

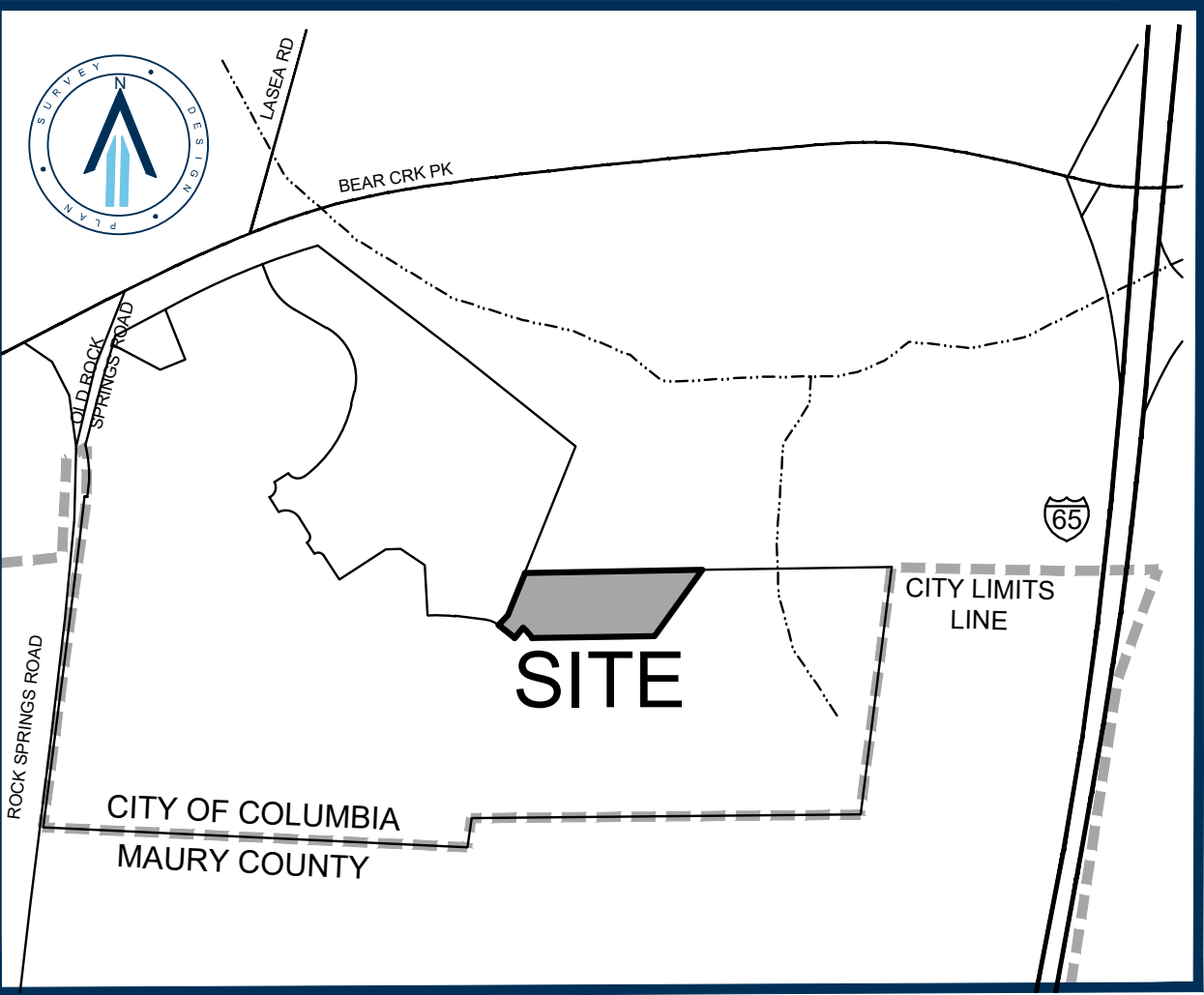


The Columbia Planning Commission Development Review Committee will meet on Tuesday, March 11, 2025 at 10:00 AM in Conference Room B, First Floor, City Hall, to consider the following:

I. Items For Review

1. Request from Jacob Vincent for Final Plat approval with surety of Bear Springs Subdivision Phase 1B at [Tax Map 92 Parcel 12.05 off Bear Creek Pike and Octavia Way.](#)
2. Request from Wilson & Associates for Final Plat approval with surety for Hillcrest Village Subdivision at Tax Map 113 Parcels 80.51 and 80.53 off [Pulaski Highway and Peaceful Valley Drive.](#)
3. Request from Owen Hosay for Final Plat approval with surety of Marlon's Creek Subdivision Phase 1A at Tax Map 73 Parcel 15, being a portion of [1686 Lasea Road.](#)
4. Request from Owen Hosay for Final Plat approval with surety of Marlon's Creek Subdivision Phase 1B at [Tax Map 73 Parcel 15, being a portion of 1686 Lasea Road.](#)
5. Request from Davide Tocci for Final Plat approval with surety of Bear Creek Glen Subdivision Phase 2 off [Harley Davidson Blvd. and Cheltenham Place at Tax Map 72 Parcel 53.](#)
6. Request from Allen B. O'Leary for Preliminary and Final Plat approval with surety at [Tax Map 89 Parcel 41.14 off N. James M. Campbell Blvd.](#)
7. Request from Julia Lannon for Preliminary and Final Plat approval with surety of Columbia Commons subdivision located at [115 S. James M. Campbell Blvd. and Nicholas Long Drive.](#)

8. Request from R&C Enterprises for Site Development Plan with Alternative Performance approval of new commercial at [Tax Map 75 Parcel 34.03 off Nashville Highway and W. Burt Drive.](#)
9. Request from Preston Ayer for Preliminary Plat and Site Development Plan approval of a new outparcel at [800 S. James M. Campbell Blvd., being a portion of Tax Map 100N Group L Parcels 6 and 7.](#)



LOCATION MAP
NOT TO SCALE

GENERAL NOTES

- THE PURPOSE OF THIS PLAT IS TO CREATE A MULTI-FAMILY LOT FOR 35 RESIDENTIAL TOWNHOME UNITS AND TO DEDICATE RIGHT-OF-WAY AND EASEMENTS.
- BEARINGS SHOWN HEREON ARE BASED ON THE TENNESSEE COORDINATE SYSTEM OF 1983.
- THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM VISIBLE APPURTENANCES AT THE SITE. PUBLIC RECORDS AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA. EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THEREFORE, RELIANCE UPON THE TYPE, SIZE AND LOCATION OF UTILITIES SHOWN SHOULD BE DONE SO WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO IS MADE. AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY. IN TENNESSEE IT IS A REQUIREMENT, PER "THE UNDERGROUND UTILITY DAMAGE PREVENTION ACT", THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOWN UNDERGROUND UTILITY OWNERS, NO LESS THAN (3) THREE OR MORE THAN (10) TEN WORKING DAYS PRIOR TO THE DATE OF THEIR INTENT TO EXCAVATE AND ALSO TO AVOID ANY POSSIBLE HAZARD OR CONFLICT. TENNESSEE ONE CALL 811.
- THIS PROPERTY IS CURRENTLY ZONED R-PUD AND IS VESTED UNDER A PREVIOUS PUD SUBJECT TO THE PREVIOUS ZONING ORDINANCE 3638.

SETBACKS:
STREET YARD: 22'
SIDE YARD: 0' SHARED SIDE WALL, 20'
REAR YARD: 20'
- BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONE X, AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 4711800105E, WITH AN EFFECTIVE REVISED DATE OF APRIL 15, 2007 WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT, COMMUNITY NO. 470123 PANEL NO. 0195, SUFFIX E WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" UNDER "OTHER AREAS" AS AN AREA DETERMINED TO BE OUTSIDE THE 2% ANNUAL FLOODPLAIN.
- ALL SIDEWALKS OUTSIDE THE RIGHT-OF-WAY SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
- THE STORMWATER MAINTENANCE AGREEMENT IS RECORDED IN BOOK R3032, PAGE 1253, REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.

LEGEND
R.O.M.C.T. REGISTER'S OFFICE FOR
MAURY COUNTY, TENNESSEE

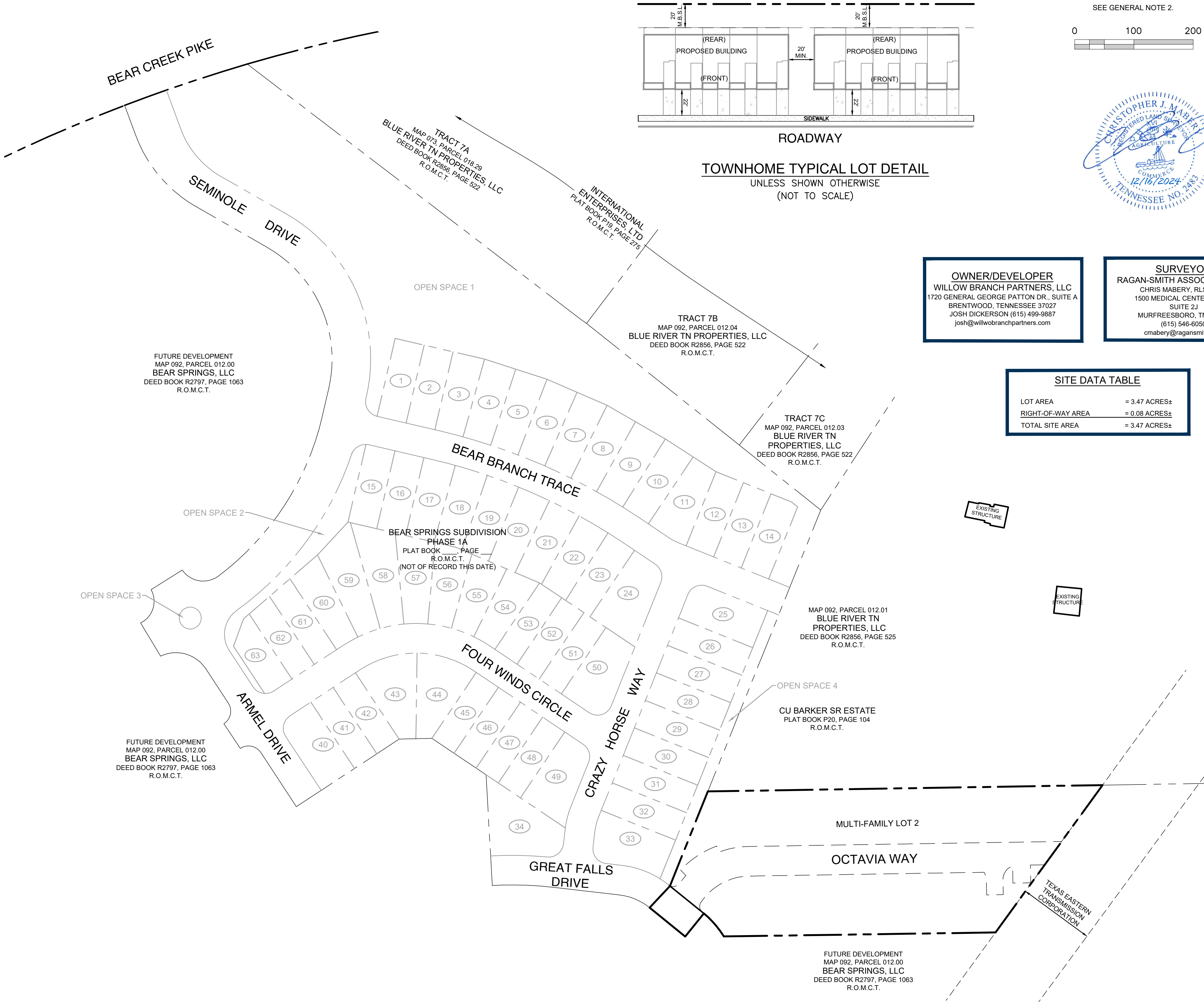


PROPERTY MAP REFERENCE

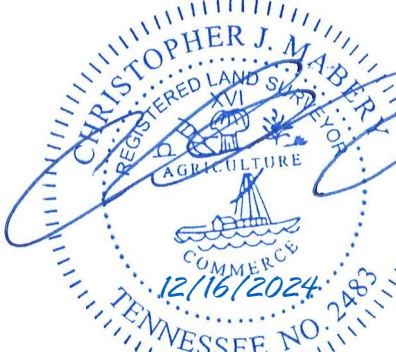
BEING A PORTION OF PARCEL NUMBER 12.05 AS SHOWN ON MAURY COUNTY PROPERTY MAP NUMBER 092.

DEED REFERENCE

BEING A PORTION OF THE SAME PROPERTY CONVEYED TO WILLOW BRANCH PARTNERS, LLC FROM BEAR SPRINGS, LLC BY SPECIAL WARRANTY DEED OF RECORD IN DEED BOOK R2964, PAGE 726, REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.



SEE GENERAL NOTE 2.



OWNER/DEVELOPER
WILLOW BRANCH PARTNERS, LLC
1720 GENERAL GEORGE PATTON DR., SUITE A
BRENTWOOD, TENNESSEE 37027
JOSH DICKERSON (615) 499-9887
josh@willowbranchpartners.com

SURVEYOR
RAGAN-SMITH ASSOCIATES, LLC
CHRIS MABERY, RLS #2483
1500 MEDICAL CENTER PKWY., SUITE 2J
MURFREESBORO, TN 37129
(615) 546-6053
cmabery@ragansmith.com

CERTIFICATE OF OWNERSHIP AND DEDICATION

I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AS EVIDENCED IN DEED BOOK R2964, PAGE 726, MAURY COUNTY REGISTER'S OFFICE AND ADOPT THIS FINAL SUBDIVISION PLAT OR THE PROPERTY AS SHOWN HEREON AND DEDICATE ALL PUBLIC WAYS AND EASEMENTS AS NOTED WITH MY (OUR) FREE CONSENT.

OWNER(S) _____ DATE _____

TITLE (IF ACTION FOR CORPORATION OR PARTNERSHIP) _____

CERTIFICATE OF ACCURACY

I (WE) HEREBY CERTIFY THAT TO THE BEST OF MY (OUR) KNOWLEDGE AND BELIEF THIS IS A TRUE AND ACCURATE SURVEY OF THE PROPERTY SHOWN HEREON; THAT THIS IS A CATEGORY "I" LAND SURVEY AS DEFINED IN TITLE 62, CHAPTER 18, TENNESSEE CODE ANNOTATED, AND THAT THE RATIO OF PRECISION IS GREATER THAN OR EQUAL TO 1:10000.

RAGAN-SMITH ASSOCIATES, LLC

CHRISTOPHER J. MABERY, RLS NUMBER 2483, DATE 12/16/2024

CERTIFICATE OF THE APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT THE WATER SYSTEM(S) OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS/HAVE BEEN INSTALLED IN ACCORDANCE WITH CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS, OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

NAME _____ DATE _____

TITLE _____ AUTHORIZING AGENCY _____

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE, AND UTILITIES

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE, AND UTILITIES OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR A PERFORMANCE SURETY IN THE AMOUNT OF \$ _____ FOR STREETS AND DRAINAGE HAS BEEN POSTED WITH THE CITY OF COLUMBIA, TENNESSEE, TO ASSURE COMPLETION OF SUCH IMPROVEMENTS.

CITY ENGINEER _____ DATE _____
COLUMBIA, TENNESSEE

CERTIFICATE OF APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE FINAL SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE CITY OF COLUMBIA SUBDIVISION REGULATIONS, WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS NOTED IN THE MINUTES OF THE COLUMBIA MUNICIPAL PLANNING COMMISSION, AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE MAURY COUNTY REGISTER OF DEEDS.

PLANNING DIRECTOR _____ DATE _____
COLUMBIA, TENNESSEE

CERTIFICATE OF SUBDIVISION NAME AND STREET NAMES

SUBDIVISION NAME AND STREET NAMES APPROVED BY THE CITY ENGINEERING DEPARTMENT AND BY E-911 MAURY COUNTY.

MAURY COUNTY E-911 _____ DATE _____

CERTIFICATE OF SANITARY SEWER SYSTEM

I HEREBY CERTIFY THAT THE SANITARY SEWER SYSTEM OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS BEEN INSTALLED IN ACCORDANCE WITH THE CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS, OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

DIRECTOR OF WASTEWATER DEPARTMENT _____ DATE _____
COLUMBIA, TENNESSEE

CERTIFICATE OF COMPLIANCE

I HEREBY CERTIFY THAT THE FINAL SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE CITY OF COLUMBIA SUBDIVISION REGULATIONS AND OTHER ADOPTED ORDINANCES AND POLICIES.

CITY ENGINEER _____ DATE _____
COLUMBIA, TENNESSEE

FINAL SUBDIVISION PLAT

BEAR SPRINGS SUBDIVISION PHASE 1B

4TH CIVIL DISTRICT OF MAURY COUNTY,
CITY OF COLUMBIA, TENNESSEE

REVISED: DECEMBER 16, 2024
DATE: OCTOBER 21, 2024 SCALE: 1"=100'
JOB NUMBER: 21-0311

RECORDER'S INFORMATION



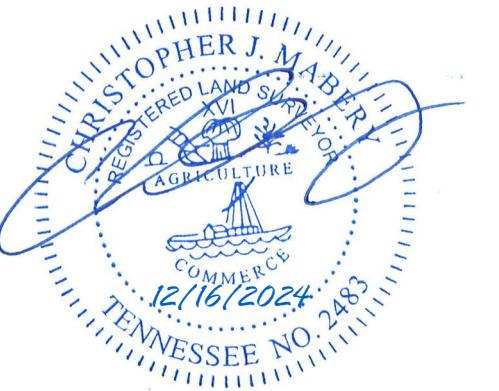
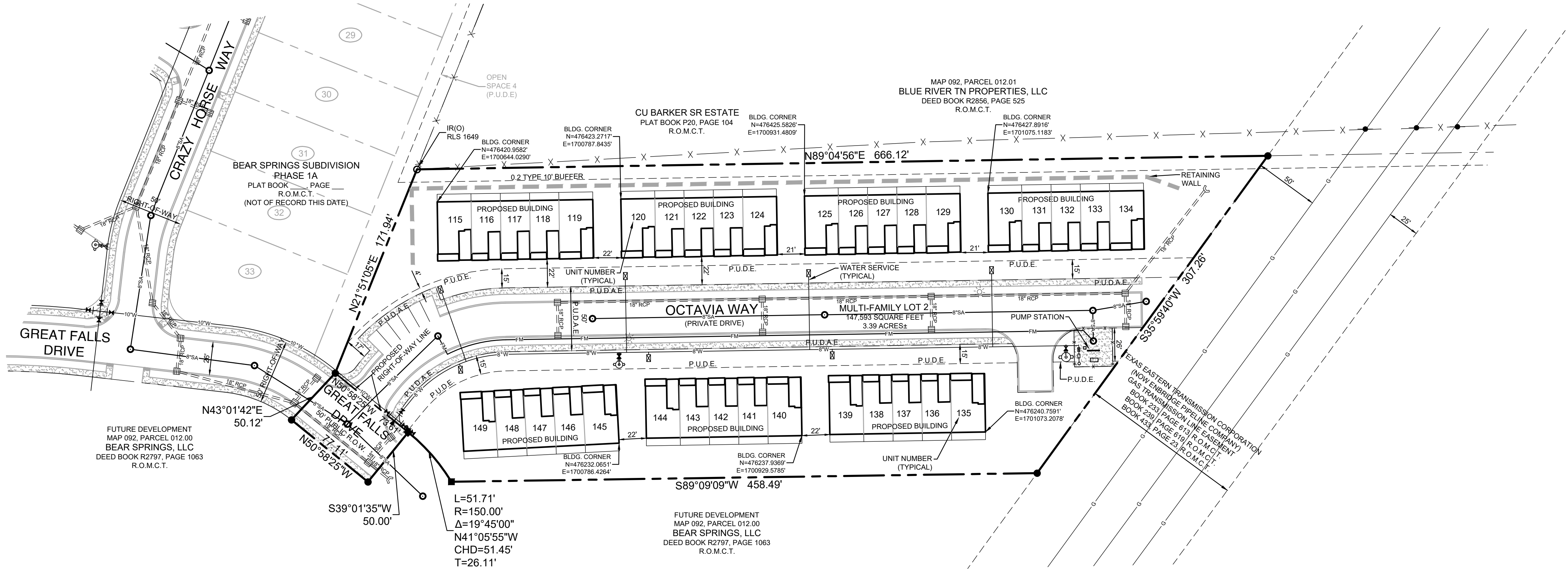
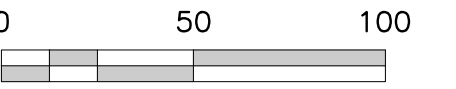
RaganSmith
a Pape Dawson company

NOTE

SEE SHEET 1 FOR GENERAL NOTES, LOT AREA TABLES, REFERENCES, ETC.



SEE GENERAL NOTE 2.



RECORDER'S INFORMATION

LEGEND

- IRON ROD (NEW)
(1/2" X 18" W/ CAP STAMPED)
"RAGAN SMITH & ASSOCIATES"
- MONUMENT (NEW)
1/2" Iron Rod W/ 4" Diameter
Aluminum Disc Marked
Ragan-Smith Associates
- FIRE HYDRANT
- WATER VALVE
- CATCH BASIN
- RCP
REINFORCED CONCRETE PIPE
- HEADWALL
- SANITARY SEWER MANHOLE
- SANITARY SEWER LINE
- SEWER FORCE MAIN LINE
- WATER LINE
- STREET LIGHT
- FENCE
- P.U.D.E. PUBLIC UTILITY AND DRAINAGE EASEMENT
- P.U.D.A.E. PUBLIC UTILITY, DRAINAGE AND ACCESS EASEMENT
- R.O.M.C.T. REGISTER'S OFFICE FOR
MAURY COUNTY, TENNESSEE

NOTE

UTILITY SYMBOLS SHOWN IN LEGEND AND DRAWING
ARE NOT TO SCALE. FOR GRAPHIC REPRESENTATION
ONLY. PLEASE SEE DETAIL SHEETS ON ENGINEERING
PLANS WITH SPECIFICATIONS FOR PROPER SIZING.



FINAL SUBDIVISION PLAT
BEAR SPRINGS SUBDIVISION
PHASE 1B
4TH CIVIL DISTRICT OF MAURY COUNTY,
CITY OF COLUMBIA, TENNESSEE
REVISED: DECEMBER 16, 2024
DATE: OCTOBER 21, 2024 SCALE: 1"=100'
JOB NUMBER: 21-0311



Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

26th day of September, 2024,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Willow Branch Partners LLC, the DEVELOPER (hereinafter the
"DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made
a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter
the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal
Planning Commission (hereinafter the "CMPC") on the

26th day of September, 2024,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of
Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such
development; and,

WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it
will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and
common areas to be constructed within and to serve the PROJECT including but not be limited to roads,
bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street
lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS");
and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public
infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to
construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances
of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost;
and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements
as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council
approval by resolution, and subject to the applicant's compliance with all requirements in this
agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in multiple originals by persons properly authorized so, to do on or as of the day and year first given.

PROJECT	
Completed by the Developer	Completed by the City
<u>Willow Branch Partners LLC</u> DEVELOPER NAME	
<u>Greg Templeton</u> AUTHORIZED AGENT NAME	
<u>[Signature]</u> SIGNATURE	
<u>9/26/24</u> DATE	
<u>1720 General George Patton Dr., Ste A</u> STREET	
<u>Brentwood, TN 37027</u> CITY, STATE, ZIP	
<u>615-499-9997</u> PHONE	
<u>josh@willowbranchpartners.com</u> EMAIL	
Attest	Attest
<u>Paul Winegar</u> ATTEST NAME	
<u>[Signature]</u> ATTEST SIGNATURE	
<u>9/27/2024</u> DATE	



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

Final Plat: * 1 hard copy of all materials for submittal + PDF copy on a USB flash drive (no multiple applications on one storage device)

Fold hard copy submittals larger than 8½"x11"

All Others: * Please submit the Application online at [City of Columbia | Permitting \(onlana.com\)](http://City of Columbia | Permitting (onlana.com))

ADDRESS/LOCATION	1449 Rock Springs Road		
	TAX MAP: 92	GROUP:	PARCEL: p/o 12.05
SUMMARY OF NATURE OF REQUEST AND WORK	Final Plat Approval for Bear Springs Phase 1B		

DATE OF PRE-APPLICATION CONFERENCE	9/25/24	Pre-application meetings are scheduled for Wednesdays.
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SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Comprehensive Plan Amendment ☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☒ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Site Development Plan ☐ Other: <i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	<u>Annexations:</u> ☐ Annexation Permission Form <u>Annexations/Rezoning/Plan Amendments:</u> ☐ Requested Zone Listed ☐ Statement of Compliance with Comprehensive Plan ☐ Concept Plan <u>Preliminary Plats/Site Development Plans:</u> ☐ Plans and/or Plats conforming to City standards with signed and completed check list <u>All Annexations/Rezoning/Preliminary Plats/Site Development Plans and PUDS:</u> ☐ Receipt of Payment for Pre-Application Meeting ☐ Written Legal Description copy ☐ Columbia Water System Availability Letter ☐ Columbia Waste Water Department Will Serve Letter

	Plats/PUDs:
	☒ Project Name (include Sections & Phases) <u>Bear Springs - Phase 1B</u>
	☒ Total Number of Lots/Residential Units <u>35 Residential Units</u>
	☐ Square Footage of Non-Residential Floor Space
☒ Total acreage <u>3.47 acres</u>	

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application. Any requests to defer or move the item to future meeting dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Jacob Vincent	PHONE	(615) 244-8591
ADDRESS	P.O. Box 60070 Nashville, TN 370206-0070	EMAIL	jvincent@ragansmith.com

PROPERTY OWNER NAME	Willow Branch Partners & Bear Springs LLC	PHONE	615-499-9887
ADDRESS	1720 Gen. George Patton Dr. Brentwood, TN 37027	EMAIL	Paul@willowbranchpartners.com

If owner is not a natural person, documentation must be provided showing signing authority on behalf of the entity. If multiple persons are listed as owners in the records of the Maury County Assessor, all owners must sign or the signatory must provide documentation of authority to apply on behalf of record owner (i.e., Power of Attorney or notarized Letter of Authorization). In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

<u>Jacob Vincent</u> APPLICANT NAME	 APPLICANT SIGNATURE	<u>10/18/24</u> DATE
 PROPERTY OWNER NAME	 PROPERTY OWNER SIGNATURE	<u>10/14/2024</u> DATE

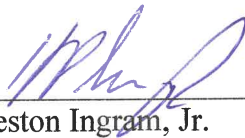
CONSENT ACTION AND RESOLUTION
WILLOW BRANCH PARTNERS, LLC, A TENNESSEE LIMITED LIABILITY
COMPANY

The undersigned, being the Sole Member and Chief Manager of Willow Branch Partners, LLC, a Tennessee limited liability company ("Company"); authorizes Paul Winegar as Authorized Agent to sign the following documents on behalf of the Company:

1. Contracts , Amendments/Addendums, Warranties and any related documents for the sale of new homes
2. Notice of Completions
3. Lead Pipe Certifications
4. FHA/VA builder documents
5. New Vendor Authorizations
6. Vendor rebate applications or forms

However, without the approval of the Sole Member, this consent does not include the ability to sign for any credit applications with new vendors or sign for any debt on behalf of the company.

Witness my hand this 14th day of October, 2020.



Henry Preston Ingram, Jr.

A graphic scale bar and a north arrow. The scale bar is horizontal and marked with 0, 25, 50, and 100. Below the bar, the text reads "GRAPHIC SCALE: 1" = 50'". The north arrow is vertical, pointing upwards, with a decorative swirl at the top.

SHEET 2 OF 2

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C14	2.97'	3.00'	56° 39' 32"	S3° 43' 06"E	2.85'
C15	10.75'	110.00'	5° 38' 01"	N10° 31' 56"E	10.75'
C16	65.77'	60.00'	62° 48' 15"	N39° 08' 02"E	62.52'
C17	23.05'	60.00'	22° 00' 40"	N81° 32' 00"E	22.91'
C18	22.23'	60.00'	21° 13' 27"	S76° 50' 26"E	22.10'
C19	20.07'	60.00'	31° 29' 51"	S56° 38' 47"E	19.98'
C20	4.78'	80.00'	9° 05' 33"	S48° 46' 39"E	4.78'
C21	30.17'	80.00'	21° 38' 16"	S61° 17' 33"E	29.99'
C22	14.20'	80.00'	10° 00' 22"	S77° 10' 52"E	14.19'
C23	20.42'	13.00'	90° 00' 00"	N37° 16' 03"E	18.38'
C24	20.42'	13.00'	90° 00' 00"	S52° 43' 57"W	18.38'
C25	36.86'	60.00'	35° 12' 11"	N64° 39' 57"W	36.29'
C26	174.82'	80.00'	12° 15' 13"	S70° 02' 02"W	142.05'

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

Fourteenth day of July, 2023,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

M/I Homes of Nashville, LLC., the DEVELOPER (hereinafter the
"DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made
a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter
the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal
Planning Commission (hereinafter the "CMPC") on the

8th day of September, 2021,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of
Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such
development; and,

WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it
will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and
common areas to be constructed within and to serve the PROJECT including but not be limited to roads,
bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street
lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS");
and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public
infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to
construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances
of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost;
and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements
as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council
approval by resolution, and subject to the applicant's compliance with all requirements in this
agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:

B1 General Conditions

B1.1 Construction Costs

The DEVELOPER shall pay for all material and labor necessary to install and complete the roads, sidewalks, sewers, utilities, and other facilities in accordance with this agreement.

B1.2 City Ordinances, Rules and Regulations

All currently existing CITY ordinances, rules and regulations, and the Subdivision Regulations adopted by the CMPC are made a part of this agreement. In the event of a conflict between the terms of this agreement and a CITY ordinance, the ordinance shall prevail. In the event of a conflict between the terms of this agreement and the Subdivision Regulations, the Subdivision Regulations shall prevail. All work done under this agreement is to be performed in accordance with plans and specifications approved by the City and made a part, hereof.

B1.3 Fees

Review fees, inspection fees, and other amounts established by the CITY shall be paid prior to any review of the plans. If the DEVELOPER fails to install the facilities in accordance with the terms of this Agreement, no portion of the review fees, inspection fees, or other amounts paid to the CITY shall be refundable to the DEVELOPER.

B1.4 Inspection

The CITY shall have a continuous right to inspect the work and facilities to assure that the work and facilities are in accordance with the Subdivision Regulations, approved Construction Plans, and other rules, regulations, and ordinances of the CITY.

B1.5 Right of Entry

The CITY shall have the right, in case of breach of the Performance Agreement, to enter upon any property of the DEVELOPER and take all necessary actions to complete the work and obligations not completed.

B1.6 Easements

The DEVELOPER shall obtain and dedicate to the CITY or cause to be dedicated to the CITY, either by dedication on the plat or by easement deed, in either case in a form acceptable to the CITY, permanent easements of such widths as required by the CITY and noted on the Plans. The DEVELOPER further agrees to grant the necessary easements and rights-of-way across the DEVELOPER's properties without expense to the CITY and waive any claim for damages.

B1.7 Stormwater Maintenance Agreement

If the PROJECT includes any detention or retention ponds, common drainage ditches, water quality facilities, or stormwater facilities outside of the CITY rights-of-way, the DEVELOPER will submit a Stormwater Maintenance Agreement, to be filed with and recorded with the Final Plat.

B1.8 Attorney Fees and Other Expenses

The DEVELOPER shall pay all reasonable costs and expenses incurred by the CITY in enforcing or completing this agreement. The DEVELOPER shall pay all costs and expenses, including the CITY'S attorney fees, of any legal proceedings brought by the CITY against the DEVELOPER seeking remedies for the DEVELOPER'S failure to perform any of its obligations hereunder, whether or not any proceedings are prosecuted to judgment.

B1.9 Agreement Not Assignable

No third party shall obtain any benefits or rights under this agreement nor shall the rights or duties be assigned by either party.

B1.10 Revocation and Interpretation

This agreement shall bind the DEVELOPER when executed by the DEVELOPER and may not be revoked by the DEVELOPER without permission of the CITY, even if the agreement has not been executed by the CITY, or does not bind CITY, for other reasons. This agreement shall be interpreted in accordance with Tennessee law and may only be enforced in the Chancery Court or Circuit Court or Court of competent jurisdiction of Maury County, Tennessee, and Tennessee Appellate Courts.

B1.11 No Oral Agreement

This agreement may not be orally amended and supersedes all prior negotiations, commitments, or understandings.

B1.12 Separability

If any portion of this agreement is held to be unenforceable, the CITY shall have the right to determine whether the remainder of the agreement shall remain in effect, or whether the agreement shall be void and all rights of the DEVELOPER pursuant to this agreement terminated.

B 1.13 Transferability

The DEVELOPER agrees to not transfer the property on which this PROJECT is to be located without first providing the CITY with written notice. The transferee shall provide the CITY an Assumption Agreement of this Agreement, whereby the transferee agrees to perform the IMPROVEMENTS required under this agreement and to provide a performance surety. The DEVELOPER understands that if the DEVELOPER transfers said property without providing the notice of transfer and Assumption Agreement as required herein, they will be in breach of this agreement and in violation of the Subdivision Regulations.

B1.14 Indemnity

The DEVELOPER shall indemnify and hold the CITY harmless from all loss, costs, expenses, liability, money damages, penalties, or claims arising out of any work covered by this agreement, including any attorney fees incurred by the CITY in connection therewith. Inspection of the IMPROVEMENTS by an authorized representative of the CITY shall not constitute a waiver by the CITY of any defect or of any of the DEVELOPER'S obligations hereunder.

B1.15 Binding Effect

This agreement shall be binding upon the DEVELOPER and the DEVELOPER's heirs, administrators, executors, assigns, and any other successors in interest.

B1.16 Entire Agreement

This document contains the entire agreement between the parties, and there are no collateral understandings or agreements between them. No variations or alterations of the terms of this agreement shall be binding upon either of the parties, unless the same be reduced to writing and made an amendment to this agreement.

B1.17 Headings

Paragraph titles and headings contained herein are inserted for convenience only and shall not be deemed a part of the agreement and in no way shall define, limit, extend, or describe the scope or intent of any provision, hereof.

B2 Performance Surety

At the time of execution of this agreement, the DEVELOPER shall provide the CITY a performance surety, in an amount determined by the City Engineer for the IMPROVEMENTS and other items specified by the Construction Plans, plats, and plans approved by the CMPC. This performance surety shall secure performance of all obligations of the DEVELOPER under this agreement. The performance surety shall meet all requirements established in Chapter 4: Performance Agreement of the Subdivision Regulations and secure full compliance with all terms and conditions of this agreement. The performance surety may be called for failure to comply with the provisions of this agreement in whole or in part according to the terms of the performance surety. The performance surety will not be released, except and until there has been full compliance with this agreement.

B3 Construction

B3.1 Construction Plans

The DEVELOPER shall submit to the CITY, Construction Plans describing in reasonable detail all utility systems, all storm water management systems, all street systems, pedestrian facilities, and all IMPROVEMENTS. The Construction Plans shall be designed according to the Engineering Standards and Specifications, all other codes and ordinances enforced by the City, and sound engineering judgment. The design of all utility systems shall follow the State of Tennessee and utility provider design criteria and specifications. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. The Construction Plans shall be prepared by a design professional licensed by the State of Tennessee to design all systems and shall bear the seal, signature, date, and license number of the professional preparing the Construction Plans.

B3.2 Commencement of Construction

Construction of IMPROVEMENTS may not begin until the following events have occurred:

- A. The Preliminary Plat has been approved by the CMPC;
- B. The Construction Plans are approved by the CITY;
- C. The Tennessee Department of Environment and Conservation has approved the applicable portions of the Plans and has confirmed its approval to the CITY and/or DEVELOPER in writing;
- D. The CITY shall have received an appropriately executed Development Agreement; and
- E. The DEVELOPER shall give the CITY notice of commencement of construction, in writing at least one (1) working day prior to commencement.

B3.3 Site Grading

The DEVELOPER, hereby, agrees to construct all site grading to comply with the approved Construction Plans, including the approved Erosion Control Plan for the PROJECT and to comply with the Engineering Standards and Specifications, Stormwater Ordinance, and all other codes and ordinances enforced by the CITY.

B3.4 Storm Water Management Systems

The DEVELOPER shall be responsible for all storm water management work made necessary by the development of this PROJECT. It is understood and agreed that the CITY in its proprietary function is not and could not be expected to oversee, supervise, or direct the construction of all drainage improvements, and the excavation incident thereto. Neither is the CITY vested with the original design responsibility nor the means to formally survey elevations or the locations of improvements at every stage of the construction process. The CITY is vested with the right of periodic inspections, stop work order, and final approval as a measure of secondary or subsequent enforcement. The DEVELOPER has and shall retain the responsibility to properly anticipate, survey, design and construct the subdivision storm water improvements and give full assurance that same shall not adversely affect the flow or quality of surface water from or upon any property. In providing technical assistance, plan and design review, the CITY does not and shall not relieve or accept any liability from the DEVELOPER.

B3.5 Street Construction

The DEVELOPER, hereby, agrees to construct and improve the streets shown on the Construction Plans to comply with the CITY's specifications and to the satisfaction and approval of the City Engineer by grading, draining, subgrade preparation, base preparation, curbing, signage, striping, signalization, sidewalk installation, and paving with the required preparation, amounts, and types of material. The DEVELOPER further agrees to pay the cost of all engineering, inspection and laboratory cost incidental to the construction of subdivision streets including but not limited to material and density testing. The DEVELOPER further agrees to make all necessary adjustments to manholes and valve boxes to meet finished surface grade and to repair subsurface or base material, as required, in areas directed by the CITY Engineer, prior to application of final surface.

B3.6 Time Period for Construction

The DEVELOPER agrees to be bound to complete, within three (3) years of commencement of construction, all IMPROVEMENTS shown on the plat and plans and all things required by this agreement.

The DEVELOPER further agrees that if due to unforeseen circumstances, he is unable to complete all work included in this agreement within the time specified above, but desires to complete said agreement to the satisfaction of the CITY, the DEVELOPER shall submit a written request for extension of the agreement period to the CITY at least sixty (60) days prior to the expiration of the existing agreement period, specifying the reason for the DEVELOPER's failure to complete the work as agreed and a prospective date for such completion. The DEVELOPER further agrees that if the performance surety executed to secure the value of the work to be performed under this agreement, due to inflation or rising costs, is determined to be inadequate by the City Engineer to secure the cost of said IMPROVEMENTS at the time an extension is sought, the DEVELOPER will provide the additional security to bring the performance surety amount in line with current cost projections as made by the CITY. The DEVELOPER understands that the DEVELOPER's failure to follow the extension procedure constitutes a breach of this agreement and places the DEVELOPER in violation of the Subdivision Regulations. The DEVELOPER further understands, that should the DEVELOPER fail to complete any part of the work outlined in this agreement in a good and workmanlike manner as approved, the CITY shall reserve the right to withhold and withdraw all building permits within the PROJECT until all items of this Agreement have been fulfilled by the DEVELOPER.

B3.7 Off-Site Improvements

The DEVELOPER shall construct any and all off-site facilities that may be required to serve the PROJECT. Unless specifically noted in the Construction Plans and made a part of separate agreement with the CITY, the CITY shall not be required to reimburse the DEVELOPER for construction of off-site improvements.

B3.9 Inspection and Compliance

After construction begins, the CITY shall provide on-site construction inspection as the CITY deems necessary to ensure that all work is performed and completed in accordance with the Construction Plans, CITY specifications, and the contents of this agreement. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. If the DEVELOPER fails to construct in accordance with the approved Construction Plans or to comply with the CITY'S specifications, the CITY may issue a stop-work order and DEVELOPER, hereby, agrees to be bound by such order.

B3.10 Testing

The DEVELOPER agrees to pay the cost of all engineering, inspection, and laboratory cost incidental to construction of the streets, sidewalks, utilities, sewers, compacted fill material, and other facilities included within this agreement. Such testing includes, but is not limited to, material and density testing.

B3.11 Scrap Removal

The DEVELOPER agrees to comply with all local, state, and federal rules and regulations regarding waste material and debris disposal.

B3.12 Traffic Control

The DEVELOPER, hereby, agrees to prepare a traffic control/detour plan where required and shall submit said plan to the CITY for review and approval. All traffic control and safety devices, including

signs, lane markings, and barriers necessitated by construction activity undertaken pursuant to this agreement shall be installed and maintained by the DEVELOPER. All traffic control devices shall meet the standards and be installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the United States Department of Transportation.

B3.13 Temporary Facilities

The DEVELOPER shall provide all temporary facilities including but not limited to utilities and roadways, that are determined by the CITY to be required in connection with or as a result of interruption of service or access that occurs as a consequence of construction activity associated with the work covered by this agreement. Such temporary services shall in all regards and at all points in time be adequate to assure emergency access and adequate fire flows.

B4 Acceptance of Improvements

B4.1 Completion of Improvements

At such time as the improvements have been constructed and installed, in accordance with the Constructions Plans and specifications, required testing and inspections completed and found satisfactory, and all clean-up and cover-up has been done to the satisfaction the City Engineer, a letter requesting preliminary acceptance of the PROJECT will be provided by the DEVELOPER. Formal acceptance shall follow the procedure established in the Subdivision Regulations.

The DEVELOPER agrees the DEVELOPER shall have no claim, direct or implied, in the title or ownership of the IMPROVEMENTS specified in this agreement when the IMPROVEMENTS are complete and thereafter accepted by the CITY. The DEVELOPER will be responsible for construction failures and defects in PROJECT prior to final acceptance. During this period, it shall remain the responsibility of the DEVELOPER to correct and cure these defects and failures.

B4.2 As-Built Drawings and Post-Completion Items

The DEVELOPER agrees to furnish to the CITY as-built plans, on a reproducible, stable media, of the sanitary sewer, storm water management, water mains and service system, and streets within the subdivision before the CITY shall accept the subdivision.

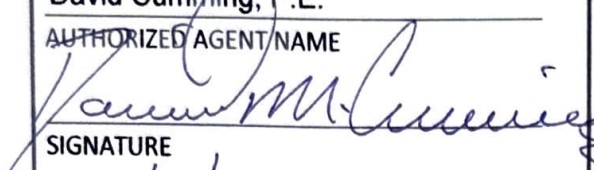
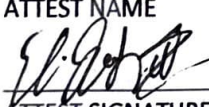
B4.3 Acceptance of Facilities

Upon final acceptance of all or part of the IMPROVEMENTS in the PROJECT, then those IMPROVEMENTS shall become the property of the CITY free from all claims from any person or entity without the necessity of any further writing, agreement, or deed. The DEVELOPER further agrees that any facilities placed within a public or platted right-of-way or dedicated public easement are irrevocably dedicated to the public use without any right of reimbursement or compensation of any kind.

B4.4 Failure to Install

In the event the DEVELOPER fails to install the facilities in accordance with the terms of this agreement, the CITY may, in its sole discretion, elect to accept all or a portion of the IMPROVEMENTS in the PROJECT. Should the CITY choose to accept all or a portion of these IMPROVEMENTS, the CITY shall become the sole owner of these facilities. The CITY may give notice of acceptance by writing delivered to the DEVELOPER or recorded in the Register's Office of Maury County, Tennessee. No further writing or deed shall be required.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in multiple originals by persons properly authorized so, to do on or as of the day and year first given.

<u>Hillcrest Village (Baker Property)</u>	
PROJECT	
<i>Completed by the Developer</i>	<i>Completed by the City</i>
<u>M/I Homes of Nashville, LLC.</u>	
DEVELOPER NAME	
<u>David Cumming, P.E.</u>	
AUTHORIZED AGENT NAME	<u></u>
<u></u>	CITY ENGINEER
SIGNATURE	<u></u>
<u>7/14/23</u>	SIGNATURE
DATE	<u></u>
<u>3020 Stansberry Ln. St. 202</u>	DATE
STREET	
<u>Franklin, TN 37069</u>	
CITY, STATE, ZIP	
<u>(919) 763-4630</u>	
PHONE	
<u>EJordon@mihomes.com</u>	
EMAIL	
<i>Attest</i>	<i>Attest</i>
<u>Eli Jordon</u>	
ATTEST NAME	<u></u>
<u></u>	ATTEST NAME
ATTEST SIGNATURE	<u></u>
<u>7/14/23</u>	ATTEST SIGNATURE
DATE	<u></u>
	DATE

DOCUMENT PREPARED BY:

Name: Alexander Mollica
Company: Crunk Engineering
Address: 7112 Crossroads Blvd.
Brentwood, TN 37027

After recording return copy to City of Columbia, Development Services

**INSPECTION AND MAINTENANCE AGREEMENT OF
PRIVATE STORMWATER MANAGEMENT FACILITIES**

Map & Parcel Number: Map 113, Group 08047, Parcel 000
Project Name: Hilcrest Townhomes

Recorded by deed in the Register of Deeds Office of Maury County in Deed Book _____, Page(s) _____.

THIS AGREEMENT, made this 12 day of February, 2025, by and between
M/I Homes of Nashville, LLC hereinafter referred to as the "OWNER(S)" of the following property
and City of Columbia, Tennessee, hereinafter referred to as the "CITY",

WE, the OWNER(S), with full authority to execute deeds, mortgages, other covenants, all rights, titles, and interests in the property described above, do hereby covenant with the CITY and agree as follows:

1. The OWNER(S) covenant and agree with the CITY that the OWNER(S) shall provide for adequate long term maintenance and continuation of stormwater control measures described in the Long Term Maintenance Plan and shown on the location map, deed of easement drawing or plat attached hereto to ensure that the facilities, are and remain in proper working condition in accordance with approved design standards, rules and regulations, and applicable laws. The OWNER(S) shall perform preventative maintenance activities at intervals described in the schedule attached hereto along with necessary landscaping (grass cutting, etc.) and trash removal as part of regular maintenance.
2. The OWNER(S) shall perform routine inspections to ensure that all long term stormwater management facilities are properly functioning. These inspections shall be conducted on an annual basis, at a minimum. These inspections shall be conducted by a person familiar with control measures implemented at the site. The OWNER(S) or operators shall maintain documents of these inspections.
3. The OWNER(S) shall perform comprehensive inspections of all stormwater management facilities and practices. These inspections shall be conducted once every five years, at a minimum. Such inspections must be conducted by either a professional engineer or landscape architect.
4. The OWNER(S) shall grant to the CITY or its agent or contractor the right of entry at reasonable times and in a reasonable manner for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the facility within the CITY.
5. The OWNER(S) shall record and grant to the CITY the necessary easements and rights-of-way and maintain perpetual access from public rights-of-way to the facility for the CITY or its agent and contractor.
6. If, upon inspection, the CITY finds that the OWNER(S) has failed to properly maintain the facilities, the CITY may order the work performed within ten (10) days. In the event the work is not performed within the specified time, the OWNER(S) agrees to allow the CITY to enter the property and take whatever steps it deems necessary to maintain the stormwater control facilities. This provision shall not be construed to allow the CITY to erect any structure of a permanent nature on the PROPERTY without first obtaining written approval of the OWNER(S).
7. The CITY is under no obligation to maintain or repair said facilities, and in no event shall this Agreement be construed to impose any obligation on the CITY. The OWNER(S) shall reimburse the CITY upon demand the costs incurred in the maintenance of the facilities.
8. If the OWNER(S) fails to pay the CITY for the above expensive after forty-five (45) days written notice, the OWNER(S) authorizes the CITY to collect said expenses from the OWNER(S) through appropriate legal action and the OWNER(S) shall be liable for the reasonable expenses of collection, court costs, and attorney fees.
9. The OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successor in interest shall indemnify and hold harmless the CITY and its officers, agents and employees for any and all damages, accidents, casualties, occurrences, claims or attorney's fees which might arise or be asserted, in whole or in part,

against the CITY from the construction, presence, existence, or maintenance of the stormwater control facilities subject to this AGREEMENT. In the event a claim is asserted against the CITY, its officers, agents or employees, the CITY shall notify OWNER(S) and the OWNER(S) shall defend at OWNER(S) expense any suit based on such claim. If any judgment or claims against the CITY, its officers, agents or employees, shall be allowed, the OWNER(S) shall pay all costs and expenses in connection therewith. The CITY will not indemnify, defend or hold harmless in any fashion the OWNER(S) from any claims arising from any failure, regardless of any language in any attachment or other document that the OWNER(S) may provide

10. The OWNER(S) shall not be able to transfer, assign or modify its responsibilities with respect to this agreement without the CITY's written prior consent. Nothing herein shall be construed to prohibit a transfer by OWNER(S) to subsequent owners and assigns.
11. No waiver of any provision of this AGREEMENT shall affect the right of any party thereafter to enforce such provision or to exercise any right or remedy available to it in the event of any default.
12. The OWNER(S) shall record a plat showing and accurately defining the easements for stormwater control facilities. The plat must reference the Instrument Number where this AGREEMENT and its attachments are recorded and contain a note that the OWNER(S) is responsible for maintaining the stormwater management facilities.
13. The OWNER(S) shall record this AGREEMENT in the office of the Register of Deeds for the county of Maury, Tennessee, and the AGREEMENT shall constitute a covenant running with the land, and shall be binding upon the OWNER(S) and the OWNER(S) heirs, administrators, executors, assigns, and any other successors in interest

ATTEST BY OWNER(S):

Print Name David M. Cummings

Title VP of Land

Signature [Signature]

Owner M/I Homes of Nashville, LLC

Address 725 Cool Springs Blvd

Suite 180

City, State ZIP Franklin, TN 37067

STATE OF Tennessee

COUNTY OF MAURY

Before me, Erika Root of the state and county mentioned, personally appeared DAVID M. Cummings, with whom I am personally acquainted and who acknowledged that he/she executed the foregoing instrument of the purposes therein contained.

Witness my hand this the 13th day of February, 2025.

[Signature]
Notary Public

My Commission Expires: 6/26/27

CITY OF COLUMBIA, TENNESSEE
ENGINEERING DEPARTMENT

APPROVED BY : _____

STATE OF TENNESSEE
COUNTY OF MAURY

Before me, _____ of the state and county mentioned, personally appeared _____, with whom I am personally acquainted, and who acknowledged themselves to be the City Engineer of the City of Columbia or his designee and as such, being authorized so to do, executed the foregoing instrument of the purposes therein contained.

Witness my hand this the _____ day of _____, 20____.

Notary Public
My Commission Expires: _____





Post Construction Long Term Maintenance Plan

Waterford Townhomes

Columbia, TN

February 12, 2025

Table of Contents

Section Name

System Description
Maintenance Procedures

System Description

The site consists of a series of stormwater conveyance of pipe.

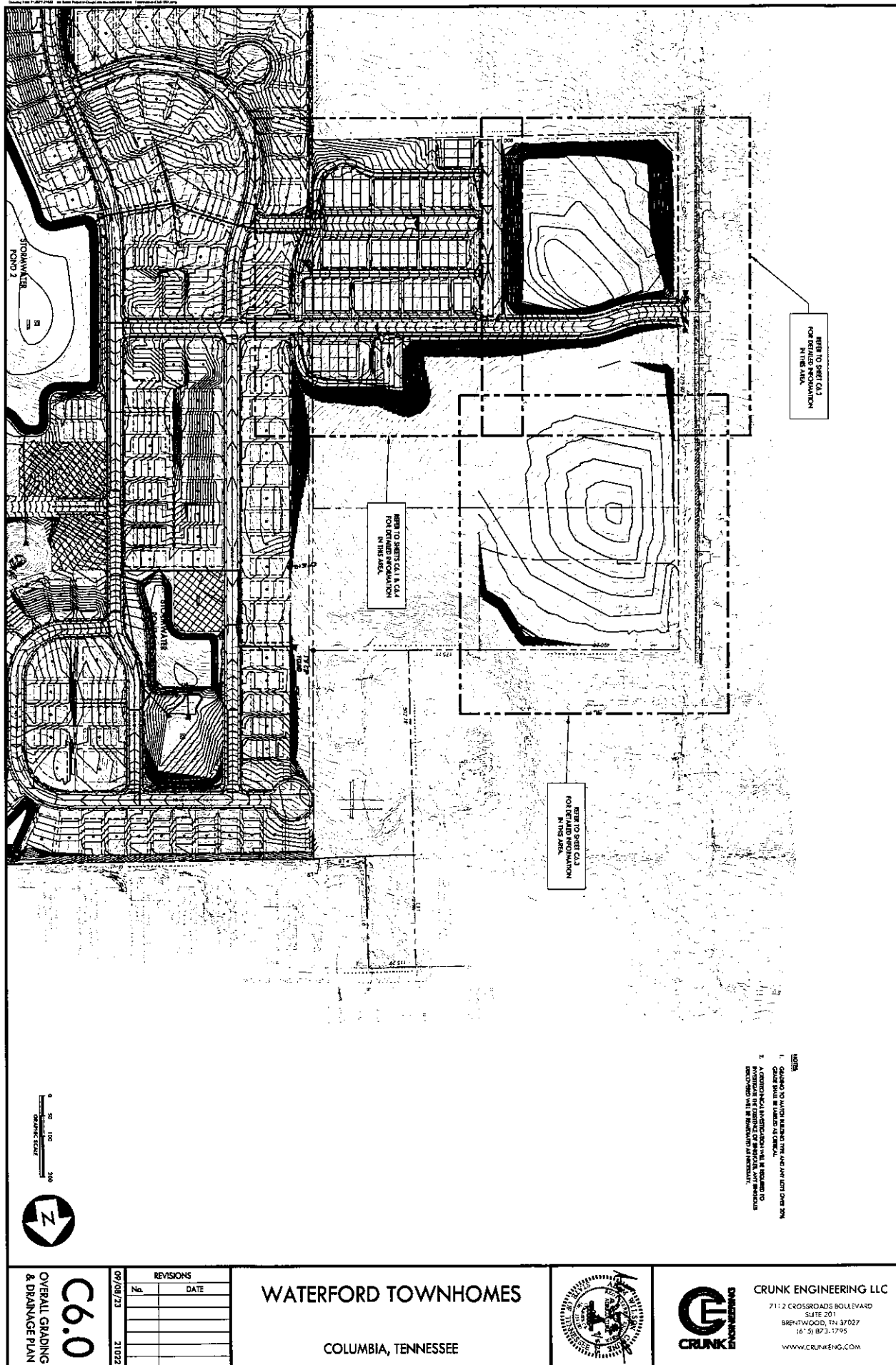
- 2057 feet of 18 in ADS pipe, and 30 storm inlets.

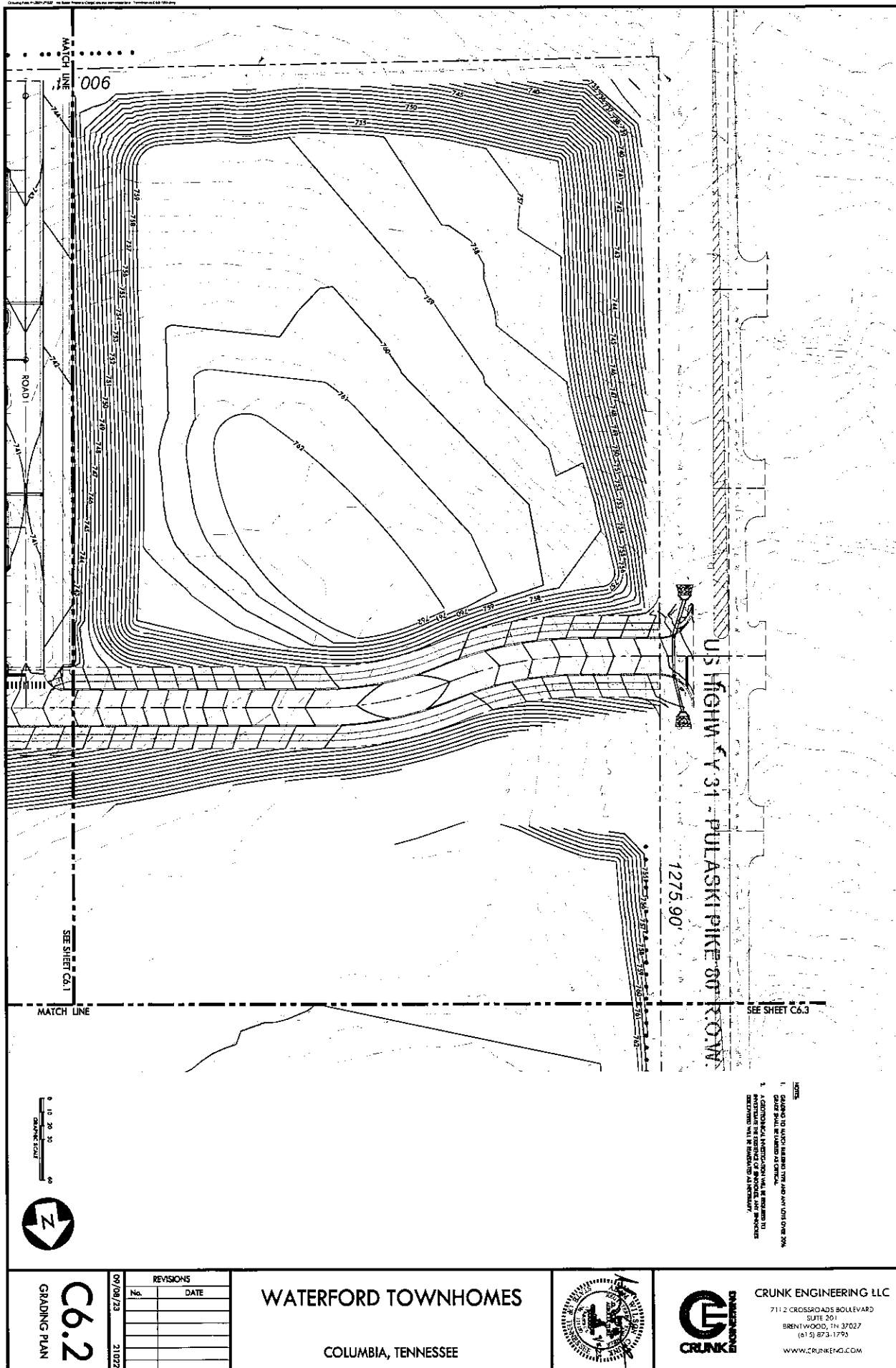
Upon completion of the site construction, 'Record Drawings' in a version not less than AutoCAD 2006 LT (NAD83, NAVD88) of the stormwater controls will be provided to the City of Columbia for verification.

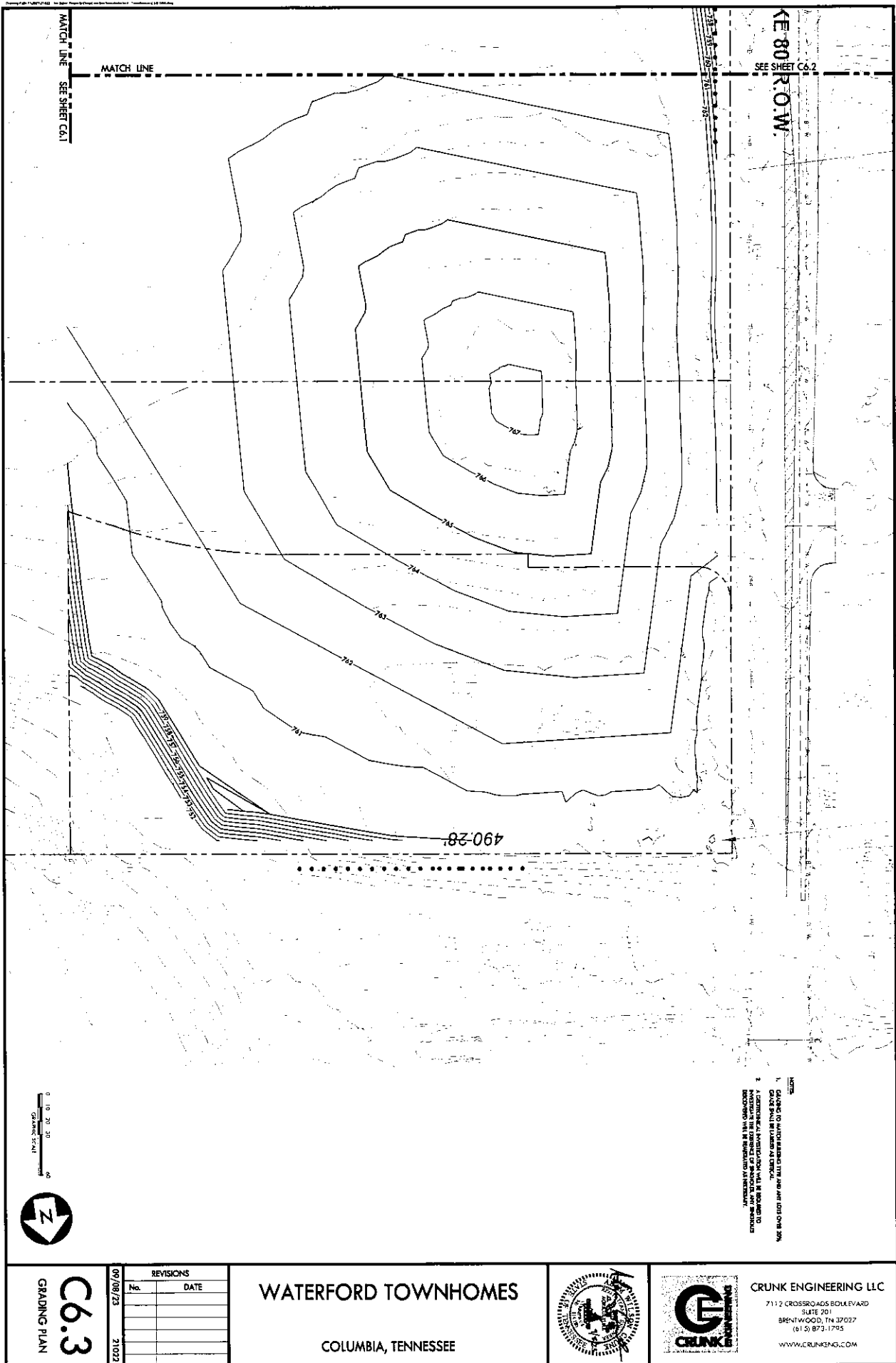
A copy of the INSPECTION AND MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES that has been completed, notarized, and recorded in the Land Records of the County of Maury, Tennessee will be kept on site with this document.

Maintenance Procedures

1. **2057 feet of 18 in ADS pipe, and 30 storm inlets.**
 - a. These structures will be inspected and cleaned quarterly to ensure pipes and draininlets do not fill with sediment or trash.







Age	Gender	Order	Height	Weight	Body Fat	Summed BMI
16	M	17605	176.0	71.1	1.9%	20.04
16	F	17606	176.0	58.1	1.6%	19.49
16	M	17607	176.0	84.1	1.6%	21.49
16	F	17608	176.0	61.1	1.3%	19.04
16	M	17609	176.0	71.1	1.6%	20.04
16	F	17610	176.0	58.1	1.6%	19.49
16	M	17611	176.0	84.1	1.6%	21.49
16	F	17612	176.0	61.1	1.3%	19.04
16	M	17613	176.0	71.1	1.6%	20.04
16	F	17614	176.0	58.1	1.6%	19.49
16	M	17615	176.0	84.1	1.6%	21.49
16	F	17616	176.0	61.1	1.3%	19.04
16	M	17617	176.0	71.1	1.6%	20.04
16	F	17618	176.0	58.1	1.6%	19.49
16	M	17619	176.0	84.1	1.6%	21.49
16	F	17620	176.0	61.1	1.3%	19.04
16	M	17621	176.0	71.1	1.6%	20.04
16	F	17622	176.0	58.1	1.6%	19.49
16	M	17623	176.0	84.1	1.6%	21.49
16	F	17624	176.0	61.1	1.3%	19.04
16	M	17625	176.0	71.1	1.6%	20.04
16	F	17626	176.0	58.1	1.6%	19.49
16	M	17627	176.0	84.1	1.6%	21.49
16	F	17628	176.0	61.1	1.3%	19.04
16	M	17629	176.0	71.1	1.6%	20.04
16	F	17630	176.0	58.1	1.6%	19.49
16	M	17631	176.0	84.1	1.6%	21.49
16	F	17632	176.0	61.1	1.3%	19.04
16	M	17633	176.0	71.1	1.6%	20.04
16	F	17634	176.0	58.1	1.6%	19.49
16	M	17635	176.0	84.1	1.6%	21.49
16	F	17636	176.0	61.1	1.3%	19.04
16	M	17637	176.0	71.1	1.6%	20.04
16	F	17638	176.0	58.1	1.6%	19.49
16	M	17639	176.0	84.1	1.6%	21.49
16	F	17640	176.0	61.1	1.3%	19.04
16	M	17641	176.0	71.1	1.6%	20.04
16	F	17642	176.0	58.1	1.6%	19.49
16	M	17643	176.0	84.1	1.6%	21.49
16	F	17644	176.0	61.1	1.3%	19.04
16	M	17645	176.0	71.1	1.6%	20.04
16	F	17646	176.0	58.1	1.6%	19.49
16	M	17647	176.0	84.1	1.6%	21.49
16	F	17648	176.0	61.1	1.3%	19.04
16	M	17649	176.0	71.1	1.6%	20.04
16	F	17650	176.0	58.1	1.6%	19.49
16	M	17651	176.0	84.1	1.6%	21.49
16	F	17652	176.0	61.1	1.3%	19.04
16	M	17653	176.0	71.1	1.6%	20.04
16	F	17654	176.0	58.1	1.6%	19.49
16	M	17655	176.0	84.1	1.6%	21.49
16	F	17656	176.0	61.1	1.3%	19.04
16	M	17657	176.0	71.1	1.6%	20.04
16	F	17658	176.0	58.1	1.6%	19.49
16	M	17659	176.0	84.1	1.6%	21.49
16	F	17660	176.0	61.1	1.3%	19.04
16	M	17661	176.0	71.1	1.6%	20.04
16	F	17662	176.0	58.1	1.6%	19.49
16	M	17663	176.0	84.1	1.6%	21.49
16	F	17664	176.0	61.1	1.3%	19.04
16	M	17665	176.0	71.1	1.6%	20.04
16	F	17666	176.0	58.1	1.6%	19.49

STORM STRUCTURE & PIPE TABLES

C6.5

09/08/23	21022
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REVISIONS	
	DATE

WATERFORD TOWNHOMES

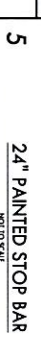
COLUMBIA, TENNESSEE



CRUNK ENGINEERING LLC

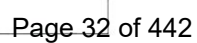
7112 CROSSROADS BOULEVARD
SUITE 20:
BRENTWOOD, TN 37027
(615) 873-1795

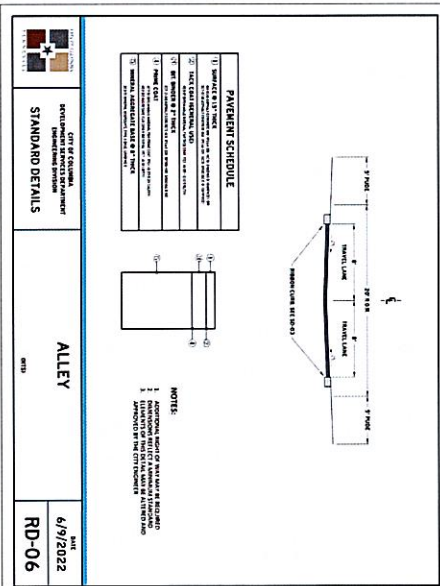
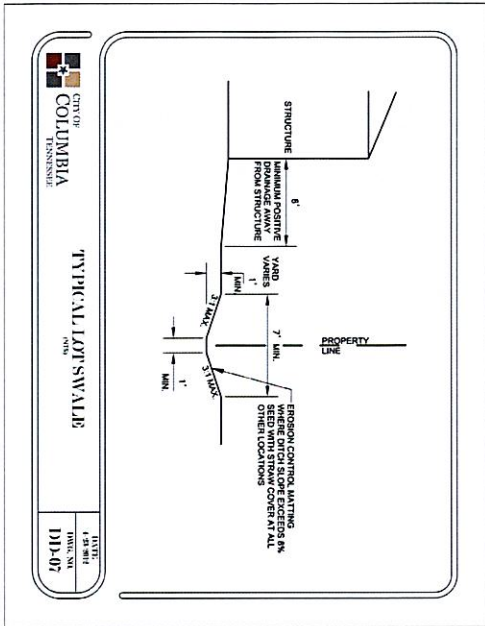
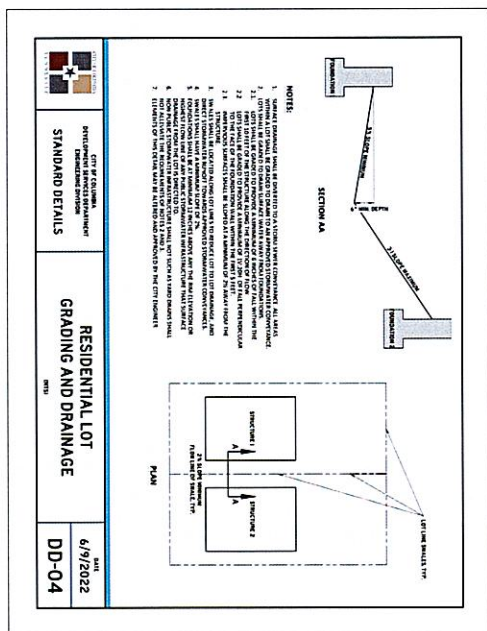
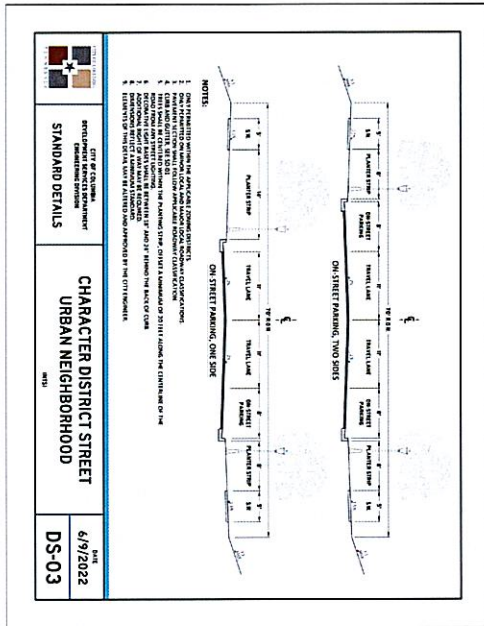
WWW.CRUNKING.COM

11

C8.0

DETAILS





WATERFORD TOWNHOMES

COLUMBIA, TENNESSEE

CRUNK ENGINEERING LLC

7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM

REVISIONS

NO.	DATE	DESCRIPTION
1	09/08/23	21022

C8.2

DETAILS

CRUNK ENGINEERING

**OWNER AFFIDAVIT
CITY OF COLUMBIA, MAURY COUNTY, TENNESSEE**

I/we, DAVID M. CUMMING
(Print Name(s) in Full)

being duly sworn, depose and say(s) that I/we am/are the owner(s) of the property described as:

Tax Map 113, Parcel 80.50
(Property Parcel/Tax ID Number)

and located at:

2643 Pulaski Hwy, Columbia, TN 38401
(Street Address)

am fully aware of the request for development approval in the City of Columbia, Tennessee.
Furthermore, I/we hereby appoint:

Wilson & Associates - Joey Wilson, Sean McGowan, Abigail Overstreet
(Print Name(s) in Full)

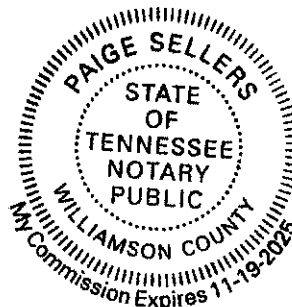
to act as my/our authorized agent on my/our behalf on all matters pertaining to the processing and obtaining the application with the exception of legal documents for recording purposes.

David M. Cumming
Signature
3020 Strawberry Lane, Suite 202
Property Owner Mailing Address
Franklin, TN 37069
City, State, & Zip

Subscribed and sworn to before me this 11 day of July, 2023.

Paige Sellers
Notary Public

My Commission Expires: 11-19-2025



**DEVELOPMENT SERVICES**

700 NORTH GARDEN STREET

COLUMBIA, TN 38401

PHONE: (931) 560-1560

FAX: (931) 560-1541

**PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION**

SUBMITTAL REQUIREMENTS

Final Plat: * 1 hard copy of all materials for submittal + PDF copy on a USB flash drive (no multiple applications on one storage device)

Fold hard copy submittals larger than 8½"x11"

All Others: * Please submit the Application online at [City of Columbia | Permitting \(onlana.com\)](http://City of Columbia | Permitting (onlana.com))

ADDRESS/LOCATION	2643 Pulaski Hwy, Columbia, TN 38401		
	TAX MAP: 113	GROUP:	PARCEL: 80.47 & 80.51
SUMMARY OF NATURE OF REQUEST AND WORK	The purpose of this plat is to create 55 townhome residential lots and 6 open spaces and dedicate right-of-way.		

DATE OF PRE-APPLICATION CONFERENCE	N/A	<i>Pre-application meetings are scheduled for Wednesdays.</i>
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SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Comprehensive Plan Amendment ☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☒ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Site Development Plan ☐ Other:	<u>Annexations:</u> ☐ Annexation Permission Form
	<u>Annexations/Rezoning/Plan Amendments:</u> ☐ Requested Zone Listed ☐ Statement of Compliance with Comprehensive Plan ☐ Concept Plan
	<u>Preliminary Plats/Site Development Plans:</u> ☐ Plans and/or Plats conforming to City standards with signed and completed check list
<i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	<u>All Annexations/Rezoning/Preliminary Plats/Site Development Plans and PUDS:</u> ☐ Receipt of Payment for Pre-Application Meeting ☐ Written Legal Description copy ☐ Columbia Water System Availability Letter ☐ Columbia Waste Water Department Will Serve Letter

	<u>Plats/PUDs:</u>
	☐ Project Name (include Sections & Phases) Hillcrest Village - Townhomes
	☐ Total Number of Lots/Residential Units 55
	☐ Square Footage of Non-Residential Floor Space 0
	☐ Total acreage 6.949 acres

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application. Any requests to defer or move the item to future meeting dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Wilson & Associates, P.C. - Abigail Overstreet	PHONE	615-794-2275
ADDRESS	108 Beasley Dr, Franklin, TN 37064	EMAIL	aoverstreet@wilsonpc.com

PROPERTY OWNER NAME	Elias Jordon	PHONE	919-763-4630
ADDRESS	725 Cool Springs Blvd ste. 180 Franklin, TN 37067	EMAIL	ejordon@mihomes.com

If owner is not a natural person, documentation must be provided showing signing authority on behalf of the entity. If multiple persons are listed as owners in the records of the Maury County Assessor, all owners must sign or the signatory must provide documentation of authority to apply on behalf of record owner (i.e., Power of Attorney or notarized Letter of Authorization). In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Abigail Overstreet

APPLICANT NAME

Abigail Overstreet

APPLICANT SIGNATURE

2/12/2025

DATE

Elias Jordon

PROPERTY OWNER NAME

Elias Jordon

PROPERTY OWNER SIGNATURE

Feb 12 2025

DATE

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

17th day of February, 2025,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Marlons Creek Prop Co, LLC, the DEVELOPER (hereinafter the
"DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made
a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter
the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal
Planning Commission (hereinafter the "CMPC") on the

17th day of February, 2025,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of
Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such
development; and,

WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it
will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and
common areas to be constructed within and to serve the PROJECT including but not be limited to roads,
bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street
lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS");
and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public
infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to
construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances
of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost;
and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements
as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council
approval by resolution, and subject to the applicant's compliance with all requirements in this
agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:

B1 General Conditions

B1.1 Construction Costs

The DEVELOPER shall pay for all material and labor necessary to install and complete the roads, sidewalks, sewers, utilities, and other facilities in accordance with this agreement.

B1.2 City Ordinances, Rules and Regulations

All currently existing CITY ordinances, rules and regulations, and the Subdivision Regulations adopted by the CMPC are made a part of this agreement. In the event of a conflict between the terms of this agreement and a CITY ordinance, the ordinance shall prevail. In the event of a conflict between the terms of this agreement and the Subdivision Regulations, the Subdivision Regulations shall prevail. All work done under this agreement is to be performed in accordance with plans and specifications approved by the City and made a part, hereof.

B1.3 Fees

Review fees, inspection fees, and other amounts established by the CITY shall be paid prior to any review of the plans. If the DEVELOPER fails to install the facilities in accordance with the terms of this Agreement, no portion of the review fees, inspection fees, or other amounts paid to the CITY shall be refundable to the DEVELOPER.

B1.4 Inspection

The CITY shall have a continuous right to inspect the work and facilities to assure that the work and facilities are in accordance with the Subdivision Regulations, approved Construction Plans, and other rules, regulations, and ordinances of the CITY.

B1.5 Right of Entry

The CITY shall have the right, in case of breach of the Performance Agreement, to enter upon any property of the DEVELOPER and take all necessary actions to complete the work and obligations not completed.

B1.6 Easements

The DEVELOPER shall obtain and dedicate to the CITY or cause to be dedicated to the CITY, either by dedication on the plat or by easement deed, in either case in a form acceptable to the CITY, permanent easements of such widths as required by the CITY and noted on the Plans. The DEVELOPER further agrees to grant the necessary easements and rights-of-way across the DEVELOPER's properties without expense to the CITY and waive any claim for damages.

B1.7 Stormwater Maintenance Agreement

If the PROJECT includes any detention or retention ponds, common drainage ditches, water quality facilities, or stormwater facilities outside of the CITY rights-of-way, the DEVELOPER will submit a Stormwater Maintenance Agreement, to be filed with and recorded with the Final Plat.

B1.8 Attorney Fees and Other Expenses

The DEVELOPER shall pay all reasonable costs and expenses incurred by the CITY in enforcing or completing this agreement. The DEVELOPER shall pay all costs and expenses, including the CITY'S attorney fees, of any legal proceedings brought by the CITY against the DEVELOPER seeking remedies for the DEVELOPER'S failure to perform any of its obligations hereunder, whether or not any proceedings are prosecuted to judgment.

B1.9 Agreement Not Assignable

No third party shall obtain any benefits or rights under this agreement nor shall the rights or duties be assigned by either party.

B1.10 Revocation and Interpretation

This agreement shall bind the DEVELOPER when executed by the DEVELOPER and may not be revoked by the DEVELOPER without permission of the CITY, even if the agreement has not been executed by the CITY, or does not bind CITY, for other reasons. This agreement shall be interpreted in accordance with Tennessee law and may only be enforced in the Chancery Court or Circuit Court or Court of competent jurisdiction of Maury County, Tennessee, and Tennessee Appellate Courts.

B1.11 No Oral Agreement

This agreement may not be orally amended and supersedes all prior negotiations, commitments, or understandings.

B1.12 Separability

If any portion of this agreement is held to be unenforceable, the CITY shall have the right to determine whether the remainder of the agreement shall remain in effect, or whether the agreement shall be void and all rights of the DEVELOPER pursuant to this agreement terminated.

B 1.13 Transferability

The DEVELOPER agrees to not transfer the property on which this PROJECT is to be located without first providing the CITY with written notice. The transferee shall provide the CITY an Assumption Agreement of this Agreement, whereby the transferee agrees to perform the IMPROVEMENTS required under this agreement and to provide a performance surety. The DEVELOPER understands that if the DEVELOPER transfers said property without providing the notice of transfer and Assumption Agreement as required herein, they will be in breach of this agreement and in violation of the Subdivision Regulations.

B1.14 Indemnity

The DEVELOPER shall indemnify and hold the CITY harmless from all loss, costs, expenses, liability, money damages, penalties, or claims arising out of any work covered by this agreement, including any attorney fees incurred by the CITY in connection therewith. Inspection of the IMPROVEMENTS by an authorized representative of the CITY shall not constitute a waiver by the CITY of any defect or of any of the DEVELOPER'S obligations hereunder.

B1.15 Binding Effect

This agreement shall be binding upon the DEVELOPER and the DEVELOPER's heirs, administrators, executors, assigns, and any other successors in interest.

B1.16 Entire Agreement

This document contains the entire agreement between the parties, and there are no collateral understandings or agreements between them. No variations or alterations of the terms of this agreement shall be binding upon either of the parties, unless the same be reduced to writing and made an amendment to this agreement.

B1.17 Headings

Paragraph titles and headings contained herein are inserted for convenience only and shall not be deemed a part of the agreement and in no way shall define, limit, extend, or describe the scope or intent of any provision, hereof.

B2 Performance Surety

At the time of execution of this agreement, the DEVELOPER shall provide the CITY a performance surety, in an amount determined by the City Engineer for the IMPROVEMENTS and other items specified by the Construction Plans, plats, and plans approved by the CMPC. This performance surety shall secure performance of all obligations of the DEVELOPER under this agreement. The performance surety shall meet all requirements established in Chapter 4: Performance Agreement of the Subdivision Regulations and secure full compliance with all terms and conditions of this agreement. The performance surety may be called for failure to comply with the provisions of this agreement in whole or in part according to the terms of the performance surety. The performance surety will not be released, except and until there has been full compliance with this agreement.

B3 Construction

B3.1 Construction Plans

The DEVELOPER shall submit to the CITY, Construction Plans describing in reasonable detail all utility systems, all storm water management systems, all street systems, pedestrian facilities, and all IMPROVEMENTS. The Construction Plans shall be designed according to the Engineering Standards and Specifications, all other codes and ordinances enforced by the City, and sound engineering judgment. The design of all utility systems shall follow the State of Tennessee and utility provider design criteria and specifications. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. The Construction Plans shall be prepared by a design professional licensed by the State of Tennessee to design all systems and shall bear the seal, signature, date, and license number of the professional preparing the Construction Plans.

B3.2 Commencement of Construction

Construction of IMPROVEMENTS may not begin until the following events have occurred:

- A. The Preliminary Plat has been approved by the CMPC;
- B. The Construction Plans are approved by the CITY;
- C. The Tennessee Department of Environment and Conservation has approved the applicable portions of the Plans and has confirmed its approval to the CITY and/or DEVELOPER in writing;
- D. The CITY shall have received an appropriately executed Development Agreement; and
- E. The DEVELOPER shall give the CITY notice of commencement of construction, in writing at least one (1) working day prior to commencement.

B3.3 Site Grading

The DEVELOPER, hereby, agrees to construct all site grading to comply with the approved Construction Plans, including the approved Erosion Control Plan for the PROJECT and to comply with the Engineering Standards and Specifications, Stormwater Ordinance, and all other codes and ordinances enforced by the CITY.

B3.4 Storm Water Management Systems

The DEVELOPER shall be responsible for all storm water management work made necessary by the development of this PROJECT. It is understood and agreed that the CITY in its proprietary function is not and could not be expected to oversee, supervise, or direct the construction of all drainage improvements, and the excavation incident thereto. Neither is the CITY vested with the original design responsibility nor the means to formally survey elevations or the locations of improvements at every stage of the construction process. The CITY is vested with the right of periodic inspections, stop work order, and final approval as a measure of secondary or subsequent enforcement. The DEVELOPER has and shall retain the responsibility to properly anticipate, survey, design and construct the subdivision storm water improvements and give full assurance that same shall not adversely affect the flow or quality of surface water from or upon any property. In providing technical assistance, plan and design review, the CITY does not and shall not relieve or accept any liability from the DEVELOPER.

B3.5 Street Construction

The DEVELOPER, hereby, agrees to construct and improve the streets shown on the Construction Plans to comply with the CITY's specifications and to the satisfaction and approval of the City Engineer by grading, draining, subgrade preparation, base preparation, curbing, signage, striping, signalization, sidewalk installation, and paving with the required preparation, amounts, and types of material. The DEVELOPER further agrees to pay the cost of all engineering, inspection and laboratory cost incidental to the construction of subdivision streets including but not limited to material and density testing. The DEVELOPER further agrees to make all necessary adjustments to manholes and valve boxes to meet finished surface grade and to repair subsurface or base material, as required, in areas directed by the CITY Engineer, prior to application of final surface.

B3.6 Time Period for Construction

The DEVELOPER agrees to be bound to complete, within three (3) years of commencement of construction, all IMPROVEMENTS shown on the plat and plans and all things required by this agreement.

The DEVELOPER further agrees that if due to unforeseen circumstances, he is unable to complete all work included in this agreement within the time specified above, but desires to complete said agreement to the satisfaction of the CITY, the DEVELOPER shall submit a written request for extension of the agreement period to the CITY at least sixty (60) days prior to the expiration of the existing agreement period, specifying the reason for the DEVELOPER's failure to complete the work as agreed and a prospective date for such completion. The DEVELOPER further agrees that if the performance surety executed to secure the value of the work to be performed under this agreement, due to inflation or rising costs, is determined to be inadequate by the City Engineer to secure the cost of said IMPROVEMENTS at the time an extension is sought, the DEVELOPER will provide the additional security to bring the performance surety amount in line with current cost projections as made by the CITY. The DEVELOPER understands that the DEVELOPER's failure to follow the extension procedure constitutes a breach of this agreement and places the DEVELOPER in violation of the Subdivision Regulations. The DEVELOPER further understands, that should the DEVELOPER fail to complete any part of the work outlined in this agreement in a good and workmanlike manner as approved, the CITY shall reserve the right to withhold and withdraw all building permits within the PROJECT until all items of this Agreement have been fulfilled by the DEVELOPER.

B3.7 Off-Site Improvements

The DEVELOPER shall construct any and all off-site facilities that may be required to serve the PROJECT. Unless specifically noted in the Construction Plans and made a part of separate agreement with the CITY, the CITY shall not be required to reimburse the DEVELOPER for construction of off-site improvements.

B3.9 Inspection and Compliance

After construction begins, the CITY shall provide on-site construction inspection as the CITY deems necessary to ensure that all work is performed and completed in accordance with the Construction Plans, CITY specifications, and the contents of this agreement. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. If the DEVELOPER fails to construct in accordance with the approved Construction Plans or to comply with the CITY'S specifications, the CITY may issue a stop-work order and DEVELOPER, hereby, agrees to be bound by such order.

B3.10 Testing

The DEVELOPER agrees to pay the cost of all engineering, inspection, and laboratory cost incidental to construction of the streets, sidewalks, utilities, sewers, compacted fill material, and other facilities included within this agreement. Such testing includes, but is not limited to, material and density testing.

B3.11 Scrap Removal

The DEVELOPER agrees to comply with all local, state, and federal rules and regulations regarding waste material and debris disposal.

B3.12 Traffic Control

The DEVELOPER, hereby, agrees to prepare a traffic control/detour plan where required and shall submit said plan to the CITY for review and approval. All traffic control and safety devices, including

signs, lane markings, and barriers necessitated by construction activity undertaken pursuant to this agreement shall be installed and maintained by the DEVELOPER. All traffic control devices shall meet the standards and be installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the United States Department of Transportation.

B3.13 Temporary Facilities

The DEVELOPER shall provide all temporary facilities including but not limited to utilities and roadways, that are determined by the CITY to be required in connection with or as a result of interruption of service or access that occurs as a consequence of construction activity associated with the work covered by this agreement. Such temporary services shall in all regards and at all points in time be adequate to assure emergency access and adequate fire flows.

B4 Acceptance of Improvements

B4.1 Completion of Improvements

At such time as the improvements have been constructed and installed, in accordance with the Constructions Plans and specifications, required testing and inspections completed and found satisfactory, and all clean-up and cover-up has been done to the satisfaction the City Engineer, a letter requesting preliminary acceptance of the PROJECT will be provided by the DEVELOPER. Formal acceptance shall follow the procedure established in the Subdivision Regulations.

The DEVELOPER agrees the DEVELOPER shall have no claim, direct or implied, in the title or ownership of the IMPROVEMENTS specified in this agreement when the IMPROVEMENTS are complete and thereafter accepted by the CITY. The DEVELOPER will be responsible for construction failures and defects in PROJECT prior to final acceptance. During this period, it shall remain the responsibility of the DEVELOPER to correct and cure these defects and failures.

B4.2 As-Built Drawings and Post-Completion Items

The DEVELOPER agrees to furnish to the CITY as-built plans, on a reproducible, stable media, of the sanitary sewer, storm water management, water mains and service system, and streets within the subdivision before the CITY shall accept the subdivision.

B4.3 Acceptance of Facilities

Upon final acceptance of all or part of the IMPROVEMENTS in the PROJECT, then those IMPROVEMENTS shall become the property of the CITY free from all claims from any person or entity without the necessity of any further writing, agreement, or deed. The DEVELOPER further agrees that any facilities placed within a public or platted right-of-way or dedicated public easement are irrevocably dedicated to the public use without any right of reimbursement or compensation of any kind.

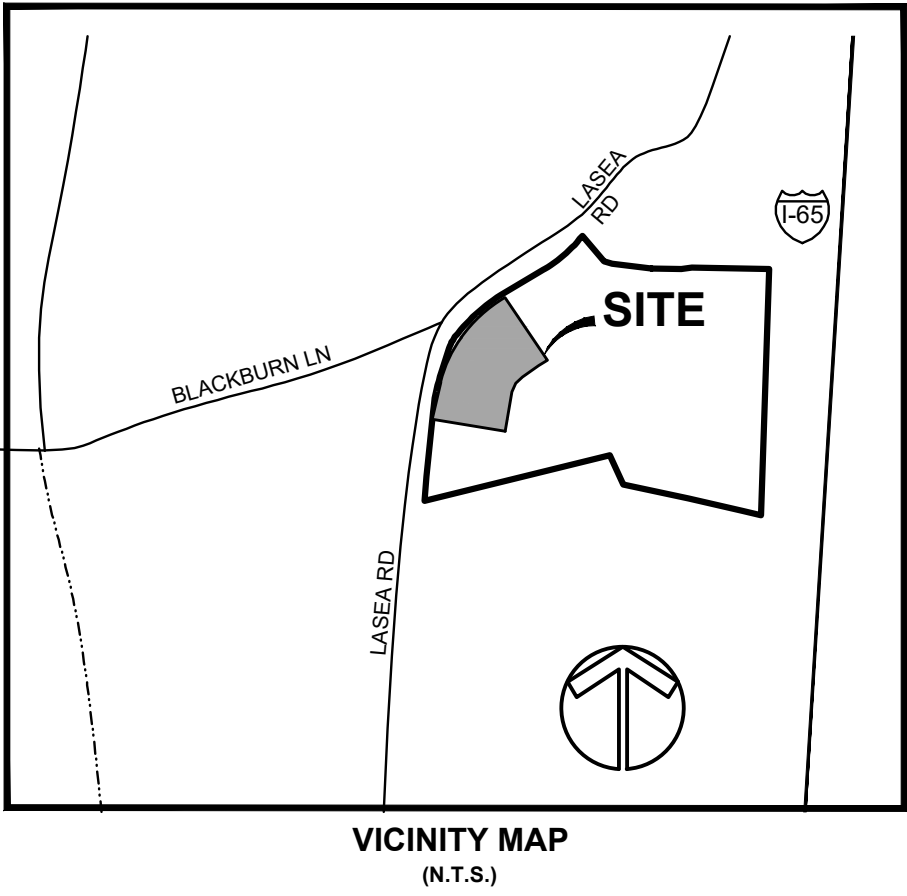
B4.4 Failure to Install

In the event the DEVELOPER fails to install the facilities in accordance with the terms of this agreement, the CITY may, in its sole discretion, elect to accept all or a portion of the IMPROVEMENTS in the PROJECT. Should the CITY choose to accept all or a portion of these IMPROVEMENTS, the CITY shall become the sole owner of these facilities. The CITY may give notice of acceptance by writing delivered to the DEVELOPER or recorded in the Register's Office of Maury County, Tennessee. No further writing or deed shall be required.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in multiple originals by persons properly authorized so, to do on or as of the day and year first given.

<u>Marlons Creek Subdivision</u> PROJECT	
<i>Completed by the Developer</i>	<i>Completed by the City</i>
<u>Marlons Creek Prop Co. LLC</u> DEVELOPER NAME	
<u>Owen Hosay</u> AUTHORIZED AGENT NAME	
<u>Owen Hosay</u> SIGNATURE	
<u>2-17-2025</u> DATE	
<u>2925 Berry Hill Drive</u> STREET	
<u>Nashville, TN 37204</u> CITY, STATE, ZIP	
<u>615-934-8264</u> PHONE	
<u>owen@freedhillventures.net</u> EMAIL	
<i>Attest</i>	<i>Attest</i>
<u>Mandy A. Allen</u> ATTEST NAME	
<u>MCA</u> ATTEST SIGNATURE	
<u>02/17/2025</u> DATE	
	<u></u> CITY ENGINEER
	<u></u> SIGNATURE
	<u></u> DATE
	<u></u> ATTEST NAME
	<u></u> ATTEST SIGNATURE
	<u></u> DATE

G:\21-02821-SURVEY\PLAT\FINAL\PHASE 1A\FINAL PLAT.DWG

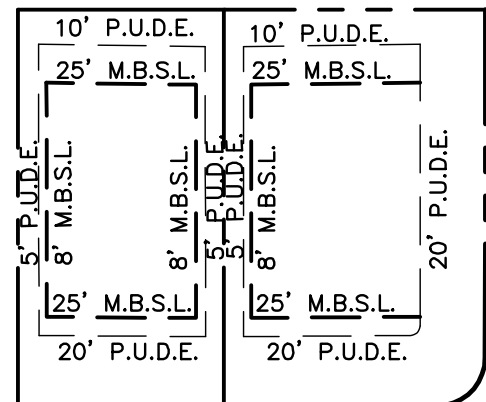


GENERAL NOTES

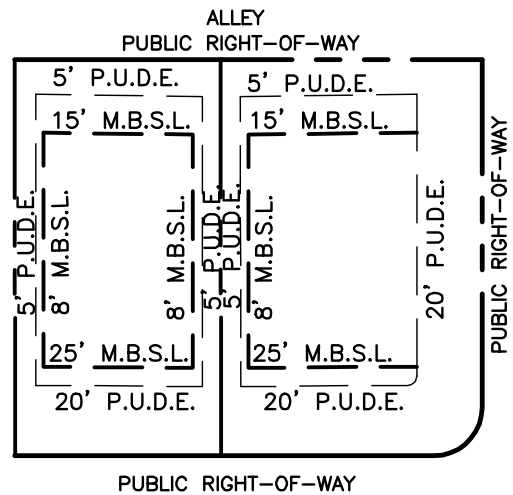
1. THE PURPOSE OF THIS PLAT IS TO CREATE 30 RESIDENTIAL LOTS AND TO DEDICATE RIGHT-OF-WAY.
2. BEARINGS SHOWN HEREON ARE BASED ON THE TENNESSEE COORDINATE SYSTEM OF 1983.
3. THIS PROPERTY IS CURRENTLY ZONED CD3.
4. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONE "X" AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 4719C0195E, WITH AN EFFECTIVE DATE OF 4/16/2007 WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 471013 PANEL NO. "NOT PRINTED" WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED. SAID MAP DEFINES ZONE "X" AREA OF MINIMAL FLOOD HAZARD.
5. THIS SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM VISIBLE APPURTENANCES AT THE SITE. PUBLIC RECORDS AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THEREFORE, RELIANCE ON THE TYPE, SIZE AND LOCATION OF UTILITIES SHOWN SHOULD BE DONE SO WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO IS MADE. AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY. IN TENNESSEE IT IS A REQUIREMENT, PER "THE UNDERGROUND UTILITY DAMAGE PREVENTION ACT", THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOWN UNDERGROUND UTILITY OWNERS, NO LESS THAN (3) THREE NOR MORE THAN (10) TEN WORKING DAYS PRIOR TO THE DATE OF THEIR INTENT TO EXCAVATE AND ALSO TO AVOID ANY POSSIBLE HAZARD OR CONFLICT. TENNESSEE ONE CALL 811.
6. PARENT PARCELS: MAP 73, PARCEL 15.00.
7. ALL SIDEWALKS OUTSIDE THE RIGHT-OF-WAY SHALL BE MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.

PROPERTY MAP REFERENCE

BEING A PORTION OF PARCEL NUMBER 15 AS SHOWN ON MAURY COUNTY PROPERTY MAP NUMBER 73.



