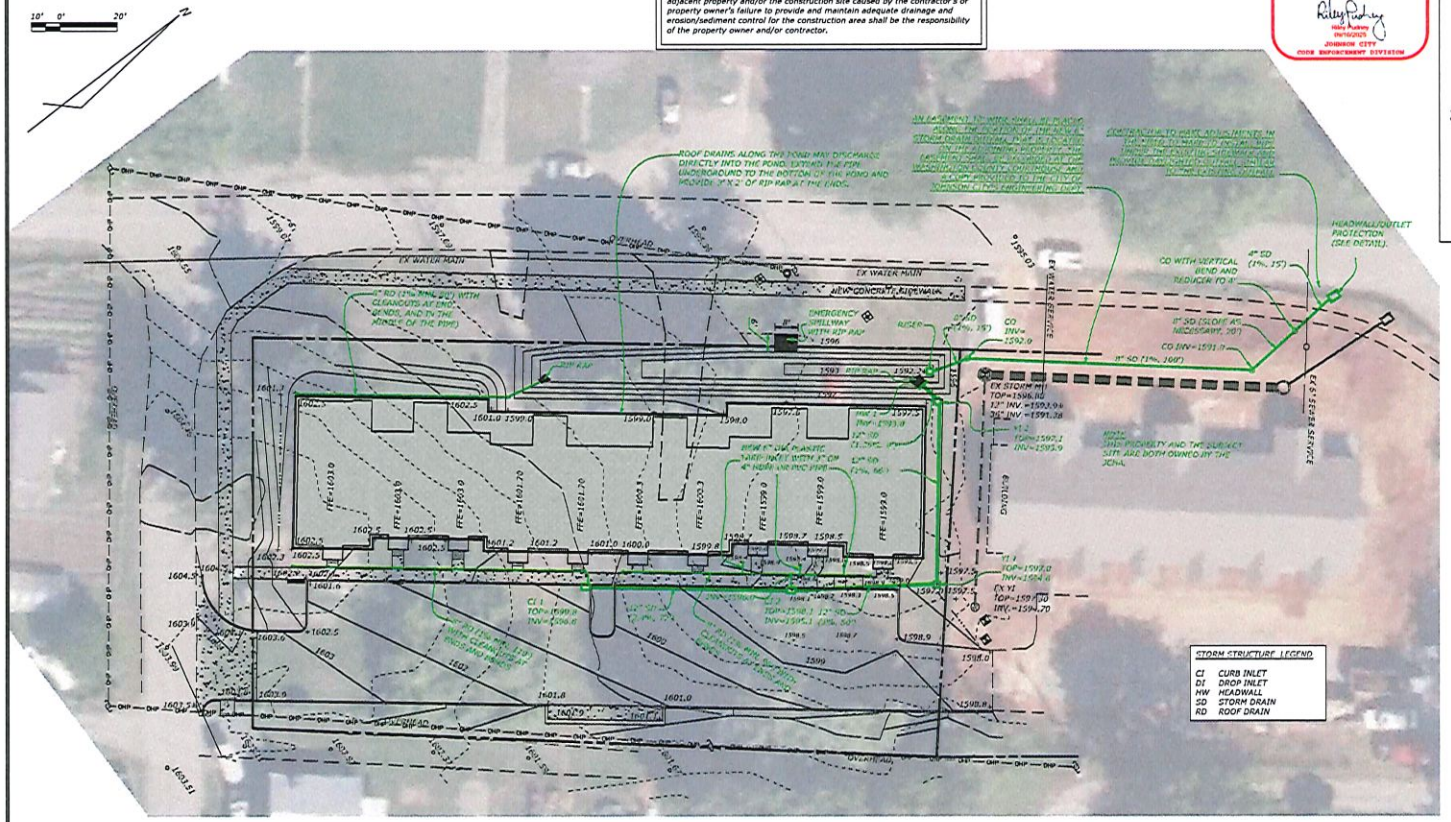
SITE AND LANDSCAPE PLAN
JCHA-MYRTLE PHASE 2
1904 E. MYRTLE AVE
JOHNSON CITY, TENNESSEE

DATE: 8-4-25

C1

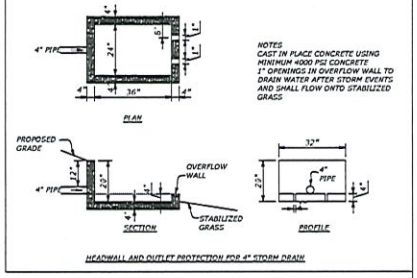
Adequate drainage, erosion and sediment control measures, best management practices, and/or other water quality management facilities shall be provided and maintained at all times during construction. Damages to adjacent property and/or the construction site caused by the contractor's or property owner's failure to provide and maintain adequate drainage and erosion/sediment control for the construction area shall be the responsibility of the property owner and/or contractor.

COPY SHALL BE KEPT AT JOBSITE
REVIEWED FOR CODE COMPLIANCE
Riley Rodney
09/10/2025
JOHNSON CITY
CODE ENFORCEMENT DIVISION



STORM STRUCTURE LEGEND

CI	CURB INLET
DI	DROP INLET
HW	HEADWALL
SD	STORM DRAIN
RD	ROOF DRAIN



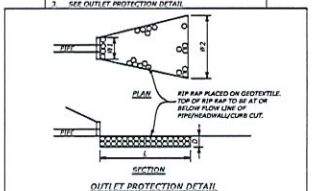
NOTES
CAST IN PLACE CONCRETE USING MINIMUM 4000 PSI CONCRETE.
1" OPENINGS IN OVERFLOW WALL TO DRAIN WATER AFTER STORM EVENTS AND SMALL FLOW ONTO STABILIZED GRASS

HEADWALL AND OUTLET PROTECTION FOR 4" STORM DRAIN

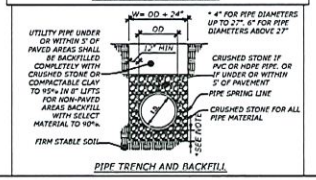
RIP RAP SCHEDULE

PIPE	L	W1	W2
8" OR LESS	6'	3'	3'
12"	9'	4.5'	4.5'

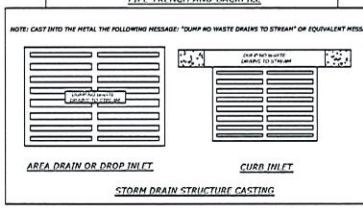
NOTES:
1. PLACE ON FILTER CLOTH.
2. STONE SHALL NOT BLOCK FLOW OF WATER FROM PIPE OR OTHER SURFACE.
3. SEE OUTLET PROTECTION DETAIL



OUTLET PROTECTION DETAIL



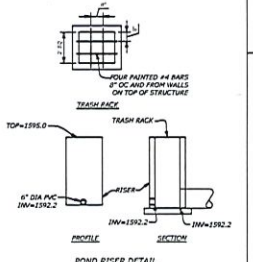
PIPE TRENCH AND BACKFILL



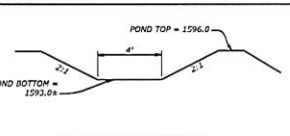
AREA DRAIN OR DROP INLET — CURB INLET

STORM DRAIN STRUCTURE CASTING

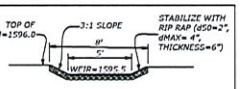
NOTES:
1. RISER IS 2' X 2' INSIDE PRECAST CONCRETE OR DOUBLE ROW OF INTERLOCKING BRICK
2. PROVIDE TRASH RACK ON TOP.
3. SEE WATER QUALITY OPENING DETAIL FOR LOW FLOW ORIFICE.



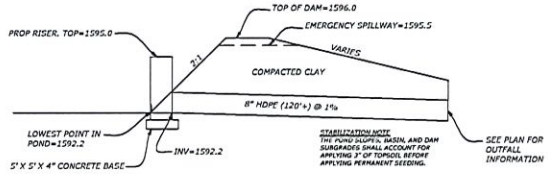
POND RISER DETAIL



POND CROSS-PERPENDICULAR TO FLOW OF WATER



EMERGENCY SPILLWAY



STORMWATER POND DETAIL

STORM DRAIN (SD) NOTES
1. STORM DRAINS MAY BE CMP (T2 ALUMINIZED) OR DOUBLE WALL HDPE, UNLESS OTHERWISE NOTED, AS LONG AS THE PIPES ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS FOR HEAVY DUTY LOADING.
2. STORM STRUCTURES MAY BE HEAVY DUTY PRECAST CONCRETE, HEAVY DUTY PRECAST CONCRETE KNOCKOUT BOXES, OR A DOUBLE ROW OF INTERLOCKING BRICK.
3. ALL GRATES AND STRUCTURES SHALL BE DESIGNED AND CONSTRUCTED FOR HEAVY DUTY LOADING (EXCEPT FOR YARD INLETS), SHALL HAVE ENVIRONMENTAL MESSAGE IN THE CASTING AND BE BICYCLE/WHEELCHAIR-SAFE .
4. TOP ELEVATION FOR ANY CURB INLET REFERS TO THE PAVEMENT/GUTTER ELEVATION.
5. BACKFILL ALL TRENCHES UNDER THE PAVEMENT COMPLETELY WITH CRUSHED STONE OR COMPACTED CLAY AS SHOWN IN THE TRENCH DETAIL.

ROOF DRAIN (RD) NOTES
1. CONFIRM EXACT LOCATION OF DOWNSPOUTS WITH ARCHITECT BEFORE INSTALLING ROOF DRAINS (RD).
2. ROOF DRAINS (RD) MAY BE SCH40 PVC OR DOUBLE WALL HDPE AS LONG AS THE PIPES ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS FOR HEAVY DUTY LOADING.
3. ALL CONNECTIONS SHALL BE WATERTIGHT.
4. PROVIDE REMOVABLE BOOT (FOR MAINTENANCE ACCESS) TO CONNECT DOWNSPOUT TO THE DRAIN PIPE.
5. PROVIDE MINIMUM 6" COVER IN GRASS OR PLANTING AREAS. PROVIDE MINIMUM 1.5' OF COVER IN PAVEMENT AREAS.
6. PROVIDE MINIMUM 1% SLOPE.
7. BACKFILL ALL TRENCHES UNDER THE PAVEMENT COMPLETELY WITH CRUSHED STONE.