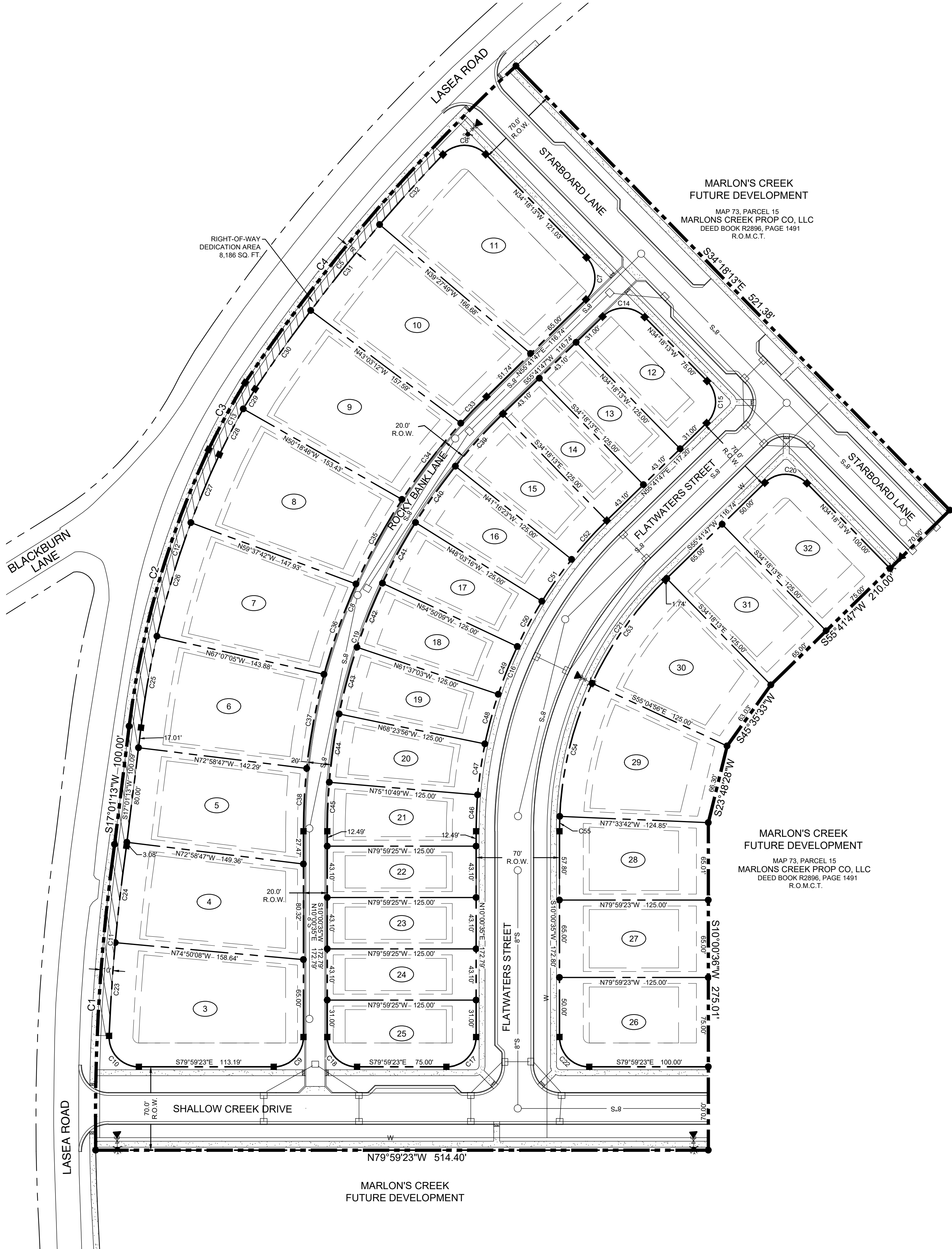
**SINGLE FAMILY
TYPICAL LOT DETAIL**
(NOT TO SCALE)



**ALLEY LOADED
SINGLE FAMILY
TYPICAL LOT DETAIL**
(NOT TO SCALE)

LEGEND

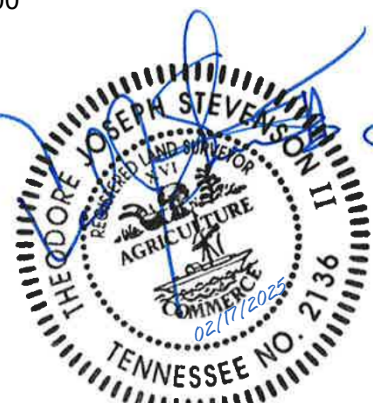
- (R/N) IRON ROD (NEW) (5/8" X 18" W/CAP STAMPED "RAGAN SMITH & ASSOCIATES")
- ⊕ FIRE HYDRANT
- ⊕ WATER VALVE
- ⊕ CATCH BASIN/CURB INLET
- ⊕ LIGHT STANDARD
- GAS VALVE
- UTILITY POLE
- R.O.D.C.T. REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE
- S— SANITARY SEWER LINE
- SANITARY SEWER MANHOLE



LOTS AREA	274,020 SQ. FT. OR 6.29 ACRES±
LASEA ROAD RIGHT-OF-WAY DEDICATION	8,186 SQ. FT. OR 0.18 ACRES±
RIGHT-OF-WAY	131,380 SQ. FT. OR 3.02 ACRES±
TOTAL AREA	413,586 SQ. FT. OR 9.49 ACRES±



SEE NOTE 1.



CURVE TABLE					
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD
C1	1646.76'	257.56'	8°57'40"	129.04'	257.30'
C2	771.67'	242.66'	18°01'01"	122.34'	241.66'
C3	840.94'	63.97'	5°43'05"	32.01'	63.94'
C4	1485.41'	350.83'	13°31'56"	176.23'	350.01'
C5	1475.41'	252.62'	9°48'37"	126.62'	252.31'
C6	25.00'	40.18'	92°04'57"	25.93'	35.99'
C7	25.00'	39.27'	90°00'00"	25.00'	35.36'
C8	510.00'	406.66'	45°41'11"	214.84'	395.98'
C9	25.00'	39.27'	90°00'02"	25.00'	35.36'
C10	25.00'	40.32'	92°24'38"	26.07'	36.09'
C11	1636.76'	160.17'	5°36'25"	80.15'	160.11'
C12	761.67'	239.45'	18°00'44"	120.72'	238.46'
C13	630.94'	62.70'	5°41'39"	31.38'	62.68'
C14	25.00'	39.27'	90°00'00"	25.00'	35.36'
C15	25.00'	39.27'	90°00'00"	25.00'	35.36'
C16	365.00'	290.58'	45°38'51"	153.49'	282.97'
C17	25.00'	39.27'	90°00'02"	25.00'	35.36'
C18	25.00'	39.27'	89°59'58"	25.00'	35.36'
C19	490.00'	390.72'	45°41'11"	206.41'	380.45'
C20	25.00'	39.27'	90°00'00"	25.00'	35.36'
C21	295.00'	235.23'	45°41'11"	124.27'	229.04'
C22	25.00'	39.27'	89°59'58"	25.00'	35.36'
C23	1636.76'	78.38'	2°44'37"	39.20'	78.37'
C24	1636.76'	81.79'	2°51'48"	40.91'	81.79'
C25	761.67'	77.92'	5°51'42"	39.00'	77.89'
C26	761.67'	99.57'	7°29'23"	49.85'	99.49'
C27	761.67'	61.96'	4°39'39"	31.00'	61.94'
C28	630.94'	43.31'	3°55'59"	21.66'	43.30'
C29	630.94'	19.39'	1°45'40"	9.70'	19.39'
C30	1475.41'	80.93'	3°08'34"	40.48'	80.92'
C31	1475.41'	92.44'	3°35'23"	46.23'	92.42'
C32	1475.41'	79.25'	3°04'39"	39.63'	79.24'
C33	510.00'	80.87'	9°05'06"	40.52'	80.78'
C34	510.00'	80.91'	9°05'24"	40.54'	80.83'
C35	510.00'	80.62'	9°03'27"	40.39'	80.54'
C36	510.00'	80.33'	9°01'29"	40.25'	80.25'
C37	510.00'	80.33'	9°01'29"	40.25'	80.25'
C38	510.00'	52.89'	5°56'32"	26.47'	52.87'
C39	490.00'	59.14'	6°54'56"	29.61'	59.11'
C40	490.00'	58.00'	6°46'53"	29.03'	57.96'
C41	490.00'	58.00'	6°46'53"	29.03'	57.96'
C42	490.00'	58.00'	6°46'53"	29.03'	57.96'
C43	490.00'	58.00'	6°46'53"	29.03'	57.96'
C44	490.00'	58.00'	6°46'53"	29.03'	57.96'
C45	490.00'	41.13'	4°48'36"	20.58'	41.12'
C46	365.00'	30.64'	4°48'36"	15.33'	30.63'
C47	365.00'	43.20'	6°46'53"	21.63'	43.18'
C48	365.00'	43.20'	6°46'53"	21.63'	43.18'
C49	365.00'	43.20'	6°46'53"	21.63'	43.18'
C50	365.00'	43.20'	6°46'53"	21.63'	43.18'
C51	365.00'	43.20'	6°46'53"	21.63'	43.18'
C52	365.00'	43.94'	6°53'50"	22.00'	43.91'
C53	295.00'	106.98'	20°46'42"	54.09'	106.40'
C54	295.00'	115.74'	22°28'46"	58.62'	115.00'
C55	295.00'	12.50'	2°25'43"	6.25'	12.50'

LOT AREA TABLE		
LOT	SQ. FT. ±	ACRES ±
1	15439.80	0.35
2	12712.12	0.29
3	11604.12	0.27
4	12512.99	0.29
5	13120.83	0.30
6	14021.57	0.32
7	14040.35	0.32
8	14170.89	0.33
9	16272.73	0.37
10	6731.75	0.15
11	5387.50	0.12
12	5387.50	0.12
13	5387.50	0.12
14	5387.50	0.12
15	6442.62	0.15
16	6324.77	0.15
17	6324.77	0.15
18	6324.77	0.15
19	6324.77	0.15
20	6047.84	0.14
21	5387.50	0.12
22	5387.50	0.12
23	5387.50	0.12
24	5387.50	0.12
25	6731.68	0.15
26	9240.88	0.21
27	8125.00	0.19
28	8455.98	0.19
29	11541.79	0.26
30	10880.84	0.25
31	8125.00	0.19
32	9240.87	0.21

CERTIFICATE OF OWNERSHIP AND DEDICATION

I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OF THE PROPERTY SHOWN AND DESCRIBED HEREON AS EVIDENCED IN DEED BOOK R2896, PAGE 1491, MAURY COUNTY REGISTERS OFFICE AND ADOPT THIS FINAL SUBDIVISION PLAT OR THE PROPERTY AS SHOWN HEREON AND DEDICATE ALL PUBLIC WAYS AND EASEMENTS AS NOTED WITH MY (OUR) FREE CONSENT.

OWNER(S)

DATE

TITLE (IF ACTION FOR CORPORATION OR PARTNERSHIP)

CERTIFICATE OF ACCURACY

I (WE) HEREBY CERTIFY THAT TO THE BEST OF MY (OUR) KNOWLEDGE AND BELIEF THIS IS A TRUE AND ACCURATE SURVEY OF THE PROPERTY SHOWN HEREON. THAT THIS IS A CATEGORY "T" LAND SURVEY AS DEFINED IN TITLE 62, CHAPTER 15, TENNESSEE CODE ANNOTATED, AND THAT THE RATIO OF PRECISION IS GREATER THAN OR EQUAL TO 1:304.042.

RAGAN-SMITH ASSOCIATES, LLC

TED J. STEVENSON II, RLS NUMBER 2136

DATE

CERTIFICATE OF THE APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT THE WATER SYSTEM(S) OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS/HAVE BEEN INSTALLED IN ACCORDANCE WITH CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS, OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

NAME

DATE

TITLE

AUTHORIZING AGENCY

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE, AND UTILITIES

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE, AND UTILITIES OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAVE BEEN INSTALLED IN ACCORDANCE WITH CITY SPECIFICATIONS, OR A PERFORMANCE SURETY IN THE AMOUNT OF \$_____, FOR STREETS AND DRAINAGE HAS BEEN POSTED WITH THE CITY OF COLUMBIA, TENNESSEE, TO ASSURE COMPLETION OF SUCH IMPROVEMENTS.

CITY ENGINEER

DATE

COLUMBIA, TENNESSEE

CERTIFICATE OF APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE FINAL SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE CITY OF COLUMBIA SUBDIVISION REGULATIONS, WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS NOTED IN THE MINUTES OF THE COLUMBIA MUNICIPAL PLANNING COMMISSION, AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE MAURY COUNTY REGISTER OF DEEDS.

PLANNING DIRECTOR

DATE

COLUMBIA, TENNESSEE

CERTIFICATE OF SUBDIVISION NAME AND STREET NAMES

SUBDIVISION NAME AND STREET NAMES APPROVED BY THE CITY ENGINEERING DEPARTMENT AND BY E-911 MAURY COUNTY.

MAURY COUNTY E-911

DATE

CERTIFICATE OF SANITARY SEWER SYSTEM

I HEREBY CERTIFY THAT THE SANITARY SEWER SYSTEM OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS BEEN INSTALLED IN ACCORDANCE WITH THE CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS, OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

DIRECTOR OF WASTEWATER DEPARTMENT

DATE

COLUMBIA, TENNESSEE

CERTIFICATE OF COMPLIANCE

I HEREBY CERTIFY THAT THE FINAL SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE CITY OF COLUMBIA SUBDIVISION REGULATIONS AND OTHER ADOPTED ORDINANCES AND POLICIES.

CITY ENGINEER

DATE

COLUMBIA, TENNESSEE

FINAL PLAT

MARLONS CREEK PHASE 1A

1686 LASEA ROAD
3RD CIVIL DISTRICT
MAURY COUNTY, TENNESSEE

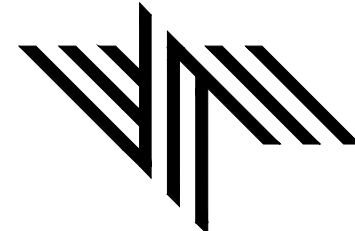
DATE: JANUARY 17, 2025

SCALE: 1"= 50'
JOB NO. 21-0282

SHEET 1 of 1

LAND SURVEYOR
TED STEVENSON, TN RLS
RAGAN-SMITH ASSOCIATES, LLC
315 WOODLAND STREET
NASHVILLE, TENNESSEE 37206
OFFICE: 615.244.8591
EMAIL: tstevenson@ragansmith.com

OWNER/DEVELOPER
MARLONS CREEK PROP CO, LLC
2925 BERRY HILL DRIVE
NASHVILLE, TN 37204
CONTACT: OWEN HOSAY
(615) 934-2864



RaganSmith
a Pape-Dawson company



February 17, 2025

Register's Office

Maury County

RE: Marlon's Creek Phase 1A Marlon's Creek Prop Co, LLC

To Whom It May Concern,

Please allow this letter to serve as Marlon's Creek Prop Co, LLC's authorization for Ragan-Smith Associates, on our behalf, to; final plans, site plan(s), and any other necessary documentation concerning our Marlon's Creek project submittal.

Please feel free to contact us if you have any questions, comments, or need additional information at this time.

Sincerely,

A handwritten signature in blue ink, appearing to read "Nathan J. Quinn", is written over the word "Sincerely,".

Nathan J. Quinn

Owner's Representative



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

Final Plat: * 1 hard copy of all materials for submittal + PDF copy on a USB flash drive (no multiple applications on one storage device)

Fold hard copy submittals larger than 8½"x11"

All Others: * Please submit the Application online at [City of Columbia | Permitting \(onlana.com\)](http://City of Columbia | Permitting (onlana.com))

ADDRESS/LOCATION	1686 Lasea Road, Columbia, TN		
	TAX MAP: 73	GROUP:	PARCEL: 15
SUMMARY OF NATURE OF REQUEST AND WORK	Marlons Creek Phase 1A Final Plat		

DATE OF PRE-APPLICATION CONFERENCE		<i>Pre-application meetings are scheduled for Wednesdays.</i>
------------------------------------	--	---

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Comprehensive Plan Amendment ☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☒ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Site Development Plan ☐ Other:	<u>Annexations:</u> ☐ Annexation Permission Form <u>Annexations/Rezoning/Plan Amendments:</u> ☐ Requested Zone Listed ☐ Statement of Compliance with Comprehensive Plan ☐ Concept Plan <u>Preliminary Plats/Site Development Plans:</u> ☐ Plans and/or Plats conforming to City standards with signed and completed check list <u>All Annexations/Rezoning/Preliminary Plats/Site Development Plans and PUDS:</u> ☐ Receipt of Payment for Pre-Application Meeting ☐ Written Legal Description copy ☐ Columbia Water System Availability Letter ☐ Columbia Waste Water Department Will Serve Letter

**File naming nomenclature examples:*

Freedom Point Site Plan
Freedom Point Master Plan
Freedom Point Final Plat

Marlons Creek Phase 1A Final Plat	Plats/PUDs:
30	☒ Project Name (include Sections & Phases)
N/A	☒ Total Number of Lots/Residential Units
413,586 sq ft	☐ Square Footage of Non-Residential Floor Space
	☒ Total acreage

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application. Any requests to defer or move the item to future meeting dates must be requested by the resubmittal date listed on the Planning Commission schedule.

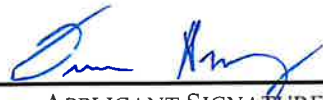
APPLICANT

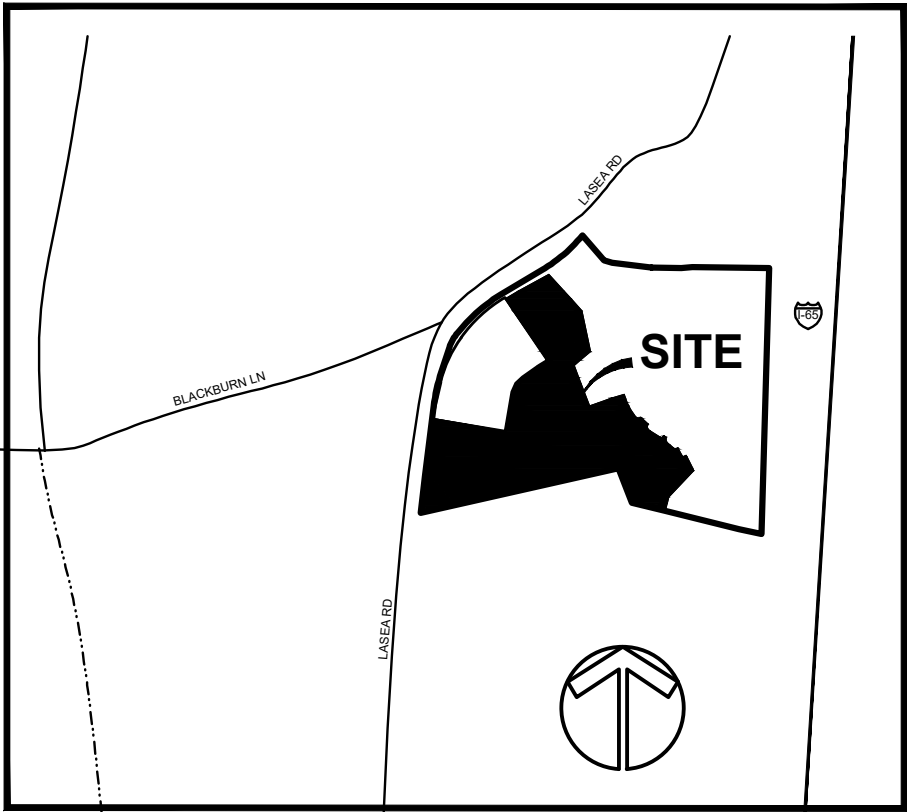
All communications go to the Applicant's email that is provided.

NAME	Owen Hosay	PHONE	615-934-8264
ADDRESS	2925 Berry Hill Dr. Nashville, TN	EMAIL	owen@freehillventures.net

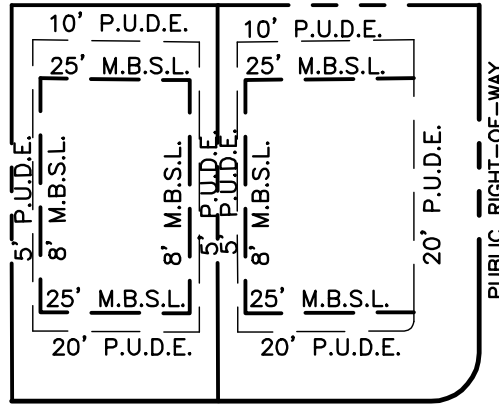
PROPERTY OWNER NAME	Marlons Creek Prop Co, LLC	PHONE	615-934-8264
ADDRESS	2925 Berry Hill Dr.	EMAIL	owen@freehillventures.net

If owner is not a natural person, documentation must be provided showing signing authority on behalf of the entity. If multiple persons are listed as owners in the records of the Maury County Assessor, all owners must sign or the signatory must provide documentation of authority to apply on behalf of record owner (i.e., Power of Attorney or notarized Letter of Authorization). In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Owen Hosay		2/17/2025
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Owen Hosay		2/17/2025
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

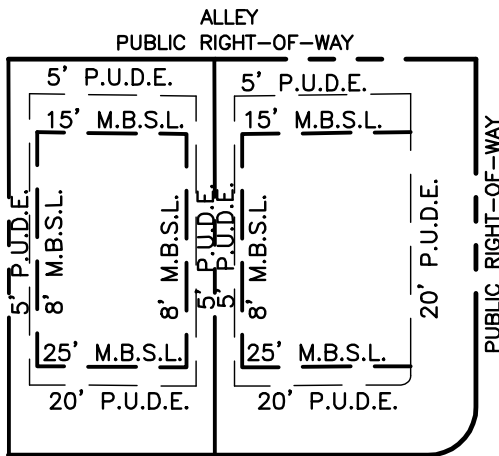


VICINITY MAP
(N.T.S.)



PUBLIC RIGHT-OF-WAY

**SINGLE FAMILY
TYPICAL LOT DETAIL**
(NOT TO SCALE)



PUBLIC RIGHT-OF-WAY

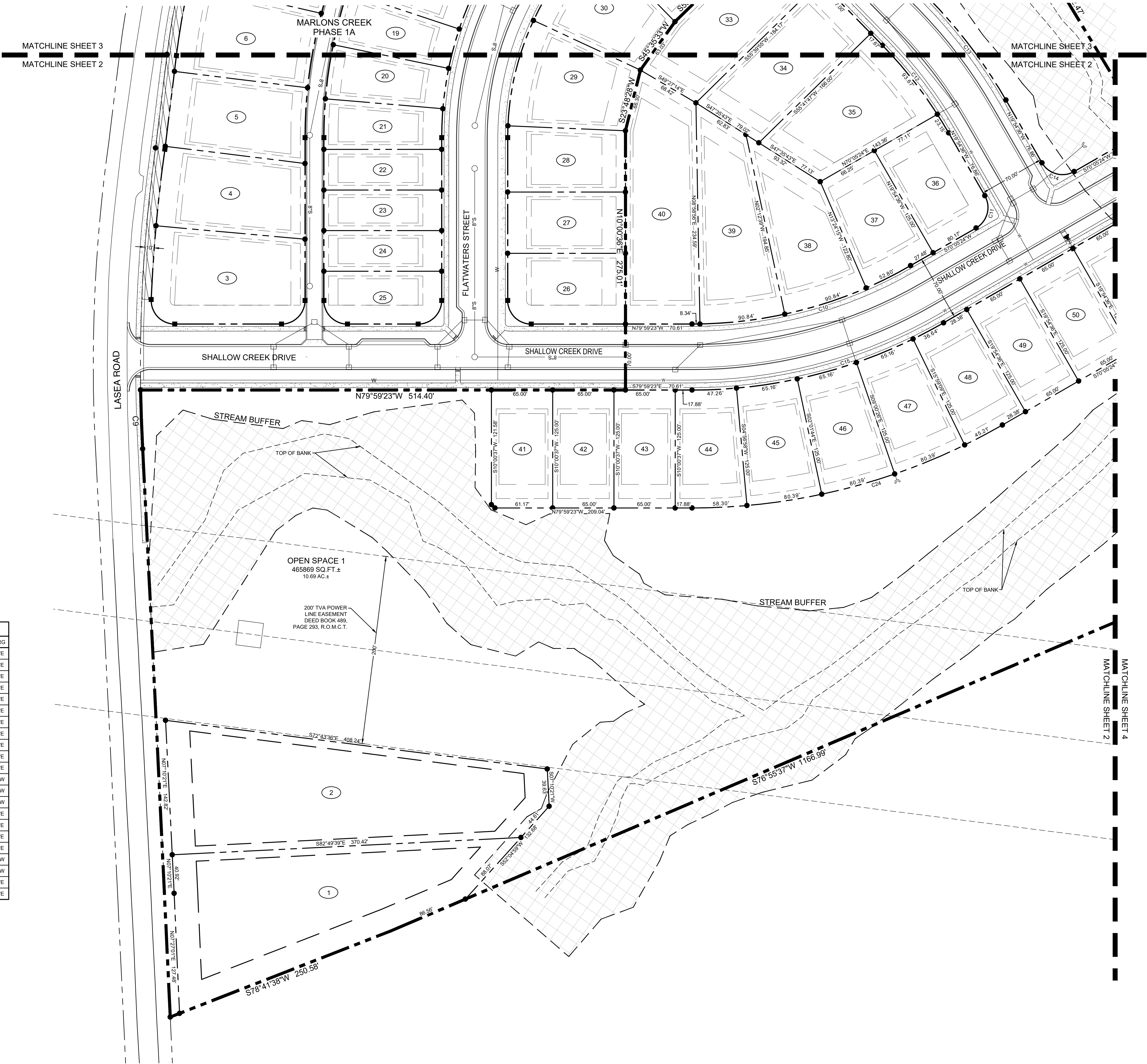
**ALLEY LOADED
SINGLE FAMILY
TYPICAL LOT DETAIL**
(NOT TO SCALE)

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N68°35'24"E	39.08'
L2	N76°39'54"W	62.04'
L3	S10°29'37"W	42.73'
L4	N10°29'37"E	46.21'

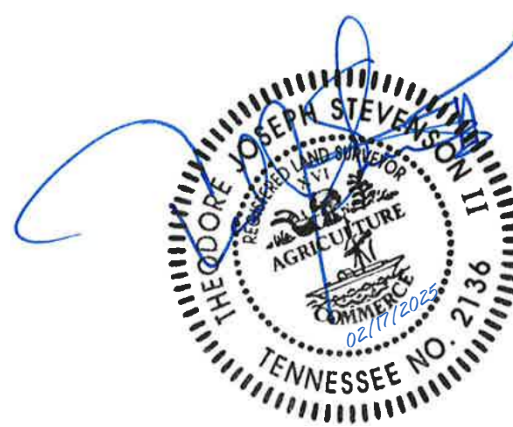
CURVE TABLE						
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BRG
C1	1481.74'	107.91'	4°10'22"	53.98'	107.89'	N59°24'33"E
C2	470.00'	177.11'	21°35'27"	89.62'	176.07'	S27°08'26"E
C3	25.00'	42.65'	97°44'56"	28.63'	37.66'	S86°48'38"E
C4	25.00'	43.86'	100°31'34"	30.07'	38.45'	S05°56'53"E
C5	25.00'	39.27'	90°00'00"	25.00'	35.36'	N78°47'20"E
C6	25.00'	36.85'	84°27'03"	22.69'	33.60'	S08°26'11"E
C7	335.00'	29.63'	5°04'02"	14.82'	29.62'	S48°07'42"E
C8	25.00'	30.98'	71°00'00"	17.83'	29.04'	S81°05'41"E
C9	1646.76'	62.33'	2°10'07"	31.17'	62.33'	N07°58'45"E
C10	465.00'	242.83'	29°55'14"	124.25'	240.08'	N85°03'01"E
C11	25.00'	39.27'	90°00'00"	25.00'	35.36'	N25°05'24"E
C12	465.00'	116.82'	14°23'37"	58.72'	116.51'	N27°06'25"W
C13	535.00'	134.40'	14°23'37"	67.56'	134.05'	N27°06'25"W
C14	25.00'	39.27'	90°00'00"	25.00'	35.36'	N64°54'36"W
C15	535.00'	279.38'	29°55'14"	142.95'	276.22'	N85°03'01"E
C16	25.00'	36.61'	83°54'14"	22.47'	33.43'	S67°57'29"E
C17	540.00'	284.68'	30°12'18"	145.73'	281.39'	S41°06'31"E
C18	25.00'	47.39'	108°36'25"	34.80'	40.61'	S01°54'27"E
C19	335.00'	108.79'	18°36'25"	54.88'	108.32'	S43°05'33"W
C20	368.00'	149.62'	23°17'43"	75.86'	148.59'	S22°08'29"W
C21	298.00'	121.16'	23°17'43"	61.43'	120.33'	N22°08'29"E
C22	265.00'	136.98'	29°36'59"	70.06'	135.46'	N48°35'50"E

LEGEND

- (R)(N) IRON ROD (NEW) (5/8" X 18" W/ CAP STAMPED "RAGAN SMITH & ASSOCIATES")
- (R)(O) IRON ROD (OLD)
- ELECTRIC BOX
- ⊕ FIRE HYDRANT
- ⊕ WATER VALVE
- CATCH BASIN/CURB INLET
- SANITARY SEWER LINE
- OVERHEAD ELECTRIC POWER LINE
- UTILITY POLE W/ANCHOR
- UTILITY POLE
- R.O.M.C.T. REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE



SEE NOTE 1.



FINAL PLAT

**MARLONS CREEK
PHASE 1B**

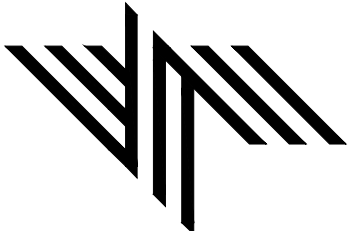
1686 LASEA ROAD
3RD CIVIL DISTRICT
MAURY COUNTY, TENNESSEE

DATE: FEBRUARY 17, 2025
SCALE: 1"= 50'
JOB NO. 21-0282

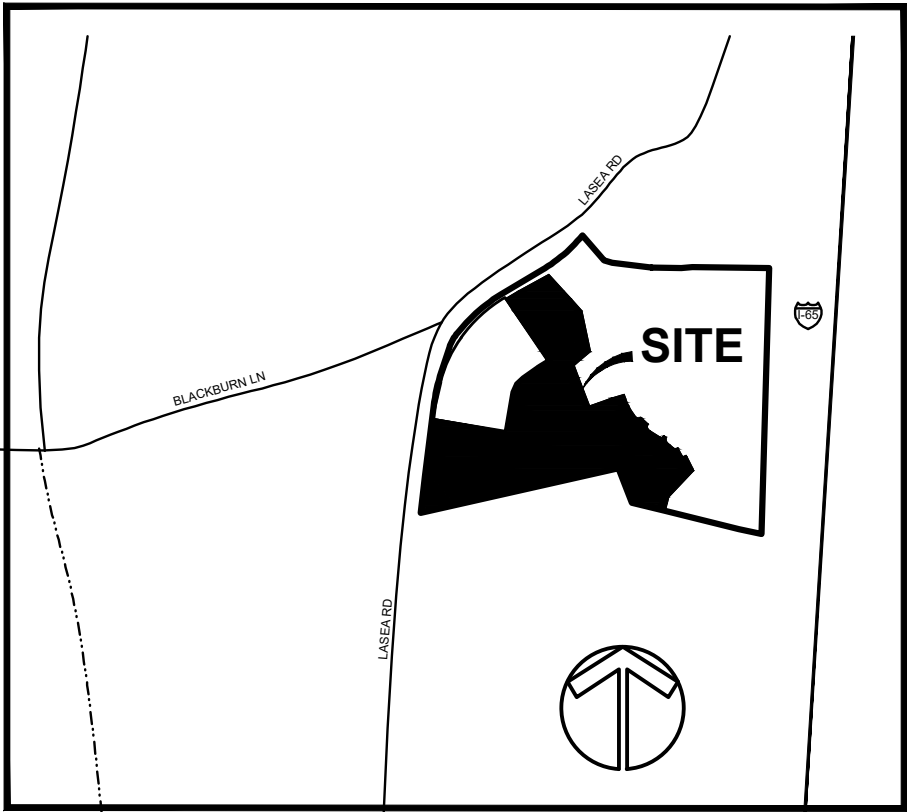
SHEET 2 of 4

LAND SURVEYOR
TED STEVENSON, TN RLS
RAGAN-SMITH ASSOCIATES, LLC
315 WOODLAND STREET
NASHVILLE, TENNESSEE 37206
OFFICE: 615.244.8591
EMAIL: tstevenson@ragansmith.com

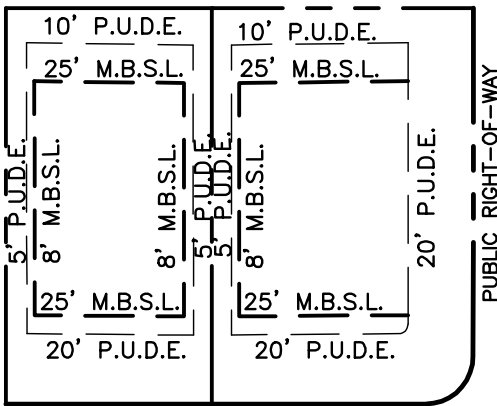
OWNER/DEVELOPER
MARLONS CREEK PROP CO. LLC
2925 BERRY HILL DRIVE
NASHVILLE, TN 37204
CONTACT: OWEN HOSAY
(615) 934-2864



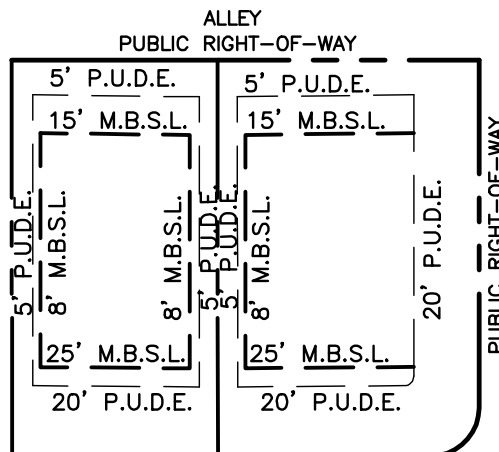
RaganSmith
a Pape-Dawson company



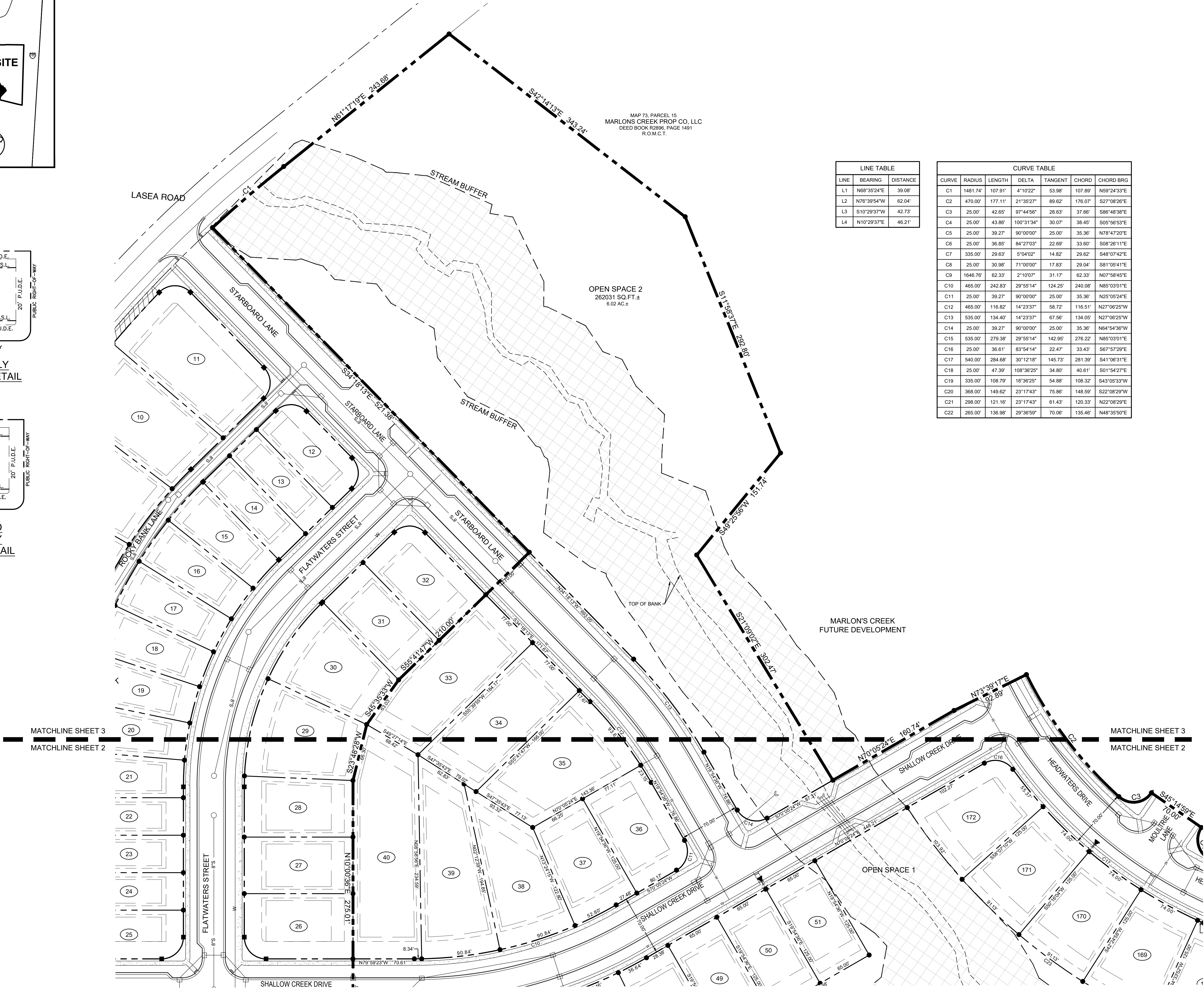
VICINITY MAP
(N.T.S.)



SINGLE FAMILY
TYPICAL LOT DETAIL
(NOT TO SCALE)



ALLEY LOADED
SINGLE FAMILY
TYPICAL LOT DETAIL
(NOT TO SCALE)

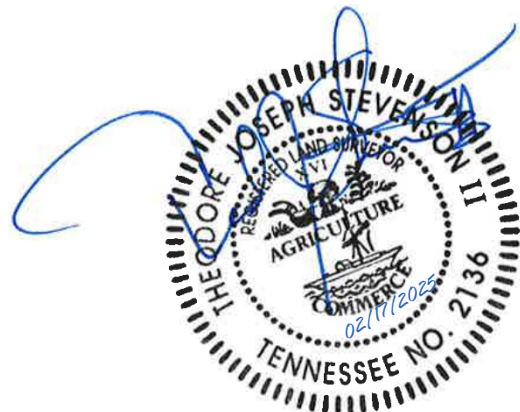
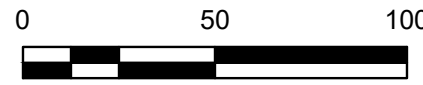


LINE TABLE		
LINE	BEARING	DISTANCE
L1	N68°35'24"E	39.08'
L2	N76°39'54"W	62.04'
L3	S10°29'37"W	42.73'
L4	N10°29'37"E	46.21'

CURVE TABLE						
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BRG
C1	1481.74'	107.91'	4°10'22"	53.98'	107.89'	N59°24'33"E
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C3	25.00'	42.65'	97°44'56"	28.63'	37.66'	S86°48'38"E
C4	25.00'	43.86'	100°31'34"	30.07'	38.45'	S05°56'53"E
C5	25.00'	39.27'	90°00'00"	25.00'	35.36'	N78°47'20"E
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C7	335.00'	29.63'	5°04'02"	14.82'	29.62'	S48°07'42"E
C8	25.00'	30.98'	71°00'00"	17.83'	29.04'	S81°05'41"E
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SEE NOTE 1.



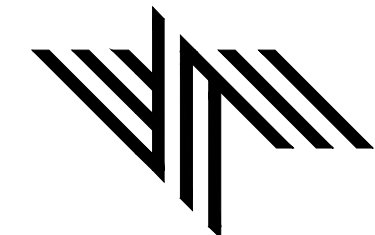
FINAL PLAT
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SHEET 3 of 4

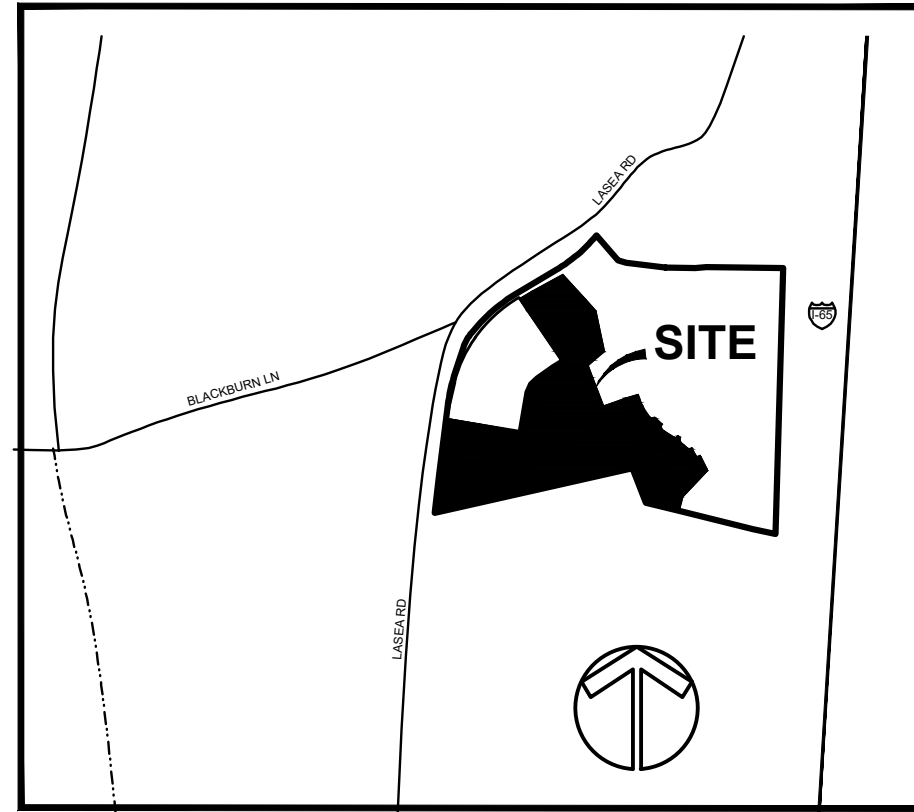
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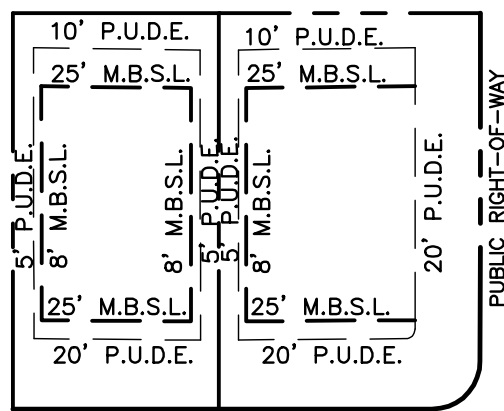


RaganSmith
a Pape-Dawson company

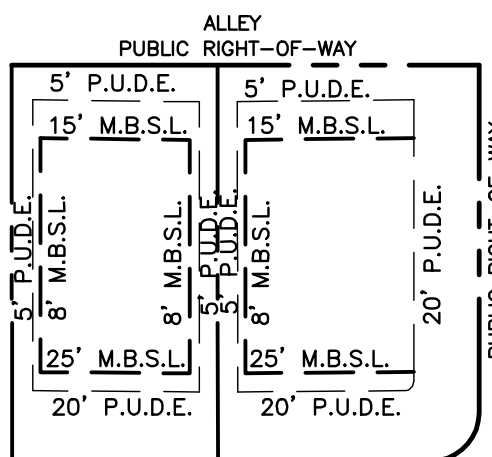
- LEGEND
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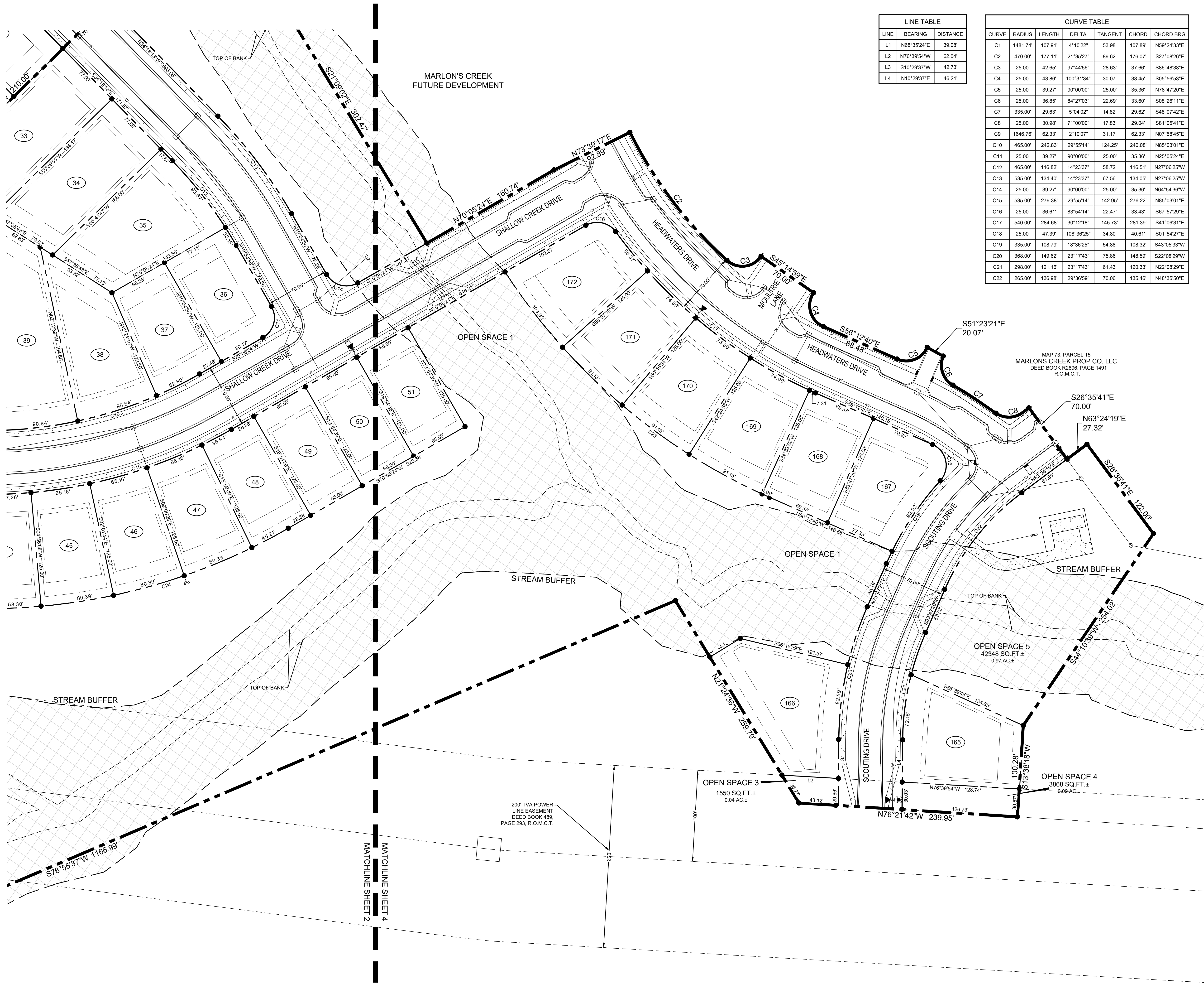
VICINITY MAP
(N.T.S.)



SINGLE FAMILY
TYPICAL LOT DETAIL
(NOT TO SCALE)



ALLEY LOADED
SINGLE FAMILY
TYPICAL LOT DETAIL
(NOT TO SCALE)

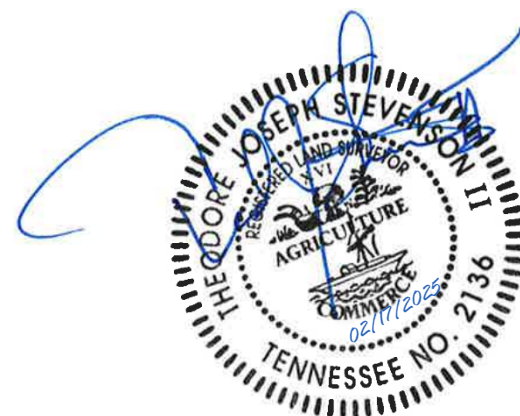


LINE TABLE		
LINE	BEARING	DISTANCE
L1	N68°35'24"E	39.08'
L2	N76°39'54"W	62.04'
L3	S10°29'37"W	42.73'
L4	N10°29'37"E	46.21'

CURVE TABLE						
CURVE	RADIUS	LENGTH	DELTA	TANGENT	CHORD	CHORD BRG
C1	1481.74'	107.91'	4°10'22"	53.98'	107.89'	N59°24'33"E
C2	470.00'	177.11'	21°35'27"	89.62'	176.07'	S27°08'28"E
C3	25.00'	42.65'	97°44'56"	28.63'	37.66'	S86°48'38"E
C4	25.00'	43.86'	100°31'34"	30.07'	38.45'	S05°56'53"E
C5	25.00'	39.27'	90°00'00"	25.00'	35.36'	N78°47'20"E
C6	25.00'	36.85'	84°27'03"	22.69'	33.60'	S08°26'11"E
C7	335.00'	29.63'	5°04'02"	14.82'	29.62'	S48°07'42"E
C8	25.00'	30.98'	71°00'00"	17.83'	29.04'	S81°05'41"E
C9	1646.76'	62.33'	2°10'07"	31.17'	62.33'	N07°58'45"E
C10	465.00'	242.83'	29°55'14"	124.25'	240.08'	N85°03'01"E
C11	25.00'	39.27'	90°00'00"	25.00'	35.36'	N25°05'24"E
C12	465.00'	116.82'	14°23'37"	58.72'	116.51'	N27°06'25"W
C13	535.00'	134.40'	14°23'37"	67.56'	134.05'	N27°06'25"W
C14	25.00'	39.27'	90°00'00"	25.00'	35.36'	N64°54'36"W
C15	535.00'	279.38'	29°55'14"	142.95'	276.22'	N85°03'01"E
C16	25.00'	36.61'	83°54'14"	22.47'	33.43'	S67°57'29"E
C17	540.00'	284.68'	30°12'18"	145.73'	281.39'	S41°06'31"E
C18	25.00'	47.39'	108°36'25"	34.80'	40.61'	S01°54'27"E
C19	335.00'	108.79'	18°36'25"	54.88'	108.32'	S43°05'33"W
C20	368.00'	149.62'	23°17'43"	75.86'	148.59'	S22°08'29"W
C21	298.00'	121.16'	23°17'43"	61.43'	120.33'	N22°08'29"E
C22	265.00'	136.98'	29°36'59"	70.06'	135.46'	N48°35'50"E



SEE NOTE 1.



MAP 73, PARCEL 15
MARLONS CREEK PROP CO, LLC
DEED BOOK R2896, PAGE 1491
R.O.M.C.T.

FINAL PLAT

MARLONS CREEK PHASE 1B

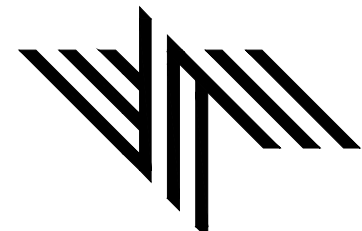
1686 LASEA ROAD
3RD CIVIL DISTRICT
MAURY COUNTY, TENNESSEE

DATE: FEBRUARY 17, 2025
SCALE: 1"= 50'
JOB NO. 21-0282

SHEET 4 of 4

LAND SURVEYOR
TED STEVENSON, TN RLS
RAGAN-SMITH ASSOCIATES, LLC.
315 WOODLAND STREET
NASHVILLE, TENNESSEE 37206
OFFICE: 615.244.8591
EMAIL: tstevenson@ragansmith.com

OWNER/DEVELOPER
MARLONS CREEK PROP CO, LLC
2925 BERRY HILL DRIVE
NASHVILLE, TN 37204
CONTACT: OWEN HOSAY
(615) 934-2864



RaganSmith
a Pape-Dawson company

LEGEND

- (R/N) IRON ROD (NEW) (5/8" X 18" W/CAP STAMPED "RAGAN SMITH & ASSOCIATES")
- (R/O) IRON ROD (OLD)
- ELECTRIC BOX
- ⊗ FIRE HYDRANT
- ⊕ WATER VALVE
- CATCH BASIN/CURB INLET
- SANITARY SEWER LINE
- UTILITY POLE W/ANCHOR
- UTILITY POLE
- R.O.D.C.T. REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

17th day of February, 2025,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Marlons Creek Prop Co, LLC, the DEVELOPER (hereinafter the
"DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made
a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter
the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal
Planning Commission (hereinafter the "CMPC") on the

17th day of February, 2025,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of
Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such
development; and,

WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it
will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and
common areas to be constructed within and to serve the PROJECT including but not be limited to roads,
bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street
lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS");
and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public
infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to
construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances
of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost;
and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements
as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council
approval by resolution, and subject to the applicant's compliance with all requirements in this
agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:

B1 General Conditions

B1.1 Construction Costs

The DEVELOPER shall pay for all material and labor necessary to install and complete the roads, sidewalks, sewers, utilities, and other facilities in accordance with this agreement.

B1.2 City Ordinances, Rules and Regulations

All currently existing CITY ordinances, rules and regulations, and the Subdivision Regulations adopted by the CMPC are made a part of this agreement. In the event of a conflict between the terms of this agreement and a CITY ordinance, the ordinance shall prevail. In the event of a conflict between the terms of this agreement and the Subdivision Regulations, the Subdivision Regulations shall prevail. All work done under this agreement is to be performed in accordance with plans and specifications approved by the City and made a part, hereof.

B1.3 Fees

Review fees, inspection fees, and other amounts established by the CITY shall be paid prior to any review of the plans. If the DEVELOPER fails to install the facilities in accordance with the terms of this Agreement, no portion of the review fees, inspection fees, or other amounts paid to the CITY shall be refundable to the DEVELOPER.

B1.4 Inspection

The CITY shall have a continuous right to inspect the work and facilities to assure that the work and facilities are in accordance with the Subdivision Regulations, approved Construction Plans, and other rules, regulations, and ordinances of the CITY.

B1.5 Right of Entry

The CITY shall have the right, in case of breach of the Performance Agreement, to enter upon any property of the DEVELOPER and take all necessary actions to complete the work and obligations not completed.

B1.6 Easements

The DEVELOPER shall obtain and dedicate to the CITY or cause to be dedicated to the CITY, either by dedication on the plat or by easement deed, in either case in a form acceptable to the CITY, permanent easements of such widths as required by the CITY and noted on the Plans. The DEVELOPER further agrees to grant the necessary easements and rights-of-way across the DEVELOPER's properties without expense to the CITY and waive any claim for damages.

B1.7 Stormwater Maintenance Agreement

If the PROJECT includes any detention or retention ponds, common drainage ditches, water quality facilities, or stormwater facilities outside of the CITY rights-of-way, the DEVELOPER will submit a Stormwater Maintenance Agreement, to be filed with and recorded with the Final Plat.

B1.8 Attorney Fees and Other Expenses

The DEVELOPER shall pay all reasonable costs and expenses incurred by the CITY in enforcing or completing this agreement. The DEVELOPER shall pay all costs and expenses, including the CITY'S attorney fees, of any legal proceedings brought by the CITY against the DEVELOPER seeking remedies for the DEVELOPER'S failure to perform any of its obligations hereunder, whether or not any proceedings are prosecuted to judgment.

B1.9 Agreement Not Assignable

No third party shall obtain any benefits or rights under this agreement nor shall the rights or duties be assigned by either party.

B1.10 Revocation and Interpretation

This agreement shall bind the DEVELOPER when executed by the DEVELOPER and may not be revoked by the DEVELOPER without permission of the CITY, even if the agreement has not been executed by the CITY, or does not bind CITY, for other reasons. This agreement shall be interpreted in accordance with Tennessee law and may only be enforced in the Chancery Court or Circuit Court or Court of competent jurisdiction of Maury County, Tennessee, and Tennessee Appellate Courts.

B1.11 No Oral Agreement

This agreement may not be orally amended and supersedes all prior negotiations, commitments, or understandings.

B1.12 Separability

If any portion of this agreement is held to be unenforceable, the CITY shall have the right to determine whether the remainder of the agreement shall remain in effect, or whether the agreement shall be void and all rights of the DEVELOPER pursuant to this agreement terminated.

B 1.13 Transferability

The DEVELOPER agrees to not transfer the property on which this PROJECT is to be located without first providing the CITY with written notice. The transferee shall provide the CITY an Assumption Agreement of this Agreement, whereby the transferee agrees to perform the IMPROVEMENTS required under this agreement and to provide a performance surety. The DEVELOPER understands that if the DEVELOPER transfers said property without providing the notice of transfer and Assumption Agreement as required herein, they will be in breach of this agreement and in violation of the Subdivision Regulations.

B1.14 Indemnity

The DEVELOPER shall indemnify and hold the CITY harmless from all loss, costs, expenses, liability, money damages, penalties, or claims arising out of any work covered by this agreement, including any attorney fees incurred by the CITY in connection therewith. Inspection of the IMPROVEMENTS by an authorized representative of the CITY shall not constitute a waiver by the CITY of any defect or of any of the DEVELOPER'S obligations hereunder.

B1.15 Binding Effect

This agreement shall be binding upon the DEVELOPER and the DEVELOPER's heirs, administrators, executors, assigns, and any other successors in interest.

B1.16 Entire Agreement

This document contains the entire agreement between the parties, and there are no collateral understandings or agreements between them. No variations or alterations of the terms of this agreement shall be binding upon either of the parties, unless the same be reduced to writing and made an amendment to this agreement.

B1.17 Headings

Paragraph titles and headings contained herein are inserted for convenience only and shall not be deemed a part of the agreement and in no way shall define, limit, extend, or describe the scope or intent of any provision, hereof.

B2 Performance Surety

At the time of execution of this agreement, the DEVELOPER shall provide the CITY a performance surety, in an amount determined by the City Engineer for the IMPROVEMENTS and other items specified by the Construction Plans, plats, and plans approved by the CMPC. This performance surety shall secure performance of all obligations of the DEVELOPER under this agreement. The performance surety shall meet all requirements established in Chapter 4: Performance Agreement of the Subdivision Regulations and secure full compliance with all terms and conditions of this agreement. The performance surety may be called for failure to comply with the provisions of this agreement in whole or in part according to the terms of the performance surety. The performance surety will not be released, except and until there has been full compliance with this agreement.

B3 Construction

B3.1 Construction Plans

The DEVELOPER shall submit to the CITY, Construction Plans describing in reasonable detail all utility systems, all storm water management systems, all street systems, pedestrian facilities, and all IMPROVEMENTS. The Construction Plans shall be designed according to the Engineering Standards and Specifications, all other codes and ordinances enforced by the City, and sound engineering judgment. The design of all utility systems shall follow the State of Tennessee and utility provider design criteria and specifications. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. The Construction Plans shall be prepared by a design professional licensed by the State of Tennessee to design all systems and shall bear the seal, signature, date, and license number of the professional preparing the Construction Plans.

B3.2 Commencement of Construction

Construction of IMPROVEMENTS may not begin until the following events have occurred:

- A. The Preliminary Plat has been approved by the CMPC;
- B. The Construction Plans are approved by the CITY;
- C. The Tennessee Department of Environment and Conservation has approved the applicable portions of the Plans and has confirmed its approval to the CITY and/or DEVELOPER in writing;
- D. The CITY shall have received an appropriately executed Development Agreement; and
- E. The DEVELOPER shall give the CITY notice of commencement of construction, in writing at least one (1) working day prior to commencement.

B3.3 Site Grading

The DEVELOPER, hereby, agrees to construct all site grading to comply with the approved Construction Plans, including the approved Erosion Control Plan for the PROJECT and to comply with the Engineering Standards and Specifications, Stormwater Ordinance, and all other codes and ordinances enforced by the CITY.

B3.4 Storm Water Management Systems

The DEVELOPER shall be responsible for all storm water management work made necessary by the development of this PROJECT. It is understood and agreed that the CITY in its proprietary function is not and could not be expected to oversee, supervise, or direct the construction of all drainage improvements, and the excavation incident thereto. Neither is the CITY vested with the original design responsibility nor the means to formally survey elevations or the locations of improvements at every stage of the construction process. The CITY is vested with the right of periodic inspections, stop work order, and final approval as a measure of secondary or subsequent enforcement. The DEVELOPER has and shall retain the responsibility to properly anticipate, survey, design and construct the subdivision storm water improvements and give full assurance that same shall not adversely affect the flow or quality of surface water from or upon any property. In providing technical assistance, plan and design review, the CITY does not and shall not relieve or accept any liability from the DEVELOPER.

B3.5 Street Construction

The DEVELOPER, hereby, agrees to construct and improve the streets shown on the Construction Plans to comply with the CITY's specifications and to the satisfaction and approval of the City Engineer by grading, draining, subgrade preparation, base preparation, curbing, signage, striping, signalization, sidewalk installation, and paving with the required preparation, amounts, and types of material. The DEVELOPER further agrees to pay the cost of all engineering, inspection and laboratory cost incidental to the construction of subdivision streets including but not limited to material and density testing. The DEVELOPER further agrees to make all necessary adjustments to manholes and valve boxes to meet finished surface grade and to repair subsurface or base material, as required, in areas directed by the CITY Engineer, prior to application of final surface.

B3.6 Time Period for Construction

The DEVELOPER agrees to be bound to complete, within three (3) years of commencement of construction, all IMPROVEMENTS shown on the plat and plans and all things required by this agreement.

The DEVELOPER further agrees that if due to unforeseen circumstances, he is unable to complete all work included in this agreement within the time specified above, but desires to complete said agreement to the satisfaction of the CITY, the DEVELOPER shall submit a written request for extension of the agreement period to the CITY at least sixty (60) days prior to the expiration of the existing agreement period, specifying the reason for the DEVELOPER's failure to complete the work as agreed and a prospective date for such completion. The DEVELOPER further agrees that if the performance surety executed to secure the value of the work to be performed under this agreement, due to inflation or rising costs, is determined to be inadequate by the City Engineer to secure the cost of said IMPROVEMENTS at the time an extension is sought, the DEVELOPER will provide the additional security to bring the performance surety amount in line with current cost projections as made by the CITY. The DEVELOPER understands that the DEVELOPER's failure to follow the extension procedure constitutes a breach of this agreement and places the DEVELOPER in violation of the Subdivision Regulations. The DEVELOPER further understands, that should the DEVELOPER fail to complete any part of the work outlined in this agreement in a good and workmanlike manner as approved, the CITY shall reserve the right to withhold and withdraw all building permits within the PROJECT until all items of this Agreement have been fulfilled by the DEVELOPER.

B3.7 Off-Site Improvements

The DEVELOPER shall construct any and all off-site facilities that may be required to serve the PROJECT. Unless specifically noted in the Construction Plans and made a part of separate agreement with the CITY, the CITY shall not be required to reimburse the DEVELOPER for construction of off-site improvements.

B3.9 Inspection and Compliance

After construction begins, the CITY shall provide on-site construction inspection as the CITY deems necessary to ensure that all work is performed and completed in accordance with the Construction Plans, CITY specifications, and the contents of this agreement. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. If the DEVELOPER fails to construct in accordance with the approved Construction Plans or to comply with the CITY'S specifications, the CITY may issue a stop-work order and DEVELOPER, hereby, agrees to be bound by such order.

B3.10 Testing

The DEVELOPER agrees to pay the cost of all engineering, inspection, and laboratory cost incidental to construction of the streets, sidewalks, utilities, sewers, compacted fill material, and other facilities included within this agreement. Such testing includes, but is not limited to, material and density testing.

B3.11 Scrap Removal

The DEVELOPER agrees to comply with all local, state, and federal rules and regulations regarding waste material and debris disposal.

B3.12 Traffic Control

The DEVELOPER, hereby, agrees to prepare a traffic control/detour plan where required and shall submit said plan to the CITY for review and approval. All traffic control and safety devices, including

signs, lane markings, and barriers necessitated by construction activity undertaken pursuant to this agreement shall be installed and maintained by the DEVELOPER. All traffic control devices shall meet the standards and be installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the United States Department of Transportation.

B3.13 Temporary Facilities

The DEVELOPER shall provide all temporary facilities including but not limited to utilities and roadways, that are determined by the CITY to be required in connection with or as a result of interruption of service or access that occurs as a consequence of construction activity associated with the work covered by this agreement. Such temporary services shall in all regards and at all points in time be adequate to assure emergency access and adequate fire flows.

B4 Acceptance of Improvements

B4.1 Completion of Improvements

At such time as the improvements have been constructed and installed, in accordance with the Constructions Plans and specifications, required testing and inspections completed and found satisfactory, and all clean-up and cover-up has been done to the satisfaction the City Engineer, a letter requesting preliminary acceptance of the PROJECT will be provided by the DEVELOPER. Formal acceptance shall follow the procedure established in the Subdivision Regulations.

The DEVELOPER agrees the DEVELOPER shall have no claim, direct or implied, in the title or ownership of the IMPROVEMENTS specified in this agreement when the IMPROVEMENTS are complete and thereafter accepted by the CITY. The DEVELOPER will be responsible for construction failures and defects in PROJECT prior to final acceptance. During this period, it shall remain the responsibility of the DEVELOPER to correct and cure these defects and failures.

B4.2 As-Built Drawings and Post-Completion Items

The DEVELOPER agrees to furnish to the CITY as-built plans, on a reproducible, stable media, of the sanitary sewer, storm water management, water mains and service system, and streets within the subdivision before the CITY shall accept the subdivision.

B4.3 Acceptance of Facilities

Upon final acceptance of all or part of the IMPROVEMENTS in the PROJECT, then those IMPROVEMENTS shall become the property of the CITY free from all claims from any person or entity without the necessity of any further writing, agreement, or deed. The DEVELOPER further agrees that any facilities placed within a public or platted right-of-way or dedicated public easement are irrevocably dedicated to the public use without any right of reimbursement or compensation of any kind.

B4.4 Failure to Install

In the event the DEVELOPER fails to install the facilities in accordance with the terms of this agreement, the CITY may, in its sole discretion, elect to accept all or a portion of the IMPROVEMENTS in the PROJECT. Should the CITY choose to accept all or a portion of these IMPROVEMENTS, the CITY shall become the sole owner of these facilities. The CITY may give notice of acceptance by writing delivered to the DEVELOPER or recorded in the Register's Office of Maury County, Tennessee. No further writing or deed shall be required.

<u>Marlons Creek Subdivision</u> PROJECT	
Completed by the Developer <u>Marlons Creek Prop Co. LLC</u> DEVELOPER NAME <u>Owen Hosay</u> AUTHORIZED AGENT NAME <u>[Signature]</u> SIGNATURE <u>2-17-2025</u> DATE <u>2925 Berry Hill Drive</u> STREET <u>Nashville, TN 37204</u> CITY, STATE, ZIP <u>615-934-8264</u> PHONE <u>owen@freehillventures.net</u> EMAIL Attest <u>Mandy A. Allen</u> ATTEST NAME <u>[Signature]</u> ATTEST SIGNATURE <u>02/17/2025</u> DATE	Completed by the City _____ CITY ENGINEER _____ SIGNATURE _____ DATE Attest _____ ATTEST NAME _____ ATTEST SIGNATURE _____ DATE



February 17, 2025

Register's Office

Maury County

RE: Marlon's Creek Phase 1B

To Whom It May Concern,

Please allow this letter to serve as Marlon's Creek Prop Co, LLC's authorization for Ragan-Smith Associates, on our behalf, to; final plans, site plan(s), and any other necessary documentation concerning our Marlons Creek project submittal.

Please feel free to contact us if you have any questions, comments, or need additional information at this time.

Sincerely,

A handwritten signature in blue ink, appearing to read "Nathan J. Quinn", is written over a horizontal line.

Nathan J. Quinn

Owner's Representative



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

Final Plat: * 1 hard copy of all materials for submittal + PDF copy on a USB flash drive (no multiple applications on one storage device)

Fold hard copy submittals larger than 8½"x11"

All Others: * Please submit the Application online at [City of Columbia | Permitting \(onlana.com\)](http://City of Columbia | Permitting (onlana.com))

ADDRESS/LOCATION	1686 Lasea Road, Columbia, TN		
	TAX MAP: 73	GROUP:	PARCEL: 15
SUMMARY OF NATURE OF REQUEST AND WORK	Marlons Creek Phase 1B Final Plat		

DATE OF PRE-APPLICATION CONFERENCE		<i>Pre-application meetings are scheduled for Wednesdays.</i>
------------------------------------	--	---

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Comprehensive Plan Amendment ☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☒ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Site Development Plan ☐ Other:	<u>Annexations:</u> ☐ Annexation Permission Form <u>Annexations/Rezoning/Plan Amendments:</u> ☐ Requested Zone Listed ☐ Statement of Compliance with Comprehensive Plan ☐ Concept Plan <u>Preliminary Plats/Site Development Plans:</u> ☐ Plans and/or Plats conforming to City standards with signed and completed check list <u>All Annexations/Rezoning/Preliminary Plats/Site Development Plans and PUDS:</u> ☐ Receipt of Payment for Pre-Application Meeting ☐ Written Legal Description copy ☐ Columbia Water System Availability Letter ☐ Columbia Waste Water Department Will Serve Letter

**File naming nomenclature examples:*

Freedom Point Site Plan
Freedom Point Master Plan
Freedom Point Final Plat

Marlons Creek Phase 1B Final Plat	Plats/PUDs:
28	☒ Project Name (include Sections & Phases)
N/A	☒ Total Number of Lots/Residential Units
1,305,438 sq ft	☐ Square Footage of Non-Residential Floor Space
	☒ Total acreage

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application. Any requests to defer or move the item to future meeting dates must be requested by the resubmittal date listed on the Planning Commission schedule.

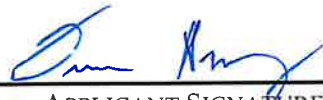
APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Owen Hosay	PHONE	615-934-8264
ADDRESS	2925 Berry Hill Dr. Nashville, TN	EMAIL	owen@freehillventures.net

PROPERTY OWNER NAME	Marlons Creek Prop Co, LLC	PHONE	615-934-8264
ADDRESS	2925 Berry Hill Dr.	EMAIL	owen@freehillventures.net

If owner is not a natural person, documentation must be provided showing signing authority on behalf of the entity. If multiple persons are listed as owners in the records of the Maury County Assessor, all owners must sign or the signatory must provide documentation of authority to apply on behalf of record owner (i.e., Power of Attorney or notarized Letter of Authorization). In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Owen Hosay		2/17/2025
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Owen Hosay		2/17/2025
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

PURPOSE NOTE

THE PURPOSE OF THIS PLAT IS TO CREATE 20 TOWNHOME UNITS, AND TO DEDICATE OPEN SPACE AREAS.

Surveyor's Notes

- The property shown hereon is located within the City of Columbia, Maury County, TN. All matters pertaining to construction, use, location of improvements, signage, parking, noise, vibration, emissions, fire hazards, radiation, illumination, setback provisions, etc., are subject to the City of Columbia's Zoning Regulations as interpreted and regulated by the Department of Development Services.
- This property currently identified as a portion of Parcel 53.00 per Tax Map No. 72.
- Deed reference: Record Book R2704, Page 868, Register's Office of Maury County, Tennessee. Parcel 53.00 = Tract 1 per deed.
- Bearings based on: Tennessee State Plane, as determined by GPS observation.
- This drawing was prepared in accordance with our field survey notes. It shows improvements as they exist to the best of our knowledge, but is not guaranteed to be correct in each and every detail.
- This survey was prepared from current deeds of record and does not represent a title search or a guarantee of title, and is subject to any state of facts a current and accurate search may reveal.
- Total area of property surveyed is 2.27 Acres ±.
- New Right-Of-Way dedication: 0.20 Acres ±.
- Subject property does not lie in a FEMA/FIRM "Special Flood Hazard Area" as shown on Map 4719C0195E dated April 16, 2007.
- Unless otherwise noted, all lot corners are marked with iron rods.
- All townhomes to be constructed to meet the 2018 IRC.

Utility Notes

Public electric and communication utilities serving this development traverse underground and all related fixtures required for this service are encompassed by a 10-foot Public Utility Rights of Way Easement on all property lines parallel and abutting public or private roadways and 5 feet wide easement on all interior lot lines for utility and drainage easements.

Service lines and fixtures will branch from main utility line and extend to an individual multi-unit structure within this easement. The gang meter base will be attached to the exterior wall of the structure. This gang meter base will serve as a branch in which individual service lines will extend to each unit within the structure.

The gang meter base will be encompassed by a blanket utility easement for service and maintenance as needed and required. Gang meter bases, electrical service entrance conductors from transformer to gang meter bases as well as lines leaving the gang meter base to serve individual units will be the responsibility of the Home Owners Association.

Additionally, a 10-foot Public Utility Rights of Way Easement shall continue vertically from the foundation through the roof on the exterior wall at the location of the meter bases of each building.

Stormwater appurtenances as depicted on this Final Plat shall be maintained as directed in the "Inspection and Maintenance Agreement of Private Stormwater Management Facilities" as recorded in Record Book , pages in the Register's Office of Maury County, Tennessee.

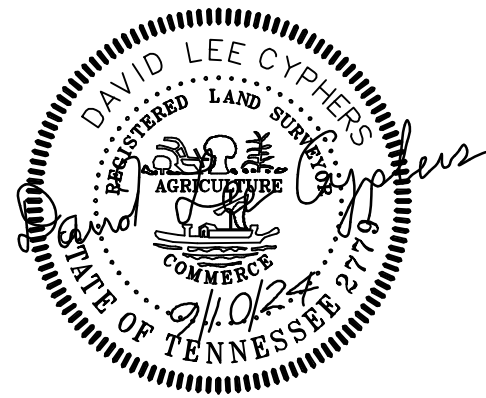
8" water line to be owned and maintained by Columbia Power and Water Systems

8" sanitary sewer line to be owned and maintained by Columbia Wastewater Systems.

Utility easements shown graphically hereon are further described as being 20 feet in width, centered on their utility lines (e.g., sanitary sewer line, storm sewer lines). 10 foot wide easement centered on water lines.

Owner:

CHR LAND, LLC
818 S. MAIN STREET
COLUMBIA TN 38401



Certificate of Ownership and Dedication

I (we) hereby certify that I am (we are) the owner(s) of the property shown and described hereon as evidenced in Book Number 82704, Page 868, Maury County Register's Office, and that I (we) hereby adopt this plan of subdivision with my (our) free consent, establish the minimum building restriction lines, and that offers of irrevocable dedication for all public ways, utilities, and other facilities have been filed.

Date 2024
Title (CHR Land, LLC.)

Certificate of Survey Accuracy

I (we) hereby certify that to the best of my (our) knowledge and belief that this is a true and accurate survey of the property shown hereon; that this is a Class "I" Land Survey as defined in Title 62, Chapter 18, Tennessee Code Annotated, and that the ratio of precision is greater than or equal to 1:10,000.
Date 9/10/2024 Registered Land Surveyor Number 2779
DAVID LEE CYPHERS
TENNESSEE RLS NO. 2779

Certificate of Approval of Water System

I hereby certify that the water system(s) outlined or indicated on the final subdivision plat entitled "Final Plat - Bear Creek Glen - Phase 2" has/have been installed in accordance with current local and state government requirements, or a sufficient bond or other surety has been filed to guarantee said installation.

Date 2024 Superintendent, Columbia Water System

Certificate of Approval of Streets, Drainage, and Utilities

I hereby certify that the streets, drainage, and utilities designated in Bear Creek Glen - Phase 1 have been installed in accordance with City specifications, or a performance bond in the amount of \$ for streets and drainage has been posted with the City of Columbia, Tennessee, to assure completion of such improvements.

Date 2024 City Engineer, Columbia, Tennessee

Certificate of Approval for Recording

I hereby certify that the subdivision plat shown hereon has been found to comply with the Columbia Subdivision Regulations, with the exceptions of such variances, if any, as noted in the minutes of the Planning Commission, and that it has been approved for recording in the Office of the County Register.

Secretary, Planning Commission Date
Columbia, Tennessee

Certificate of Approval of Subdivision Name and Street Names

Subdivision name and street names approved by Maury County E-911.
Date 2024 Maury County E-911

Certificate of Approval for Sewer System

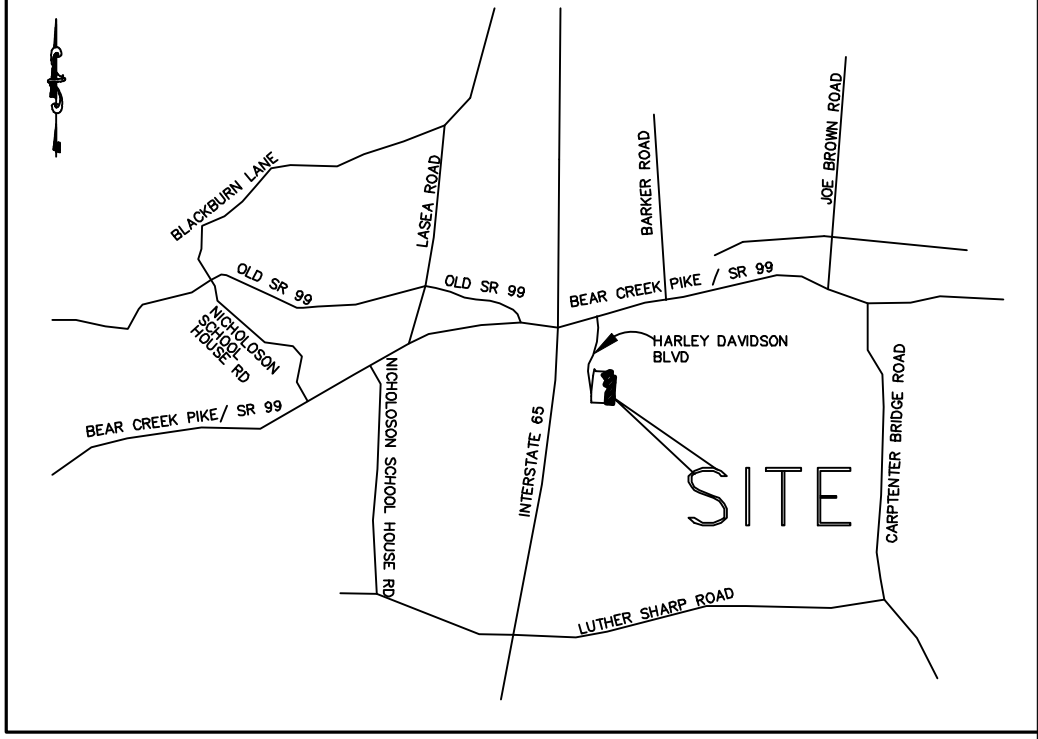
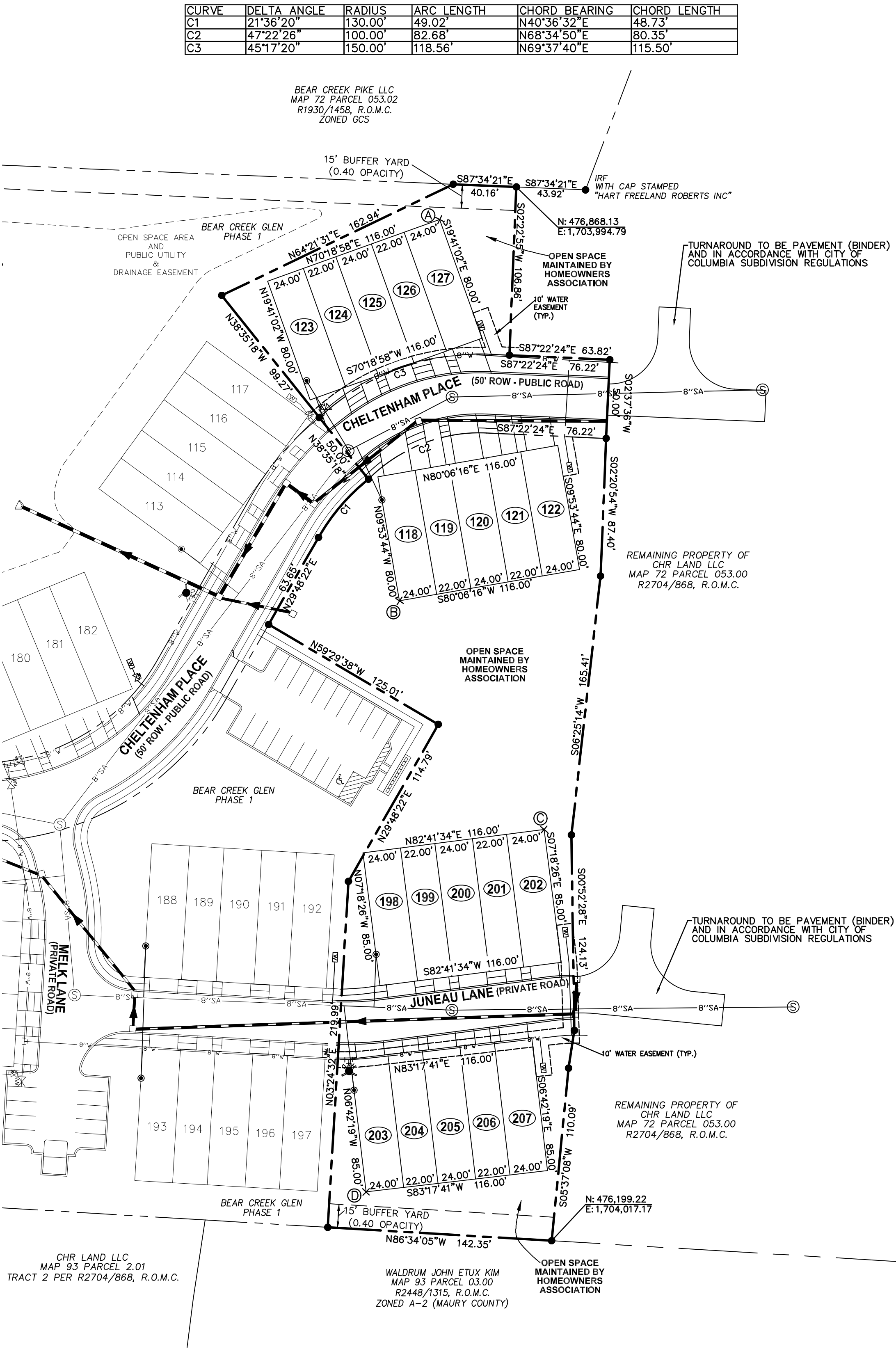
I hereby certify that the sewer system outlined or indicated on this final subdivision plat has been installed in accordance with current local and state government requirements, or a sufficient bond or other surety has been filed to guarantee said installation.

Date 2024 Superintendent, Columbia Wastewater System

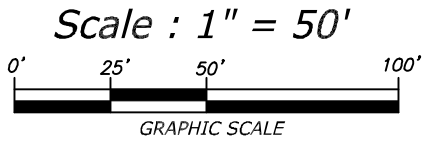
Certificate of Compliance

I hereby certify that the subdivision plat shown hereon has been found to comply with the Columbia Subdivision Regulations and other adopted ordinances and policies.

City Engineer Date
Columbia, Tennessee



VICINITY MAP
NOT TO SCALE

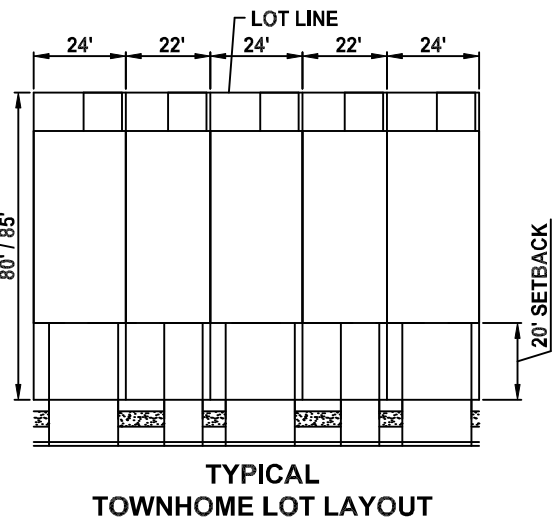


COORDINATES OF TOWNHOME LOT CORNERS:			
Ⓐ	= N: 476,847.43	E: 1,703,946.12	
Ⓑ	= N: 476,605.38	E: 1,703,920.62	
Ⓒ	= N: 476,460.25	E: 1,704,012.45	
Ⓓ	= N: 476,230.22	E: 1,703,899.34	

LEGEND

These standard symbols will be found in the drawing.

- STORM LINE
- SANITARY SEWER LINE
- WATER LINE
- FIRE HYDRANT COMPLETE ASSEMBLY
- WATER METER VAULT
- BUILDING SETBACK
- EASEMENT
- PROPERTY LINE
- IRON ROD (SET) (UNLESS OTHERWISE NOTED)
- IRON ROD (FOUND)



H & H LAND
SURVEYING, INC.

612A FITZHUGH BOULEVARD
SMYRNA, TENNESSEE 37167
(615) 831-0756 (FAX) 355-6928
H & H Project No. 2022-0617

Final Plat
Bear Creek Glen - Phase 2

3rd CIVIL DISTRICT OF MAURY COUNTY, TN
CITY OF COLUMBIA, MAURY COUNTY, TENNESSEE

SHEET 1 OF 1

TAX MAP 72, P/O PARCEL 53.00
ZONED: MRC

SCALE: 1"= 50'
AREA: 2.27 ACRES±

DATE: SEPTEMBER 10, 2024

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

_____ day of _____, 20____, ,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Gary Martin, the DEVELOPER (hereinafter the
"DEVELOPER") named on the Addendum to this Agreement attached hereto and by this reference made
a part hereof (hereinafter the "ADDENDUM").

WITNESSETH:

WHEREAS, the DEVELOPER desires to develop the property described on the ADDENDUM (hereinafter
the "PROJECT"); and,

WHEREAS, the Development Plan of the PROJECT has been approved by the Columbia Municipal
Planning Commission (hereinafter the "CMPC") on the

_____ day of _____, 20____, ,
pursuant to Tennessee Code Annotated Title 13, Chapter 4, and the Subdivision Regulations of
Columbia, Tennessee (hereinafter the "SUBDIVISION REGULATIONS"); and,

WHEREAS, the DEVELOPER is the owner of the PROJECT and has authority to engage in such
development; and,

WHEREAS, the DEVELOPER desires to develop and improve said PROJECT; and,

WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it
will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and
common areas to be constructed within and to serve the PROJECT including but not be limited to roads,
bridges, sidewalks, pedestrian facilities, stormwater facilities, street signs, markings, signals, street
lighting, recreation and park facilities, landscaping, and the like (hereinafter the "IMPROVEMENTS");
and,

WHEREAS, in order for the IMPROVEMENTS to be fully integrated with the utility systems and public
infrastructure of the CITY and to function in a satisfactory manner, the DEVELOPER has agreed to
construct, in accordance with the Subdivision Regulations and other rules, regulations, and ordinances
of the CITY, the IMPROVEMENTS in said PROJECT and extend utilities to the PROJECT at their own cost;
and,

WHEREAS, the CITY is willing to accept the dedication of the streets, utilities, and other improvements
as determined in the Development Plan of the PROJECT, subject to the City of Columbia City Council
approval by resolution, and subject to the applicant's compliance with all requirements in this
agreement and applicable existing laws of the CITY of Columbia and the State of Tennessee,

NOW, THEREFORE, it is agreed and understood as follows:

B1 General Conditions

B1.1 Construction Costs

The DEVELOPER shall pay for all material and labor necessary to install and complete the roads, sidewalks, sewers, utilities, and other facilities in accordance with this agreement.

B1.2 City Ordinances, Rules and Regulations

All currently existing CITY ordinances, rules and regulations, and the Subdivision Regulations adopted by the CMPC are made a part of this agreement. In the event of a conflict between the terms of this agreement and a CITY ordinance, the ordinance shall prevail. In the event of a conflict between the terms of this agreement and the Subdivision Regulations, the Subdivision Regulations shall prevail. All work done under this agreement is to be performed in accordance with plans and specifications approved by the City and made a part, hereof.

B1.3 Fees

Review fees, inspection fees, and other amounts established by the CITY shall be paid prior to any review of the plans. If the DEVELOPER fails to install the facilities in accordance with the terms of this Agreement, no portion of the review fees, inspection fees, or other amounts paid to the CITY shall be refundable to the DEVELOPER.

B1.4 Inspection

The CITY shall have a continuous right to inspect the work and facilities to assure that the work and facilities are in accordance with the Subdivision Regulations, approved Construction Plans, and other rules, regulations, and ordinances of the CITY.

B1.5 Right of Entry

The CITY shall have the right, in case of breach of the Performance Agreement, to enter upon any property of the DEVELOPER and take all necessary actions to complete the work and obligations not completed.

B1.6 Easements

The DEVELOPER shall obtain and dedicate to the CITY or cause to be dedicated to the CITY, either by dedication on the plat or by easement deed, in either case in a form acceptable to the CITY, permanent easements of such widths as required by the CITY and noted on the Plans. The DEVELOPER further agrees to grant the necessary easements and rights-of-way across the DEVELOPER's properties without expense to the CITY and waive any claim for damages.

B1.7 Stormwater Maintenance Agreement

If the PROJECT includes any detention or retention ponds, common drainage ditches, water quality facilities, or stormwater facilities outside of the CITY rights-of-way, the DEVELOPER will submit a Stormwater Maintenance Agreement, to be filed with and recorded with the Final Plat.

B1.8 Attorney Fees and Other Expenses

The DEVELOPER shall pay all reasonable costs and expenses incurred by the CITY in enforcing or completing this agreement. The DEVELOPER shall pay all costs and expenses, including the CITY'S attorney fees, of any legal proceedings brought by the CITY against the DEVELOPER seeking remedies for the DEVELOPER'S failure to perform any of its obligations hereunder, whether or not any proceedings are prosecuted to judgment.

B1.9 Agreement Not Assignable

No third party shall obtain any benefits or rights under this agreement nor shall the rights or duties be assigned by either party.

B1.10 Revocation and Interpretation

This agreement shall bind the DEVELOPER when executed by the DEVELOPER and may not be revoked by the DEVELOPER without permission of the CITY, even if the agreement has not been executed by the CITY, or does not bind CITY, for other reasons. This agreement shall be interpreted in accordance with Tennessee law and may only be enforced in the Chancery Court or Circuit Court or Court of competent jurisdiction of Maury County, Tennessee, and Tennessee Appellate Courts.

B1.11 No Oral Agreement

This agreement may not be orally amended and supersedes all prior negotiations, commitments, or understandings.

B1.12 Separability

If any portion of this agreement is held to be unenforceable, the CITY shall have the right to determine whether the remainder of the agreement shall remain in effect, or whether the agreement shall be void and all rights of the DEVELOPER pursuant to this agreement terminated.

B 1.13 Transferability

The DEVELOPER agrees to not transfer the property on which this PROJECT is to be located without first providing the CITY with written notice. The transferee shall provide the CITY an Assumption Agreement of this Agreement, whereby the transferee agrees to perform the IMPROVEMENTS required under this agreement and to provide a performance surety. The DEVELOPER understands that if the DEVELOPER transfers said property without providing the notice of transfer and Assumption Agreement as required herein, they will be in breach of this agreement and in violation of the Subdivision Regulations.

B1.14 Indemnity

The DEVELOPER shall indemnify and hold the CITY harmless from all loss, costs, expenses, liability, money damages, penalties, or claims arising out of any work covered by this agreement, including any attorney fees incurred by the CITY in connection therewith. Inspection of the IMPROVEMENTS by an authorized representative of the CITY shall not constitute a waiver by the CITY of any defect or of any of the DEVELOPER'S obligations hereunder.

B1.15 Binding Effect

This agreement shall be binding upon the DEVELOPER and the DEVELOPER's heirs, administrators, executors, assigns, and any other successors in interest.

B1.16 Entire Agreement

This document contains the entire agreement between the parties, and there are no collateral understandings or agreements between them. No variations or alterations of the terms of this agreement shall be binding upon either of the parties, unless the same be reduced to writing and made an amendment to this agreement.

B1.17 Headings

Paragraph titles and headings contained herein are inserted for convenience only and shall not be deemed a part of the agreement and in no way shall define, limit, extend, or describe the scope or intent of any provision, hereof.

B2 Performance Surety

At the time of execution of this agreement, the DEVELOPER shall provide the CITY a performance surety, in an amount determined by the City Engineer for the IMPROVEMENTS and other items specified by the Construction Plans, plats, and plans approved by the CMPC. This performance surety shall secure performance of all obligations of the DEVELOPER under this agreement. The performance surety shall meet all requirements established in Chapter 4: Performance Agreement of the Subdivision Regulations and secure full compliance with all terms and conditions of this agreement. The performance surety may be called for failure to comply with the provisions of this agreement in whole or in part according to the terms of the performance surety. The performance surety will not be released, except and until there has been full compliance with this agreement.

B3 Construction

B3.1 Construction Plans

The DEVELOPER shall submit to the CITY, Construction Plans describing in reasonable detail all utility systems, all storm water management systems, all street systems, pedestrian facilities, and all IMPROVEMENTS. The Construction Plans shall be designed according to the Engineering Standards and Specifications, all other codes and ordinances enforced by the City, and sound engineering judgment. The design of all utility systems shall follow the State of Tennessee and utility provider design criteria and specifications. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. The Construction Plans shall be prepared by a design professional licensed by the State of Tennessee to design all systems and shall bear the seal, signature, date, and license number of the professional preparing the Construction Plans.

B3.2 Commencement of Construction

Construction of IMPROVEMENTS may not begin until the following events have occurred:

- A. The Preliminary Plat has been approved by the CMPC;
- B. The Construction Plans are approved by the CITY;
- C. The Tennessee Department of Environment and Conservation has approved the applicable portions of the Plans and has confirmed its approval to the CITY and/or DEVELOPER in writing;
- D. The CITY shall have received an appropriately executed Development Agreement; and
- E. The DEVELOPER shall give the CITY notice of commencement of construction, in writing at least one (1) working day prior to commencement.

B3.3 Site Grading

The DEVELOPER, hereby, agrees to construct all site grading to comply with the approved Construction Plans, including the approved Erosion Control Plan for the PROJECT and to comply with the Engineering Standards and Specifications, Stormwater Ordinance, and all other codes and ordinances enforced by the CITY.

B3.4 Storm Water Management Systems

The DEVELOPER shall be responsible for all storm water management work made necessary by the development of this PROJECT. It is understood and agreed that the CITY in its proprietary function is not and could not be expected to oversee, supervise, or direct the construction of all drainage improvements, and the excavation incident thereto. Neither is the CITY vested with the original design responsibility nor the means to formally survey elevations or the locations of improvements at every stage of the construction process. The CITY is vested with the right of periodic inspections, stop work order, and final approval as a measure of secondary or subsequent enforcement. The DEVELOPER has and shall retain the responsibility to properly anticipate, survey, design and construct the subdivision storm water improvements and give full assurance that same shall not adversely affect the flow or quality of surface water from or upon any property. In providing technical assistance, plan and design review, the CITY does not and shall not relieve or accept any liability from the DEVELOPER.

B3.5 Street Construction

The DEVELOPER, hereby, agrees to construct and improve the streets shown on the Construction Plans to comply with the CITY's specifications and to the satisfaction and approval of the City Engineer by grading, draining, subgrade preparation, base preparation, curbing, signage, striping, signalization, sidewalk installation, and paving with the required preparation, amounts, and types of material. The DEVELOPER further agrees to pay the cost of all engineering, inspection and laboratory cost incidental to the construction of subdivision streets including but not limited to material and density testing. The DEVELOPER further agrees to make all necessary adjustments to manholes and valve boxes to meet finished surface grade and to repair subsurface or base material, as required, in areas directed by the CITY Engineer, prior to application of final surface.

B3.6 Time Period for Construction

The DEVELOPER agrees to be bound to complete, within three (3) years of commencement of construction, all IMPROVEMENTS shown on the plat and plans and all things required by this agreement.

The DEVELOPER further agrees that if due to unforeseen circumstances, he is unable to complete all work included in this agreement within the time specified above, but desires to complete said agreement to the satisfaction of the CITY, the DEVELOPER shall submit a written request for extension of the agreement period to the CITY at least sixty (60) days prior to the expiration of the existing agreement period, specifying the reason for the DEVELOPER's failure to complete the work as agreed and a prospective date for such completion. The DEVELOPER further agrees that if the performance surety executed to secure the value of the work to be performed under this agreement, due to inflation or rising costs, is determined to be inadequate by the City Engineer to secure the cost of said IMPROVEMENTS at the time an extension is sought, the DEVELOPER will provide the additional security to bring the performance surety amount in line with current cost projections as made by the CITY. The DEVELOPER understands that the DEVELOPER's failure to follow the extension procedure constitutes a breach of this agreement and places the DEVELOPER in violation of the Subdivision Regulations. The DEVELOPER further understands, that should the DEVELOPER fail to complete any part of the work outlined in this agreement in a good and workmanlike manner as approved, the CITY shall reserve the right to withhold and withdraw all building permits within the PROJECT until all items of this Agreement have been fulfilled by the DEVELOPER.

B3.7 Off-Site Improvements

The DEVELOPER shall construct any and all off-site facilities that may be required to serve the PROJECT. Unless specifically noted in the Construction Plans and made a part of separate agreement with the CITY, the CITY shall not be required to reimburse the DEVELOPER for construction of off-site improvements.

B3.9 Inspection and Compliance

After construction begins, the CITY shall provide on-site construction inspection as the CITY deems necessary to ensure that all work is performed and completed in accordance with the Construction Plans, CITY specifications, and the contents of this agreement. In the event of a disagreement as to compliance with or interpretation of the Construction Plans and the CITY'S specifications, the decision of the CITY shall be final and binding on the DEVELOPER. If the DEVELOPER fails to construct in accordance with the approved Construction Plans or to comply with the CITY'S specifications, the CITY may issue a stop-work order and DEVELOPER, hereby, agrees to be bound by such order.

B3.10 Testing

The DEVELOPER agrees to pay the cost of all engineering, inspection, and laboratory cost incidental to construction of the streets, sidewalks, utilities, sewers, compacted fill material, and other facilities included within this agreement. Such testing includes, but is not limited to, material and density testing.

B3.11 Scrap Removal

The DEVELOPER agrees to comply with all local, state, and federal rules and regulations regarding waste material and debris disposal.

B3.12 Traffic Control

The DEVELOPER, hereby, agrees to prepare a traffic control/detour plan where required and shall submit said plan to the CITY for review and approval. All traffic control and safety devices, including

signs, lane markings, and barriers necessitated by construction activity undertaken pursuant to this agreement shall be installed and maintained by the DEVELOPER. All traffic control devices shall meet the standards and be installed in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, published by the United States Department of Transportation.

B3.13 Temporary Facilities

The DEVELOPER shall provide all temporary facilities including but not limited to utilities and roadways, that are determined by the CITY to be required in connection with or as a result of interruption of service or access that occurs as a consequence of construction activity associated with the work covered by this agreement. Such temporary services shall in all regards and at all points in time be adequate to assure emergency access and adequate fire flows.

B4 Acceptance of Improvements

B4.1 Completion of Improvements

At such time as the improvements have been constructed and installed, in accordance with the Constructions Plans and specifications, required testing and inspections completed and found satisfactory, and all clean-up and cover-up has been done to the satisfaction the City Engineer, a letter requesting preliminary acceptance of the PROJECT will be provided by the DEVELOPER. Formal acceptance shall follow the procedure established in the Subdivision Regulations.