STORM STRUCTURE NOTE
SEE UTILITY SHEET C3 FOR STORM STRUCTURE DETAILS

POND NOTES
1. TOP SOIL AND ORGANIC MATERIAL SHALL BE STRIPPED FROM THE EMBANKMENT AREA BEFORE CONSTRUCTION BEGINS.
2. ALL BACKFILL MATERIAL SHALL BE HIGHLY COMPACTABLE CLAY WITH NO ORGANIC MATERIAL AND PLACED IN 4" LIFTS.
3. THE BACKFILL AROUND THE PIPE AND RISER TO BE HAND COMPACTED.
4. CONTRACTOR SHALL ENSURE THERE ARE NO VOID SPACES UNDER THE PIPE.
5. OUTLET PIPE SHALL BE PLACED ON A HIGHLY COMPACTED SOIL FOUNDATION.
6. THE DAM AND BASIN SHALL BE STABILIZED WITH TOPSOIL, SEED, AND MULCH IMMEDIATELY AFTER THE POND CONSTRUCTION IS COMPLETED.

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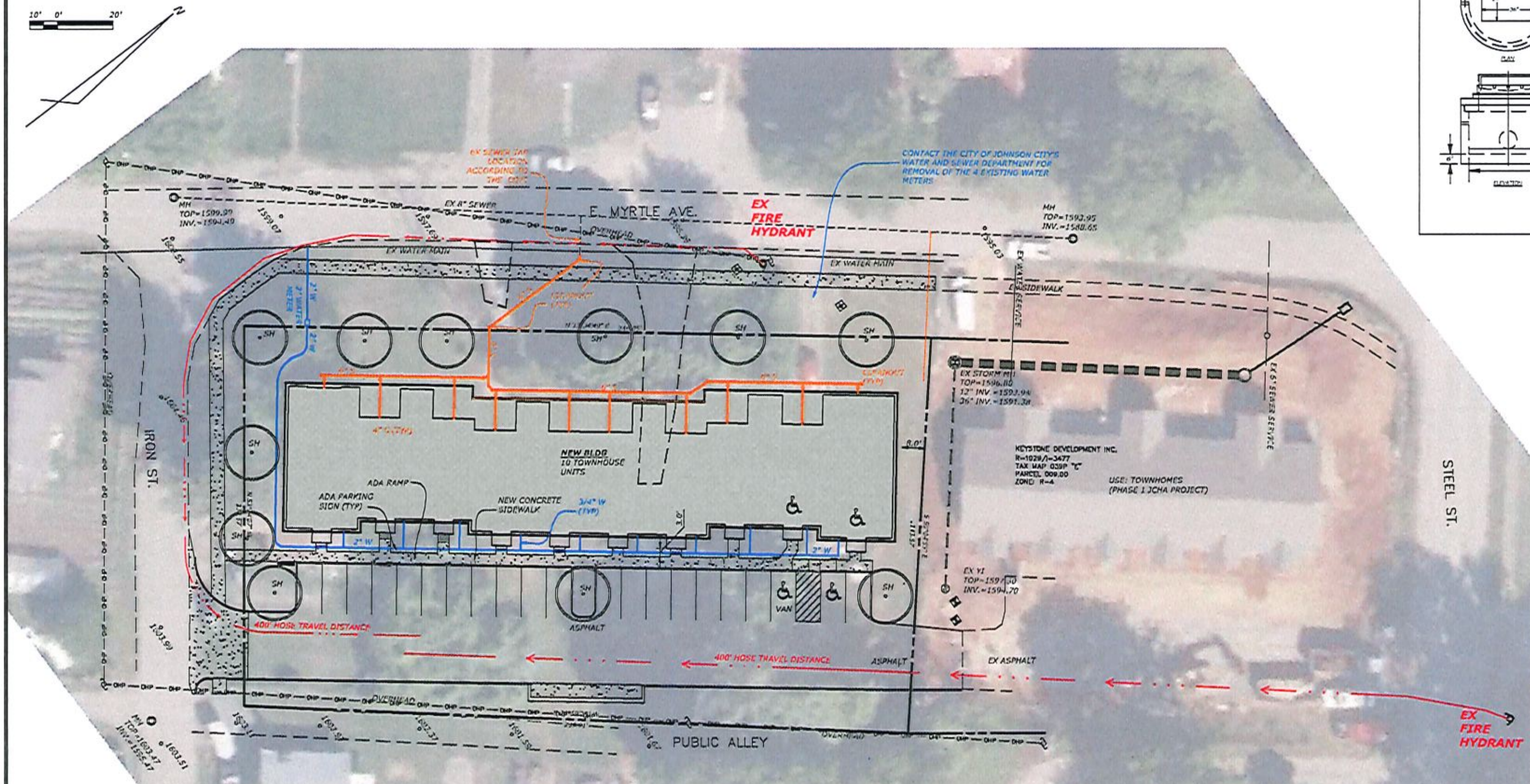
P.O. Box 4323, Johnson City, Tennessee 37602-4323
423-731-4732 kyle@dtwoodengineering.com

NO.	REVISIONS	BY	DATE

GRADING AND STORMWATER PLAN
JCHA-MYRTLE PHASE 2
1904 E. MYRTLE AVE
JOHNSON CITY, TENNESSEE

DATE: 8-4-25

C2

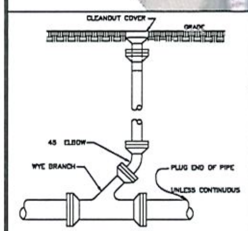


FIRE PROTECTION NOTE

THE DWELLING UNITS ARE TOWNHOMES-NOT STACKED APARTMENTS- SO NO SPRINKLER SYSTEM REQUIRED.

THERE ARE TWO EXISTING FIRE HYDRANTS NEAR THE SITE AS SHOWN ON THE PLANS.

COPY SHALL BE KEPT AT JOBSITE
REVIEWED FOR CODE COMPLIANCE
JOHNSON CITY CODE ENFORCEMENT DIVISION



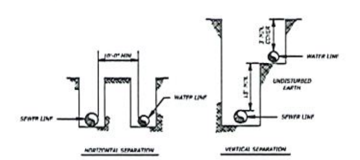
CLEANOUT DETAIL

SEWER NOTE

1. SEWER LINES ONSITE ARE TO PRIVATELY MAINTAINED.
2. SEWER LINES TO BE SDR-35 PIPE BACKFILLED WITH STONE OR AS ALLOWED BY JOHNSON CITY CODES.
3. IF CLEANOUTS ARE LOCATED IN PAVEMENT AREAS THEY SHALL BE TRAFFIC BEARING.
4. PROVIDE CLEANOUTS OUTSIDE OF EACH UNIT, ALL BENDS, AND EVERY 150' OR CLOSER.
5. VERIFY ALL EXISTING SEWER LOCATIONS AND DEPTHS BEFORE ORDERING SEWER PIPE. CONTACT ENGINEER IMMEDIATELY WITH ANY CONFLICTS.

WATER NOTES

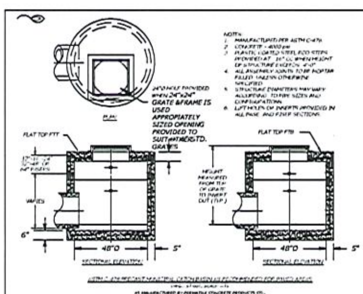
1. ONSITE WATER LINES ARE PRIVATELY MAINTAINED.
2. THE 2" WATER LINE SHALL BE PVC SDR 21 OR POLYETHYLENE PIPE. THE 3/4" WATER LINES SHALL BE EXTERIOR PEX OR POLYETHYLENE PIPE.
3. PROVIDE MINIMUM 30" OF COVER FOR WATER LINES.
4. PROVIDE BACKFLOW PREVENTER, MEETING CITY OF JOHNSON CITY REGULATIONS AND SPECIFICATIONS, INSIDE OF EACH UNIT. PROVIDE SHOP DRAWING FOR APPROVAL BY CITY OF JOHNSON CITY'S WATER DEPARTMENT.

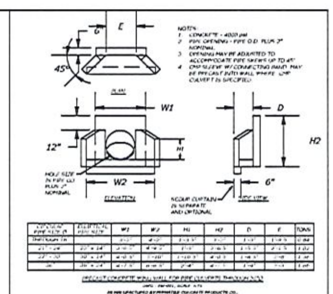


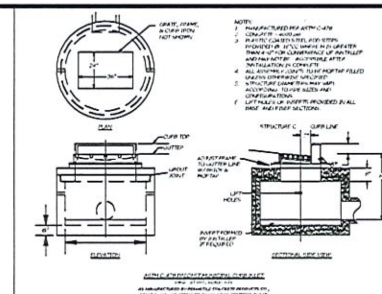
WATER & SEWER SEPARATION

SITE LIGHTING NOTE

SEE ARCHITECTURAL/MEP PLANS FOR EXTERIOR BUILDING LIGHTING AND PARKING LOT LIGHTING. LIGHTING AND PHOTOMETRIC PLAN IS BY OTHERS. SHALL MEET JOHNSON CITY LIGHTING ORDINANCE AND SHALL BE APPROVED FOR ANY LIGHTING IS INSTALLED.







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423-791-4733 todd@dtwoodengineering.com

NO.	REVISIONS	BY	DATE

UTILITY AND FIRE PROTECTION PLAN
JCHA-MYRTLE PHASE 2
1904 E. MYRTLE AVE
JOHNSON CITY, TENNESSEE

DATE: 8-4-25

C3

COPY SHALL BE KEPT AT JOBSITE
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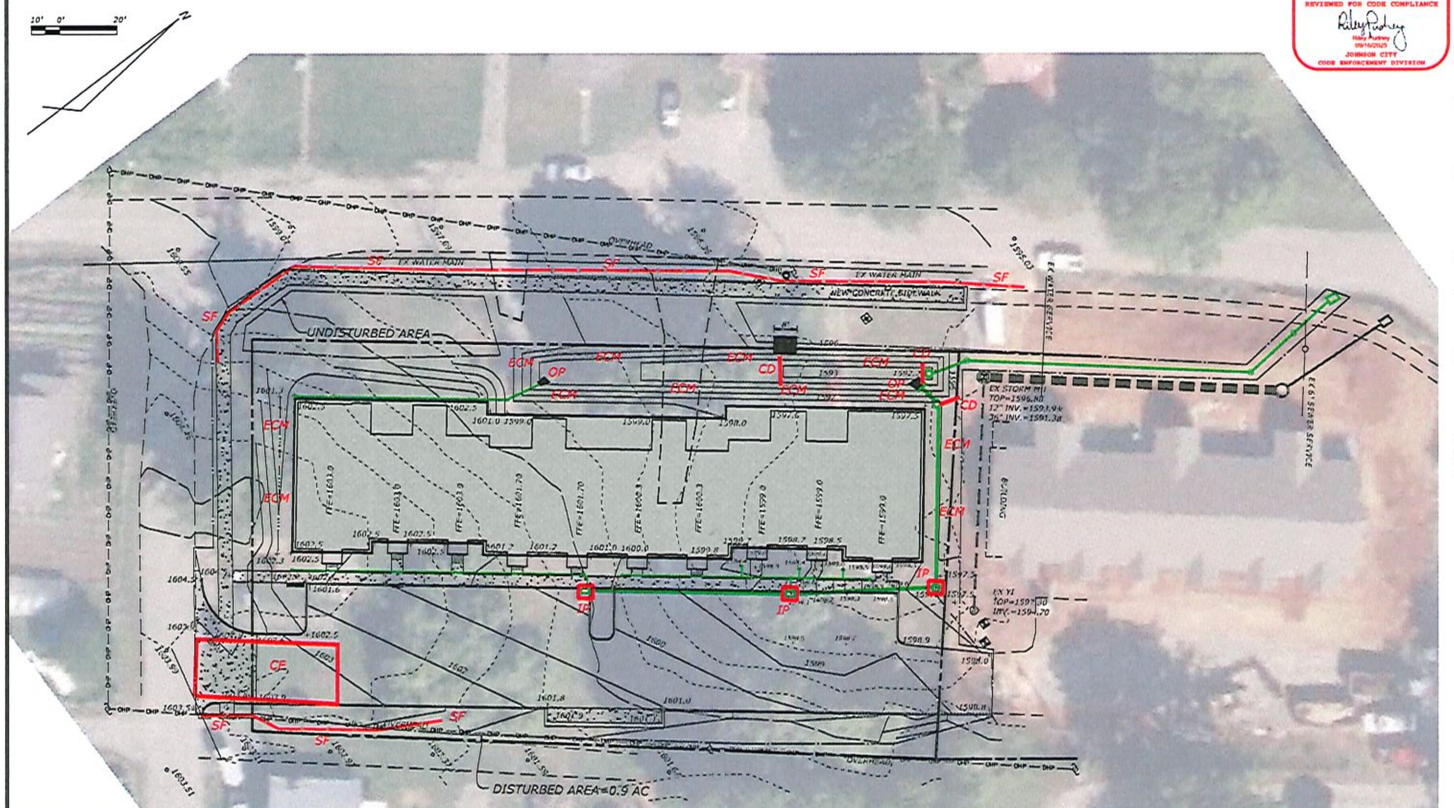
Riley Rodney
JOHNSON CITY
CODE ENFORCEMENT DIVISION



Spills and Non-Stormwater Contingencies

1. Construction vehicles shall clean mud from their tires and body on-site so that the sediment will flow to the wash pit near the construction exit and/or the sediment control devices. Any sediment that ends up in the street or other places offsite shall be cleaned up with a shovel and broom or other means before the next rainfall but shall not be washed away using water. The cleaned up sediment shall be placed back onsite or taken to another site with an approved and functioning sediment control plan.
2. Vehicles and equipment shall be fueled onsite near the construction exit in a designated containment area. Clean up any fuel spill immediately. Contaminated soils will be placed on heavy plastic and covered or placed in approved containers to prevent contact with stormwater. All fuel tanks shall be stored in the containment area. All oil, other vehicle fluids, solvents, paint, etc. shall be stored in a construction trailer or other approved container.
3. Absorbent material (for land based spills), booms (for spills into waterways), and other hazardous material cleanup tools as necessary shall be available for immediate use if an onsite spill occurs. If a spill of hazardous materials occurs, the spill shall be contained immediately and then completely cleaned up. If the spill has entered a water source, sinkhole, storm drain, or other stormwater conveyance, the local governmental authority shall be contacted immediately. Any contaminated material from the cleanup shall be disposed of in accordance with all State laws.
4. Ready-mix concrete trucks shall wash out their equipment into a designated wash pit near the construction exit. This wash pit is to trap the concrete and its wash. The contractor shall maintain this pit(s) as necessary to always have at least 50% volume. Any material removed from the wash pit shall be used for fill material onsite or disposed of in accordance with all State and Federal regulations. Wash from the concrete trucks and any overflow from the wash pit shall not be allowed to discharge to a sediment basin, trap, pond, storm drain, ditch, stream, other stormwater conveyance, or to waters of the State including both surface and groundwater.
5. All hazardous materials such as empty or partially empty paint cans, oil cans, filters, cleaning fluid, etc. shall be disposed of by taking them to a permitted hazardous material disposal site in accordance with State laws.
6. The washing of paint tools or other hazardous material equipment must be performed and disposed of in accordance with all State and Federal regulations. The cleaning residue from such equipment is hazardous and can not be discharged onto the ground or into a sediment basin, trap, pond, storm drain, ditch, stream, other stormwater conveyance, or to waters of the State including both surface and groundwater and shall be disposed of in accordance with State laws.
7. Litter, construction materials, construction debris, construction chemicals, and other hazardous materials exposed to storm water shall be picked up prior to anticipated storm events or before being carried off of the site by wind (e.g., forecasted by local weather reports), or otherwise prevented from becoming a pollutant source for storm water discharges. Litter, construction materials, construction debris, construction chemicals, and other hazardous materials shall not be allowed to enter a sediment basin, trap, pond, storm drain, ditch, stream, other stormwater conveyance, or to waters of the State. This can be accomplished by screening outfalls, daily pickup or cleanup, or other methods.
8. After their use, materials used for erosion prevention and sediment control should be removed or otherwise prevented from becoming a pollutant source for storm water discharges.
9. Contractor is responsible for litter control and cleanup.
10. Sediment controls shall be provided for any water distribution or waste disposal system onsite including sanitary sewer or septic systems.

STABILIZATION NOTE

STABILIZE POND SLOPES, SWALES, AND ALL SLOPES STEEPER THAN 3:1 WITH EROSION CONTROL MATTING (NORTH AMERICAN GREEN S75 FOR SLOPES AND SC150 FOR SWALES OR EQUIVALENT) AND PERMANENT SEEDING. INSTALL PER MANUFACTURER'S SPECIFICATIONS.

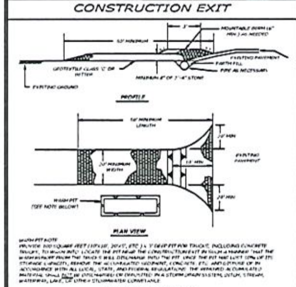
TEMPORARY SEED MIX

1. APPLY EVENLY DISTRIBUTED MIX OF ANNUAL RYE, KOREAN LESPEDEZA, AND SUMMER OATS AT 50#/ACRE (OR AS DIRECTED BY SEED SPECIALIST):
2. IF SEEDED FROM NOVEMBER THROUGH FEBRUARY, APPLY CEREAL RYE AT 50#/ACRE. IN MARCH, APPLY THE ABOVE MIX IF THE AREA WILL CONTINUE TO BE TEMPORARILY UNDISTURBED.

PERMANENT SEED MIX

1. APPLY 100% KY31 TALL FESCUE AT 150#/ACRE (OR AS DIRECTED BY SEED SPECIALIST):
2. IF SEEDED FROM NOVEMBER THROUGH FEBRUARY, ADD CEREAL RYE AT 50#/AC TO THE ABOVE MIX.

CONSTRUCTION EXIT

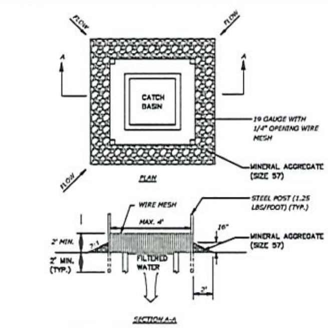


Construction Specification

1. Length - minimum of 50'
2. Width - 20' minimum, should be flared at the existing road to provide a turning radius. Maximum side slope of the stone is 3:1.
3. Geotextile fabric shall be placed over the existing ground prior to placing stone.
4. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
5. Location - A stabilized construction exit shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction exit.

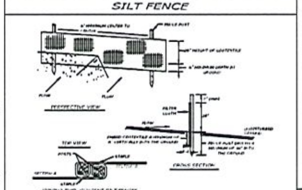
EP & SC LEGEND

CE	CONSTRUCTION EXIT
SF	SILT FENCE
IP	INLET PROTECTION
OP	OUTLET PROTECTION
ECM	EROSION CONTROL MATTING
CD	CHECK DAM



HARDWARE CLOTH AND GRAVEL INLET PROTECTION
(FLOW FROM ALL SIDES)

SILT FENCE

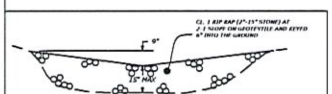


CONSTRUCTION SPECIFICATIONS

1. Fence posts shall be 2.25" (nominal) x 2.25" (nominal) square cut and be of sound quality hardwood or use steel posts will be standard T or U section weighing not less than 1.25 pond per linear foot.
2. Geotextile shall be fastened securely to each fence post with 5 - 17 ga. wire staples (3 in top 8") for wood or 5 wire or plastic zip ties (50# min. tensile strength and 3 in top 8") for steel posts and shall meet the following requirements:
   - 2.1. Tensile Strength — warp 120 lbs/in (min.), fill 100 lbs/in
   - 2.2. Bursting Strength — 200 lbs/sq in (min.)
   - 2.3. Flow Rate — 4 gpm/sq. ft (min)
3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass per detail above or overlapped a minimum of 4'.
4. Silt Fence shall be inspected before and after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

SEQUENCE OF CONSTRUCTION

1. INSTALL STONE CONSTRUCTION EXIT AND SILT FENCE.
2. ROUGH GRADE THE SITE. TEMPORARILY STABILIZE WITHIN 14 DAYS THOSE DISTURBED AREAS THAT WILL HAVE NO GRADING ACTIVITY FOR MORE THAN 14 DAYS. FOR SLOPES STEEPER THAN 3:1, TEMPORARILY STABILIZE WITHIN 7 DAYS THOSE AREAS THAT GRADING ACTIVITY HAS TEMPORARILY CEASED.
3. CONTINUE TO GRADE THE SITE AND INSTALL THE STORM DRAIN SYSTEM INCLUDING THE POND. INSTALL INLET PROTECTION, OUTLET PROTECTION, AND CHECK DAMS.
4. CONSTRUCT THE BUILDING, DRIVE, PARKING, AND UTILITIES.
5. FINALIZE THE GRADING. PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN 14 DAYS OF COMPLETING THE FINAL GRADING. FOR SLOPES STEEPER THAN 3:1, PERMANENTLY STABILIZE WITHIN 7 DAYS THOSE AREAS THAT GRADING ACTIVITY HAS BEEN COMPLETED.
6. ONCE ALL DISTURBED AREAS ARE STABILIZED WITH IMPERVIOUS AREA, A THICK STAND OF GRASS, OR OTHER VEGETATION, PERFORM FOLLOWING:
   - 6.1. REMOVE CHECK DAMS AND ACCUMULATED SEDIMENT FROM THE POND AND THEN STABILIZE ANY REMAINING DISTURBED AREAS.
   - 6.2. REMOVE EROSION AND SEDIMENT CONTROL DEVICES.