The DEVELOPER agrees the DEVELOPER shall have no claim, direct or implied, in the title or ownership of the IMPROVEMENTS specified in this agreement when the IMPROVEMENTS are complete and thereafter accepted by the CITY. The DEVELOPER will be responsible for construction failures and defects in PROJECT prior to final acceptance. During this period, it shall remain the responsibility of the DEVELOPER to correct and cure these defects and failures.

B4.2 As-Built Drawings and Post-Completion Items

The DEVELOPER agrees to furnish to the CITY as-built plans, on a reproducible, stable media, of the sanitary sewer, storm water management, water mains and service system, and streets within the subdivision before the CITY shall accept the subdivision.

B4.3 Acceptance of Facilities

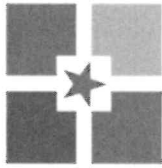
Upon final acceptance of all or part of the IMPROVEMENTS in the PROJECT, then those IMPROVEMENTS shall become the property of the CITY free from all claims from any person or entity without the necessity of any further writing, agreement, or deed. The DEVELOPER further agrees that any facilities placed within a public or platted right-of-way or dedicated public easement are irrevocably dedicated to the public use without any right of reimbursement or compensation of any kind.

B4.4 Failure to Install

In the event the DEVELOPER fails to install the facilities in accordance with the terms of this agreement, the CITY may, in its sole discretion, elect to accept all or a portion of the IMPROVEMENTS in the PROJECT. Should the CITY choose to accept all or a portion of these IMPROVEMENTS, the CITY shall become the sole owner of these facilities. The CITY may give notice of acceptance by writing delivered to the DEVELOPER or recorded in the Register's Office of Maury County, Tennessee. No further writing or deed shall be required.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in multiple originals by persons properly authorized so, to do on or as of the day and year first given.

Bear Creek Glen - Phase 2	
PROJECT	
Completed by the Developer Gary Martin DEVELOPER NAME AUTHORIZED AGENT NAME DocuSigned by: Gary Martin SIGNATURE 02-19-2025 08:21:16 CST DATE 1081 Cranford Hollow Road STREET Columbia, TN 38401 CITY, STATE, ZIP 615-812-2147 PHONE gary@martinengrg.com EMAIL Attest Davide Tocci, PE ATTEST NAME Signed by: Davide Tocci ATTEST SIGNATURE 02-19-2025 06:18:30 PST DATE	Completed by the City CITY ENGINEER SIGNATURE DATE Attest ATTEST NAME ATTEST SIGNATURE DATE



CITY OF
COLUMBIA
TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

**PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION**

SUBMITTAL REQUIREMENTS

Final Plat: * 1 hard copy of all materials for submittal + PDF copy on a USB flash drive (no multiple applications on one storage device)

Fold hard copy submittals larger than 8½"x11"

All Others: * Please submit the Application online at [City of Columbia | Permitting \(onlana.com\)](http://City of Columbia | Permitting (onlana.com))

ADDRESS/LOCATION			
	TAX MAP: 72	GROUP:	PARCEL: 053.00
SUMMARY OF NATURE OF REQUEST AND WORK	Final plat review of Bear Creek Glen phase 2		

DATE OF PRE-APPLICATION CONFERENCE		Pre-application meetings are scheduled for Wednesdays.
------------------------------------	--	--

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Comprehensive Plan Amendment ☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☒ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Site Development Plan ☐ Other: <i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	<u>Annexations:</u> ☐ Annexation Permission Form <u>Annexations/Rezoning/Plan Amendments:</u> ☐ Requested Zone Listed ☐ Statement of Compliance with Comprehensive Plan ☐ Concept Plan <u>Preliminary Plats/Site Development Plans:</u> ☐ Plans and/or Plats conforming to City standards with signed and completed check list <u>All Annexations/Rezoning/Preliminary Plats/Site Development Plans and PUDS:</u> ☐ Receipt of Payment for Pre-Application Meeting ☐ Written Legal Description copy ☐ Columbia Water System Availability Letter ☐ Columbia Waste Water Department Will Serve Letter

	Plats/PUDs:
	☐ Project Name (include Sections & Phases) Bear Creek Glen - Phase 2
	☐ Total Number of Lots/Residential Units 20 Townhomes
	☐ Square Footage of Non-Residential Floor Space 0 SF
	☐ Total acreage 2.27 AC +/-

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application. Any requests to defer or move the item to future meeting dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT
All communications go to the Applicant’s email that is provided.

NAME	DAVIDE TOCCI	PHONE	615-656-0257 X1003
ADDRESS	P.O. BOX 2543, BRENTWOOD TN 37024	EMAIL	dave@m2groupllc.com

PROPERTY OWNER NAME	GARY MARTIN	PHONE	615-812-2147
ADDRESS	818 S. MAIN ST, COLUMBIA TN 38401	EMAIL	gary@martinengrg.com

If owner is not a natural person, documentation must be provided showing signing authority on behalf of the entity. If multiple persons are listed as owners in the records of the Maury County Assessor, all owners must sign or the signatory must provide documentation of authority to apply on behalf of record owner (i.e., Power of Attorney or notarized Letter of Authorization). In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

DAVIDE TOCCI

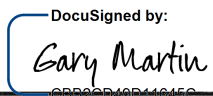
APPLICANT NAME

GARY MARTIN

PROPERTY OWNER NAME



APPLICANT SIGNATURE



PROPERTY OWNER SIGNATURE

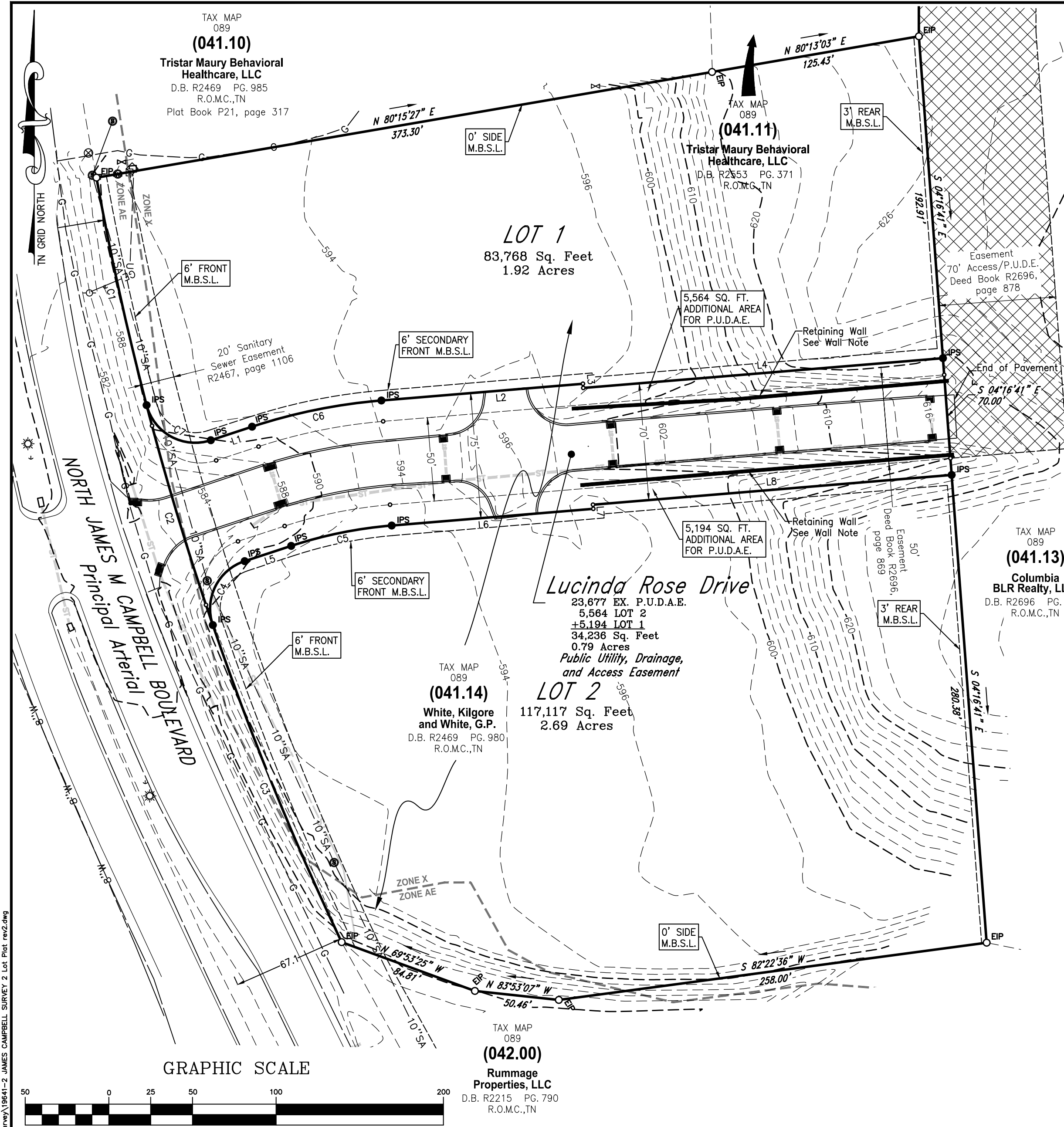
02/17/2025

DATE

02-18-2025 | 07:57:09 CST

DATE

FILE:J:\WES_Engineers_Surveyors 2019\19641-2 James Campbell - Withrow\Draw Survey\19641-2 JAMES CAMPBELL SURVEY 2 Lot Plat rev2.dwg



PARCEL NUMBER:
TAX MAP 089, PARCEL 41.14

DEED BOOK:
R2469, PAGE 980

PARCEL ADDRESS:
N JAMES M CAMPBELL BOULEVARD

EXISTING ZONING:
CD-4C

BUILDING SETBACKS:
FRONT - 6'
SECONDARY FRONT - 6'
SIDE - 0'
REAR - 3'

ACREAGE OF PARCEL:
±5.40 ACRES (±235,121 SQFT) TOTAL
±4.86 ACRES (±211,443 SQFT) 2 COMMERCIAL LOTS
±0.79 ACRES (±34,236 SQFT) PRIVATE ROAD A LOT

PROPERTY OWNER:
ROGER WITHEROW, DANIEL FAMILY PARTNERSHIP & WHITE,
KILGORE AND WHITE, G.P.
P.O. BOX 375
COLUMBIA, TN 38402

Surveyor's Notes

- All distances were measured with E.D.M. equipment and have been adjusted for temperature and pressure.
- The property (Boundary) Line Survey exceeds the minimum requirements of an Urban Land Survey Category 1 as per Standards of Practice adopted by the State Board of Examiners for Land Surveyors for the State of Tennessee, and the precision of the unadjusted survey is greater than 1 foot in 10,000 feet.
- Information concerning site utility services and appurtenances shown hereon is based on visible evidence noted during the survey, information provided by utility representatives or information shown on original construction plans by other. Information and location of service lines on site should be considered approximate and there may be underground utility lines that are not shown on the survey. Owner(s) and contractor(s) should assume responsibility of locating all underground utility service lines prior to any construction, excavation or any disturbance of the existing ground elevation to avoid hazard of unnecessary expense.
- Information concerning major utilities or appurtenances shown hereon are based on visible evidence noted during the survey or information provided by utility representatives. Verification of existence, size, location, depth and availability of service should be confirmed by local utility agencies.
- The property shown hereon is located within the City of Columbia, Maury County, TN. All matters pertaining to construction, use location of improvements, signage, parking, noise, vibration, emissions, fire hazards, radiation, illumination, setback provisions, etc., are subject to the City of Columbia's Zoning Regulation as interpreted and regulated by the Department of Planning and Codes.
- The area of the parcels as shown hereon.
- This property currently identified as Tax Map No. 089, Parcel No. 41.14, Maury County. For designation shown thus () indicates Parcel Numbers for said map.
- Plat reference: NA
- Deed reference: Book R2469, Page 980
- Bearings based on: Tennessee State Plane (NAD83).
- This drawing was prepared in accordance with our field survey notes. It shows improvements as they exist to the best of our knowledge, but is not guaranteed to be correct in each and every detail.
- This survey was prepared from current deeds of record and does not represent a title search or a guarantee of title, and is subject to any state of facts a current and accurate search may reveal.
- This survey was prepared for the exclusive use of the person, persons, or entity, if any, named on the certification hereon. Said certificate does not extend to any unnamed person without an express re-certification by the surveyor naming said person.
- The certification as provided on this survey, is purely a statement of professional opinion based on knowledge, information and belief, based on existing field evidence and documentary evidence provided by others.
- The certification is not an expressed or implied warranty or guarantee.
- A portion of this property is located in a Special Flood Hazard Area (Zone AE) as shown on F.E.M.A. Flood Insurance Rate Map, Community Panel No. 47119C0280E, dated April 16, 2007, and shown hereon graphically.
- All public utility and drainage easements located on proposed lots are to be maintained by the individual property owner for said lot.
- All property corners are ½" rebar with cap reading "WES 1987" unless otherwise noted.

PURPOSE NOTE:
The purpose of this final plat is to subdivide the property into 2 commercial lots and 1 lot for a private road.

WATER NOTE:
It is the responsibility of the developer of Lots 1 and 2, shown hereon, to coordinate with Columbia Power and Water on the location and/or improvements needed for water service.

WALL NOTE:
The property owner of Tax Map 089, Parcel 041.13 is responsible for inspections and maintenance of the retaining wall and assumes all liability for any issues associated with wall failure or lack of maintenance.

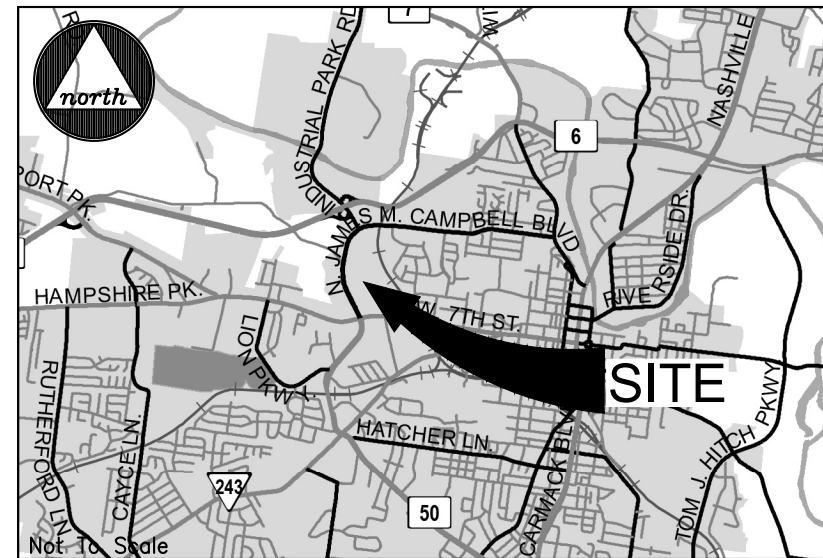
CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	1,830.82'	139.29'	139.25'	N 12°25'35" W	4°21'32"
C2	1,830.82'	137.32'	137.29'	N 16°45'18" W	4°17'51"
C3	1,830.82'	204.68'	204.57'	N 22°06'22" W	6°24'20"
C4	30.00'	47.52'	42.70'	N 26°28'15" E	90°44'54"
C5	262.50'	61.47'	61.33'	N 78°33'12" E	13°25'01"
C6	337.50'	79.03'	78.85'	S 78°33'12" W	13°25'01"
C7	30.00'	48.98'	43.72'	N 61°22'51" W	93°32'54"

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 71°50'42" E	25.95'
L2	N 85°15'42" E	120.88'
L3	S 04°44'18" E	2.50'
L4	N 85°15'42" E	215.70'
L5	N 71°50'42" E	29.25'
L6	N 85°15'42" E	120.88'
L7	N 04°44'18" W	2.50'
L8	N 85°15'42" E	215.13'

Location Map



© 2025

WES ENGINEERS & SURVEYORS
CIVIL ENGINEERS & LAND SURVEYORS
2488 NASHVILLE HIGHWAY
COLUMBIA, TN 38401
PHONE (661) 388-2329
www.wesengineers.com

WES ENGINEERS & SURVEYORS

Client
W. ROGER WITHEROW
1517 HATCHER LANE
COLUMBIA, TN 38401

PRELIMINARY PLAT
3 LOTS - N JAMES M CAMPBELL BOULEVARD
COLUMBIA, MAURY COUNTY, TENNESSEE

DATE

Drawn: BO	Checked:	Approved:	Date: 02-17-2025
-----------	----------	-----------	------------------

Job No. 19641-2	Scale:	Vertical:	Horizontal: 1" = 50'
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1 of 1





Preliminary Plat, Site Development Plan, and PUD Checklist

Development: JAMES CAMPBELL / WITHROW

This checklist shall be completed, and included with the submittal documents. If the submittal does not contain a completed checklist, it shall be deemed incomplete. All below listed items shall be included in the submittal documents and plans, as well as any further information required by the City of Columbia to evaluate compliance and to perform a full and complete review. See Zoning Ordinance Article 8 and Subdivision Regulations.

General

- ☒ Name of development
- ☒ Contact info for the owner and licensed design professional(s) preparing plan: name, address, email, phone
- ☒ Plan sealed by a design professional licensed in the State of Tennessee.
- ☒ North Arrow, legend, and site vicinity map
- ☒ Graphic Scale: between 1 in. = 10 ft. and 1 in. = 100 ft.
- ☒ Survey stamped by a State of Tennessee Licensed Professional Land Surveyor, with all project boundaries including bearings and angles to the nearest hundredth, utilities, and existing streets and rights-of-way.
- ☒ Note referencing Tennessee State Plane Coordinate System, NAD 83 Datum
- ☒ All property boundaries, existing easements, and encumbrances
- ☒ Parcel identification, owner, and deed and plat references of adjoining properties
- ☒ Proposed phasing and timetable for all phases of development
- ☒ Traffic Impact Study, as required.
- ☒ The substance of all existing and proposed covenants, easements, or other restrictions.

Lots and Land-Use

- ☒ The size of total property to be developed in square feet and acres
- ☒ Lot numbers of all proposed lots, with dimensions, locations, and square footage
- ☒ A tabulation of the land area to be devoted to various uses and activities and overall densities.
- ☒ Typical lot layout depicting proposed setbacks, yards, and easements, where applicable

Structures

- ☒ Location and approximate dimensions of all existing and proposed structures.
- ☒ Location of all earth retaining structures, with approximate top and bottom of wall elevations.
- ☒ Existing and intended use of all buildings and structures on site, including the number of dwelling units and density, where applicable
- ☒ Location, type, and size of proposed signs
- ☒ Approximate height, bulk, and the utilization of structures including activities and the number of living units.



Grading, Drainage, and Storm

- ☒ Existing conditions and contours at vertical intervals of not more than two (2) feet
- ☒ General proposed contours at vertical intervals of not more than two (2) feet
- ☒ FEMA Special Flood Hazard Area (SFHA), 100-year Floodplain (F-P), and Floodway (F-W) boundaries with elevations and the exact location of the nearest benchmark. Indicate the Flood Insurance Rate Map (FIRM) panel number, its effective date, and flood insurance zones
- ☒ Location and dimension of aquatic buffer zones
- ☒ General layout of the proposed storm drainage system including surface and subsurface drainage systems, areas for detention, and water quality devices.
- ☒ Identification of all critical lots

Streets, Parking, and Pedestrian Elements

- ☒ Proposed street and alley rights-of-way, typical sections, widths, classification, names, and proposed ownership and maintenance responsibility
- ☒ Proposed connections to existing and proposed streets (including classification) located outside the development
- ☒ Proposed improvements as identified in the Traffic Impact Study, as required
- ☒ Existing and proposed sidewalks, trails, and other pedestrian elements
- ☒ Existing and proposed on-street and off-street parking and loading areas
- ☒ Summary of all provided and required parking

Landscaping, Open Space, and Amenities

- ☒ Natural features on site including, but not limited to, wetlands, streams, ponds, springs, sinkholes, wells, rock outcroppings, excessive slopes, and forested areas
- ☒ Landscaped areas and buffers with details on proposed plantings, existing vegetation, and other features.
- ☒ The location and size of all common open space, parkland dedications, and dedications and reservations of land for public uses.
- ☒ Any amenity features and structures for private or public benefit.
- ☒ Location, dimension, and materials of fences and walls
- ☒ Tree Canopy retention

Utilities

- ☒ General layout and location of existing and proposed utilities and utility features including, but not limited to potable water, fire hydrants, sanitary sewer, storm sewer, and power and communication facilities.
- ☒ Acknowledgement from water, sewer, and power utility providers that the proposed development may be adequately served with existing infrastructure, or if improvements are required to adequately serve the development, a general statement of the improvements.



PUD Specific Items

- N/A
- ☒ List of all deviations from PUD Standards requested
 - ☒ The nature of the landholder's interest in the land proposed to be developed and a written statement of concurrence from all parties having a beneficial interest in the affected property.
 - ☒ Location and approximate dimensions of all existing and proposed structures including approximate height, bulk, and the utilization of structures including activities and the number of living units. Include architectural renderings of all proposed structures with materials listed.
 - ☒ The substance of covenants, grants of easements or other restrictions to be imposed upon the use of the land, buildings and structures including proposed easements for public utilities on the property or documentation of off-site easements.
 - ☒ Exterior lighting plan.

If the application is deemed incomplete by the Zoning Administrator, a written request shall be made within ten days after the original submittal, for further information. In such case the application shall be held in abeyance until deemed complete for final review. No plan shall be formally presented for Planning Commission action until such plan is found complete, compliant with City standards, and ready for review.

Checklist Completed By:

Allen O'Leary
Print Name

Allen O'Leary
Signature

8/23/24
Date

February 17, 2025

City of Columbia
Development Services
700 North Garden Street
Columbia, TN 38401

RE: Project Name: 2 Lots – N James M Cambell Boulevard
City of Columbia Staff Review Submittal

On behalf of White, Kilgore and White, G.P., and HRP the owner of the proposed property subdividing the land into 2 commercial lots and a private road area, WES Engineers & Surveyors would like to submit this Final Plat and Preliminary Plat to the City of Columbia for approval.

If you have any questions or comments with this submittal, please do not hesitate to contact me directly.

Sincerely,
WES Engineers & Surveyors

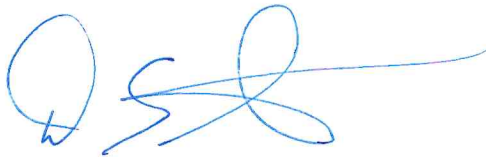


Allen B. O'Leary, RLS
Principal

Columbia Development Services
700 N Garden Street
Columbia, TN 38401

Re: N James Campbell Preliminary and Final Plat

HRP is giving W.E.S. Engineering & Surveying permission to submit an application for the Preliminary Plat and Final Plat that are attached. HRP is in agreement to be responsible for inspections and maintenance of the retaining wall and assumes all liability for any issues associated with wall failure or lack of maintenance.



Dean Montgomery
Partner- HRP



CITY OF
COLUMBIA
TENNESSEE

DEVELOPMENT SERVICES
700 NORTH GARDEN STREET
COLUMBIA, TN 38401
PHONE: (931) 560-1560
FAX: (931) 560-1541

PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy on a USB thumb drive or CD (no multiple applications on one storage device)
Fold hard copy submittals larger than 8½"x11"*

ADDRESS/LOCATION	North James M Campbell Boulevard		
	TAX MAP: 089	GROUP:	PARCEL: 041.14
SUMMARY OF NATURE OF REQUEST AND WORK	Request Final Plat approval for subdividing the current tract into 2 commercial lots and 1 private road lot.		

DATE OF PRE-APPLICATION CONFERENCE	<i>Pre-application meetings are scheduled for Wednesdays.</i>
------------------------------------	---

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☒ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Multi-Family Site Plan ☐ Other:	<u>Annexations/Rezoning/PUD's:</u> ☐ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards with check list completed ☐ Columbia Water System Availability Letter <u>Plats/PUDs:</u> ☒ Project Name (include Sections & Phases) 3 Lots - N James M Campbell Boulevard ☒ Total Number of Lots 3 ☒ Total acreage ±5.40
<i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application.

Any requests to defer or move the item to future meetings dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Allen B. O'Leary	PHONE	931-388-2329
ADDRESS	2486 Nashville Hwy, Columbia, TN	EMAIL	allen@wesengineers.com

Roger Witherow, Daniel Family Partnership

PROPERTY OWNER NAME	White, Kilgore and White, G.P.	PHONE	
ADDRESS	P.O. Box 375 Columbia, TN 38402	EMAIL	

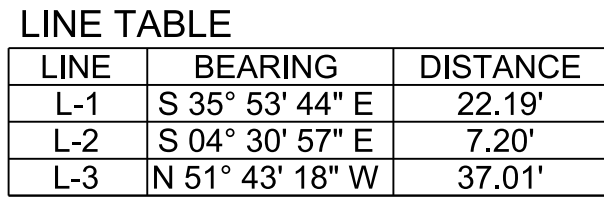
In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

<u>Allen O'Leary</u> APPLICANT NAME	<u>Allen B. O'Leary</u> APPLICANT SIGNATURE	<u>8/16/24</u> DATE
<u>Roger Witherow</u> PROPERTY OWNER NAME	<u>Roger Witherow</u> PROPERTY OWNER SIGNATURE	<u>8.15.24</u> DATE

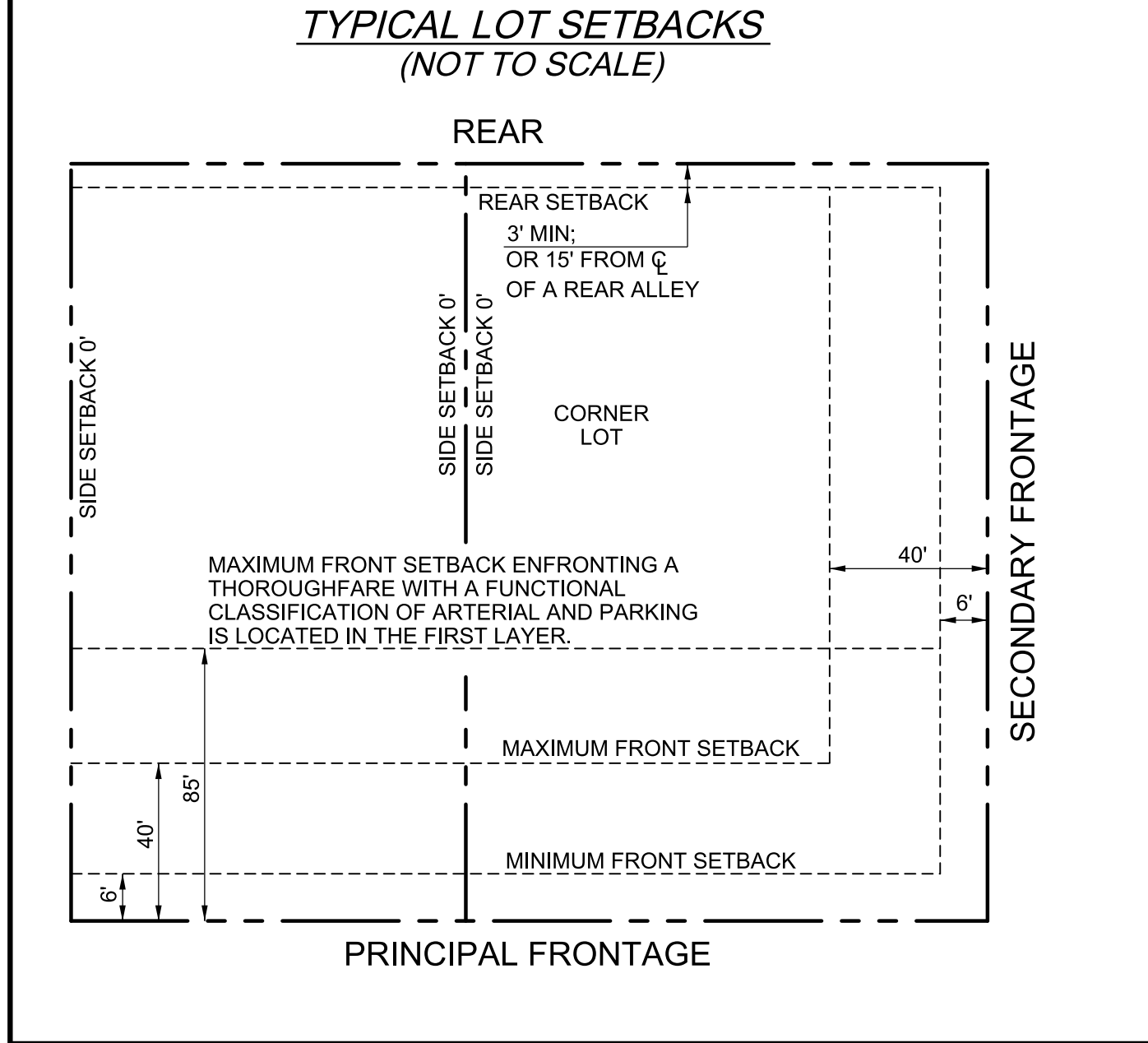
STAFF USE ONLY

DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS			
DATE OF PUBLIC NOTICES IN DAILY HERALD			
BOARD ACTION			

Page 88 of 100



CURVE TABLE						
CURVE	DELTA	RADIUS	TANGENT	LENGTH	CHORD BEARING	DISTANCE
C1	03° 06' 34"	2924.93'	79.39'	158.73'	S 69° 59' 36" E	158.71'
C2	03° 29' 15"	2924.93'	89.04'	178.03'	S 73° 17' 30" E	178.00'
C3	21° 39' 56"	292.13'	55.90'	110.46'	S 04° 34' 07" E	109.81'
C4	124° 57' 00"	26.06'	50.01'	56.83'	S 44° 16' 42" W	46.22'
C5	19° 58' 00"	451.09'	79.40'	157.20'	N 83° 13' 48" W	156.40'
C6	41° 27' 16"	268.80'	101.72'	194.48'	N 72° 29' 40" W	190.27'
C8	08° 31' 30"	2924.93'	218.00'	435.20'	S 72° 42' 04" E	434.80'
C9	01° 55' 42"	2924.93'	49.22'	98.43'	S 75° 59' 58" E	98.43'
C10	10° 25' 36"	451.09'	41.16'	82.09'	N 78° 27' 35" W	81.98'
C11	09° 32' 24"	451.09'	37.64'	75.11'	N 88° 26' 35" W	75.02'
C12	32° 16' 10"	268.80'	77.76'	151.39'	N 67° 54' 16" W	149.40'
C13	09° 11' 05"	268.80'	21.59'	43.09'	N 88° 37' 15" W	43.04'



GENERAL SURVEY NOTES

1. THIS SURVEY MEETS THE REQUIREMENTS OF AN URBAN LAND SURVEY (CATEGORY 1), WITH A RATIO OF PRECISION OF THE UNADJUSTED SURVEY GREATER THAN 1:10,000 AS PER STANDARDS OF PRACTICE ADOPTED BY THE BOARD OF EXAMINERS FOR LAND SURVEYORS, STATE OF TENNESSEE.
2. BEARINGS SHOWN ARE BASED ON THE TENNESSEE COORDINATE SYSTEM OF 1983 (NAD-1983). ELEVATIONS ARE BASED ON NAVD-1988. USING GEOID 2003 FOR ORTHOMETRIC HEIGHT DETERMINATION.
3. THIS PROPERTY IS NOT LOCATED IN A FLOOD HAZARD AREA ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP COMMUNITY NO. 470123, PANEL NO. 0285 E, DATED APRIL 16, 2007. ZONE "X".
4. ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM FIELD LOCATED VISIBLE APURTANCES, ATLAS MAPS AS MAY BE AVAILABLE FROM MUNICIPALITIES OR UTILITY COMPANIES, AND OTHER DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPREHEND ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES STATE THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM FIELD LOCATED VISIBLE APURTANCES. THE SURVEYOR DOES NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY, TO AVOID ANY POSSIBLE HAZARD OR CONFLICT. IT IS A REQUIREMENT OF THE UNDERGROUND UTILITY DAMAGE PREVENTION ACT, FOR ANYONE WHO ENGAGES IN EXCAVATION TO NOTIFY ALL KNOWN UTILITY OWNERS NO LESS THAN THREE (3) OR MORE THAN TEN (10) WORKING DAYS PRIOR TO THE DATE OF THEIR INTENT TO EXCAVATE. CALL TENNESSEE ONE CALL AT 1-800-351-1111.
5. EXISTING SURVEY BASE INFORMATION IS FROM AN ATLAS/NPS LAND TITLE SURVEY PREPARED ON JUNE 17, 2024 BY BARGE DESIGN SOLUTIONS, INC.
6. CONTOUR INTERVAL ONE-FOOT, CONTOURS WERE INTERPOLATED FROM RANDOM SHOTS TAKEN ON A 50-FOOT INTERVAL.

DEED REFERENCE
BEING THE SAME PROPERTY CONVEYED TO COLUMBIA JAMES CAMPBELL BOULEVARD, LLC
FROM THE J & R GROUP, LLC, SIGNED & NOTORIZED DEED COPY DATED 10-08-2024 PROVIDED
TO THIS SURVEYOR, RECORDING PENDING.

PROPERTY MAP REFERENCE

BEING PARCEL 4.00 AS SHOWN ON MAURY COUNTY PROPERTY MAP NO. 113E, GROUP B.

PLAT REFERENCE

BEING TRACT NOS. 1-7 AS SHOWN ON THE SUBDIVISION PLAT OF THE CAMPBELL & DUE
PROPERTY AS OF RECORD IN PLAT BOOK 6, PAGE 441A, R.O.M.C.

SURVEYOR'S CERTIFICATE

I (WE) HEREBY CERTIFY, TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF AND IN MY PROFESSIONAL OPINION BASED ON EXISTING FIELD EVIDENCE AND DOCUMENTARY EVIDENCE AVAILABLE, THAT THE SURVEY PERFORMED TO PREPARE THIS PRELIMINARY SUBDIVISION PLAT WAS DONE IN COMPLIANCE WITH CURRENT TENNESSEE MINIMUM STANDARDS OF PRACTICE FOR A CATEGORY I SURVEY AND THE RATIO OF PRECISION OF THE UNADJUSTED SURVEY IS 1:22,524.

BARGE DESIGN SOLUTIONS, INC.
BY: Mark E. Sawyer DATE: 12-05-2024
MARK E. SAWYER
Digitally signed by Mark E Sawyer
Date: 2024.12.05 11:26:27-06'00'
TN. LIC. NO. 1649

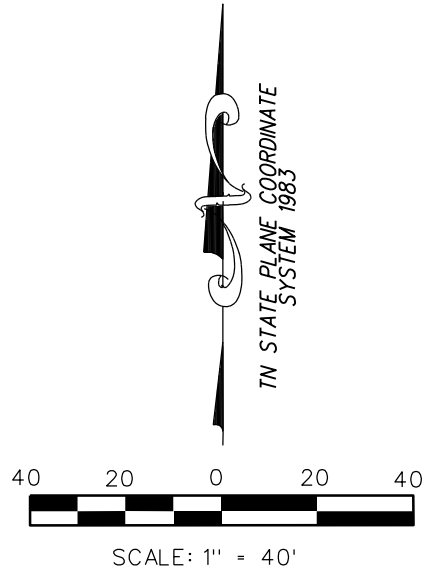
SITE DEVELOPMENT SPECIFIC NOTES

1. PROPERTY IS ZONED CD-4C (GENERAL URBAN CORRIDOR CHARACTER DISTRICT). ZONING INFORMATION SHOWN HEREON WAS TAKEN FROM CITY OF COLUMBIA PLANNING LINE MAPPING: PARCEL, REPORT, NO ZONING LETTER, OR ZONING REPORT WAS PROVIDED TO THIS SURVEYOR.
2. PROPOSED CONTOURS SHOWN HEREON ARE FOR THE MASS GRADING & INFRASTRUCTURE PACKAGE OF THIS SITE ONLY. INDIVIDUAL FINAL SITE DEVELOPMENT PLANS FOR EACH LOT WILL BE PROVIDED BY OTHERS AFTER PRELIMINARY PLAT APPROVAL. ESTABLISHING FINAL FINISH GRADE OF PAVING, CURBS AND FINISH FLOOR ELEVATIONS OF BUILDINGS ETC.
3. SEE SHEET C1:00 SITE LAYOUT PLAN IN THIS SUBMITTAL FOR DETAILED INFORMATION ON INFRASTRUCTURE IMPROVEMENTS.
4. THE APPROXIMATE LOCATION OF ALL COMMERCIAL BUILDINGS AND ASSOCIATED PARKING WILL BE ACHIEVED AT SITE DEVELOPMENT PLAN IN ACCORDANCE TO THE DEVELOPMENT STANDARDS WITHIN A CD-4C ZONING DISTRICT. LOT WIDTHS OF NEW PROPOSED LOTS SHALL CONFORM TO THE MINIMUM AND MAXIMUM OF A CD-4C ZONING DISTRICT.
5. PUBLIC UTILITY AND DRAINAGE EASEMENTS (PUE) SHALL BE REQUIRED AND BE TEN (10) FEET IN WIDTH ON ALL PROPERTY LINES PARALLEL AND ABUTTING PUBLIC ROADS OR RIGHTS-OF-WAY, AND FIVE (5) FEET IN WIDTH ON ALL INTERIOR LOT LINES, EXCEPT FOR INTERIOR LOT LINES WITH ZERO-LOT-OR-LINE OR A COMMON WALL ALONG A LOT LINE, UNLESS MENTIONED IN SECTION 3.7(B)(C)(D) & (E) OF THE CITY OF COLUMBIA SUBDIVISION REGULATIONS, JUNE 5, 2024.

SITE DATA
LOT 1 - AREA 51,959 SQ.FT. OR 1.19 AC.
LOT 2 - AREA 57,040 SQ.FT. OR 1.31 AC.
LOT 3 - AREA 60,077 SQ.FT. OR 1.38 AC.
TOTAL SITE AREA - 169,076 SQ.FT. OR 3.88 AC.
P.U.D.E. AREA = 22,801 SQ. FT. OR 0.52 ACRE+/-
IMPERVIOUS AREA 1.98 AC.
PERVIOUS TURF AREA 1.37 AC.
PERVIOUS PAVEMENT AREA 0.53 AC.

PREPARED BY:
BARGE DESIGN SOLUTIONS, INC.
 615 3RD AVENUE NORTH, SUITE 700
 NASHVILLE, TENNESSEE 37210
CONTACTS:
 MARK E. SAWYER, RLS
 E-MAIL: Mark.Sawyer@Bargedesign.com
 ANDREW HARDISON, PE
 EMAIL: Drew.Hardison@bargedesign.com

OWNER/DEVELOPER:
COLUMBIA JAMES CAMPBELL BOULEVARD, LLC
3841 GREEN HILLS VILLAGE, SUITE 400
NASHVILLE, TENNESSEE 37215
CONTACT: JULIA LANNON
TEL:
EMAIL: jlannon@oldacremcdonald.com



COLUMBIA COMMONS

PRELIMINARY SUBDIVISION PLAT
115 SOUTH JAMES CAMPBELL BOULEVARD

[illegible]

FILE NO. 3853101



Columbia Fire & Rescue

Fire Flow Requirements



Water Purveyor: Columbia Power & Water System

Date: 03/22/2024

Name: Jack Boyd

Phone: 615-252-4474

Email: jack.boyd@bargedesign.com

Address/Parcel ID: 115 S James Campbell Blvd, Columbia, TN 38401

Property Type: ☐ Residential
☒ Commercial
☐ Industrial

Construction Type: Wood Frame

Enclosed Area (ft²): 4,139 SF

FILLED OUT BY COLUMBIA FIRE AND RESCUE

NFPA Sprinkler Type: NFPA 13

Water System Demand without Sprinkler Credit *Fire flow Requirements (International Fire Code Appendix B)*

Fire Flow: 1,750 gpm Duration: 2 hours

Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 1

Average spacing between hydrants: 500 ft.

Maximum distance from frontage to hydrant: 250 ft.

Water System Demand with Sprinkler Credit *Fire flow requirements (International Fire Code Appendix B)*

Fire Flow: 1,000 gpm Duration: 2 hours

Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 1

Average spacing between hydrants: 500 ft.

Maximum distance from frontage to hydrant: 250 ft.

Fire Plan Reviewer: Brad Massey Date: 3/22/2024



WASTEWATER DEPARTMENT

14 March 2024

Jack M Boyd
615 3rd Avenue South, Suite 700
Nashville, TN 37210

RE: 115 S James Campbell Blvd, Columbia, TN 38401

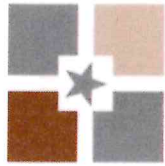
Jack,

This letter serves as confirmation that the City of Columbia Wastewater Department has the available capacity to service the above-referenced development. Any extension to the existing sewer infrastructure will be initiated by the owner/developer, reviewed by our department and approved by the State of Tennessee. The project must be advanced in accordance with local, state and federal rules, regulations and policies. Funding and construction of those improvements will remain the responsibility of the owner/developer. New customers will be required to pay all fees applicable at the time of connection. No detailed design plan for an extension of the sewer has been proposed at this time.

The proposed reroute and existing service situation on-site is subject to the plan review process and may include rehabilitation, replacement or removal of existing infrastructure depending upon condition.

A handwritten signature in blue ink, appearing to read "Donnie Boshers".

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

Final Plat: * 1 hard copy of all materials for submittal + PDF copy on a USB flash drive (no multiple applications on one storage device)

Fold hard copy submittals larger than 8½"x11"

All Others: * Please submit the Application online at [City of Columbia | Permitting \(onlana.com\)](http://City of Columbia | Permitting (onlana.com))

ADDRESS/LOCATION	115 South James Campbell Blvd., Columbia, TN		
	TAX MAP: 113E	GROUP: B	PARCEL: 4.00
SUMMARY OF NATURE OF REQUEST AND WORK	Final Plat to create 3 Lots with associated infrastructure and mass grading on 3.88 acres.		

DATE OF PRE-APPLICATION CONFERENCE		Pre-application meetings are scheduled for Wednesdays.
------------------------------------	--	--

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Comprehensive Plan Amendment ☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☒ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Site Development Plan ☐ Other:	<u>Annexations:</u> ☐ Annexation Permission Form <u>Annexations/Rezoning/Plan Amendments:</u> ☐ Requested Zone Listed ☐ Statement of Compliance with Comprehensive Plan ☐ Concept Plan <u>Preliminary Plats/Site Development Plans:</u> ☒ Plans and/or Plats conforming to City standards with signed and completed check list <u>All Annexations/Rezoning/Preliminary Plats/Site Development Plans and PUDS:</u> ☒ Receipt of Payment for Pre-Application Meeting ☒ Written Legal Description copy ☒ Columbia Water System Availability Letter ☒ Columbia Waste Water Department Will Serve Letter

**File naming nomenclature examples:*

Freedom Point Site Plan
Freedom Point Master Plan
Freedom Point Final Plat

	<u>Plats/PUDs:</u>
	☒ Project Name (include Sections & Phases) Columbia Commons
	☒ Total Number of Lots/Residential Units 3-lots
	☒ Square Footage of Non-Residential Floor Space Lot 1: 2,411 sf Lot 2: 3,365 sf Lot 3: 4,417 SF
	☒ Total acreage 3.88 acres

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application. Any requests to defer or move the item to future meeting dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

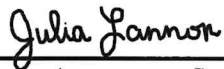
NAME	Julia Lannon	PHONE	615-269-5444 x307
ADDRESS	3841 Green Hills Village Dr Ste 400, Nashville, TN 37215	EMAIL	jlannon@oldacremcdonald.com

PROPERTY OWNER NAME	Oliver Oldacre	PHONE	615-269-5444 x294
ADDRESS	3841 Green Hills Village Dr Ste 400, Nashville, TN 37215	EMAIL	ooldacre@oldacremcdonald.com

If owner is not a natural person, documentation must be provided showing signing authority on behalf of the entity. If multiple persons are listed as owners in the records of the Maury County Assessor, all owners must sign or the signatory must provide documentation of authority to apply on behalf of record owner (i.e., Power of Attorney or notarized Letter of Authorization). In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

Julia Lannon

APPLICANT NAME



APPLICANT SIGNATURE

10/15/2024

DATE

Oliver Oldacre

PROPERTY OWNER NAME



PROPERTY OWNER SIGNATURE

10/15/2024

DATE

COLUMBIA STARBUCKS

COLUMBIA , TN

SITE DEVELOPMENT PLANS

JANUARY 27, 2025

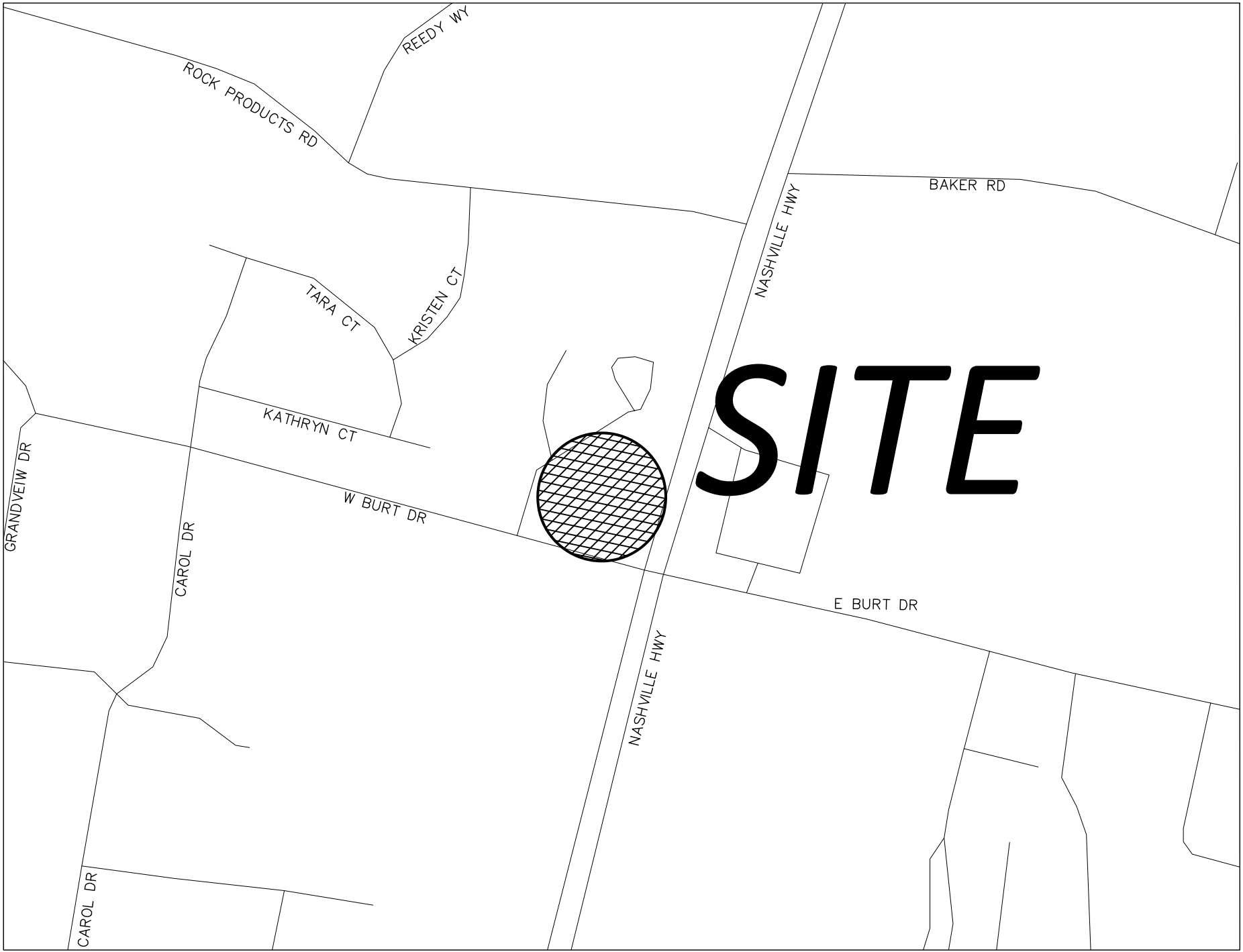
DRAWING INDEX

SHEET NO.	TITLE
C-1.0	COVER SHEET
C-2.0	SITE PLAN
C-3.0	UTILITY
C-4.0	GRADING AND DRAINAGE
C-4.1	SPOT ELEVATION
C-4.2	PRE-EROSION
C-4.3	INTERMEDIATE EROSION
C-4.4	FINAL STABILIZATION
C-5.0	DETAILS 1
C-5.1	DETAILS 2

SITE DATA TABLE

SITE DATA	
DEVELOPMENT:	STARBUCKS
ADDRESS:	1605 NASHVILLE HWY STE 201
CITY:	COLUMBIA
COUNTY:	MAURY
STATE:	TENNESSEE
	PLAT BOOK P21, PAGE 596
	MAP 075, PARCEL 34.03
	MAURY COUNTY , TN
ACREAGE OF SITE:	TOTAL: 1.13 +/- ACRES
ZONING CLASSIFICATION	
JURISDICTION:	CITY OF COLUMBIA
ZONING:	CD-4C
CURRENT USE:	N/A
PROPOSED USE:	QUICK SERVICE
MINIMUM SETBACK REQUIREMENT	FRONT: 6'-40'
	SIDE: 0'
	REAR: 3'
BUILDING AREA	
PARKING SUMMARY	
REQUIRED PARKING (PLANNED DEVELOPMENT)	
QUICK SERVICE= (1 PER 100 S.F.)	
REQUIRED PARKING = 6,000 S.F/ 500 S.F.= 25 SPCS	
PROPOSED PARKING	29 TOTAL
STANDARD PARKING	27 SPACES
ACCESSIBLE PARKING	2 SPACES

ENGINEER	OWNER/DEVELOPER
MB CIVIL ENGINEERING LLC. 759 TIMBER RIDGE ROAD LEXINGTON, TN 38351 PHONE: (731) 265-6827 CONTACT: ADAM LEDSINGER EMAIL: adam@mbcivil.net	R&C ENTERPRISES 901 W MAIN STREET HOHENWALD, TN 38462 EMAIL: RMORROW2@BELLSOUTH.NET



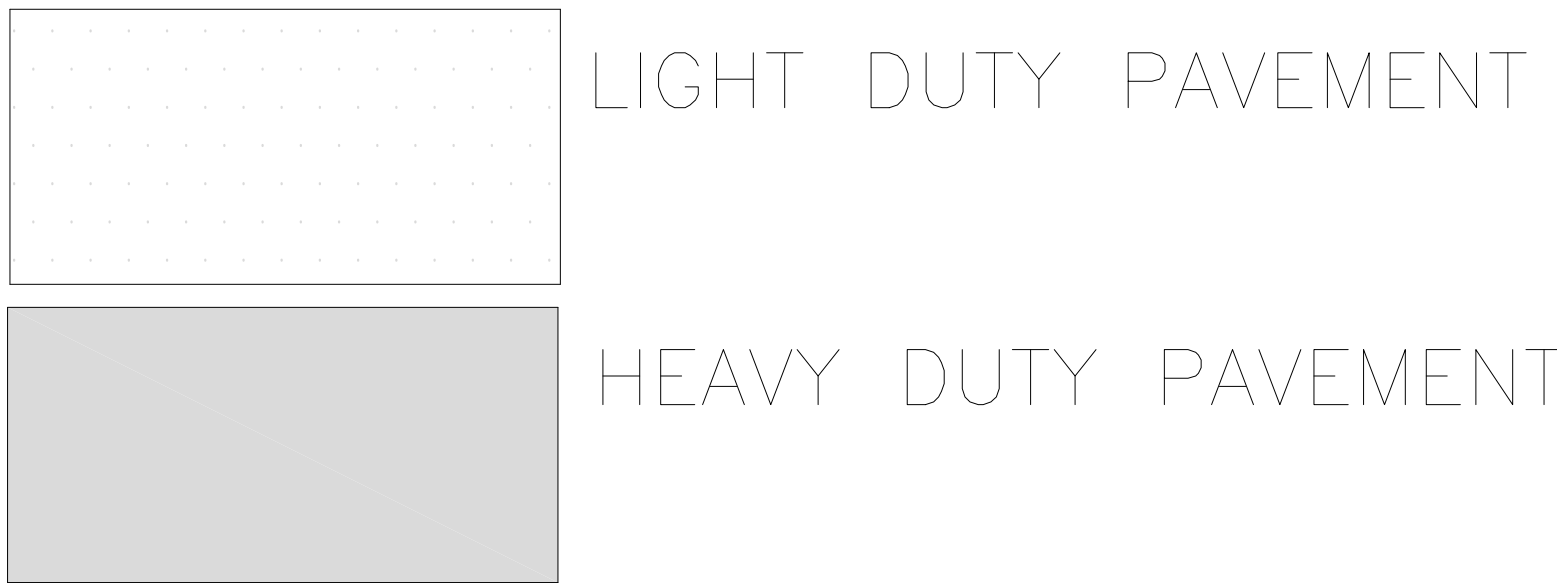
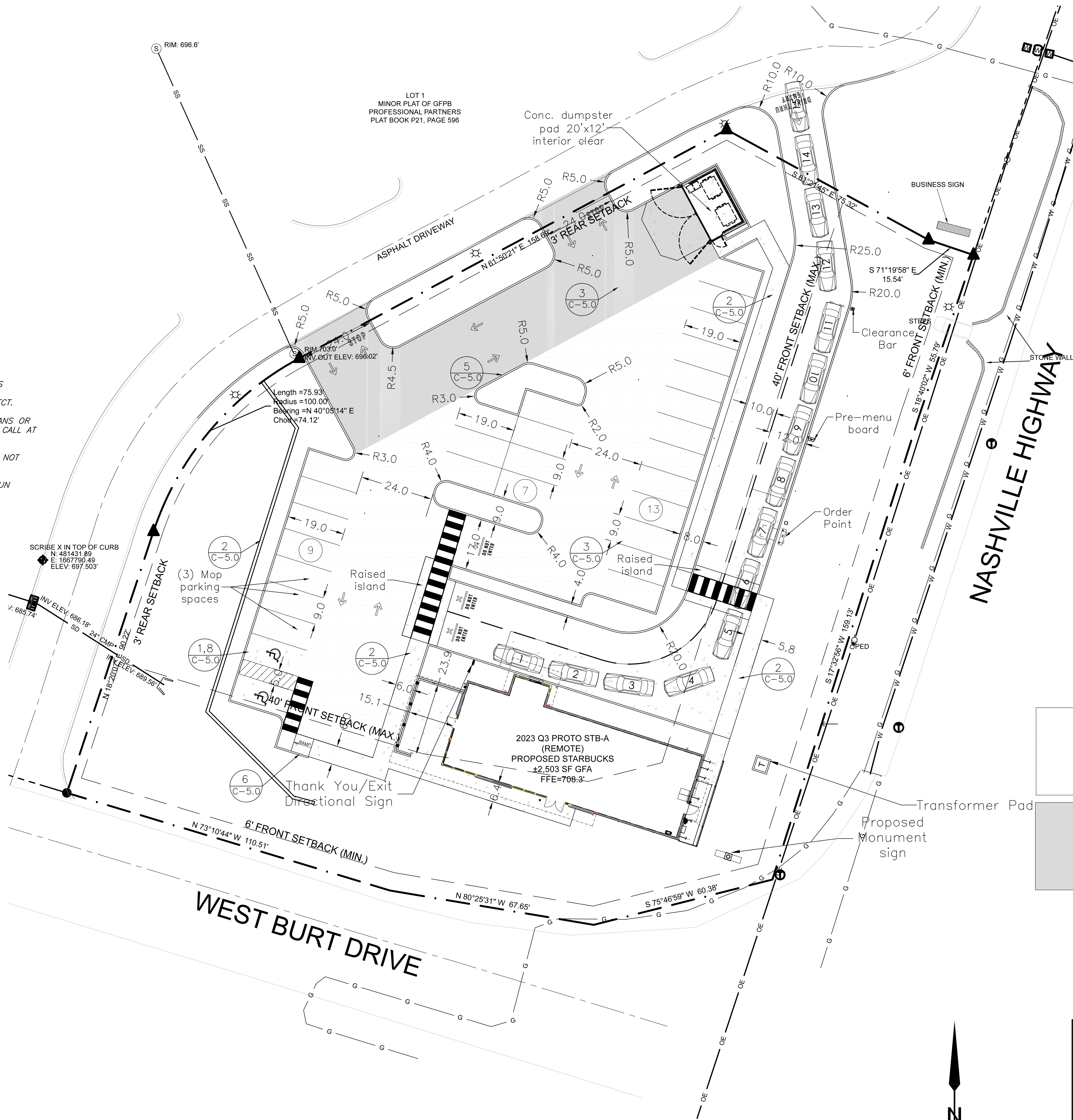
BEARING BASIS:
TENNESSEE STATE PLANE COORDINATE SYSTEM -
NAD 1983

VICINITY MAP



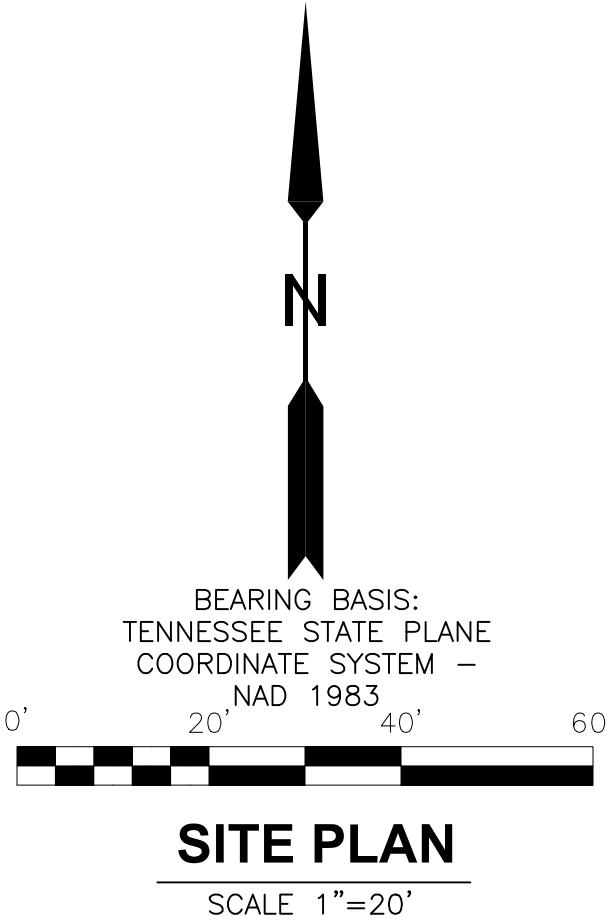
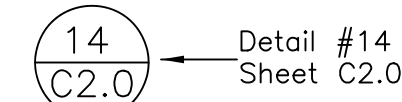
GENERAL CONSTRUCTION NOTES

1. PROPERTY LINES SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. GRADING, CLEARING AND THE ERECTION OR REMOVAL OF FENCES ALONG PROPERTY LINES SHALL BE FULLY COORDINATED WITH ADJACENT PROPERTY OWNERS BEFORE BEGINNING CONSTRUCTION.
2. VERIFY SITE CONDITIONS PRIOR TO CONSTRUCTION. NOTIFY THE CITY CONSTRUCTION INSPECTION OFFICE & ENGINEER OF ANY VARIATIONS PRIOR TO COMMENCEMENT OF WORK.
3. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES.
4. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL MEASURES PRIOR TO INITIATING CONSTRUCTION. SEE SPECIFIC NOTES, DRAWINGS, & DETAILS FOR MEASURES REQUIRED.
5. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED PRIOR TO BEGINNING ANY CONSTRUCTION.
6. ANY EXISTING ASPHALT PAVEMENT, PRIVACY FENCES AND WALLS, CONCRETE CURBS, OR SIDEWALKS DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITY SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ANY TRENCH STABILIZATION REQUIRED BY OSHA CONSTRUCTION STANDARD FOR EXCAVATIONS, 29 CFR PART 1926, SUBPART F.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION RELATED SURVEYING, INCLUDING ALL LAYOUT AND GRADE STAKING. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR GEOTECHNICAL TESTING.
9. THE CONTRACTOR SHALL NOTIFY THE CITY A MINIMUM OF 24 HOURS PRIOR TO BEGINNING CONSTRUCTION.
10. ALL FILL SOILS SHALL BE COMPACTED TO A MINIMUM OF 95% PROCTOR DENSITY (ASTM D-98) WITHIN 3" OF OPTIMUM MOISTURE CONTENT IN LIFTS NOT TO EXCEED EIGHT (8) INCHES OF COMPACTED THICKNESS.
11. ALL NEWLY CUT OR FILLED AREAS, LACKING ADEQUATE VEGETATION, SHALL BE SEEDED, MULCHED FERTILIZED AND OR SODDEN AS REQUIRED TO EFFECTIVELY CONTROL SOIL EROSION.
12. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND NOT NECESSARILY ALL OF SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE UTILITY COMPANIES WHICH MAINTAIN A UTILITY LINE WITHIN THE BOUNDARIES OF THE PROJECT PRIOR TO THE INITIATION OF ANY CONSTRUCTION ON THE PROJECT OR IN THE STREETS BORDERING THE PROJECT. THE CONTRACTOR SHALL ALSO ASSUME FULL RESPONSIBILITY FOR DAMAGE TO ANY UTILITIES ENCOUNTERED WITHIN CONSTRUCTION PERIMETERS, WHETHER SHOWN ON THE CONSTRUCTION PLANS OR NOT, DURING WORK ON THE PROJECT. FOR SITE LOCATION OF EXISTING UTILITIES CALL TN ONE CALL AT 811.
13. ALL GRADING WORK SHALL BE PERFORMED IN SUCH A MANNER THAT ADJACENT PROPERTIES ARE NOT DAMAGED OR ADVERSELY AFFECTED.
14. EXISTING SITE CONDITIONS AND TOPOGRAPHY SHOWN ON THIS PLAN ARE TAKEN FROM A FIELD RUN TOPOGRAPHIC SURVEY FROM LI SMITH AND ASSOCIATES SURVEYING.



THE SITE AS SHOWN ON THESE CONSTRUCTION DRAWINGS IS INTENDED TO ACHIEVE SPECIFIC ENGINEERING DESIGN CRITERIA AND OBJECTIVES. IT IS THE SOLE RESPONSIBILITY OF THE OWNER/DEVELOPER TO ENSURE THAT THE CONSTRUCTION OF THE SITE SHOWN ON THESE CONSTRUCTION DRAWINGS IS IN TOTAL ACCORDANCE WITH THE DESIGN AS NOTED, DESCRIBED, AND ILLUSTRATED. THE ENGINEER ASSUMES NO RESPONSIBILITY IN THE ASSURANCE THAT THE SITE IS CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION PLANS.

Bullet Legend



Owner/Developer Info:

R&C ENTERPRISES
RICK MORROW
801 WEST MAIN STREET
HOLEN WALD, TN 38462

Zoning: CD-4C

Area: 1.132+/-

Floodplain Note:

THIS SITE LIES WITHIN ZONE X, AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN, AS INDICATED ON FEMA NFIP FIRM MAP NUMBER 17077C0355D BEARING AN EFFECTIVE DATE OF MAY 02, 2008.

Total Floor Area:

Proposed BUILDING: Total 2,443 S.F.

Deed Reference:

PLAT BOOK P21 PAGE 596
TAX MAP 075, PARCEL 34.03

Yard Requirements:

CD-4C

Front: 6' MIN. 40' MAX

Side: 0'

Rear: 3'

Intended Use:

QUICK SERVICE

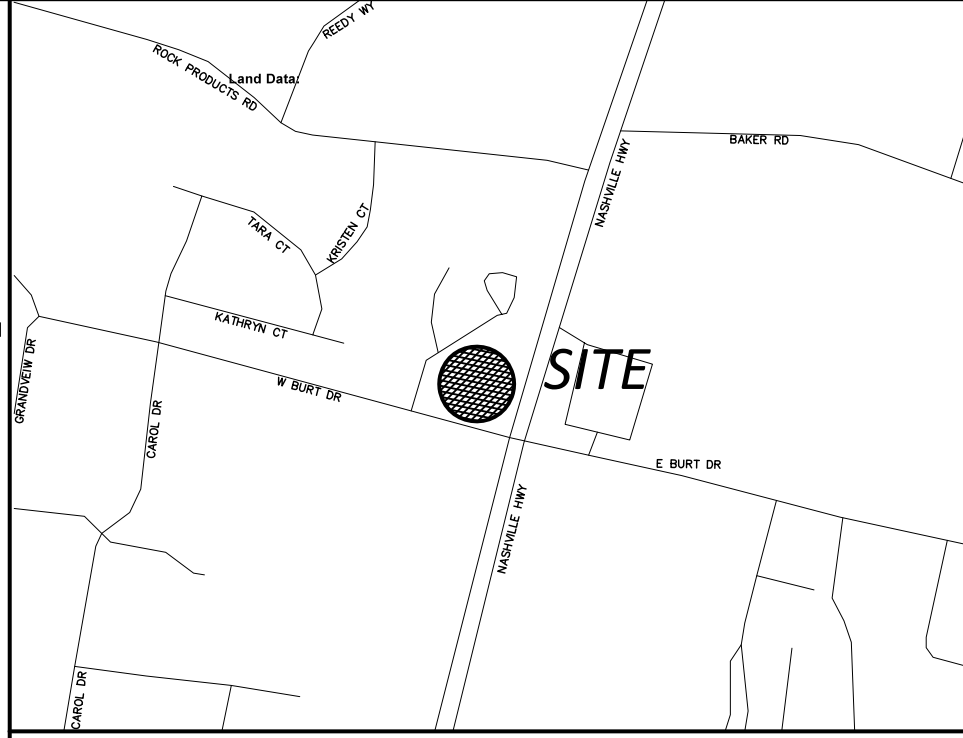
Parking Requirements:

REQUIRED FOR QUICK SERVICE

1 SPACE FOR 100 S.F.

TOTAL SPACES REQUIRED: 25

TOTAL SPACES PROVIDED: 29 (2 HANDICAP)



VICINITY MAP



SEAL



759 TIMBER RIDGE DR. LEVINGTON, TN 38351
VOICE: 731-255-6527 adam@mbcivil.net TENNESSEE CAV 8410

SITE PLAN
COLUMBIA STARBUCKS
1605 NASHVILLE HWY STE 201
COLUMBIA, TN

PROJECT

REVISION DATES

DATE

JANUARY 27, 2025

SHEET

C-2.0

OF

10

JOB No.

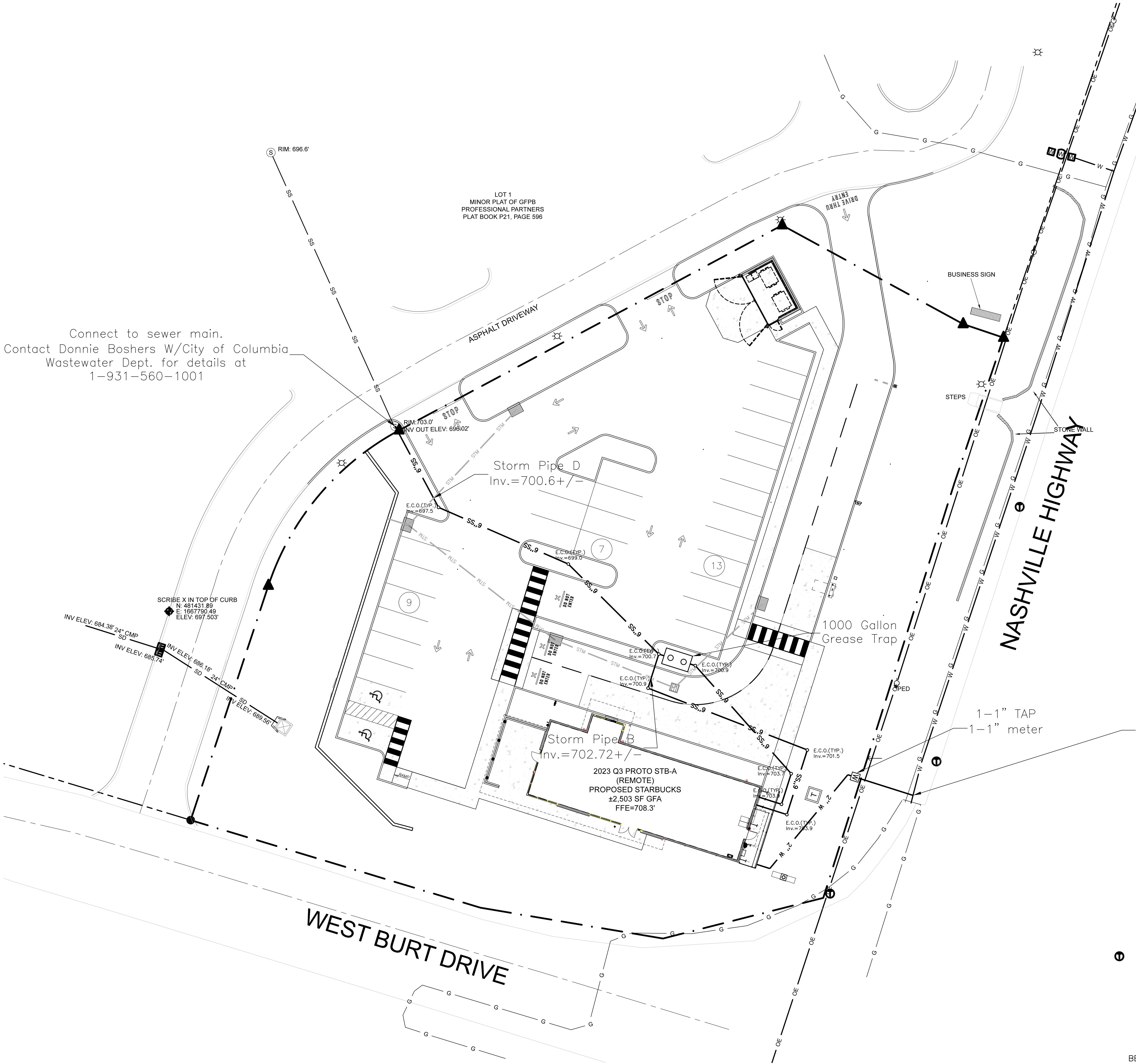
24011

GENERAL UTILITY NOTES

- EXISTING UTILITY LINES SHOWN ARE APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LINE LOCATIONS PRIOR TO BEGINNING CONSTRUCTION.
- THE CONTRACTOR WILL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. IN THE EVENT THAT SPECIAL EQUIPMENT IS REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR WILL BE REQUIRED TO FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING UTILITIES FROM DAMAGE AND FURNISHING SPECIAL EQUIPMENT WILL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY EACH INDIVIDUAL UTILITY OWNER OF HIS PLAN OF OPERATION IN THE AREA OF THE UTILITIES, PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL CONTACT THE UTILITY OWNERS AND REQUEST THEM TO PROPERLY LOCATE THEIR RESPECTIVE UTILITY ON THE GROUND. THIS NOTIFICATION SHALL BE GIVEN AT LEAST (3) BUSINESS DAYS PRIOR TO COMMENCEMENT OF OPERATIONS AROUND THE UTILITY.
- THE CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH MANNER AS TO AVOID CONFLICTS AND ASSURE PROPER DEPTHS ARE ACHIEVED AS WELL AS COORDINATING WITH THE REGULATORY AGENCY AS TO LOCATION AND SCHEDULING OF TIE-INS/CONNECTIONS TO THEIR FACILITIES.
- ALL UNDERGROUND UTILITIES (WATER, SEWER, STORM SEWER, ELECTRICAL CONDUIT, IRRIGATION SLEEVES, AND ANY OTHER MISCELLANEOUS), SHALL BE IN-PLACE PRIOR TO THE PLACEMENT OF BASE COURSE MATERIAL.
- LOCATION OF SITE UTILITIES SHALL BE VERIFIED WITH PROPER UTILITY COMPANY PROVIDING SERVICE.
- UTILITY CONTRACTOR WILL BE RESPONSIBLE FOR ALL TAP AND TIE ON FEES REQUIRED, AS WELL AS COST OF UNDERGROUND SERVICE CONNECTIONS TO THE LOTS.
- THE CONTRACTOR SHALL PROVIDE A SUITABLE OFFICE NEAR THE SITE FOR HIS USE AND AT WHICH COPIES OF THE SPECIFICATIONS AND DRAWINGS SHALL BE KEPT. THE CONTRACTOR SHALL ALSO DESIGNATE TO THE OWNER A PERSON TO BE NOTIFIED IN CASE OF EMERGENCIES OTHER THAN DURING WORKING HOURS AND ON HOLIDAYS AND WEEKENDS.
- STREETS SHALL BE GRADED TO SUBGRADE BEFORE WATER LINES AND SANITARY SEWERS ARE INSTALLED.
- THE OWNER/DEVELOPER FOR BUDGET PURPOSES, SHOULD CHECK WITH THE LOCAL UTILITY DEPARTMENT FOR CONNECTION FEES WHICH MAY BE SUBSTANTIAL.
- CONTRACTORS FOR WATER AND SEWER WORK MUST BE APPROVED BY THE CITY UTILITY DEPARTMENT.
- IN TENNESSEE IT IS A REQUIREMENT PER THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOWN UTILITY OWNERS, NO LESS THAN THREE NOR MORE THAN TEN WORKING DAYS, PRIOR TO THEIR INTENDED EXCAVATION. A LIST OF THESE UTILITY OWNERS MAY BE OBTAINED FROM THE COUNTY REGISTER OF DEEDS. THOSE UTILITY OWNERS WHO PARTICIPATE IN THE TENNESSEE ONE CALL SYSTEM CAN BE NOTIFIED TOLL FREE AT 811.

REDUCED PRESSURE BACKFLOW PREVENTER NOTES:

- The reduced pressure backflow prevention device will be located inside the building in the mechanical room.

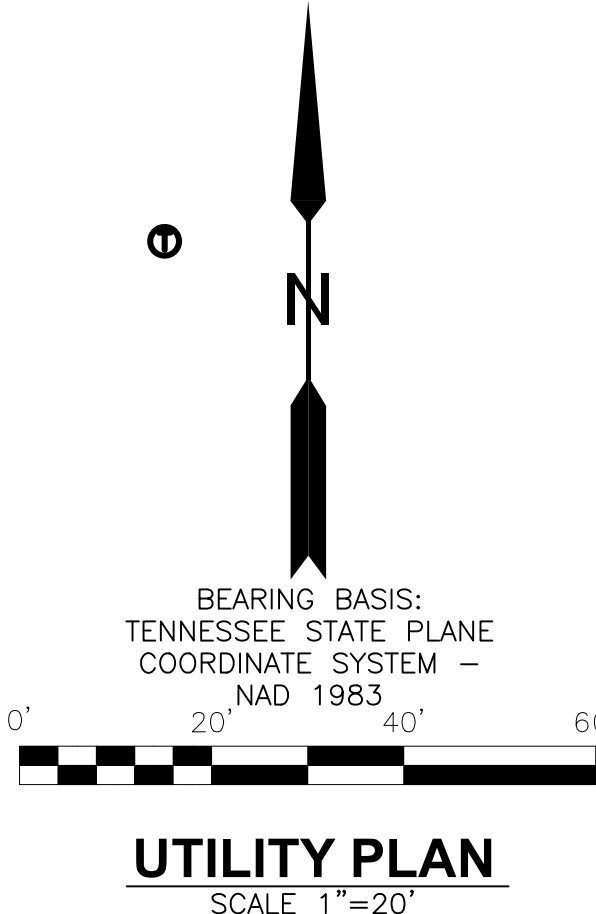


Bullet Legend

14
C2.0

Detail #14
Sheet C2.0

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MB **CIVIL**
ENGINEERING, LLC

P.O. BOX 601 750 TIMBER RIDGE DR. LEXINGTON, TN 38351
VOICE 731-265-6827 adam@mbcivil.net TENNESSEE C&E #410

UTILITY PLAN
COLUMBIA STARBUCKS
1605 NASHVILLE HWY STE 201
COLUMBIA, TN

PROJECT

REVISION DATES

DATE

JANUARY 27, 2025

SHEET

C-3.0

OF

10

JOB No.

24011

GRADING AND DRAINAGE NOTES

1. THE SITE WORK CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL UNDERGROUND UTILITIES (WATER, SANITARY SEWER, STORM SEWER, ELECTRICAL CONDUIT, IRRIGATION SLEEVES, AND ANY OTHER MISCELLANEOUS UNDERGROUND UTILITIES, DEVICES, OR STRUCTURES), SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF THE BASE COURSE MATERIAL.
2. THE CONTRACTOR SHALL CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE SMOOTH FIT AND CONTINUOUS GRADE.
3. THE CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING STORM SEWER STRUCTURES, PIPES AND ALL UTILITIES PRIOR TO CONSTRUCTION.
4. CLEARING AND GRUBBING LIMITS SHALL INCLUDE ALL AREAS DISTURBED BY GRADING OPERATION
5. ANY GRADED OR DISTURBED AREAS SHALL HAVE 4 INCHES OF TOPSOIL, SEED, MULCH, FERTILIZER AND WATER APPLIED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED. THE RESTORATION SHALL CLOSELY FOLLOW CONSTRUCTION.
6. THE EXISTING SOIL MATERIAL HEREON MAY BE DISTURBED BY CUTTING OR FILLING OPERATIONS PERFORMED DURING OR BEFORE DEVELOPMENT. THEREFORE, THE BUILDER OR DEVELOPER OF ANY PROPOSED STRUCTURE SHALL INVESTIGATE THE CURRENT CONDITIONS AND CONSULT WITH A GEOTECHNICAL EXPERT OR OTHER QUALIFIED PERSON AS HE DEEMS APPROPRIATE TO ASSURE HIMSELF THAT THE DESIGN OF THE PROPOSED FOUNDATION IS ADEQUATE.
7. A SEPARATE R.O.W. PERMIT ISSUED BY THE CITY AND TDOT WILL BE REQUIRED FOR EXCAVATION AND CONSTRUCTION IN THE PUBLIC R.O.W.
8. HANDICAP PARKING SPACES AND ACCESSIBLE ROUTES SHALL BE CONSTRUCTED AND SLOPED IN ACCORDANCE WITH ALL PROVISIONS OF THE A.D.A.
9. IN TENNESSEE IT IS A REQUIREMENT PER THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOW UTILITY OWNERS, NO LESS THAN THREE NOR MORE THAN TEN WORKING DAYS , PRIOR TO THEIR INTENDED EXCAVATION. A LIST OF THESE UTILITY OWNERS MAY BE OBTAINED FROM THE COUNTY REGISTER OF DEEDS. THOSE UTILITY OWNERS WHO PARTICIPATE IN THE TENNESSEE ONE CALL SYSTEM CAN BE NOTIFIED TOLL FREE AT 811.

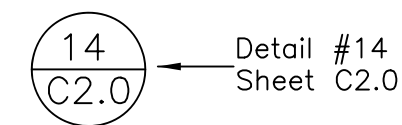
GENERAL EROSION CONTROL NOTES

1. ALL NEWLY CUT OR FILL AREAS LACKING ADEQUATE VEGETATION SHALL BE FERTILIZED, MULCHED, AND SEEDED, AND /OR SODDEN TO EFFECTIVELY CONTROL SOIL EROSION.
2. A SPECIFIC INDIVIDUAL SHALL BE DESIGNATED TO BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON EACH PROJECT SITE.
3. A COPY OF THE EROSION CONTROL PLAN MUST BE AVAILABLE ON SITE FOR THE DWPC INSPECTOR ON REQUEST. SEE SUGGESTED LOCATION ON PLAN.
4. EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE AND FUNCTIONAL BEFORE ANY EARTH MOVING OPERATION BEGINS, AND MUST BE CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. TEMPORARY MEASURES MAY BE REPLACED AT THE END OF THE WORK DAY, OR PRIOR TO RAINFALL EVENTS.
5. ALL CONTROL MEASURES SHALL BE CHECKED TWICE WEEKLY NO LESS THAN 72 HOURS APART AND SHALL MAINTAIN 50% OF ITS DESIGN CAPACITY AT ALL TIMES.
6. ALL EXCAVATING AND CLEARING SHALL BE COORDINATED TO PREVENT ANY SURFACE FROM REMAINING UNCOVERED FOR MORE THAN 14 DAYS, GRAVEL SHALL NOT BE CONSIDERED AS COVER.
7. ALL AREAS USED TO TEMPORARILY STORE TOPSOIL OR OTHER ERODABLE MATERIAL SHALL BE PROTECTED FROM EROSION ACCORDING TO THE DETAIL ON THIS PLAN. IF THESE AREAS ARE TO REMAIN IN PLACE FOR LONGER THAN 14 DAYS THEY SHOULD BE SEEDED AND MULCHED TO ESTABLISH GOOD GROUND COVER.
8. ALL DITCHES ON THE PROJECT SHOULD BE STABILIZED WITH SEED AND MULCH OR EROSION CONTROL MATTING AS SOON AS FINAL GRADING OPERATIONS HAVE CEASED.
9. AREAS OF DISTURBED SOILS MUST BE STABILIZED WITHIN 7 DAYS IF SLOPE IS 35% OR GREATER

EROSION CONTROL NOTES

1. THE SITE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SUITABLE EROSION AND SEDIMENT CONTROL DEVICES ON-SITE DURING CONSTRUCTION AS REQUIRED TO PREVENT SILT FROM LEAVING SITE. SILT WILL NOT BE ALLOWED BEYOND CONSTRUCTION LIMITS.
2. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING EXCESS SILT FROM SITE AND ASSURING PLAN ALIGNMENT AND GRADE IN ALL DITCHES AT THE COMPLETION OF CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING OUT ALL STORM DRAINAGE STRUCTURES, INCLUDING FLUMES, PIPES, ETC., PRIOR TO COMPLETION OF THIS PROJECT.
4. EROSION CONTROL SHALL BE PROVIDED FOR ALL CUT AND FILL OPERATIONS WITHIN THE LIMITS OF THE CONSTRUCTION SITE, THOUGHOUT THE CONSTRUCTION PERIOD TO PROVIDE THE SITE WITH THE MAXIMUM PROTECTION FROM EROSION AT ALL TIMES.
5. EROSION CONTROL MEASURES ARE TO BE INSTALLED PRIOR TO ANY GRADING ON-SITE AND ARE TO BE MAINTAINED IN PLACE UNTIL STABILIZATION OF ERODABLE SOILS HAS BEEN ACCOMPLISHED.

Bullet Legend

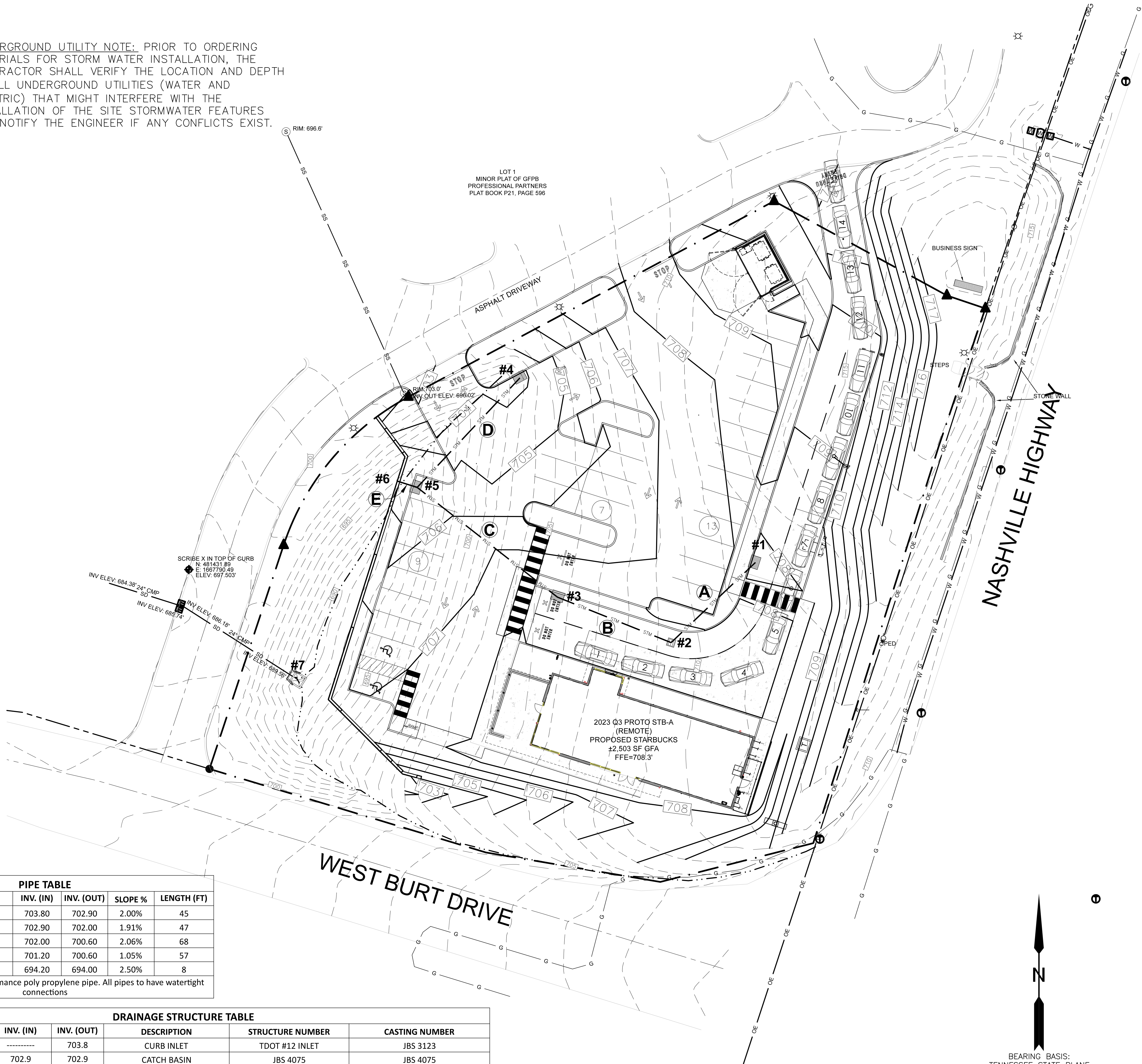


Grading and Erosion Control Legend

Existing Contour	--- 345 ---
Proposed Contour	— 345 —
Storm Structure	
Proposed Storm	— STM — STM —
Inlet Protection	
Structure/Pipe ID	#1 A
Silt Fence	— SF — SF —
Wire backed silt fence	— SFB — SFB —
EX. SPOT ELEV.	× 479.6
PROP. SPOT ELEV.	+ 74.8 BC35.2-Bottom Curb TC35.3-top curb
SEDIMENT TUBE	

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UNDERGROUND UTILITY NOTE: PRIOR TO ORDERING MATERIALS FOR STORM WATER INSTALLATION, THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UNDERGROUND UTILITIES (WATER AND ELECTRIC) THAT MIGHT INTERFERE WITH THE INSTALLATION OF THE SITE STORMWATER FEATURES AND NOTIFY THE ENGINEER IF ANY CONFLICTS EXIST.



PIPE TABLE					
PIPE	SIZE/TYPE	INV. (IN)	INV. (OUT)	SLOPE %	LENGTH (FT)
A	12" HP	703.80	702.90	2.00%	45
B	12 " HP	702.90	702.00	1.91%	47
C	18" HP	702.00	700.60	2.06%	68
D	18 " RCP	701.20	700.60	1.05%	57
E	18 " HP	694.20	694.00	2.50%	8

NOTE: HP storm is high performance poly propylene pipe. All pipes to have watertight connections

DRAINAGE STRUCTURE TABLE						
STR #	T.O.C.	INV. (IN)	INV. (OUT)	DESCRIPTION	STRUCTURE NUMBER	CASTING NUMBER
1	707.7	-----	703.8	CURB INLET	TDOT #12 INLET	JBS 3123
2	707.2	702.9	702.9	CATCH BASIN	JBS 4075	JBS 4075
3	707.3	702	702	CURB INLET	TDOT #12 INLET	JBS 3123
4	705.1	-----	701.2	CURB INLET	TDOT #12 INLET	JBS 3123
5	703.7	700.6 (C & D)	694.2	CURB INLET	TDOT #12 INLET	JBS 3123
6	-----	-----	694.00	END OF PIPE THRU RET. WALL	SEE DETAIL	SEE DETAIL

AREA OF DISTURBANCE= 0.98 AC+/-
EX. IMPERVIOUS AREA= 0AC+/-
PROP. IMPERVIOUS= 0.74AC +/-

GRADING AND DRAINAGE PLAN

SCALE 1"=20'



DETAILS
COLUMBIA STARBUCKS
1605 NASHVILLE HWY STE 201
COLUMBIA, TN

PROJECT	REVISION DATES
DATE	JANUARY 27, 2025
SHEET	C-4.0
JOB No.	24011

- GENERAL EROSION CONTROL NOTES
1. ALL NEWLY CUT OR FILL AREAS LACKING ADEQUATE VEGETATION SHALL BE FERTILIZED, MULCHED, AND SEEDED, AND /OR SODDEN TO EFFECTIVELY CONTROL SOIL EROSION.
 2. A SPECIFIC INDIVIDUAL SHALL BE DESIGNATED TO BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON EACH PROJECT SITE.
 3. A COPY OF THE EROSION CONTROL PLAN MUST BE AVAILABLE ON SITE FOR THE DWPC INSPECTOR ON REQUEST. SEE SUGGESTED LOCATION ON PLAN.
 4. EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE AND FUNCTIONAL BEFORE ANY EARTH MOVING OPERATION BEGINS, AND MUST BE CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. TEMPORARY MEASURES MAY BE REPLACED AT THE END OF THE WORK DAY, OR PRIOR TO RAINFALL EVENTS.
 5. ALL CONTROL MEASURES SHALL BE CHECKED TWICE WEEKLY NO LESS THAN 72 HOURS APART AND SHALL MAINTAIN 50% OF ITS DESIGN CAPACITY AT ALL TIMES.
 6. ALL EXCAVATING AND CLEARING SHALL BE COORDINATED TO PREVENT ANY SURFACE FROM REMAINING UNCOVERED FOR MORE THAN 14 DAYS, GRAVEL SHALL NOT BE CONSIDERED AS COVER.
 7. ALL AREAS USED TO TEMPORARILY STORE TOPSOIL OR OTHER ERODABLE MATERIAL SHALL BE PROTECTED FROM EROSION ACCORDING TO THE DETAIL ON THIS PLAN. IF THESE AREAS ARE TO REMAIN IN PLACE FOR LONGER THAN 14 DAYS THEY SHOULD BE SEEDED AND MULCHED TO ESTABLISH GOOD GROUND COVER.
 8. ALL DITCHES ON THE PROJECT SHOULD BE STABILIZED WITH SEED AND MULCH OR EROSION CONTROL MATTING AS SOON AS FINAL GRADING OPERATIONS HAVE CEASED.
 9. AREAS OF DISTURBED SOILS MUST BE STABILIZED WITHIN 7 DAYS IF SLOPE IS 35% OR GREATER

- EROSION CONTROL NOTES
1. THE SITE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SUITABLE EROSION AND SEDIMENT CONTROL DEVICES ON-SITE DURING CONSTRUCTION AS REQUIRED TO PREVENT SILT FROM LEAVING SITE. SILT WILL NOT BE ALLOWED BEYOND CONSTRUCTION LIMITS.
 2. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING EXCESS SILT FROM SITE AND ASSURING PLAN ALIGNMENT AND GRADE IN ALL DITCHES AT THE COMPLETION OF CONSTRUCTION.
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 4. EROSION CONTROL SHALL BE PROVIDED FOR ALL CUT AND FILL OPERATIONS WITHIN THE LIMITS OF THE CONSTRUCTION SITE, THROUGHOUT THE CONSTRUCTION PERIOD TO PROVIDE THE SITE WITH THE MAXIMUM PROTECTION FROM EROSION AT ALL TIMES.
 5. EROSION CONTROL MEASURES ARE TO BE INSTALLED PRIOR TO ANY GRADING ON-SITE, AND ARE TO BE MAINTAINED IN PLACE UNTIL STABILIZATION OF ERODABLE SOILS HAS BEEN ACCOMPLISHED.

EPSC PHASING

1. INSTALL CONSTRUCTION ENTRANCE/EXIT.
2. INSTALL SILT FENCE @ DOWNSLOPE AREAS.
3. MUST BE INSTALLED AND INSPECTED PRIOR TO ISSUANCE OF GRADING PERMIT.
4. COMMENCE GRADING OPERATIONS.

PROPOSED DRAINAGE EASEMENT DESCRIPTION

DESCRIPTION OF PROPOSED DRAINAGE EASEMENT ACROSS CLARK PROPERTY(RB 1086, PG 1783) ON GRACE COVE IN MEDINA, TN

THE FOLLOWING DESCRIPTION IS OF A PROPOSED DRAINAGE EASEMENT ACROSS THE CLARK PROPERTY AS RECORDED IN RECORD BOOK 1086 AT PAGE 1783 IN THE REGISTER'S OFFICE OF GIBSON COUNTY, TENNESSEE. THE PROPERTY ACROSS WHICH THE EASEMENT RUNS IS LOCATED ON GRACE COVE IN MEDINA, GIBSON COUNTY, TENNESSEE, AND IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A FOUND IRON PIN ON THE NORTH RIGHT OF WAY OF GRACE COVE(30 FEET FROM THE CENTER) AT THE SOUTHWEST CORNER OF LOT 8 OF THE MEDINA COMMERCIAL DEVELOPMENT(PLAT CAB D, SLIDE 39) AND BEING THE SOUTHEAST CORNER OF CLARK AS RECORDED IN RECORD BOOK 1086 AT PAGE 1783.

THENCE FROM THE POINT OF BEGINNING AND WITH THE NORTH RIGHT OF WAY OF GRACE COVE, A RECORD BEARING(REFERENCED TO THE PLAT CAB D, SLIDE 39) OF NORTH 85 DEGREES 48 MINUTES 05 SECONDS WEST A DISTANCE OF 66.10 FEET; THENCE LEAVING SAID ROAD ACROSS CLARK PROPERTY(RB 1086, PG 1783), NORTH 50 DEGREES 07 MINUTES 15 SECONDS EAST A DISTANCE OF 71.73 FEET; THENCE WITH A CURVE TURNING TO THE LEFT WITH AN ARC LENGTH OF 12.02 FEET, WITH A RADIUS OF 15.00 FEET, WITH A CHORD BEARING OF NORTH 27 DEGREES 09 MINUTES 35 SECONDS EAST, WITH A CHORD LENGTH OF 11.70 FEET; THENCE NORTH 04 DEGREES 11 MINUTES 55 SECONDS EAST A DISTANCE OF 173.77 FEET TO THE NORTH LINE OF CLARK; THENCE SOUTH 85 DEGREES 59 MINUTES 38 SECONDS EAST A DISTANCE OF 10.00 FEET TO THE NORTHWEST CORNER OF LOT 8 OF THE MEDINA COMMERCIAL DEVELOPMENT; THENCE WITH THE WEST LINE OF LOT 8, SOUTH 04 DEGREES 11 MINUTES 55 SECONDS WEST A DISTANCE OF 234.48 FEET TO THE POINT OF BEGINNING, HAVING AN AREA OF 3674 SQUARE FEET OR 0.089 ACRES.

THE SITE AS SHOWN ON THESE CONSTRUCTION DRAWINGS IS INTENDED TO ACHIEVE SPECIFIC ENGINEERING DESIGN CRITERIA AND OBJECTIVES. IT IS THE SOLE RESPONSIBILITY OF THE OWNER/DEVELOPER TO ENSURE THAT THE CONSTRUCTION OF THE SITE SHOWN ON THESE CONSTRUCTION DRAWINGS IS IN TOTAL ACCORDANCE WITH THE DESIGN AS NOTED, DESCRIBED, AND ILLUSTRATED. THE ENGINEER ASSUMES NO RESPONSIBILITY IN THE ASSURANCE THAT THE SITE IS CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION PLANS.