CHECK DAM
NOT TO SCALE

EP&SC MAINTENACE NOTE

1. REMOVE ACCUMULATED SEDIMENT FROM STONE RINGS, SILT FENCE, AND SEDIMENT BASIN BEFORE IT REACHES 50% OF THEIR HEIGHT.
2. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PREVENT SEDIMENT AND CONSTRUCTION RELATED DEBRIS FROM ENTERING A PUBLIC STREET. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE ANY SEDIMENT AND/OR DEBRIS THAT ENTERS A PUBLIC STREET AT THE END OF EACH DAY.

EXISTING UNDERGROUND UTILITIES

CONTACT TENNESSEE ONE CALL AT 811 AT LEAST 3 DAYS BEFORE STARTING ANY EARTHWORK OR CONSTRUCTION FOR LOCATION OF EXISTING UNDERGROUND UTILITIES.

Adequate drainage, erosion and sediment control measures, best management practices, and/or other water quality management facilities shall be provided and maintained at all times during construction. Damages to adjacent property and/or the construction site caused by the contractor's or property owner's failure to provide and maintain adequate drainage and erosion/sediment control for the construction area shall be the responsibility of the property owner and/or contractor.

8-4-25

PROFESSIONAL SERVICES NOTES

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PO Box 4373, Johnson City, Tennessee 37602-4373
423-731-4733 todd@dtwoodengineering.com

NO.	REVISIONS	BY	DATE

EP & SC PLAN
JCHA-MYRTLE PHASE 2
1904 E. MYRTLE AVE
JOHNSON CITY, TENNESSEE

DATE: 8-4-25

C4

SITE PLANS REVISION

(WITH DUMPSTER PAD), 9-19-25

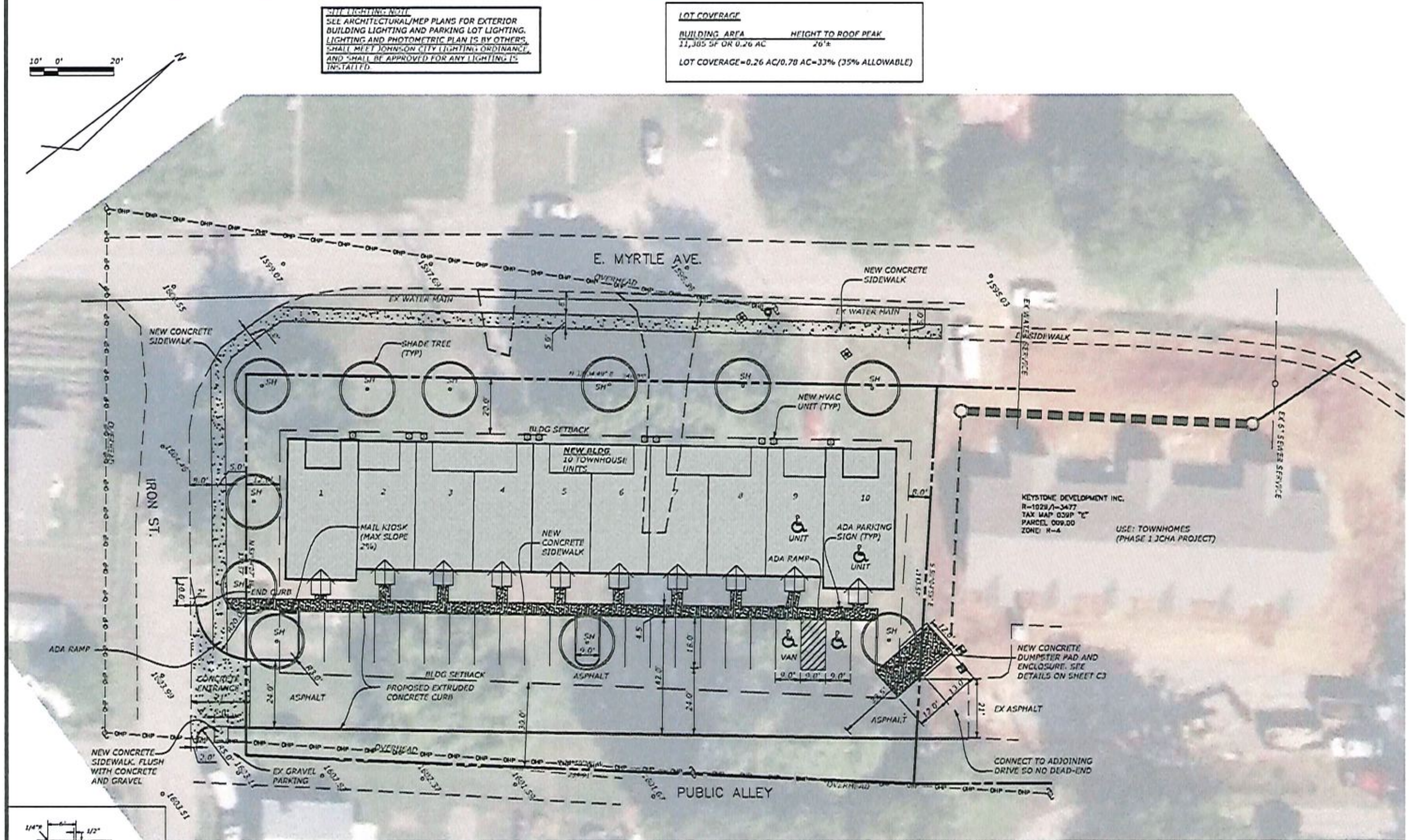
SUBMITTED TO CITY (AWAITING APPROVAL)

SITE LIGHTING NOTE
SEE ARCHITECTURAL/MEP PLANS FOR EXTERIOR BUILDING LIGHTING AND PARKING LOT LIGHTING. LIGHTING AND PHOTOMETRIC PLAN IS BY OTHERS, SHALL MEET JOHNSON CITY LIGHTING ORDINANCE, AND SHALL BE APPROVED FOR ANY LIGHTING IS INSTALLED.

LOT COVERAGE

BUILDING AREA	HEIGHT TO ROOF PEAK
11,385 SF OR 0.26 AC	26'±

LOT COVERAGE=0.26 AC/0.78 AC=33% (35% ALLOWABLE)



SITE NOTES

1. ZONE: R-4
2. SITE AREA: 0.78± ACRES
3. EXISTING USE: SINGLE FAMILY
4. PROPOSED USE: 10 **TOWNHOMES**
   - 4.1. 8-1 BEDROOM UNITS
   - 4.2. 2-2 BEDROOM UNITS
5. DENSITY
   - 5.1. ALLOWABLE: 14 DU/AC X 0.78 AC=10 DU
   - 5.2. PROPOSED: 10 DU
6. PARKING REQUIRED BY CITY CODE: 16
   - 6.1. 1 BR: 8 DU X 1.5/DU=12 SPACES
   - 6.2. 2 BR: 2 DU X 2/DU=4 SPACES
7. PARKING PROVIDED: 21
   - 7.0.1. 21 SPACES INCLUDING 2 HANDICAP SPACES
8. SETBACKS: FRONT: 20', REAR: 30', SIDE: 8', CORNER: 12'
9. PROPERTY OWNER N/F:
   JOHNSON CITY HOUSING AUTHORITY
   901 PARDEE ST, JOHNSON CITY, TN 37601
10. PROPERTY INFORMATION:
   - 10.1. TAX MAP 39, PARCELS 6.00, 6.01, 7.00, 8.00
     ADDRESS:1904 E. MYRTLE AVE
11. THERE IS NO FEMA FLOODPLAIN LOCATED ON THIS PROPERTY PER FIRM #47179C0179D DATED SEPTEMBER 29, 2006

LANDSCAPE CALCULATIONS

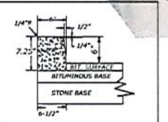
1. FRONTAGE LANDSCAPING
   - 1.1. MYRTLE AVE REQUIRED= 1 TREE/50' X 248'=5
   - 1.2. MYRTLE AVE PROVIDED= 5 SHADE TREES
   - 1.3. STEEL ST REQUIRED: 1 TREE/50' X 137'=3
   - 1.4. STEEL ST PROVIDED: 3 SHADE TREES
2. PARKING LOT
   - 2.1. TREES REQUIRED: 1 TREE/10 PS X 21 PS=3
   - 2.2. TREES PROVIDED: 3
3. PARKING LOT GREEN SPACE
   - 3.1. GREEN SPACE REQUIRED: 35 SF/PS X 21 PS=735 SF
   - 3.2. GREEN SPACE PROVIDED: 740 SF
4. BUFFER (NONE REQUIRED)

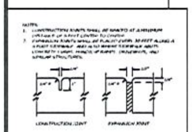
PLANT LIST

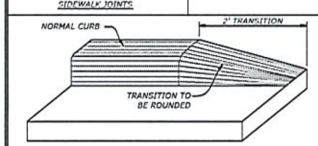
QUANTITY	KEY	NAME	SIZE
11	SH	SHADE TREE	2" CAL.

NOTES:
1. THIS SCHEDULE IS A GUIDE ONLY. CONTRACTOR SHALL VERIFY PLANT QUANTITIES BASED ON THE PLAN AND NOT RELY SOLELY ON THIS SCHEDULE.
2. THE SHADE TREES MAY BE RED MAPLE, WILLOW OAK, OTHER OAK, RIVER BIRCH, BALD CYPRESS, OR OTHER TREE ON THE JOHNSON CITY APPROVED TREE LIST.
3. PROVIDE AT LEAST 2 SPECIES OF SHADE TREES.

NO.	REVISIONS	BY	DATE


EXTRUDED 6" CONCRETE CURB


SIDEWALK JOINTS



CURB NOSE DOWN DETAIL AT ENTRANCE

PAVING MATERIALS

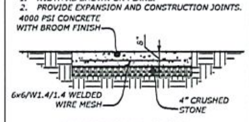
STANDARD DUTY ASPHALT
6" AGGREGATE BASE
1.75" BINDER COURSE
1.25" SURFACE COURSE

CONCRETE ENTRANCE
4" AGGREGATE BASE
8" 4000 PSI @28 DAYS CONCRETE

CONCRETE SIDEWALK
4" AGGREGATE BASE
4" 4000 PSI @28 DAYS CONCRETE

CONSTRUCTION STAKEOUT NOTE
USE THE ARCHITECT'S PLANS FOR CONSTRUCTION STAKEOUT OF THE BUILDINGS.

NOTES:
1. WIDTH AS SHOWN ON PLANS.
2. PROVIDE EXPANSION AND CONSTRUCTION JOINTS.



CONCRETE ENTRANCE SECTION

NOTES:
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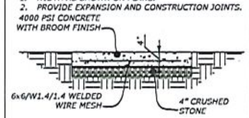
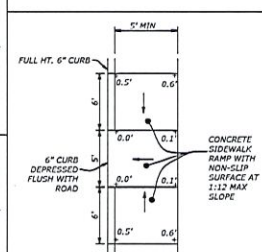


CONCRETE SIDEWALK SECTION

BUILDING SIDEWALK NOTE
THE SIDEWALKS ALONG THE PARKING LOT MAY BE EITHER EXTRUDED CURB WITH SIDEWALK POURED BEHIND OR A MONOLITHIC TURNED DOWN CONCRETE SLAB AS THE CURB AND SIDEWALK.



90° HANDICAP RAMP

NOTES:
1. WIDTH AS SHOWN ON PLANS.
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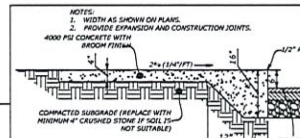
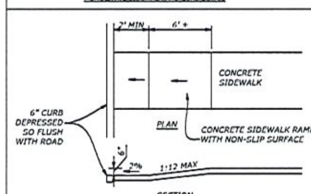
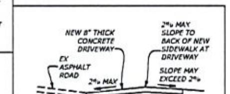


MONOLITHIC SIDEWALK AND CURB DETAIL

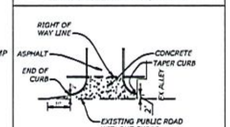


LONGITUDINAL HANDICAP RAMP

HANDICAP RAMP NOTE:
HR=HANDICAP RAMP. PROVIDE HANDICAP RAMP WITH MAXIMUM SLOPE OF 1:12 AT ALL HANDICAP PARKING AISLE INTERSECTIONS WITH CURBING AND AT THE SIDEWALK INTERSECTIONS WITH THE DRIVEWAY ENTRANCES. THE MAXIMUM SLOPE OUTSIDE OF RAMPS FROM THE HANDICAP SPACES TO THE DOORS IN THE TENANT SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION.



DRIVEWAY CROSS SECTION



DRIVEWAY CURB TRANSITION DETAIL

PARKING SPACE NOTES
1. REGULAR SPACES
   - 1.1. WIDTH=9'
   - 1.2. DEPTH=18'
2. HANDICAP SPACES
   - 2.1. WIDTH SHOWN=9'
   - 2.2. DEPTH=18'
   - 2.3. AISLE WIDTH SHOWN=9' (MAY BE 5' MINIMUM)
   - 2.4. VAN AISLE WIDTH=9' (MAY BE 8' MINIMUM)
3. STRIPING
   - 3.1. 4" WIDE WHITE TRAFFIC PAINT
   - 3.2. PROVIDE STRIPING AND SYMBOL (WHERE APPLICABLE) FOR HANDICAP SPACES PER DETAILS AND PLAN.
4. SIGNAGE
   - 4.1. PROVIDE HANDICAP SIGNAGE AT EACH HANDICAP SPACE AND PER DETAILS.

SURVEY NOTE
SURVEY INFORMATION PROVIDED BY:
TENNESSEE PROFESSIONAL SURVEYING, INC.
JOHNSON CITY, TN

EXISTING UNDERGROUND UTILITIES
CONTACT TENNESSEE ONE CALL AT 811 AT LEAST 3 DAYS BEFORE STARTING ANY EARTHWORK OR CONSTRUCTION FOR LOCATION OF EXISTING UNDERGROUND UTILITIES.

IMPERVIOUS AREAS = 0.6 ACRES

SHEET INDEX
- C1 SITE AND LANDSCAPE PLAN
- C2 GRADING & STORMWATER PLAN
- C3 UTILITY PLAN
- C4 EROSION & SEDIMENT CONTROL PLAN

STATE OF TENNESSEE
9-19-25

PROFESSIONAL SERVICES NOTES
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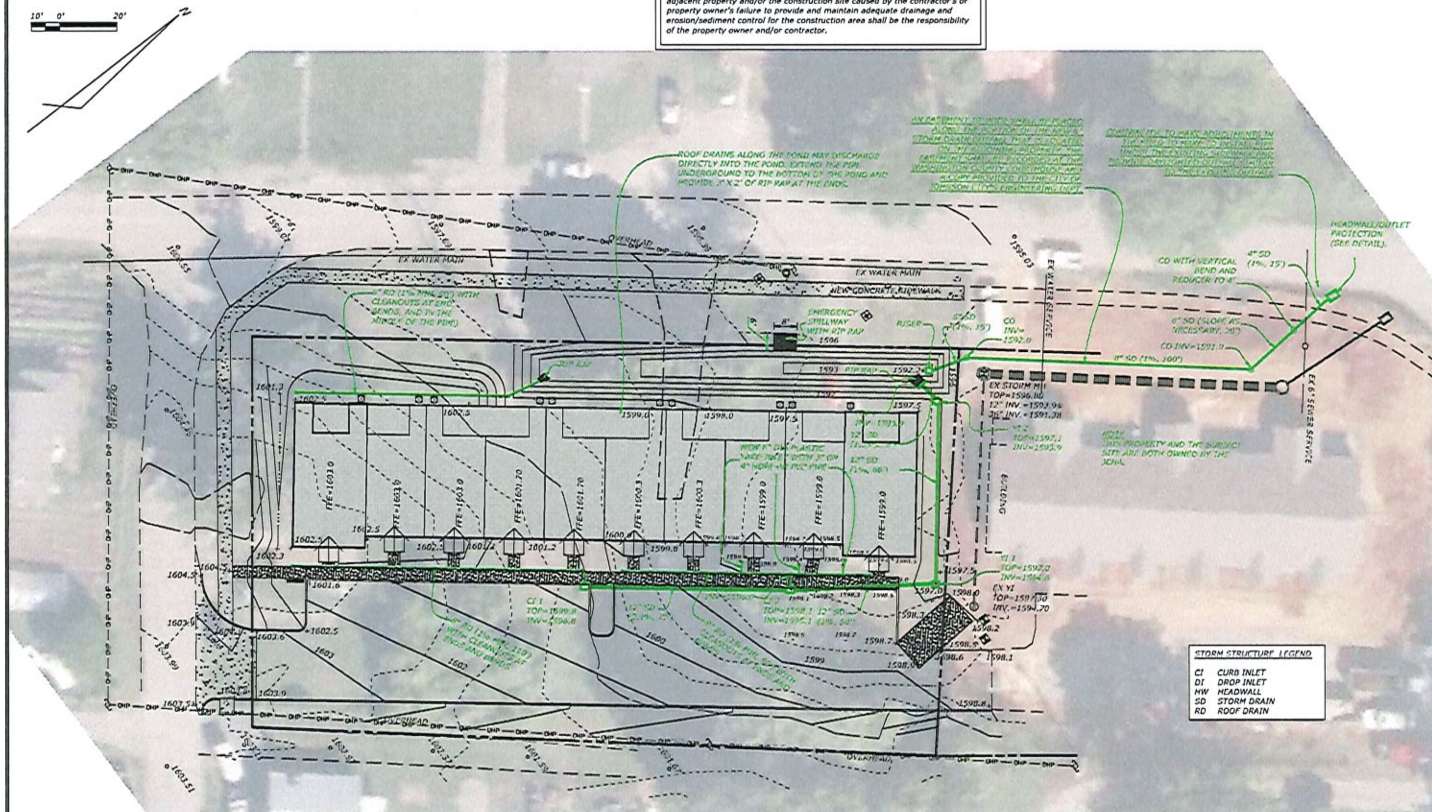
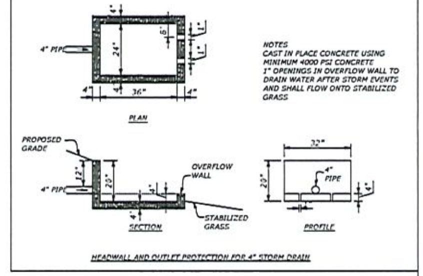
SITE AND LANDSCAPE PLAN
JCHA-MYRTLE PHASE 2
1904 E. MYRTLE AVE
JOHNSON CITY, TENNESSEE

DATE: 9-19-25

C1

Adequate drainage, erosion and sediment control measures, best management practices, and/or other water quality management facilities shall be provided and maintained at all times during construction. Damages to adjacent property and/or the construction site caused by the contractor's or property owner's failure to provide and maintain adequate drainage and erosion/sediment control for the construction area shall be the responsibility of the property owner and/or contractor.