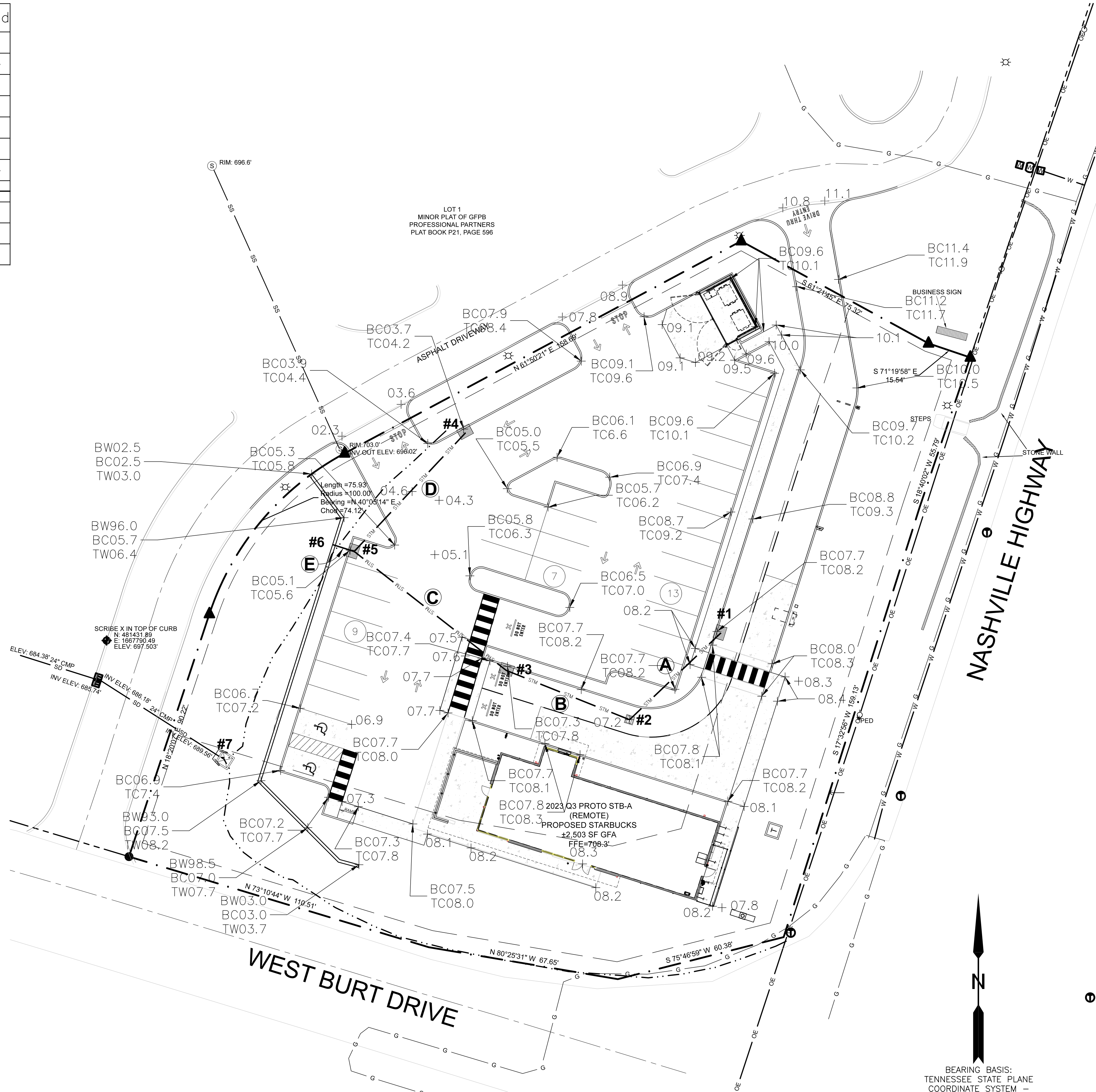
Bullet Legend

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C2.0

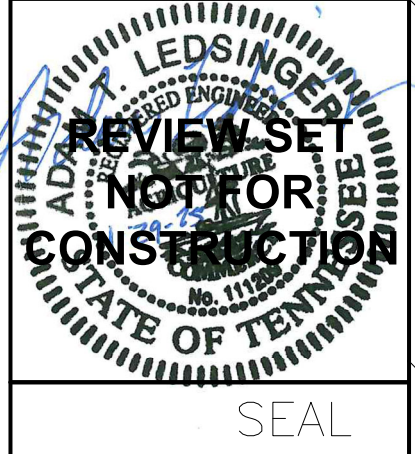
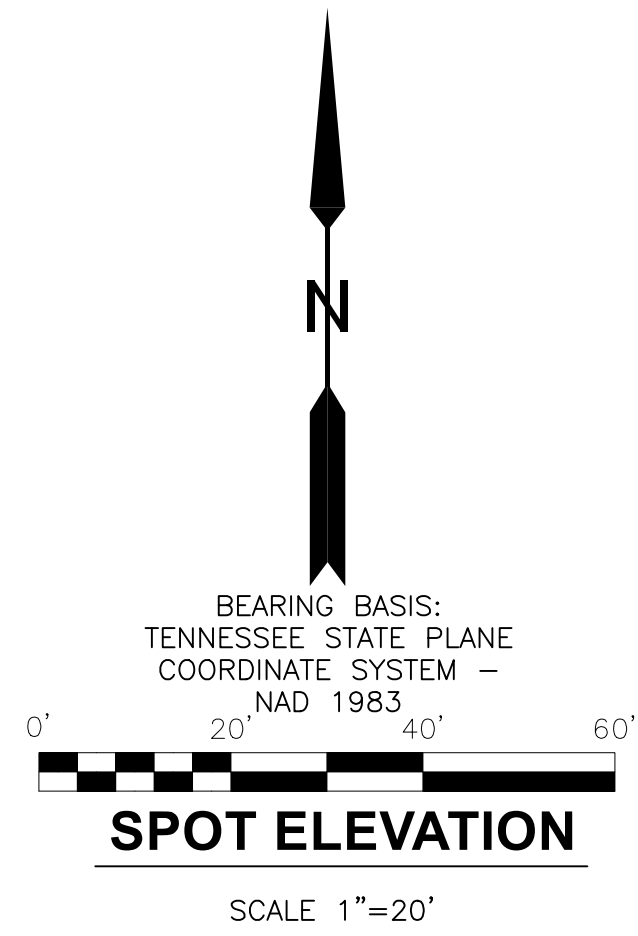
Detail #14
Sheet C2.0

Grading and Erosion Control Legend

Existing Contour	--- 345 ---
Proposed Contour	--- 345 ---
Storm Structure	
Proposed Storm	--- STM --- STM ---
Inlet Protection	
Structure/Pipe ID	#1 A
Silt Fence	--- SF --- SF ---
Wire backed silt fence	--- SFB --- SFB ---
EX. SPOT ELEV.	×479.6
PROP. SPOT ELEV.	+74.8 BC35.2-Bottom Curb TC35.3-top curb
SEDIMENT TUBE	



AREA OF DISTURBANCE= 0.98 AC +/-
EX. IMPERVIOUS AREA= 0AC +/-
PROP. IMPERVIOUS= 0.74AC +/-



MBACIVIL
ENGINEERING, LLC
P.O. BOX 801 758 TIMBER RIDGE DR. LEXINGTON, TN 38351
VOICE 731-265-6827 adam@mbacivil.net TENNESSEE CAE #410

DETAILS
COLUMBIA STARBUCKS
1605 NASHVILLE HWY STE 201
COLUMBIA, TN

PROJECT	REVISION DATES
DATE	JANUARY 27, 2025
SHEET	C-4.1 OF 10
JOB No.	24011

1. ALL NEWLY CUT OR FILL AREAS LACKING ADEQUATE VEGETATION SHALL BE FERTILIZED, MULCHED, AND SEEDED, AND /OR SODDEN TO EFFECTIVELY CONTROL SOIL EROSION.
2. A SPECIFIC INDIVIDUAL SHALL BE DESIGNATED TO BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON EACH PROJECT SITE.
3. A COPY OF THE EROSION CONTROL PLAN MUST BE AVAILABLE ON SITE FOR THE DWPC INSPECTOR ON REQUEST. SEE SUGGESTED LOCATION ON PLAN.
4. EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE AND FUNCTIONAL BEFORE ANY EARTH MOVING OPERATION BEGINS, AND MUST BE CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. TEMPORARY MEASURES MAY BE REPLACED AT THE END OF THE WORK DAY, OR PRIOR TO RAINFALL EVENTS.
5. ALL CONTROL MEASURES SHALL BE CHECKED TWICE WEEKLY NO LESS THAN 72 HOURS APART AND SHALL MAINTAIN 50% OF ITS DESIGN CAPACITY AT ALL TIMES.
6. ALL EXCAVATING AND CLEARING SHALL BE COORDINATED TO PREVENT ANY SURFACE FROM REMAINING UNCOVERED FOR MORE THAN 14 DAYS, GRAVEL SHALL NOT BE CONSIDERED AS COVER.
7. ALL AREAS USED TO TEMPORARILY STORE TOPSOIL OR OTHER ERODABLE MATERIAL SHALL BE PROTECTED FROM EROSION ACCORDING TO THE DETAIL ON THIS PLAN. IF THESE AREAS ARE TO REMAIN IN PLACE FOR LONGER THAN 14 DAYS THEY SHOULD BE SEEDDED AND MULCHED TO ESTABLISH GOOD GROUND COVER.
8. ALL DITCHES ON THE PROJECT SHOULD BE STABILIZED WITH SEED AND MULCH OR EROSION CONTROL MATING AS SOON AS FINAL GRADING OPERATIONS HAVE CEASED.
9. AREAS OF DISTURBED SOILS MUST BE STABILIZED WITHIN 7 DAYS IF SLOPE IS 35% OR GREATER.

Bullet Legend

 Detail #14
Sheet C2.0

Grading and Erosion Control Legend	
Existing Contour	--- 345 ---
Proposed Contour	— 345 —
Storm Structure	
Proposed Storm	— STM — STM —
Inlet Protection	
Structure/Pipe ID	#1 
Silt Fence	— SF — SF —
Wire backed silt fence	— SFB — SFB —
EX. SPOT ELEV.	× 479.6
PROP. SPOT ELEV.	+ 74.8 BC35.2-Bottom Curb TC35.3-top curb
SEDIMENT TUBE	

1. THE SITE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SUITABLE EROSION AND SEDIMENT CONTROL DEVICES ON-SITE DURING CONSTRUCTION AS REQUIRED TO PREVENT SILT FROM LEAVING SITE. SILT WILL NOT BE ALLOWED BEYOND CONSTRUCTION LIMITS.
2. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING EXCESS SILT FROM SITE AND ASSURING PLAN ALIGNMENT AND GRADE IN ALL DITCHES AT THE COMPLETION OF CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR CLEANING OUT ALL STORM DRAINAGE STRUCTURES, INCLUDING FLUMES, PIPES, ETC., PRIOR TO COMPLETION OF THIS PROJECT.
4. EROSION CONTROL SHALL BE PROVIDED FOR ALL CUT AND FILL OPERATIONS WITHIN THE LIMITS OF THE CONSTRUCTION SITE, THOUGHOUT THE CONSTRUCTION PERIOD TO PROVIDE THE SITE WITH THE MAXIMUM PROTECTION FROM EROSION AT ALL TIMES.
5. EROSION CONTROL MEASURES ARE TO BE INSTALLED PRIOR TO ANY GRADING ON-SITE AND ARE TO BE MAINTAINED IN PLACE UNTIL STABILIZATION OF ERODABLE SOILS HAS BEEN ACCOMPLISHED.

1. INSTALL CONSTRUCTION ENTRANCE/EXIT.
2. INSTALL SILT FENCE @ DOWNSLOPE AREAS.
3. MUST BE INSTALLED AND INSPECTED PRIOR TO ISSUANCE OF GRADING PERMIT.
4. COMMENCE GRADING OPERATIONS.

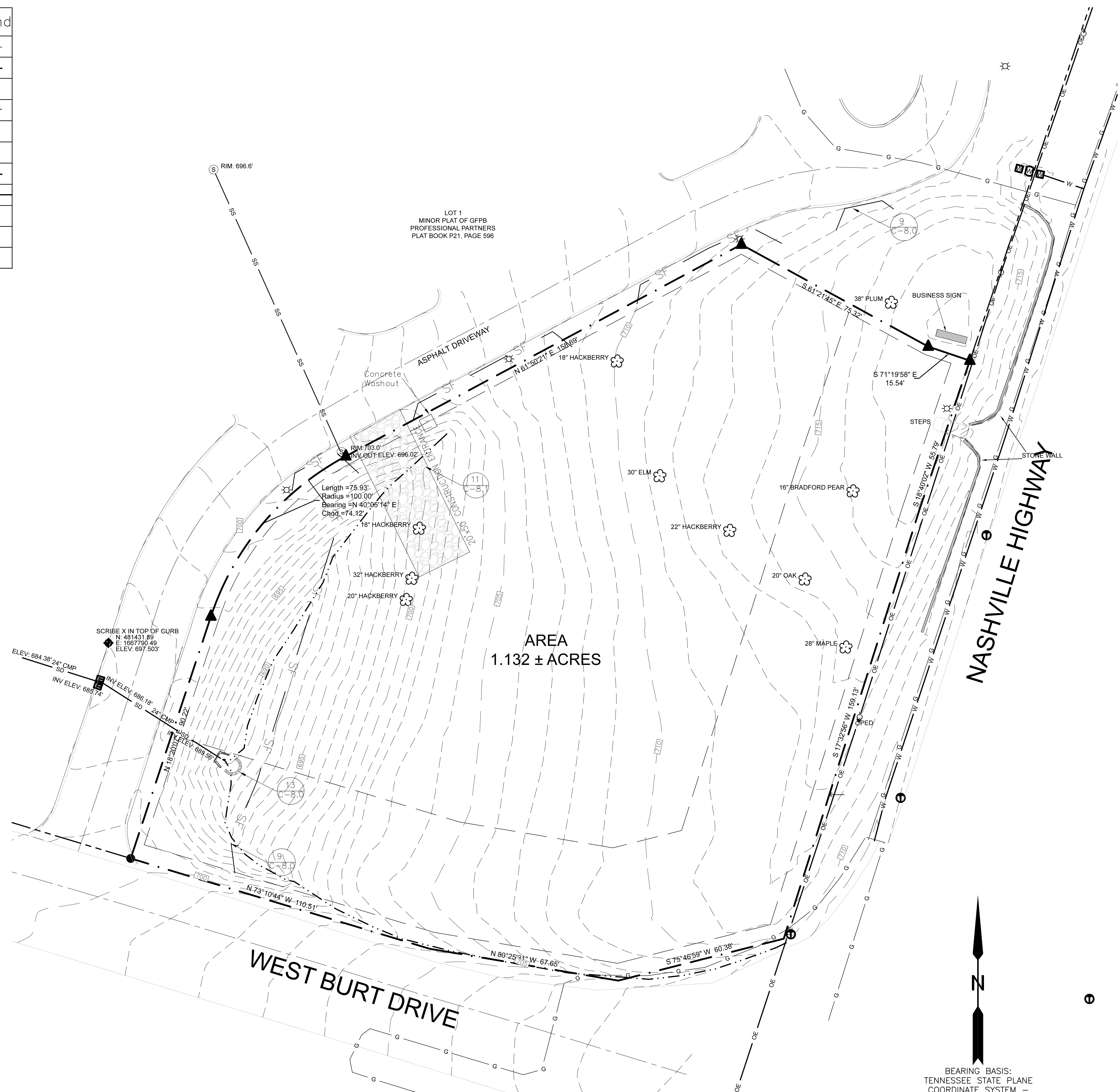
DESCRIPTION OF PROPOSED DRAINAGE EASEMENT ACROSS CLARK PROPERTY(REF. 1086, PG 1783) ON GRACE COVE IN MEDINA, TN

THE FOLLOWING DESCRIPTION IS OF A PROPOSED DRAINAGE EASEMENT ACROSS THE CLARK PROPERTY AS RECORDED IN RECORD BOOK 1086 AT PAGE 1783 IN THE REGISTER'S OFFICE OF GIBSON COUNTY, TENNESSEE. THE PROPERTY ACROSS WHICH THE EASEMENT RUNS IS LOCATED ON GRACE COVE IN MEDINA, GIBSON COUNTY, TENNESSEE, AND IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

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THENCE FROM THE POINT OF BEGINNING AND WITH THE NORTH RIGHT OF WAY OF GRACE COVE, A RECORD BEARING(REFERENCED TO THE PLAT CAB D, SLIDE 39) OF NORTH 85 DEGREES 48 MINUTES 05 SECONDS WEST 76 FEET; THENCE SOUTHWEST ALONG SAID LATERAL LINE OF NORTH 60 DEGREES 15' 00" WEST 120 FEET; THENCE SOUTH 15 DEGREES 00' 00" WEST 15 SECONDS; SAID DISTANCE OF 17.73 FEET; THENCE WITH A CURVATURE TURNING TO THE LEFT WITH AN ARC LENGTH OF 12.02 FEET, WITH A RADIUS OF 15.00 FEET, WITH A CHORD BEARING OF NORTH 27 DEGREES 09 MINUTES 35 SECONDS EAST, WITH A CHORD LENGTH OF 11.70 FEET; THENCE ALONG THE LINE OF NORTH 60 DEGREES 15' 00" WEST 120 FEET TO THE INTERSECTION OF SAID LATERAL LINE OF CLARK; THENCE SOUTH 85 DEGREES 59 MINUTES 38 SECONDS EAST A DISTANCE OF 10.00 FEET TO THE NORTHWEST CORNER OF LOT 8 OF THE MEDINA COMMERCIAL DEVELOPMENT; THENCE WITH THE WEST LINE OF SAID LOT 8 WITH A BEARING OF NORTH 89 DEGREES 58 MINUTES 00 SECONDS EAST A DISTANCE OF 234.48 FEET TO THE POINT OF BEGINNING, HAVING AN AREA OF .3874 SQUARE FEET OR 0.089 ACRES.

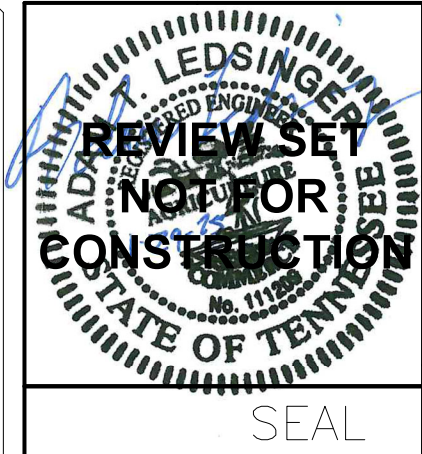
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AREA OF DISTURBANCE= 0.98 AC+/-
EX. IMPERVIOUS AREA= 0AC+/-
PROP. IMPERVIOUS= 0.74AC +/-

PRELIMINARY EROSION CONTROL

SCALE 1"=20'



DETAILS
COLUMBIA STARBUCKS
1605 NASHVILLE HWY STE 201
COLUMBIA, TN

PROJECT

REVISION DATES

DATE _____

JANUARY 27, 2025

SHEET

C-4.2

JOB No

24011

GRADING AND DRAINAGE NOTES

1. THE SITE WORK CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL UNDERGROUND UTILITIES (WATER, SANITARY SEWER, STORM SEWER, ELECTRICAL CONDUIT, IRRIGATION SLEEVES, AND ANY OTHER MISCELLANEOUS UNDERGROUND UTILITIES, DEVICES, OR STRUCTURES), SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF THE BASE COURSE MATERIAL.
2. THE CONTRACTOR SHALL CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE SMOOTH FIT AND CONTINUOUS GRADE.
3. THE CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING STORM SEWER STRUCTURES, PIPES AND ALL UTILITIES PRIOR TO CONSTRUCTION.
4. CLEARING AND GRUBBING LIMITS SHALL INCLUDE ALL AREAS DISTURBED BY GRADING OPERATION
5. ANY GRADED OR DISTURBED AREAS SHALL HAVE 4 INCHES OF TOPSOIL, SEED, MULCH, FERTILIZER AND WATER APPLIED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED. THE RESTORATION SHALL CLOSELY FOLLOW CONSTRUCTION.
6. THE EXISTING SOIL MATERIAL HEREON MAY BE DISTURBED BY CUTTING OR FILLING OPERATIONS PERFORMED DURING OR BEFORE DEVELOPMENT. THEREFORE, THE BUILDER OR DEVELOPER OF ANY PROPOSED STRUCTURE SHALL INVESTIGATE THE CURRENT CONDITIONS AND CONSULT WITH A GEOTECHNICAL EXPERT OR OTHER QUALIFIED PERSON AS HE DEEMS APPROPRIATE TO ASSURE HIMSELF THAT THE DESIGN OF THE PROPOSED FOUNDATION IS ADEQUATE.
7. A SEPARATE R.O.W. PERMIT ISSUED BY THE CITY AND TDDT WILL BE REQUIRED FOR EXCAVATION AND CONSTRUCTION IN THE PUBLIC R.O.W.
8. HANDICAP PARKING SPACES AND ACCESSIBLE ROUTES SHALL BE CONSTRUCTED AND SLOPED IN ACCORDANCE WITH ALL PROVISIONS OF THE A.D.A.
9. IN TENNESSEE IT IS A REQUIREMENT PER THAT ANYONE WHO ENGAGES IN EXCAVATION MUST NOTIFY ALL KNOW UTILITY OWNERS, NO LESS THAN THREE NOR MORE THAN TEN WORKING DAYS, PRIOR TO THEIR INTENDED EXCAVATION. A LIST OF THESE UTILITY OWNERS MAY BE OBTAINED FROM THE COUNTY REGISTER OF DEEDS. THOSE UTILITY OWNERS WHO PARTICIPATE IN THE TENNESSEE ONE CALL SYSTEM CAN BE NOTIFIED TOLL FREE AT 811.

GENERAL EROSION CONTROL NOTES

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EROSION CONTROL NOTES

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Bullet Legend

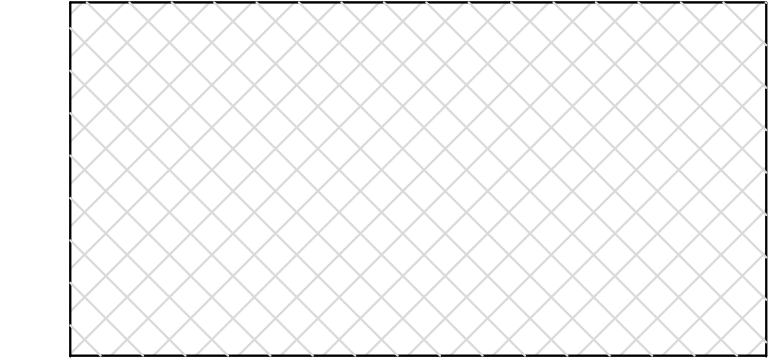
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C2.0

Detail #14
Sheet C2.0

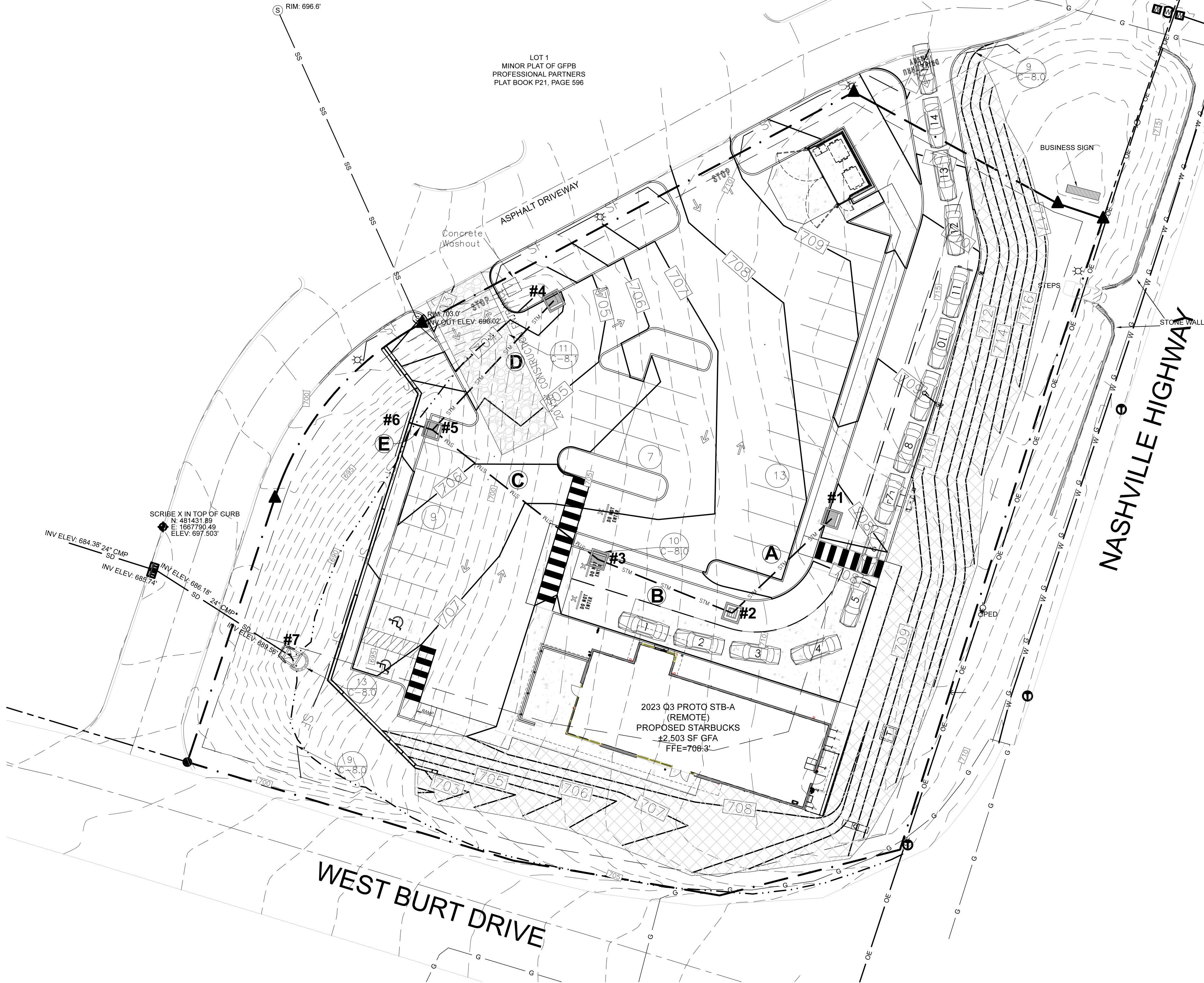
Grading and Erosion Control Legend

Existing Contour	--- 345 ---
Proposed Contour	— 345 —
Storm Structure	
Proposed Storm	— STM — STM —
Inlet Protection	
Structure/Pipe ID	#1
Silt Fence	— SF — SF —
Wire backed silt fence	— SFB — SFB —
EX. SPOT ELEV.	× 479.6
PROP. SPOT ELEV.	+ 74.8 BC35.2-Bottom Curb TC35.3-Top curb
SEDIMENT TUBE	

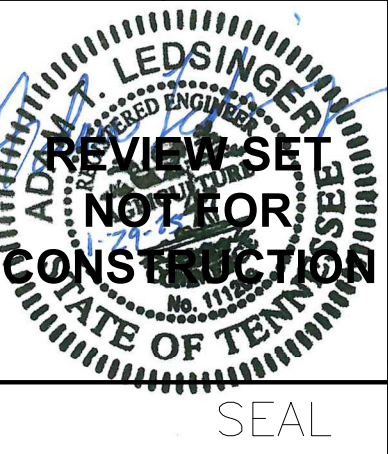
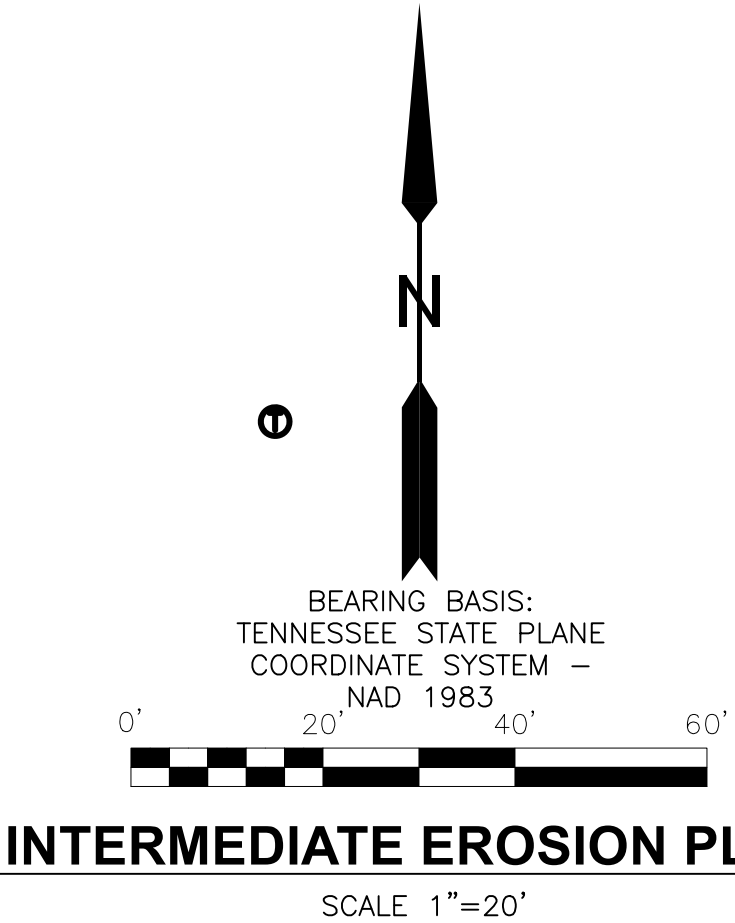
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AREA TO BE STABILIZED WITH
NORTH AMERICAN GREEN S75
MATTING AS SOON PRACTICAL



AREA OF DISTURBANCE= 0.98 AC +/-
EX. IMPERVIOUS AREA= 0AC +/-
PROP. IMPERVIOUS= 0.74AC +/-



DETAILS
COLUMBIA STARBUCKS
1605 NASHVILLE HWY STE 201
COLUMBIA, TN

PROJECT	
REVISION DATES	
DATE	
JANUARY 27, 2025	
SHEET	OF
C-4.3	10
JOB No.	
24011	

GRADING AND DRAINAGE NOTES

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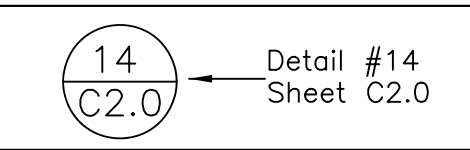
EROSION CONTROL NOTES

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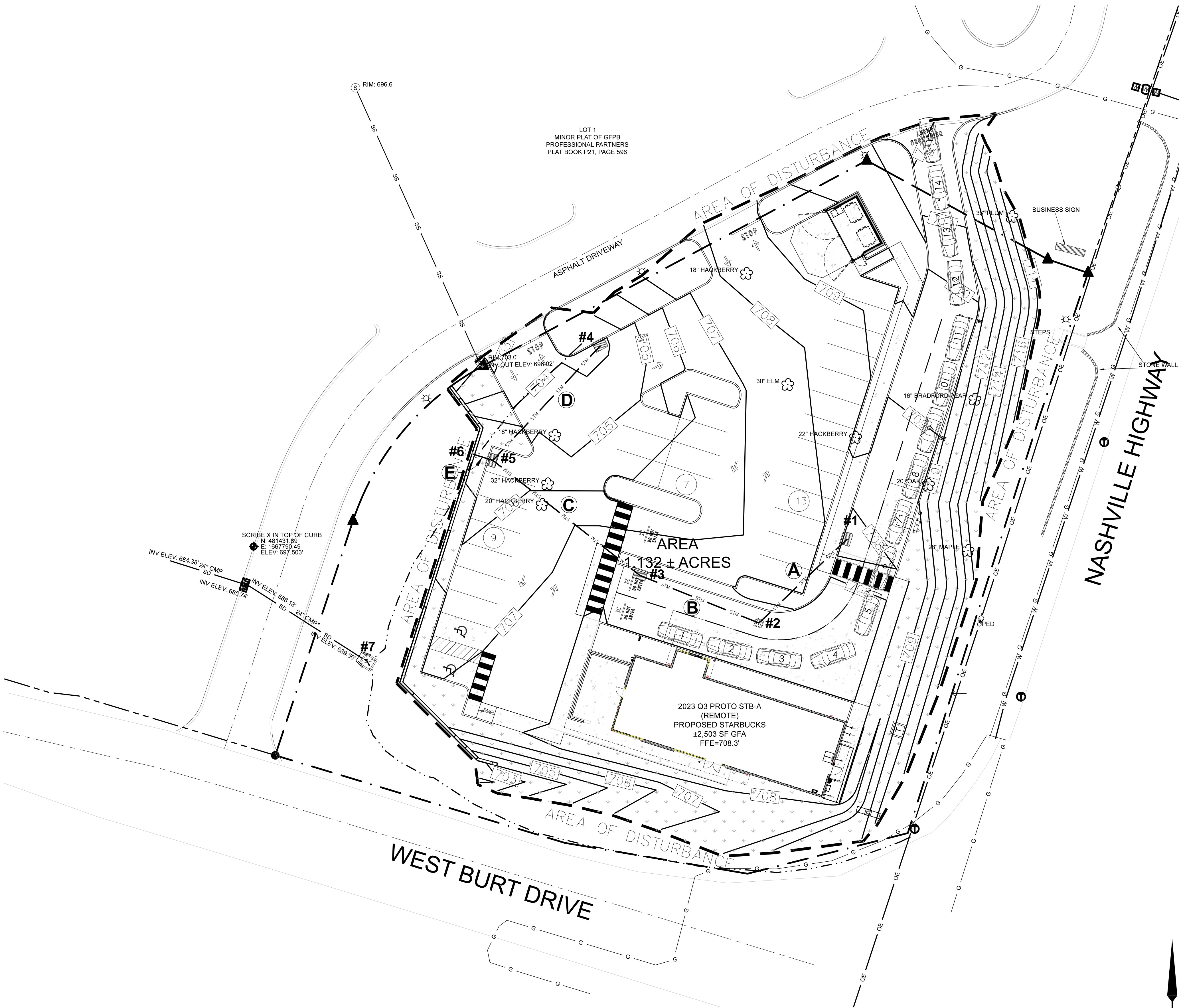
Grading and Erosion Control Legend

Existing Contour	--- 345 ---
Proposed Contour	— 345 —
Storm Structure	
Proposed Storm	— STM — STM —
Inlet Protection	
Structure/Pipe ID	#1 A
Silt Fence	— SF — SF —
Wire backed silt fence	— SFB — SFB —
EX. SPOT ELEV.	× 479.6
PROP. SPOT ELEV.	+74.8 BC35.2-Bottom Curb TC35.3-top curb
SEDIMENT TUBE	

Bullet Legend



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AREA TO BE SEEDED AND MULCHED
OR SOD

AREA OF DISTURBANCE= 0.98AC+/-
EX. IMPERVIOUS AREA= 0AC+/-
PROP. IMPERVIOUS= 0.74AC +/-

BEARING BASIS:
TENNESSEE STATE PLANE
COORDINATE SYSTEM —
NAD 1983

0' 20' 40' 60'

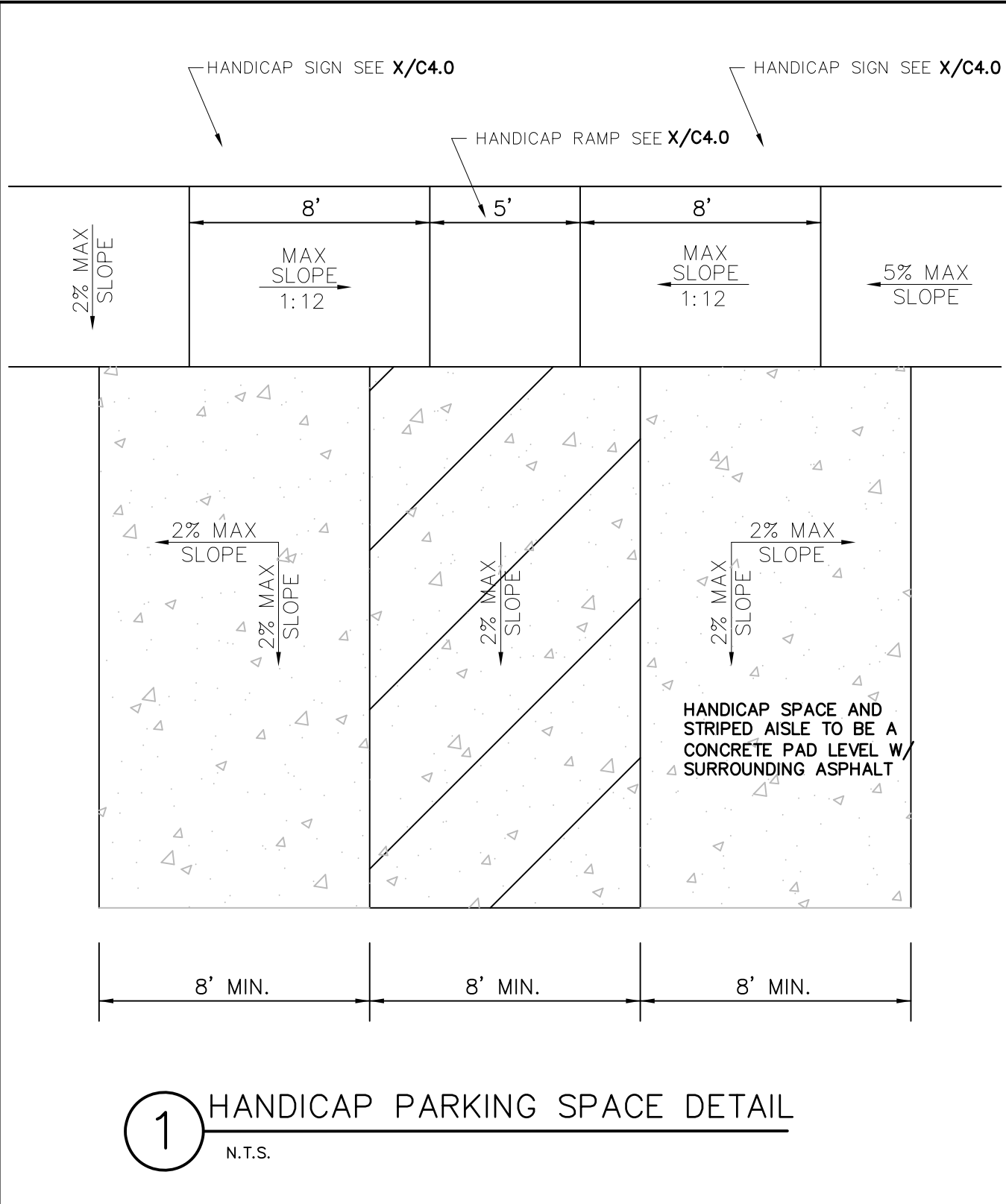
Phase II EPSC/Final stablization

SCALE 1"=20'

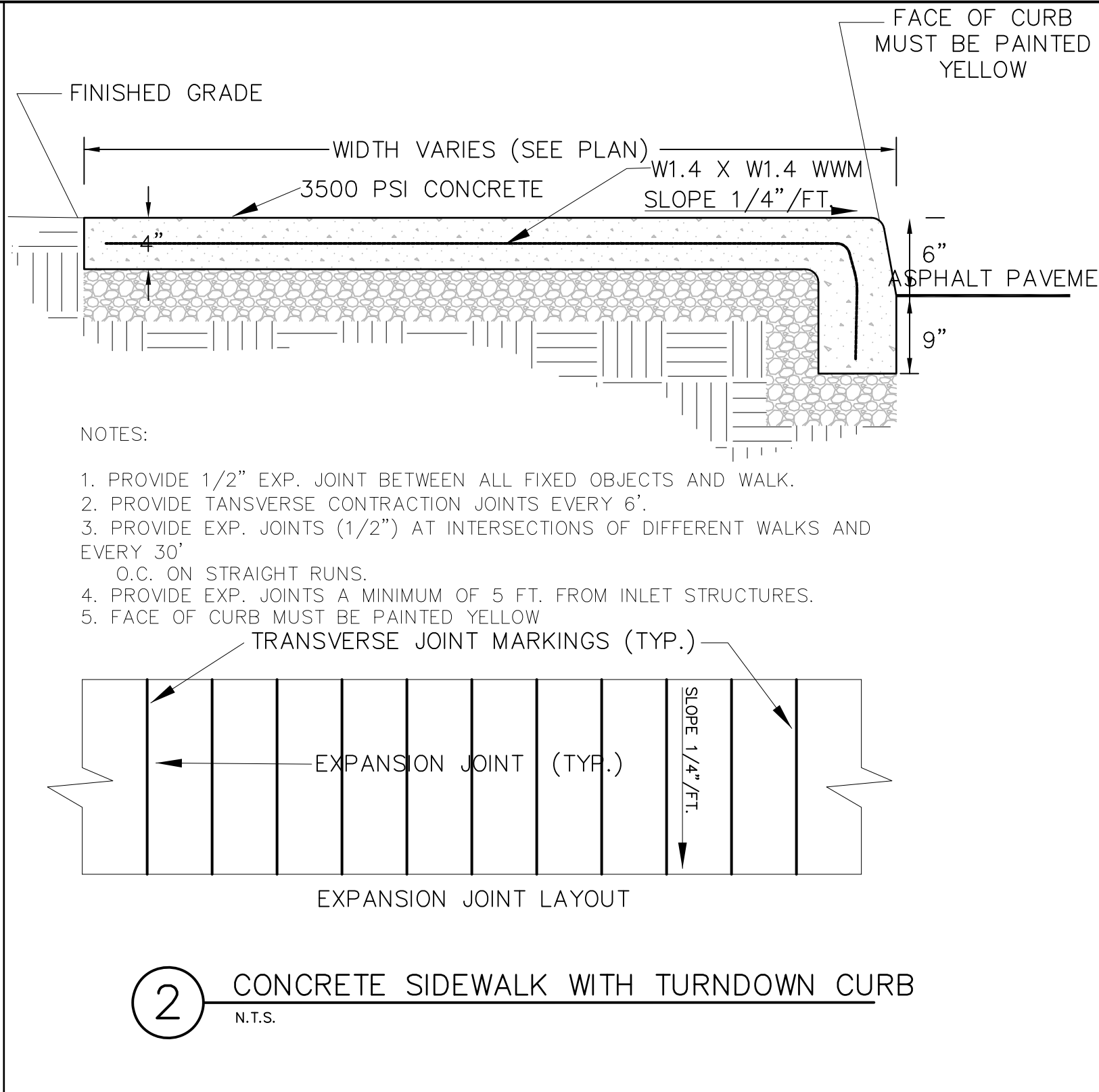


GRADING
COLUMBIA STARBUCKS
1605 NASHVILLE HWY STE 201
COLUMBIA, TN

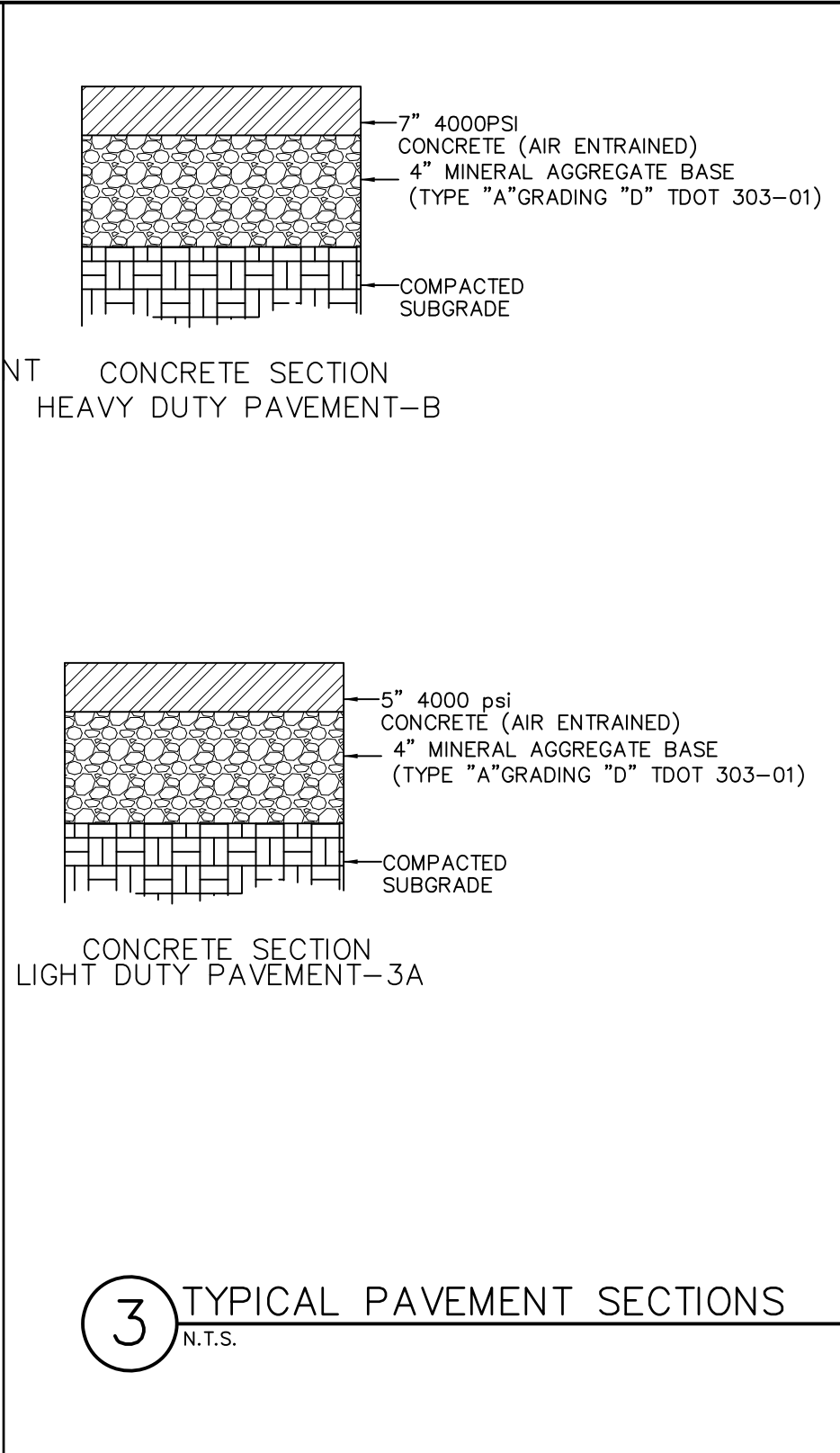
PROJECT	REVISION DATES
DATE	JANUARY 27, 2025
SHEET	C-4.4 OF 10
JOB No.	24011



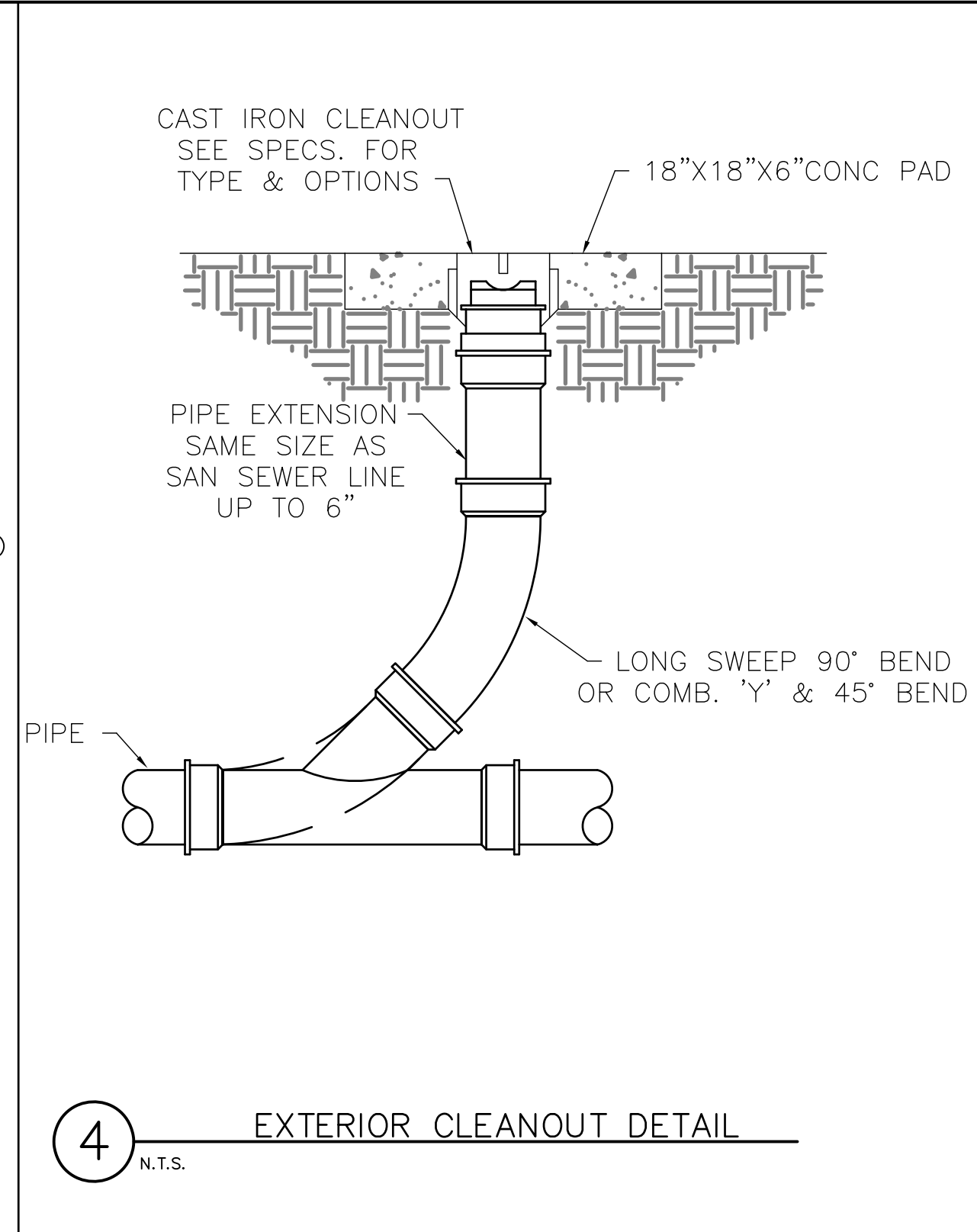
1 HANDICAP PARKING SPACE DETAIL
N.T.S.



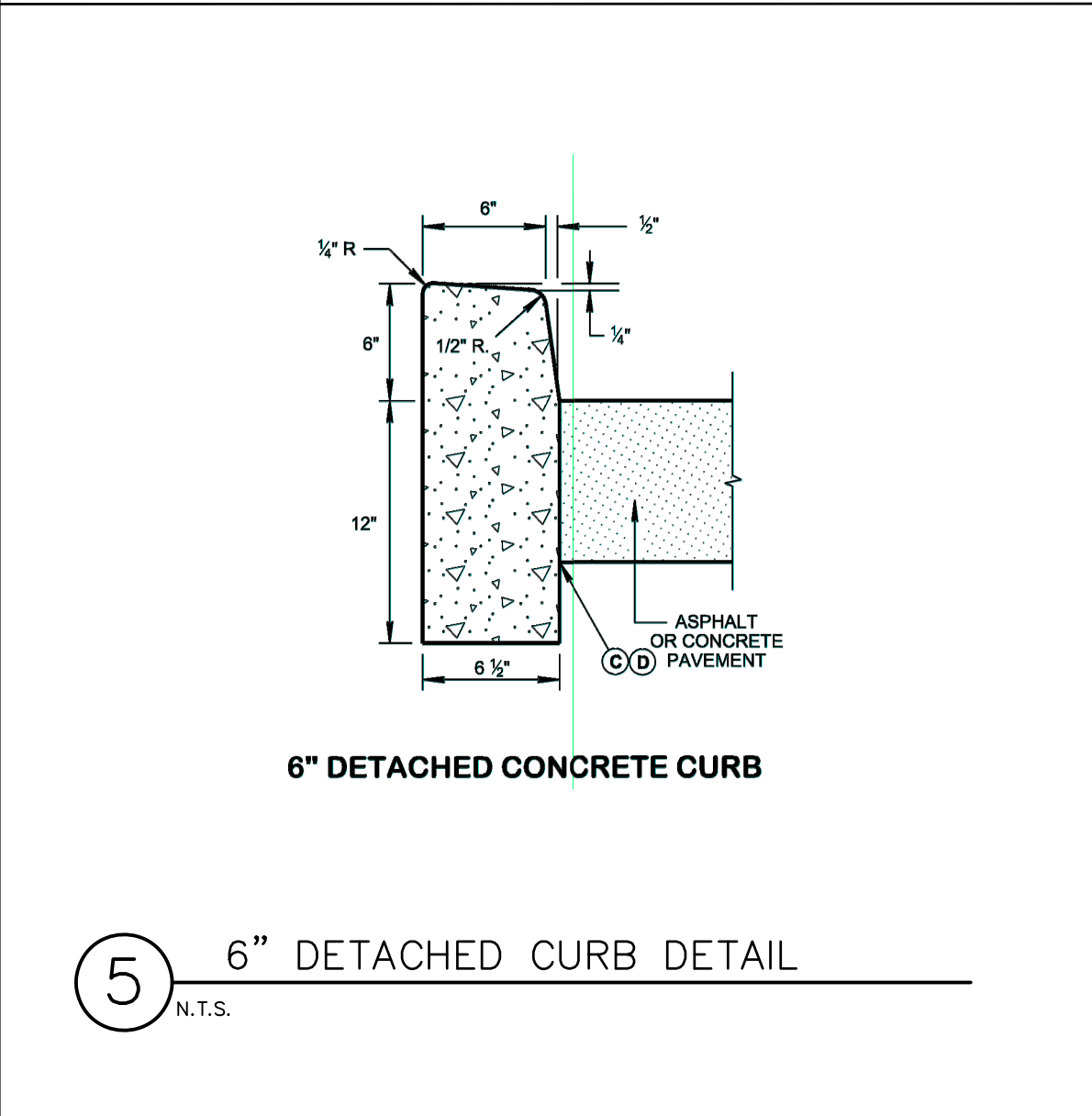
2 CONCRETE SIDEWALK WITH TURNDOWN CURB
N.T.S.



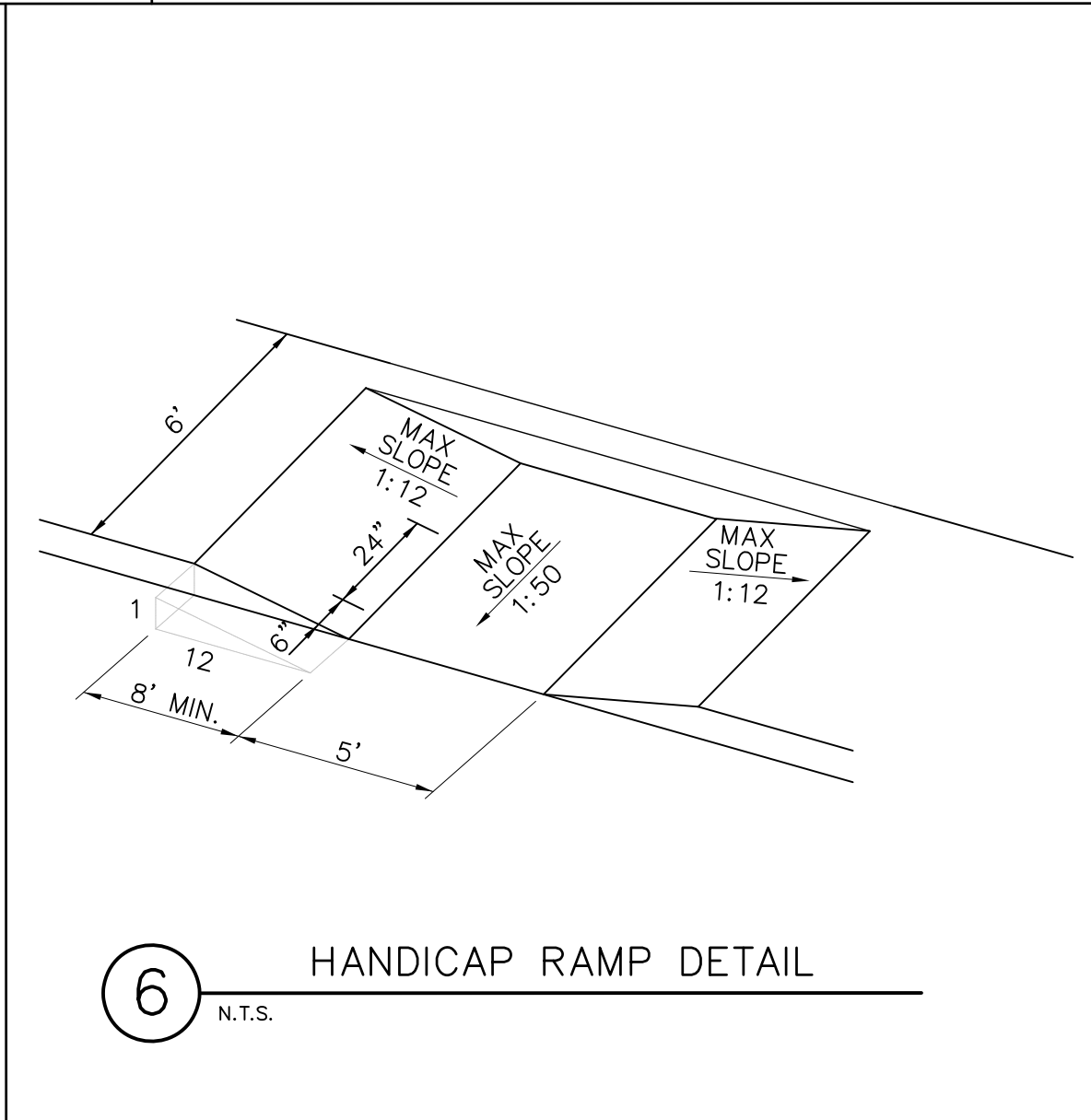
3 TYPICAL PAVEMENT SECTIONS
N.T.S.



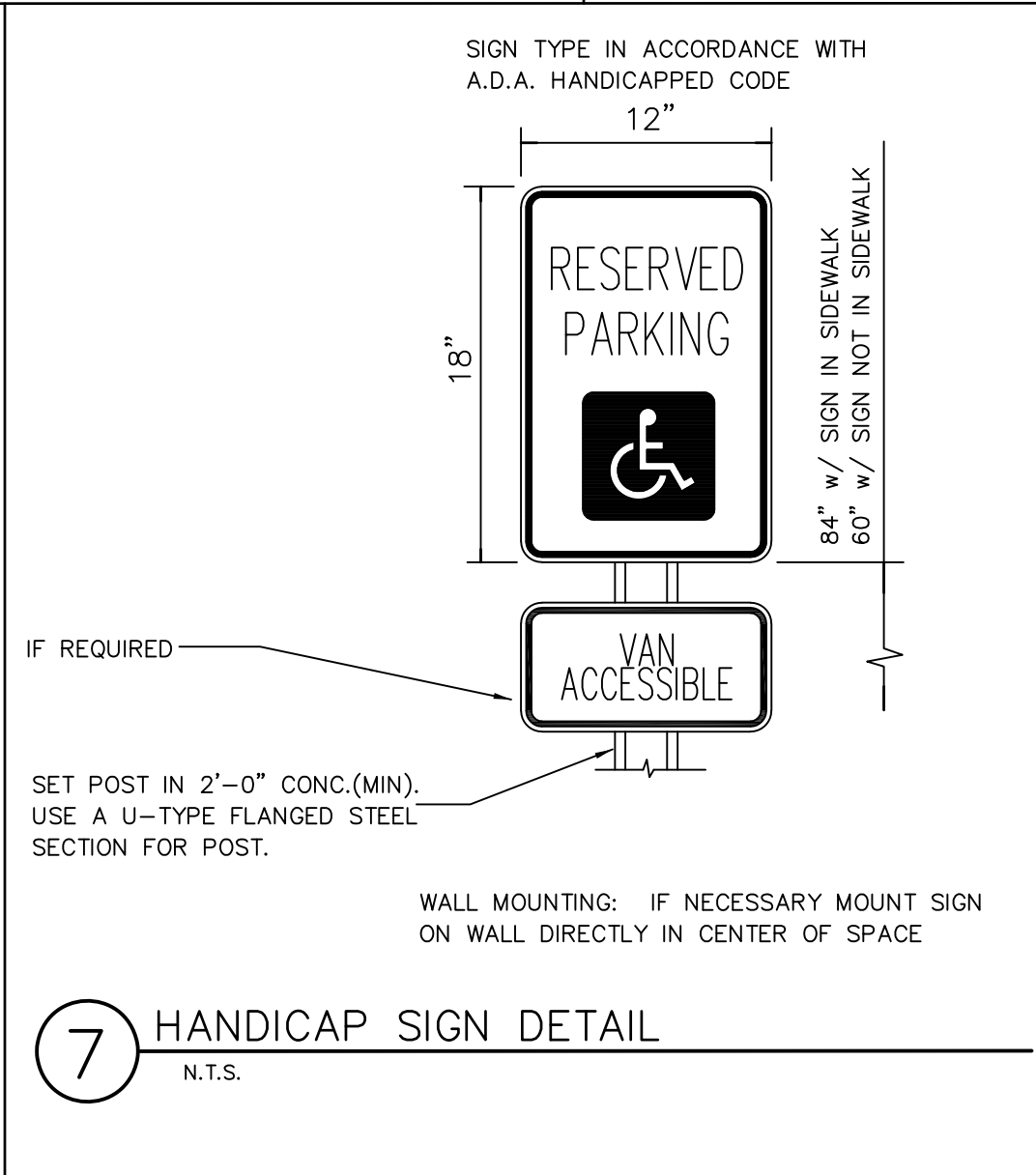
4 EXTERIOR CLEANOUT DETAIL
N.T.S.



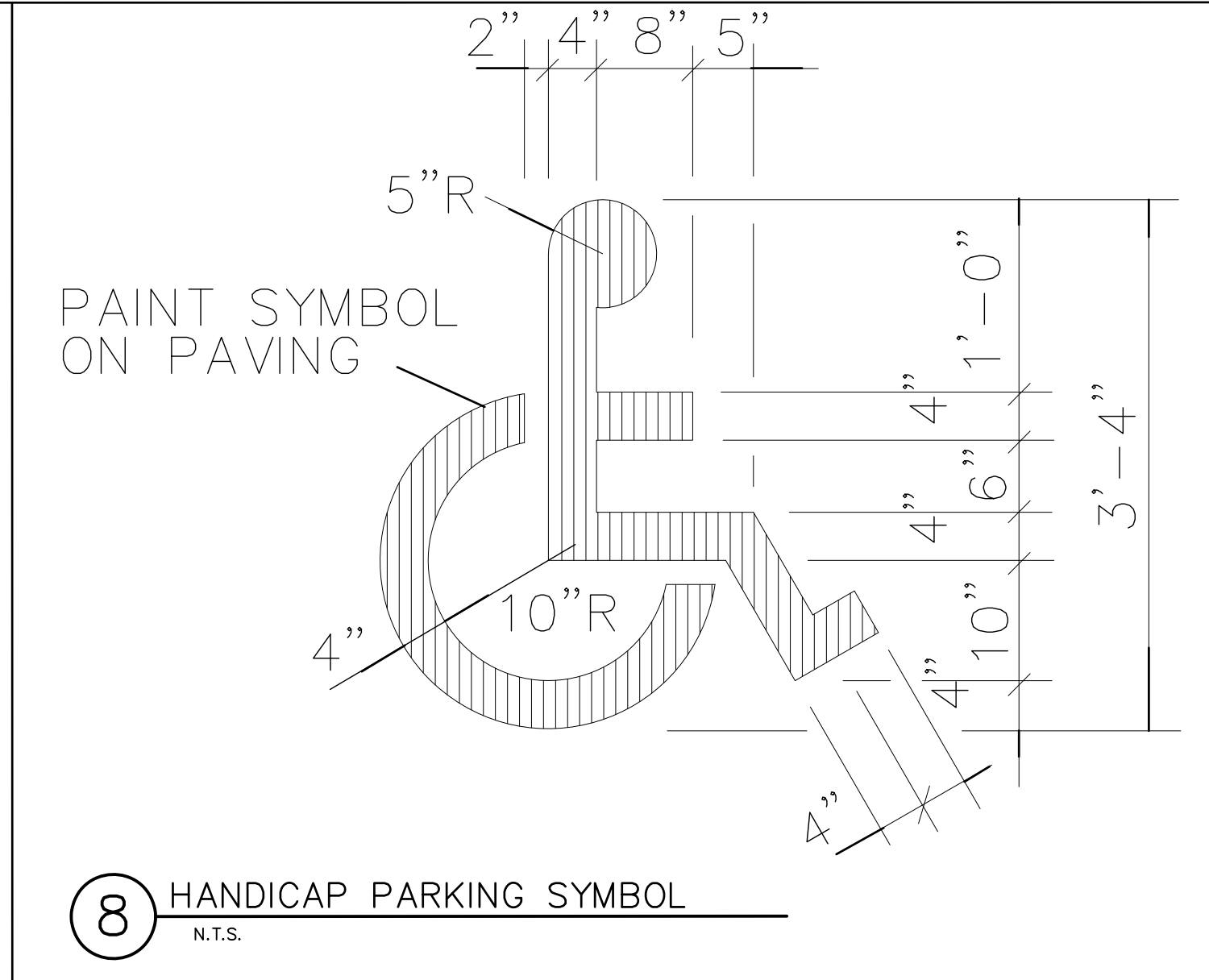
5 6" DETACHED CURB DETAIL
N.T.S.



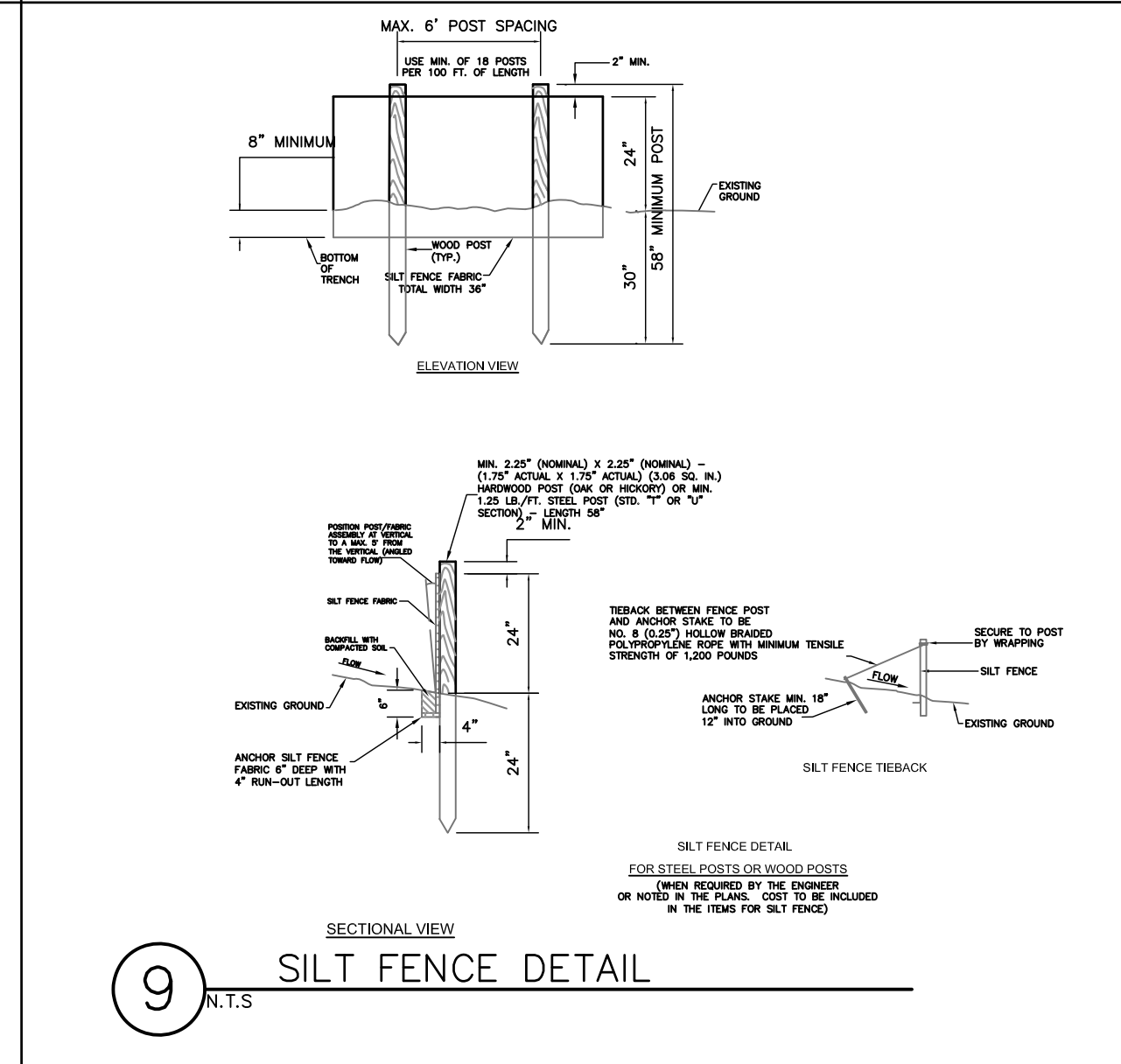
6 HANDICAP RAMP DETAIL
N.T.S.



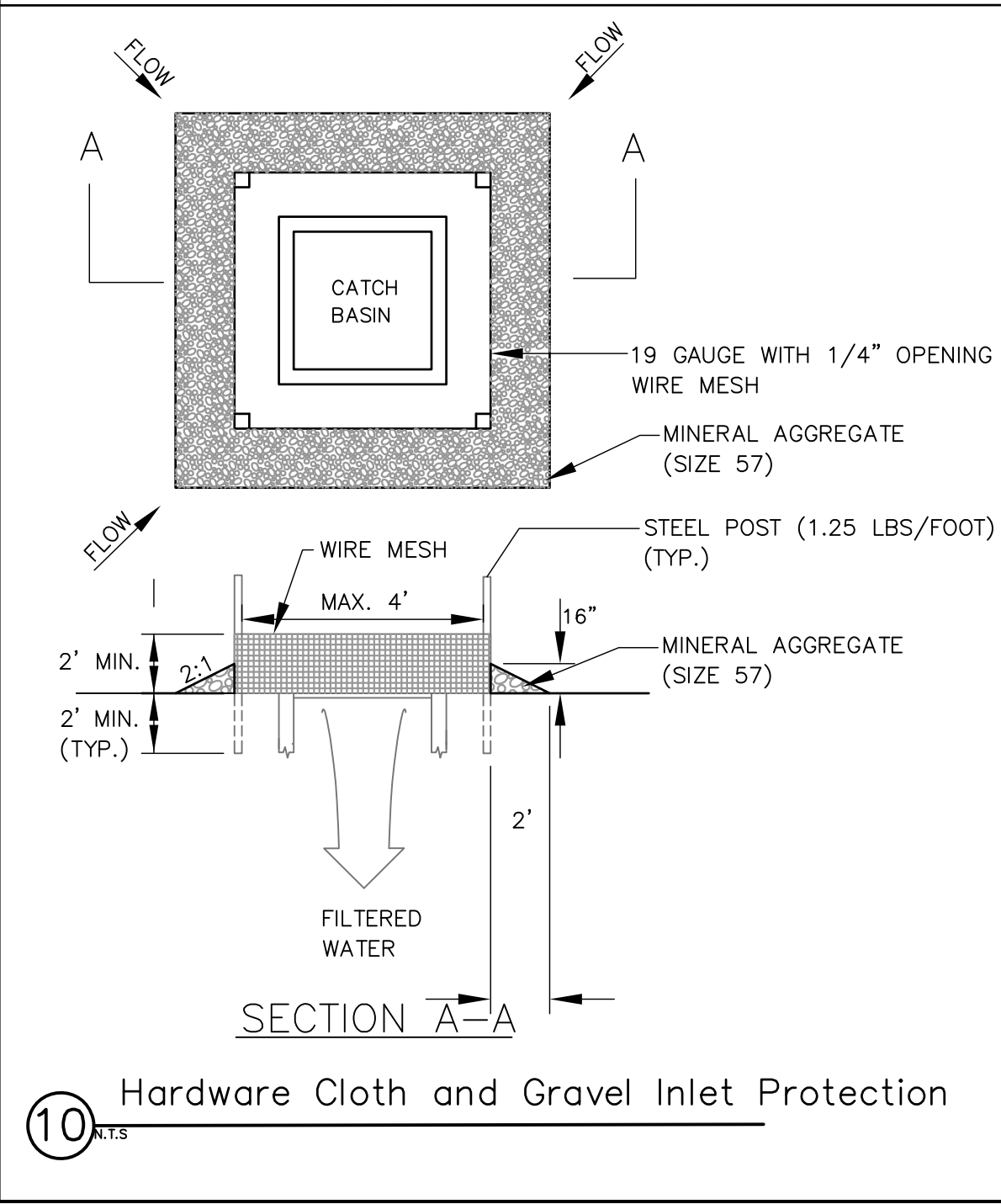
7 HANDICAP SIGN DETAIL
N.T.S.



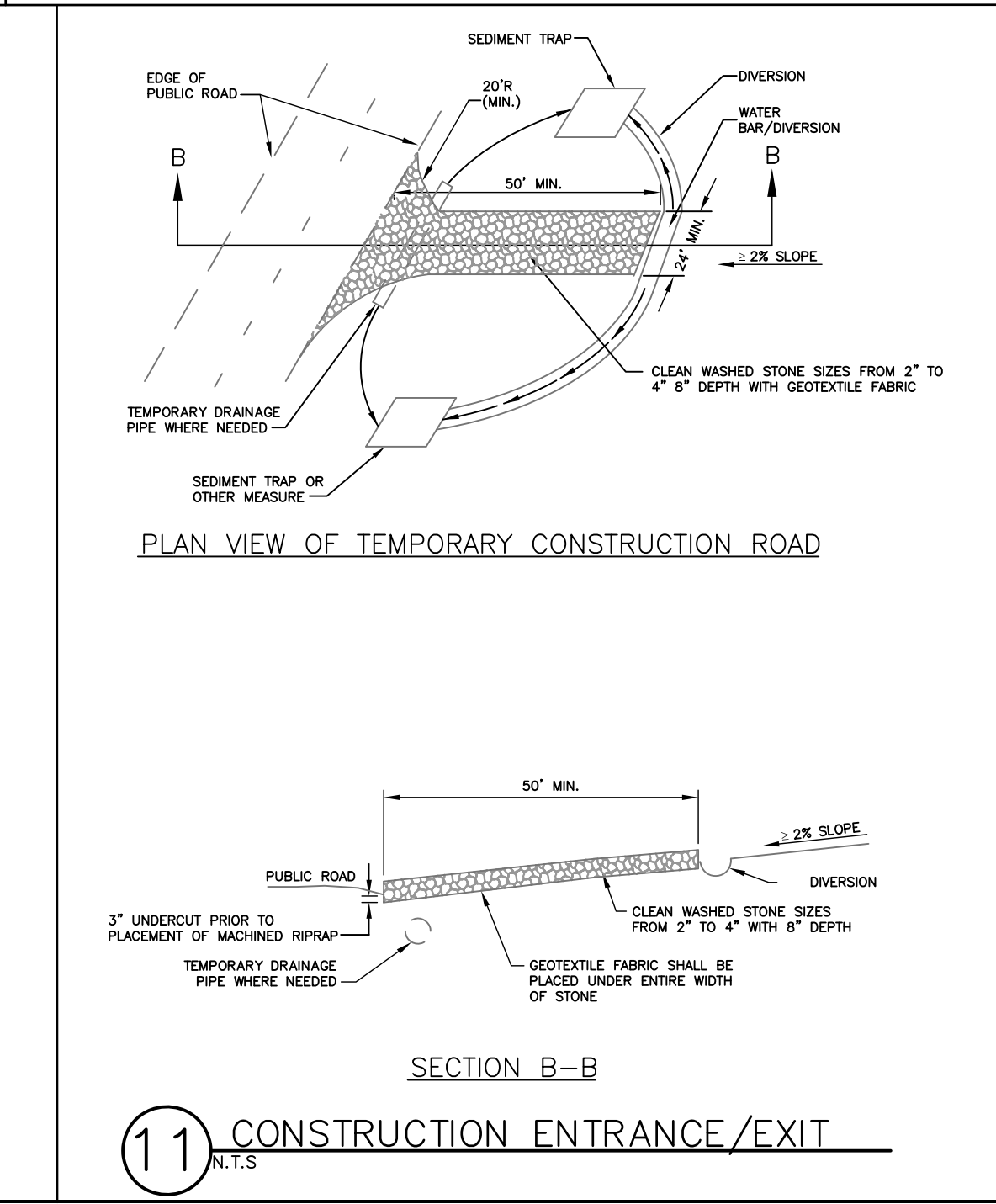
8 HANDICAP PARKING SYMBOL
N.T.S.



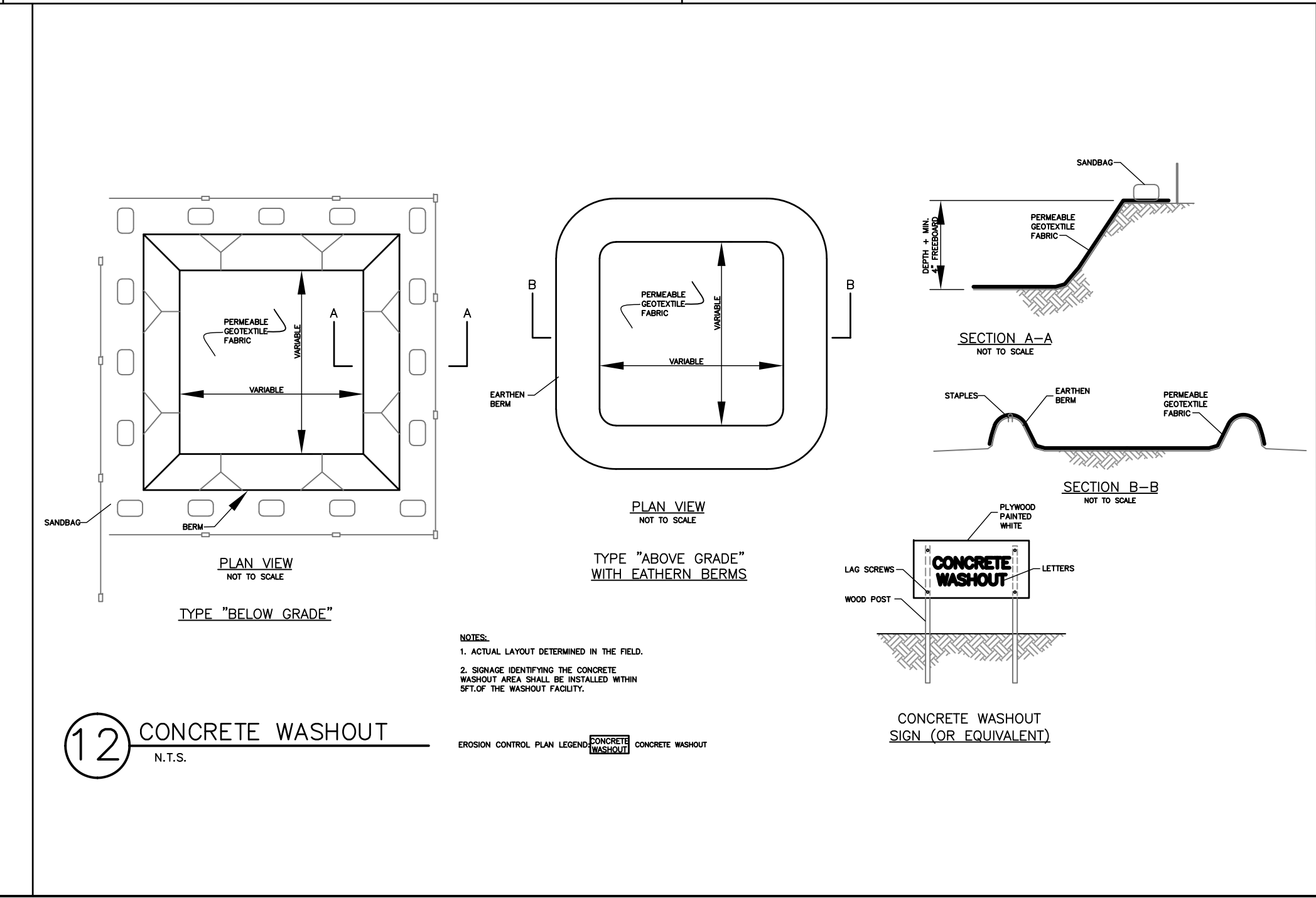
9 SILT FENCE DETAIL
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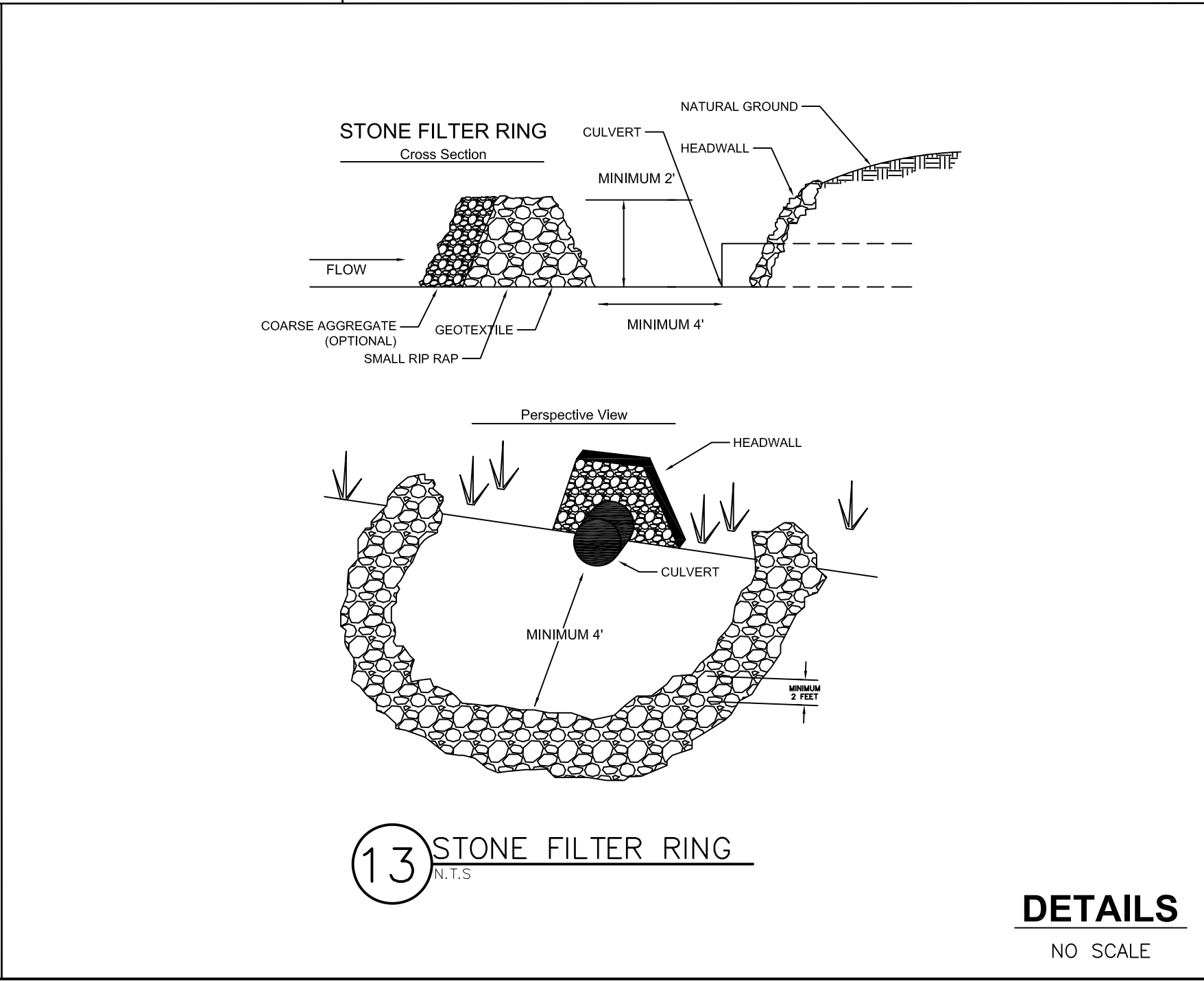
10 Hardware Cloth and Gravel Inlet Protection
N.T.S.



11 CONSTRUCTION ENTRANCE/EXIST
N.T.S.



12 CONCRETE WASHOUT
N.T.S.



13 STONE FILTER RING
N.T.S.

DETAILS
NO SCALE

ADAM L. LEDINGER
REGISTERED ENGINEER
STATE OF TENNESSEE
SEAL

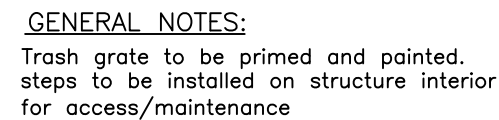
REVIEW SET
NOT FOR
CONSTRUCTION

MRBACIVIL
ENGINEERING, LLC
P.O. BOX 601 750 TIMBER RIDGE DR. LEXINGTON, TN 38351
VOICE 731-265-6627 adam@mbcivil.net

STARBUCKS
2577 NASHVILLE HWY
COLUMBIA, TN

PROJECT
REVISION DATES
DATE
JANUARY 27, 2025
SHEET
C-5.0
OF
10
JOB No.
24011

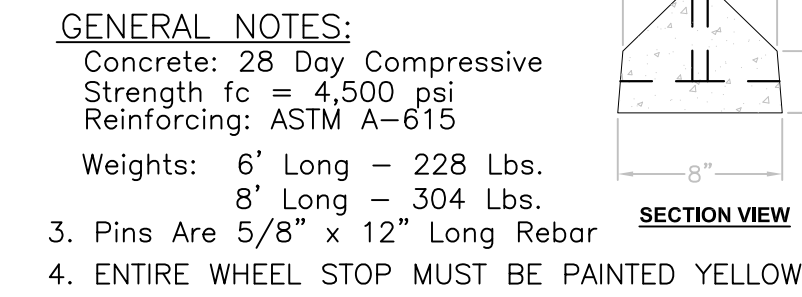
Page 102 of 442



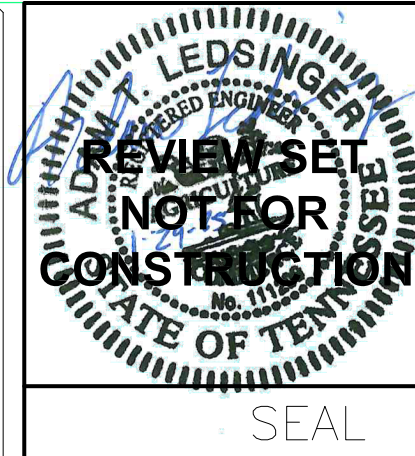
14 POND OUTLET (STR#9)
N.T.S.

15 CONCRETE WHEEL STOP W/DRAIN SLOTS
N.T.S.

16 LPG-10
N.T.S



17 CONCRETE WHEEL STOP W/DRAIN SLOTS
N.T.S.



STARBUCKS
2577 NASHVILLE HWY
COLUMBIA, TN

18 D-CP-12B
N.T.S

SOIL CLASSIFICATIONS DEFINED

Class I
Manufactured angular crushed stone or rock, crushed gravel, crushed slag; large voids with little or no fines. Typically crushed limestone 1 1/2 inches in size to 1/4 inches. #57 stone or crushed (recycled) concrete can be Class I or II depending on suppliers gradations specifications.

Class II ? GW, GP, SW, SP
Manufactured, processed aggregates: Clean, well graded or poor graded, coarse grained materials, such as gravel, coarse sands, and gravel/sand mixtures (1 1/2 inches maximum size). #57 stone, crushed (recycled) concrete and masonry sand (concrete sand) meets class can be Class I or II depending on suppliers gradations specifications.

Class III ? GM, GC, SM, SC, CL, ML
Coarse grained materials with fines including silty or clayey gravels or sands. CL, ML - Inorganic fine grained soils with greater than or equal to 30% retained on #200 sieve. Fill sand or pit run sand can be Class III depending on suppliers gradations specifications.

Class IV ? CL, ML
Inorganic fine grained soils such as fine sand or soils with less than 30% retained on #200 sieve.
Further information can be found in ASTM D2321 and ASTM D2487.

19 ADS HP TRENCH INSTALLATION

R&C ENTERPRISES

MJM ARCHITECTS

OWNER

901 WEST MAIN ST
HOHENWALD, TN 38462

RICK MORROW
(615) 430-6663
rmorrow2@bellsouth.net

ARCHITECT

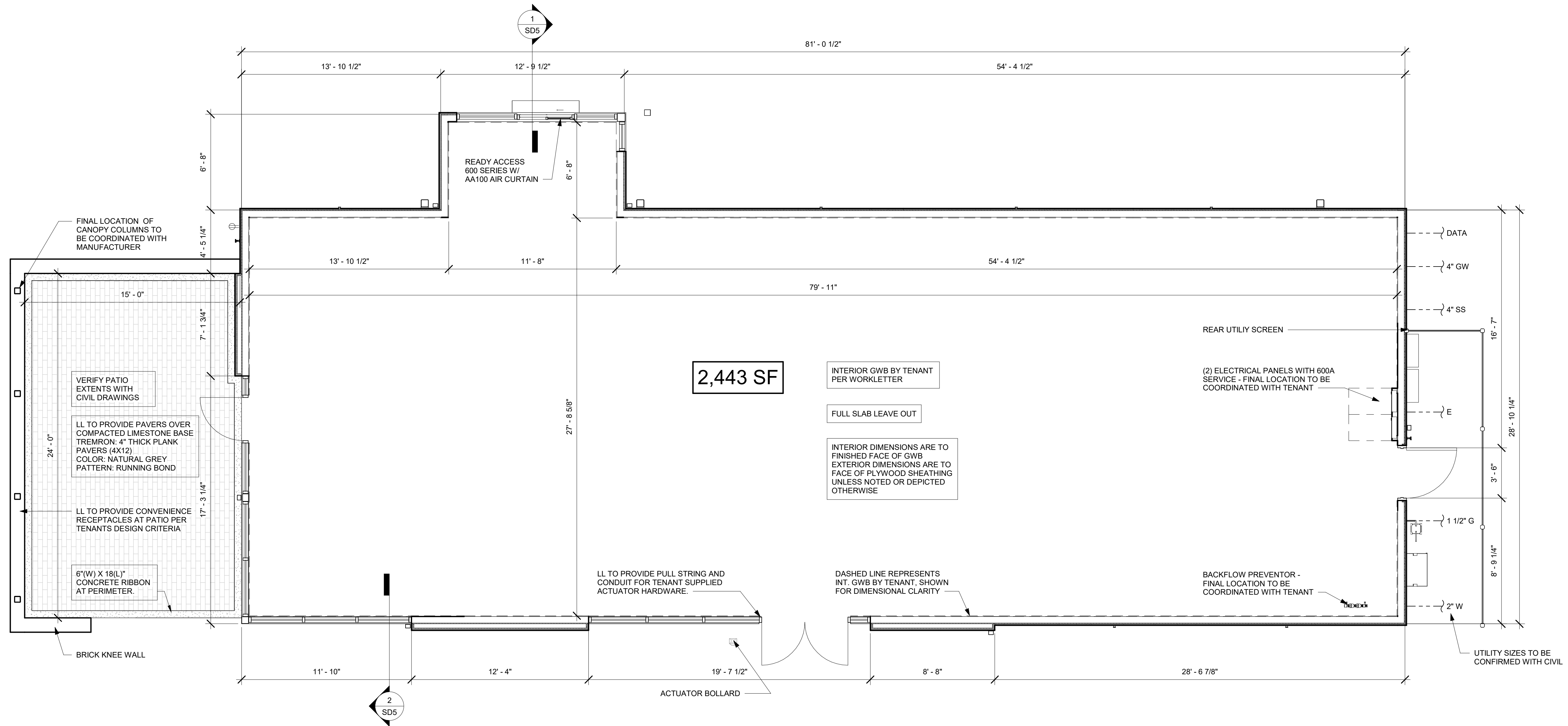
2948 SIDCO DR.
NASHVILLE, TN 37204

DERRON SLUSER
JAMES THOMAS
(615) 244-8170
j.thomas@mjmarch.com
d.sluser@mjmarch.com



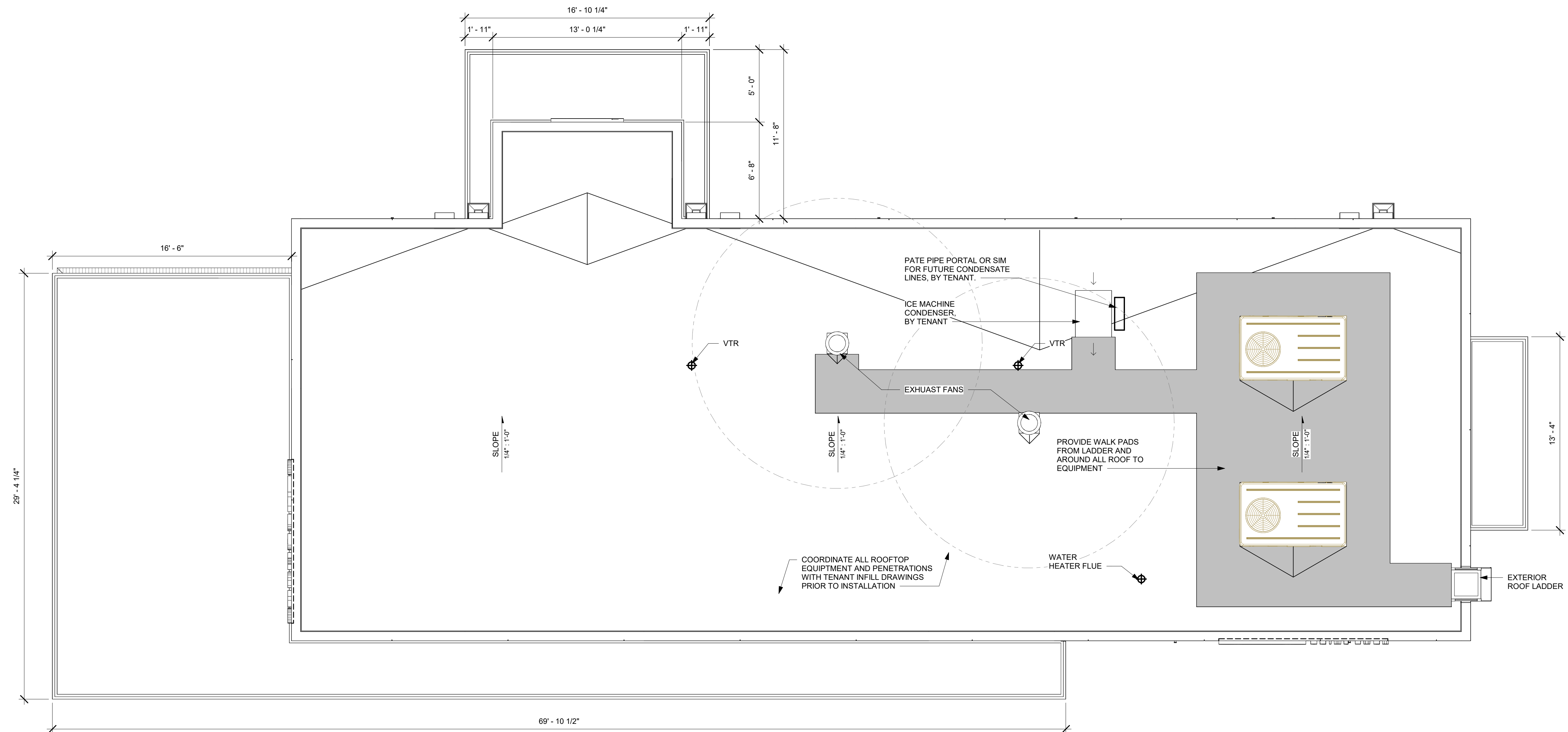
MJM ARCHITECTS 2948 Sidco Dr Nashville, TN 37204
Phone: 615-244-8170 www.mjmarch.com

STARBUCKS SHELL BUILDING | NASHVILLE HWY & W BURT DR
12/23/2024



1 FLOOR PLAN
Scale: 1/4" = 1'-0"





1 ROOF PLAN
Scale: 1/4" = 1'-0"





1 MAIN ENTRY ELEVATION
Scale: 1/4" = 1'-0"

SIGNAGE FOR REFERENCE ONLY. LL TO PROVIDE PULL STRING, JUNCTION BOX, DISCONNECT, AND MARINE GRADE PLYWOOD BLOCKING AS APPLICABLE FOR SIGNAGE.

EXTERIOR FINISH SCHEDULE				
FINISH CODE	MATERIAL	MANUFACTURER	COLOR	REMARKS
AWN-1	PREFINISHED METAL CANOPY	LOCALLY SOURCED	DARK BRONZE	POWDERCOAT 12" OPEN FACE WITH REAR GUTTER
BRK-1	THIN BRICK	EVOLUTION BRICK	MIDWEST SERIES - #21	MORTAR: SPEC MIX - SM600 DARK BROWN
C-1	CONCRETE	INGRETE SYSTEMS	COLOR-CRETE LIQUID - SOFT GRAY	CAST IN PLACE
CPG-1	PREFINISHED METAL COPING	LOCALLY SOURCED	DARK BRONZE	PREFINISHED
DSP-1	PREFINISHED DOWNSPOUT	LOCALLY SOURCED	DARK BRONZE	PREFINISHED
EIFS-1	EXTERIOR INSULATION FINISH SYSTEM	DRYVIT OR EQUAL	COLOR TO MATCH SW7037 BALANCED BEIGE	SANDBLAST
HM-1	HOLLOW METAL DOOR & FRAME	LOCALLY SOURCED	DARK BRONZE	PAINTED
LD-1	EXTERIOR ROOF ACCESS LADDER	LOCALLY SOURCED	DARK BRONZE	
LF-1	EXTERIOR SCIENCE	NOVUS DECOR	AR2000, 94.5" OPTION, COLOR TEMP WARM WHITE 3000K	ARMOUR OUTDOOR WALL SCIENCE
MTL-1	BRAKE METAL WRAP	LOCALLY SOURCED	MATCH STOREFRONT	
SCRN-2	UTILITY SCREEN	NEWTECHWOOD	PERUVIAN TEAK	ULTRA EASY FENCE
SF-1	ALUMINUM STOREFRONT SYSTEM	KAWNEER OR EQUAL	DARK BRONZE	ANODIZED TRIFAB 451T
WD-1	COMPOSITE WOOD SIDING	NEWTECHWOOD	PERUVIAN TEAK	ULTRA SHEILD, PROFILE: UH58, PATTERN: H1
WD-2	COMPOSITE WOOD SIDING	NEWTECHWOOD	PERUVIAN TEAK	TONGUE & GROOVE US09

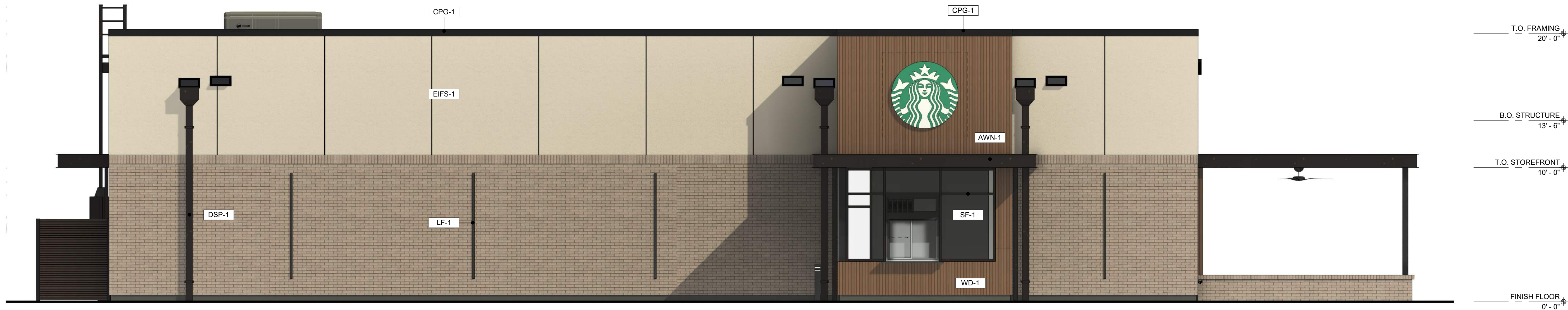


2 PATIO ENTRY ELEVATION
Scale: 1/4" = 1'-0"



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Phone: 615-244-8170 www.mjmach.com

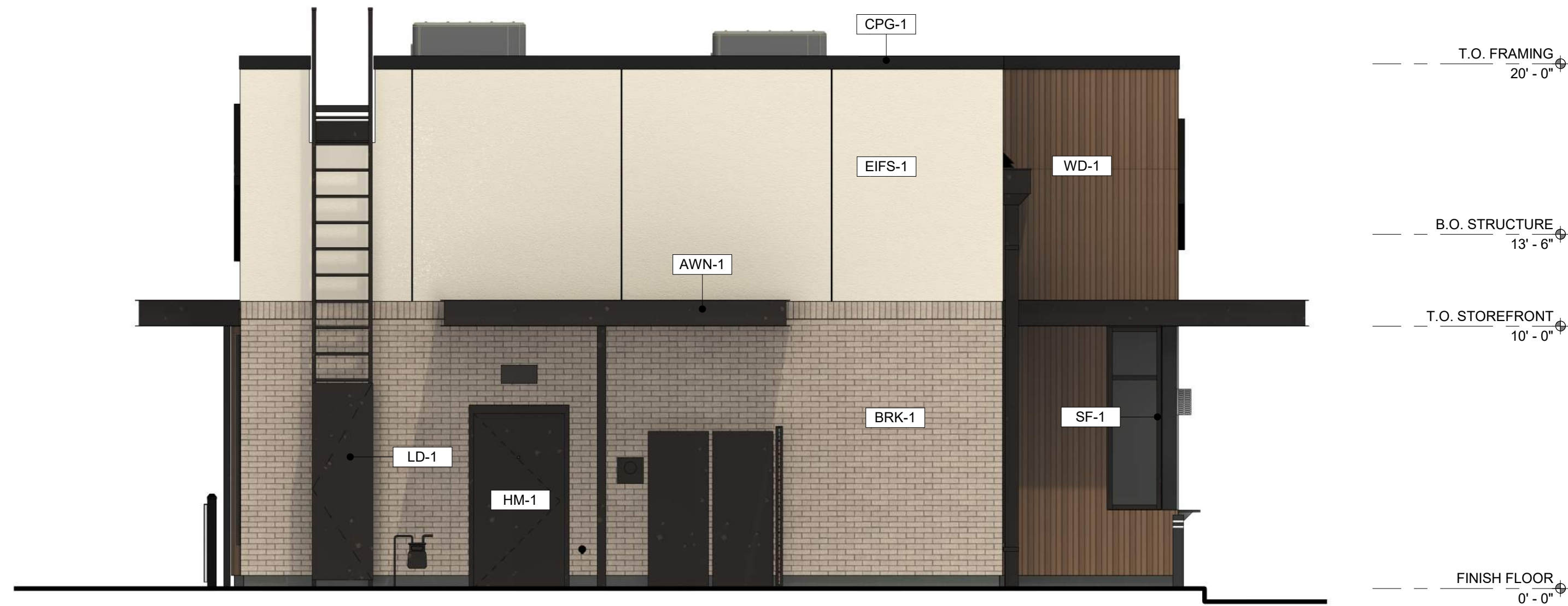
STARBUCKS SHELL BUILDING | NASHVILLE HWY & W BURT DR
12/23/2024



1 DRIVE THRU ELEVATION
Scale: 1/4" = 1'-0"

SIGNAGE FOR REFERENCE ONLY. LL TO PROVIDE PULL STRING, JUNCTION BOX, DISCONNECT, AND MARINE GRADE PYLWOOD BLOCKING AS APPLICABLE FOR SIGNAGE.

EXTERIOR FINISH SCHEDULE				
FINISH CODE	MATERIAL	MANUFACTURER	COLOR	REMARKS
AWN-1	PREFINISHED METAL CANOPY	LOCALLY SOURCED	DARK BRONZE	POWDERCOAT 12" OPEN FACE WITH REAR GUTTER
BRK-1	THIN BRICK	EVOLUTION BRICK	MIDWEST SERIES - #21	MORTAR: SPEC MIX - SM600 DARK BROWN
C-1	CONCRETE	INGRETE SYSTEMS	COLOR-CRETE LIQUID - SOFT GRAY	CAST IN PLACE
CPG-1	PREFINISHED METAL COPING	LOCALLY SOURCED	DARK BRONZE	PREFINISHED
DSP-1	PREFINISHED DOWNSPOUT	LOCALLY SOURCED	DARK BRONZE	PREFINISHED
EIFS-1	EXTERIOR INSULATION FINISH SYSTEM	DRYVIT OR EQUAL	COLOR TO MATCH SW7037 BALANCED BEIGE	SANDBLAST
HM-1	HOLLOW METAL DOOR & FRAME	LOCALLY SOURCED	DARK BRONZE	PAINTED
LD-1	EXTERIOR ROOF ACCESS LADDER	LOCALLY SOURCED	DARK BRONZE	
LF-1	EXTERIOR SCENCE	NOVUS DECOR	AR2000, 94.5" OPTION, COLOR TEMP WARM WHITE 3000K	ARMOUR OUTDOOR WALL SCENCE
MTL-1	BRAKE METAL WRAP	LOCALLY SOURCED	MATCH STOREFRONT	
SCRN-2	UTILITY SCREEN	NEWTECHWOOD	PERUVIAN TEAK	ULTRA EASY FENCE
SF-1	ALUMINUM STOREFRONT SYSTEM	KAWNEER OR EQUAL	DARK BRONZE	ANODIZED TRIFAB 451T
WD-1	COMPOSITE WOOD SIDING	NEWTECHWOOD	PERUVIAN TEAK	ULTRA SHEILD, PROFILE: UH58, PATTERN: H1
WD-2	COMPOSITE WOOD SIDING	NEWTECHWOOD	PERUVIAN TEAK	TONGUE & GROOVE US09



2 REAR ELEVATION
Scale: 1/4" = 1'-0"



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Phone: 615-244-8170 www.mjmarch.com

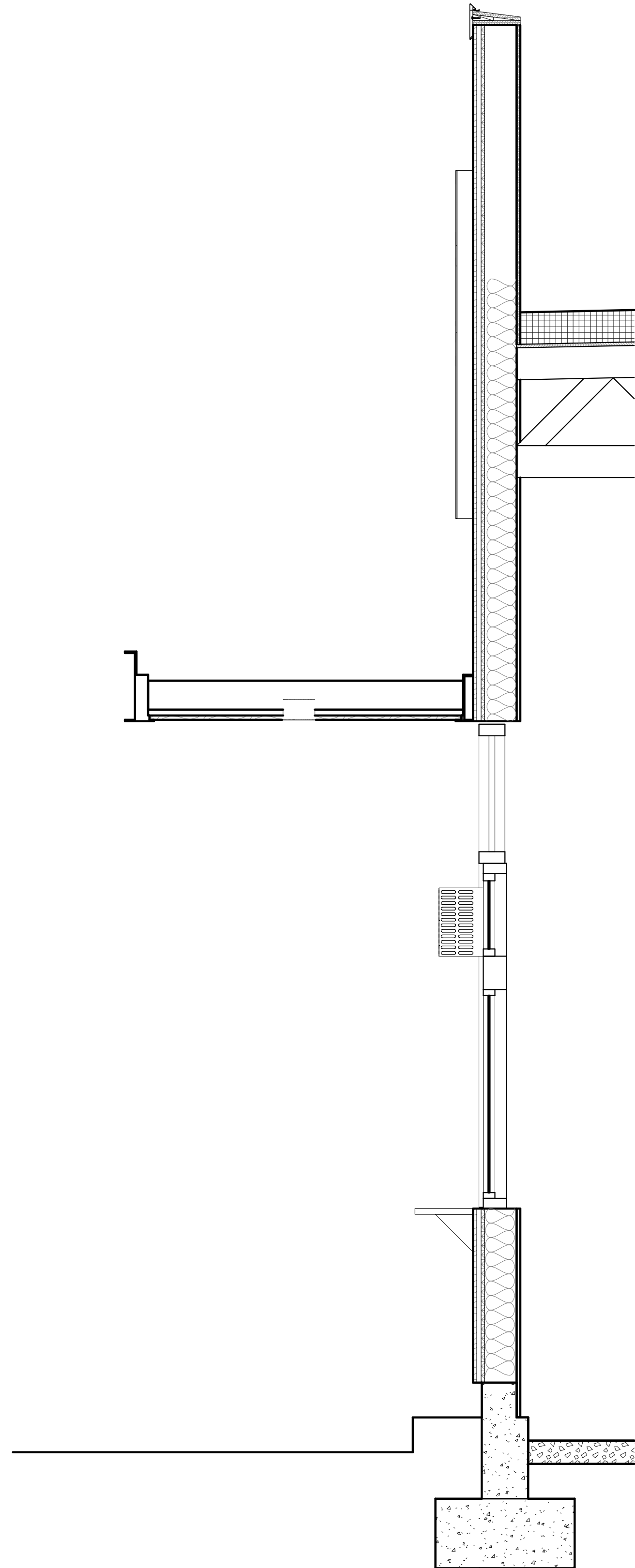
STARBUCKS SHELL BUILDING | NASHVILLE HWY & W BURT DR
12/23/2024

T.O. FRAMING
20' - 0"

B.O. STRUCTURE
13' - 6"

T.O. STOREFRONT
10' - 0"

FINISH FLOOR
0' - 0"



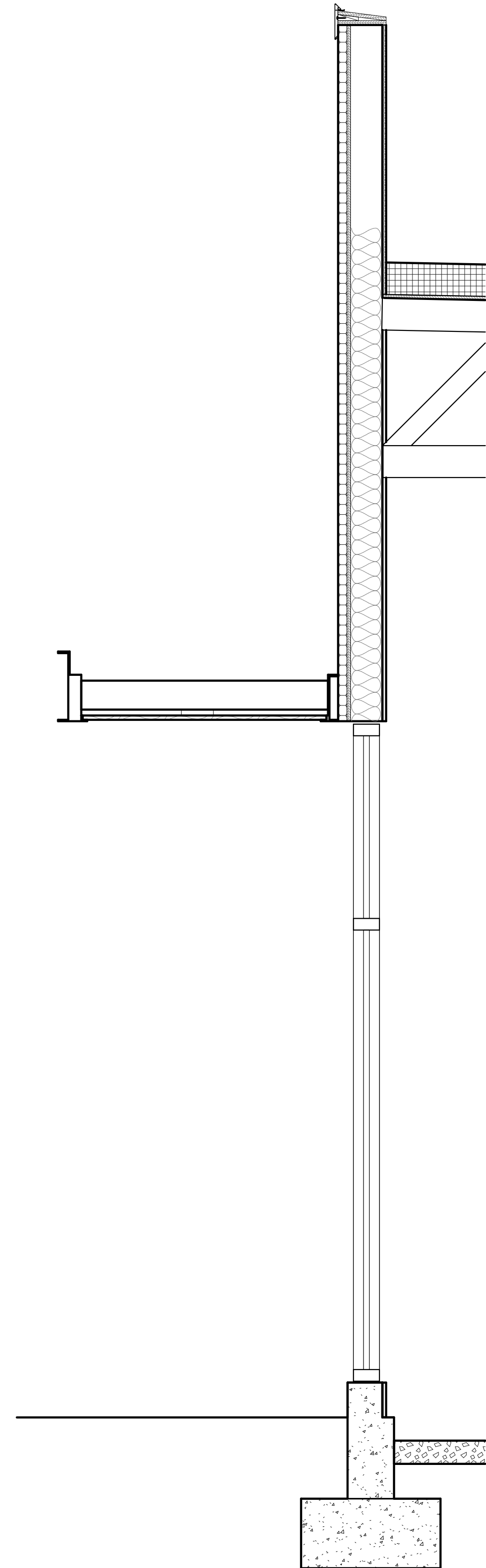
1 SECTION AT DRIVE-THRU
Scale: 3/4" = 1'-0"

T.O. FRAMING
20' - 0"

B.O. STRUCTURE
13' - 6"

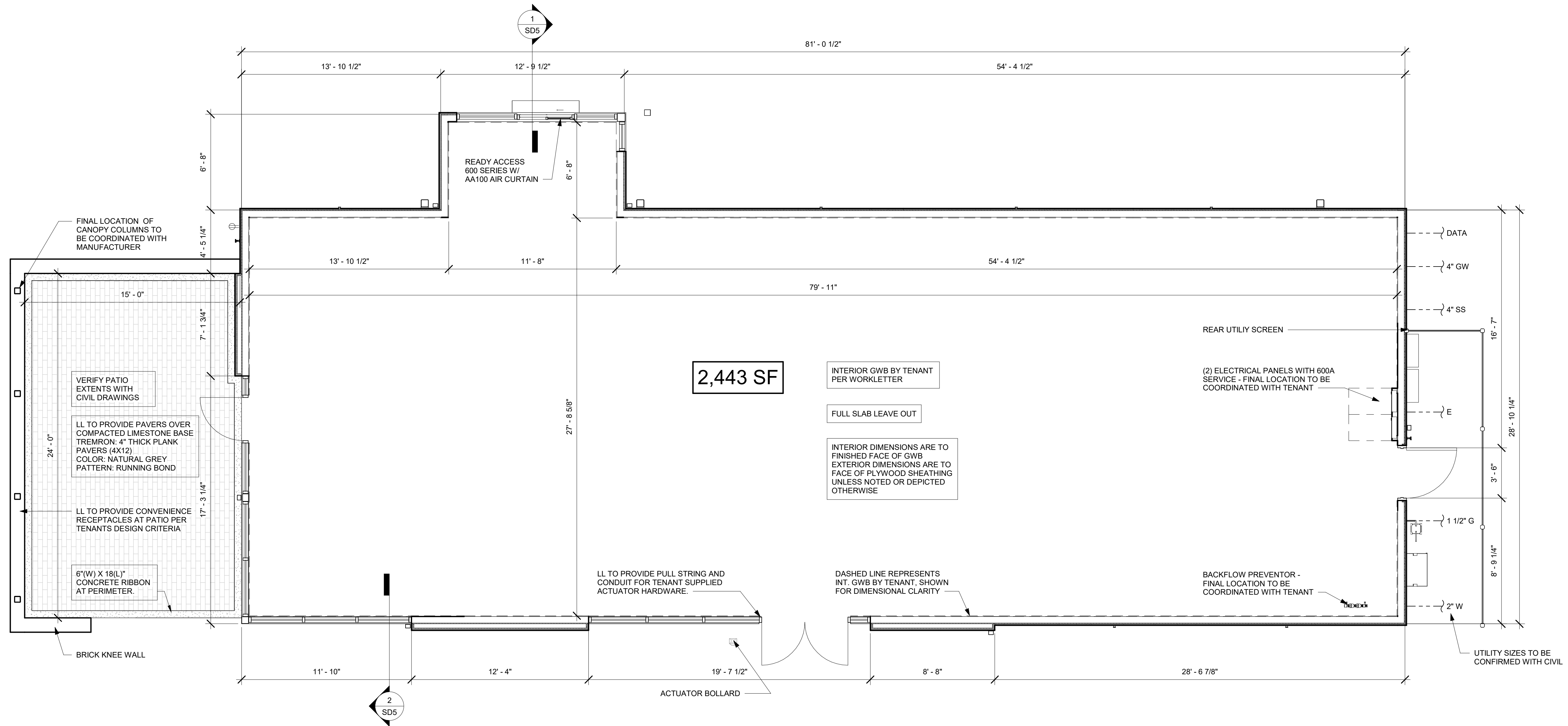
T.O. STOREFRONT
10' - 0"

J.B.GH FLOOR
0' - 0"



2 SECTION AT STOREFRONT
Scale: 3/4" = 1'-0"





1 FLOOR PLAN
Scale: 1/4" = 1'-0"

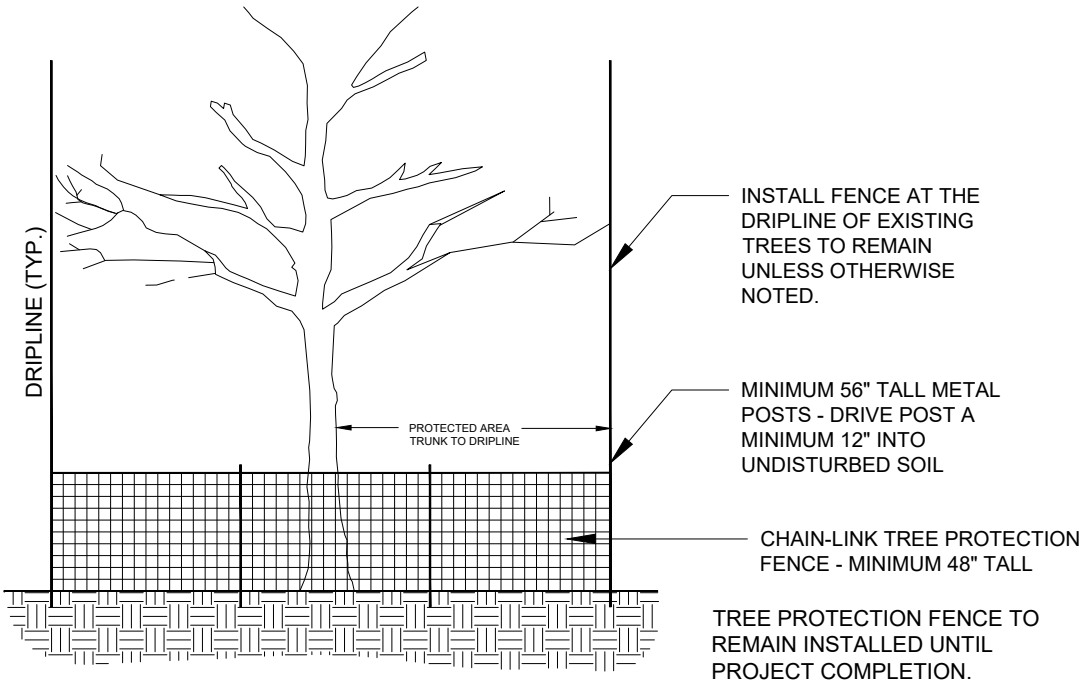




TREE TDU	DBH	COMMON NAME	REPLACEMENT INCHES	
1	38	Hackberry	Offsite Specimen	76 To be replace offsite
2	28	Maple	Specimen	56
3	30	Elm	Specimen	60
4	32	Hackberry	Specimen	64
5	18	Hackberry		
6	22	Hackberry		
7	16	Pear		
8	20	Oak		
9	18	Hackberry		
10	20	Hackberry		

SITE AREA: +/-1.32 AC	
SPECIMEN TREES TO BE REMOVED: (4)	
Total Caliper Inch of Replacement: 180" ONSITE / 76" OFFSITE	
EXISTING TREE CANOPY ON SITE:	9,213 sf (0.21 AC)
REQ. CANOPY RETENTION (26% OF EXISTING COVER)	2,395 sf (0.055 AC)
PROPOSED CANOPY RETENTION	0 sf (.000 AC)

- MITIGATION TREES TO PROVIDE IN LIEU OF 2,395 SF CANOPY COVERAGE
- MITIGATION TREES = 80 TREES PER ACRE
- REQUIRED CANOPY MITIGATION 0.055 AC X 80 = 5 TREES



CHAIN LINK FENCING TREE PROTECTION

TREE PROTECTION NOTES:

1. The tree protection barriers shall be constructed before the issuance of any permits, and shall remain intact throughout the entire period of construction.
2. The tree protection barrier shall be installed as labeled on this plan or a distance to the radius of the dripline, whichever is greatest, as measured from the trunk of the protected tree.
3. Any required excavation in or around the protection zone to accommodate underground services, footings, etc; shall be indicated on the plan, and shall be excavated by hand. In addition, related root pruning shall be accomplished via ANSI A-300 standard so as to minimize compact on the general root system. Root pruning to occur prior to grading.
4. The storage of building materials or stockpiling shall not be permitted within the limits of or against the protection barriers.
5. Trees within the protection barriers must be adequately cared for throughout the construction process (i.e., they must be watered sufficiently, particularly if the tree's root system has been disturbed by excavation.) Fill shall not be placed upon the root system as to endanger the health or life of the affected tree.
6. Heavy accumulation of dust from construction activity may occur on the surface of tree foliage. To control dust, tree foliage may be hosed down upon the request of the Landscape Architect or Owners Representative.
7. Removal of all tree protection fencing will be done by the Contractor. Restoration of all areas disturbed by the fencing will be the Contractor's responsibility. All tree fence to remain intact until final completion of the project.



- 1 TREE PER 50 FT OF FRONTAGE
- TREE CANOPY MITIGATION: 5 TREES
- HERITAGE TREE REPLACEMENT - ONSITE: 180"
- HERITAGE TREE REPLACEMENT - OFFSITE: 76"
- MIN. SIZE: 2.5" / MIN. SPECIES: 5
- FOUNDATION PLANTINGS

L200

Job # - 25115

By: cb



PROPOSED SITE FOR:
STARBUCKS - NASHVILLE HWY
COLUMBIA, TENNESSEE

- PLANTING NOTES:
1. Refer to all written specifications; adhere to Plans and Specifications for all phases of work.
 2. Verify all utility locations in the field before work begins. Repair damaged utilities to owners satisfaction at no additional cost.
 3. Verify all material quantities on the drawing during bidding and pricing. In the event of a discrepancy, the quantities drawn on the plan will take precedence over the material schedule.
 4. All materials are subject to the approval of the Landscape Architect, City, and Owner.
 5. Once unloaded from truck, immediately stand all trees up. DO NOT lie the trees down. This will reduce the risk of sunscald.
 6. Plants shall meet specifications. Root balls shall meet or exceed size standards as set forth by American Standards for Nursery Stock. Main leaders of all trees shall remain intact.
 7. Mulch plant pits and planting beds with specified mulch to the depth indicated on drawings.
 8. Prepare all topsoil used in tree, shrub, and seed mixes in accordance with the specifications
 9. Discard any material which turns brown or defoliates within 5 days after planting. Replace immediately with approved specified material at no additional cost.
 10. Maintain all plant material and lawns until project is accepted in full by the City.
 11. Install all plant material in accordance with all local codes and ordinances. Obtain any required permits necessary to complete the work.
 12. Trees shall be first quality representatives of their species and shall meet all requirements otherwise stipulated. The Landscape Architect reserves the right to reject plant materials in the field, at the growing location, or at the job site at any time during the project.
 13. Test all tree pits for drainage. Any tree pit that holds water for more than 24 hours shall be installed using filter fabric wrapped perforated drainage tube (sloped to low point) and a washed pea gravel pit well drain

LANDSCAPE NOTES:

1. Contractor responsible for locating and protecting all underground utilities prior to digging.
2. Contractor responsible for protecting existing trees from damage during construction as shown on plans.
3. Contractor to install 6" minimum depth of clean, friable topsoil at all planting beds and lawn areas prior to fine grading.
4. Existing grass in proposed planting areas to be killed and removed and area to be hand raked to remove all rocks and debris larger than 1 inch in diameter prior to laying sod. Landscape contractor to provide fine grading.
5. Any existing grass disturbed during construction to be fully removed, re-graded and replaced. All tire marks and indentation to be repaired.
6. Soil to be tested to determine fertilizer and lime requirements and distributed prior to laying sod.
7. Sod to be delivered fresh (cut less than 24 hours prior to arriving on site), laid immediately, rolled, and watered thoroughly immediately after planting. edge of sod adjacent to mulch beds to be shovel cut. All sod to be delivered in largest rolls available. there shall be no gaps between sod joints.
8. The contractor is solely responsible for the establishment of the areas designated as seed to the final acceptance of the owner and city. The contractor shall plan to overseed areas that do not germinate and/or provide adequate coverage.
9. Planting mix to be provided as specified in the landscape specifications.
10. The landscape contractor shall guarantee all plants installed for one full year from date of acceptance. All plants shall be alive and at a vigorous rate of growth at the end of the guarantee period. The landscape contractor shall not be responsible for acts of god or vandalism.
11. Any plant that is determined dead, in an unhealthy or unsightly condition, lost its shape due to dead branches or other symptoms of poor, non-vigorous growth, as determined by the landscape architect, shall be replaced by the landscape contractor at no cost to owner.
12. Prior to installation, the landscape contractor shall inspect the subgrade, general site conditions, verify elevations, utility locations, irrigation, approve topsoil provided by general contractor and observe the site conditions under which the work is to be done. Notify general contractor of any unsatisfactory conditions, and work shall not proceed until such conditions have been corrected.
13. Water all plant material that are newly planted thoroughly twice in first 24 hours and apply mulch immediately.
14. All areas of disturbance outside of landscape beds shall be repaired with turf.
15. Any utility structure, light poles, sign, or other feature may not be added to any required landscape island in such a manner that would displace the required element(s) (trees, shrubs, etc.)

TREE SPECIFICATIONS: ALL TREES SHALL HAVE THE FOLLOWING CHARACTERISTICS:

1. Deciduous trees shall have one dominant single straight trunk with the tip of the leader on the main trunk left intact and the terminal bud on the central leader is at the highest point on the tree
2. Trees with forked trunks are acceptable if all the following conditions are met:
 - a. The fork occurs in the upper 1/3 of the tree.
 - b. One fork is less than 2/3 the diameter of the dominant fork.
 - c. The top 1/3 of the smaller fork is removed at the time of planting.
3. No branch is greater than 2/3 the diameter of the trunk directly above the branch.
4. The trunk and/or major branches shall not touch
5. Several branches are larger in diameter and obviously more dominant.
6. Branching habit is more horizontal than vertical, and no branches are oriented nearly vertical to the trunk
7. Branches are evenly distributed around the trunk with no more than one major branch located directly above another and the crown is full of foliage evenly distributed around the tree
8. Crown spread shall look proportional to the tree.
9. NO flush cuts or open trunk wounds or other bark injury
10. Root ball meets all ANSI standards and is appropriately sized

DEFICIENCIES NOT ACCEPTED:

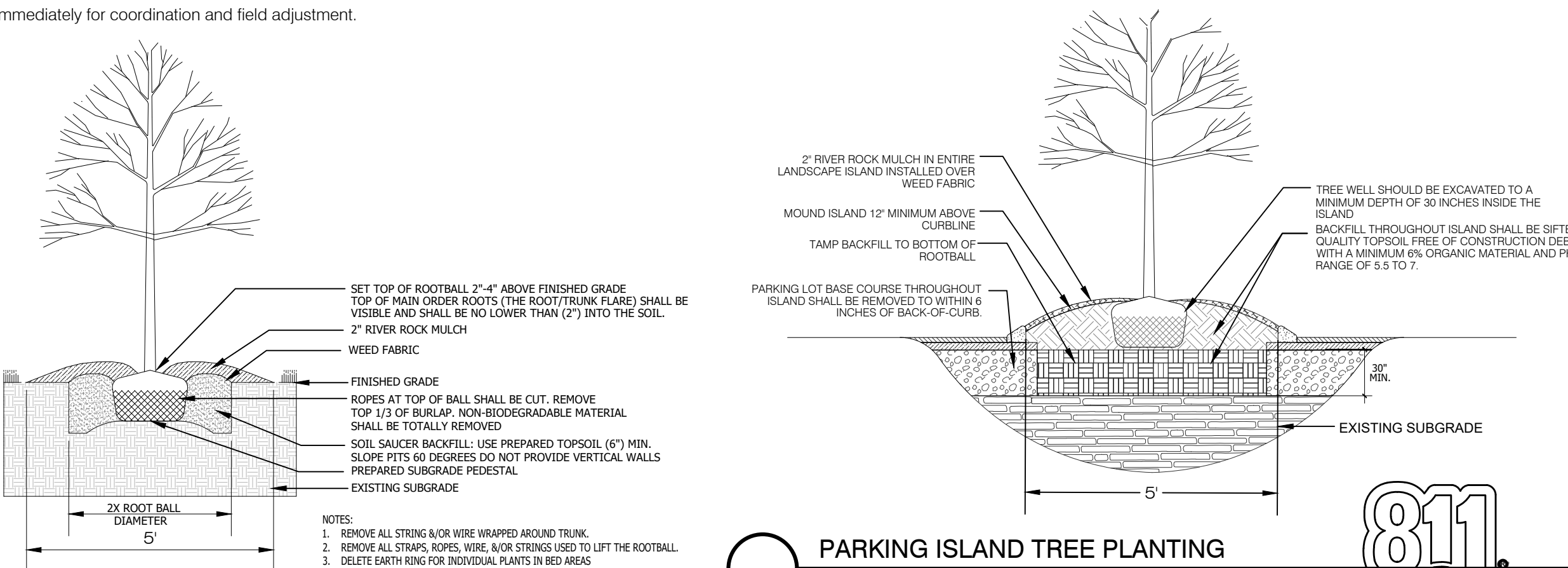
1. Tip dieback on 5% of branches
2. Crown thin/sparsely foliated
3. Included bark
4. Major Branches touching
5. Asymmetrical branching

TO AVOID OVERHEAD LIGHT POLE CONFLICTS:

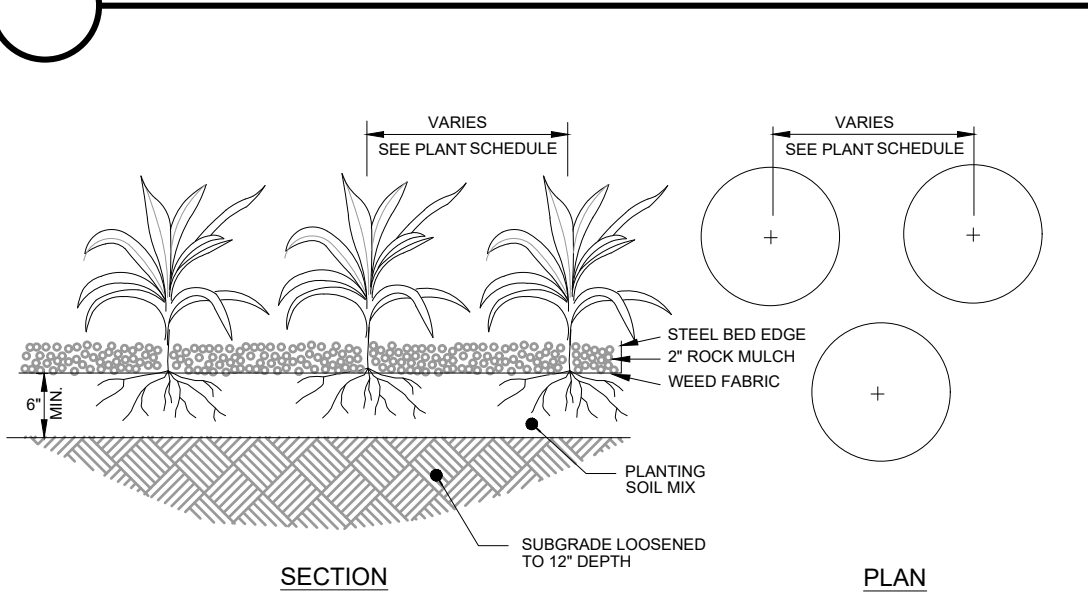
In the event proposed canopy trees are in conflict (within 15') with proposed or existing light pole locations, the landscape contractor shall stop work and contact Heibert+Ball Land Design immediately for coordination and field adjustment

TO AVOID OVERHEAD UTILITY CONFLICTS:

In the event proposed canopy trees are in conflict (within 25') with proposed or existing overhead utility locations, the landscape contractor shall stop work and contact Heibert+Ball Land Design immediately for coordination and field adjustment.

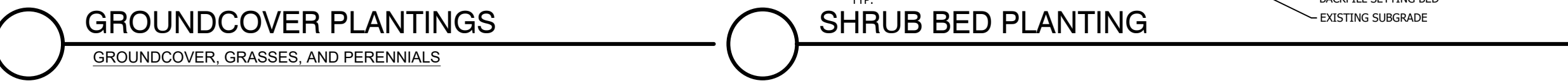


DECIDUOUS TREE PLANTING



GROUND COVER PLANTINGS

GROUND COVER, GRASSES, AND PERENNIALS



PARKING ISLAND TREE PLANTING FOR PARKING LOT ISLAND OR MEDIAN

Know what's below.
Call before you dig.

SHRUB BED PLANTING

PLANT SCHEDULE

SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT	CAL	SIZE
MITIGATION FOR CANOPY COVERAGE						
	U	5	Princeton Elm / Ulmus americana 'Princeton' 5' Clear Trunk. Evenly Branched. Matched. See Tree Specifications	B # B	3"Cal	Per ANSI
OFF SITE TREE						
	BN	3	Duraheat River Birch / Betula nigra `Duraheat` Multi Trunk. Full Rounded Head. See Tree Specifications	B # B	3"Cal	10' - 12' HT
	NR	14	Nellie R. Stevens Holly / Ilex x 'Nellie R. Stevens' Full to Base. Full Dense Form. Matched. See Tree Specifications	B # B	3"Cal	10' - 12' HT
	MG	8	Little Gem Magnolia / Magnolia grandiflora 'Little Gem' Full to Base. Full Dense Form. See Tree Specifications	B # B	3"Cal	10' - 12' HT
	PR	1	Akebono Cherry / Prunus x Akebono 5' Clear Trunk. Evenly Branched. Matched. See Tree Specifications	B # B	2.5"Cal	Per ANSI
REPLACEMENT TREES						
	F	6	Franz Fontaine Hornbeam / Carpinus betulus `Franz Fontaine` 3' Clear Trunk. MATCHED. Evenly Branched. Full Symmetrical Crown. See Tree Specifications	B # B	3"Cal	Per ANSI
	I	27	Nellie R. Stevens Holly / Ilex x 'Nellie R. Stevens' Full to Base. Full Dense Form. Matched. See Tree Specifications	B # B	3"Cal	10' - 12' HT
	ML	12	Little Gem Magnolia / Magnolia grandiflora 'Little Gem' Full To Base. Full Dense Form. See Tree Specifications	B # B	3"Cal	10' - 12' HT
	P	3	Akebono Cherry / Prunus x Akebono 5' Clear Trunk. Evenly Branched. Matched. See Tree Specifications	B # B	2.5"Cal	Per ANSI
	W	8	Willow Oak / Quercus phellos 5' Clear Trunk. Evenly Branched. Matched. See Tree Specifications	B # B	3"Cal	12' - 14' HT
	E	5	Princeton Elm / Ulmus americana 'Princeton' 5' Clear Trunk. Evenly Branched. Matched. See Tree Specifications	B # B	3"Cal	Per ANSI
SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	HT / CONT.	WIDTH	
SHRUBS						
	HL	5	Limelight Hydrangea / Hydrangea paniculata `Limelight` Full; Dense Form; Matched	#5 Container		
	IX	22	Soft Touch Holly / Ilex cornuta `Soft Touch` Full; Dense Form	#3 Container		
	IT	39	Merlot Sweetapire / Itea virginica `Merlot` Full. Heavy. Well Branched	#5 Container		
	JO	80	Grey Owl Juniper / Juniperus virginiana `Grey Owl` Full. Heavy. Well Branched.	#5 Container		
	JU	55	Sea Green Juniper / Juniperus virginiana `Sea Green` Full. Heavy. Well Branched.	#5 Container		
	TC	20	Fire Chief Arborvitae / Thuja occidentalis `Congabe` Full; Dense; Well Rooted	#3 Container		
GRASSES						
	EB	27	Blue Dune Lyme Grass / Elymus arenarius Blue Dune Full. Heavy. Well Rooted	#1 Container		
	LB	108	Big Blue Lilyturf / Linope muscari `Big Blue` Full; Dense; Well Rooted	#1 Container		
	NW	34	Junior Walker's Catmint / Nepeta x faassenii 'Novanepjuri' Full; Dense Form. Matched	#1 Container		
	FE	122	Fountain Grass / Pennisetum alopecuroides Full; Dense; Well Rooted	#1 Container		
PERENNIALS						
	EP	10	Purple Coneflower / Echinacea purpurea 'Magnus' Full; Dense; Well Rooted; Matching	#1 Container		
	RF	16	Goldsturm Black-eyed Susan / Rudbeckia fulgida `Goldsturm` Full; Dense; Well Rooted	#1 Container		
SYMBOL	CODE	QTY	COMMON / BOTANICAL NAME	CONT		
GROUND COVERS						
	RR	14,283 sf	4"-6" Size Locally Sourced River Rock All landscape beds shall be mulched with have locally sourced river rock installed over weed fabric and bound by steel bed edging. Provide 3 color and size samples for owner review.	Space as Noted		
	SOD	5,403 sf	Drought Tolerant Fescue Blend / Turf Sod Install Sod as per specifications over finished graded area free of debris. Stagger seams, do not overlap. Roll twice.	sod		

WHEN THE TERMS "POT", "CONTAINER", OR "CALIPER" ARE USED TO DESCRIBE MINIMUM SIZE AT PLANTING, THE ESTABLISHED AMERICAN STANDARDS FOR NURSERY STOCK SHALL APPLY THAT IS: •*ALL CONTAINER GROWN (DECIDUOUS OR CONIFER) SHRUBS SHALL BE HEALTHY, VIGOROUS, WELL-ROOTED AND ESTABLISHED IN THE CONTAINER IN WHICH THEY ARE SOLD. THEY SHALL HAVE TOPS WHICH ARE OF GOOD QUALITY AND ARE IN A HEALTHY GROWING CONDITION.*"AN ESTABLISHED CONTAINER GROWN (DECIDUOUS OR CONIFER) SHRUB SHALL BE A (DECIDUOUS OR CONIFER) SHRUB TRANSPLANTED INTO A CONTAINER AND GROWN IN THAT CONTAINER SUFFICIENTLY LONG FOR THE NEW FIBROUS ROOTS TO HAVE DEVELOPED SO THAT THE ROOT MASS WILL RETAIN ITS SHAPE AND HOLD TOGETHER WHEN REMOVED FROM THE CONTAINER.*"CONTAINER SIZE MAY BE CONVERTED TO MINIMUM HEIGHT/SPREAD AS FOLLOWS:

1 GALLON = 12" TO 15" HEIGHT OR SPREAD

3 GALLON = 15"-18" HEIGHT OR SPREAD

5 GALLON = 18" TO 24" HEIGHT OR SPREAD

7 GALLON = 24" TO 30" HEIGHT OR SPREAD

PLAN NOTES:

1. ALL LANDSCAPE BEDS SHALL BE NEATLY TRENCHED WITH A STEEL BED EDGE, WEED BLOCK, AND 2" OF RIVER ROCK MULCH.
2. ALL AREAS OF DISTURBANCE NOT SPECIFIED AS SOD SHALL BE SEEDDED WITH 80% REBEL SUPREME, 20% MERION BLUEGRASS @ 8#/1,000 SF UNLESS OTHERWISE NOTED ON GRADING PLANS
3. ANY CHANGES TO TREE SPECIES OR LOCATIONS MAY REQUIRE THE CONTRACTOR TO PROVIDE AN AS-BUILT OF THE INSTALLED LANDSCAPE AND POSSIBLY DELAY APPROVAL OF THE SITE BY THE URBAN FORESTRY DEPARTMENT.
4. REQUIREMENTS SHOWN ARE PER THE CITY ZONING ORDINANCE. SUBSTITUTIONS ARE NOT ALLOWED UNLESS APPROVED BY THE CITY AND HEIBERT+BALL LAND DESIGN

LIGHTING FIXTURE SCHEDULE

Symbol	Label	QTY	Catalog Number	Description	Lumens per Lamp	Wattage
	S01	3	DSX1 LED P9 40K 70CRI BLC3	D-Series Size 1 Area Luminaire P9 Performance Package 4000K CCT 70 CRI Type 3 Extreme Backlight Control	24735	277.07
	S02	1	DSX1 LED P9 40K 70CRI T3M	D-Series Size 1 Area Luminaire P9 Performance Package 4000K CCT 70 CRI Type 3 Medium	34006	554.14
	SJLC L	2	DSX0 LED P5 40K 70CRI LCCO	D-Series Size 0 Area Luminaire P5 Performance Package 4000K CCT 70 CRI Left Corner Cutoff Extreme Backlight Control	8874	90.12
	SJRC L	2	DSX0 LED P5 40K 70CRI RCCO	D-Series Size 0 Area Luminaire P5 Performance Package 4000K CCT 70 CRI Right Corner Cutoff Extreme Backlight Control	8874	90.12
	SJRC H	1	DSX0 LED P7 40K 70CRI RCCO	D-Series Size 0 Area Luminaire P7 Performance Package 4000K CCT 70 CRI Right Corner Cutoff Extreme Backlight Control	14913	170.81

THIS SHEET SHALL BE USED ONLY FOR ELECTRICAL PHOTOMETRICS. ANY UTILITIES, IF SHOWN, ARE ONLY FOR COORDINATION.

Photometric Zone Statistics		
ZONE NAME/DESCRIPTION	Avg	Min
PARKING & SIDEWALKS	6.5 fc	1.5 fc
MAIN ENTRY DOOR	20.1 fc	—
PATIO ENTRY DOOR	23.1 fc	—
PATIO	23.6 fc	—
REAR SERVICE DOOR	15.5 fc	—
DRIVE THRU ENTRY & SITE ENTRY (1)	20.0 fc	15.8 fc
DRIVE THRU WINDOW	20.5 fc	20.5 fc
SITE ENTRY (2)	23.9 fc	19.7 fc
SITE ENTRY (3)	23.2 fc	18.6 fc

STARBUCKS SITE LIGHTING LANDLORD REQUIREMENTS

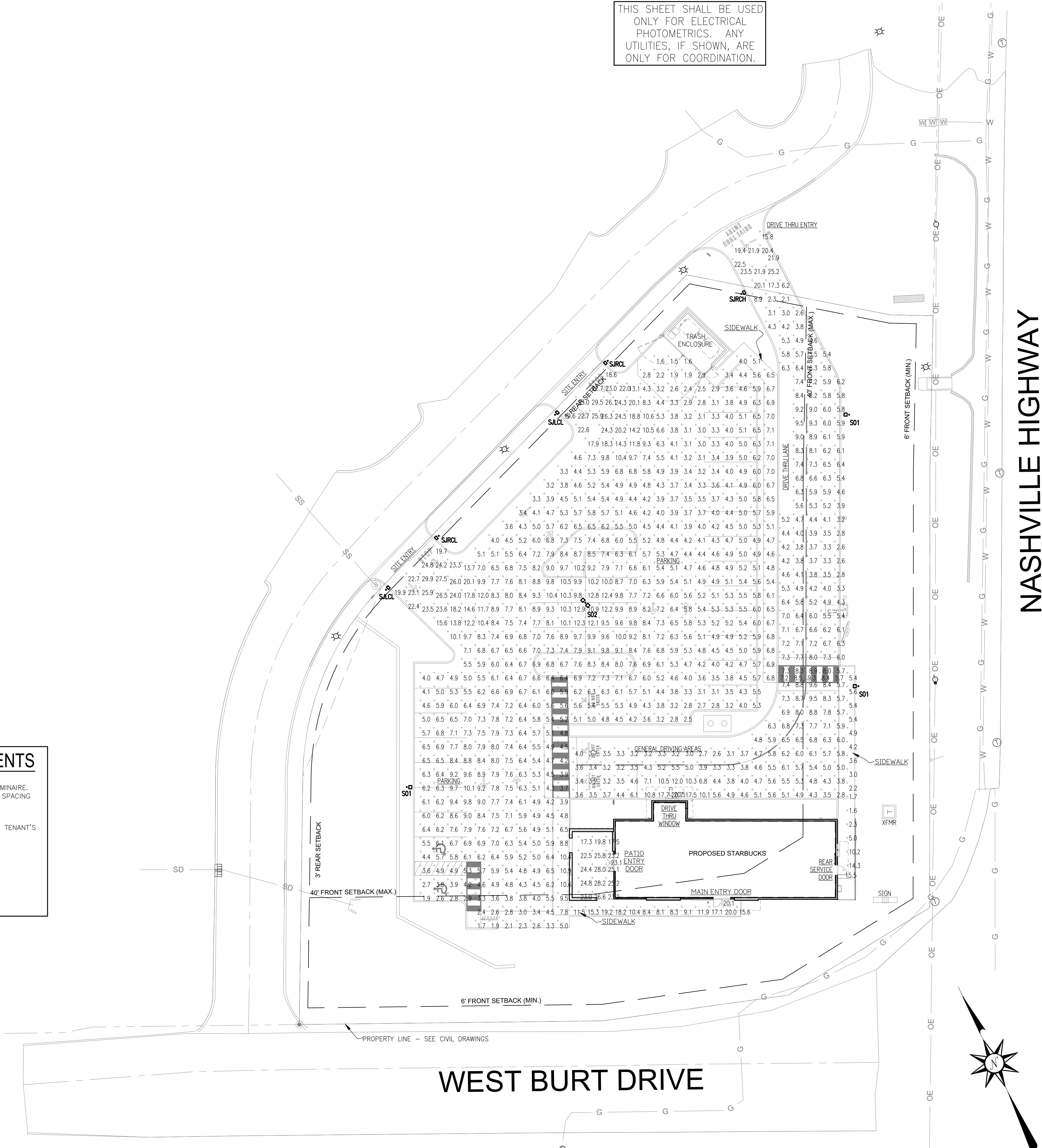
- LIGHTING FIXTURES:**
- FIXTURES SHALL BE TYPE LED, 3000°K–4000°K, FULLY SEALED, ALUMINUM FIXTURES WITH SHIELDED LUMINAIRE.
 - PROVIDE 10'–0" TO 12'–0" AND 18'–0" TO 22'–0" HEIGHT TALL PARKING LOT LIGHTING AT ADEQUATE SPACING TO ENSURE SECURITY LIGHTING FOR PARKING FIELD.
- CONTROLS:**
- A. ANY EXTERIOR BUILDING LIGHTING DEDICATED TO TENANT OCCUPANCY SHALL REQUIRE CONTROLS WITHIN TENANT'S SPACE. COORDINATE WITH TENANT INFILL DRAWINGS.
- PHOTOMETRICS:**
- SITE ENTRY: PROVIDE 15 – 20 FC
 - DRIVE THRU ENTRY: PROVIDE 15 FC AT ENTRY AND 20 FC AT WINDOW
 - BUILDING ENTRY: PROVIDE 20 – 25 FC **AVERAGE**
 - PATIO: PROVIDE 15 FC **AVERAGE**
 - PARKING & SIDEWALKS: PROVIDE 1.5 – 2.0 FC **MINIMUM**
 - SERVICE DOOR: PROVIDE 5 FC **AVERAGE**
- PROVIDE 15 – 20 FC
- PROVIDE 15 FC AT ENTRY AND 20 FC AT WINDOW
- PROVIDE 20 – 25 FC **AVERAGE**
- PROVIDE 15 FC **AVERAGE**
- PROVIDE 1.5 – 2.0 FC **MINIMUM**
- PROVIDE 5 FC **AVERAGE**

LIGHT POLE NOTES:

LIGHT POLES "S01 & S02" ARE SPECIFIED TO INCLUDE A 20'-0" POLE AND SHALL BE MOUNTED ON A CONCRETE POLE BASE THAT EXTENDS 2'-0" ABOVE GRADE. TOTAL POLE HEIGHT SHALL BE 22'-0" MAXIMUM AS ALLOWED BY STARBUCKS.

LIGHTING POLES "SJ___" ARE SPECIFIED TO INCLUDE AN 10'-0" POLE TO BE MOUNTED ON A CONCRETE POLE BASE THAT EXTENDS 2'-0" ABOVE GRADE. TOTAL POLE HEIGHT SHALL BE 12'-0" MAXIMUM AS ALLOWED BY STARBUCKS.

ALL EXTERIOR LIGHTING POLE LIGHTING LOCATIONS ARE DESIGNED TO MEET STARBUCKS LANDLORD WORK LETTER REQUIREMENTS. SLIGHT RELOCATION OF LESS THAN 1'-0" MAY BE PERMITTED, BUT NOT RECOMMENDED DUE TO STRINGENT LIGHTING LEVEL REQUIREMENTS.



SITE LIGHTING PHOTOMETRIC
SCALE: 1" = 20'-0"

SITE LIGHTING PHOTOMETRIC PLAN

COLUMBIA STARBUCKS
1605 NASHVILLE HWY STE 201
COLUMBIA, TN

DW COLLIER, INC.
ENGINEERING, INC.
720 BROADWAY
SUITE 100
SOUTH FULTON, TN 38257
PH. (731) 479-2115
www.dwcolliereng.com

COLLIER

ORIGINAL ISSUE DATE
02/10/25

SCALE
AS SHOWN

APPROVED
DBS

DRAWN BY
DBS

NOTICE

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PROJECT NUMBER:
25-028

SHEET NUMBER:

SP-1

F i s c h b a c h
Transportation Group, LLC
Traffic Engineering and Planning

Traffic Impact Study

Starbucks
Nashville Highway and W. Burt Drive
Columbia, TN

Prepared January 2025
For R&C Enterprises

FTG, LLC
P.O. Box 682736
Franklin, TN 37068
(615) 771-8022 phone
Gillian@FTGtraffic.com

Traffic Impact Study

Starbucks

Old Nashville Highway and W. Burt Drive
Columbia, Tennessee

Prepared January 2025

PREPARED FOR:

R&C Enterprises
901 West Main Street
Hohenwald, TN 38462

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Phone: (615) 771-8022
FTG Project Number: 11316



Table of Contents

1.	INTRODUCTION	3
2.	PROJECT DESCRIPTION.....	4
	FIGURE 1. LOCATION OF THE PROJECT SITE.....	5
	FIGURE 2. CURRENT PROJECT SITE PLAN	6
3.	YEAR 2024 EXISTING CONDITIONS.....	7
3.1	REGIONAL AND LOCAL ACCESS.....	7
	FIGURE 3. EXISTING LANEAGE WITHIN THE STUDY AREA.....	8
3.2	YEAR 2024 EXISTING TRAFFIC VOLUMES	9
	FIGURE 4. YEAR 2024 EXISTING PEAK HOUR TRAFFIC VOLUMES.....	10
	TABLE 1. DESCRIPTIONS OF LOS FOR SIGNALIZED INTERSECTIONS	11
	TABLE 2. DESCRIPTIONS OF LOS FOR UNSIGNALIZED INTERSECTIONS	12
	TABLE 3. YEAR 2024 EXISTING PEAK HOUR LEVELS OF SERVICE.....	13
4.	YEAR 2026 BACKGROUND TRAFFIC VOLUMES.....	14
	TABLE 4. HISTORICAL TRAFFIC VOLUMES IN THE STUDY AREA.....	14
	FIGURE 5. YEAR 2026 BACKGROUND TRAFFIC VOLUMES.....	15
	TABLE 5. YEAR 2026 BACKGROUND PEAK HOUR LEVELS OF SERVICE	16
5.	IMPACTS OF PROPOSED DEVELOPMENT	17
5.1	TRIP GENERATION	17
	TABLE 6. TRIP GENERATION	17
5.2	TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT	18
	FIGURE 6A. DISTRIBUTION OF SITE-GENERATED TRAFFIC (PRIMARY)	19
	FIGURE 6B. DISTRIBUTION OF SITE-GENERATED TRAFFIC (PASS-BY).....	20
	FIGURE 7A. ASSIGNMENT OF SITE-GENERATED TRAFFIC (PRIMARY)	21
	FIGURE 7B. ASSIGNMENT OF SITE-GENERATED TRAFFIC (PASS-BY)	22
5.3	CAPACITY ANALYSES.....	23
	FIGURE 8. YEAR 2026 TOTAL PROJECTED TRAFFIC VOLUMES.....	24
	TABLE 7. YEAR 2026 TOTAL PEAK HOUR LEVELS OF SERVICE	25
6.	CONCLUSIONS AND RECOMMENDATIONS	26
	APPENDIX A.....	27
	APPENDIX B	32
	APPENDIX C	54

1. INTRODUCTION

This traffic study has been prepared in order to identify the traffic impacts of a coffee shop that is proposed to be constructed in the northwest quadrant of the intersection of Nashville Highway and W. Burt Drive, in Columbia, Tennessee.

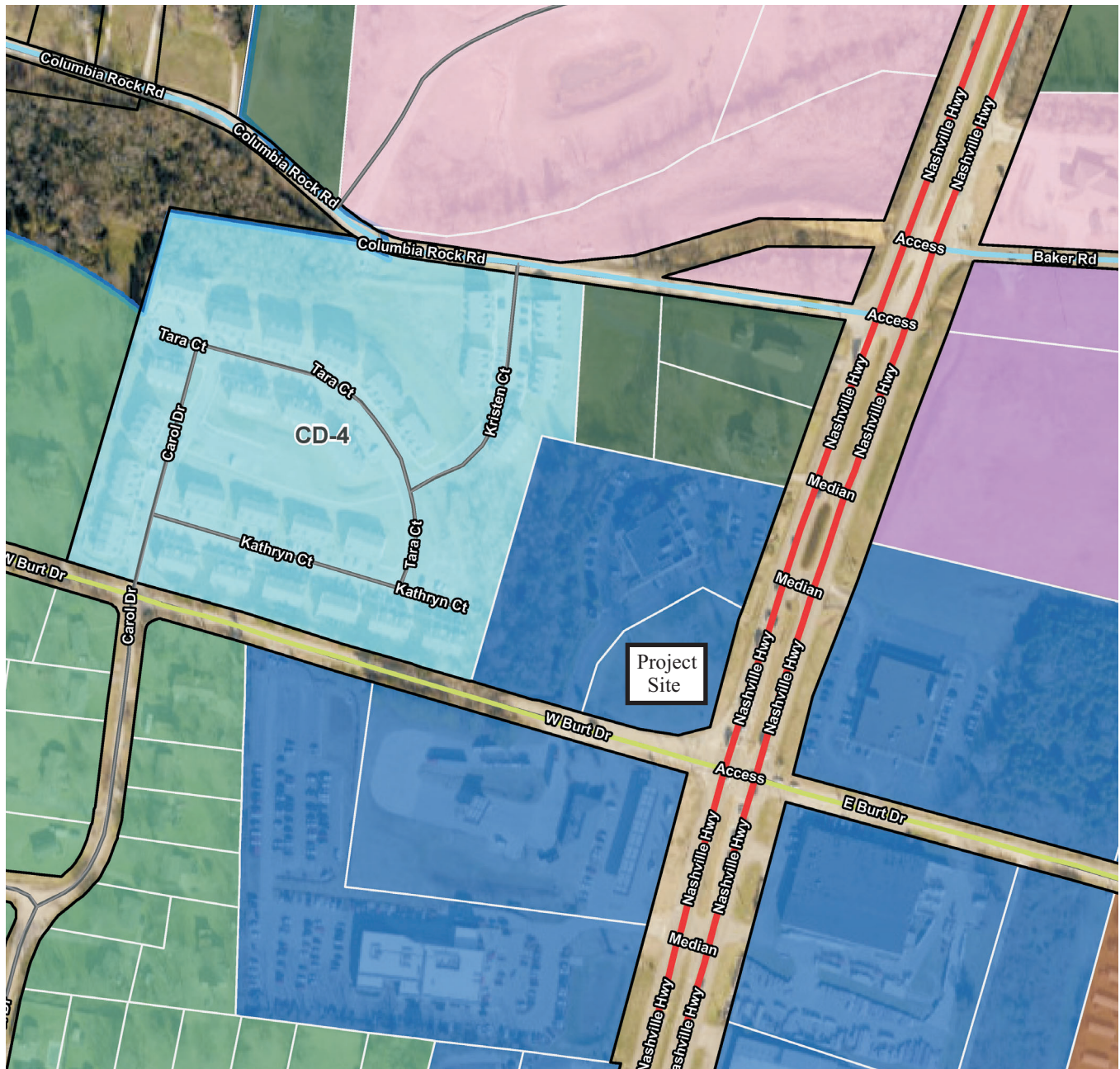
For the purposes of this study, existing and background traffic volumes were established, and capacity analyses were conducted for these conditions. Also, trip generation calculations were performed, and the trips which are expected to be generated by the proposed project were distributed to the roadway system and added to the background traffic volumes. The roadways and intersections which provide access to the site were then re-evaluated to determine the traffic impacts of the proposed project. Access needs for the project were evaluated, and the necessary roadway and/or traffic control improvements were identified. This report presents the results of these analyses and the subsequent recommendations.

2. PROJECT DESCRIPTION

The location of the proposed project is shown in [Figure 1](#). As shown, the project site is located in the northwest quadrant of the intersection of Nashville Highway and W. Burt Drive, in Columbia, Tennessee. The developer of the proposed project plans to construct a Starbucks with 2,443 sq.ft. of space. Access to the project will be provided by the existing driveway for the Northside Medical Professionals building.

The current site plan for the proposed project is shown in [Figure 2](#). In large part, economic and market considerations will dictate the pace and timing with which the proposed project is actually completed. For the purposes of this study, it was assumed that the proposed project will be completed by Year 2026.

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No Scale

Figure 1.
Location of the Proposed Project Site

SEAL

VOICE: 731-265-6827 adam@mbcivil.net

TE

EE

C-1.0

OF

3 No.

Page 122²⁴⁰¹¹ of 442

COLUMBIA QSR CONCEPT

SCALE 1"=30'

RICK MORROW
901 WEST MAIN STREET
HOLEN WALD, TN 38462

Land Data:
Zoning: CD-4C
Area: LOT 2-1.13+/-

Floodplain Note:
THIS SITE LIES WITHIN ZONE X, AREA OF
MINIMAL FLOOD HAZARD, PER FEMA
COMMUNITY PANEL 47119C0170E DATED
APRIL, 16, 2007.

Total Floor Area:
Proposed LOT 3: Total 2,540 S.F.

Deed Reference:

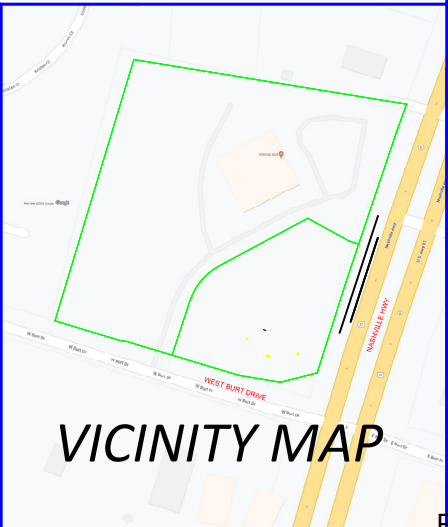
DEED BOOK R2108 PAGE 1072
TAX MAP 075, PARCEL 34.01

1

Yard Requirements:
CD-4C
Front: 6' MIN, 40' MAX
Side: 0'
Rear: 3'

Intended Use:
Quick service

Parking:
REQUIRED FOR QUICK SERVICE
1 SPACE FOR 100 S.F.
TOTAL SPACES REQUIRED: 25
TOTAL SPACES PROVIDED: 28 (2 HANDICAP)



VICINITY MAP

THE SITE AS SHOWN ON THESE CONSTRUCTION DRAWINGS IS INTENDED TO ACHIEVE SPECIFIC ENGINEERING DESIGN CRITERIA AND OBJECTIVES. IT IS THE SOLE RESPONSIBILITY OF THE OWNER/DEVELOPER TO ENSURE THAT THE CONSTRUCTION OF THE SITE SHOWN ON THESE CONSTRUCTION DRAWINGS IS IN TOTAL ACCORDANCE WITH THE DESIGN AS NOTED, DESCRIBED, AND ILLUSTRATED. THE ENGINEER ASSUMES NO RESPONSIBILITY IN THE ASSURANCE THAT THE SITE IS CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION PLANS.

3. YEAR 2024 EXISTING CONDITIONS

3.1 REGIONAL AND LOCAL ACCESS

Nashville Highway and W. Burt Drive provide regional and local access to the project site.

In the vicinity of the project site, Nashville Highway includes two 12-foot travel lanes and a 10-foot shoulder in each direction, separated by a wide grassy median. A 45 mph speed limit is posted on this roadway segment. W. Burt Drive is a three-lane roadway from Nashville Highway to the existing project accesses. West of the driveways, W. Burt Drive narrows to a two-lane roadway that includes one 10-foot travel lane in each direction.

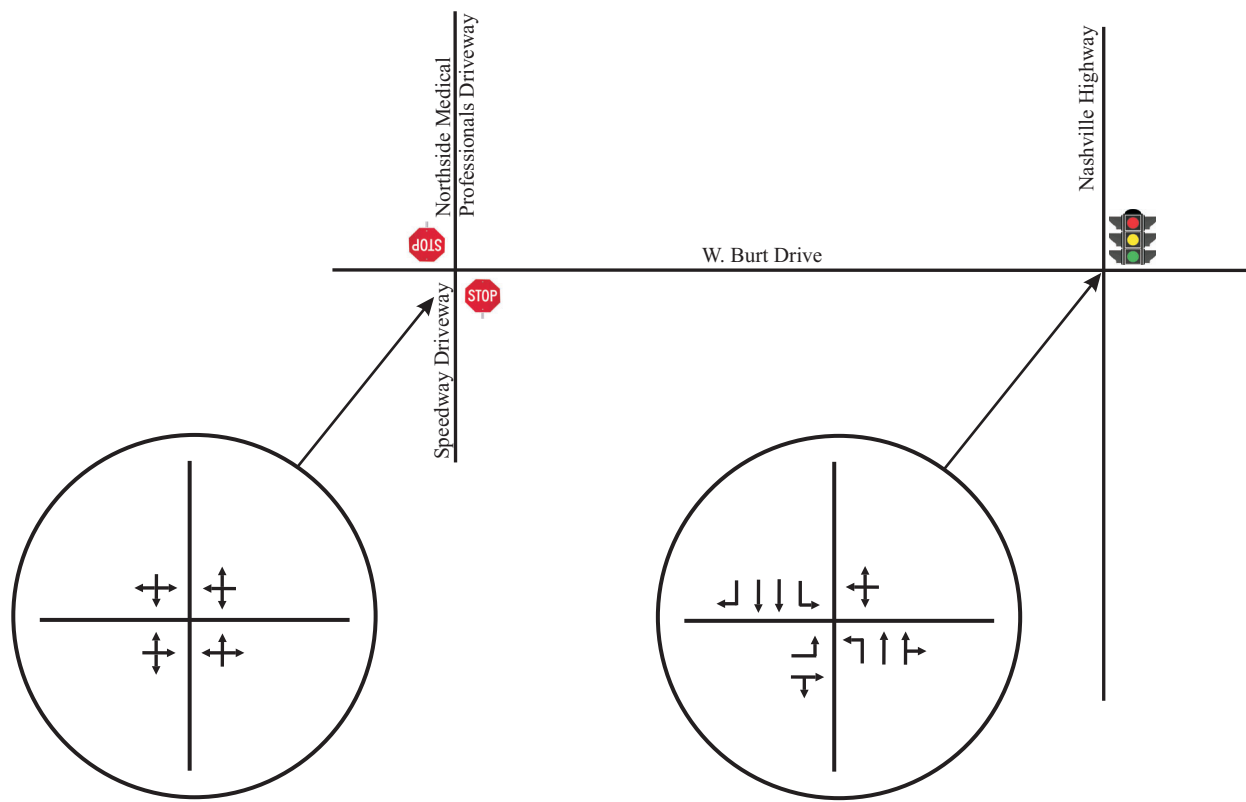
A field visit was completed in order to confirm the laneage and traffic control noted during the collection of turning movement data at the intersections within the study area. The existing laneage and traffic control at the intersections within the study area are shown in [Figure 3](#).

Eastbound W. Burt Drive, West of the Project Site



Photo credit: Google Earth (9/2022)

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No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 3.
Existing Laneage and Traffic Control

3.2 YEAR 2024 EXISTING TRAFFIC VOLUMES

In order to provide data for the traffic impact analysis, traffic volumes were counted in 15-minute increments at the following intersections:

- Nashville Highway and Burt Drive
- W. Burt Drive and Driveways for Northside Medical Professionals / Speedway gas station

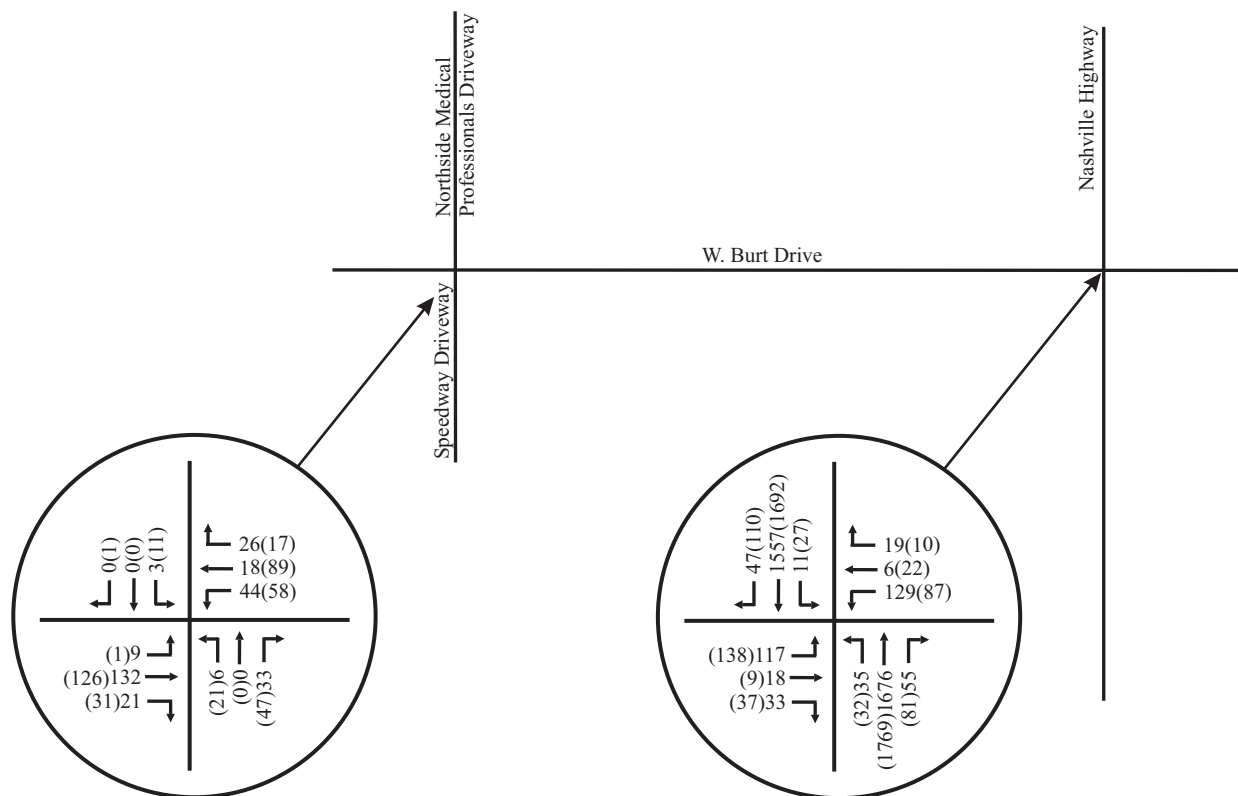
This data was collected from 6:00 AM – 7:00 PM on typical weekdays in early November 2024 when schools were in session. The raw traffic volumes are included in [Appendix A](#) and are shown in [Figure 4](#). It is important to note that certain turning movements were increased as needed to show balanced traffic flows between adjacent intersections.

Using the existing peak hour traffic volumes shown in [Figure 4](#), capacity analyses were conducted for the intersections studied. Specifically, in order to identify current peak hour levels of operation within the study area, the capacity calculations were performed according to the methods outlined in the [Highway Capacity Manual 7](#) (HCM 7). These analyses result in the determination of a Level of Service (LOS), which is a measure of evaluation is used to describe how well an intersection or roadway operates. LOS A represents free flow traffic operations, and LOS F suggests that the traffic demand exceeds the available capacity. In an urbanized area, LOS D is typically considered to be the minimum acceptable LOS. [Table 1](#) presents the descriptions of LOS for signalized intersections, and [Table 2](#) presents the descriptions of LOS for unsignalized intersections.

The results of the capacity analyses for the existing peak hour traffic volumes are shown in [Table 3](#), and [Appendix B](#) includes the capacity analyses worksheets. These analyses indicate that the signalized intersection of Nashville Highway and Burt Drive operates at LOS C during both peak hours. It is important to note that the queue for the eastbound left turns extends to the existing driveways for Northside Medical Professionals / Speedway gas station.

At the unsignalized intersection of W. Burt Drive and the driveways, all of the critical turning movements currently operate at LOS B or better during both peak hours, and the queues are low.

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No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 4.
Existing Year 2024 Peak Hour Traffic Volumes
(Collected Early November 2024 and Balanced)

TABLE 1. DESCRIPTIONS OF LOS FOR SIGNALIZED INTERSECTIONS

Level of Service	Description	Average Control Delay per Vehicle (sec)
A	Operations with very low control delay. Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10
B	Operations with stable flows. This generally occurs with good progression, short cycle lengths, or both. More vehicles stop than for LOS A, causing higher levels of average delay.	> 10 and ≤ 20
C	Operations with stable flow. Occurs with fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	> 20 and ≤ 35
D	Approaching unstable flow. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop.	> 35 and ≤ 55
E	Unstable flow. In many cases, this is considered to be the limit for acceptable delay. These high delays generally indicate poor progression, long cycle lengths, and high v/c ratios.	> 55 and ≤ 80
F	Unacceptable delay. This condition often occurs with oversaturation or with high v/c ratios. Poor progression and long cycle lengths may also cause such delay levels.	> 80

Source: Highway Capacity Manual 7 (HCM 7)

TABLE 2. DESCRIPTIONS OF LOS FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Description	Average Control Delay (sec/veh)
A	Minimal delay	≤ 10
B	Brief delay	> 10 and ≤ 15
C	Average delay	> 15 and ≤ 25
D	Significant delay	> 25 and ≤ 35
E	Long delay	> 35 and ≤ 50
F	Extreme delay	> 50

Source: Highway Capacity Manual 7 (HCM 7)

TABLE 3. YEAR 2024 EXISTING PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
		LEVEL OF SERVICE	95 TH %-ILE QUEUE	LEVEL OF SERVICE	95 TH %-ILE QUEUE
Nashville Highway and Burt Drive	Eastbound Left Turns	LOS F	10 veh (87 sec/veh)	LOS F	11 veh (86 sec/veh)
	Eastbound Thrus / Right Turns	LOS E	4 veh (79 sec/veh)	LOS E	4 veh (77 sec/veh)
	Westbound Turning Movements	LOS F	12 veh (85 sec/veh)	LOS F	10 veh (88 sec/veh)
	Northbound Left Turns	LOS F	3 veh (96 sec/veh)	LOS F	3 veh (97 sec/veh)
	Northbound Thrus	LOS B	30 veh (20 sec/veh)	LOS C	31 veh (20 sec/veh)
	Northbound Right Turns	LOS B	30 veh (20 sec/veh)	LOS C	32 veh (21 sec/veh)
	Southbound Left Turns	LOS F	1 veh (103 sec/veh)	LOS F	3 veh (100 sec/veh)
	Southbound Thrus	LOS B	27 veh (19 sec/veh)	LOS B	27 veh (18 sec/veh)
	Southbound Right Turns	LOS A	1 veh (10 sec/veh)	LOS A	3 veh (9 sec/veh)
	OVERALL INTERSECTION	LOS C (26 sec/veh)		LOS C (25 sec/veh)	
W. Burt Drive and Driveways for Northside Medical Professionals / Speedway Gas Station	Eastbound Turning Movements	LOS A	0 veh (7 sec/veh)	LOS A	0 veh (7 sec/veh)
	Westbound Turning Movements	LOS A	1 veh (8 sec/veh)	LOS A	1 veh (8 sec/veh)
	Northbound Turning Movements	LOS A	1 veh (10 sec/veh)	LOS B	1 veh (10 sec/veh)
	Southbound Turning Movements	LOS B	0 veh (11 sec/veh)	LOS B	1 veh (12 sec/veh)

4. YEAR 2026 BACKGROUND TRAFFIC VOLUMES

In order to account for the traffic growth which will occur within the study area because of typical growth, background traffic volumes were established for the intersections within the study area. Specifically, in order to account for typical growth within the study area, consideration was given to the historical traffic volumes near the project site. The Tennessee Department of Transportation (TDOT) conducts an annual count program throughout the state. This count program includes the annual collection of average daily traffic (ADT) counts at numerous fixed locations.

As shown in [Table 4](#), the daily traffic volumes within the study area have increased steadily since 2014. Therefore, for the purposes of this study, the existing traffic volumes were increased 3% per year, for a total of 6%, in order to establish the Year 2026 background traffic volumes shown in [Figure 5](#).

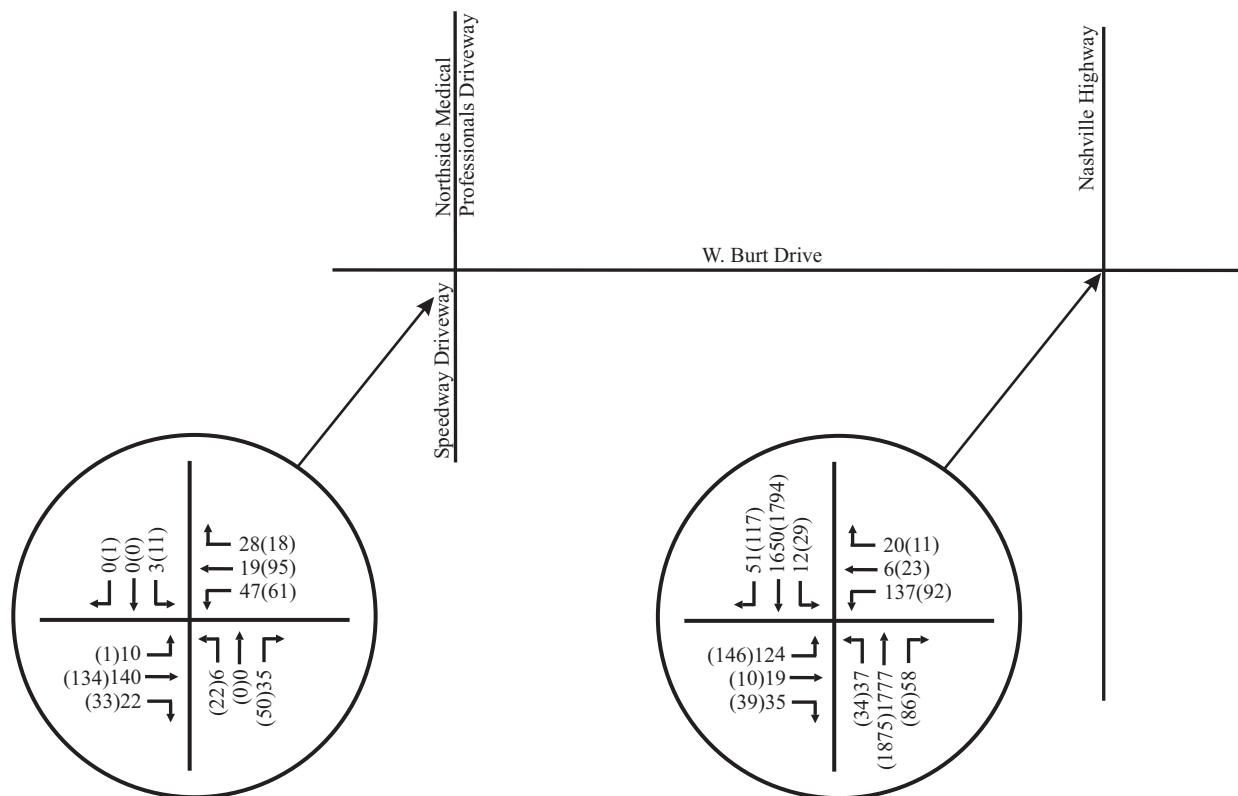
TABLE 4. HISTORICAL TRAFFIC VOLUMES IN THE STUDY AREA

Year	Station 44 Nashville Hwy ADT	Annual Growth	Overall Growth
2014	35,584		
2015	37,557	5.54%	
2016	42,666	13.60%	
2017	44,228	3.66%	
2018	40,922	-7.47%	
2019	43,329	5.88%	
2020	37,972	-12.36%	
2021	40,382	6.35%	
2022	45,166	11.85%	
2023	45,858	1.53%	3.21%

Capacity analyses were conducted for the background conditions at the intersections within the study area, and for these analyses, it was assumed that all existing laneage and traffic control will be maintained and no improvements will be provided.

The results of the capacity analyses for the background peak hour traffic volumes are shown in [Table 5](#), and [Appendix B](#) includes the capacity analyses worksheets. These analyses indicate that the background conditions are consistent with the existing conditions.

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No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 5.
Year 2026 Background Peak Hour Traffic
(Existing Traffic Volumes Increased 6%)

TABLE 5. YEAR 2026 BACKGROUND PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
		LEVEL OF SERVICE	95 TH %-ILE QUEUE	LEVEL OF SERVICE	95 TH %-ILE QUEUE
Nashville Highway and Burt Drive	Eastbound Left Turns	LOS F	10 veh (87 sec/veh)	LOS F	11 veh (86 sec/veh)
	Eastbound Thrus / Right Turns	LOS E	5 veh (79 sec/veh)	LOS E	4 veh (77 sec/veh)
	Westbound Turning Movements	LOS F	13 veh (85 sec/veh)	LOS F	10 veh (87 sec/veh)
	Northbound Left Turns	LOS F	3 veh (95 sec/veh)	LOS F	3 veh (97 sec/veh)
	Northbound Thrus	LOS C	34 veh (23 sec/veh)	LOS C	36 veh (24 sec/veh)
	Northbound Right Turns	LOS C	35 veh (23 sec/veh)	LOS C	37 veh (24 sec/veh)
	Southbound Left Turns	LOS F	1 veh (103 sec/veh)	LOS F	3 veh (99 sec/veh)
	Southbound Thrus	LOS C	30 veh (21 sec/veh)	LOS C	31 veh (20 sec/veh)
	Southbound Right Turns	LOS B	1 veh (11 sec/veh)	LOS A	3 veh (10 sec/veh)
	OVERALL INTERSECTION	LOS C (28 sec/veh)		LOS C (28 sec/veh)	
W. Burt Drive and Driveways for Northside Medical Professionals / Speedway Gas Station	Eastbound Turning Movements	LOS A	0 veh (7 sec/veh)	LOS A	0 veh (7 sec/veh)
	Westbound Turning Movements	LOS A	1 veh (8 sec/veh)	LOS A	1 veh (8 sec/veh)
	Northbound Turning Movements	LOS A	1 veh (10 sec/veh)	LOS B	1 veh (11 sec/veh)
	Southbound Turning Movements	LOS B	0 veh (11 sec/veh)	LOS B	1 veh (13 sec/veh)

5. IMPACTS OF PROPOSED DEVELOPMENT

5.1 TRIP GENERATION

Trip generation calculations were conducted in order to identify how much traffic will be generated by the proposed project. Trip generation data for daily and peak hour trips were identified from Trip Generation, 11th Edition, which was published by the Institute of Transportation Engineers (ITE) in 2021. [Table 6](#) presents the daily and peak hour trip generations for proposed project, and these calculations are included in [Appendix C](#).

TABLE 6. TRIP GENERATION

LAND USE	SIZE	DAILY TRAFFIC	GENERATED TRAFFIC			
			AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Coffee / Donut w/ drive thru (LUC 937)	2,443 sq.ft.	1,304	107	103	48	48
PERCENTAGE THAT WILL BE PASS-BY			75%		75%	
PRIMARY TRAFFIC VOLUMES			28	26	12	12
PASS-BY TRAFFIC VOLUMES			79	77	36	36

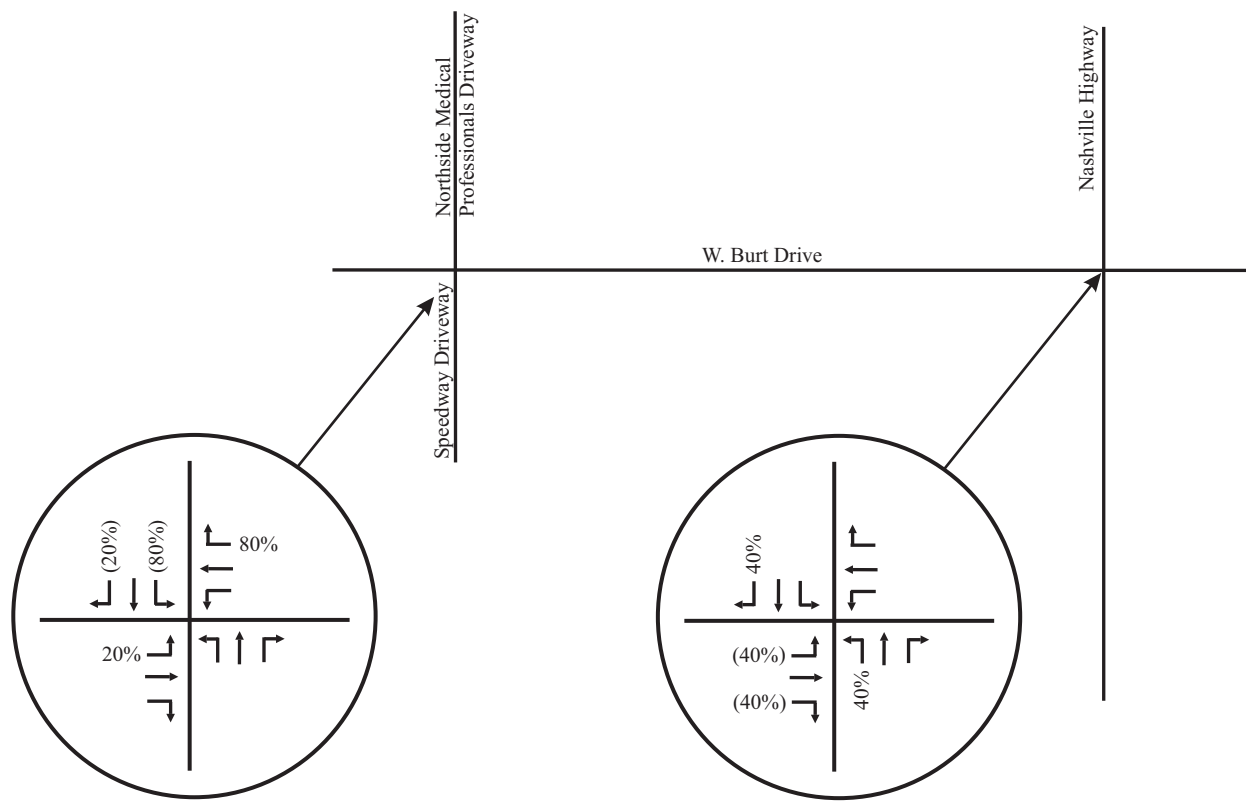
5.2 TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

For the purposes of this study, it was estimated that the trips generated by the proposed development will access the project site according to the directional distributions shown in [Figures 6A and 6B](#). The development of these distributions was based on the following factors:

- existing land use characteristics,
- the directions of approach of the existing traffic,
- the access proposed for the project, and
- the locations of population centers in the area.

The peak hour trip generations and directional distributions were used to add the site-generated trips to the roadway system. [Figures 7A and 7B](#) include the peak hour traffic volumes that are expected to be generated by the proposed project.

F i s c h b a c h
Transportation Group, LLC
 Traffic Engineering and Planning

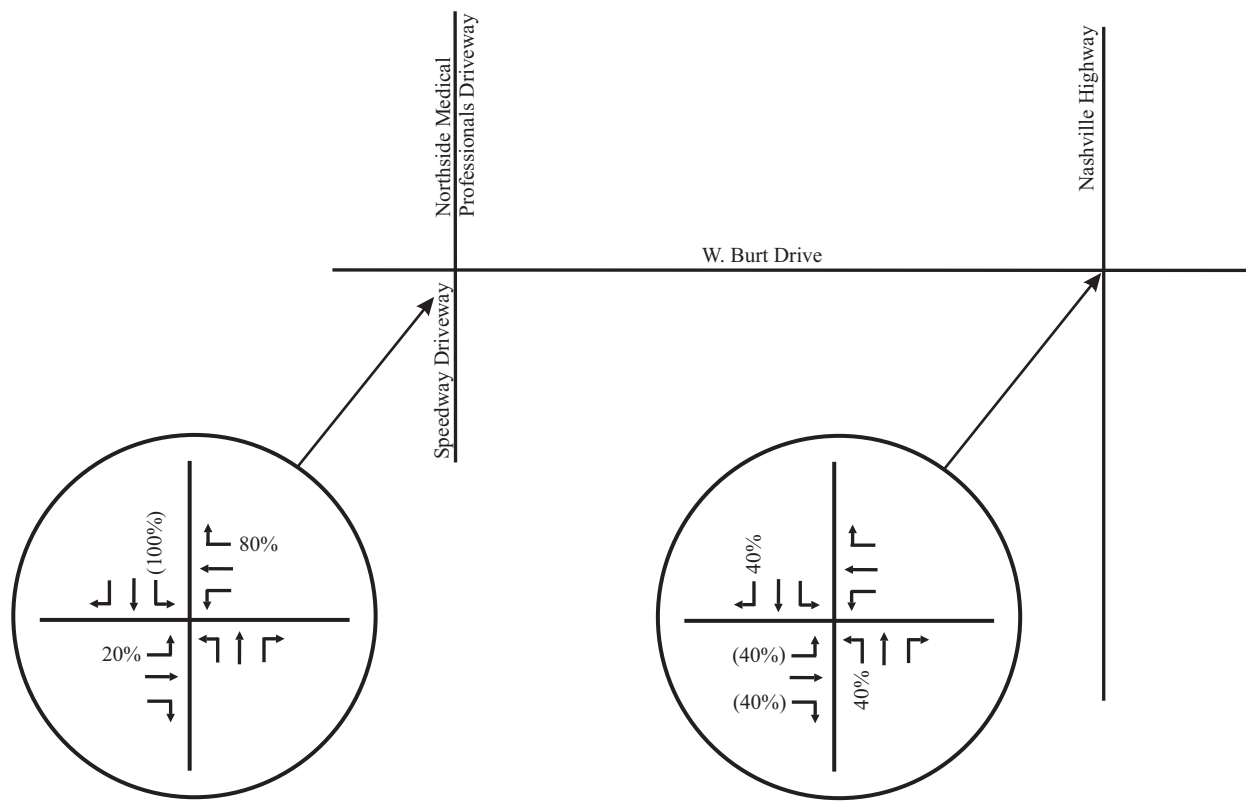


No Scale

XX - Entering Volumes
 (XX) - Exiting Volumes

Figure 6A.
Directional Distribution of PRIMARY Peak Hour
Volumes Generated by the Proposed Project

F i s c h b a c h
Transportation Group, LLC
 Traffic Engineering and Planning

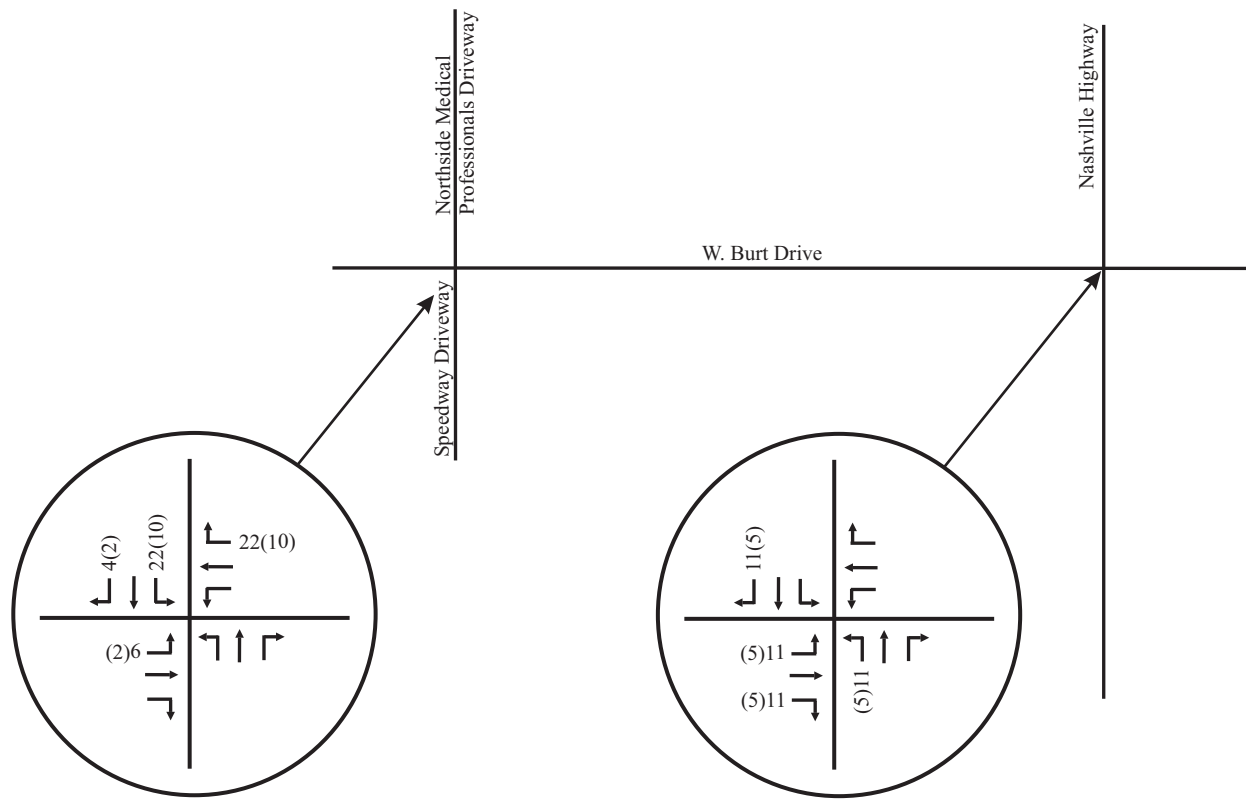


No Scale

XX - Entering Volumes
 (XX) - Exiting Volumes

Figure 6B.
Directional Distribution of PASS-BY Peak Hour
Volumes Generated by the Proposed Project

F i s c h b a c h
 Transportation Group, LLC
 Traffic Engineering and Planning

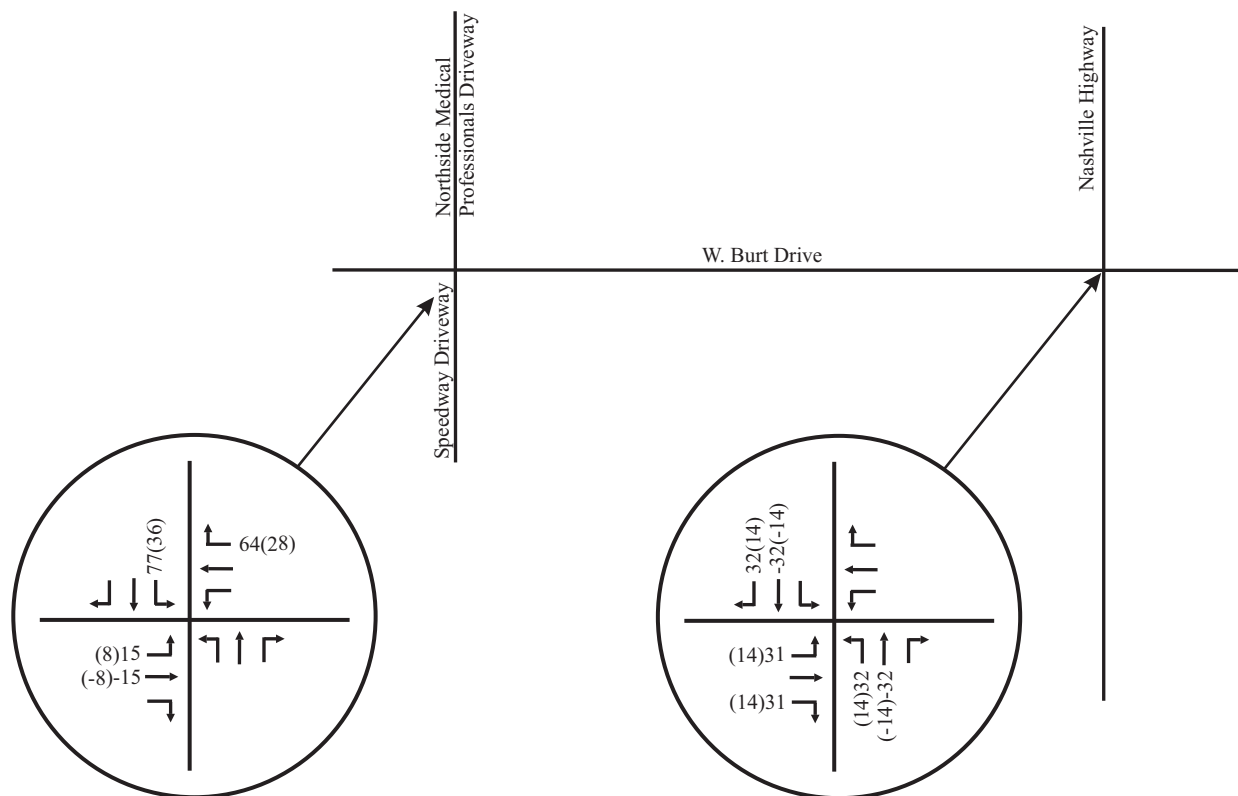


No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 7A.
PRIMARY Peak Hour Traffic Volumes
Generated by the Proposed Project

F i s c h b a c h
 Transportation Group, LLC
 Traffic Engineering and Planning



No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 7B.
PASS-BY Peak Hour Traffic Volumes
Generated by the Proposed Project

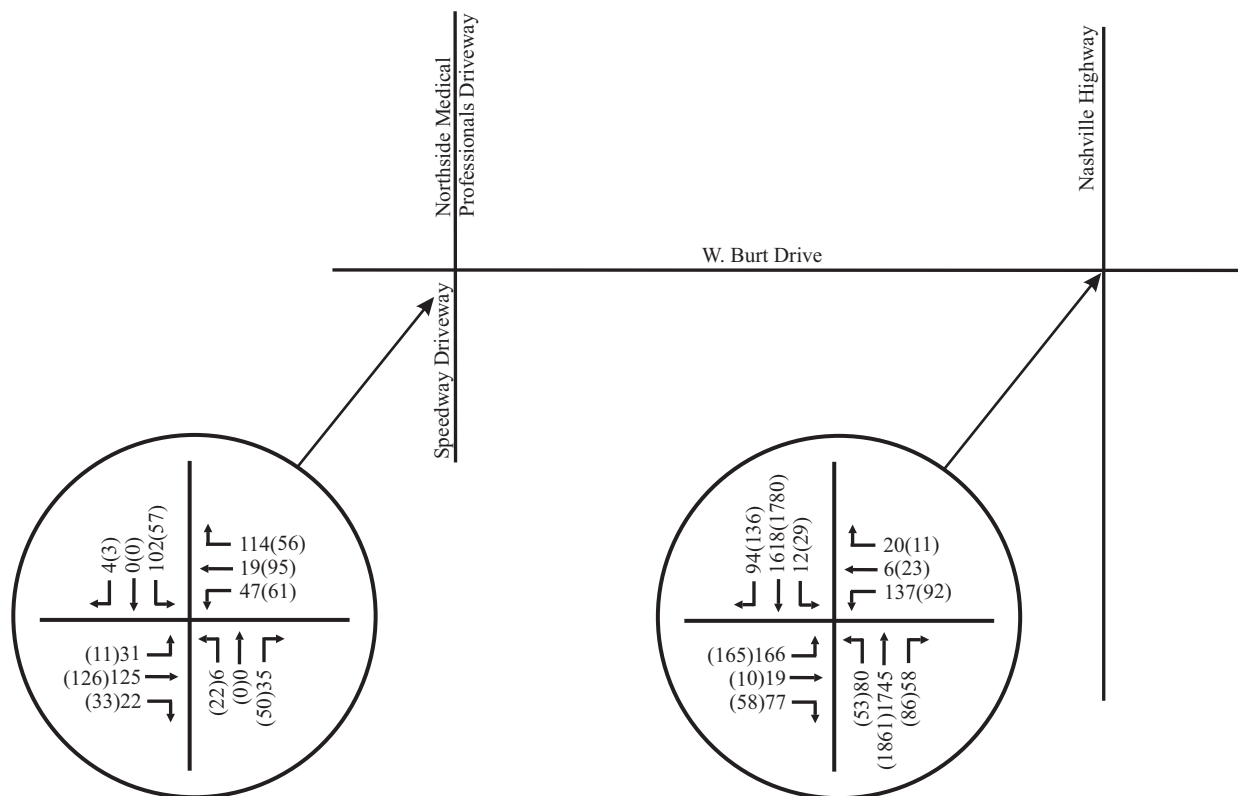
5.3 CAPACITY ANALYSES

In order to identify the projected peak hour traffic volumes at the completion of the proposed project, the trips generated by the proposed development were added to the background peak hour traffic volumes within the study area. The resulting peak hour volumes are shown in [Figure 8](#).

Using the total projected peak hour traffic volumes, capacity analyses were conducted in order to determine the impact of the proposed project on the roadway system. Specifically, these capacity analyses were used to evaluate the need for roadway and traffic control improvements within the study area. For these analyses, it was assumed that all existing laneage and traffic control will be maintained and no additional improvements will be provided.

The results of the capacity analyses for the total projected peak hour traffic volumes are shown in [Table 7](#), and [Appendix B](#) includes the capacity analyses worksheets. These analyses indicate that the total projected conditions are consistent with the existing and background conditions.