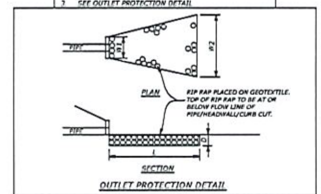


HEADWALL AND OUTLET PROTECTION FOR 4" STORM DRAIN

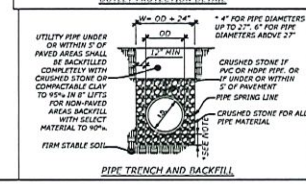
RIP RAP SCHEDULE

PIPE	D50	Dmax	D	L	W1	W2
8" OR LESS	4"	6"	9"	3'	2'	3'
12"	4"	6"	9"	6'	3'	6'

NOTES:
1. PLACE ON FILTER CLOTH.
2. STONE SHALL NOT BLOCK FLOW OF WATER FROM PIPE OR OTHER SURFACE.
3. SEE OUTLET PROTECTION DETAIL

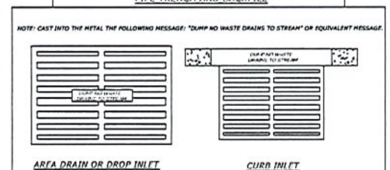


OUTLET PROTECTION DETAIL



PIPE TRENCH AND BACKFILL

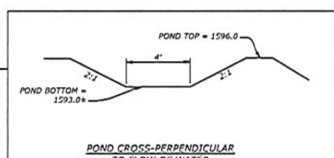
NOTE: CAST INTO THE METAL THE FOLLOWING MESSAGE: "DUMP NO WASTE DRAINS TO STREAM" OR EQUIVALENT MESSAGE.



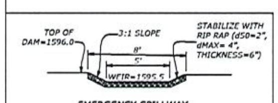
AREA DRAIN OR DROP INLET

CURB INLET

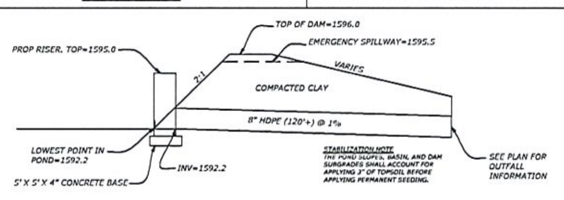
STORM DRAIN STRUCTURE CASTING



POND CROSS-PERPENDICULAR TO FLOW OF WATER

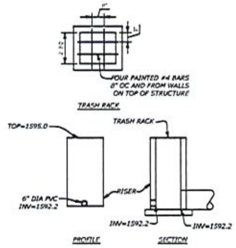


EMERGENCY SPILLWAY



STORMWATER POND DETAIL

NOTES:
1. RISER IS 2' X 2' INSIDE PRECAST CONCRETE OR DOUBLE ROW OF INTERLOCKING BRICK
2. PROVIDE TRASH RACK ON TOP.
3. SEE WATER QUALITY OPENING DETAIL FOR LOW FLOW ORIFICE.



POND RISER DETAIL

STORM DRAIN (SD) NOTES
1. STORM DRAINS MAY BE CMP (T2 ALUMINIZED) OR DOUBLE WALL HDPE, UNLESS OTHERWISE NOTED, AS LONG AS THE PIPES ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS FOR HEAVY DUTY LOADING.
2. STORM STRUCTURES MAY BE HEAVY DUTY PRECAST CONCRETE, HEAVY DUTY PRECAST CONCRETE KNOCKOUT BOXES, OR A DOUBLE ROW OF INTERLOCKING BRICK.
3. ALL GRATES AND STRUCTURES SHALL BE DESIGNED AND CONSTRUCTED FOR HEAVY DUTY LOADING (EXCEPT FOR YARD INLETS), SHALL HAVE ENVIRONMENTAL MESSAGE IN THE CASTING AND BE BICYCLE/WHEELCHAIR-SAFE .
4. TOP ELEVATION FOR ANY CURB INLET REFERS TO THE PAVEMENT/GUTTER ELEVATION.
5. BACKFILL ALL TRENCHES UNDER THE PAVEMENT COMPLETELY WITH CRUSHED STONE OR COMPACTED CLAY AS SHOWN IN THE TRENCH DETAIL.

ROOF DRAIN (RD) NOTES
1. CONFIRM EXACT LOCATION OF DOWNSPOUTS WITH ARCHITECT BEFORE INSTALLING ROOF DRAINS (RD).
2. ROOF DRAINS (RD) MAY BE SCH40 PVC OR DOUBLE WALL HDPE AS LONG AS THE PIPES ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS FOR HEAVY DUTY LOADING.
3. ALL CONNECTIONS SHALL BE WATERTIGHT.
4. PROVIDE REMOVABLE BOOT (FOR MAINTENANCE ACCESS) TO CONNECT DOWNSPOUT TO THE DRAIN PIPE.
5. PROVIDE MINIMUM 6" COVER IN GRASS OR PLANTING AREAS. PROVIDE MINIMUM 1.5' OF COVER IN PAVEMENT AREAS.
6. PROVIDE MINIMUM 1% SLOPE.
7. BACKFILL ALL TRENCHES UNDER THE PAVEMENT COMPLETELY WITH CRUSHED STONE.

STORM STRUCTURE NOTE
SEE UTILITY SHEET C3 FOR STORM STRUCTURE DETAILS

POND NOTES
1. TOP SOIL AND ORGANIC MATERIAL SHALL BE STRIPPED FROM THE EMBANKMENT AREA BEFORE CONSTRUCTION BEGINS.
2. ALL BACKFILL MATERIAL SHALL BE HIGHLY COMPACTABLE CLAY WITH NO ORGANIC MATERIAL AND PLACED IN 4" LIFTS.
3. THE BACKFILL AROUND THE PIPE AND RISER TO BE HAND COMPACTED.
4. CONTRACTOR SHALL ENSURE THERE ARE NO VOID SPACES UNDER THE PIPE.
5. OUTLET PIPE SHALL BE PLACED ON A HIGHLY COMPACTED SOIL FOUNDATION.
6. THE DAM AND BASIN SHALL BE STABILIZED WITH TOPSOIL, SEED, AND MULCH IMMEDIATELY AFTER THE POND CONSTRUCTION IS COMPLETED.

EXISTING UNDERGROUND UTILITIES

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9-19-25

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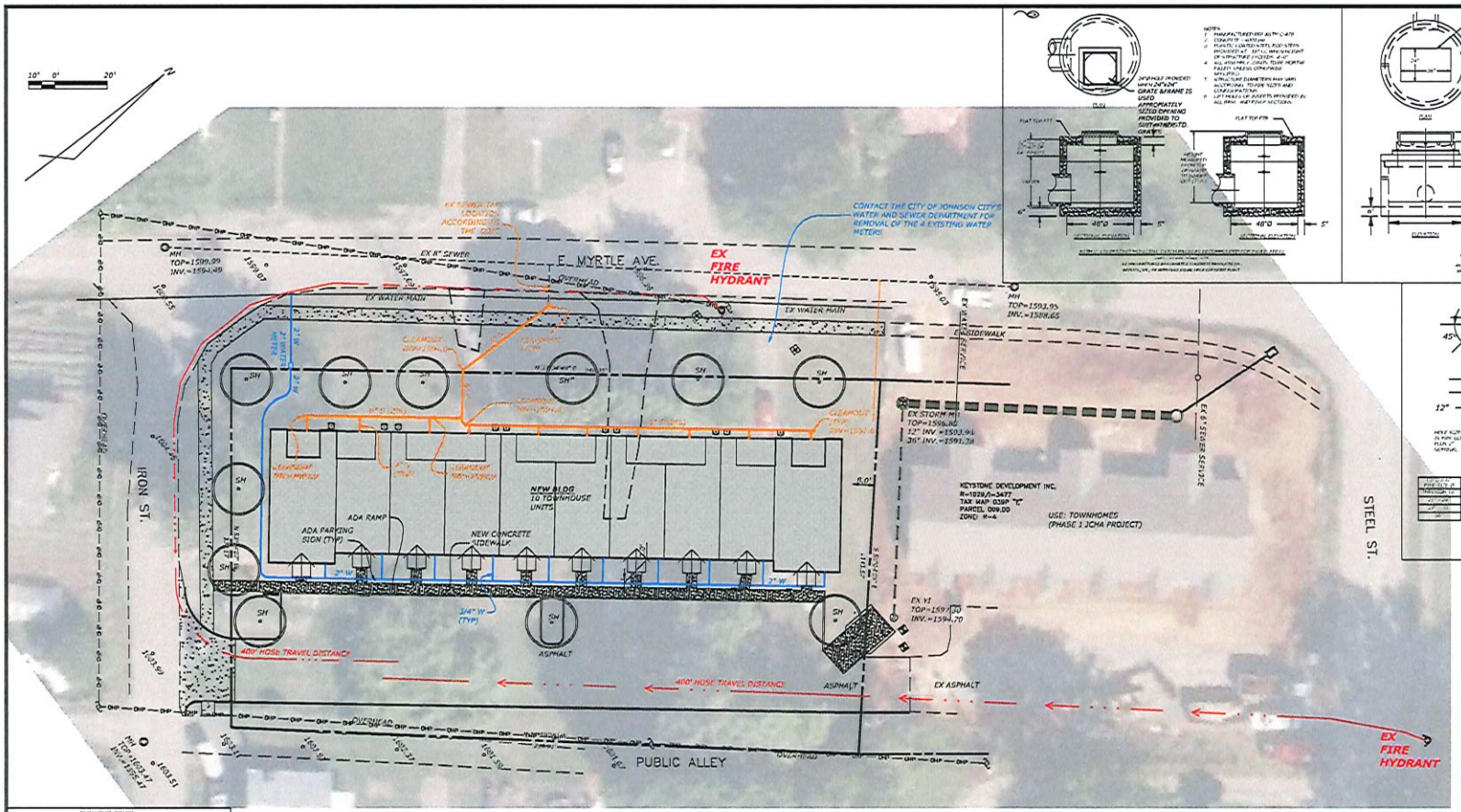
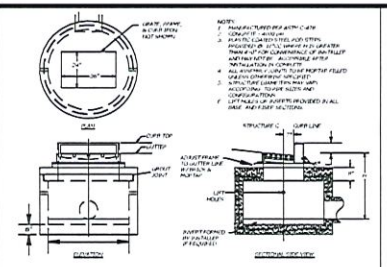
NO.	REVISIONS	BY	DATE

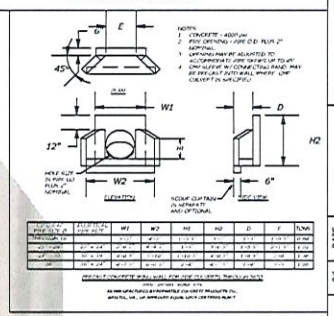
GRADING AND STORMWATER PLAN
JCHA-MYRTLE PHASE 2
1904 E. MYRTLE AVE
JOHNSON CITY, TENNESSEE

DATE: 9-19-25

C2



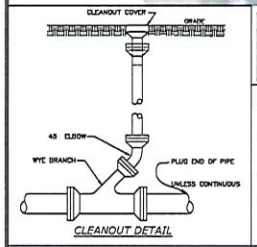




FIRE PROTECTION NOTE

THE DWELLING UNITS ARE TOWNHOMES-NOT STACKED APARTMENTS- SO NO SPRINKLER SYSTEM REQUIRED.