F i s c h b a c h
Transportation Group, LLC
Traffic Engineering and Planning



No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 8.
Total Projected Peak Hour Traffic Volumes
at the Completion of the Proposed Project

TABLE 7. YEAR 2026 TOTAL PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
		LEVEL OF SERVICE	95 TH %-ILE QUEUE	LEVEL OF SERVICE	95 TH %-ILE QUEUE
Nashville Highway and Burt Drive	Eastbound Left Turns	LOS F	13 veh (84 sec/veh)	LOS F	13 veh (85 sec/veh)
	Eastbound Thrus / Right Turns	LOS E	8 veh (77 sec/veh)	LOS E	5 veh (76 sec/veh)
	Westbound Turning Movements	LOS F	13 veh (85 sec/veh)	LOS F	10 veh (87 sec/veh)
	Northbound Left Turns	LOS F	7 veh (90 sec/veh)	LOS F	5 veh (93 sec/veh)
	Northbound Thrus	LOS C	36 veh (26 sec/veh)	LOS C	37 veh (25 sec/veh)
	Northbound Right Turns	LOS C	37 veh (26 sec/veh)	LOS C	38 veh (26 sec/veh)
	Southbound Left Turns	LOS F	1 veh (103 sec/veh)	LOS F	3 veh (99 sec/veh)
	Southbound Thrus	LOS C	35 veh (28 sec/veh)	LOS C	34 veh (23 sec/veh)
	Southbound Right Turns	LOS B	3 veh (15 sec/veh)	LOS B	4 veh (12 sec/veh)
	OVERALL INTERSECTION	LOS C (34 sec/veh)		LOS C (30 sec/veh)	
W. Burt Drive and Driveways for Northside Medical Professionals / Speedway Gas Station	Eastbound Turning Movements	LOS A	1 veh (8 sec/veh)	LOS A	0 veh (8 sec/veh)
	Westbound Turning Movements	LOS A	1 veh (8 sec/veh)	LOS A	1 veh (8 sec/veh)
	Northbound Turning Movements	LOS A	1 veh (10 sec/veh)	LOS B	1 veh (11 sec/veh)
	Southbound Turning Movements	LOS B	0 veh (14 sec/veh)	LOS B	1 veh (14 sec/veh)

6. CONCLUSIONS AND RECOMMENDATIONS

Intersection of Nashville Highway and Burt Drive

The analyses conducted for the purposes of this study indicate that this signalized intersection operates at LOS C during both peak hours with existing, background, and total projected conditions. Also, the projected queue lengths are expected to remain consistent. *Therefore, no laneage or traffic control modifications are recommended at this intersection in conjunction with the proposed project.*

Intersection of W. Burt Drive and Driveways for Northside Medical Professionals/Speedway

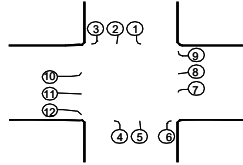
The analyses conducted for the purposes of this study indicate that all of the critical turning movements at this unsignalized intersection operate at LOS B or better during both peak hours with existing, background, and projected conditions.

It is important to note that the eastbound queue at Nashville Highway extends past the existing driveways for Northside Medical Professionals (and the proposed project) / Speedway gas station during both peak hours with existing, background, and projected conditions. This queue could possibly be reduced by providing a second eastbound left turn lane or adjusting the signal timing to provide additional green time for eastbound motorists. However, because of existing topography, utilities, and right-of-way constraints, a second eastbound left turn lane would have to be provided by widening W. Burt Drive to the north. This adjustment would conflict with the existing alignments of the other three approaches and is, therefore, not feasible. Also, revising the signal timing to provide additional green time for eastbound motorists would increase delays and queues on northbound and southbound Nashville Highway, which accommodates significantly higher traffic volumes than W. Burt Drive. Therefore, this modification is not recommended, either.

Based on these considerations, no laneage or traffic control modifications are recommended at this intersection in conjunction with the proposed project.

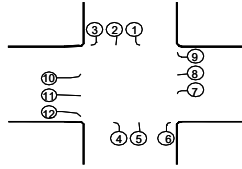
**APPENDIX A
EXISTING TRAFFIC COUNTS**

INTERSECTION TRAFFIC VOLUME COUNTS



LOCATION: Nashville Highway and Burt Drive
DATE: 6-Nov-24 Wed
RECORDER: Burns
NOTES: signalized

LOCATION	S/B Nashville Highway			N/B Nashville Highway			W/B E. Burt Drive			E/B W. Burt Drive				
TIME	1	2	3	4	5	6	7	8	9	10	11	12		
6:00-6:15	1	163	8	2	363	6	8		12	25		3	2,878	591
6:15-6:30	1	247	12	3	417	1	12	1	2	23	1	4	3,083	724
6:30-6:45		236	9	3	433	11	9	4	5	34	2	5	3,254	751
6:45-7:00	3	303	16	8	420	5	22		11	21		3	3,474	812
7:00-7:15	4	278	13	5	414	8	24	3	5	34	5	3	3,618	796
7:15-7:30	1	381	9	8	402	14	37	3	4	26	4	6	3,691	895
7:30-7:45	2	416	15	6	437	9	38	1	5	32	4	6	3,499	971
7:45-8:00	1	434	14	13	404	13	29	1	3	27	6	11	3,236	956
8:00-8:15	7	326	9	8	433	19	25	1	7	23	3	8	3,013	869
8:15-8:30	1	287	8	7	339	13	17	2	9	16		4	2,854	703
8:30-8:45	5	288	9	7	348	12	16	2	2	14	1	4	2,838	708
8:45-9:00	5	308	8	6	327	12	23	2	7	22	1	12	2,797	733
9:00-9:15	4	293	12	6	320	11	24	2	6	20	1	11	2,708	710
9:15-9:30	3	279	16	6	313	10	25	2	5	17	1	10	2,619	687
9:30-9:45	3	264	21	7	306	10	26	1	4	15		10	2,537	667
9:45-10:00	2	250	25	7	299	9	27	1	3	12		9	2,572	644
10:00-10:15	1	235	29	7	292	8	28	1	2	10		8	2,582	621
10:15-10:30	1	249	14	5	286	9	20		5	8	1	7	2,575	605
10:30-10:45	1	293	8	9	328	14	13	1	2	20		13	2,646	702
10:45-11:00	3	227	55	54	253	8	26	1	2	16	1	8	2,551	654
11:00-11:15	1	236	25	16	283	10	18	2	2	12	1	8	2,654	614
11:15-11:30	7	293	12	10	290	12	28	1	1	13	2	7	2,727	676
11:30-11:45		224	16	5	292	14	33	2	1	13	2	5	2,742	607
11:45-12:00	8	322	11	10	317	16	23	6	5	20	5	14	2,804	757
12:00-12:15	5	290	14	9	286	14	35	6	3	15	3	7	2,801	687
12:15-12:30	5	285	11	7	330	11	16	1	1	14		10	2,885	691
12:30-12:45	7	273	26	3	299	14	23	1	4	9	2	8	2,981	669
12:45-1:00	7	300	20	6	358	9	18	2	3	16		15	3,116	754
1:00-1:15	7	313	18	7	361	9	21	3	3	16		13	3,182	771
1:15-1:30	6	326	16	8	364	10	24	4	2	15	1	11	3,248	787
1:30-1:45	6	338	15	8	367	10	28	5	2	15	1	9	3,284	804
1:45-2:00	5	351	13	9	370	11	31	6	1	14	2	7	3,441	820
2:00-2:15	5	364	11	10	373	11	34	7	1	14	2	5	3,635	837
2:15-2:30	6	427	19	6	288	20	21	4	6	15	3	8	3,799	823
2:30-2:45	10	425	25	4	406	14	29	3	6	27	2	10	3,962	961
2:45-3:00	10	483	20	8	422	16	19		2	24	2	8	3,964	1,014
3:00-3:15	7	411	19	2	453	24	22	5	2	43	3	10	3,887	1,001
3:15-3:30	5	399	20	6	457	21	19	4	2	41	2	10	3,800	986
3:30-3:45	5	399	18	6	437	20	27	6	4	30	2	9	3,697	963
3:45-4:00	4	398	16	5	416	19	36	7	5	20	2	9	3,640	937
4:00-4:15	4	398	14	5	396	18	44	9	7	9	2	8	3,601	914
4:15-4:30	7	373	23	8	390	18	31	6		21	1	5	3,592	883
4:30-4:45	9	404	24	15	391	11	18	2	1	18	2	11	3,587	906
4:45-5:00	6	407	28	9	394	12	22		1	12	2	5	3,471	898
5:00-5:15	8	393	23	7	403	14	15	4		21	6	11	3,367	905
5:15-5:30	4	391	21	9	378	16	17	4	4	21	2	11	3,171	878
5:30-5:45	14	327	20	10	356	11	17	4	2	19	3	7	2,972	790
5:45-6:00	6	388	25	7	308	19	22	1		10	2	6	2,778	794
6:00-6:15	8	374	20	9	254	16	11		1	10	2	4	2,517	709
6:15-6:30	7	359	17	1	245	13	19		1	7	2	8		679
6:30-6:45	5	308	18	11	213	11	14	1		10		5		596
6:45-7:00	7	258	7	3	209	14	14	4		7	2	8		533
TOTAL	250	16,994	895	416	18,240	660	1,198	139	174	966	94	417		
AM PK HR	11	1,557	47	35	1,676	55	129	6	19	108	17	31	7:15-8:15	0.95
SCHOOL PK														
PM PK HR	27	1,692	77	22	1,769	81	87	15	10	138	9	37	2:45-3:45	0.98



INTERSECTION TRAFFIC VOLUME COUNTS

LOCATION: W. Burt Drive and Driveways
DATE: 7-Nov-24 Thu
RECORDER: Burns
NOTES: stop signs on driveways

LOCATION	S/B Northside Medical			N/B Speedway			W/B W. Burt Drive			E/B W. Burt Drive				
TIME	1	2	3	4	5	6	7	8	9	10	11	12		
6:00-6:15				1		12	8	4			22	7	251	54
6:15-6:30				2		12	14	5	4	1	19	3	260	60
6:30-6:45	1			2		11	14	3	1	2	26	3	272	63
6:45-7:00	1			4		17	10	5	7	2	22	6	286	74
7:00-7:15				1		7	10		4	4	34	3	289	63
7:15-7:30				1		11	8	3	6	2	35	6	275	72
7:30-7:45	1			1		7	11	7	8	1	35	6	251	77
7:45-8:00	2			3		8	14	7	7	2	28	6	242	77
8:00-8:15	2			2		8	14	5	5	1	9	3	227	49
8:15-8:30	5					11	5	4	6		14	3	238	48
8:30-8:45	3			4		14	12	7	5		20	3	247	68
8:45-9:00	6					11	14	2	9		18	2	234	62
9:00-9:15	5			1		11	14	3	8		16	2	224	60
9:15-9:30	5			1		11	14	4	7		13	2	214	57
9:30-9:45	4		1	2		10	15	4	6		11	2	203	55
9:45-10:00	4		1	2		10	15	5	5		8	2	194	52
10:00-10:15	3		1	3		10	15	6	4		6	2	184	50
10:15-10:30	4			4		10	10	4	4		7	3	184	46
10:30-10:45	7			1		10	5	4	5		10	4	180	46
10:45-11:00	3					7	11	6	5	1	7	2	185	42
11:00-11:15	7			2		7	10	6	2	1	10	5	204	50
11:15-11:30	5			2		9	7	5	4	1	8	1	222	42
11:30-11:45	5					5	14	11	4		10	2	230	51
11:45-12:00	4			1		11	14	7	5		14	5	222	61
12:00-12:15	5			3		18	12	11	2		12	5	230	68
12:15-12:30	2			1		12	10	7	4		13	1	229	50
12:30-12:45	2					9	12	6	6		7	1	242	43
12:45-1:00	5			3		13	12	9	6		14	7	262	69
1:00-1:15	5			3		13	12	9	6		13	6	252	67
1:15-1:30	5			3		13	12	8	5		12	5	242	63
1:30-1:45	4		1	4		12	12	8	5		12	5	248	63
1:45-2:00	4		1	4		12	12	7	4		11	4	268	59
2:00-2:15	4		1	4		12	12	7	4		10	3	313	57
2:15-2:30	3			2		10	15	16	3		17	3	364	69
2:30-2:45	3			3		10	15	20	3		25	4	393	83
2:45-3:00	2			7		11	16	21	5	1	32	9	397	104
3:00-3:15	3		1	5		13	21	29	3		27	6	374	108
3:15-3:30	3			4		15	12	20	4		30	10	336	98
3:30-3:45	3			5		7	9	19	5		33	6	313	87
3:45-4:00	4		1	7		9	11	23	4		19	3	300	81
4:00-4:15	2		2	7		11	9	15	4	1	17	2	287	70
4:15-4:30	3			5		15	17	16			15	4	298	75
4:30-4:45	6		1	4		10	7	23	6		14	3	305	74
4:45-5:00	5		1	4		9	10	17	4		16	2	305	68
5:00-5:15	6		3	6		10	10	23	3		16	4	306	81
5:15-5:30	5		1	5		10	17	19	3		17	5	285	82
5:30-5:45	8			5		10	10	18	2		19	2	264	74
5:45-6:00	1			8		9	14	17	5		12	3	231	69
6:00-6:15	3			3		5	13	17	3		15	1	202	60
6:15-6:30	1			5		6	17	24			5	3	61	
6:30-6:45	2			4		8	2	17			7	1	41	
6:45-7:00	2			5		4	11	8			7	3	40	
TOTAL	178		16	159		536	620	551	220	20	849	194		
AM PK HR	3			6		33	43	17	25	9	132	21	7:00-8:00	0.94
SCHOOL PK														
PM PK HR	11		1	21		46	58	89	17	1	122	31	2:45-3:45	0.92

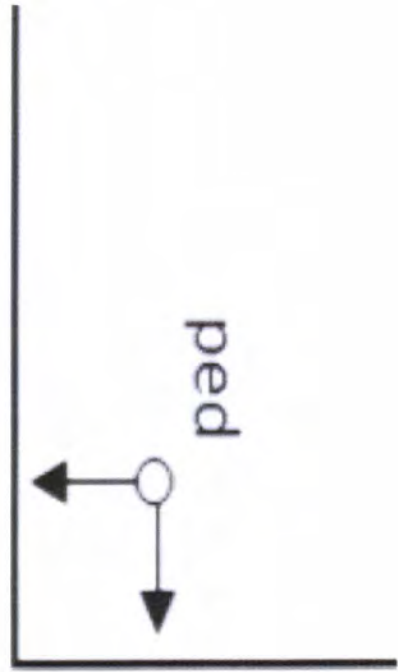
SEPAC All Data Report

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Variant Name: Main	
Last Modified: 2024-10-31 05:01:37	

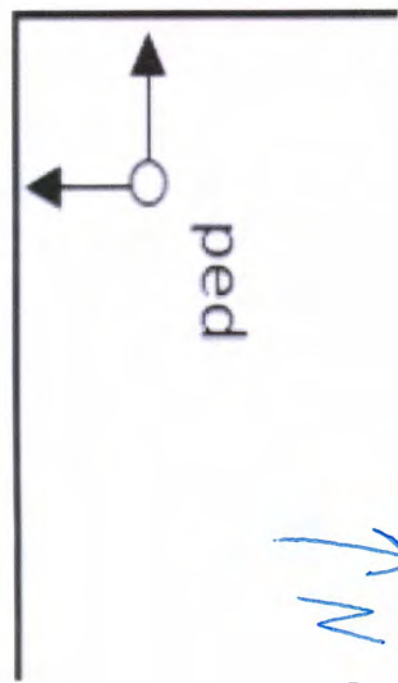
Access Data F-2-6							
User Access Code	Admin Access Code	Connection Method	Revision	Address	IP Address	GPS Enabled	GPS Port
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Phase Initialization Data F-3-4															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	4	1	1	1	4	0	0	0	0	0	0	0	0	0	0

Phase Data : Bank 1		Phase #															
Vehicle		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
F-3-1-1	Min Green	4	20	4	4	4	20	-	4	-	-	-	-	-	-	-	-
	Passage	1.5	10.0	2.0	2.0	1.5	10.0	-	2.0	-	-	-	-	-	-	-	-
	Max 1	20	95	25	25	20	95	-	25	-	-	-	-	-	-	-	-
	Max 2	30	50	30	50	30	50	30	50	-	-	-	-	-	-	-	-
	Yellow	3.5	5.0	3.5	3.5	3.5	5.0	4.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
	Red	1.0	2.0	1.0	1.0	1.0	2.0	2.0	1.0	-	-	-	-	-	-	-	-
F-3-1-2	Dyn Max	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Dyn Step	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F-3-1-3	Veh Recall	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-
	Recall Delay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F-3-1-4	Green Delay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Yellow Delay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bike Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Bike Passg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Density		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
F-3-2	Added Init	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Max Initial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Time B4 Rdctn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Cars B4 Rdctn	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Time to Rdce	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Min Gap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrian		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
F-3-3-1	Walk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ped Clr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Alt Walk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Alt Ped Clr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F-3-3-2	Ped Recall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ped Recall Delay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F-3-3-3	Walk Offset Time	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Walk Offset Mode	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F-3-3-4	Flash Walk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Ext Ped Clr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Act Rest in Walk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Initial & NA		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
F-3-4	Initial	1	4	1	1	1	4	-	-	-	-	-	-	-	-	-	-
	NA Response	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	Update Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-Lock & Misc		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
F-3-5	Non-Lock	True	-	True	True	True	-	-	-	-	-	-	-	-	-	-	-

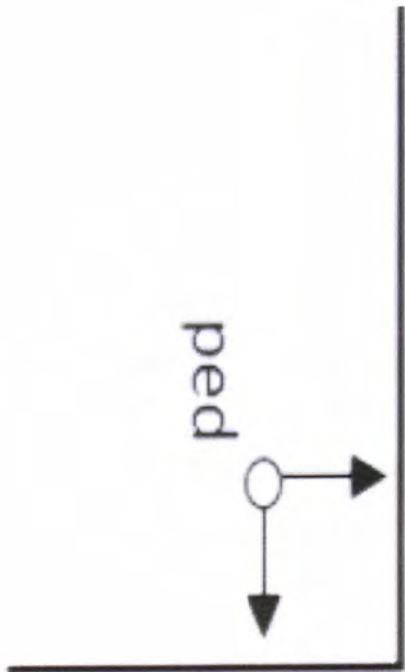


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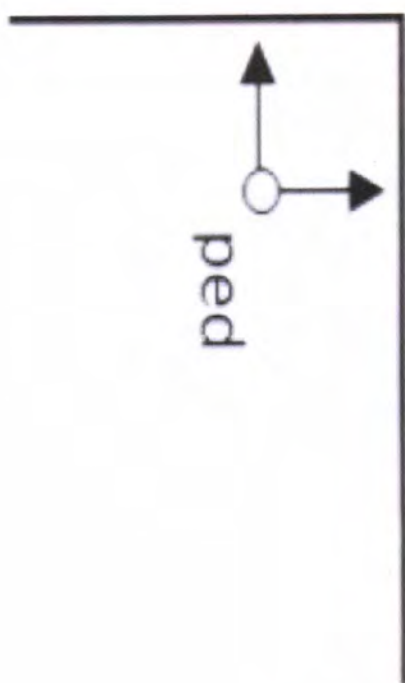
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**APPENDIX B
CAPACITY ANALYSES**

EXISTING CONDITIONS

HCS Signalized Intersection Input Data

General Information						Intersection Information						
Agency	FTG			Analysis Date	12/30/2024	Duration, h	0.250					
Analyst	FTG			Area Type	Other							
Jurisdiction	Columbia, TN			PHF	0.95							
Urban Street	Nashville Highway			Analysis Year	2024 (Existing)							
Intersection	W/E Burt Drive			File Name	1_exam.xus							
Project Description	11316											

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	117	18	33	129	6	19	35	1676	55	11	1557	47

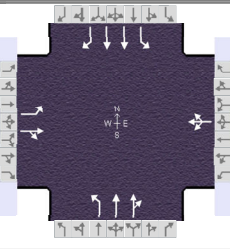
Signal Information														
Cycle, s	180.0	Reference Phase	2	Green	1.8	3.0	121.9	14.4	18.4	0.0	1	2	3	4
Offset, s	0	Reference Point	End	Yellow	3.5	0.0	5.0	3.5	3.5	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	0.0	2.0	1.0	1.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	117	18	33	129	6	19	35	1676	55	11	1557	47
Initial Queue (Q_0), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0			0		0	2		0	0	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0			12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	140	140			150		100	225		100	260	125
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	45	45	45	45	45	45	45	45	45	45	45	45

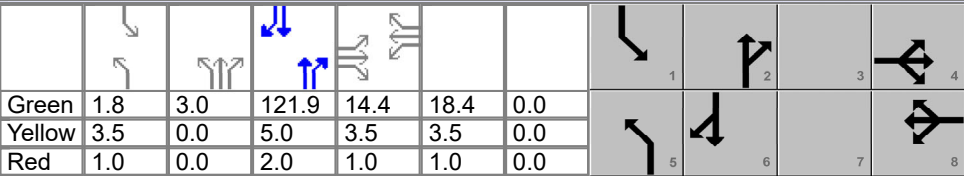
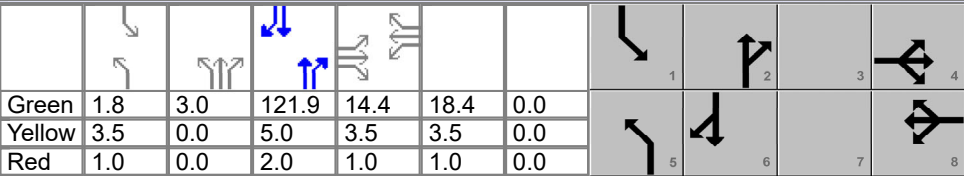
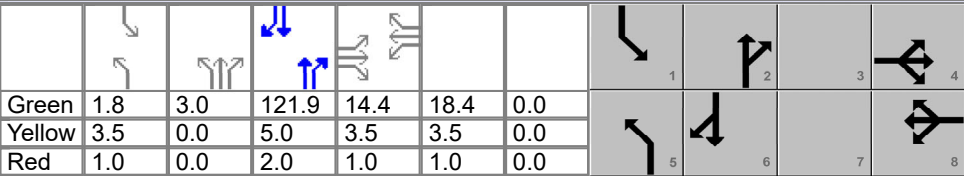
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		50.0		50.0	30.0	50.0	30.0	50.0
Yellow Change Interval (Y), s		3.5		3.5	3.5	5.0	3.5	5.0
Red Clearance Interval (R_c), s		1.0		1.0	1.0	2.0	1.0	2.0
Minimum Green (G_{min}), s		4		4	4	20	4	20
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off		Off	Off	Min	Off	Min
Dual Entry		Yes		Yes	No	Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No		0.50	No		0.50	No		0.50	No		0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	AM Peak Hour	PHF	0.95	
Urban Street	Nashville Highway	Analysis Year	2024 (Existing)	Analysis Period	1> 7:00	
Intersection	W/E Burt Drive	File Name	1_exam.xus			
Project Description	11316					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	117	18	33	129	6	19	35	1676	55	11	1557	47

Signal Information											
Cycle, s	180.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								
Green	1.8	3.0	121.9	14.4	18.4	0.0					
Yellow	3.5	0.0	5.0	3.5	3.5	0.0					
Red	1.0	0.0	2.0	1.0	1.0	0.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		12.0	2.0	4.0	2.0	3.0
Phase Duration, s		18.9		22.9	9.3	131.9	6.3	128.9
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	7.0	4.5	7.0
Max Allow Headway (MAH), s		3.1		3.0	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		14.1		18.1	5.6		3.1	
Green Extension Time (g_e), s		0.3		0.3	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.84		0.44	
Max Out Probability		0.00		0.00	0.00		0.00	

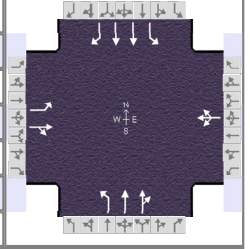
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	123	54			162		37	912	910	12	1639	49
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1702			1786		1810	1870	1849	1810	1809	1585
Queue Service Time (g_s), s	12.1	5.4			16.1		3.6	52.4	53.3	1.1	48.1	1.9
Cycle Queue Clearance Time (g_c), s	12.1	5.4			16.1		3.6	52.4	53.3	1.1	48.1	1.9
Green Ratio (g/C)	0.08	0.08			0.10		0.03	0.69	0.69	0.01	0.68	0.68
Capacity (c), veh/h	145	136			183		48	1298	1284	18	2450	1074
Volume-to-Capacity Ratio (X)	0.852	0.395			0.888		0.764	0.703	0.709	0.655	0.669	0.046
Back of Queue (Q), ft/ln (95 th percentile)	244	107			305		82	755	749	27	663	30
Back of Queue (Q), veh/ln (95 th percentile)	9.8	4.3			12.2		3.3	29.7	29.9	1.1	26.5	1.2
Queue Storage Ratio (RQ) (95 th percentile)	1.75	0.76			2.03		0.82	3.36	3.38	0.27	2.55	0.24
Uniform Delay (d_1), s/veh	81.8	78.7			79.8		87.0	16.4	16.6	88.8	17.1	9.7
Incremental Delay (d_2), s/veh	5.3	0.7			5.6		8.9	3.2	3.3	14.2	1.5	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	87.1	79.4			85.4		96.0	19.6	19.9	103.0	18.6	9.8
Level of Service (LOS)	F	E			F		F	B	B	F	B	A
Approach Delay, s/veh / LOS	84.7	F		85.4	F		21.3	C		18.9	B	
Intersection Delay, s/veh / LOS	25.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.49	B	1.66	B	1.89	B
Bicycle LOS Score / LOS	0.78	A	0.76	A	2.02	B	1.89	B

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	FTG			Duration, h	0.250
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other
Jurisdiction	Columbia, TN	Time Period	PM Peak Hour	PHF	0.98
Urban Street	Nashville Highway	Analysis Year	2024 (Existing)	Analysis Period	1> 7:00
Intersection	W/E Burt Drive	File Name	1_expm.xus		
Project Description	11316				





Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	138	9	37	87	22	10	32	1769	81	27	1692	110

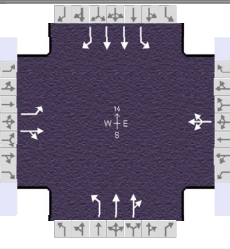
Signal Information										
Cycle, s	180.0	Reference Phase	2							
Offset, s	0	Reference Point	End							
Uncoordinated	No	Simult. Gap E/W	On							
Force Mode	Fixed	Simult. Gap N/S	On							

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	138	9	37	87	22	10	32	1769	81	27	1692	110
Initial Queue (Q_0), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h	None			None			None			None		
Heavy Vehicles (P_{HV}), %	0	0			0		0	2		0	0	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0			12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	140	140			150		100	225		100	260	125
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	45	45	45	45	45	45	45	45	45	45	45	45

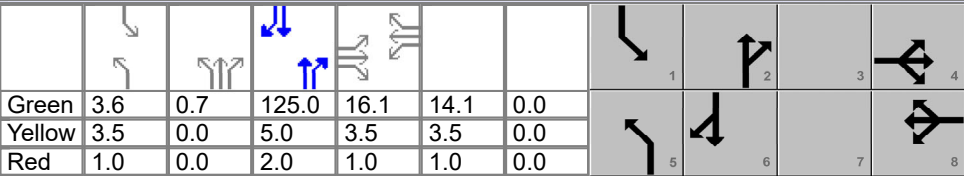
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		50.0		50.0	30.0	50.0	30.0	50.0
Yellow Change Interval (Y), s		3.5		3.5	3.5	5.0	3.5	5.0
Red Clearance Interval (R_c), s		1.0		1.0	1.0	2.0	1.0	2.0
Minimum Green (G_{min}), s		4		4	4	20	4	20
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off		Off	Off	Min	Off	Min
Dual Entry		Yes		Yes	No	Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No		0.50	No		0.50	No		0.50	No		0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	PM Peak Hour	PHF	0.98	
Urban Street	Nashville Highway	Analysis Year	2024 (Existing)	Analysis Period	1> 7:00	
Intersection	W/E Burt Drive	File Name	1_expm.xus			
Project Description	11316					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	138	9	37	87	22	10	32	1769	81	27	1692	110

Signal Information												
Cycle, s	180.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	3.6	0.7	125.0	16.1	14.1	0.0		
				Yellow	3.5	0.0	5.0	3.5	3.5	0.0		
				Red	1.0	0.0	2.0	1.0	1.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		12.0	2.0	4.0	2.0	3.0
Phase Duration, s		20.6		18.6	8.7	132.7	8.1	132.0
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	7.0	4.5	7.0
Max Allow Headway (MAH), s		3.1		3.0	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		15.8		14.0	5.2		4.7	
Green Extension Time (g_e), s		0.3		0.2	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.80		0.75	
Max Out Probability		0.00		0.00	0.00		0.00	

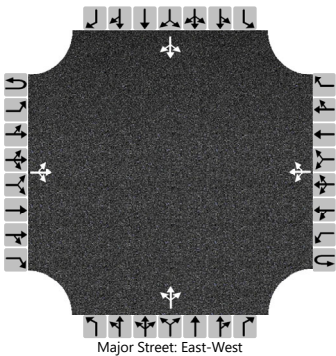
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	141	47			121		33	945	943	28	1727	112
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1660			1807		1810	1870	1841	1810	1809	1585
Queue Service Time (g_s), s	13.8	4.8			12.0		3.2	55.5	57.0	2.7	50.2	4.2
Cycle Queue Clearance Time (g_c), s	13.8	4.8			12.0		3.2	55.5	57.0	2.7	50.2	4.2
Green Ratio (g/C)	0.09	0.09			0.08		0.02	0.70	0.70	0.02	0.69	0.69
Capacity (c), veh/h	162	149			142		43	1306	1286	36	2512	1101
Volume-to-Capacity Ratio (X)	0.868	0.315			0.857		0.764	0.723	0.734	0.768	0.687	0.102
Back of Queue (Q), ft/ln (95 th percentile)	272	92			242		73	793	791	63	682	68
Back of Queue (Q), veh/ln (95 th percentile)	10.9	3.7			9.7		2.9	31.2	31.6	2.5	27.3	2.7
Queue Storage Ratio (RQ) (95 th percentile)	1.94	0.66			1.62		0.73	3.52	3.57	0.63	2.62	0.54
Uniform Delay (d_1), s/veh	80.9	76.8			81.9		87.4	16.6	16.8	87.8	16.1	9.0
Incremental Delay (d_2), s/veh	5.4	0.4			5.6		10.0	3.5	3.7	12.0	1.6	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	86.2	77.2			87.5		97.4	20.1	20.5	99.8	17.6	9.2
Level of Service (LOS)	F	E			F		F	C	C	F	B	A
Approach Delay, s/veh / LOS	84.0	F		87.5	F		21.6	C		18.3	B	
Intersection Delay, s/veh / LOS	24.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.49	B	1.66	B	1.88	B
Bicycle LOS Score / LOS	0.80	A	0.69	A	2.07	B	2.03	B

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	W. Burt Dr/Driveways
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Dec 2024	East/West Street	W. Burt Drive
Analysis Year	2024	North/South Street	Medical/Gas Station Driveways
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11316 (Existing)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		9	132	21		44	18	26		6	0	33		3	0	0
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

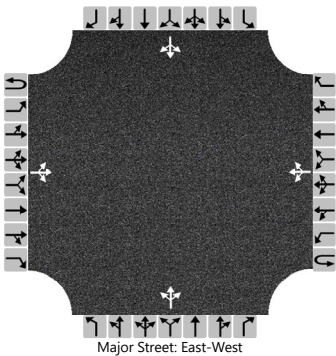
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10				47					41				3	
Capacity, c (veh/h)		1574				1428					845				592	
v/c Ratio		0.01				0.03					0.05				0.01	
95% Queue Length, Q ₉₅ (veh)		0.0				0.1					0.2				0.0	
95% Queue Length, Q ₉₅ (ft)		0.0				2.5					5.0				0.0	
Control Delay (s/veh)		7.3	0.0	0.0		7.6	0.3	0.3			9.5				11.1	
Level of Service (LOS)		A	A	A		A	A	A			A				B	
Approach Delay (s/veh)	0.5				3.9				9.5				11.1			
Approach LOS	A				A				A				B			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	W. Burt Dr/Driveways
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Dec 2024	East/West Street	W. Burt Drive
Analysis Year	2024	North/South Street	Medical/Gas Station Driveways
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11316 (Existing)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		1	126	31		58	89	17		21	0	47		11	0	1
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

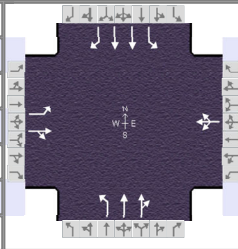
Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

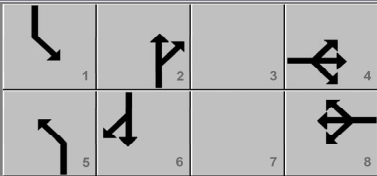
Flow Rate, v (veh/h)		1				63					74				13	
Capacity, c (veh/h)		1486				1419					748				517	
v/c Ratio		0.00				0.04					0.10				0.03	
95% Queue Length, Q ₉₅ (veh)		0.0				0.1					0.3				0.1	
95% Queue Length, Q ₉₅ (ft)		0.0				2.5					7.5				2.5	
Control Delay (s/veh)		7.4	0.0	0.0		7.7	0.4	0.4			10.3				12.1	
Level of Service (LOS)		A	A	A		A	A	A			B				B	
Approach Delay (s/veh)	0.1				2.9				10.3				12.1			
Approach LOS	A				A				B				B			

BACKGROUND CONDITIONS

HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	AM Peak Hour	PHF	0.95	
Urban Street	Nashville Highway	Analysis Year	2026 (Back)	Analysis Period	1> 7:00	
Intersection	W/E Burt Drive	File Name	1_bgam.xus			
Project Description	11316					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	124	19	35	137	6	20	37	1777	58	12	1650	51

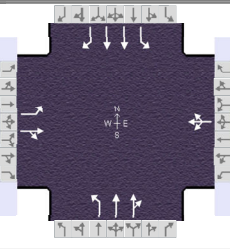
Signal Information											
Cycle, s	180.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								
											

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	124	19	35	137	6	20	37	1777	58	12	1650	51
Initial Queue (Q_0), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0			0		0	2		0	0	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0			12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	140	140			150		100	225		100	260	125
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	45	45	45	45	45	45	45	45	45	45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		50.0		50.0	30.0	50.0	30.0	50.0
Yellow Change Interval (Y), s		3.5		3.5	3.5	5.0	3.5	5.0
Red Clearance Interval (R_c), s		1.0		1.0	1.0	2.0	1.0	2.0
Minimum Green (G_{min}), s		4		4	4	20	4	20
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off		Off	Off	Min	Off	Min
Dual Entry		Yes		Yes	No	Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	AM Peak Hour	PHF	0.95	
Urban Street	Nashville Highway	Analysis Year	2026 (Back)	Analysis Period	1> 7:00	
Intersection	W/E Burt Drive	File Name	1_bgam.xus			
Project Description	11316					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	124	19	35	137	6	20	37	1777	58	12	1650	51

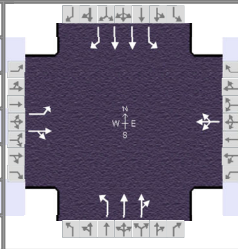
Signal Information										
Cycle, s	180.0	Reference Phase	2							
Offset, s	0	Reference Point	End							
Uncoordinated	No	Simult. Gap E/W	On							
Force Mode	Fixed	Simult. Gap N/S	On							

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		12.0	2.0	4.0	2.0	3.0
Phase Duration, s		19.6		23.9	9.6	130.1	6.4	126.9
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	7.0	4.5	7.0
Max Allow Headway (MAH), s		3.1		3.0	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		14.8		19.1	5.8		3.3	
Green Extension Time (g_e), s		0.3		0.3	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.86		0.47	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	131	57			172		39	966	966	13	1737	54
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1701			1786		1810	1870	1849	1810	1809	1585
Queue Service Time (g_s), s	12.8	5.7			17.1		3.8	60.7	62.1	1.3	55.5	2.1
Cycle Queue Clearance Time (g_c), s	12.8	5.7			17.1		3.8	60.7	62.1	1.3	55.5	2.1
Green Ratio (g/C)	0.08	0.08			0.11		0.03	0.68	0.68	0.01	0.67	0.67
Capacity (c), veh/h	152	143			192		51	1279	1265	19	2410	1056
Volume-to-Capacity Ratio (X)	0.858	0.397			0.893		0.765	0.755	0.763	0.670	0.721	0.051
Back of Queue (Q), ft/ln (95 th percentile)	256	113			319		86	871	867	30	758	35
Back of Queue (Q), veh/ln (95 th percentile)	10.2	4.5			12.8		3.4	34.3	34.7	1.2	30.3	1.4
Queue Storage Ratio (RQ) (95 th percentile)	1.83	0.81			2.13		0.86	3.87	3.92	0.30	2.92	0.28
Uniform Delay (d_1), s/veh	81.4	78.1			79.3		86.9	18.6	18.8	88.8	19.3	10.4
Incremental Delay (d_2), s/veh	5.3	0.7			5.6		8.5	4.2	4.4	14.2	1.9	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	86.7	78.8			84.9		95.4	22.8	23.2	103.0	21.2	10.5
Level of Service (LOS)	F	E			F		F	C	C	F	C	B
Approach Delay, s/veh / LOS	84.3	F		84.9	F		24.4	C		21.4	C	
Intersection Delay, s/veh / LOS	28.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.49	B	1.66	B	1.89	B
Bicycle LOS Score / LOS	0.80	A	0.77	A	2.11	B	1.98	B

HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	PM Peak Hour	PHF	0.98	
Urban Street	Nashville Highway	Analysis Year	2026 (Back)	Analysis Period	1> 7:00	
Intersection	W/E Burt Drive	File Name	1_bgpm.xus			
Project Description	11316					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	146	10	39	92	23	11	34	1875	86	29	1794	117

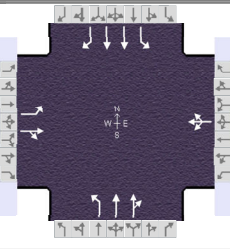
Signal Information													
Cycle, s	180.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	146	10	39	92	23	11	34	1875	86	29	1794	117
Initial Queue (Q_0), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	0	0			0		0	2		0	0	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0			12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	140	140			150		100	225		100	260	125
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	45	45	45	45	45	45	45	45	45	45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		50.0		50.0	30.0	50.0	30.0	50.0
Yellow Change Interval (Y), s		3.5		3.5	3.5	5.0	3.5	5.0
Red Clearance Interval (R_c), s		1.0		1.0	1.0	2.0	1.0	2.0
Minimum Green (G_{min}), s		4		4	4	20	4	20
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off		Off	Off	Min	Off	Min
Dual Entry		Yes		Yes	No	Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No		0.50	No		0.50	No		0.50	No		0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	PM Peak Hour	PHF	0.98	
Urban Street	Nashville Highway	Analysis Year	2026 (Back)	Analysis Period	1> 7:00	
Intersection	W/E Burt Drive	File Name	1_bgpm.xus			
Project Description	11316					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	146	10	39	92	23	11	34	1875	86	29	1794	117

Signal Information														
Cycle, s	180.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	3.8	0.7	123.2	17.0	14.9	0.0				
				Yellow	3.5	0.0	5.0	3.5	3.5	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	0.0	2.0	1.0	1.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		12.0	2.0	4.0	2.0	3.0
Phase Duration, s		21.5		19.4	9.0	130.8	8.3	130.2
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	7.0	4.5	7.0
Max Allow Headway (MAH), s		3.1		3.0	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		16.6		14.7	5.4		4.9	
Green Extension Time (g_e), s		0.3		0.2	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.82		0.77	
Max Out Probability		0.00		0.00	0.00		0.00	

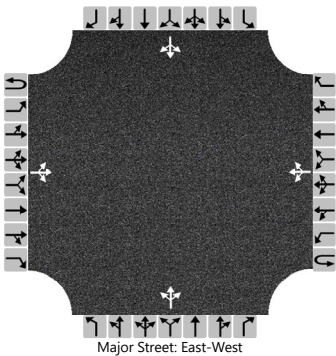
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	149	50			129		35	1001	1001	30	1831	119
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1662			1806		1810	1870	1841	1810	1809	1585
Queue Service Time (g_s), s	14.6	5.1			12.7		3.4	64.6	66.8	2.9	58.2	4.6
Cycle Queue Clearance Time (g_c), s	14.6	5.1			12.7		3.4	64.6	66.8	2.9	58.2	4.6
Green Ratio (g/C)	0.09	0.09			0.08		0.03	0.69	0.69	0.02	0.68	0.68
Capacity (c), veh/h	170	157			149		45	1287	1267	39	2475	1085
Volume-to-Capacity Ratio (X)	0.874	0.319			0.863		0.764	0.777	0.790	0.766	0.740	0.110
Back of Queue (Q), ft/ln (95 th percentile)	284	98			253		77	919	922	67	782	75
Back of Queue (Q), veh/ln (95 th percentile)	11.4	3.9			10.1		3.1	36.2	36.9	2.7	31.3	2.9
Queue Storage Ratio (RQ) (95 th percentile)	2.03	0.70			1.69		0.77	4.08	4.16	0.67	3.01	0.60
Uniform Delay (d_1), s/veh	80.5	76.1			81.6		87.2	18.8	19.2	87.6	18.2	9.7
Incremental Delay (d_2), s/veh	5.4	0.4			5.6		9.5	4.7	5.1	11.1	2.0	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	85.8	76.6			87.2		96.7	23.5	24.2	98.7	20.2	9.9
Level of Service (LOS)	F	E			F		F	C	C	F	C	A
Approach Delay, s/veh / LOS	83.5	F		87.2	F		25.1	C		20.7	C	
Intersection Delay, s/veh / LOS	27.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.49	B	1.66	B	1.89	B
Bicycle LOS Score / LOS	0.82	A	0.70	A	2.17	B	2.12	B

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	W. Burt Dr/Driveways
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Dec 2024	East/West Street	W. Burt Drive
Analysis Year	2026	North/South Street	Medical/Gas Station Driveways
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11316 (Back)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	140	22		47	19	28		6	0	35		3	0	0
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

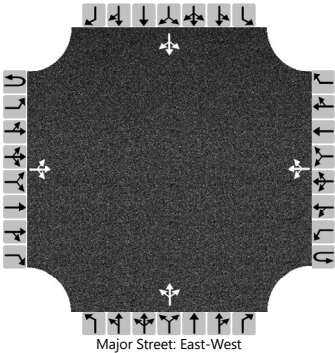
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11				50					44				3	
Capacity, c (veh/h)		1570				1417					834				570	
v/c Ratio		0.01				0.04					0.05				0.01	
95% Queue Length, Q ₉₅ (veh)		0.0				0.1					0.2				0.0	
95% Queue Length, Q ₉₅ (ft)		0.0				2.5					5.0				0.0	
Control Delay (s/veh)		7.3	0.1	0.1		7.6	0.3	0.3			9.6				11.4	
Level of Service (LOS)		A	A	A		A	A	A			A				B	
Approach Delay (s/veh)	0.5				4.0				9.6				11.4			
Approach LOS	A				A				A				B			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	W. Burt Dr/Driveways
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Dec 2024	East/West Street	W. Burt Drive
Analysis Year	2026	North/South Street	Medical/Gas Station Driveways
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11316 (Back)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		1	134	33		61	95	18		22	0	50		11	0	1
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

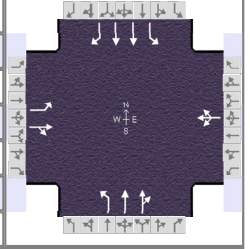
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		1				66					78				13	
Capacity, c (veh/h)		1477				1406					732				494	
v/c Ratio		0.00				0.05					0.11				0.03	
95% Queue Length, Q ₉₅ (veh)		0.0				0.1					0.4				0.1	
95% Queue Length, Q ₉₅ (ft)		0.0				2.5					10.0				2.5	
Control Delay (s/veh)		7.4	0.0	0.0		7.7	0.4	0.4			10.5				12.5	
Level of Service (LOS)		A	A	A		A	A	A			B				B	
Approach Delay (s/veh)	0.1				2.9				10.5				12.5			
Approach LOS	A				A				B				B			

TOTAL PROJECTED CONDITIONS

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	FTG			Duration, h	0.250
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other
Jurisdiction	Columbia, TN	Time Period	AM Peak Hour	PHF	0.95
Urban Street	Nashville Highway	Analysis Year	2026 (Total)	Analysis Period	1> 7:00
Intersection	W/E Burt Drive	File Name	1_fuam.xus		
Project Description	11316				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	166	19	77	137	6	20	80	1745	58	12	1618	94

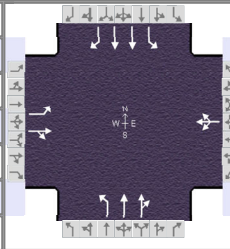
Signal Information										
Cycle, s	180.0	Reference Phase	2							
Offset, s	0	Reference Point	End							
Uncoordinated	No	Simult. Gap E/W	On							
Force Mode	Fixed	Simult. Gap N/S	On							

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	166	19	77	137	6	20	80	1745	58	12	1618	94
Initial Queue (Q_0), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h	None			None			None			None		
Heavy Vehicles (P_{HV}), %	0	0			0		0	2		0	0	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0			12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	140	140			150		100	225		100	260	125
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	45	45	45	45	45	45	45	45	45	45	45	45

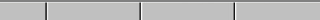
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		50.0		50.0	30.0	50.0	30.0	50.0
Yellow Change Interval (Y), s		3.5		3.5	3.5	5.0	3.5	5.0
Red Clearance Interval (R_c), s		1.0		1.0	1.0	2.0	1.0	2.0
Minimum Green (G_{min}), s		4		4	4	20	4	20
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off		Off	Off	Min	Off	Min
Dual Entry		Yes		Yes	No	Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No		0.50	No		0.50	No		0.50	No		0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	AM Peak Hour	PHF	0.95	
Urban Street	Nashville Highway	Analysis Year	2026 (Total)	Analysis Period	1> 7:00	
Intersection	W/E Burt Drive	File Name	1_fuam.xus			
Project Description	11316					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	166	19	77	137	6	20	80	1745	58	12	1618	94

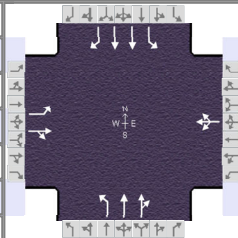
Signal Information														
Cycle, s	180.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	1.9	3.9	110.2	19.6	19.4	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	3.5	5.0	3.5	3.5	0.0				
				Red	1.0	1.0	2.0	1.0	1.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		12.0	2.0	4.0	2.0	3.0
Phase Duration, s		24.1		23.9	14.8	125.6	6.4	117.2
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	7.0	4.5	7.0
Max Allow Headway (MAH), s		3.1		3.0	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		19.1		19.1	10.3		3.3	
Green Extension Time (g_e), s		0.5		0.3	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.99		0.47	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	175	101			172		84	949	948	13	1703	99
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1660			1786		1810	1870	1849	1810	1809	1585
Queue Service Time (g_s), s	17.1	10.4			17.1		8.3	63.3	64.6	1.3	62.1	4.6
Cycle Queue Clearance Time (g_c), s	17.1	10.4			17.1		8.3	63.3	64.6	1.3	62.1	4.6
Green Ratio (g/C)	0.11	0.11			0.11		0.06	0.66	0.66	0.01	0.61	0.61
Capacity (c), veh/h	197	181			192		103	1233	1219	19	2216	971
Volume-to-Capacity Ratio (X)	0.886	0.558			0.893		0.816	0.770	0.778	0.670	0.769	0.102
Back of Queue (Q), ft/ln (95 th percentile)	323	198			319		181	920	915	30	867	79
Back of Queue (Q), veh/ln (95 th percentile)	12.9	7.9			12.8		7.2	36.2	36.6	1.2	34.7	3.1
Queue Storage Ratio (RQ) (95 th percentile)	2.31	1.41			2.13		1.81	4.09	4.13	0.30	3.33	0.63
Uniform Delay (d_1), s/veh	79.1	76.1			79.3		83.9	21.2	21.5	88.8	25.5	14.4
Incremental Delay (d_2), s/veh	5.2	1.0			5.6		5.8	4.7	4.9	14.2	2.6	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	84.3	77.1			84.9		89.7	25.9	26.4	103.0	28.2	14.6
Level of Service (LOS)	F	E			F		F	C	C	F	C	B
Approach Delay, s/veh / LOS	81.6	F		84.9	F		28.9	C		28.0	C	
Intersection Delay, s/veh / LOS	34.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.49	B	1.67	B	1.90	B
Bicycle LOS Score / LOS	0.94	A	0.77	A	2.12	B	1.98	B

HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	PM Peak Hour	PHF	0.98	
Urban Street	Nashville Highway	Analysis Year	2026 (Total)	Analysis Period	1 > 7:00	
Intersection	W/E Burt Drive	File Name	1_fupm.xus			
Project Description	11316					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	165	10	58	92	23	11	53	1861	86	29	1780	136

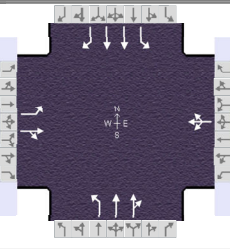
Signal Information													
Cycle, s	180.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	165	10	58	92	23	11	53	1861	86	29	1780	136
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s _o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	0	0		0	0		0	2		0	0	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0			12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	140	140		150			100	225		100	260	125
Grade (P _g), %	0			0			0			0		
Speed Limit, mi/h	45	45	45	45	45	45	45	45	45	45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		50.0		50.0	30.0	50.0	30.0	50.0
Yellow Change Interval (Y), s		3.5		3.5	3.5	5.0	3.5	5.0
Red Clearance Interval (R _c), s		1.0		1.0	1.0	2.0	1.0	2.0
Minimum Green (G _{min}), s		4		4	4	20	4	20
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s		2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off		Off	Off	Min	Off	Min
Dual Entry		Yes		Yes	No	Yes	No	Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	12/30/2024	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	PM Peak Hour	PHF	0.98	
Urban Street	Nashville Highway	Analysis Year	2026 (Total)	Analysis Period	1> 7:00	
Intersection	W/E Burt Drive	File Name	1_fupm.xus			
Project Description	11316					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	165	10	58	92	23	11	53	1861	86	29	1780	136

Signal Information										
Cycle, s	180.0	Reference Phase	2							
Offset, s	0	Reference Point	End							
Uncoordinated	No	Simult. Gap E/W	On							
Force Mode	Fixed	Simult. Gap N/S	On							

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		10.0		12.0	2.0	4.0	2.0	3.0
Phase Duration, s		23.4		19.4	11.4	128.9	8.3	125.8
Change Period, ($Y+R_c$), s		4.5		4.5	4.5	7.0	4.5	7.0
Max Allow Headway (MAH), s		3.1		3.0	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		18.5		14.7	7.3		4.9	
Green Extension Time (g_e), s		0.4		0.2	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.93		0.77	
Max Out Probability		0.00		0.00	0.00		0.00	

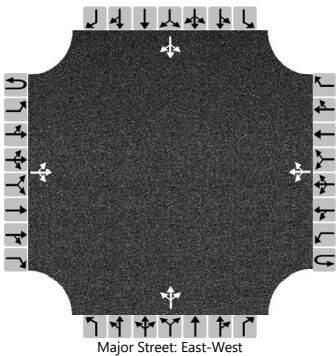
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	168	69			129		54	993	993	30	1816	139
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1647			1806		1810	1870	1841	1810	1809	1585
Queue Service Time (g_s), s	16.5	7.1			12.7		5.3	65.8	68.1	2.9	61.7	5.9
Cycle Queue Clearance Time (g_c), s	16.5	7.1			12.7		5.3	65.8	68.1	2.9	61.7	5.9
Green Ratio (g/C)	0.11	0.11			0.08		0.04	0.68	0.68	0.02	0.66	0.66
Capacity (c), veh/h	190	173			149		70	1266	1247	39	2388	1046
Volume-to-Capacity Ratio (X)	0.885	0.401			0.863		0.777	0.784	0.797	0.766	0.761	0.133
Back of Queue (Q), ft/ln (95 th percentile)	313	136			253		118	944	948	67	840	97
Back of Queue (Q), veh/ln (95 th percentile)	12.5	5.4			10.1		4.7	37.2	37.9	2.7	33.6	3.8
Queue Storage Ratio (RQ) (95 th percentile)	2.24	0.97			1.69		1.18	4.19	4.28	0.67	3.23	0.78
Uniform Delay (d_1), s/veh	79.5	75.2			81.6		85.8	20.0	20.4	87.6	20.9	11.4
Incremental Delay (d_2), s/veh	5.3	0.6			5.6		6.8	4.9	5.4	11.1	2.3	0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	84.7	75.8			87.2		92.5	24.9	25.7	98.7	23.2	11.7
Level of Service (LOS)	F	E			F		F	C	C	F	C	B
Approach Delay, s/veh / LOS	82.1	F		87.2	F		27.1	C		23.6	C	
Intersection Delay, s/veh / LOS	30.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.33	B	2.49	B	1.66	B	1.89	B
Bicycle LOS Score / LOS	0.88	A	0.70	A	2.17	B	2.12	B

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	W. Burt Dr/Driveways
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Dec 2024	East/West Street	W. Burt Drive
Analysis Year	2026	North/South Street	Medical/Gas Station Driveways
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11316 (Total)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		31	125	22		47	19	114		6	0	35		102	0	4
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

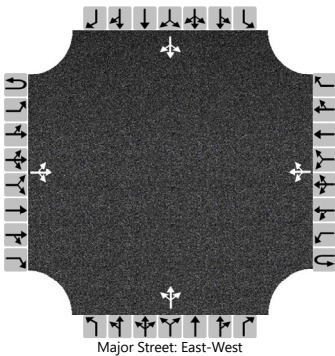
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		33				50					44					113
Capacity, c (veh/h)		1454				1436					823					509
v/c Ratio		0.02				0.03					0.05					0.22
95% Queue Length, Q ₉₅ (veh)		0.1				0.1					0.2					0.8
95% Queue Length, Q ₉₅ (ft)		2.5				2.5					5.0					20.0
Control Delay (s/veh)		7.5	0.2	0.2		7.6	0.3	0.3			9.6					14.1
Level of Service (LOS)		A	A	A		A	A	A			A					B
Approach Delay (s/veh)	1.5				2.2				9.6				14.1			
Approach LOS	A				A				A				B			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	W. Burt Dr/Driveways
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Dec 2024	East/West Street	W. Burt Drive
Analysis Year	2026	North/South Street	Medical/Gas Station Driveways
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	11316 (Total)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		11	126	33		61	95	56		22	0	50		57	0	3
Percent Heavy Vehicles (%)		0				0				0	0	0		0	0	0
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.10	6.50	6.20		7.10	6.50	6.20
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.50	4.00	3.30		3.50	4.00	3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		12				66					78				65	
Capacity, c (veh/h)		1427				1416					716				458	
v/c Ratio		0.01				0.05					0.11				0.14	
95% Queue Length, Q ₉₅ (veh)		0.0				0.1					0.4				0.5	
95% Queue Length, Q ₉₅ (ft)		0.0				2.5					10.0				12.5	
Control Delay (s/veh)		7.5	0.1	0.1		7.7	0.4	0.4			10.6				14.2	
Level of Service (LOS)		A	A	A		A	A	A			B				B	
Approach Delay (s/veh)	0.6				2.5				10.6				14.2			
Approach LOS	A				A				B				B			

**APPENDIX C
TRIP GENERATION**

TRIP GENERATION CALCULATIONS – Coffee / Donut Shop with drive thru

The following calculations are based on the data compiled for ITE Land Use Code 937.

Average Daily Traffic

$$T = 533.57 (X)$$

$$T = 533.57 (2.443)$$

$$T = 1,304 \text{ vehicle-trips}$$

$$\text{Enter} = 0.50 (1,304) = 652 \text{ vehicles}$$

$$\text{Exit} = 0.50 (1,304) = 652 \text{ vehicles}$$

A.M. traffic during peak hour of adjacent street

$$T = 85.88 (X)$$

$$T = 85.88 (2.443)$$

$$T = 210 \text{ vehicle-trips}$$

$$\text{Enter} = 0.51 (210) = 107 \text{ vehicles}$$

$$\text{Exit} = 0.49 (210) = 103 \text{ vehicles}$$

P.M. traffic during peak hour of adjacent street

$$T = 38.99 (X)$$

$$T = 38.99 (2.443)$$

$$T = 96 \text{ vehicle-trips}$$

$$\text{Enter} = 0.50 (96) = 48 \text{ vehicles}$$

$$\text{Exit} = 0.50 (96) = 48 \text{ vehicles}$$

Columbia Starbucks site
West Burt Drive/Nashville Hwy
Columbia, TN
Drainage, Detention, & Water
Quality Calculations



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Table of Contents

- I. Water Quality Summary
- II. Water Quality Calcs and figures
- III. Detention Summary
- IV. Detention
 - a. Hydrology
 - b. hydraulics
- IV. Storm Drainage Conveyance System
 - a. Hydrology
 - b. hydraulics
- V. Maps

Water Quality

WQ Summary

The West Burt Drive Starbucks site will have one 2503 sf +/- commercial building with associated parking and utilities. The site will be served by 1 detention pond which is existing as a depression on the SW corner of the site. The total site is approximately 1.13 acres. The site will be required to achieve 80% TSS removal by the Columbia MS4 permit. This will be accomplished by the use of a dry extended detention basin. The basin will treat the volume produced by 2.5" of precipitation or 75% of the maximum volume generated by the 1 year storm event whichever is less. There will be three WQ units (one for each site) and two dry detention basins. Pond 1 will serve lot #1 (Fast Pace Health) and Pond #2 will serve Lots 2 and 3.

Methods

The Methodology used for calculation of the water quality volume and treatment flow rates was taken from the MS4 permit.

WQ volume sizing for Ponds

The MS4 permit (table 1) says that extended detention ponds fall into SCM Type C and therefore should treat the runoff generated from the first 2.5" of the design storm (1yr) or the first 75% of the design storm, whichever is less. Therefore, a subcatchment for the drainage basin flowing to the pond was set up in Hydrocad to generate the volume for each pond.

The total WQv produced by the Hydrograph was 0.102 ac-ft. this number was then correlated with the pond stage storage table and the elevation that the WQv occurs was determined by interpolation. That volume plus freeboard was then released over a 24–72-hour period by adjusting the height of the pond outlet structure and sizing an orifice (using the orifice equation).

The calculated water quality elevation in the pond was 694.3'. However, 695.5' was used because the riser crest of the outlet box needed to be set at this elevation to achieve the city of Columbia's detention requirements.

Water Quality Calcs and figures

Columbia SB1yr

Type II 24-hr 1yr Rainfall=3.21"

Prepared by HydroCAD SAMPLER 1-800-927-7246 www.hydrocad.net

Printed 1/23/2025

HydroCAD® 10.20-6a Sampler s/n S05023 © 2024 HydroCAD Software Solutions LLC

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Hydrograph for Subcatchment 1S: Post to pond

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Runoff-Volume (acre-feet)
5.00	0.20	0.00	0.00	0.000
5.50	0.23	0.00	0.00	0.000
6.00	0.26	0.00	0.00	0.000
6.50	0.29	0.00	0.00	0.000
7.00	0.32	0.00	0.00	0.000
7.50	0.35	0.00	0.00	0.000
8.00	0.39	0.00	0.00	0.000
8.50	0.42	0.00	0.00	0.000
9.00	0.47	0.00	0.00	0.000
9.50	0.52	0.00	0.00	0.000
10.00	0.58	0.00	0.00	0.000
10.50	0.65	0.00	0.00	0.000
11.00	0.75	0.00	0.03	0.001
11.50	0.91	0.02	0.09	0.003
12.00	2.13	0.48	3.32	0.062
12.50	2.36	0.61	0.35	0.089
13.00	2.48	0.68	0.22	0.100
13.50	2.56	0.73	0.17	0.108
14.00	2.63	0.78	0.14	0.114
14.50	2.69	0.81	0.12	0.119
15.00	2.74	0.84	0.11	0.124
15.50	2.79	0.87	0.10	0.128
16.00	2.82	0.90	0.09	0.132
16.50	2.86	0.92	0.08	0.136
17.00	2.89	0.94	0.08	0.139
17.50	2.93	0.97	0.07	0.142
18.00	2.96	0.99	0.07	0.145
18.50	2.98	1.00	0.07	0.148
19.00	3.01	1.02	0.06	0.150
19.50	3.03	1.04	0.06	0.153
20.00	3.06	1.05	0.05	0.155

← 2.5" = 0.102 Acre ft
↑
use this

→ 75% = 0.116 Acre ft

WATER QUALITY VOLUME=first 2.5" of 1 yr storm or 75% of 1 year storm which ever is less.

WQV= **4443** cuft Volume occurs at 694.3' However 695.5' is used to help with detentior

Precip(in)	Runoff Volume(AcFt)		Volume at 2.5"=	0.102	minus 10% for Redevelopment (not appli
2.48	0.1				
2.56	0.108		Volume(CUFT)=	4443.1	3999
Total Storm	0.155	75% Volume(CUFT)=	5063.9		4557

Orifice Sizing

a = area of orifice(sqft) =	?	average surface area of pond	
A = Avg surface area of Pond (sqft)=	1,209	<u>elevation</u>	<u>area</u>
C = Orifice Coefficient	0.66	689.56	0
T = Drawdown Time(hrs)	24	690	142
g = gravity (ft/s^2)	32.2	691	562
H = Elev of full pond(ft)	695.5	692	1053
Ho = Elev when pond is empty(ft)	689.56	693	1410
		694	1802
		695	2229
		695.5	2475
$a = \frac{2 \cdot A \cdot (H - H_o)^{1.5}}{3600 \cdot C \cdot T \cdot (2g)^{1.5}}$			
a =	0.012879346		1209

Diameter (in) = **1.54 use 1.5 inch outlet**

Detention

Detention & Drainage Summary

The West Burt Drive Starbucks site will be a 2,503-sf+/- commercial site with associated parking and utilities on 1.13 acres. The current proposed site will be served by one stormwater pond on the SW corner of the site. The pond has been designed to account for the water quality and detention needs of the future site.

The site has 3 specific drainage areas and drains to SW thru the pond and then under the medical center drive. The property currently has grass and a few trees on it. The pond was designed to attenuate the Post development flow rates for the 2–100-year storm events

Methods

The drainage areas were calculated with the use of existing and proposed topographical features taken from a survey of the property and LIDAR taken from the state of TN Lidar database. Flows from the individual drainage areas were calculated using the SCS method and by using Hydraflow Hydrographs. Hydraflow Hydrographs was also used to analyze the detention pond capacity. IDF curves were developed using information provided in the NOAA atlas 14 precipitation data for the area. Pond volumes were then adjusted until a satisfactory outflow was achieved for the 2,5, 10, 25, 50, and 100 yr. rainfall events. The proposed pond modification listed above effectively reduces all flows from the 2-100yr storm to the pre-development flow.

Results

A chart has been included for summary of storm events for each site drainage area and pre vs post dev. flow rates.

Pre vs Post Results

Storm Event	Pre-developed flow rate	Post-developed flow rate
2yr	1.74	0.154
5yr	2.89	0.192
10yr	3.95	0.42
25yr	5.53	1.86
50yr	6.89	4.34
100yr	8.37	7.33

Hydrology



POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnín, D. Martin, B. Lin, T. Parzybok, M. Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

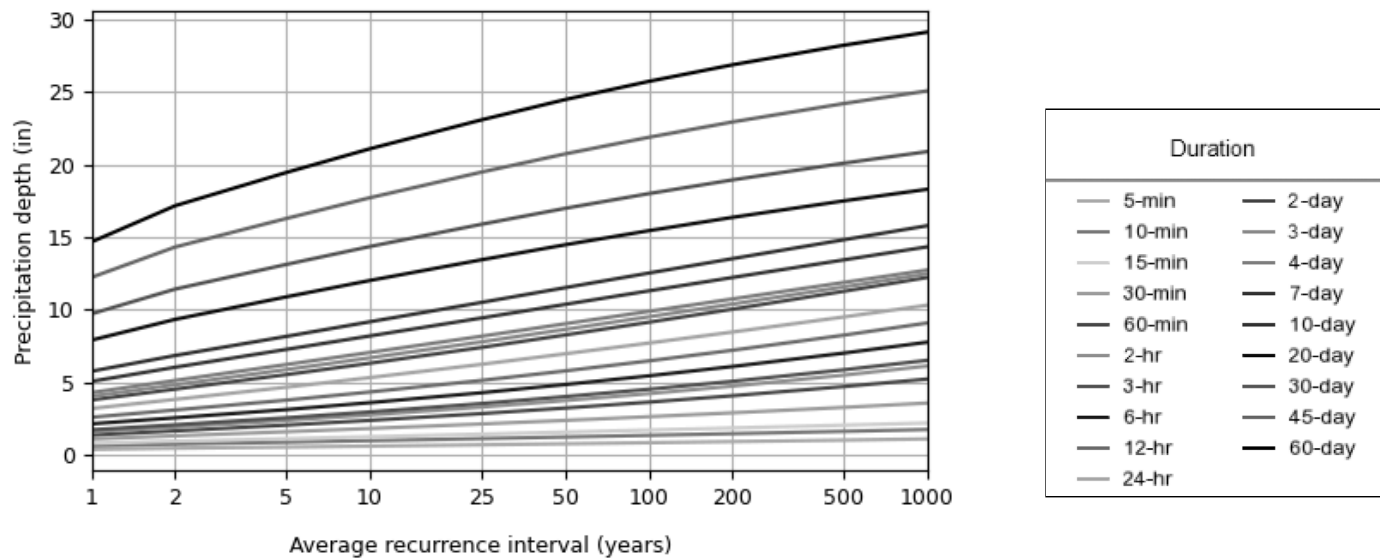
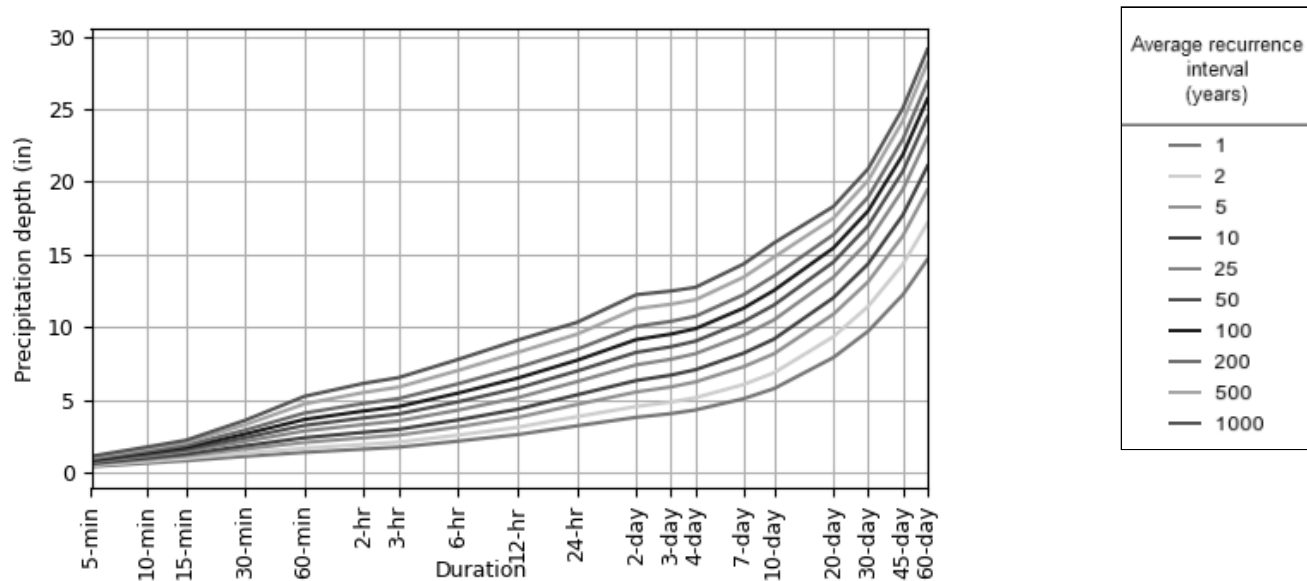
PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.407 (0.376-0.444)	0.480 (0.443-0.525)	0.561 (0.517-0.612)	0.628 (0.577-0.684)	0.718 (0.655-0.782)	0.788 (0.714-0.857)	0.862 (0.775-0.937)	0.937 (0.835-1.02)	1.04 (0.912-1.13)	1.12 (0.974-1.23)
10-min	0.650 (0.600-0.709)	0.768 (0.709-0.839)	0.899 (0.827-0.981)	1.00 (0.923-1.09)	1.14 (1.04-1.25)	1.26 (1.14-1.36)	1.37 (1.23-1.49)	1.48 (1.32-1.62)	1.64 (1.44-1.79)	1.77 (1.53-1.93)
15-min	0.813 (0.751-0.886)	0.966 (0.891-1.06)	1.14 (1.05-1.24)	1.27 (1.17-1.38)	1.45 (1.32-1.58)	1.59 (1.44-1.73)	1.73 (1.56-1.88)	1.87 (1.67-2.04)	2.07 (1.82-2.26)	2.22 (1.92-2.42)
30-min	1.11 (1.03-1.22)	1.33 (1.23-1.46)	1.62 (1.49-1.76)	1.84 (1.69-2.00)	2.15 (1.96-2.34)	2.39 (2.17-2.60)	2.65 (2.38-2.88)	2.92 (2.60-3.17)	3.29 (2.89-3.59)	3.59 (3.12-3.92)
60-min	1.39 (1.28-1.52)	1.67 (1.54-1.83)	2.07 (1.91-2.26)	2.40 (2.20-2.61)	2.86 (2.61-3.12)	3.24 (2.94-3.53)	3.65 (3.28-3.97)	4.09 (3.64-4.45)	4.72 (4.15-5.15)	5.24 (4.55-5.73)
2-hr	1.61 (1.48-1.77)	1.93 (1.78-2.12)	2.39 (2.19-2.62)	2.77 (2.53-3.03)	3.31 (3.00-3.62)	3.76 (3.38-4.11)	4.24 (3.78-4.63)	4.75 (4.21-5.20)	5.51 (4.80-6.04)	6.14 (5.29-6.75)
3-hr	1.75 (1.61-1.91)	2.09 (1.93-2.30)	2.57 (2.37-2.82)	2.98 (2.72-3.26)	3.55 (3.22-3.87)	4.03 (3.64-4.40)	4.54 (4.06-4.95)	5.09 (4.51-5.56)	5.88 (5.14-6.43)	6.53 (5.64-7.16)
6-hr	2.16 (1.99-2.37)	2.57 (2.37-2.82)	3.14 (2.88-3.44)	3.62 (3.31-3.96)	4.29 (3.90-4.69)	4.86 (4.39-5.30)	5.46 (4.89-5.96)	6.10 (5.42-6.66)	7.02 (6.16-7.68)	7.78 (6.74-8.53)
12-hr	2.61 (2.41-2.85)	3.11 (2.87-3.40)	3.79 (3.48-4.14)	4.35 (3.99-4.75)	5.14 (4.68-5.60)	5.80 (5.25-6.31)	6.49 (5.84-7.07)	7.22 (6.45-7.88)	8.26 (7.28-9.02)	9.10 (7.95-9.97)
24-hr	3.21 (2.99-3.46)	3.84 (3.58-4.14)	4.68 (4.35-5.04)	5.34 (4.96-5.75)	6.25 (5.79-6.72)	6.97 (6.44-7.48)	7.71 (7.11-8.28)	8.48 (7.79-9.09)	9.51 (8.68-10.2)	10.3 (9.38-11.1)
2-day	3.80 (3.53-4.10)	4.54 (4.23-4.91)	5.54 (5.15-5.98)	6.33 (5.87-6.83)	7.41 (6.85-7.98)	8.27 (7.63-8.90)	9.14 (8.40-9.83)	10.0 (9.19-10.8)	11.3 (10.3-12.1)	12.2 (11.1-13.2)
3-day	4.05 (3.78-4.36)	4.84 (4.52-5.21)	5.89 (5.49-6.33)	6.70 (6.24-7.20)	7.79 (7.24-8.37)	8.65 (8.02-9.28)	9.52 (8.79-10.2)	10.4 (9.57-11.2)	11.6 (10.6-12.4)	12.5 (11.4-13.4)
4-day	4.30 (4.03-4.61)	5.15 (4.82-5.52)	6.24 (5.83-6.68)	7.07 (6.61-7.57)	8.18 (7.63-8.76)	9.04 (8.41-9.67)	9.90 (9.18-10.6)	10.8 (9.94-11.5)	11.9 (10.9-12.7)	12.7 (11.7-13.7)
7-day	5.08 (4.78-5.40)	6.05 (5.70-6.43)	7.28 (6.85-7.74)	8.21 (7.72-8.72)	9.43 (8.86-10.0)	10.4 (9.73-11.0)	11.3 (10.6-12.0)	12.2 (11.4-13.0)	13.4 (12.5-14.3)	14.3 (13.3-15.3)
10-day	5.77 (5.45-6.12)	6.86 (6.47-7.28)	8.17 (7.71-8.66)	9.18 (8.66-9.73)	10.5 (9.90-11.1)	11.5 (10.8-12.2)	12.5 (11.8-13.3)	13.5 (12.6-14.3)	14.8 (13.8-15.7)	15.8 (14.6-16.7)
20-day	7.91 (7.49-8.36)	9.34 (8.84-9.87)	10.9 (10.3-11.5)	12.0 (11.4-12.7)	13.4 (12.7-14.2)	14.5 (13.6-15.3)	15.4 (14.6-16.3)	16.4 (15.4-17.3)	17.5 (16.4-18.5)	18.3 (17.1-19.4)
30-day	9.72 (9.23-10.2)	11.4 (10.9-12.0)	13.1 (12.5-13.8)	14.4 (13.6-15.1)	15.9 (15.1-16.7)	17.0 (16.1-17.8)	18.0 (17.0-18.9)	18.9 (17.9-19.9)	20.1 (18.9-21.1)	20.9 (19.7-22.0)
45-day	12.2 (11.6-12.8)	14.3 (13.6-15.0)	16.3 (15.5-17.1)	17.7 (16.9-18.6)	19.5 (18.5-20.4)	20.7 (19.7-21.7)	21.9 (20.8-22.9)	22.9 (21.7-24.1)	24.2 (22.9-25.4)	25.1 (23.7-26.4)
60-day	14.7 (14.0-15.4)	17.2 (16.3-18.0)	19.4 (18.5-20.4)	21.1 (20.1-22.1)	23.1 (21.9-24.2)	24.5 (23.3-25.7)	25.7 (24.4-27.0)	26.9 (25.5-28.2)	28.2 (26.7-29.6)	29.1 (27.5-30.6)
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.										

[Back to Top](#)

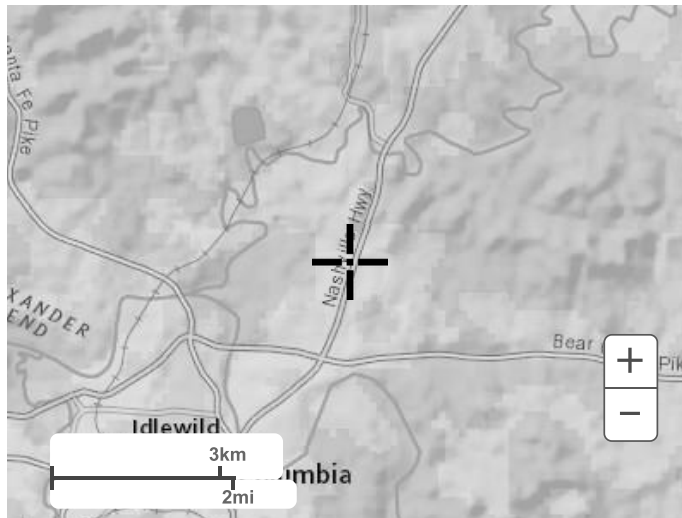
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 35.6512°, Longitude: -87.0116°

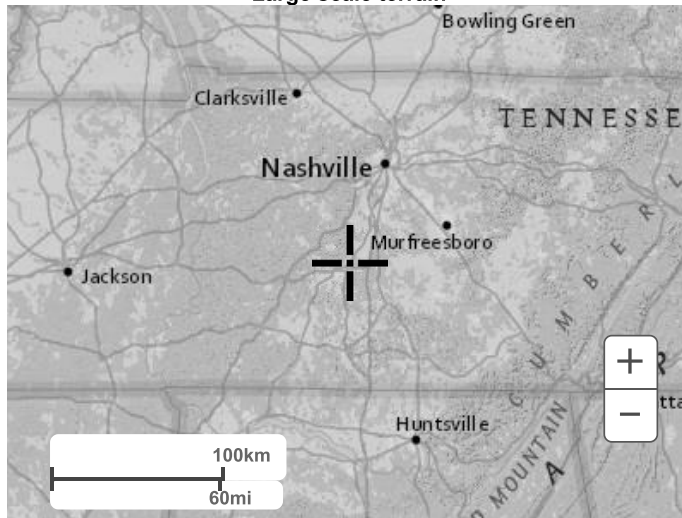


Maps & aerials

Small scale terrain



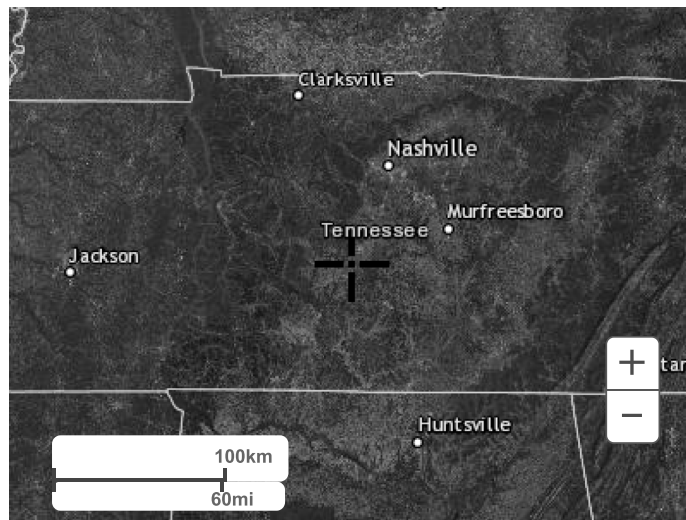
Large scale terrain



Large scale map



Large scale aerial



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POINT PRECIPITATION FREQUENCY ESTIMATES

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[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	4.88 (4.51-5.33)	5.76 (5.32-6.30)	6.73 (6.20-7.34)	7.54 (6.92-8.21)	8.62 (7.86-9.38)	9.46 (8.57-10.3)	10.3 (9.30-11.2)	11.2 (10.0-12.2)	12.5 (10.9-13.6)	13.5 (11.7-14.7)
10-min	3.90 (3.60-4.25)	4.61 (4.25-5.03)	5.39 (4.96-5.89)	6.02 (5.54-6.56)	6.86 (6.26-7.48)	7.53 (6.82-8.19)	8.21 (7.39-8.93)	8.91 (7.94-9.69)	9.86 (8.66-10.8)	10.6 (9.20-11.6)
15-min	3.25 (3.00-3.54)	3.86 (3.56-4.22)	4.55 (4.18-4.96)	5.08 (4.67-5.54)	5.80 (5.29-6.32)	6.36 (5.76-6.91)	6.92 (6.22-7.53)	7.50 (6.68-8.15)	8.27 (7.26-9.02)	8.87 (7.70-9.70)
30-min	2.23 (2.06-2.43)	2.67 (2.46-2.91)	3.23 (2.97-3.53)	3.68 (3.38-4.01)	4.30 (3.92-4.68)	4.79 (4.34-5.21)	5.30 (4.77-5.77)	5.84 (5.20-6.34)	6.58 (5.78-7.18)	7.18 (6.23-7.85)
60-min	1.39 (1.28-1.52)	1.67 (1.54-1.83)	2.07 (1.91-2.26)	2.40 (2.20-2.61)	2.86 (2.61-3.12)	3.24 (2.94-3.53)	3.65 (3.28-3.97)	4.09 (3.64-4.45)	4.72 (4.15-5.15)	5.24 (4.55-5.73)
2-hr	0.806 (0.742-0.883)	0.967 (0.888-1.06)	1.20 (1.10-1.31)	1.38 (1.26-1.52)	1.65 (1.50-1.81)	1.88 (1.69-2.05)	2.12 (1.89-2.32)	2.38 (2.10-2.60)	2.75 (2.40-3.02)	3.07 (2.64-3.37)
3-hr	0.581 (0.535-0.637)	0.696 (0.641-0.764)	0.857 (0.787-0.938)	0.991 (0.906-1.08)	1.18 (1.07-1.29)	1.34 (1.21-1.46)	1.51 (1.35-1.65)	1.69 (1.50-1.85)	1.96 (1.71-2.14)	2.17 (1.88-2.38)
6-hr	0.360 (0.332-0.395)	0.429 (0.395-0.471)	0.523 (0.481-0.574)	0.604 (0.553-0.660)	0.717 (0.652-0.783)	0.811 (0.733-0.885)	0.911 (0.816-0.994)	1.02 (0.905-1.11)	1.17 (1.03-1.28)	1.30 (1.12-1.42)
12-hr	0.216 (0.199-0.236)	0.258 (0.238-0.282)	0.314 (0.289-0.343)	0.361 (0.331-0.394)	0.426 (0.388-0.465)	0.481 (0.435-0.524)	0.538 (0.484-0.586)	0.599 (0.535-0.653)	0.685 (0.604-0.748)	0.755 (0.659-0.827)
24-hr	0.133 (0.124-0.144)	0.160 (0.149-0.172)	0.194 (0.181-0.210)	0.222 (0.206-0.239)	0.260 (0.241-0.280)	0.290 (0.268-0.311)	0.321 (0.296-0.344)	0.353 (0.324-0.378)	0.396 (0.361-0.424)	0.430 (0.390-0.461)
2-day	0.079 (0.073-0.085)	0.094 (0.088-0.102)	0.115 (0.107-0.124)	0.131 (0.122-0.142)	0.154 (0.142-0.166)	0.172 (0.158-0.185)	0.190 (0.175-0.204)	0.209 (0.191-0.224)	0.234 (0.213-0.252)	0.254 (0.230-0.274)
3-day	0.056 (0.052-0.060)	0.067 (0.062-0.072)	0.081 (0.076-0.087)	0.093 (0.086-0.100)	0.108 (0.100-0.116)	0.120 (0.111-0.128)	0.132 (0.122-0.141)	0.144 (0.132-0.154)	0.160 (0.147-0.172)	0.173 (0.157-0.186)
4-day	0.044 (0.041-0.048)	0.053 (0.050-0.057)	0.064 (0.060-0.069)	0.073 (0.068-0.078)	0.085 (0.079-0.091)	0.094 (0.087-0.100)	0.103 (0.095-0.110)	0.111 (0.103-0.119)	0.123 (0.113-0.132)	0.132 (0.121-0.142)
7-day	0.030 (0.028-0.032)	0.036 (0.033-0.038)	0.043 (0.040-0.046)	0.048 (0.045-0.051)	0.056 (0.052-0.059)	0.061 (0.057-0.065)	0.067 (0.062-0.071)	0.072 (0.067-0.077)	0.079 (0.074-0.085)	0.085 (0.078-0.090)
10-day	0.024 (0.022-0.025)	0.028 (0.026-0.030)	0.034 (0.032-0.036)	0.038 (0.036-0.040)	0.043 (0.041-0.046)	0.048 (0.045-0.050)	0.052 (0.048-0.055)	0.056 (0.052-0.059)	0.061 (0.057-0.065)	0.065 (0.061-0.069)
20-day	0.016 (0.015-0.017)	0.019 (0.018-0.020)	0.022 (0.021-0.023)	0.025 (0.023-0.026)	0.027 (0.026-0.029)	0.030 (0.028-0.031)	0.032 (0.030-0.033)	0.034 (0.032-0.036)	0.036 (0.034-0.038)	0.038 (0.035-0.040)
30-day	0.013 (0.012-0.014)	0.015 (0.015-0.016)	0.018 (0.017-0.019)	0.019 (0.018-0.020)	0.022 (0.020-0.023)	0.023 (0.022-0.024)	0.024 (0.023-0.026)	0.026 (0.024-0.027)	0.027 (0.026-0.029)	0.028 (0.027-0.030)
45-day	0.011 (0.010-0.011)	0.013 (0.012-0.013)	0.015 (0.014-0.015)	0.016 (0.015-0.017)	0.018 (0.017-0.018)	0.019 (0.018-0.020)	0.020 (0.019-0.021)	0.021 (0.020-0.022)	0.022 (0.021-0.023)	0.023 (0.021-0.024)
60-day	0.010 (0.009-0.010)	0.011 (0.011-0.012)	0.013 (0.012-0.014)	0.014 (0.013-0.015)	0.016 (0.015-0.016)	0.016 (0.016-0.017)	0.017 (0.016-0.018)	0.018 (0.017-0.019)	0.019 (0.018-0.020)	0.020 (0.019-0.021)

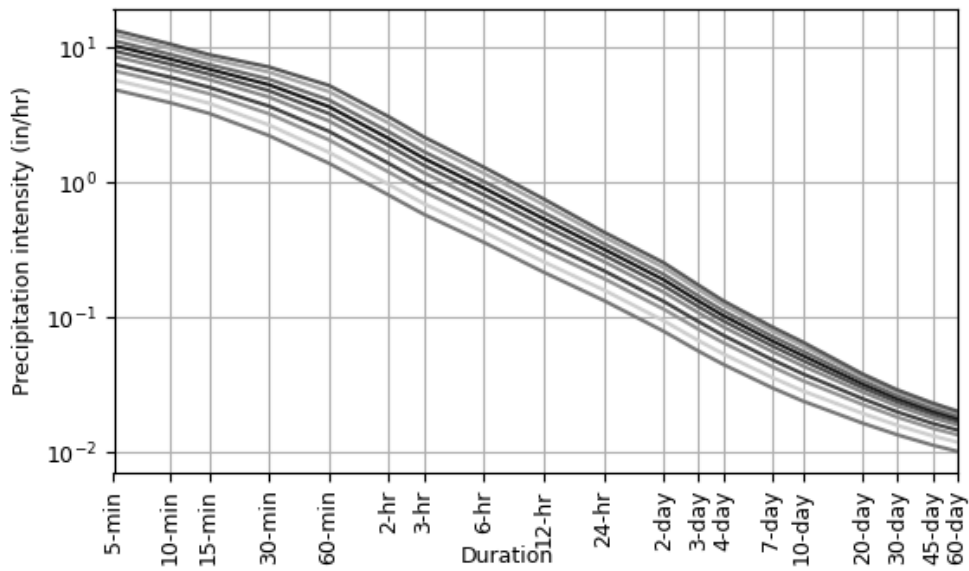
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.
Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

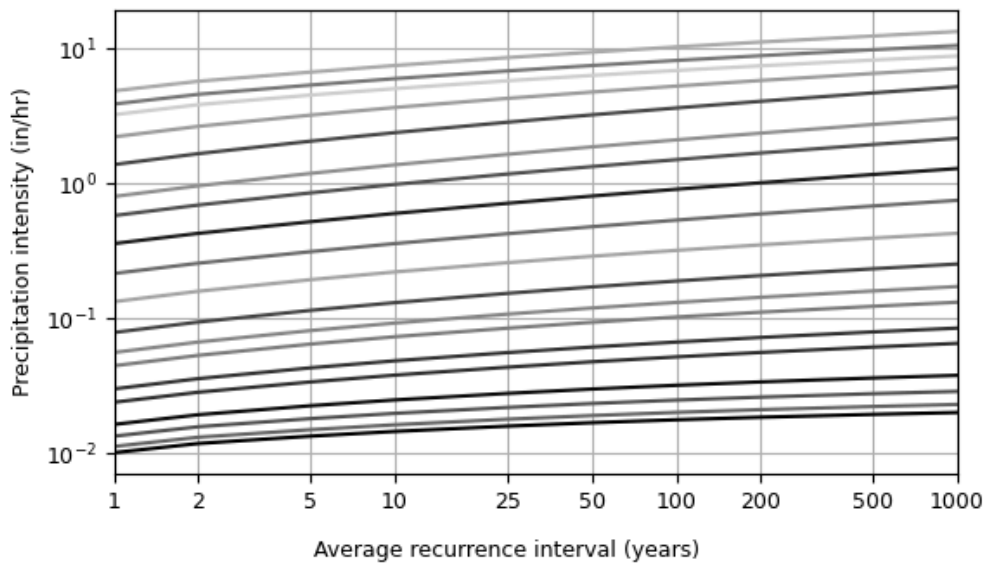
PF graphical

PDS-based intensity-duration-frequency (IDF) curves

Latitude: 35.6512°, Longitude: -87.0116°



Average recurrence interval (years)	
—	1
—	2
—	5
—	10
—	25
—	50
—	100
—	200
—	500
—	1000

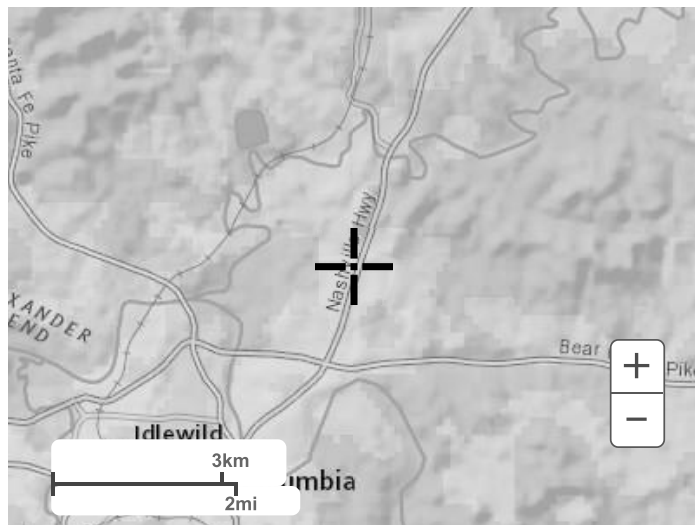


Duration	
—	5-min
—	10-min
—	15-min
—	30-min
—	60-min
—	2-hr
—	3-hr
—	6-hr
—	12-hr
—	24-hr
—	2-day
—	3-day
—	4-day
—	7-day
—	10-day
—	20-day
—	30-day
—	45-day
—	60-day

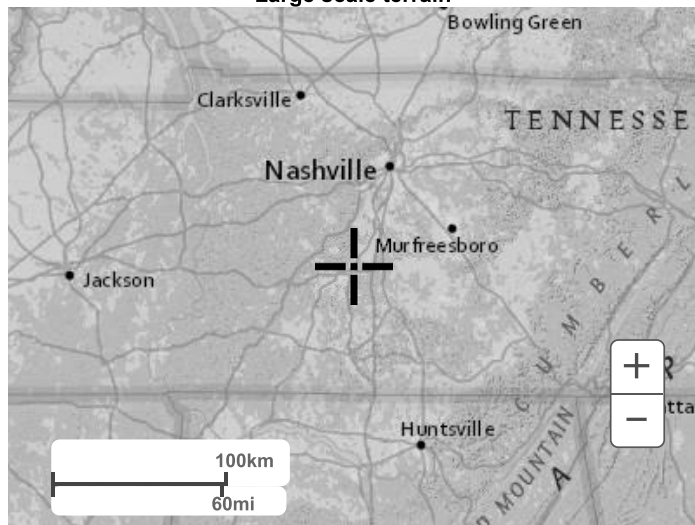
[Back to Top](#)

Maps & aerials

Small scale terrain



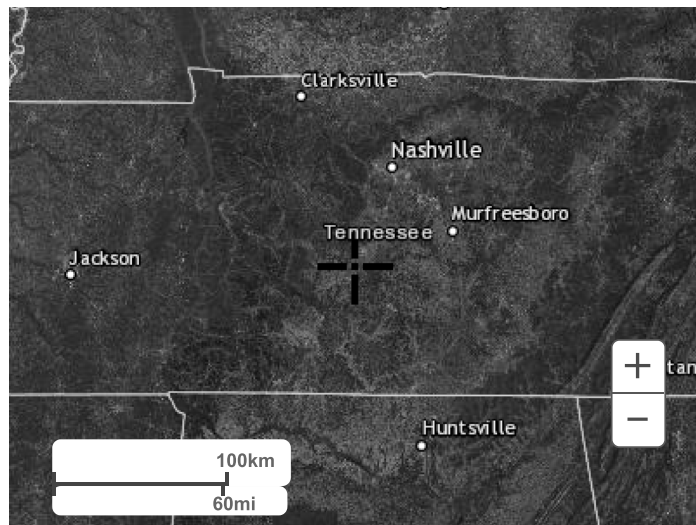
Large scale terrain



Large scale map



Large scale aerial



[Back to Top](#)

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1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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Soil Map—Maury County, Tennessee
(West Burt Drive Columbia)



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

Soil Map—Maury County, Tennessee
(West Burt Drive Columbia)

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Maury County, Tennessee

Survey Area Data: Version 19, Sep 12, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Jul 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bf	Braxton cherty silty clay, severely eroded moderately steep phase	0.1	8.5%
Bh	Braxton silt loam, eroded gently sloping phase	0.6	40.6%
Me	Maury silty clay loam, eroded sloping phase	0.7	50.9%
Totals for Area of Interest		1.4	100.0%

Maury County, Tennessee

Bf—Braxton cherty silty clay, severely eroded moderately steep phase

Map Unit Setting

National map unit symbol: kq4w
Elevation: 900 to 1,200 feet
Mean annual precipitation: 48 to 55 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Braxton and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Braxton

Setting

Landform: Hillslopes
Landform position (three-dimensional): Side slope
Parent material: Clayey alluvium and/or residuum weathered from limestone

Typical profile

H1 - 0 to 10 inches: gravelly silty clay
H2 - 10 to 30 inches: clay
H3 - 30 to 60 inches: clay

Properties and qualities

Slope: 12 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: F123XY001TN - Limestone Uplands

Hydric soil rating: No

Data Source Information

Soil Survey Area: Maury County, Tennessee

Survey Area Data: Version 19, Sep 12, 2024

Maury County, Tennessee

Bh—Braxton silt loam, eroded gently sloping phase

Map Unit Setting

National map unit symbol: kq4y

Elevation: 900 to 1,200 feet

Mean annual precipitation: 48 to 55 inches

Mean annual air temperature: 57 to 61 degrees F

Frost-free period: 190 to 205 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Braxton and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Braxton

Setting

Landform: Hillslopes

Landform position (three-dimensional): Side slope

Parent material: Clayey alluvium and/or residuum weathered from limestone

Typical profile

H1 - 0 to 10 inches: silt loam

H2 - 10 to 18 inches: silty clay loam

H3 - 18 to 60 inches: clay

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water

(Ksat): Moderately high (0.20 to 0.60 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: F123XY001TN - Limestone Uplands

Hydric soil rating: No

Data Source Information

Soil Survey Area: Maury County, Tennessee

Survey Area Data: Version 19, Sep 12, 2024

Maury County, Tennessee

Me—Maury silty clay loam, eroded sloping phase

Map Unit Setting

National map unit symbol: kq75

Elevation: 560 to 890 feet

Mean annual precipitation: 46 to 60 inches

Mean annual air temperature: 57 to 61 degrees F

Frost-free period: 190 to 200 days

Farmland classification: Not prime farmland

Map Unit Composition

Maury and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Maury

Setting

Landform: Hillslopes

Landform position (three-dimensional): Side slope

Parent material: Loess over clayey residuum and/or alluvium derived from limestone

Typical profile

H1 - 0 to 16 inches: silty clay loam

H2 - 16 to 40 inches: silty clay

H3 - 40 to 60 inches: clay

Properties and qualities

Slope: 5 to 12 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: A

Ecological site: F123XY001TN - Limestone Uplands

Hydric soil rating: No

Data Source Information

Soil Survey Area: Maury County, Tennessee

Survey Area Data: Version 19, Sep 12, 2024

Cover Type and Hydrologic Condition Fully Developed Urban Areas (vegetation established): ^a		CN for Soil Group			
		A	B	C	D
Open space (lawn, parks, golf courses, cemeteries, etc.):^c					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Urban districts:^b					
Commercial and business	85% average impervious area	89	92	94	95
Industrial	72% average impervious area	81	88	91	93
Residential districts by average lot size:^b					
1/8 acre or less (town houses)	65% average impervious area	77	85	90	92
1/4 acre	38% average impervious area	61	75	83	87
1/3 acre	30% average impervious area	57	72	81	86
1/2 acre	25% average impervious area	54	70	80	85
1 acre	20% average impervious area	51	68	79	84
2 acres	12% average impervious area	46	65	77	82
Developing urban areas:					
Newly graded areas (pervious areas only, no vegetation) ^d		77	86	91	94
For idle lands, CN's are determined using cover types similar to those in Table 4A-3					

Table 4A-1
Runoff Curve Numbers for Urban Areas
Reference: USDA, Urban Hydrology for Small Watersheds (1986)
(See following page for notes)

^aAverage runoff condition and $I = 0.2S$

^bThe average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using methods described in TR 55.

^cCNs shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

^dComposite CN's to use for the design of temporary measures during grading and construction should be computed based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table References:

American Association of State Highway and Transportation Officials. *Model Drainage Manual* [Metric Edition]. Washington, D.C. 1999.

Metropolitan Government of Nashville and Davidson County Department of Public Works Engineering Division. *Stormwater Management Manual*. Nashville, Tennessee. Sept. 1999.

United States Department of Agriculture. Soil Conservation Service. Engineering Division. *Urban Hydrology for Small Watersheds - Technical Release 55*. June 1986 (available for download at <http://www.wcc.nrcs.usda.gov/water/quality/common/tr55/tr55.html>).

Table 4A-1 (*continued*)
Runoff Curve Numbers for Urban Areas
Reference: USDA, Urban Hydrology for Small Watersheds (1986)

Cover Description ^a		Hydrologic Condition ^c	CN for Soil Group			
Cover type	Treatment ^b		A	B	C	D
Fallow	Bare soil	-----	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C&T)	Poor	66	74	80	82
		Good	62	71	78	81
	C&T + CR	Poor	65	73	79	81
		Good	61	70	77	80
Small grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C&T	Poor	61	72	79	82
		Good	59	70	78	81
	C&T + CR	Poor	60	71	78	81
		Good	58	69	77	80
Close-seeded or broadcast legumes or rotation meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	85
		Good	55	69	78	83
	C&T	Poor	63	73	80	83
		Good	51	67	76	80

Table 4A-2
Runoff Curve Numbers for Cultivated Agricultural Lands^a
Reference: USDA, Urban Hydrology for Small Watersheds (1986)
(See following page for notes)

Cover Type and Description	Hydrologic Condition	CN for Soil Group			
		A	B	C	D
Pasture, grassland, or range--continuous forage for grazing ^b	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow--continuous grass, protected from grazing and generally mowed for hay	----	30	58	71	78
Brush--brush-weed-grass mixture with brush the major element ^c	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 ^d	48	65	73
Woods--grass combination (orchard or tree farm) ^e	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods ^f	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 ^d	55	70	77
Farmsteads--buildings, lanes, driveways, and surrounding lots	----	59	74	82	86

Table 4A-3
Runoff Curve Numbers For Rural Areas and Other Agricultural Lands^a
Reference: USDA, Urban Hydrology for Small Watersheds (1986)
(See following page for notes)

^aAverage runoff condition, and $I = 0.2S$.

^bPoor: <50% ground cover or heavily grazed with no mulch.

Fair: 50 to 75% ground cover and not heavily grazed.

Good: >75% ground cover and lightly or only occasionally grazed.

^cPoor: <50% ground cover.

Fair: 50 to 75% ground cover.

Good: > 75% ground cover.

^dActual curve number is less than 30; use CN = 30 for runoff computations.

^eCN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from CN's for woods and pasture.

^fPoor: Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

Fair: Woods are grazed but not burned, and some forest litter covers the soil.

Columbia Starbucks Site
Detention & Water quality
calcs

Preddevelopment Areas

~~Area #1~~ = Total Areas 1.76 Ac +/-

Area #2 - offsite area to pond

A = 0.61 Ac +/-

Imp. Area = 0.30 Ac +/- CN = 98 Camp. CNs 77

grass Areas 0.31 Ac +/- CN = 56

51% A soils 49% B soils

Tc = 100 LF overland flow @ $\frac{712 - 710.39}{100} = 0.0161 \text{ ft/ft}$

279.96 LF shallow conc. flow @ $\frac{710.39 - 700}{279.96} = 0.037$

Use 5 min Tc

Area #3 - on site to Pond 1.07 Acres

A = 1.07 Acres grass CN = 56

Tc = 100' overland flow @ $\frac{712 - 706}{100} = 0.06 \text{ ft/ft}$

130.26 LF shallow conc. flow @ $\frac{706 - 689.56}{130.26} = 0.128 \text{ ft/ft}$

Area #4 offsite bypassing pond

A = 0.08 Ac +/-

grass CNs 56 Tc 5 mins.

Post development Areas

Post Area #1 - ~~off~~ offsite to Pond

$A = 0.61 \text{ Ac}^+$

Imp. Area = 0.30 CN = 98

Comp. CNs 77

grass Area = 0.31 CN = 56

$T_c = \text{Same AS Existing}$

Post Area #4 - on-site area to pond

$A = 1.16 \text{ Ac}^+$

Imp. Area = 0.53 Ac^+ CN = 98

Comp. CNs 75

grass Area = 0.63 Ac^+ CN = 56

$T_c = \text{Swims}$

Post Area #2 - ~~offsite~~ Area Bypassing pond

$A = 0.03 \text{ Ac}^+$

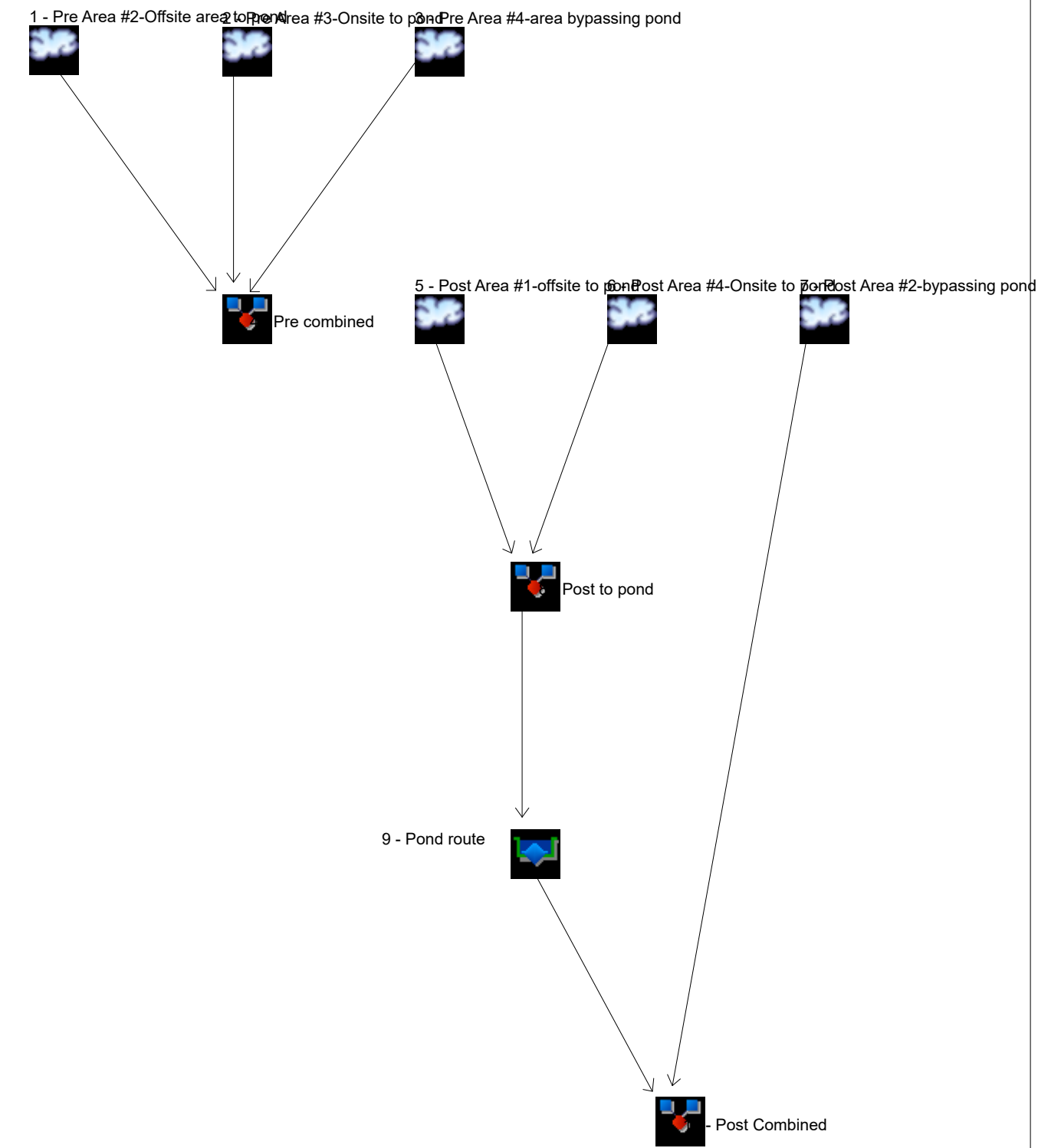
Imp. Area = 0.01 CN = 98

Comp. CNs 70

grass Area = 0.02 CN = 56

$T_c = \text{Swims}$

Hydraulics



Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.23

[illegible]

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

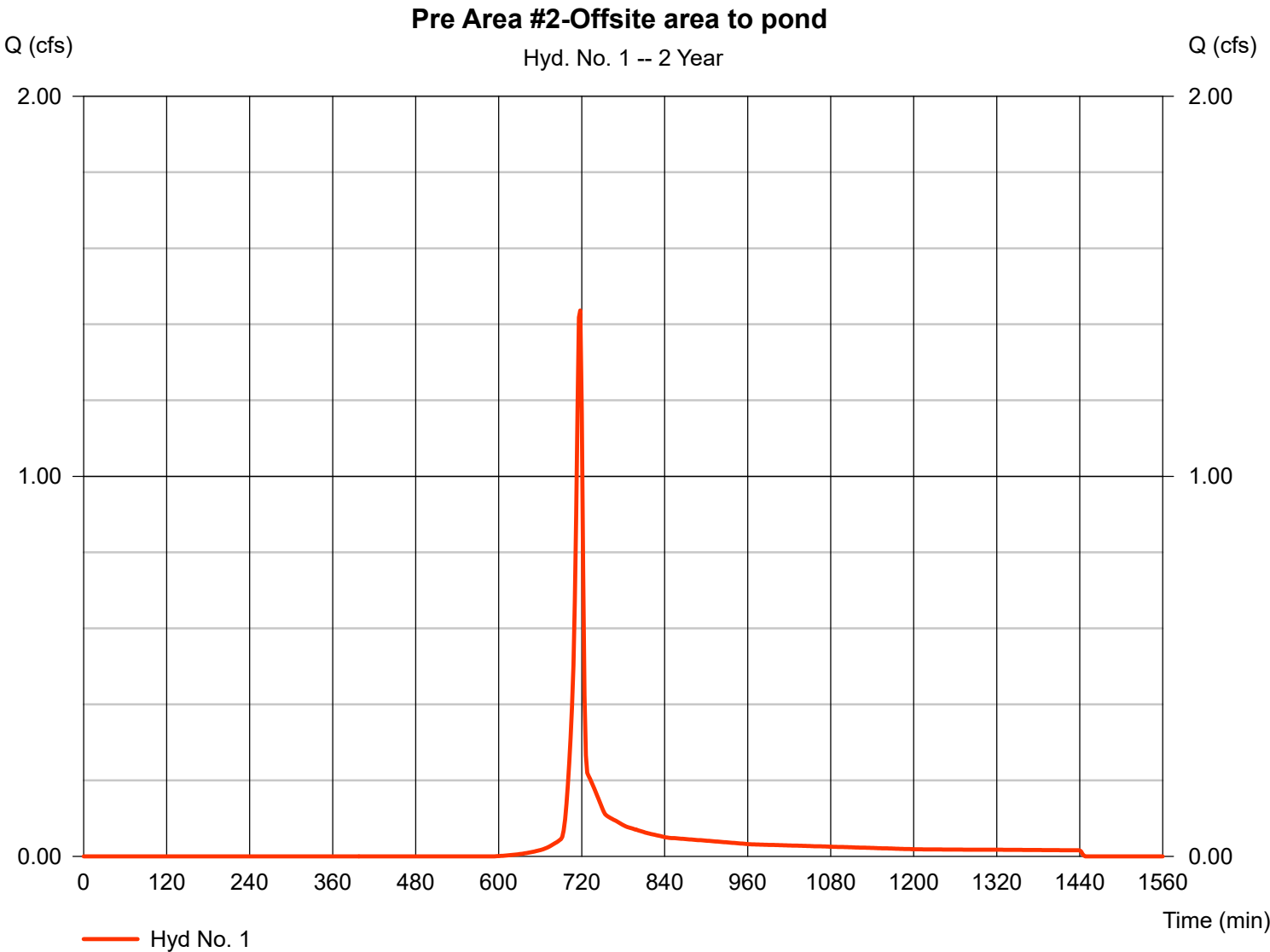
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	1.436	2	718	2,877	----	-----	-----	Pre Area #2-Offsite area to pond
2	SCS Runoff	0.368	2	722	1,394	----	-----	-----	Pre Area #3-Onsite to pond
3	SCS Runoff	0.032	2	718	98	----	-----	-----	Pre Area #4-area bypassing pond
4	Combine	1.740	2	718	4,369	1, 2, 3	-----	-----	Pre combined
5	SCS Runoff	1.436	2	718	2,877	----	-----	-----	Post Area #1-offsite to pond
6	SCS Runoff	2.485	2	718	4,972	----	-----	-----	Post Area #4-Onsite to pond
7	SCS Runoff	0.049	2	718	99	----	-----	-----	Post Area #2-bypassing pond
8	Combine	3.922	2	718	7,849	5, 6,	-----	-----	Post to pond
9	Reservoir	0.124	2	878	7,849	8	694.11	4,200	Pond route
10	Combine	0.154	2	718	7,948	7, 9	-----	-----	Post Combined
Columbia SB site.gpw					Return Period: 2 Year			Tuesday, Jan 28, 2025	

Hydrograph Report

Hyd. No. 1

Pre Area #2-Offsite area to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.436 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,877 cuft
Drainage area	=	0.610 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

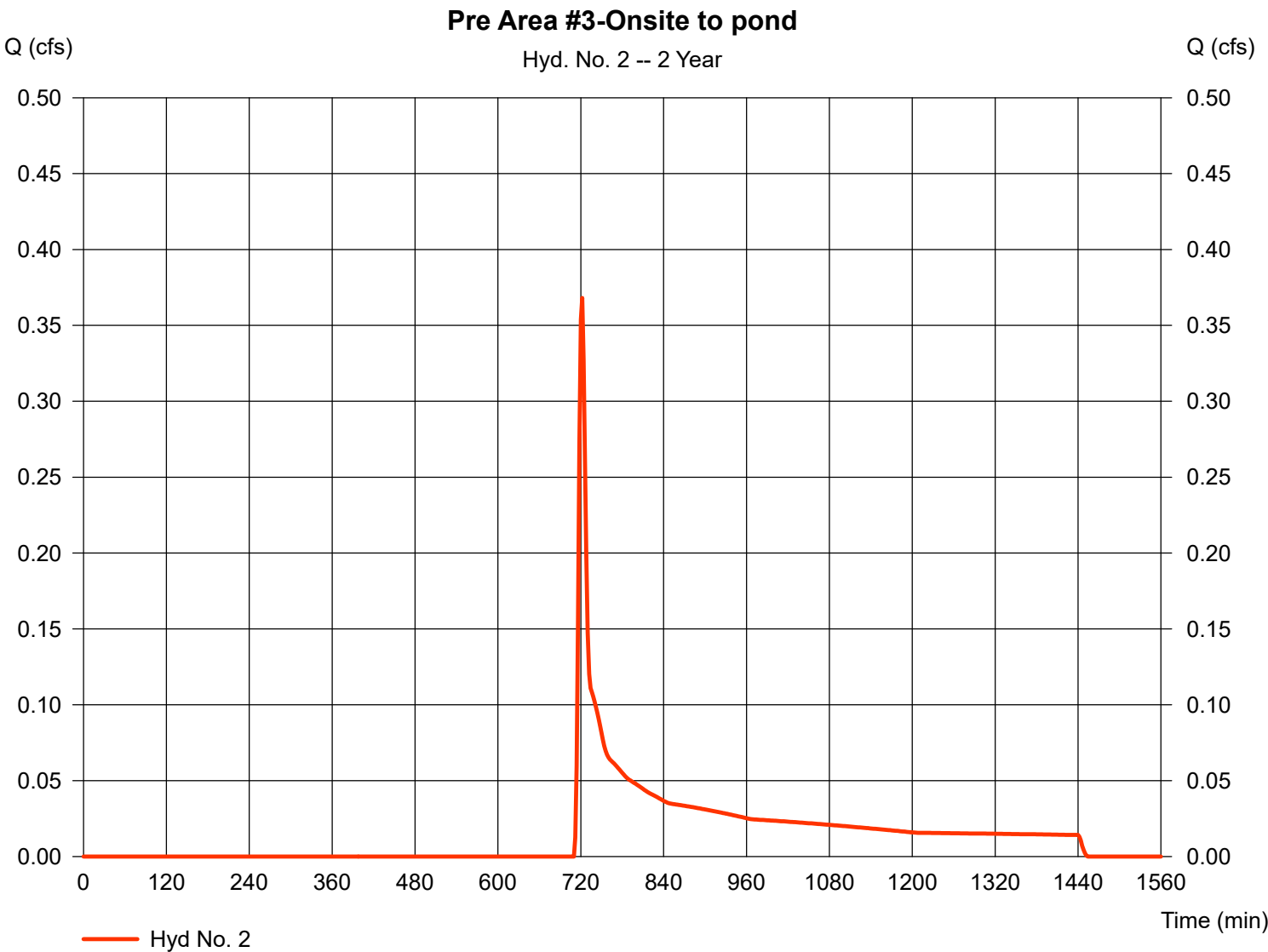


Hydrograph Report

Hyd. No. 2

Pre Area #3-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.368 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	1,394 cuft
Drainage area	=	1.070 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.80 min
Total precip.	=	3.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hydraflow Hydrographs by Intelisolve v9.23

Hyd. No. 2

Pre Area #3-Onsite to pond

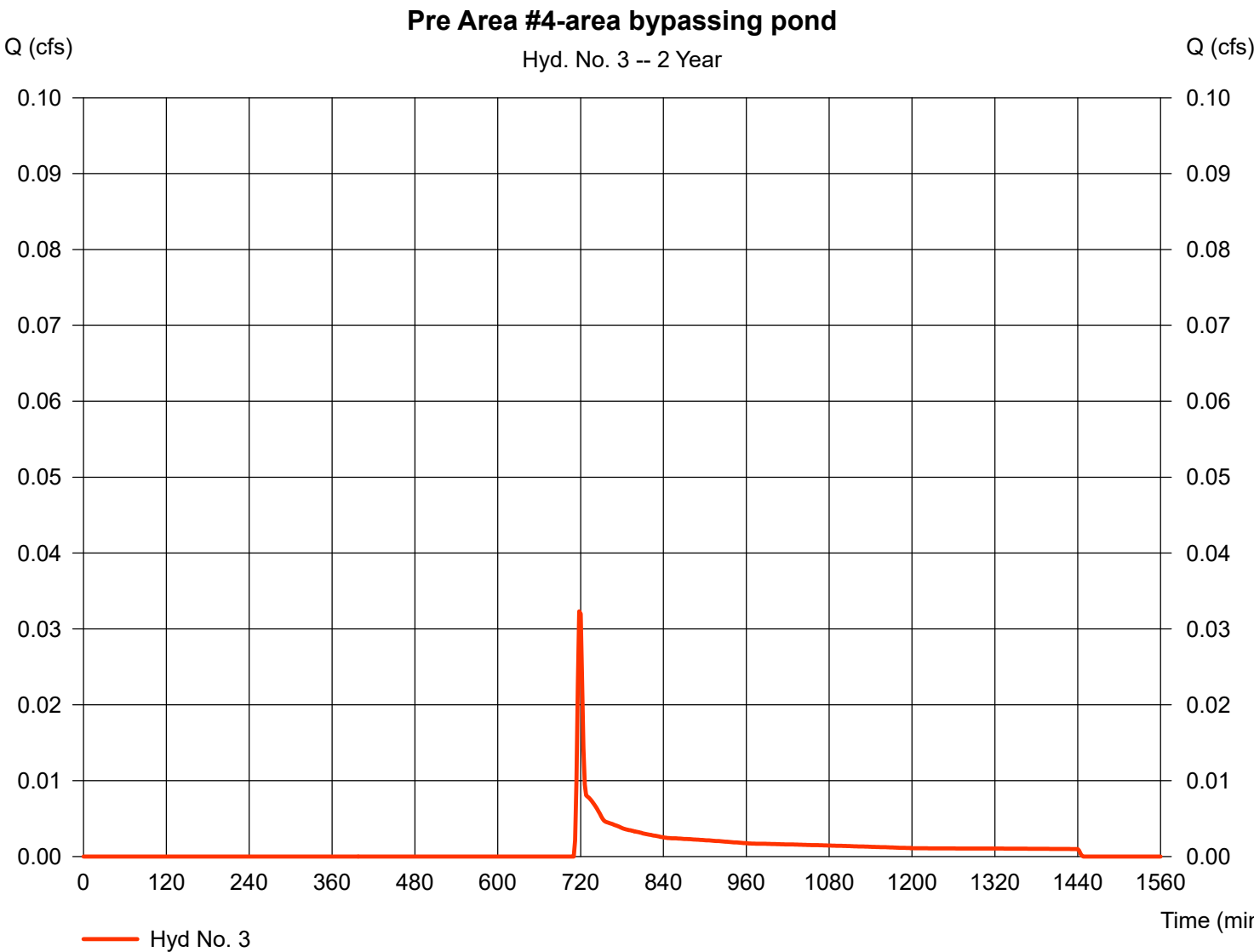
<u>Description</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>Totals</u>			
Sheet Flow							
Manning's n-value	= 0.240	0.011	0.011				
Flow length (ft)	= 100.0	0.0	0.0				
Two-year 24-hr precip. (in)	= 3.84	0.00	0.00				
Land slope (%)	= 6.00	0.00	0.00				
Travel Time (min)	= 8.39	+	0.00	+	0.00	=	8.39
Shallow Concentrated Flow							
Flow length (ft)	= 130.26	0.00	0.00				
Watercourse slope (%)	= 12.60	0.00	0.00				
Surface description	= Unpaved	Paved	Paved				
Average velocity (ft/s)	= 5.73	0.00	0.00				
Travel Time (min)	= 0.38	+	0.00	+	0.00	=	0.38
Channel Flow							
X sectional flow area (sqft)	= 0.00	0.00	0.00				
Wetted perimeter (ft)	= 0.00	0.00	0.00				
Channel slope (%)	= 0.00	0.00	0.00				
Manning's n-value	= 0.015	0.015	0.015				
Velocity (ft/s)	= 0.00	0.00	0.00				
Flow length (ft)	= 0.0	0.0	0.0				
Travel Time (min)	= 0.00	+	0.00	+	0.00	=	0.00
Total Travel Time, Tc					8.80 min		

Hydrograph Report

Hyd. No. 3

Pre Area #4-area bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.032 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	98 cuft
Drainage area	=	0.080 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23

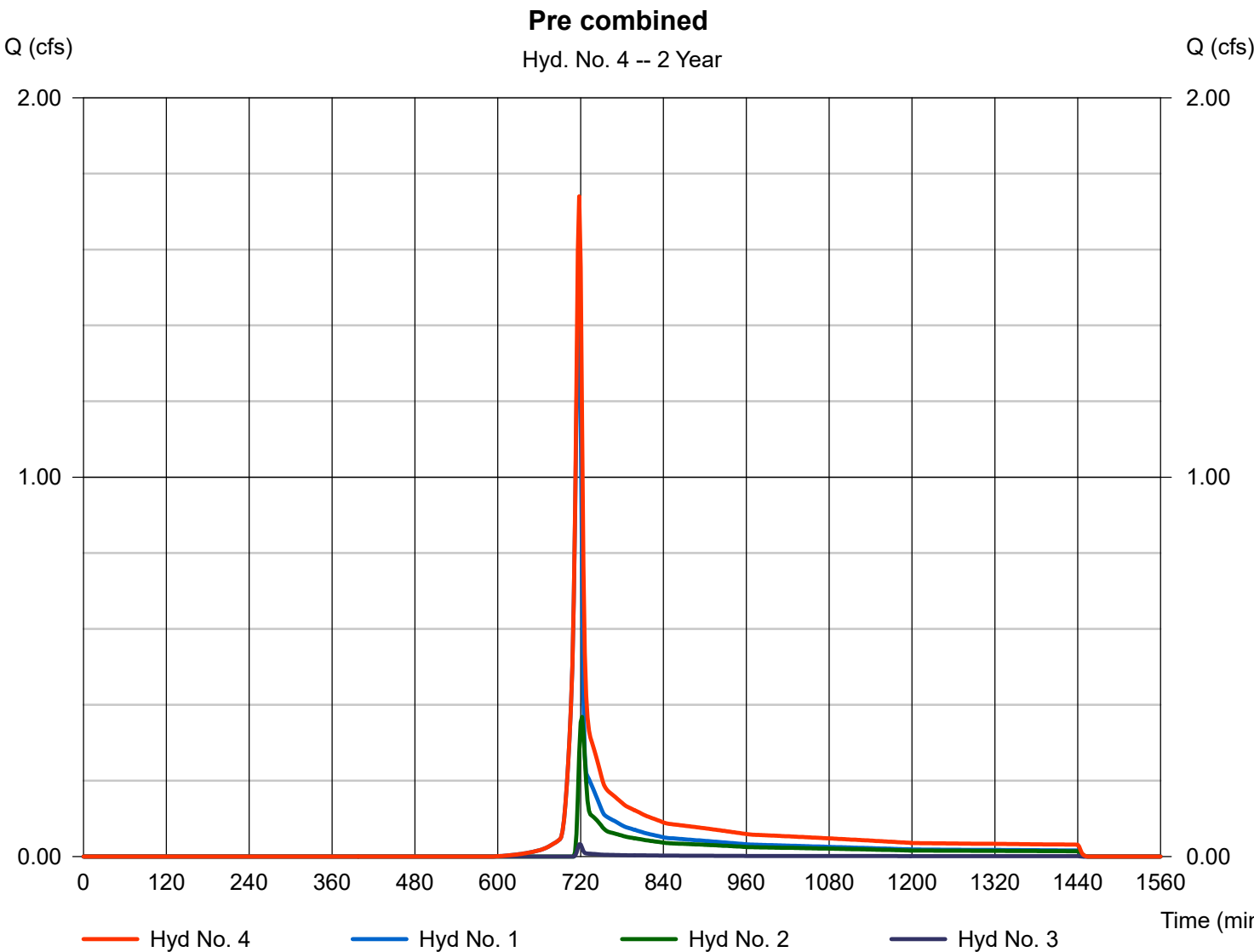
Tuesday, Jan 28, 2025

Hyd. No. 4

Pre combined

Hydrograph type = Combine
Storm frequency = 2 yrs
Time interval = 2 min
Inflow hyds. = 1, 2, 3

Peak discharge = 1.740 cfs
Time to peak = 718 min
Hyd. volume = 4,369 cuft
Contrib. drain. area = 1.760 ac

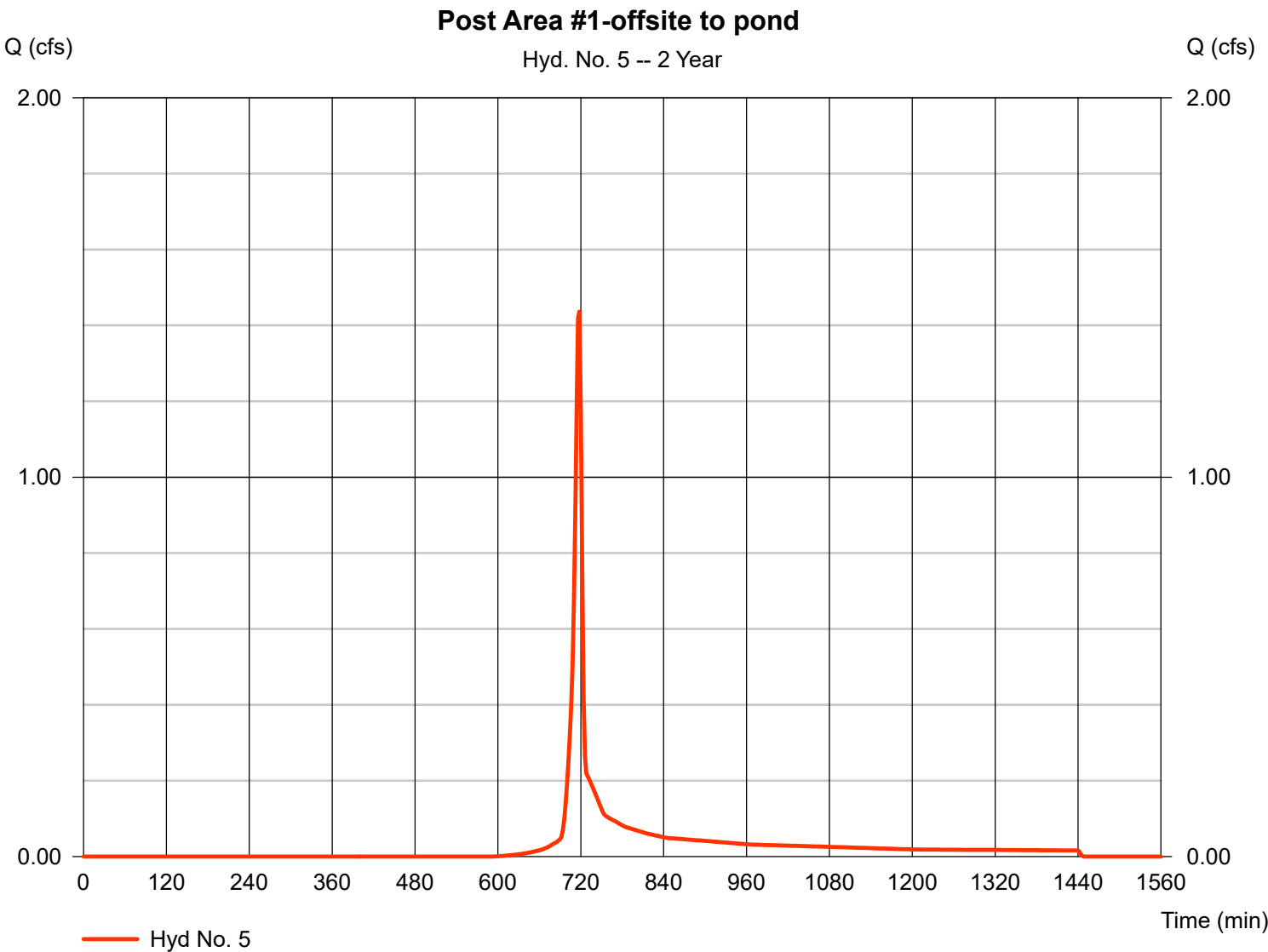


Hydrograph Report

Hyd. No. 5

Post Area #1-offsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.436 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	2,877 cuft
Drainage area	=	0.610 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

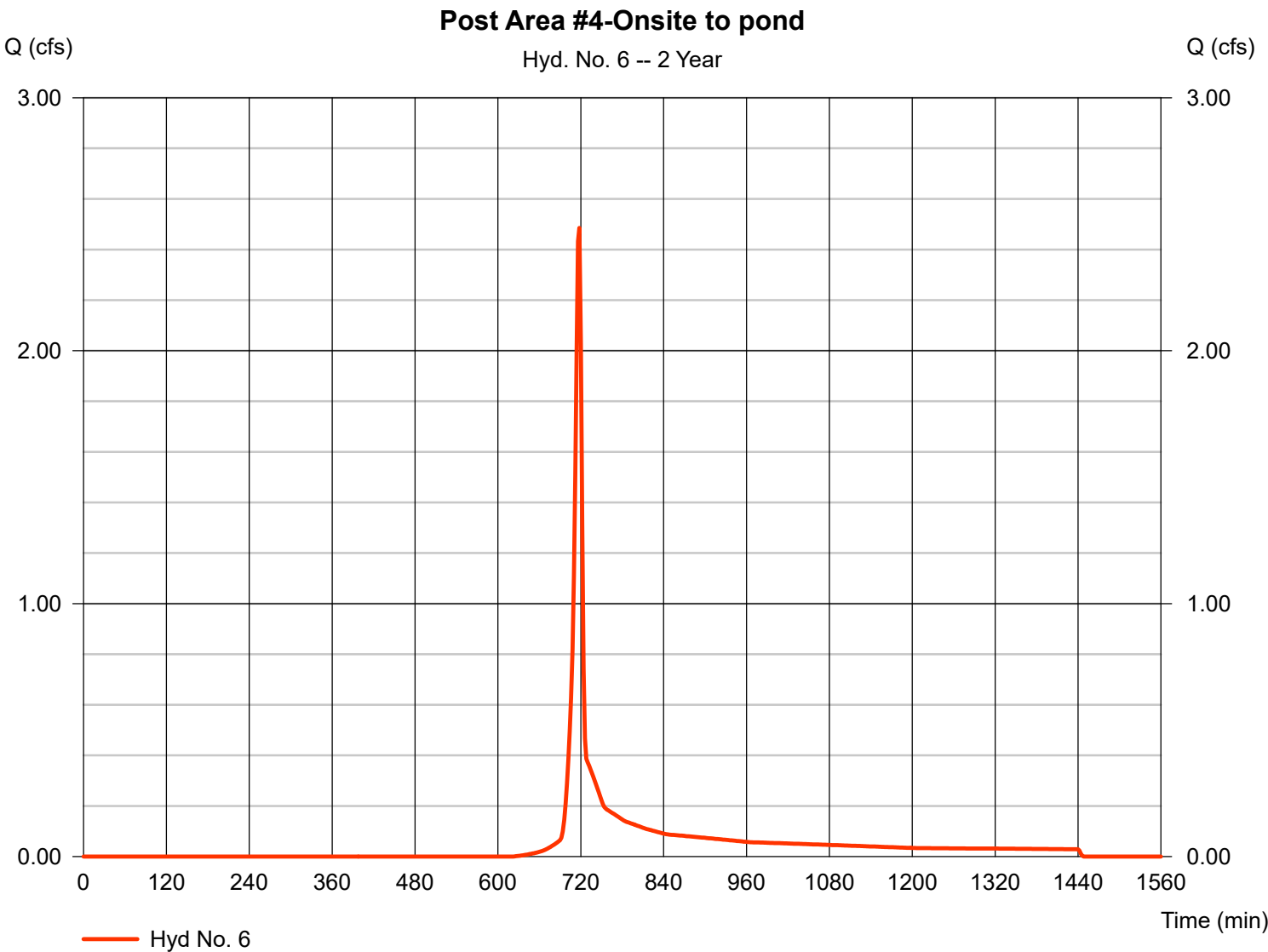


Hydrograph Report

Hyd. No. 6

Post Area #4-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.485 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	4,972 cuft
Drainage area	=	1.160 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

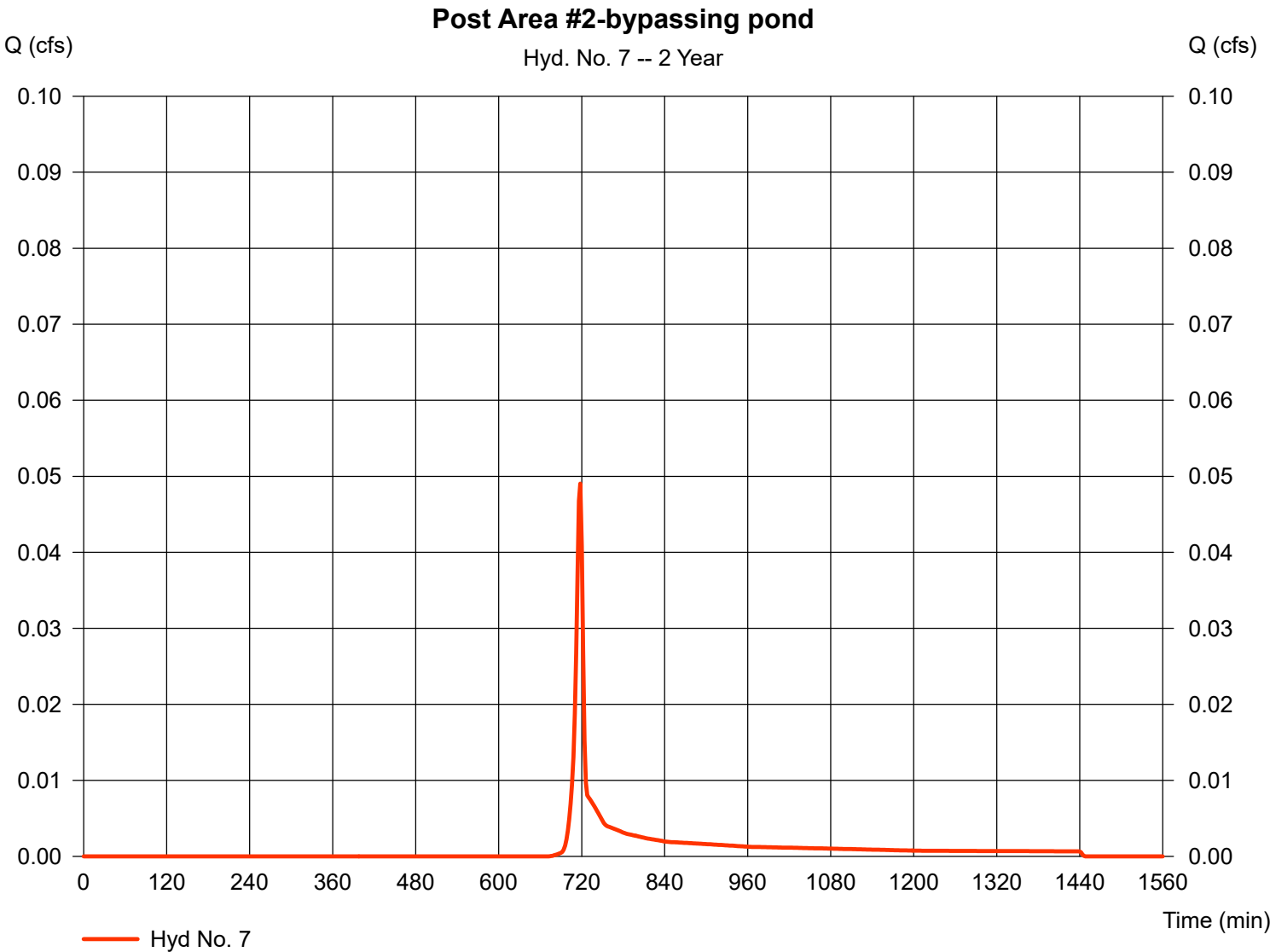


Hydrograph Report

Hyd. No. 7

Post Area #2-bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.049 cfs
Storm frequency	=	2 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	99 cuft
Drainage area	=	0.030 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.44 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

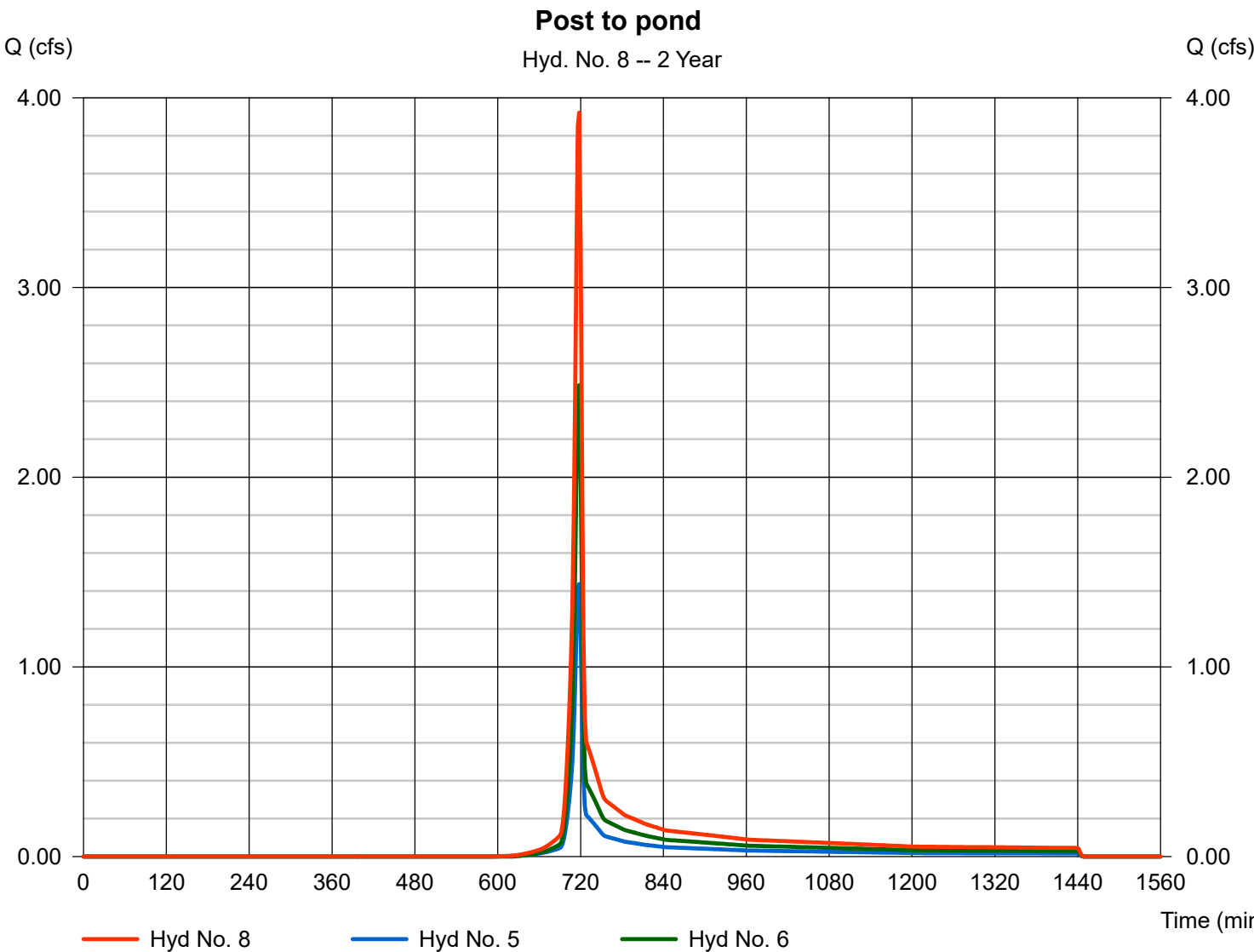


Hydrograph Report

Hyd. No. 8

Post to pond

Hydrograph type	= Combine	Peak discharge	= 3.922 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 7,849 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 1.770 ac



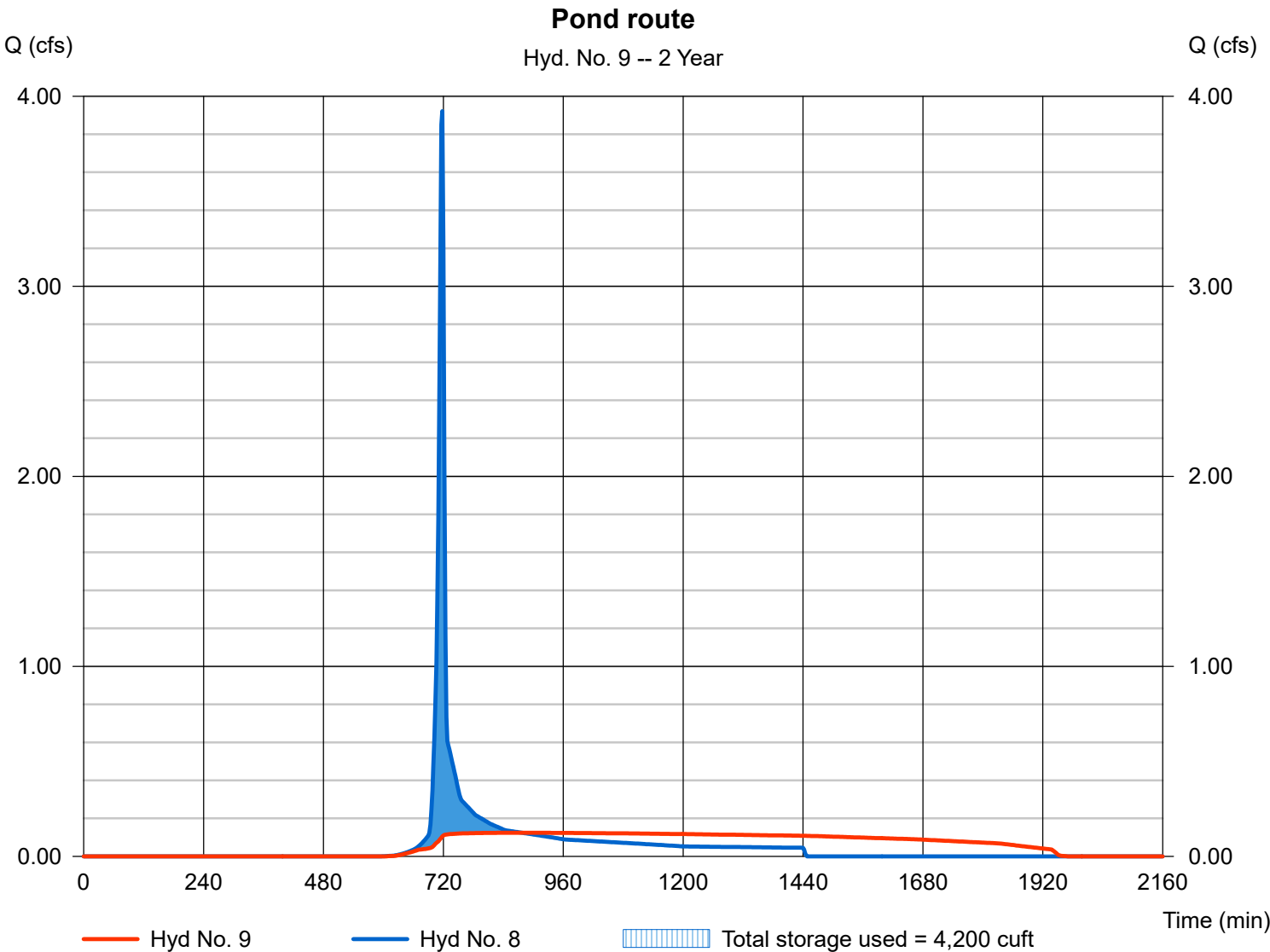
Hydrograph Report

Hyd. No. 9

Pond route

Hydrograph type	= Reservoir	Peak discharge	= 0.124 cfs
Storm frequency	= 2 yrs	Time to peak	= 878 min
Time interval	= 2 min	Hyd. volume	= 7,849 cuft
Inflow hyd. No.	= 8 - Post to pond	Max. Elevation	= 694.11 ft
Reservoir name	= Pond 1	Max. Storage	= 4,200 cuft

Storage Indication method used.



Pond Report

Pond No. 1 - Pond 1

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Beginning Elevation = 689.56 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	689.56	00	0	0
0.44	690.00	142	21	21
1.44	691.00	562	329	349
2.44	692.00	1,053	795	1,144
3.44	693.00	1,410	1,227	2,371
4.44	694.00	1,802	1,602	3,973
5.44	695.00	2,229	2,011	5,985
6.44	696.00	2,721	2,471	8,455
7.44	697.00	3,242	2,978	11,433
8.44	698.00	3,972	3,601	15,033

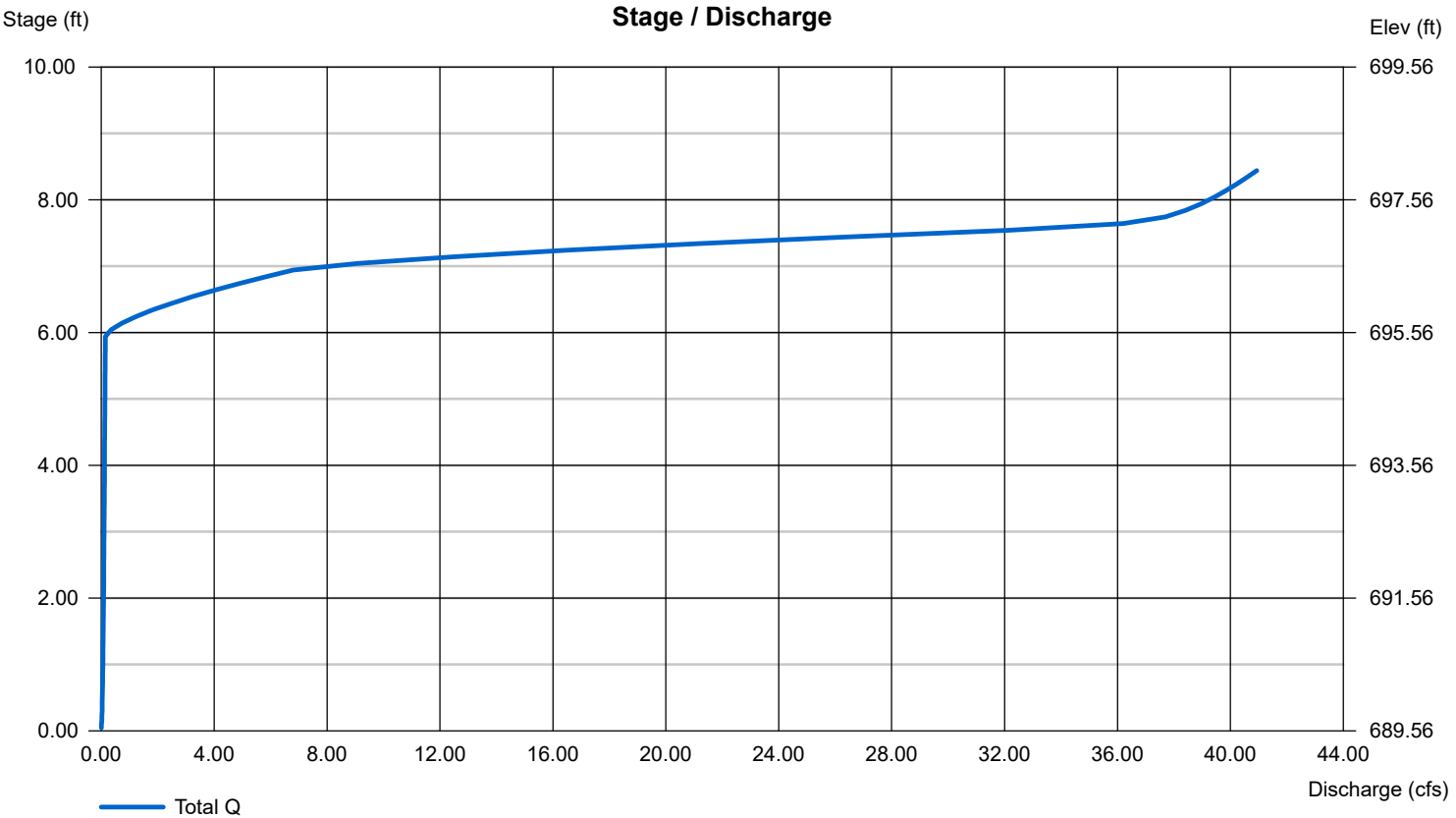
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 24.00	1.50	0.00	0.00
Span (in)	= 24.00	1.50	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 689.56	689.56	0.00	0.00
Length (ft)	= 49.43	0.10	0.00	0.00
Slope (%)	= 6.88	0.00	0.00	n/a
N-Value	= .024	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.00	2.00	0.00	0.00
Crest El. (ft)	= 696.50	695.50	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Rect	---	---
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

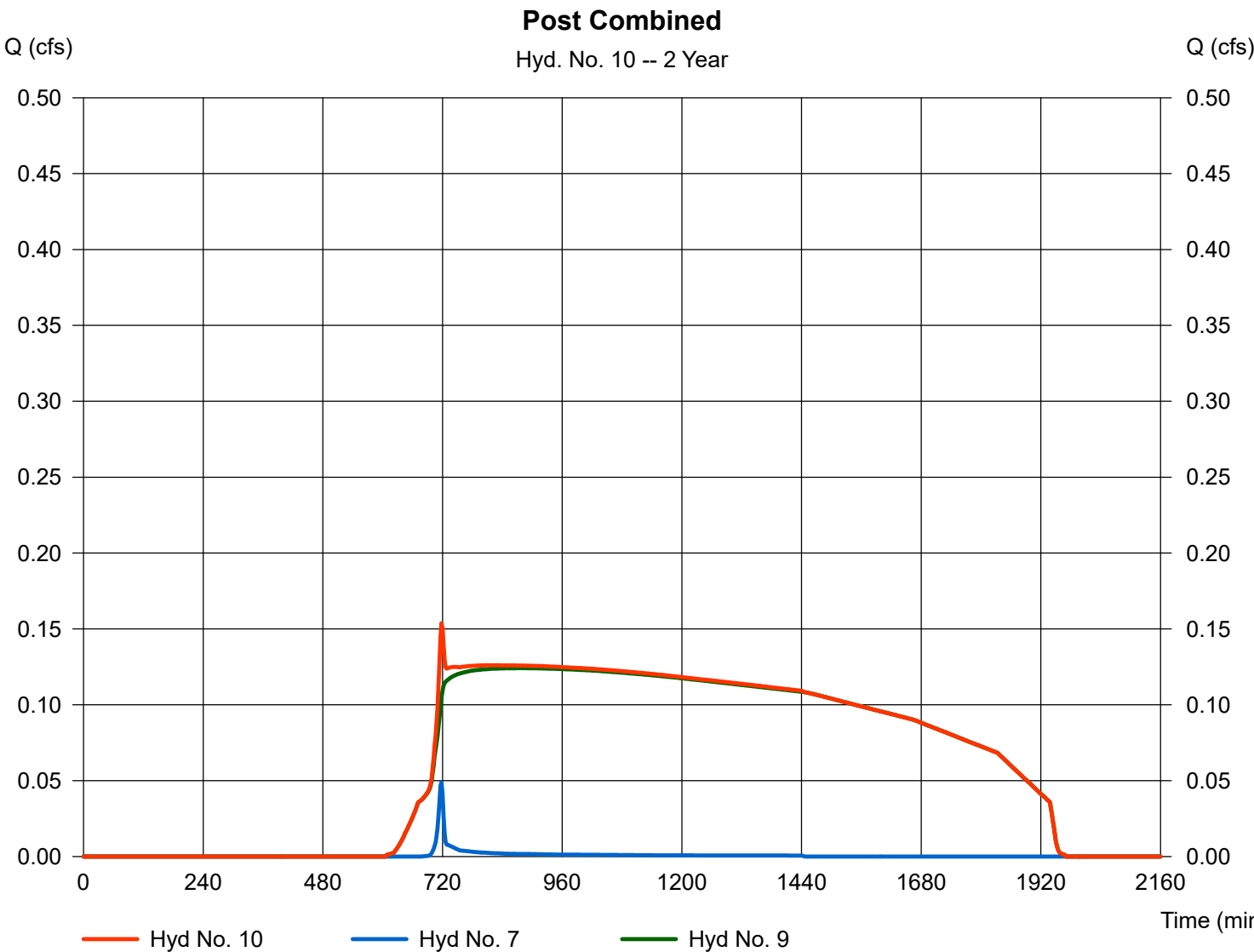


Hydrograph Report

Hyd. No. 10

Post Combined

Hydrograph type	= Combine	Peak discharge	= 0.154 cfs
Storm frequency	= 2 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 7,948 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.030 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

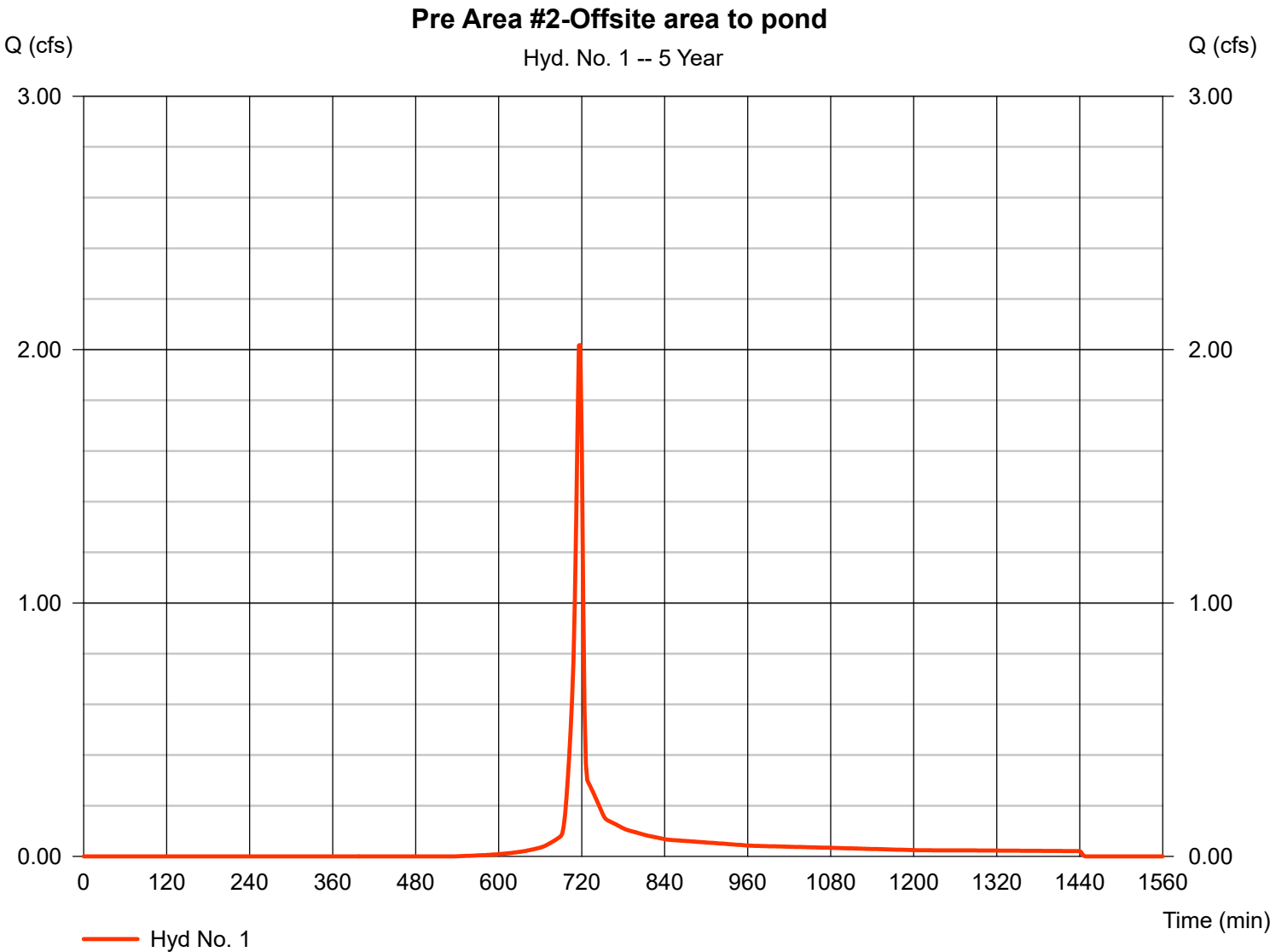
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	2.018	2	718	4,072	----	-----	-----	Pre Area #2-Offsite area to pond
2	SCS Runoff	0.904	2	720	2,542	----	-----	-----	Pre Area #3-Onsite to pond
3	SCS Runoff	0.077	2	718	178	----	-----	-----	Pre Area #4-area bypassing pond
4	Combine	2.891	2	718	6,793	1, 2, 3	-----	-----	Pre combined
5	SCS Runoff	2.018	2	718	4,072	----	-----	-----	Post Area #1-offsite to pond
6	SCS Runoff	3.559	2	718	7,147	----	-----	-----	Post Area #4-Onsite to pond
7	SCS Runoff	0.074	2	718	149	----	-----	-----	Post Area #2-bypassing pond
8	Combine	5.577	2	718	11,219	5, 6,	-----	-----	Post to pond
9	Reservoir	0.139	2	928	11,218	8	695.24	6,586	Pond route
10	Combine	0.192	2	718	11,367	7, 9	-----	-----	Post Combined
Columbia SB site.gpw					Return Period: 5 Year			Tuesday, Jan 28, 2025	

Hydrograph Report

Hyd. No. 1

Pre Area #2-Offsite area to pond

Hydrograph type	= SCS Runoff	Peak discharge	= 2.018 cfs
Storm frequency	= 5 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 4,072 cuft
Drainage area	= 0.610 ac	Curve number	= 77
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 5.00 min
Total precip.	= 4.19 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

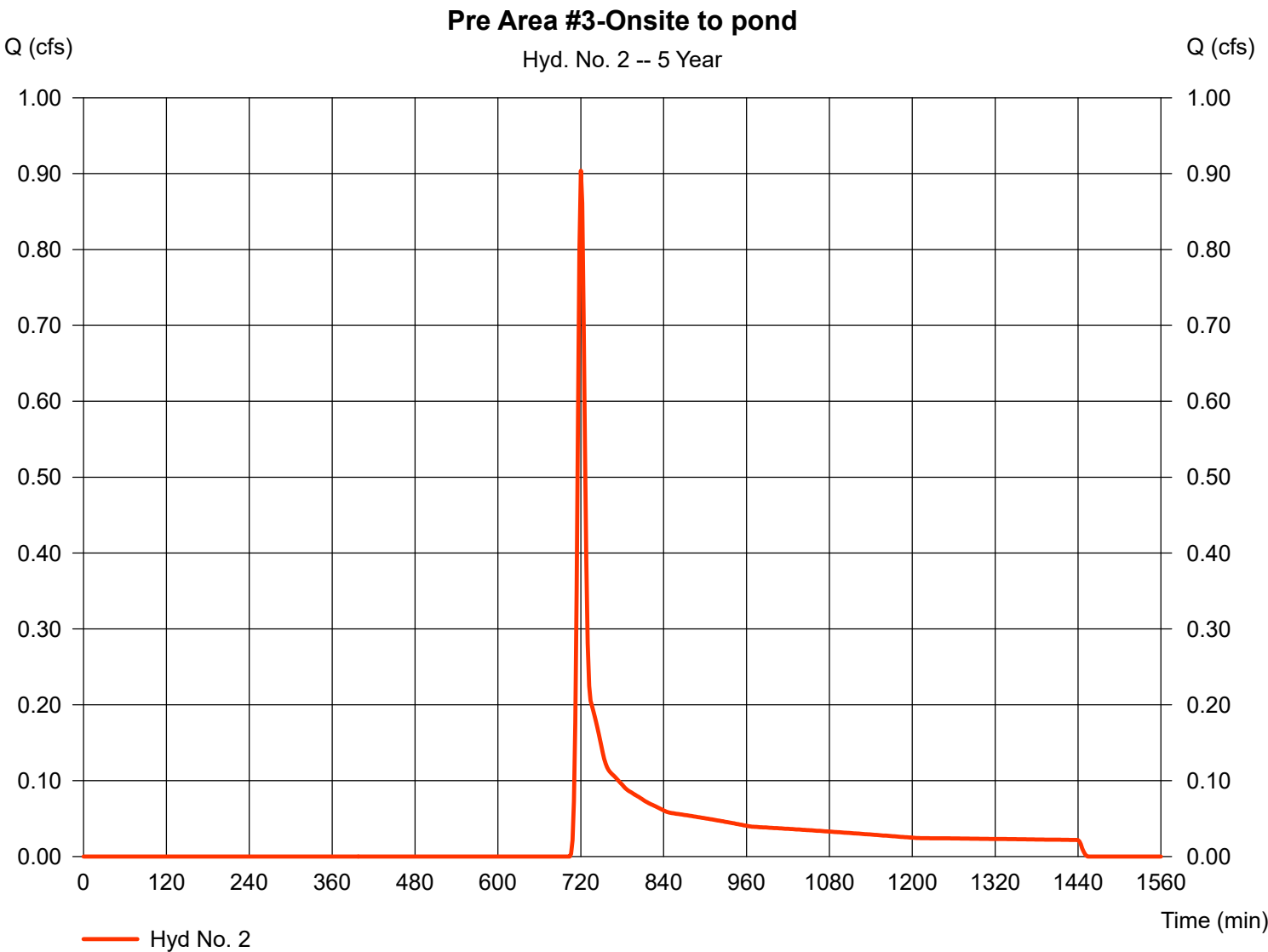


Hydrograph Report

Hyd. No. 2

Pre Area #3-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.904 cfs
Storm frequency	=	5 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	2,542 cuft
Drainage area	=	1.070 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.80 min
Total precip.	=	4.19 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

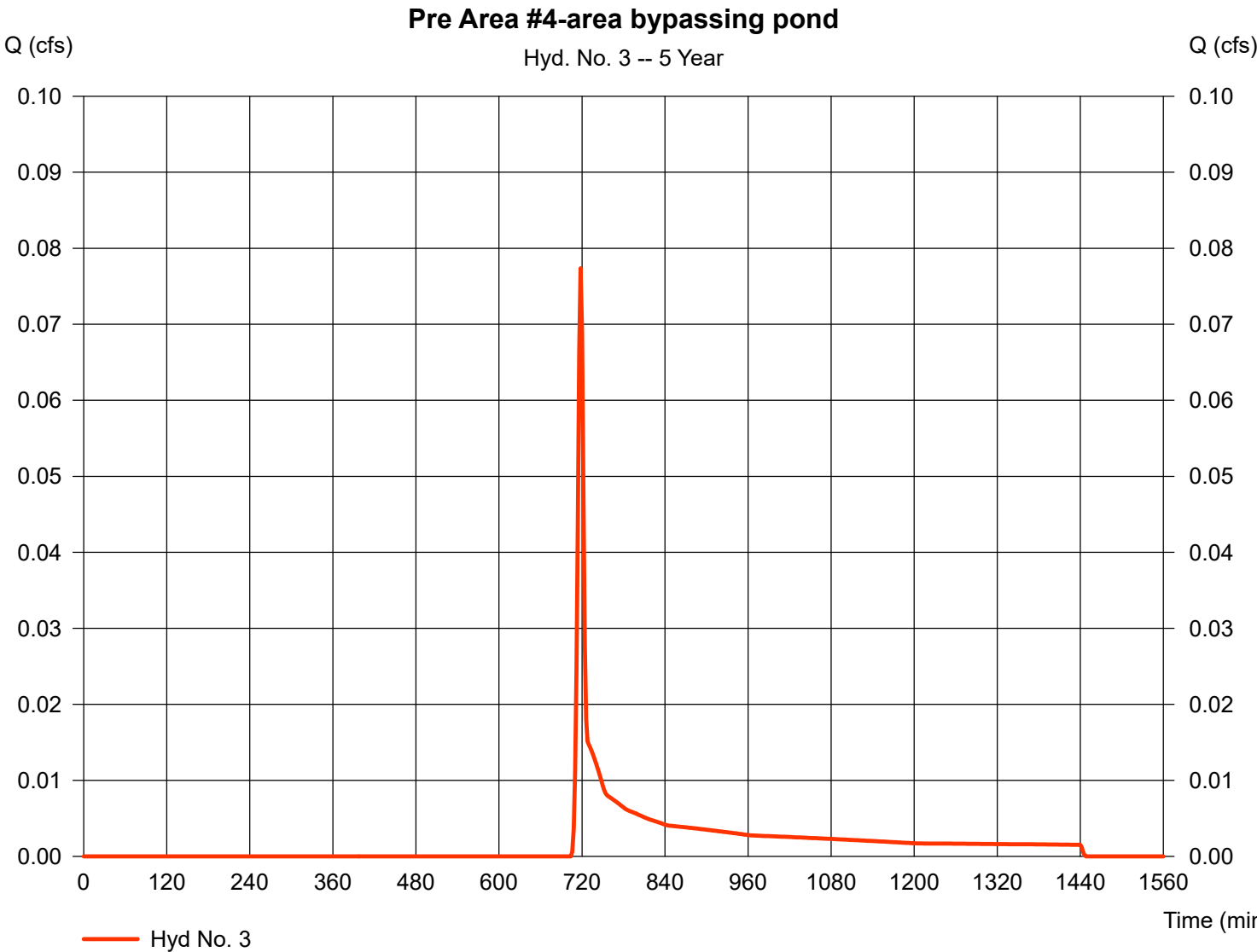


Hydrograph Report

Hyd. No. 3

Pre Area #4-area bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.077 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	178 cuft
Drainage area	=	0.080 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.19 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

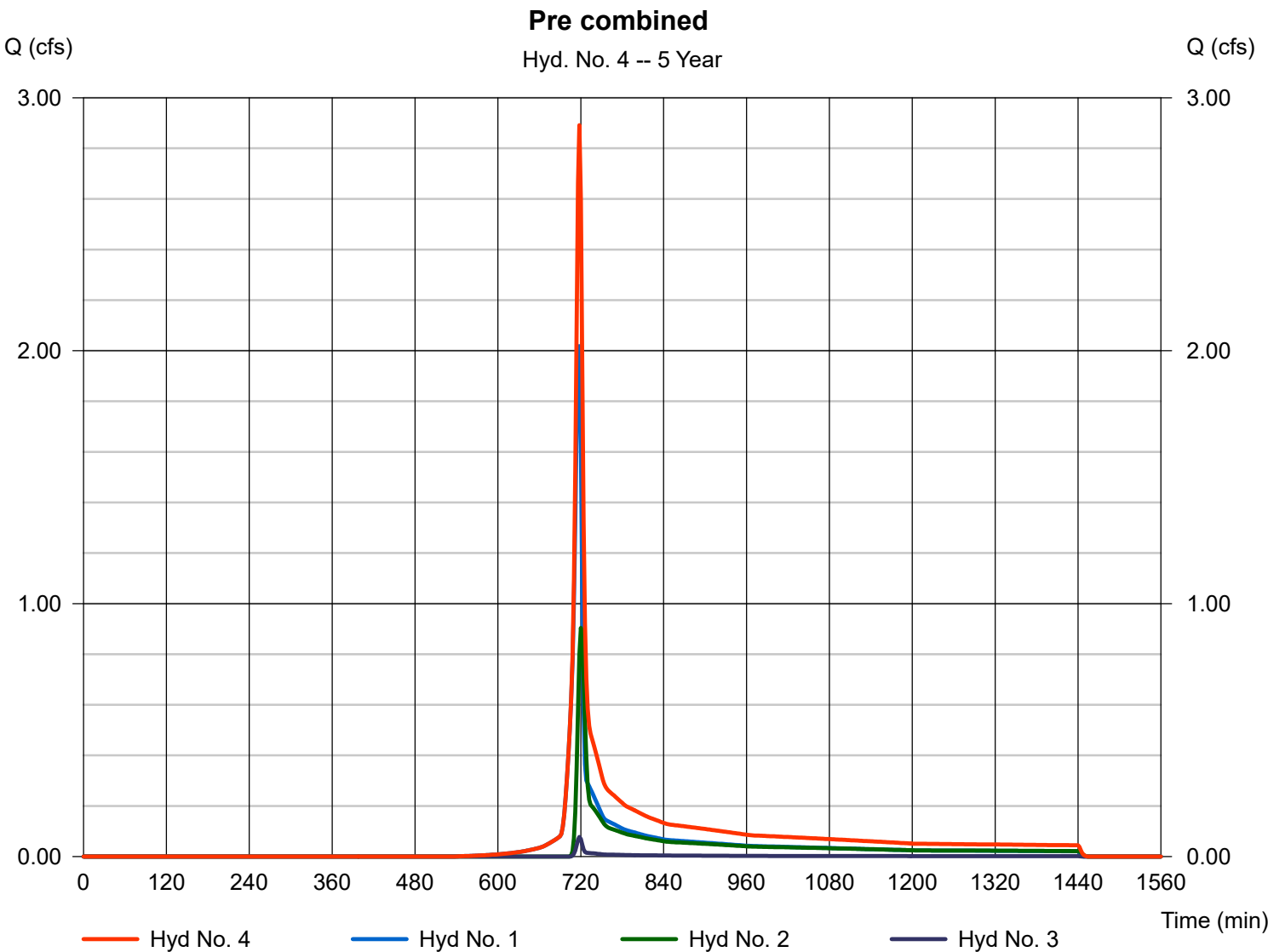


Hydrograph Report

Hyd. No. 4

Pre combined

Hydrograph type	= Combine	Peak discharge	= 2.891 cfs
Storm frequency	= 5 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 6,793 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 1.760 ac

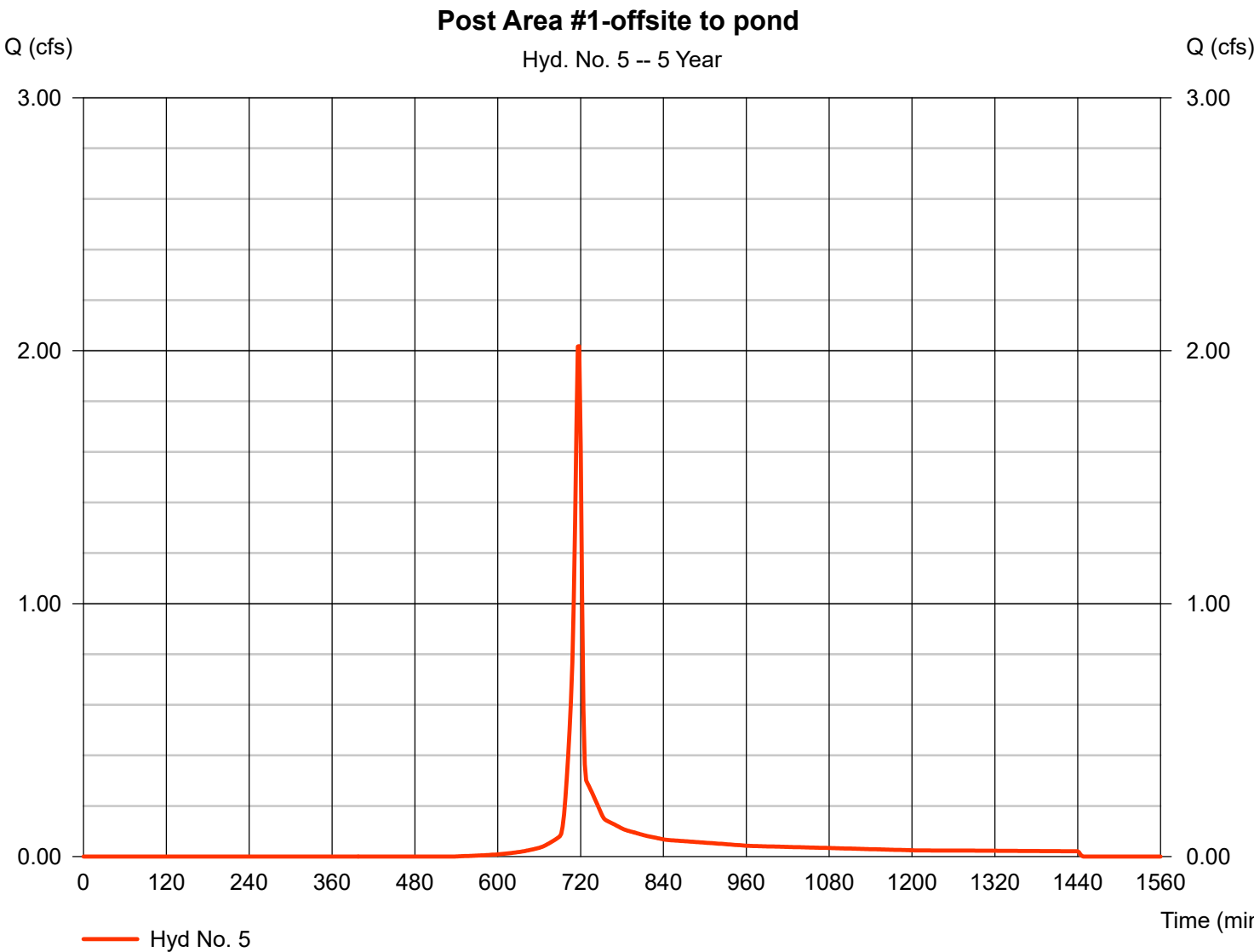


Hydrograph Report

Hyd. No. 5

Post Area #1-offsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.018 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	4,072 cuft
Drainage area	=	0.610 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.19 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

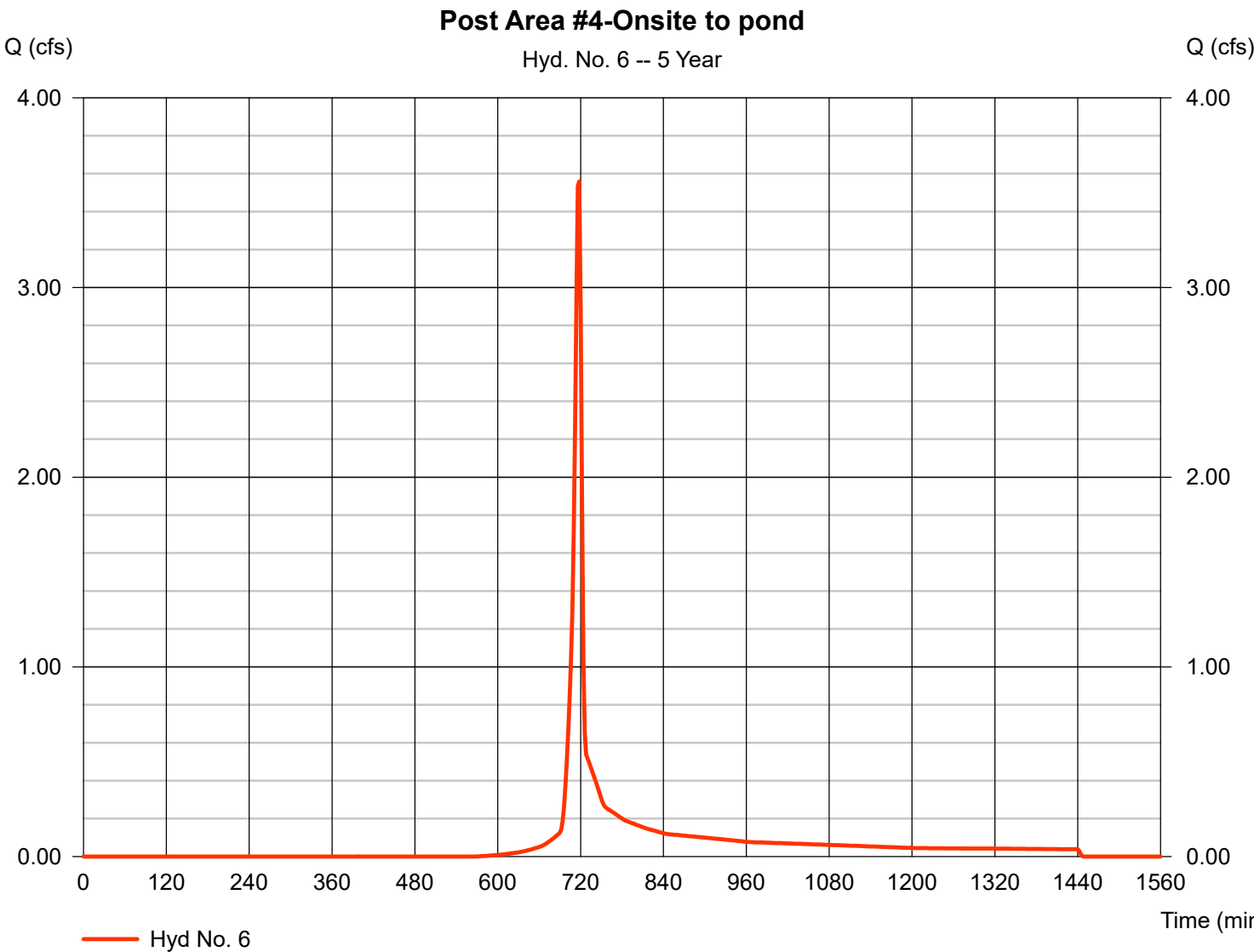


Hydrograph Report

Hyd. No. 6

Post Area #4-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.559 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	7,147 cuft
Drainage area	=	1.160 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.19 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

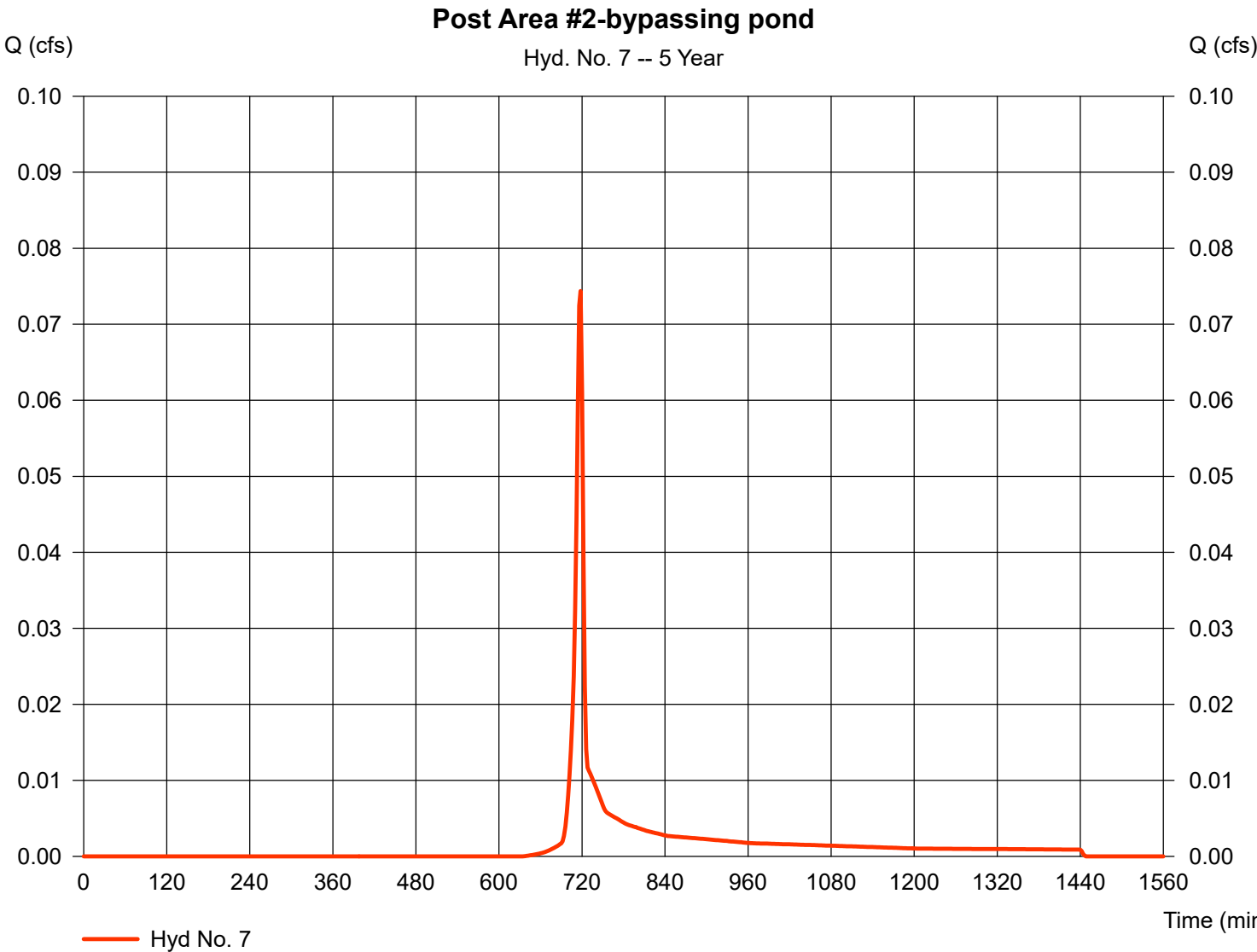


Hydrograph Report

Hyd. No. 7

Post Area #2-bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.074 cfs
Storm frequency	=	5 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	149 cuft
Drainage area	=	0.030 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.19 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

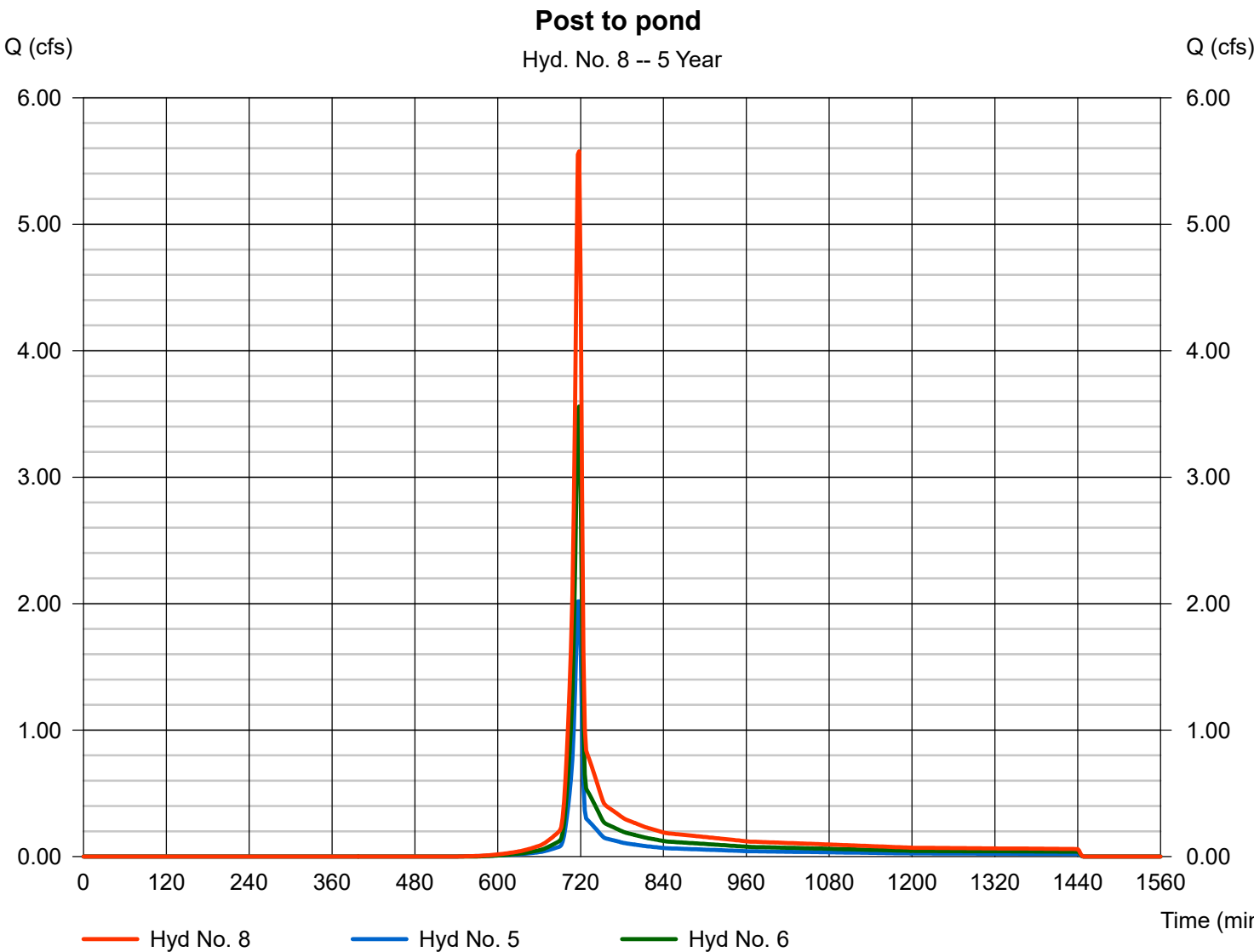


Hydrograph Report

Hyd. No. 8

Post to pond

Hydrograph type	= Combine	Peak discharge	= 5.577 cfs
Storm frequency	= 5 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 11,219 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 1.770 ac



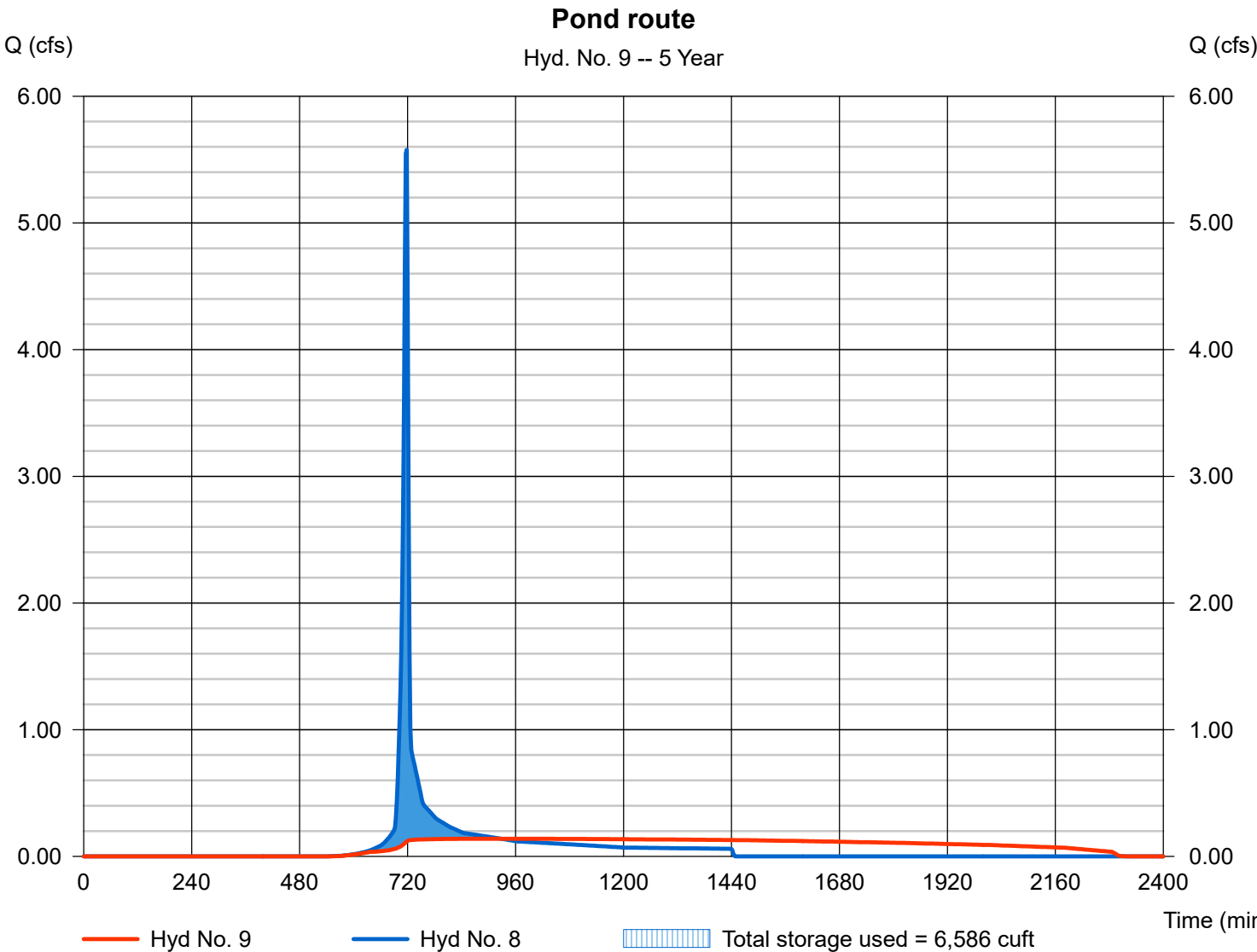
Hydrograph Report

Hyd. No. 9

Pond route

Hydrograph type	= Reservoir	Peak discharge	= 0.139 cfs
Storm frequency	= 5 yrs	Time to peak	= 928 min
Time interval	= 2 min	Hyd. volume	= 11,218 cuft
Inflow hyd. No.	= 8 - Post to pond	Max. Elevation	= 695.24 ft
Reservoir name	= Pond 1	Max. Storage	= 6,586 cuft

Storage Indication method used.