THERE ARE TWO EXISTING FIRE HYDRANTS NEAR THE SITE AS SHOWN ON THE PLANS.

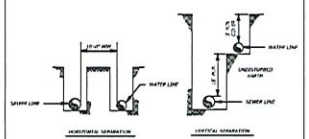


CLEANOUT DETAIL

SITE LIGHTING NOTE:
SEE ARCHITECTURAL/MEP PLANS FOR EXTERIOR BUILDING LIGHTING AND PARKING LOT LIGHTING. LIGHTING AND PHOTOMETRIC PLAN IS BY OTHERS. SHALL MEET JOHNSON CITY LIGHTING ORDINANCE AND SHALL BE APPROVED FOR ANY LIGHTING IS INSTALLED.

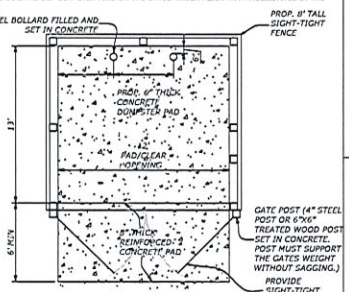
WATER NOTES:
1. ONSITE WATER LINES ARE PRIVATELY MAINTAINED.
2. THE 2" WATER LINE SHALL BE PVC SDR 21 OR POLYETHYLENE PIPE. THE 3/4" WATER LINES SHALL BE EXTERIOR PEX OR POLYETHYLENE PIPE.
3. PROVIDE MINIMUM 30" OF COVER FOR WATER LINES.
4. PROVIDE BACKFLOW PREVENTER, METERING CITY OF JOHNSON CITY REGULATIONS AND SPECIFICATIONS, INSIDE OF EACH UNIT. PROVIDE SHOP DRAWING FOR APPROVAL BY CITY OF JOHNSON CITY'S WATER DEPARTMENT.

SEWER NOTE:
1. SEWER LINES ONSITE ARE TO PRIVATELY MAINTAINED.
2. SEWER LINES TO BE SDR-35 PIPE BACKFILLED WITH STONE OR AS ALLOWED BY JOHNSON CITY CODES.
3. IF CLEANOUTS ARE LOCATED IN PAVEMENT AREAS THEY SHALL BE TRAFFIC BEARING.
4. PROVIDE CLEANOUTS OUTISDE OF EACH UNIT, ALL BENDS, AND EVERY 150' OR CLOSER.
5. VERIFY ALL EXISTING SEWER LOCATIONS AND DEPTHS BEFORE ORDERING SEWER PIPE. CONTACT ENGINEER IMMEDIATELY WITH ANY CONFLICTS.



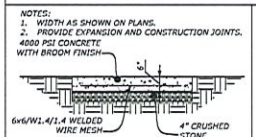
WATER & SEWER SEPARATION

NOTES:
1. FENCE AND GATE SHALL BE INSTALLED OUTSIDE OF THE MINIMUM DIMENSIONS SHOWN ON THE SITE PLAN FOR THE DUMPSTER PAD(S).
2. PROVIDE MEANS FOR GATE(S) TO BE HELD CLOSED AND OPEN DURING DUMPSTER LOADING OPERATIONS SUCH AS 0.5" DIAMETER PINS ON THE GATES WHICH ALIGN WITH HOLES/PIPES IN THE CONCRETE.



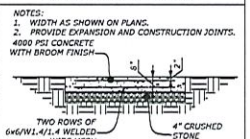
DUMPSTER ENCLOSURE

NOTES:
1. WIDTH AS SHOWN ON PLANS.
2. PROVIDE EXPANSION AND CONSTRUCTION JOINTS.

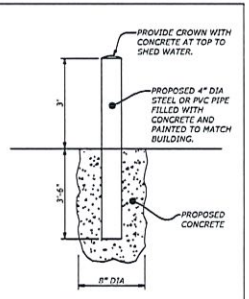


CONCRETE DUMPSTER PAD SECTION

NOTES:
1. WIDTH AS SHOWN ON PLANS.
2. PROVIDE EXPANSION AND CONSTRUCTION JOINTS.



REINFORCED CONCRETE PAD IN FRONT OF DUMPSTER



PIPE BOLLARD DETAIL

EXISTING UNDERGROUND UTILITIES

CONTACT TENNESSEE ONE CALL AT 811 AT LEAST 3 DAYS BEFORE STARTING ANY EARTHWORK OR CONSTRUCTION FOR LOCATION OF EXISTING UNDERGROUND UTILITIES.

9-19-25

PROFESSIONAL SERVICES NOTE:
1. DTWOOD ENGINEERING, INC. ONLY PROVIDES PROFESSIONAL ENGINEERING SERVICES AND DOES NOT PROVIDE SURVEYING SERVICES INCLUDING BOUNDARY SURVEYS OR PLATS.
2. ANY BOUNDARY SURVEY SHOWN ON THIS PLAN WITH PROPERTY LINES AND METES AND BOUNDS DESCRIPTION IS BY OTHERS AND WE TAKE NO RESPONSIBILITY FOR ITS ACCURACY.
3. ANY TOPOGRAPHIC INFORMATION SHOWN ON THIS PLAN WAS PROVIDED BY A LICENSED SURVEYOR AND/OR AVAILABLE PUBLIC DATA.

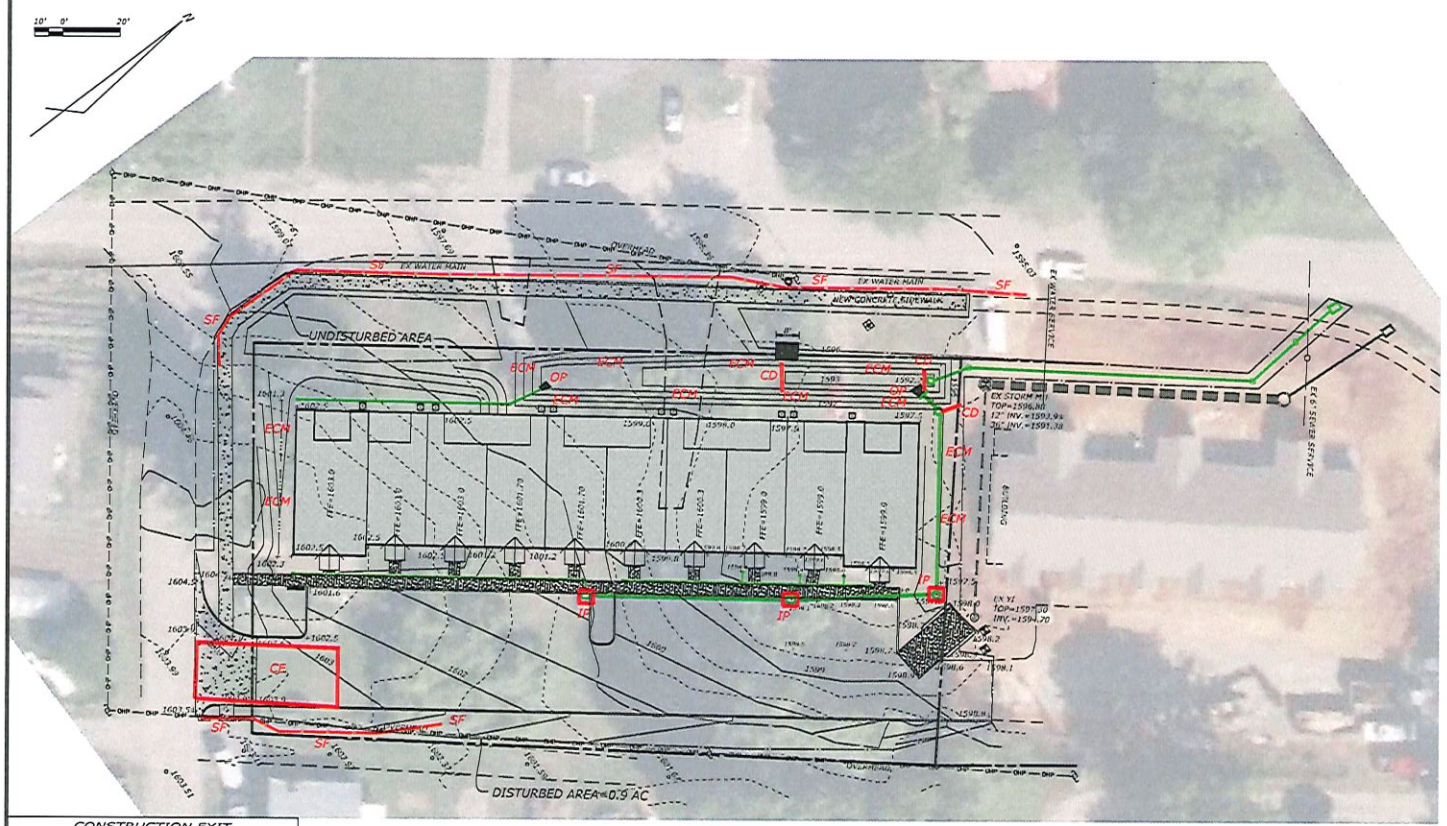
DTWood Engineering, Inc.
Land Development Design & Consulting
PO Box 4373, Johnson City, Tennessee 37602-4373
423-731-4732 tod@dtwoodengineering.com

NO.	REVISIONS	BY	DATE

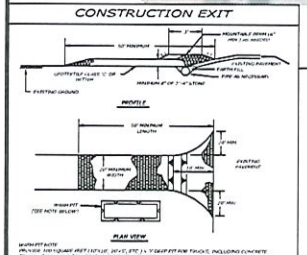
UTILITY AND FIRE PROTECTION PLAN
JCHA-MYRTLE PHASE 2
1904 E. MYRTLE AVE
JOHNSON CITY, TENNESSEE

DATE: 9-19-25

C3



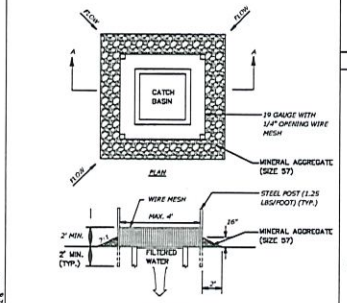
CONSTRUCTION EXIT



WARNING NOTE

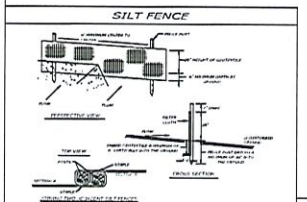
Construction Specification

1. Length - minimum of 50'
2. Width - 20' minimum, should be flared at the existing road to provide a turning radius. Maximum side slope of the stone is 2:1.
3. Geotextile fabric shall be placed over the existing ground prior to placing stone.
4. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
5. Location - A stabilized construction exit shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction exit.



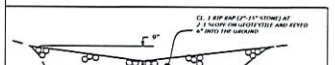
HARDWARE CLOTH AND GRAVEL INLET PROTECTION
(FLOW FROM ALL SIDES)

SILT FENCE



CONSTRUCTION SPECIFICATIONS

1. Fence posts shall be 2.25' (nominal) x 2.25" (nominal) square cut and be of sound quality hardwood or use steel posts will be standard T or U section weighing not less than 1.25 pond per linear foot.
2. Construction shall be fastened securely to each fence post with 3 - 17 ga. wire staples (1 in toe 8") for wood or 5 wire or plastic zip ties (50# min. tensile strength and 3 in top 8") for steel posts and shall meet the following requirements:
   - 2.1. Tension Strength: warp 120 lbs/in (min.), fill 100 lbs/in
   - 2.2. Bursting Strength: 250 lbs/sq in (min.)
   - 2.3. Flow Rate: 4 gpm/sq. ft (min.)
3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass per detail above or overlapped a minimum of 6".
4. Silt Fence shall be inspected before and after each rainfall event and maintained when height occur at when sediment accumulation reached 50% of the fabric height.



CHECK DAM
NOT TO SCALE

EP & SC LEGEND

CE	CONSTRUCTION EXIT
SF	SILT FENCE
IP	INLET PROTECTION
OP	OUTLET PROTECTION
ECM	EROSION CONTROL MATTING
CD	CHECK DAM

SEQUENCE OF CONSTRUCTION

1. INSTALL STONE CONSTRUCTION EXIT AND SILT FENCE.
2. ROUGH GRADE THE SITE. TEMPORARILY STABILIZE WITHIN 14 DAYS THOSE DISTURBED AREAS THAT WILL HAVE NO GRADING ACTIVITY FOR MORE THAN 14 DAYS. FOR SLOPES STEEPER THAN 3:1, TEMPORARILY STABILIZE WITHIN 7 DAYS THOSE AREAS THAT GRADING ACTIVITY HAS TEMPORARILY CEASED.
3. CONTINUE TO GRADE THE SITE AND INSTALL THE STORM DRAIN SYSTEM INCLUDING THE POND. INSTALL INLET PROTECTION, OUTLET PROTECTION, AND CHECK DAMS.
4. CONSTRUCT THE BUILDING, DRIVE, PARKING, AND UTILITIES.
5. FINALIZE THE GRADING. PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN 14 DAYS OF COMPLETING THE FINAL GRADING. FOR SLOPES STEEPER THAN 3:1, PERMANENTLY STABILIZE WITHIN 7 DAYS THOSE AREAS THAT GRADING ACTIVITY HAS BEEN COMPLETED.
6. ONCE ALL DISTURBED AREAS ARE STABILIZED WITH IMPERVIOUS AREA, A THICK STAND OF GRASS, OR OTHER VEGETATION, PERFORM FOLLOWING:
   - 6.1. REMOVE CHECK DAMS AND ACCUMULATED SEDIMENT FROM THE POND AND THEN STABILIZE ANY REMAINING DISTURBED AREAS.
   - 6.2. REMOVE EROSION AND SEDIMENT CONTROL DEVICES.

EXISTING UNDERGROUND UTILITIES

CONTACT TENNESSEE ONE CALL AT 811 AT LEAST 3 DAYS BEFORE STARTING ANY EARTHWORK OR CONSTRUCTION FOR LOCATION OF EXISTING UNDERGROUND UTILITIES.

EP&SC MAINTENACE NOTE

1. REMOVE ACCUMULATED SEDIMENT FROM STONE RINGS, SILT FENCE, AND SEDIMENT BASIN BEFORE IT REACHES 50% OF THEIR HEIGHT.
2. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PREVENT SEDIMENT AND CONSTRUCTION RELATED DEBRIS FROM ENTERING A PUBLIC STREET. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE ANY SEDIMENT AND/OR DEBRIS THAT ENTERS A PUBLIC STREET AT THE END OF EACH DAY.

Spills and Non-Stormwater Contingencies

1. Construction vehicles shall clean mud from their tires and body on-site so that the sediment will flow to the wash pit near the construction exit and/or the sediment control devices. Any sediment that ends up in the street or other places offsite shall be cleaned up with a shovel and broom or other means before the next rainfall but shall not be washed away using water. The cleaned up sediment shall be placed back onsite or taken to another site with an approved and functioning sediment control plan.
2. Vehicles and equipment shall be fueled onsite near the construction exit in a designated containment area. Clean up any fuel spill immediately. Contaminated soils will be placed on heavy plastic and covered or placed in approved containers to prevent contact with stormwater. All fuel tanks shall be stored in the containment area. All oil, other vehicle fluids, solvents, paint, etc. shall be stored in a construction trailer or other approved container.
3. Absorbent material (for land based spills), booms (for spills into waterways), and other hazardous material cleanup tools as necessary shall be available for immediate use if an onsite spill occurs. If a spill of hazardous materials occurs, the spill shall be contained immediately and then completely cleaned up. If the spill has entered a water source, sinkhole, storm drain, or other stormwater conveyance, the local governmental authority shall be contacted immediately. Any contaminated material from the cleanup shall be disposed of in accordance with all State laws.
4. Ready-mix concrete trucks shall wash out their equipment into a designated wash pit near the construction exit. This wash pit is to trap the concrete and its wash. The contractor shall maintain this pit(s) as necessary to always have at least 50% volume. Any material removed from the wash pit shall be used for fill material onsite or disposed of in accordance with all State and Federal regulations. Wash from the concrete trucks and any overflow from the wash pit shall not be allowed to discharge to a sediment basin, trap, pond, storm drain, ditch, stream, other stormwater conveyance, or to waters of the State including both surface and groundwater.
5. All hazardous materials such as empty or partially empty paint cans, oil cans, filters, cleaning fluid, etc. shall be disposed of by taking them to a permitted hazardous material disposal site in accordance with State laws.
6. The washing of paint tools or other hazardous material equipment must be performed and disposed of in accordance with all State and Federal regulations. The cleaning residue from such equipment is hazardous and can not be discharged onto the ground or into a sediment basin, trap, pond, storm drain, ditch, stream, other stormwater conveyance, or to waters of the State including both surface and groundwater and shall be disposed of in accordance with State laws.
7. Litter, construction materials, construction debris, construction chemicals, and other hazardous materials exposed to storm water shall be picked up prior to anticipated storm events or before being carried off of the site by wind (e.g., forecasted by local weather reports), or otherwise prevented from becoming a pollutant source for storm water discharges. Litter, construction materials, construction debris, construction chemicals, and other hazardous materials shall not be allowed to enter a sediment basin, trap, pond, storm drain, ditch, stream, other stormwater conveyance, or to waters of the State. This can be accomplished by screening outfalls, daily pickup or cleanup, or other methods.
8. After their use, materials used for erosion prevention and sediment control should be removed or otherwise prevented from becoming a pollutant source for storm water discharges.
9. Contractor is responsible for litter control and cleanup.
10. Sediment controls shall be provided for any water distribution or waste disposal system onsite including sanitary sewer or septic systems.

STABILIZATION NOTE

STABILIZE POND SLOPES, SWALES, AND ALL SLOPES STEEPER THAN 3:1 WITH EROSION CONTROL MATTING (NORTH AMERICAN GREEN S75 FOR SLOPES AND SC150 FOR SWALES OR EQUIVALENT) AND PERMANENT SEEDING. INSTALL PER MANUFACTURER'S SPECIFICATIONS.

TEMPORARY SEED MIX

1. APPLY EVENLY DISTRIBUTED MIX OF ANNUAL RYE, KOREAN LESPEDEZA, AND SUMMER OATS AT 50#/ACRE (OR AS DIRECTED BY SEED SPECIALIST):
2. IF SEEDED FROM NOVEMBER THROUGH FEBRUARY, APPLY CEREAL RYE AT 50#/ACRE. IN MARCH, APPLY THE ABOVE MIX IF THE AREA WILL CONTINUE TO BE TEMPORARILY UNDISTURBED.

PERMANENT SEED MIX

1. APPLY 100% KY31 TALL FESCUE AT 150#/ACRE (OR AS DIRECTED BY SEED SPECIALIST):
2. IF SEEDED FROM NOVEMBER THROUGH FEBRUARY, ADD CEREAL RYE AT 50#/AC TO THE ABOVE MIX.

Adequate drainage, erosion and sediment control measures, best management practices, and/or other water quality management facilities shall be provided and maintained at all times during construction. Damages to adjacent property and/or the construction site caused by the contractor's or property owner's failure to provide and maintain adequate drainage and erosion/sediment control for the construction area shall be the responsibility of the property owner and/or contractor.

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NO.	REVISIONS	BY	DATE

EP & SC PLAN
JCHA-MYRTLE PHASE 2
1904 E. MYRTLE AVE
JOHNSON CITY, TENNESSEE

DATE: 9-19-25

C4