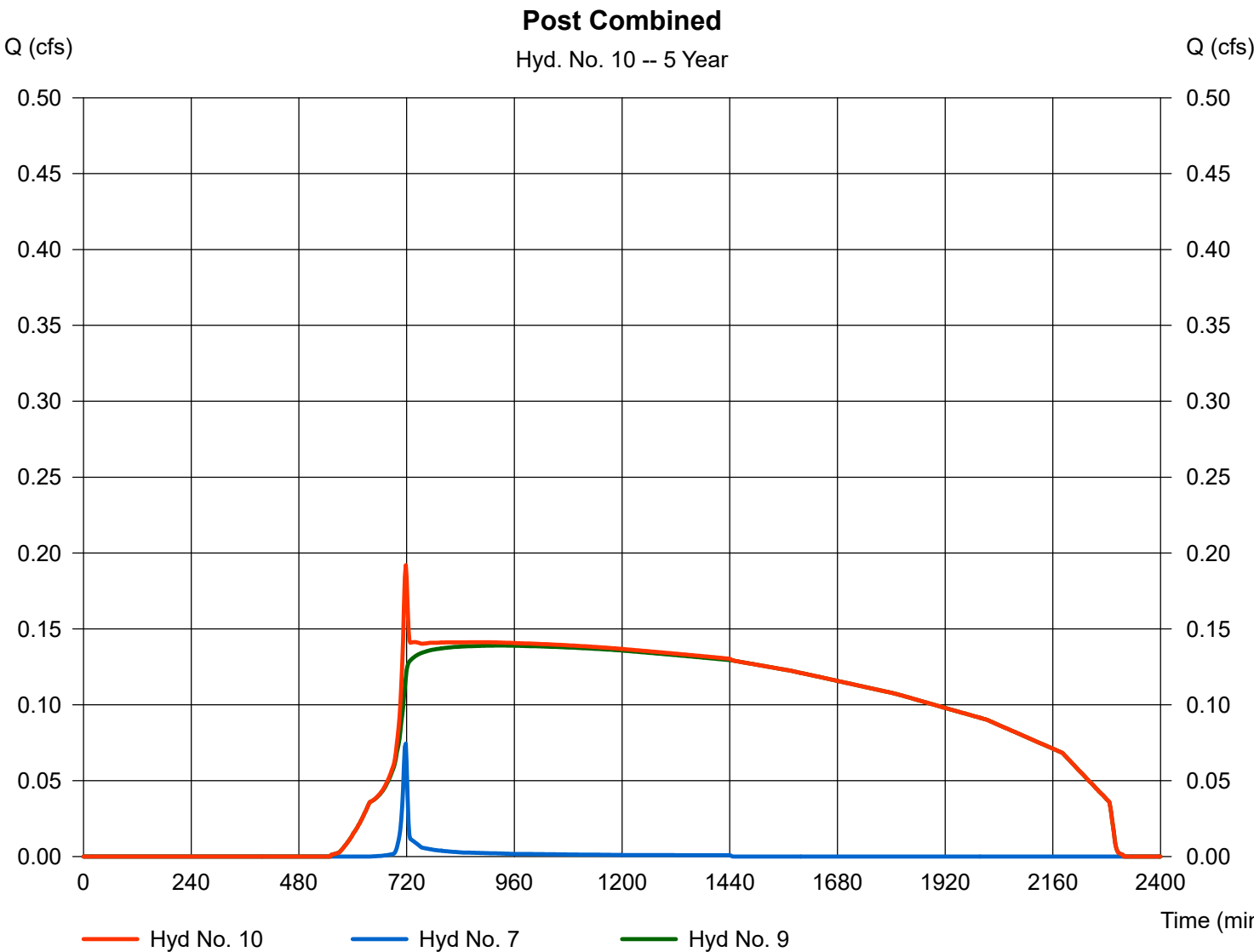


Hydrograph Report

Hyd. No. 10

Post Combined

Hydrograph type	= Combine	Peak discharge	= 0.192 cfs
Storm frequency	= 5 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 11,367 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.030 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

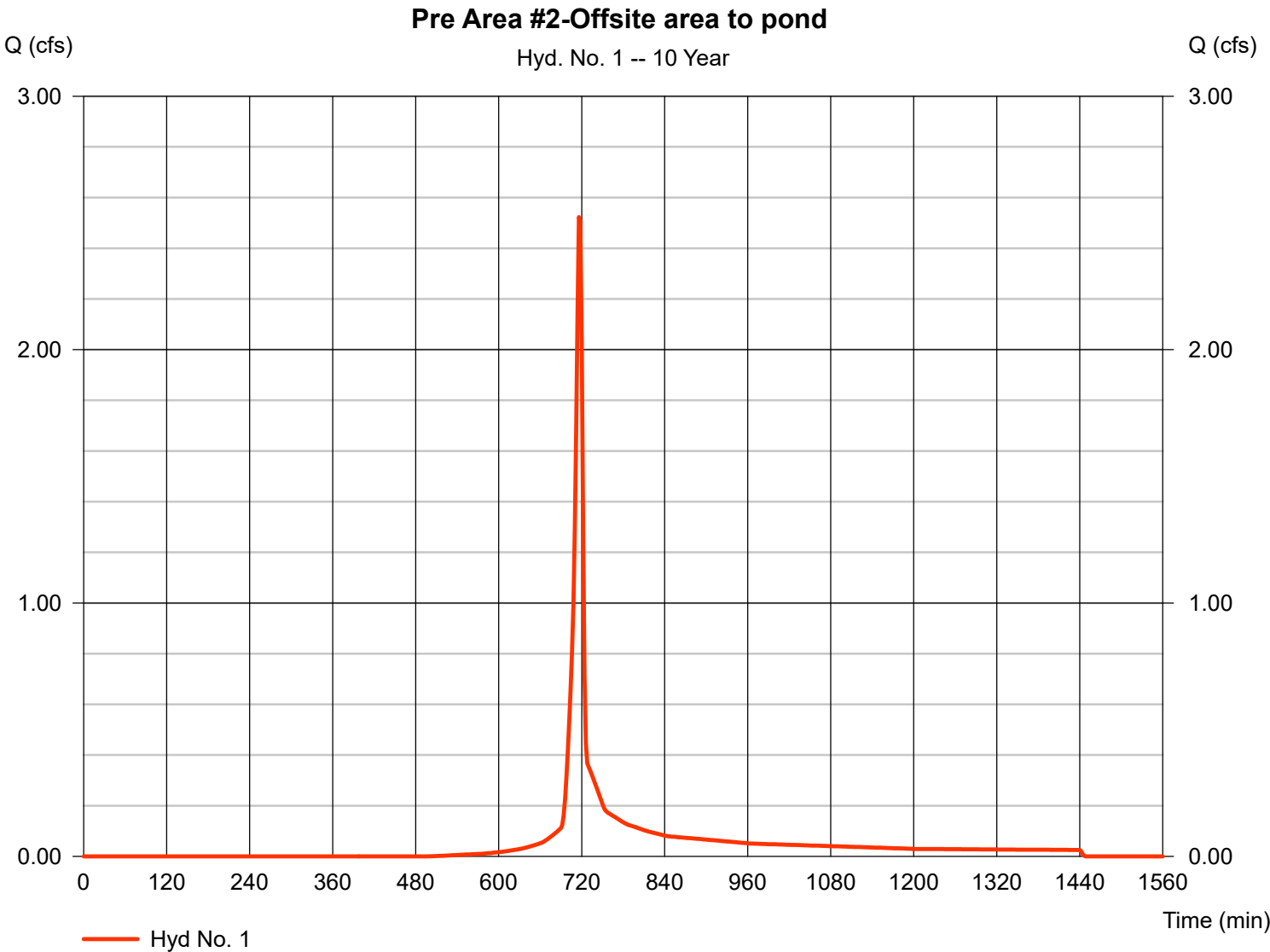
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	2.523	2	716	5,100	----	-----	-----	Pre Area #2-Offsite area to pond
2	SCS Runoff	1.431	2	720	3,652	----	-----	-----	Pre Area #3-Onsite to pond
3	SCS Runoff	0.120	2	718	256	----	-----	-----	Pre Area #4-area bypassing pond
4	Combine	3.946	2	718	9,007	1, 2, 3	-----	-----	Pre combined
5	SCS Runoff	2.523	2	716	5,100	----	-----	-----	Post Area #1-offsite to pond
6	SCS Runoff	4.473	2	716	9,033	----	-----	-----	Post Area #4-Onsite to pond
7	SCS Runoff	0.096	2	718	193	----	-----	-----	Post Area #2-bypassing pond
8	Combine	6.997	2	716	14,132	5, 6,	-----	-----	Post to pond
9	Reservoir	0.415	2	772	14,131	8	695.62	7,507	Pond route
10	Combine	0.421	2	772	14,324	7, 9	-----	-----	Post Combined
Columbia SB site.gpw					Return Period: 10 Year			Tuesday, Jan 28, 2025	

Hydrograph Report

Hyd. No. 1

Pre Area #2-Offsite area to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.523 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	5,100 cuft
Drainage area	=	0.610 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

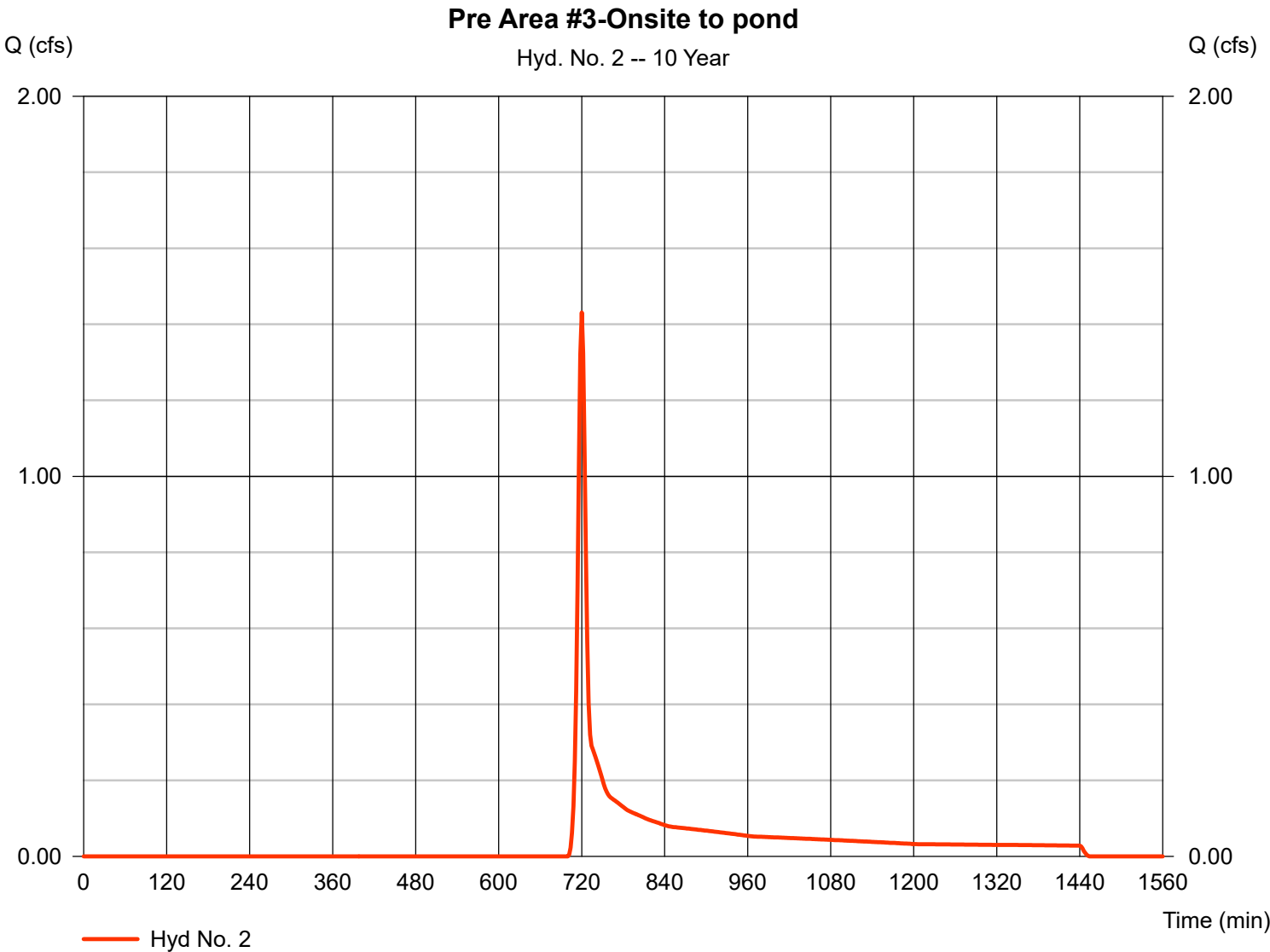


Hydrograph Report

Hyd. No. 2

Pre Area #3-Onsite to pond

Hydrograph type	= SCS Runoff	Peak discharge	= 1.431 cfs
Storm frequency	= 10 yrs	Time to peak	= 720 min
Time interval	= 2 min	Hyd. volume	= 3,652 cuft
Drainage area	= 1.070 ac	Curve number	= 56
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.80 min
Total precip.	= 4.80 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

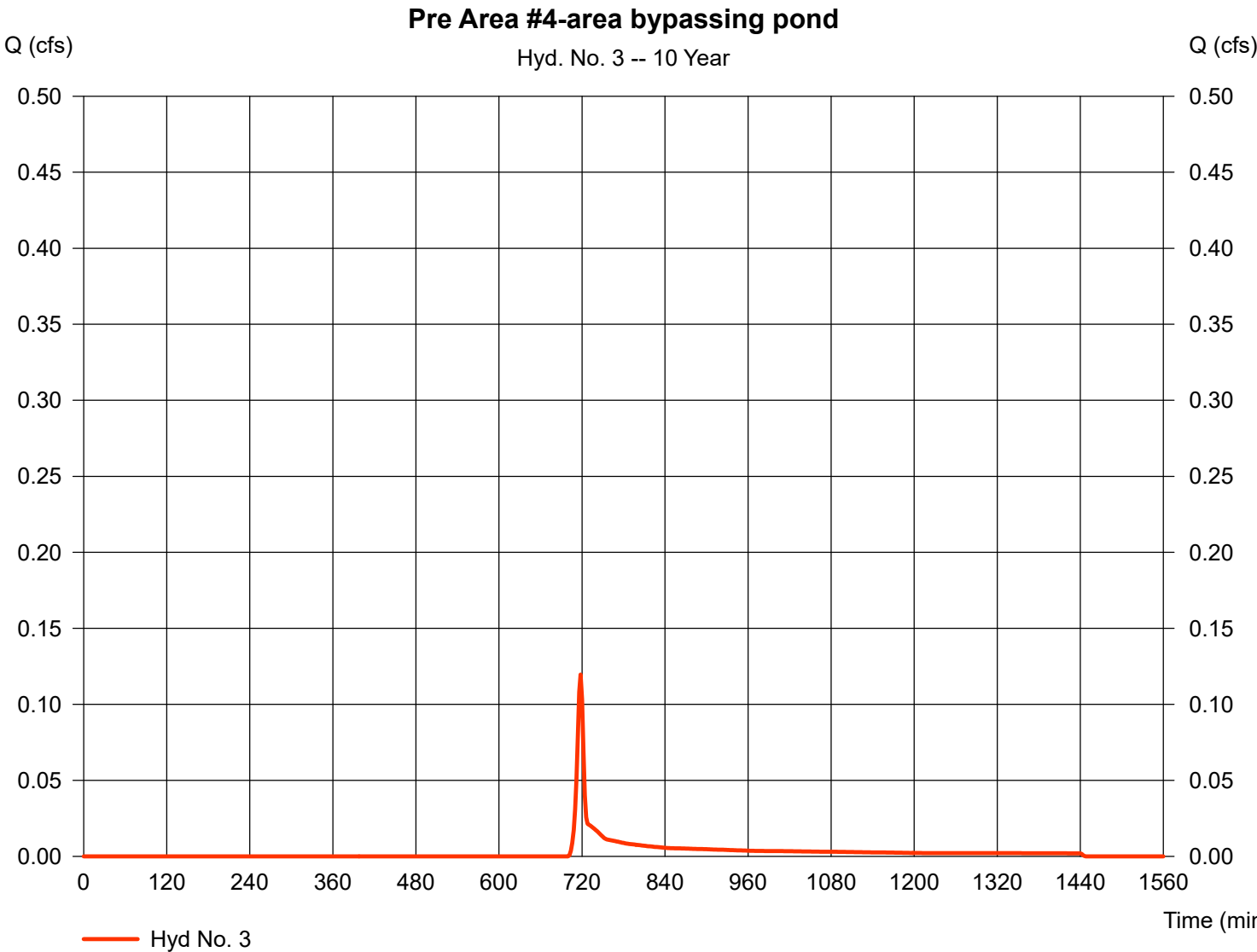


Hydrograph Report

Hyd. No. 3

Pre Area #4-area bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.120 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	256 cuft
Drainage area	=	0.080 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

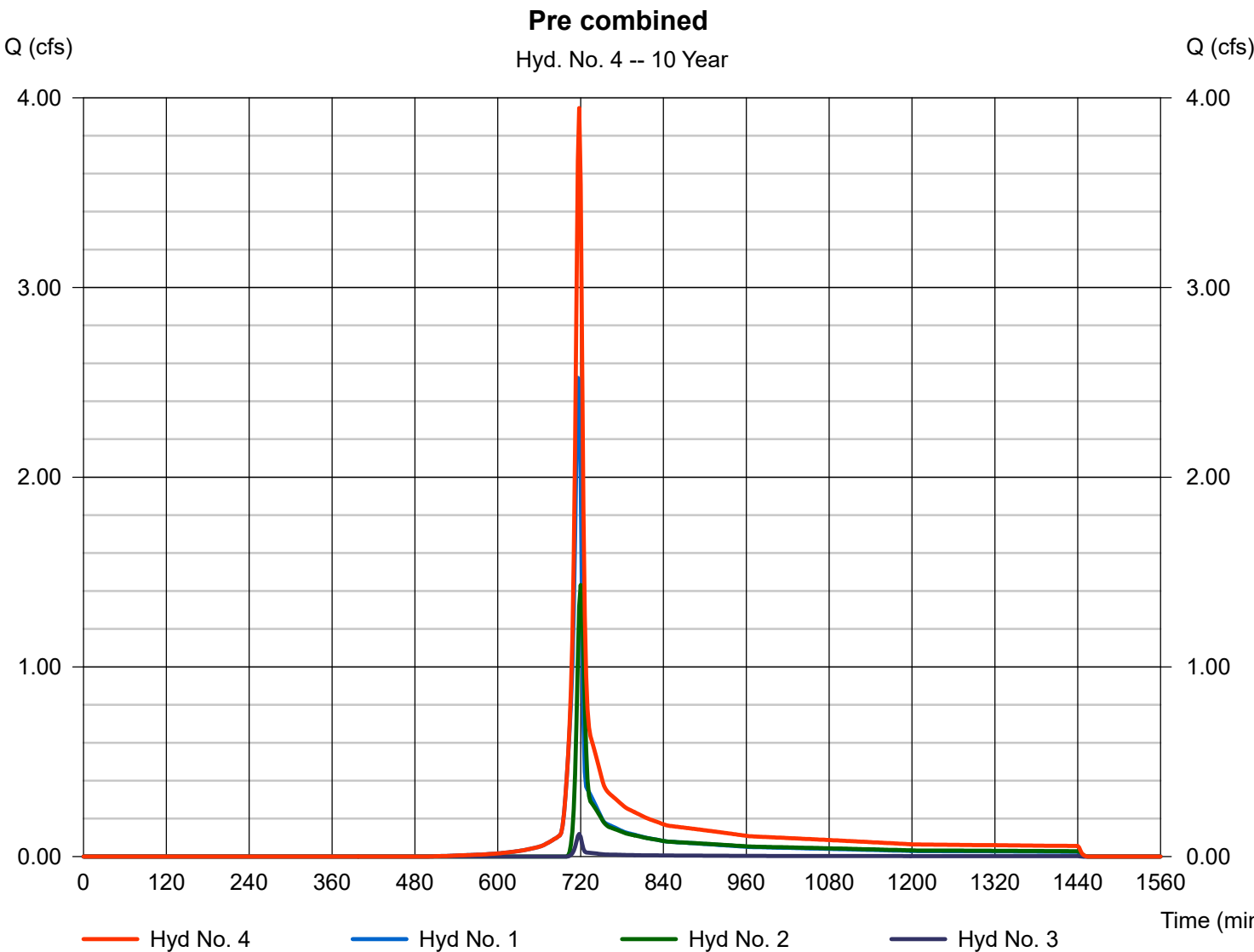


Hydrograph Report

Hyd. No. 4

Pre combined

Hydrograph type	= Combine	Peak discharge	= 3.946 cfs
Storm frequency	= 10 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 9,007 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 1.760 ac

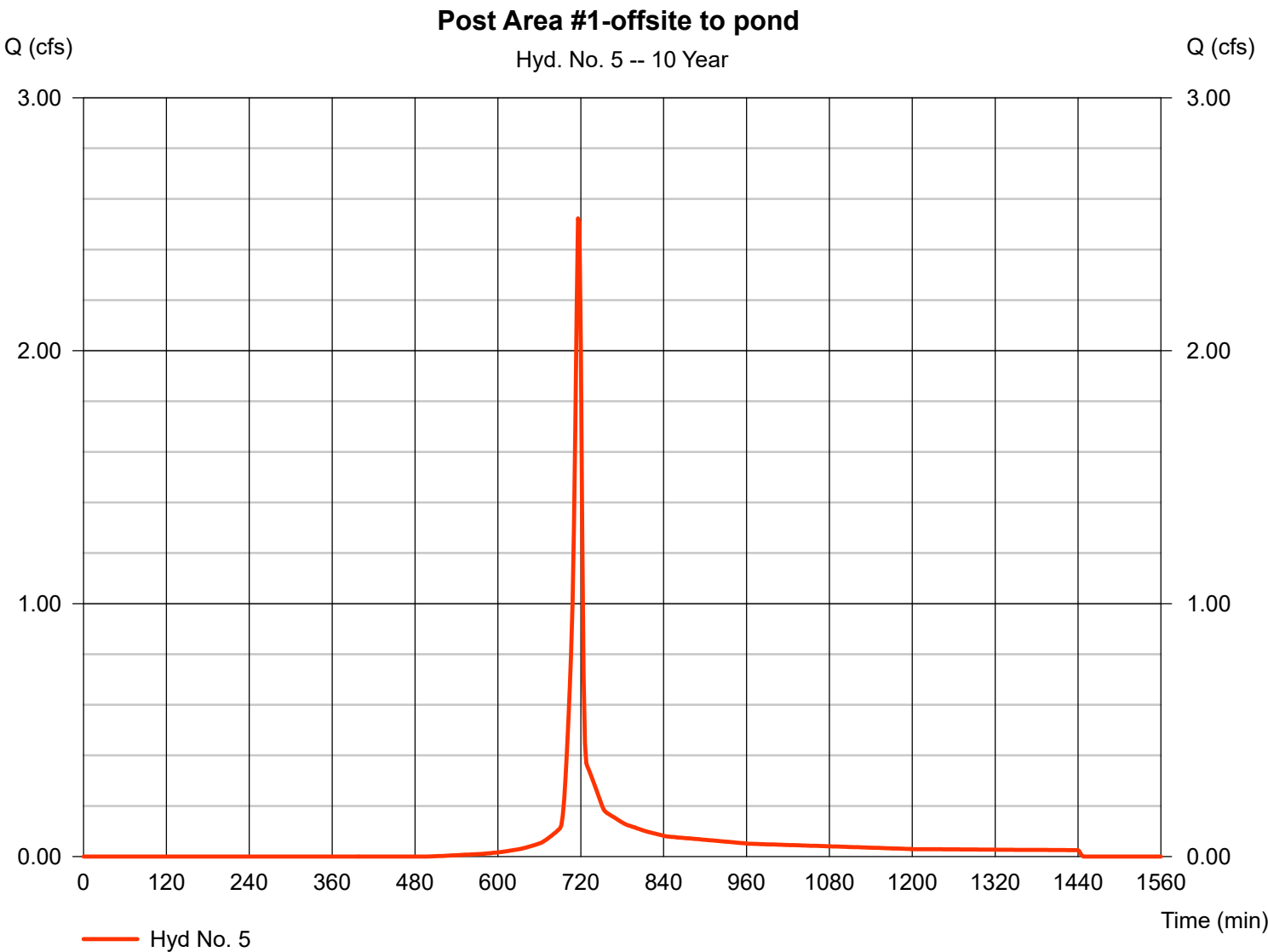


Hydrograph Report

Hyd. No. 5

Post Area #1-offsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.523 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	5,100 cuft
Drainage area	=	0.610 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

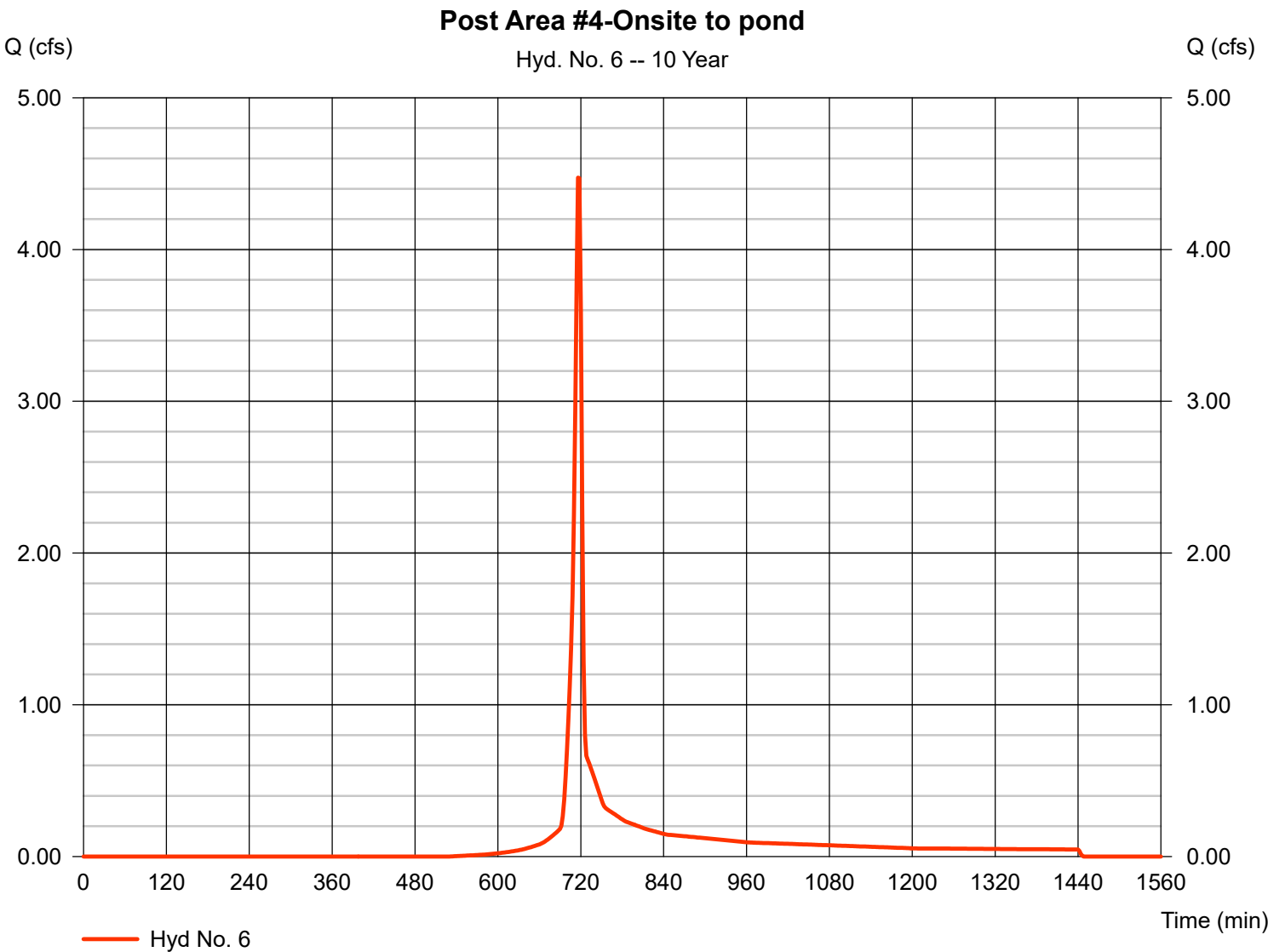


Hydrograph Report

Hyd. No. 6

Post Area #4-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.473 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	9,033 cuft
Drainage area	=	1.160 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

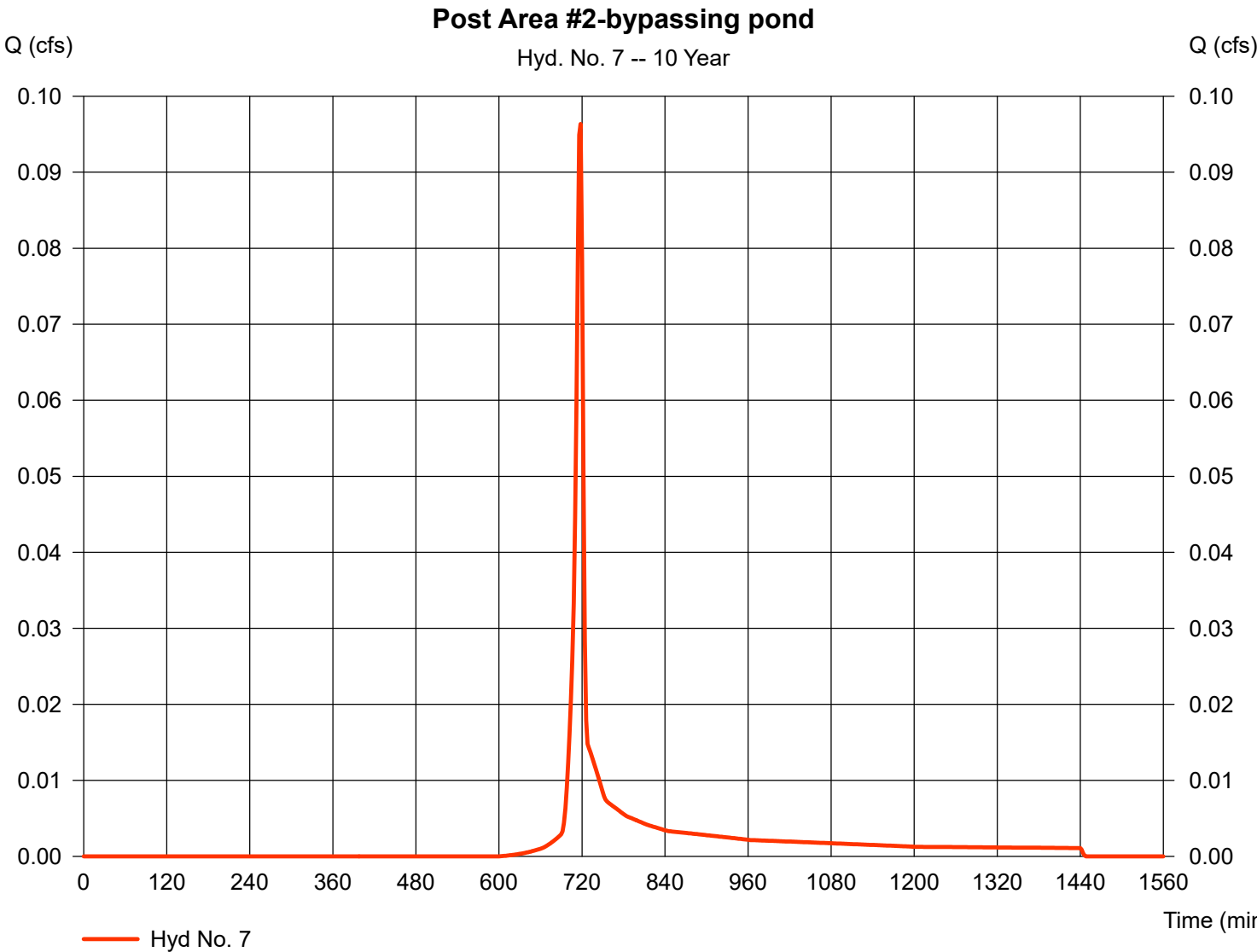
Hydraflow Hydrographs by Intelisolve v9.23

Tuesday, Jan 28, 2025

Hyd. No. 7

Post Area #2-bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.096 cfs
Storm frequency	=	10 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	193 cuft
Drainage area	=	0.030 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.80 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

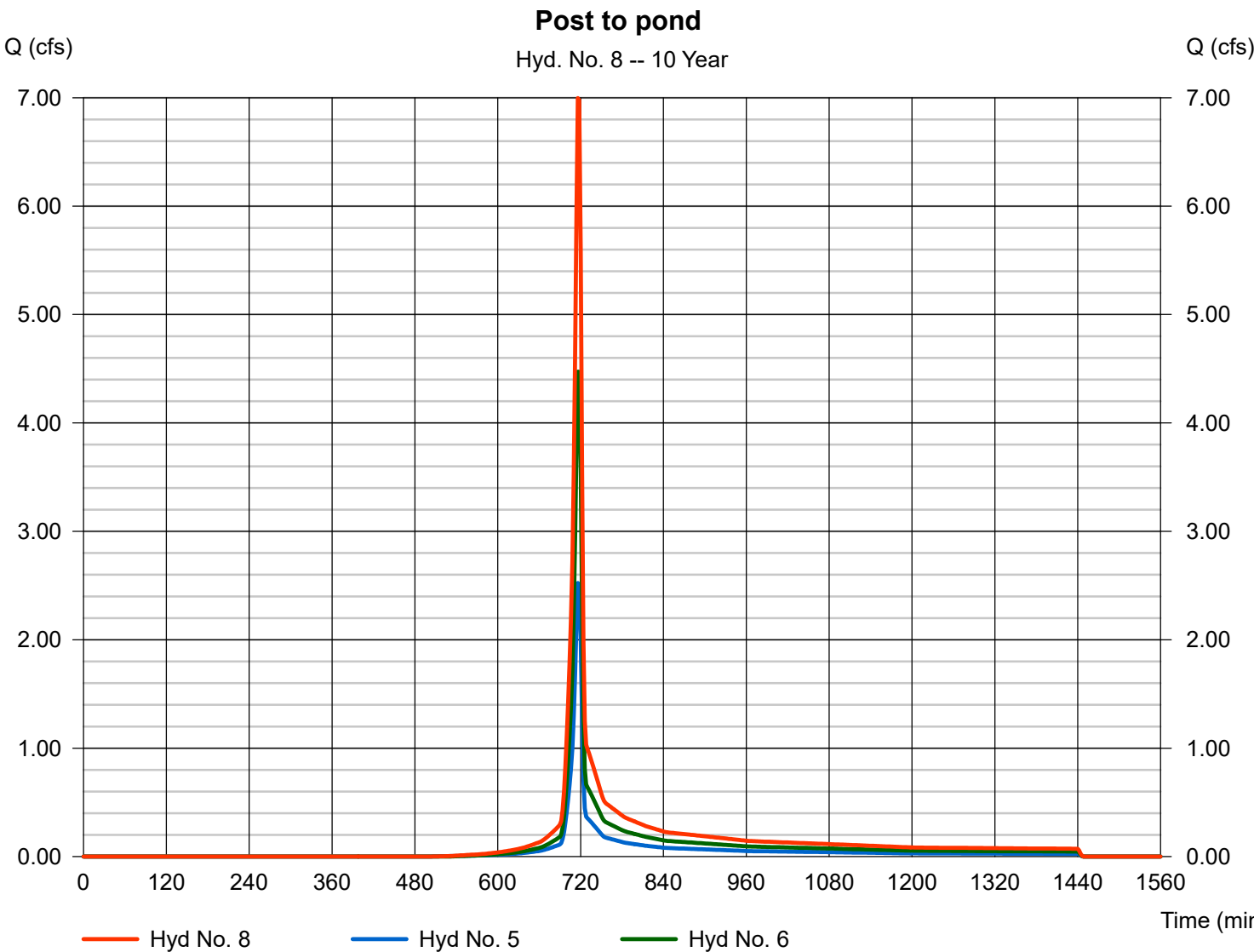


Hydrograph Report

Hyd. No. 8

Post to pond

Hydrograph type	= Combine	Peak discharge	= 6.997 cfs
Storm frequency	= 10 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 14,132 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 1.770 ac



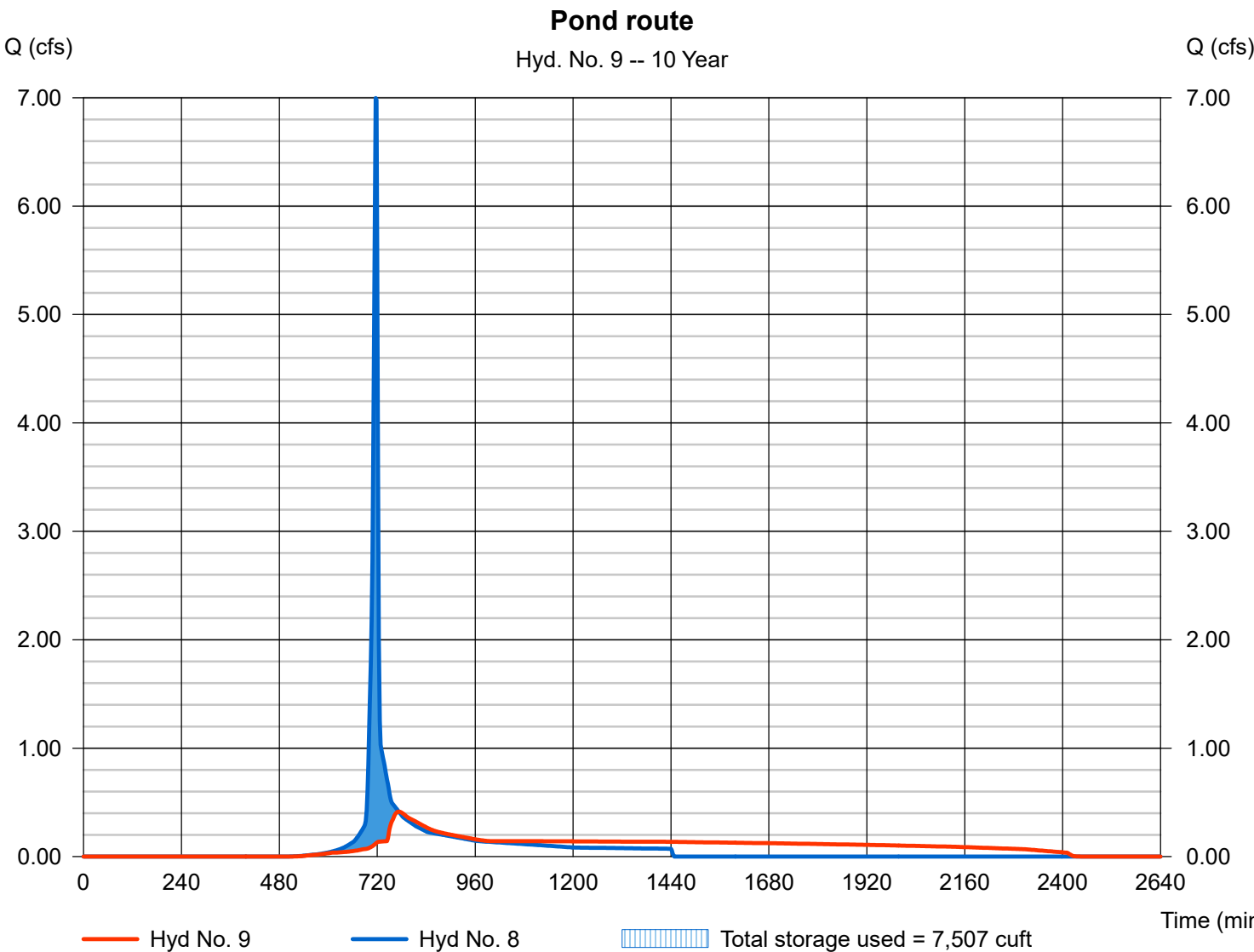
Hydrograph Report

Hyd. No. 9

Pond route

Hydrograph type	= Reservoir	Peak discharge	= 0.415 cfs
Storm frequency	= 10 yrs	Time to peak	= 772 min
Time interval	= 2 min	Hyd. volume	= 14,131 cuft
Inflow hyd. No.	= 8 - Post to pond	Max. Elevation	= 695.62 ft
Reservoir name	= Pond 1	Max. Storage	= 7,507 cuft

Storage Indication method used.

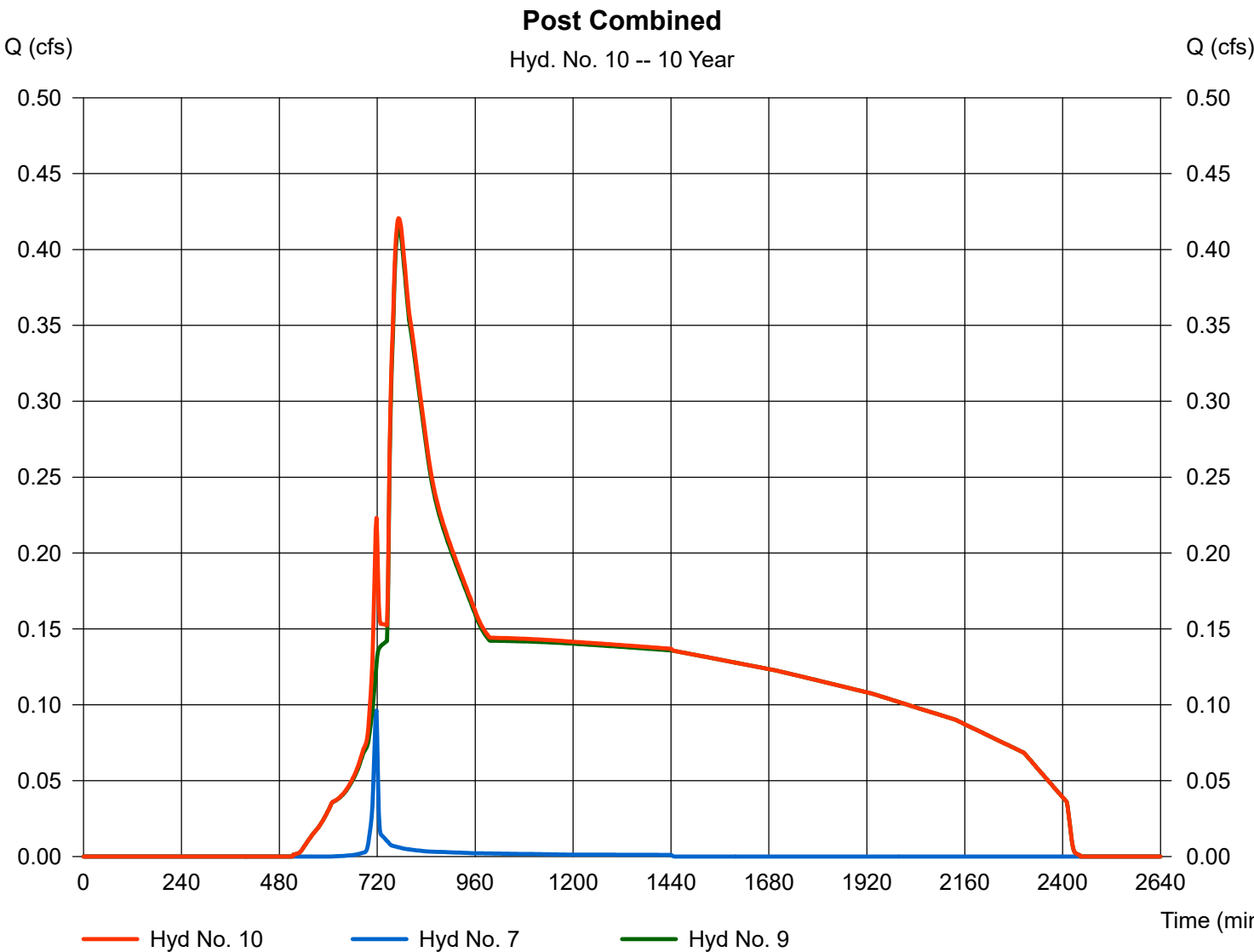


Hydrograph Report

Hyd. No. 10

Post Combined

Hydrograph type	= Combine	Peak discharge	= 0.421 cfs
Storm frequency	= 10 yrs	Time to peak	= 772 min
Time interval	= 2 min	Hyd. volume	= 14,324 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.030 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

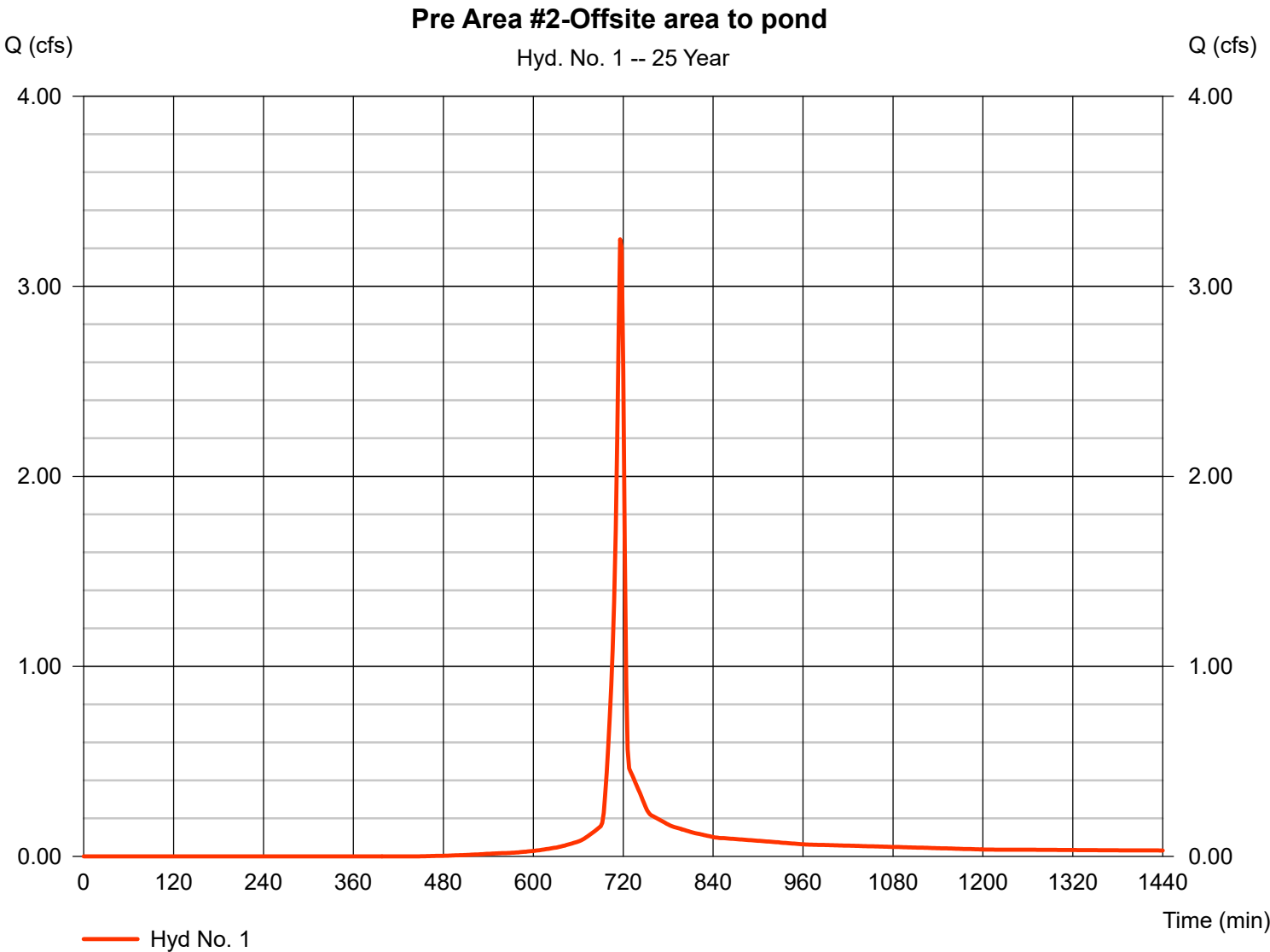
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	3.247	2	716	6,592	----	-----	-----	Pre Area #2-Offsite area to pond
2	SCS Runoff	2.252	2	720	5,413	----	-----	-----	Pre Area #3-Onsite to pond
3	SCS Runoff	0.185	2	718	379	----	-----	-----	Pre Area #4-area bypassing pond
4	Combine	5.530	2	718	12,384	1, 2, 3	-----	-----	Pre combined
5	SCS Runoff	3.247	2	716	6,592	----	-----	-----	Post Area #1-offsite to pond
6	SCS Runoff	5.826	2	716	11,788	----	-----	-----	Post Area #4-Onsite to pond
7	SCS Runoff	0.128	2	718	258	----	-----	-----	Post Area #2-bypassing pond
8	Combine	9.073	2	716	18,379	5, 6,	-----	-----	Post to pond
9	Reservoir	1.835	2	726	18,379	8	695.91	8,212	Pond route
10	Combine	1.859	2	726	18,637	7, 9	-----	-----	Post Combined
Columbia SB site.gpw					Return Period: 25 Year			Tuesday, Jan 28, 2025	

Hydrograph Report

Hyd. No. 1

Pre Area #2-Offsite area to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.247 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	6,592 cuft
Drainage area	=	0.610 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.65 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

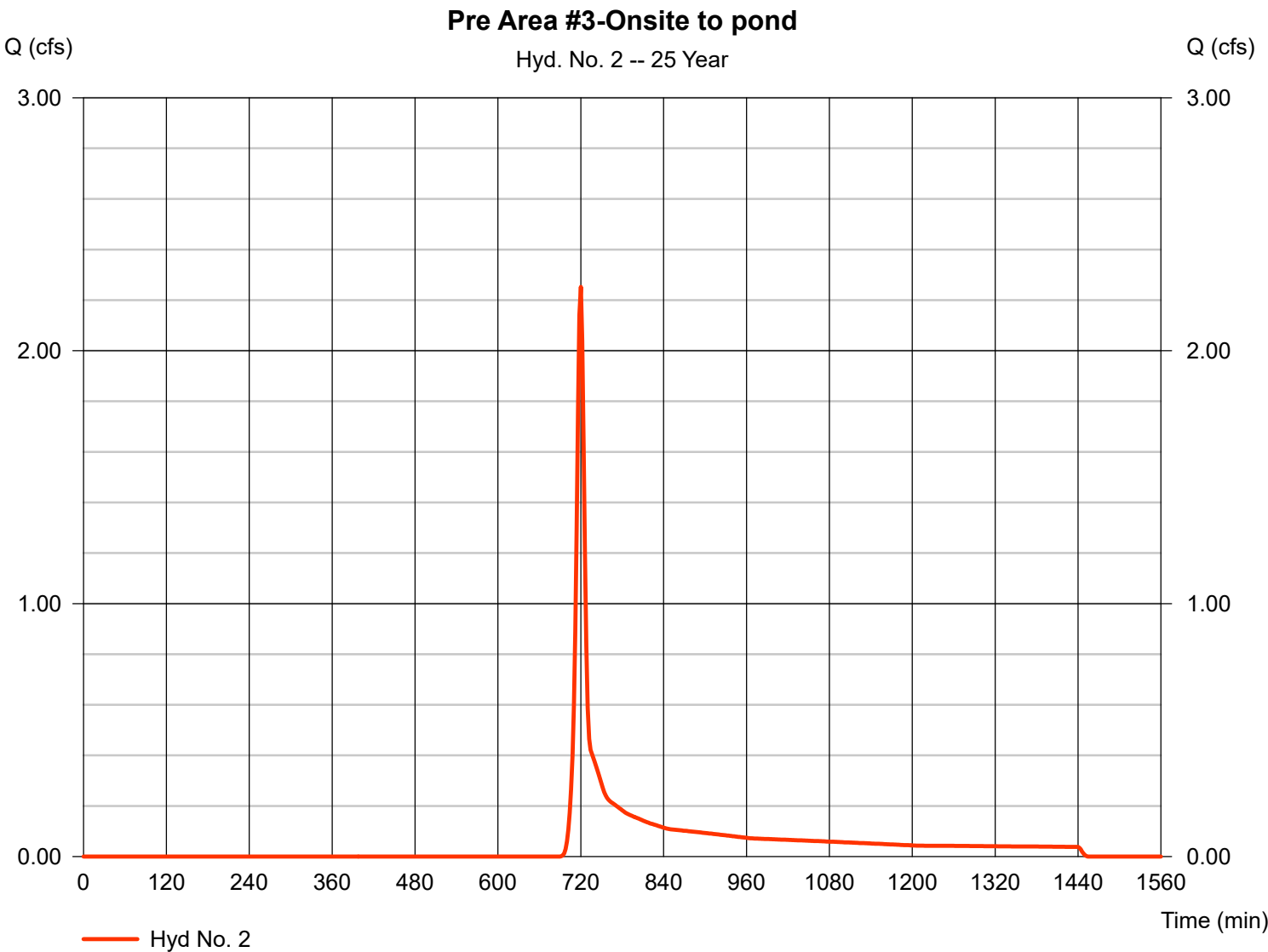


Hydrograph Report

Hyd. No. 2

Pre Area #3-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.252 cfs
Storm frequency	=	25 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	5,413 cuft
Drainage area	=	1.070 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.80 min
Total precip.	=	5.65 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

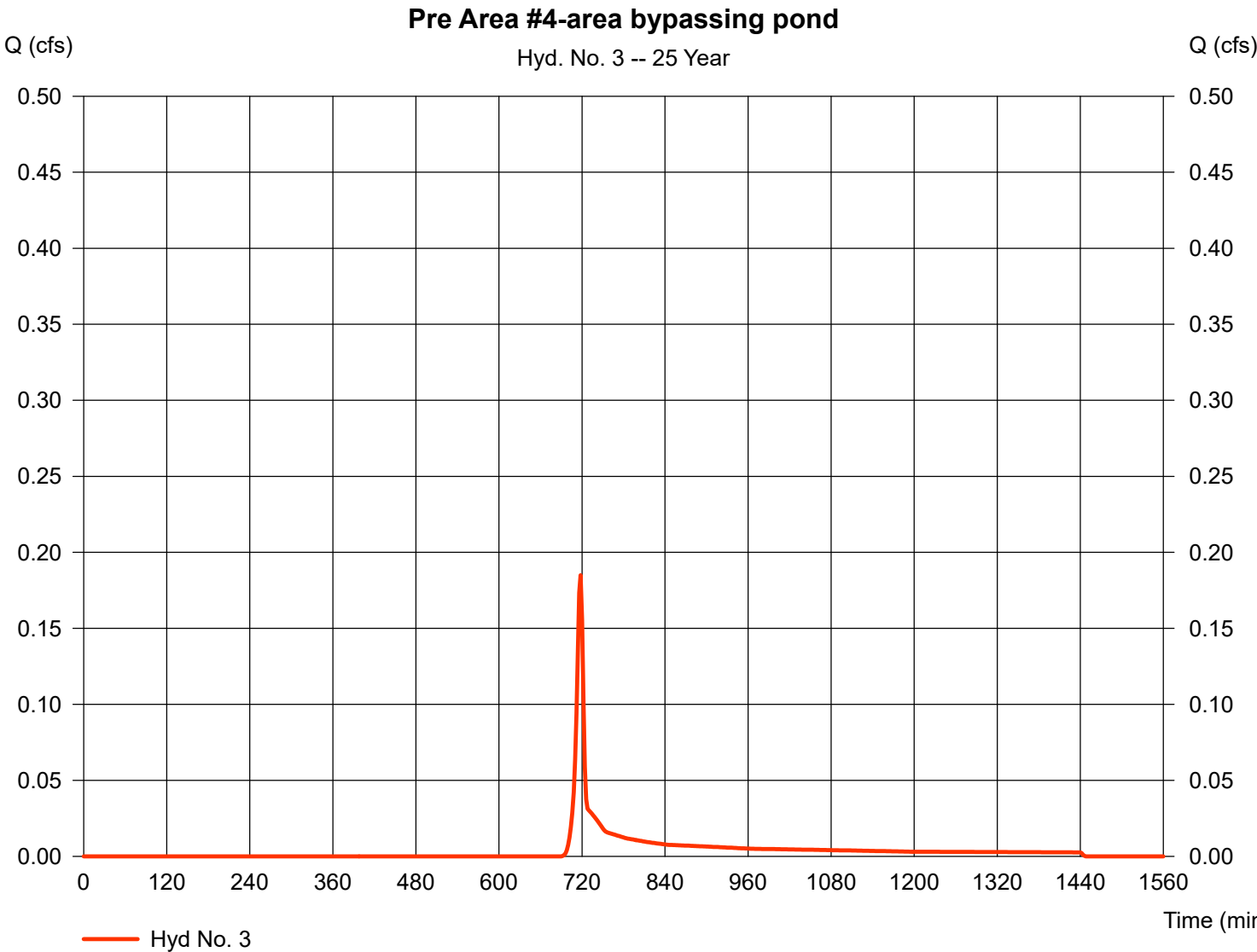


Hydrograph Report

Hyd. No. 3

Pre Area #4-area bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.185 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	379 cuft
Drainage area	=	0.080 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.65 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

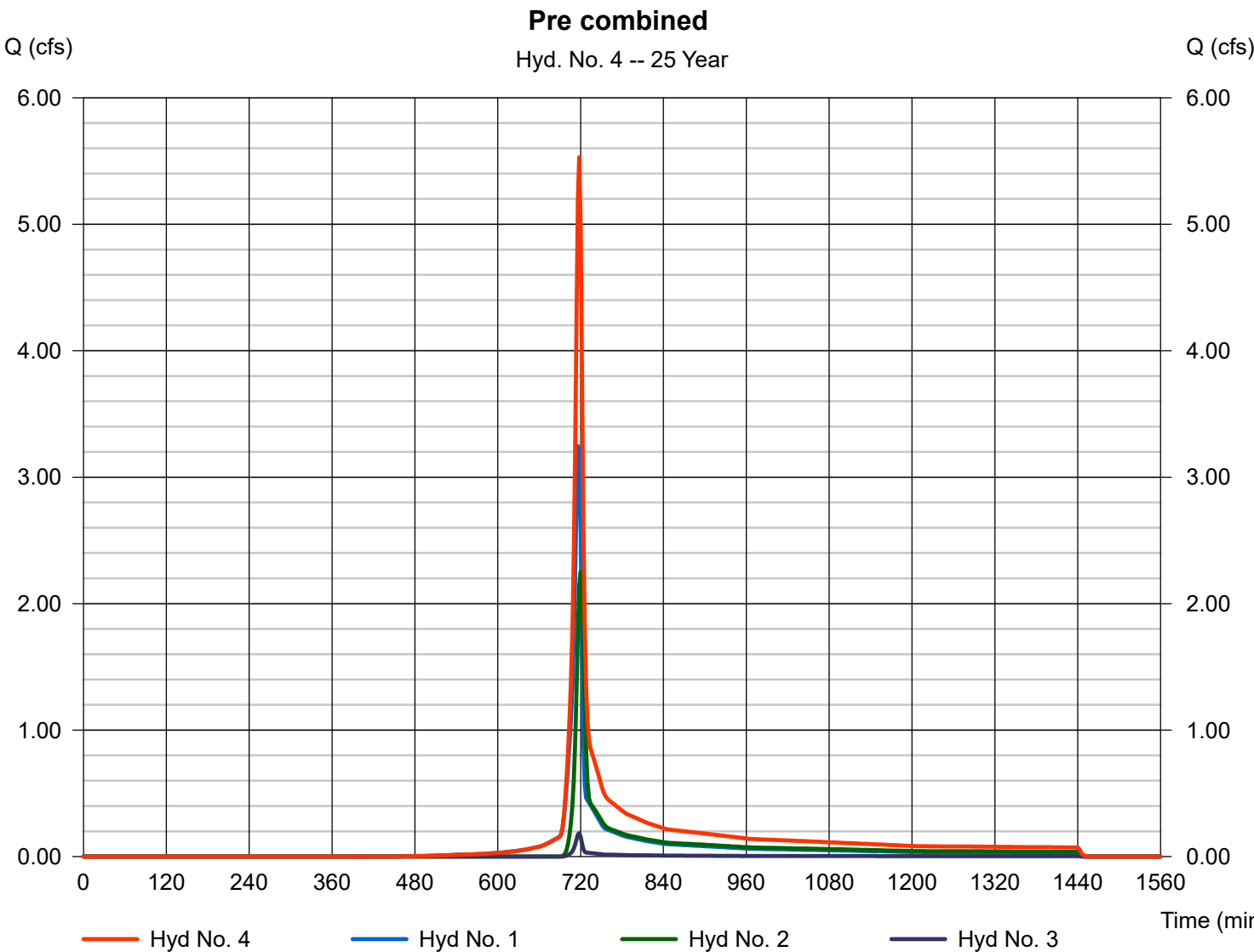


Hydrograph Report

Hyd. No. 4

Pre combined

Hydrograph type	= Combine	Peak discharge	= 5.530 cfs
Storm frequency	= 25 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 12,384 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 1.760 ac

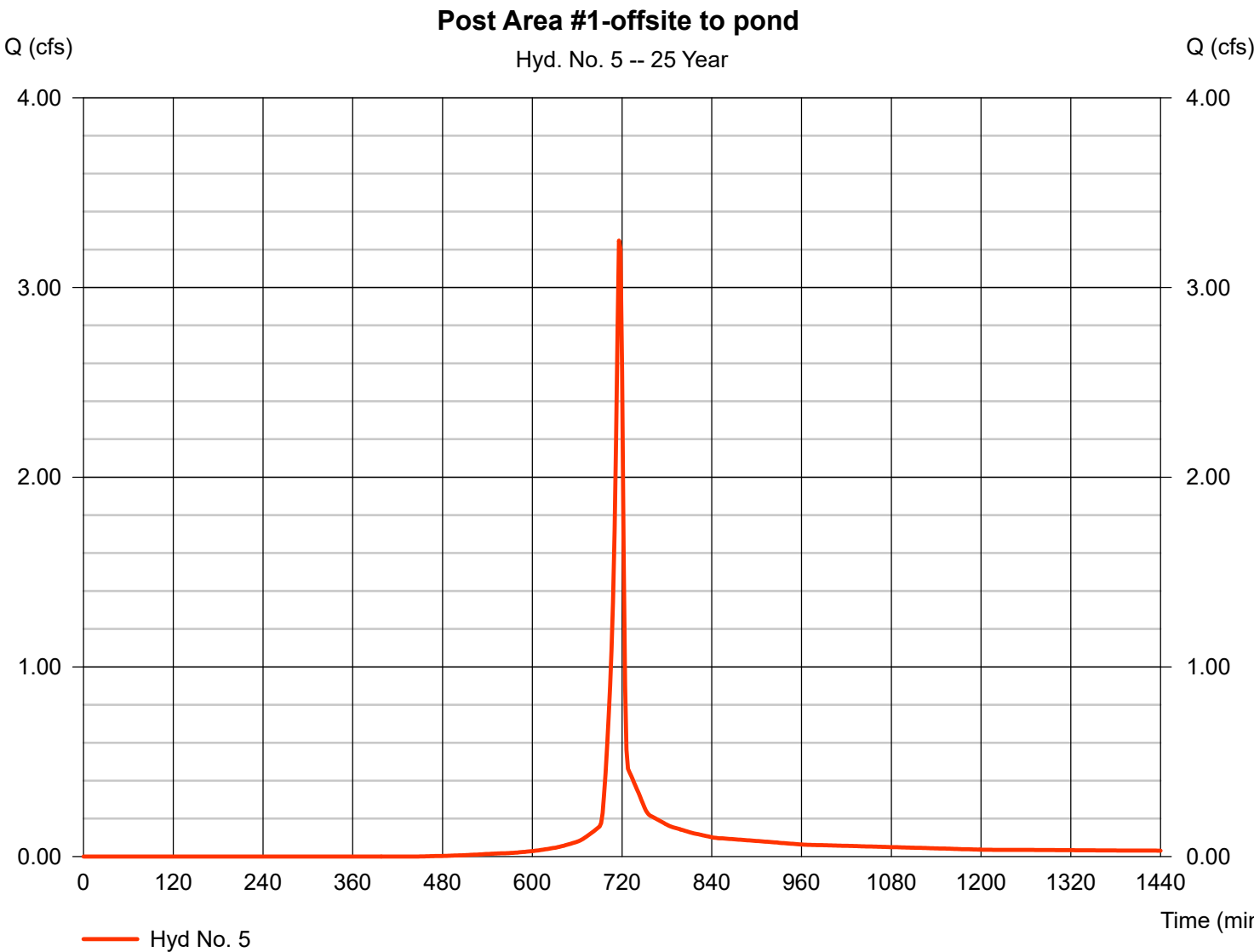


Hydrograph Report

Hyd. No. 5

Post Area #1-offsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.247 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	6,592 cuft
Drainage area	=	0.610 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.65 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

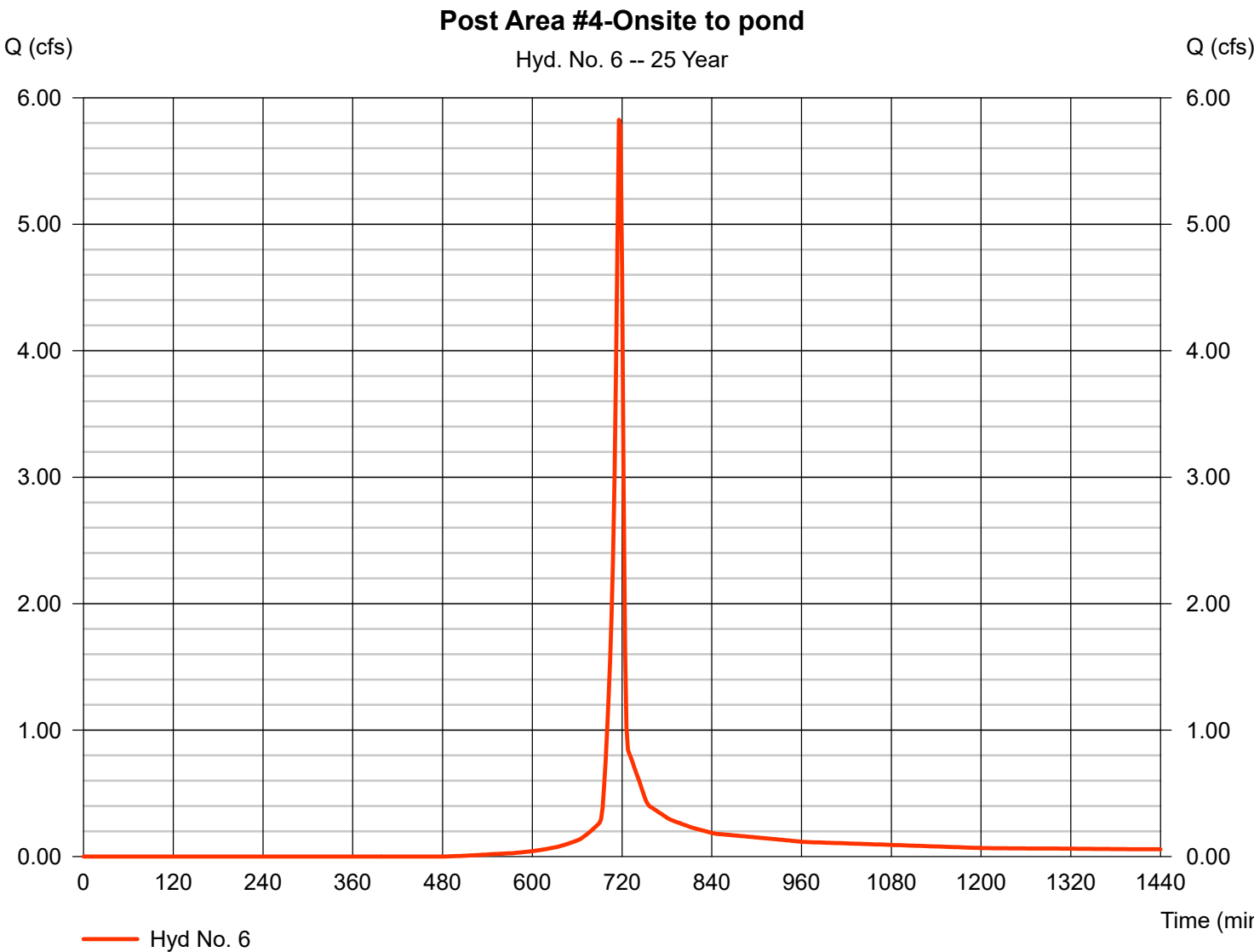


Hydrograph Report

Hyd. No. 6

Post Area #4-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.826 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	11,788 cuft
Drainage area	=	1.160 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.65 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

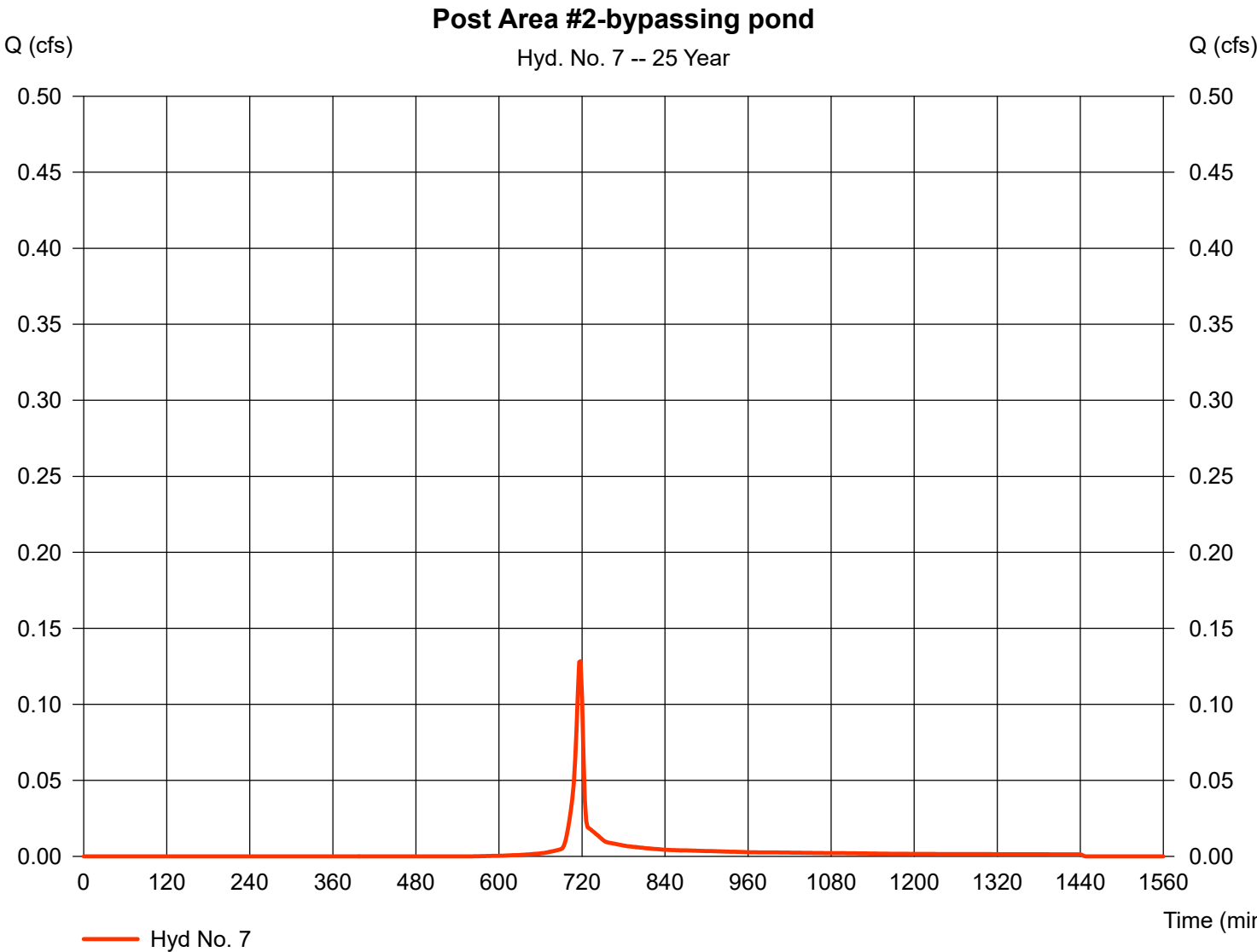


Hydrograph Report

Hyd. No. 7

Post Area #2-bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.128 cfs
Storm frequency	=	25 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	258 cuft
Drainage area	=	0.030 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.65 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

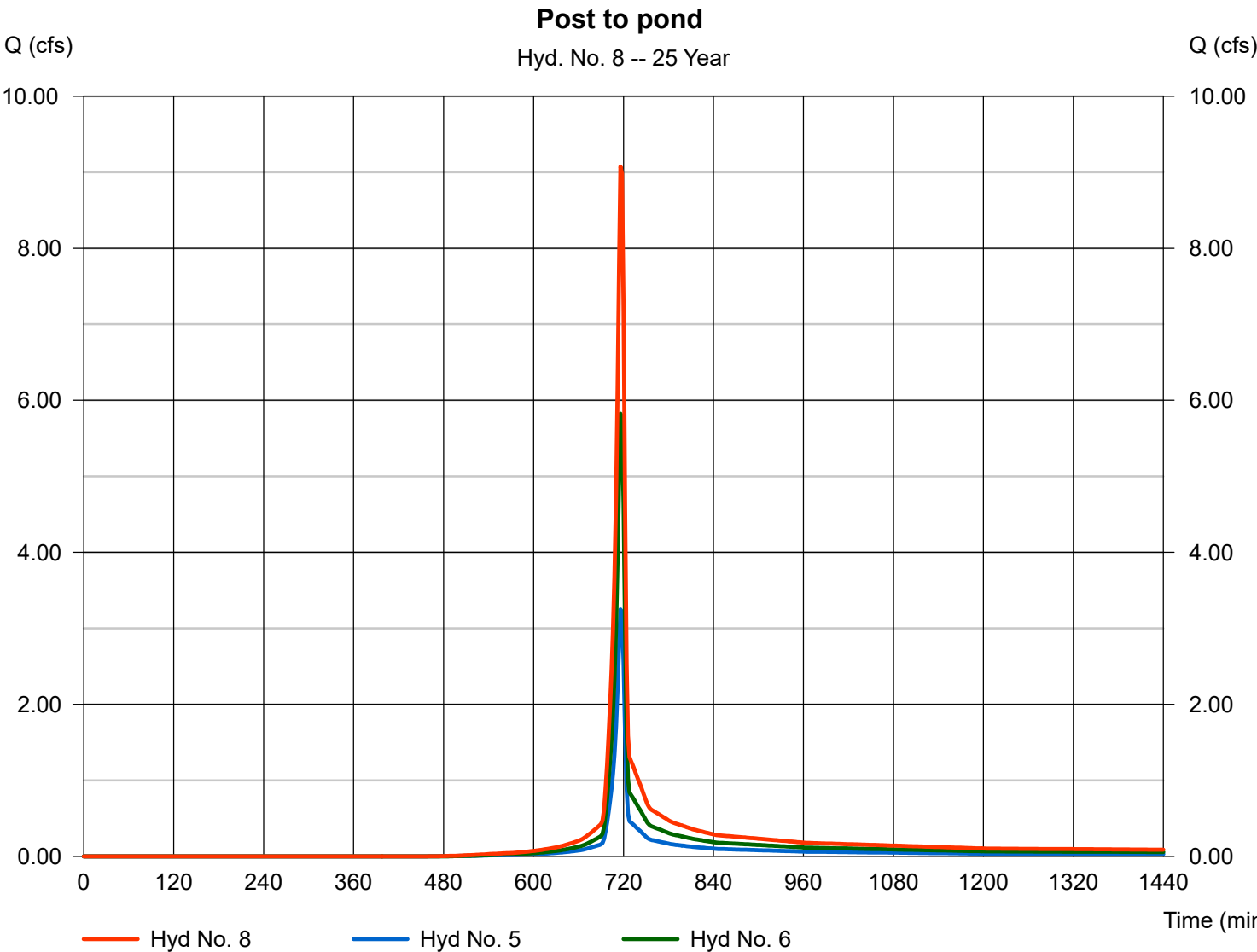


Hydrograph Report

Hyd. No. 8

Post to pond

Hydrograph type	= Combine	Peak discharge	= 9.073 cfs
Storm frequency	= 25 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 18,379 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 1.770 ac



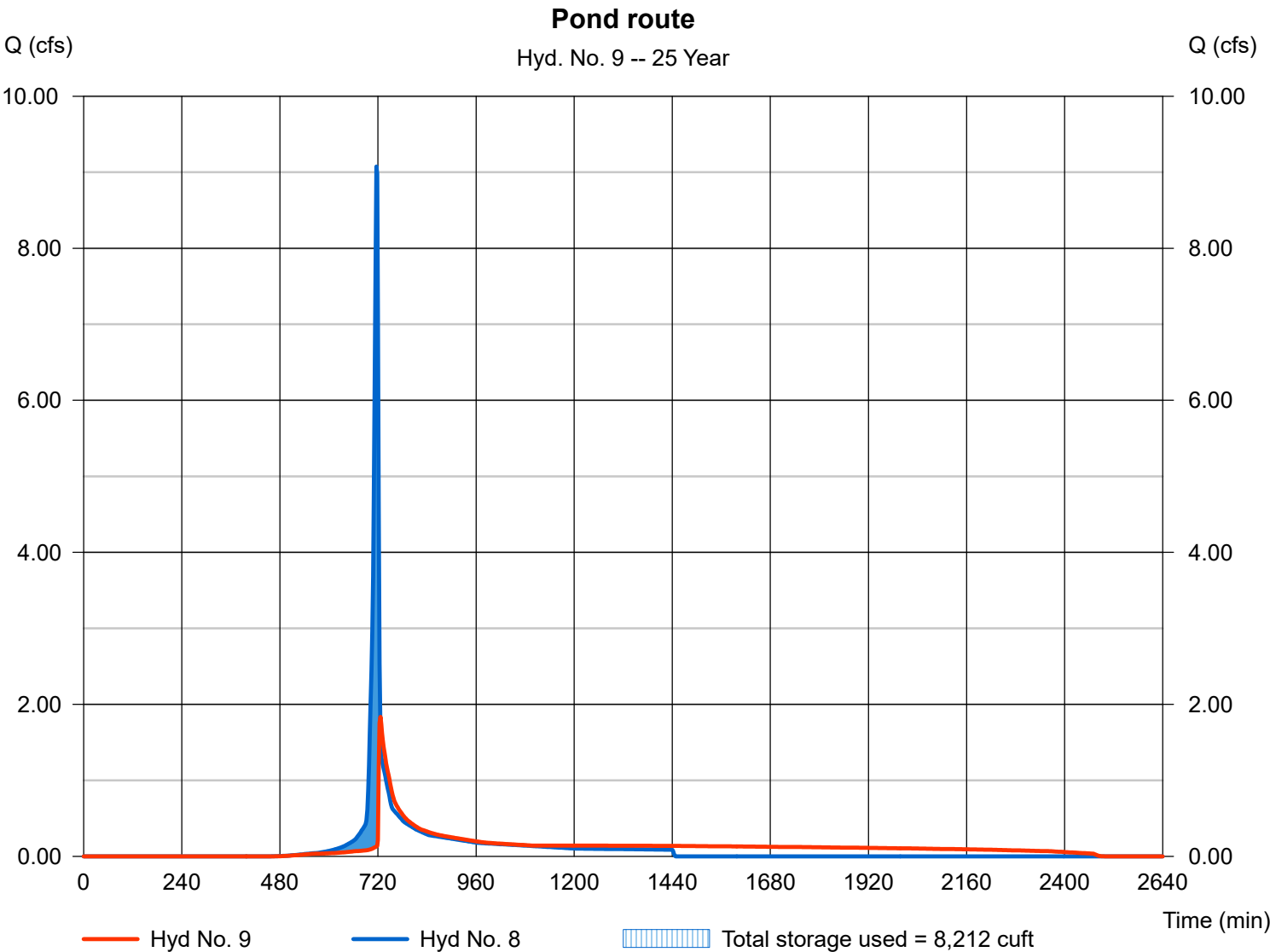
Hydrograph Report

Hyd. No. 9

Pond route

Hydrograph type	= Reservoir	Peak discharge	= 1.835 cfs
Storm frequency	= 25 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 18,379 cuft
Inflow hyd. No.	= 8 - Post to pond	Max. Elevation	= 695.91 ft
Reservoir name	= Pond 1	Max. Storage	= 8,212 cuft

Storage Indication method used.

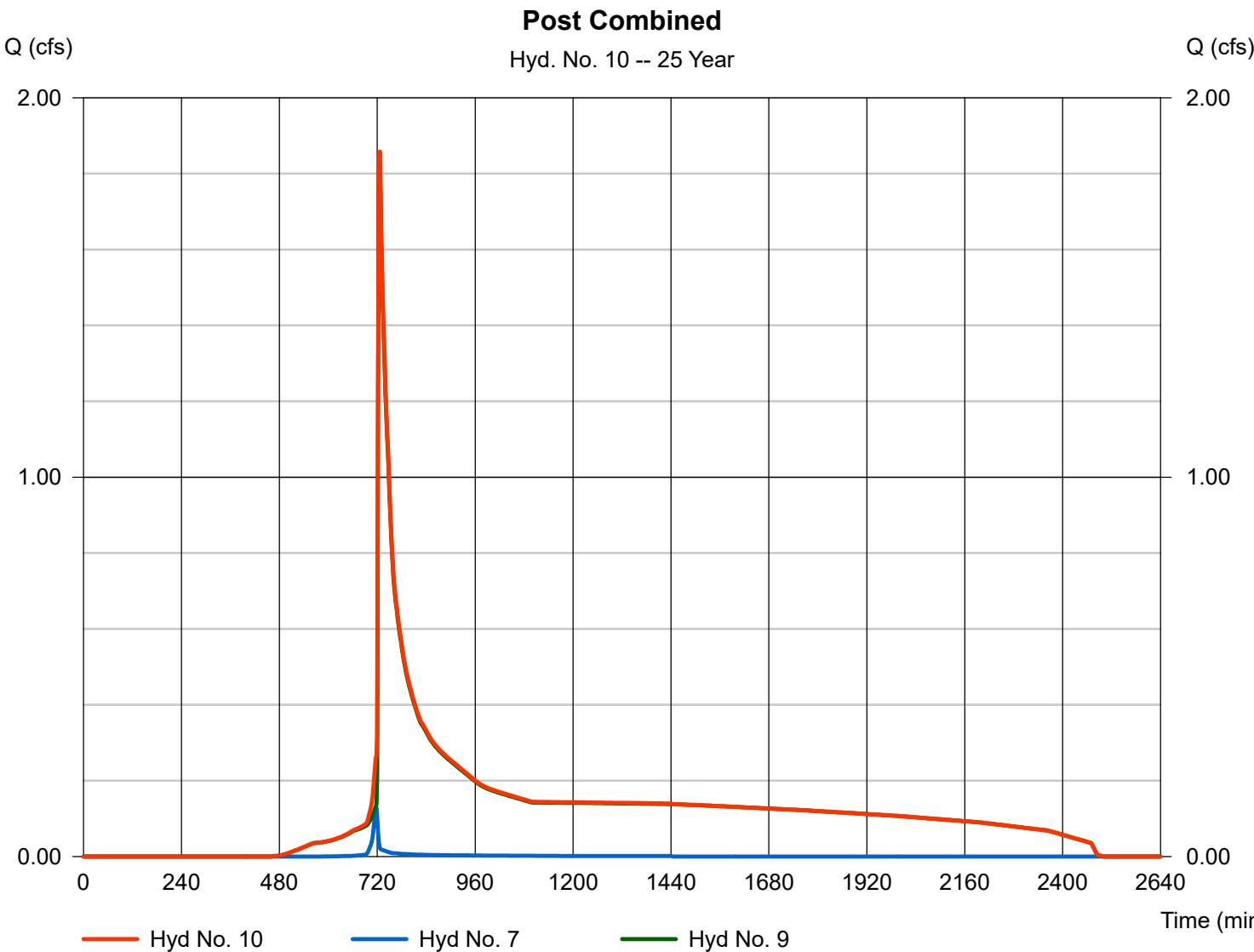


Hydrograph Report

Hyd. No. 10

Post Combined

Hydrograph type	= Combine	Peak discharge	= 1.859 cfs
Storm frequency	= 25 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 18,637 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.030 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

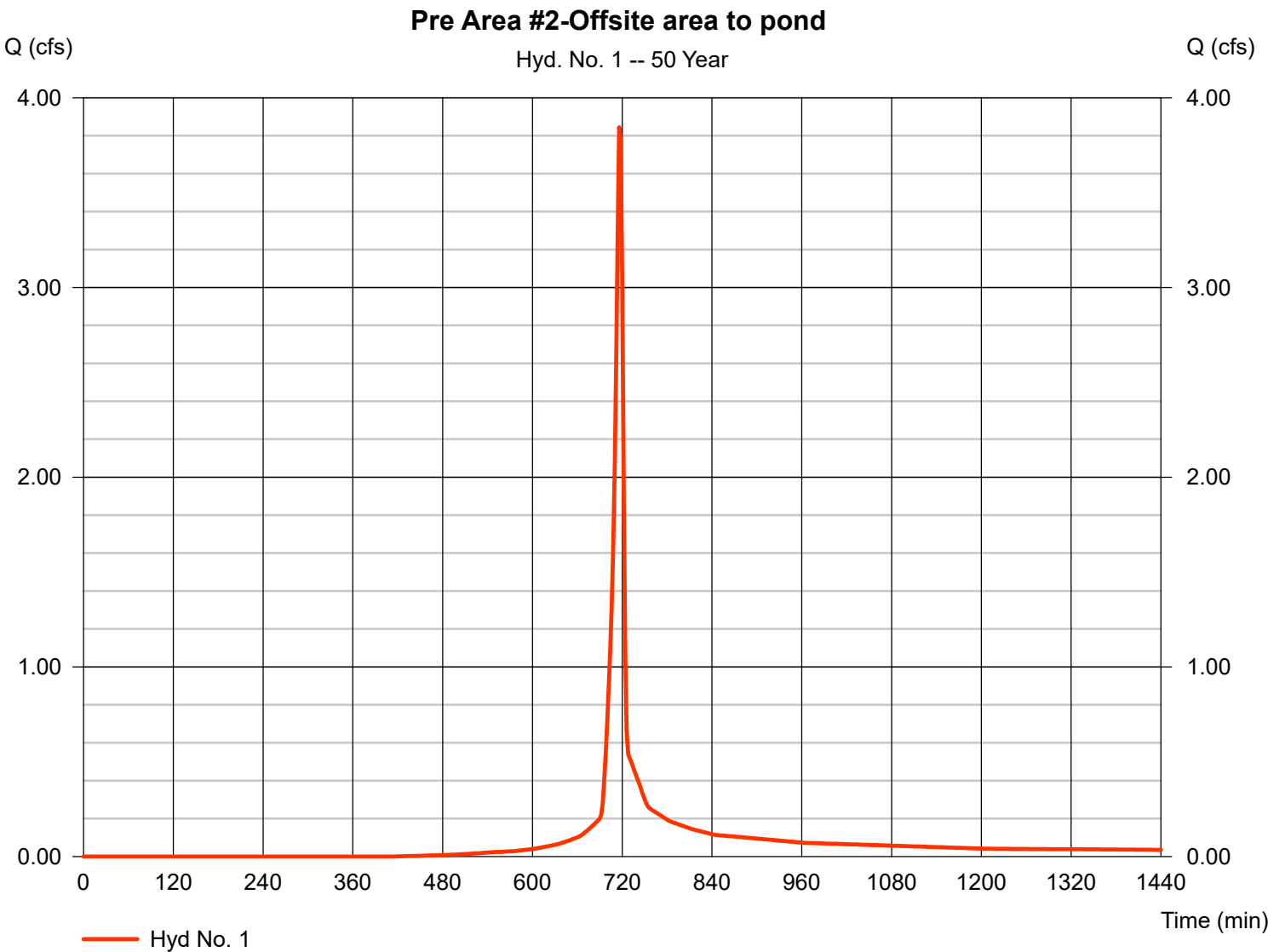
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	3.845	2	716	7,842	----	-----	-----	Pre Area #2-Offsite area to pond
2	SCS Runoff	2.978	2	720	6,995	----	-----	-----	Pre Area #3-Onsite to pond
3	SCS Runoff	0.243	2	718	490	----	-----	-----	Pre Area #4-area bypassing pond
4	Combine	6.891	2	718	15,328	1, 2, 3	-----	-----	Pre combined
5	SCS Runoff	3.845	2	716	7,842	----	-----	-----	Post Area #1-offsite to pond
6	SCS Runoff	6.948	2	716	14,107	----	-----	-----	Post Area #4-Onsite to pond
7	SCS Runoff	0.156	2	716	314	----	-----	-----	Post Area #2-bypassing pond
8	Combine	10.79	2	716	21,949	5, 6,	-----	-----	Post to pond
9	Reservoir	4.265	2	722	21,949	8	696.25	9,127	Pond route
10	Combine	4.345	2	722	22,263	7, 9	-----	-----	Post Combined
Columbia SB site.gpw					Return Period: 50 Year			Tuesday, Jan 28, 2025	

Hydrograph Report

Hyd. No. 1

Pre Area #2-Offsite area to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.845 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	7,842 cuft
Drainage area	=	0.610 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.34 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

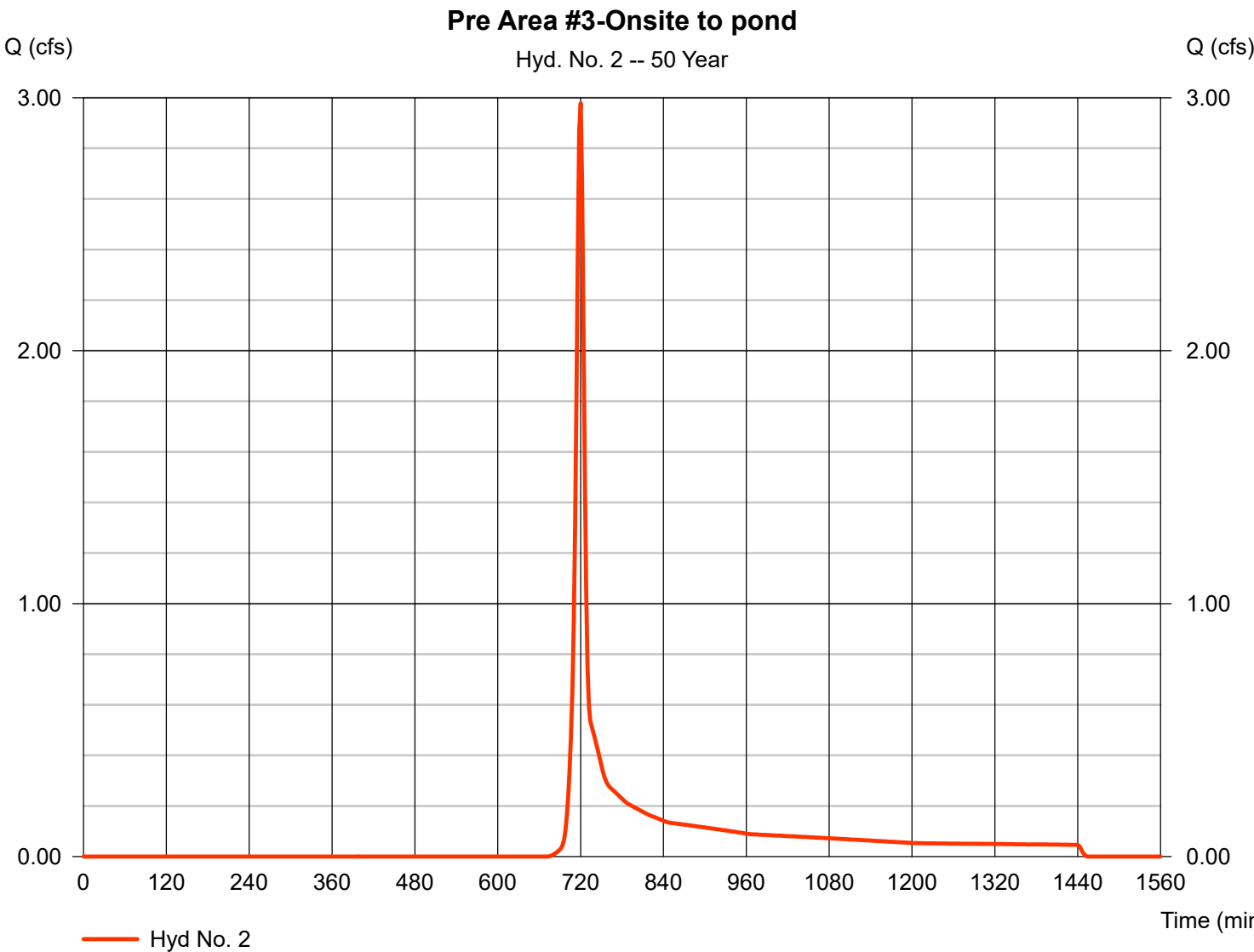


Hydrograph Report

Hyd. No. 2

Pre Area #3-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.978 cfs
Storm frequency	=	50 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	6,995 cuft
Drainage area	=	1.070 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.80 min
Total precip.	=	6.34 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

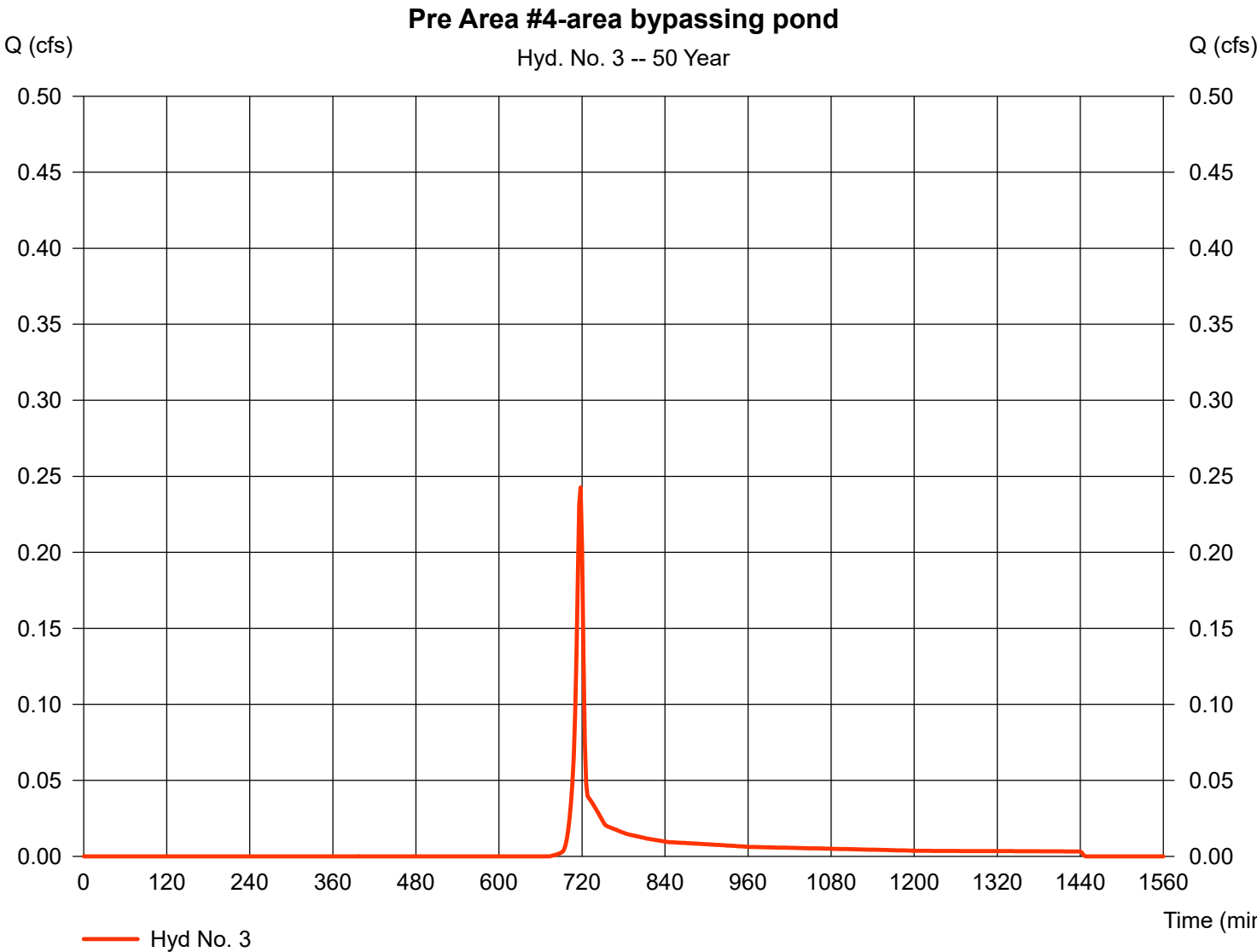


Hydrograph Report

Hyd. No. 3

Pre Area #4-area bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.243 cfs
Storm frequency	=	50 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	490 cuft
Drainage area	=	0.080 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.34 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23

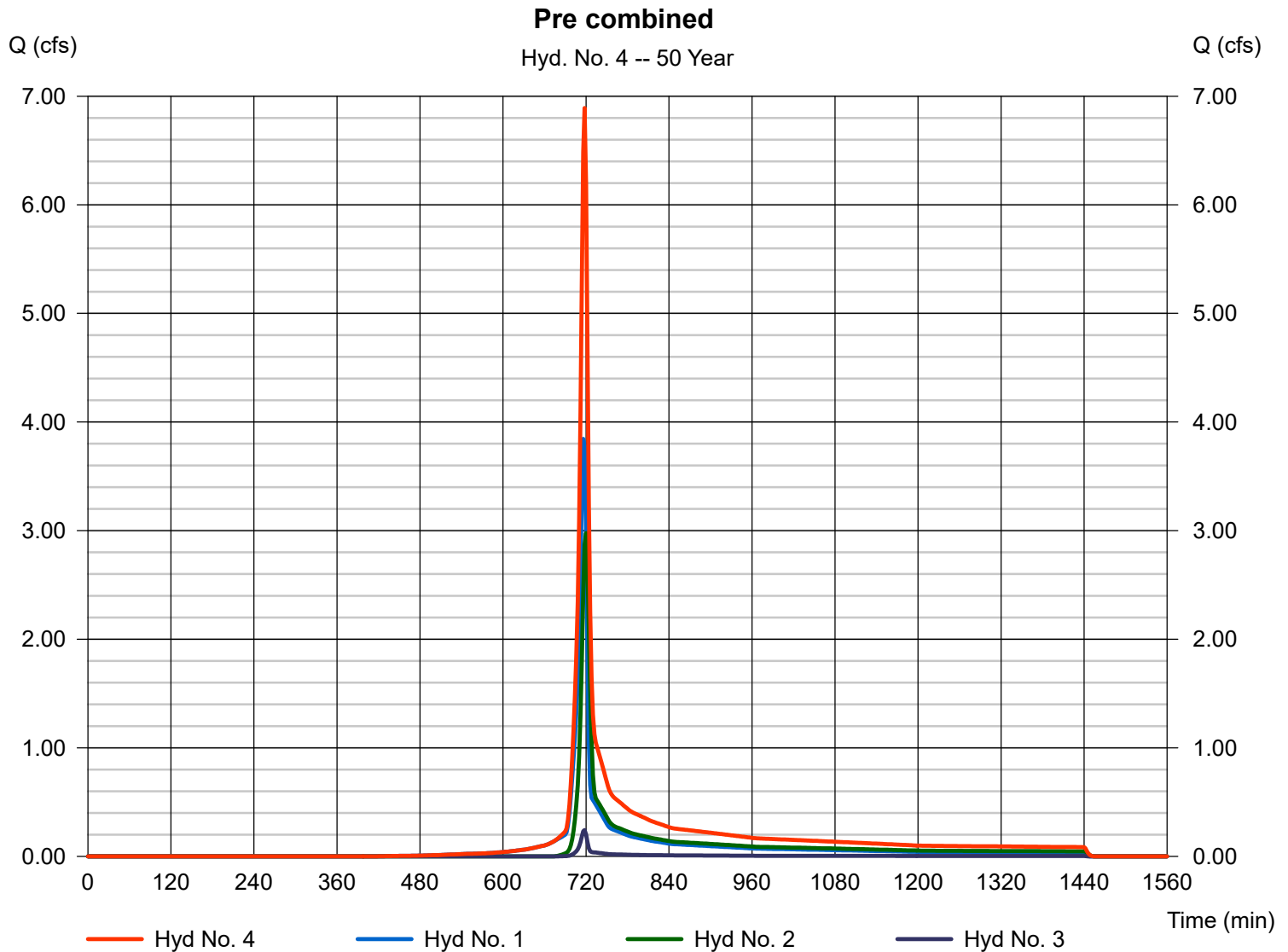
Tuesday, Jan 28, 2025

Hyd. No. 4

Pre combined

Hydrograph type = Combine
Storm frequency = 50 yrs
Time interval = 2 min
Inflow hyds. = 1, 2, 3

Peak discharge = 6.891 cfs
Time to peak = 718 min
Hyd. volume = 15,328 cuft
Contrib. drain. area = 1.760 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23

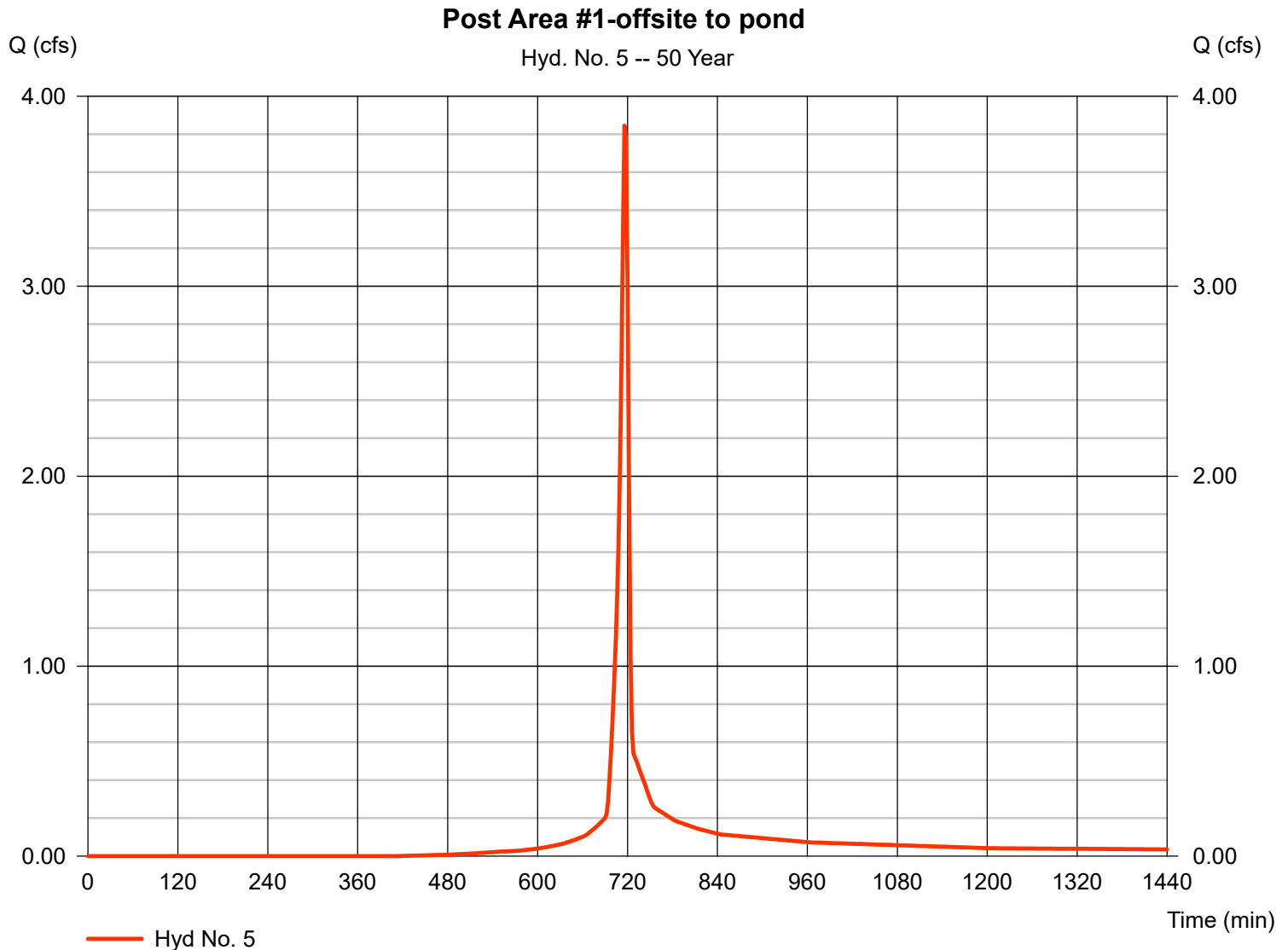
Tuesday, Jan 28, 2025

Hyd. No. 5

Post Area #1-offsite to pond

Hydrograph type = SCS Runoff
Storm frequency = 50 yrs
Time interval = 2 min
Drainage area = 0.610 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 6.34 in
Storm duration = 24 hrs

Peak discharge = 3.845 cfs
Time to peak = 716 min
Hyd. volume = 7,842 cuft
Curve number = 77
Hydraulic length = 0 ft
Time of conc. (Tc) = 5.00 min
Distribution = Type II
Shape factor = 484

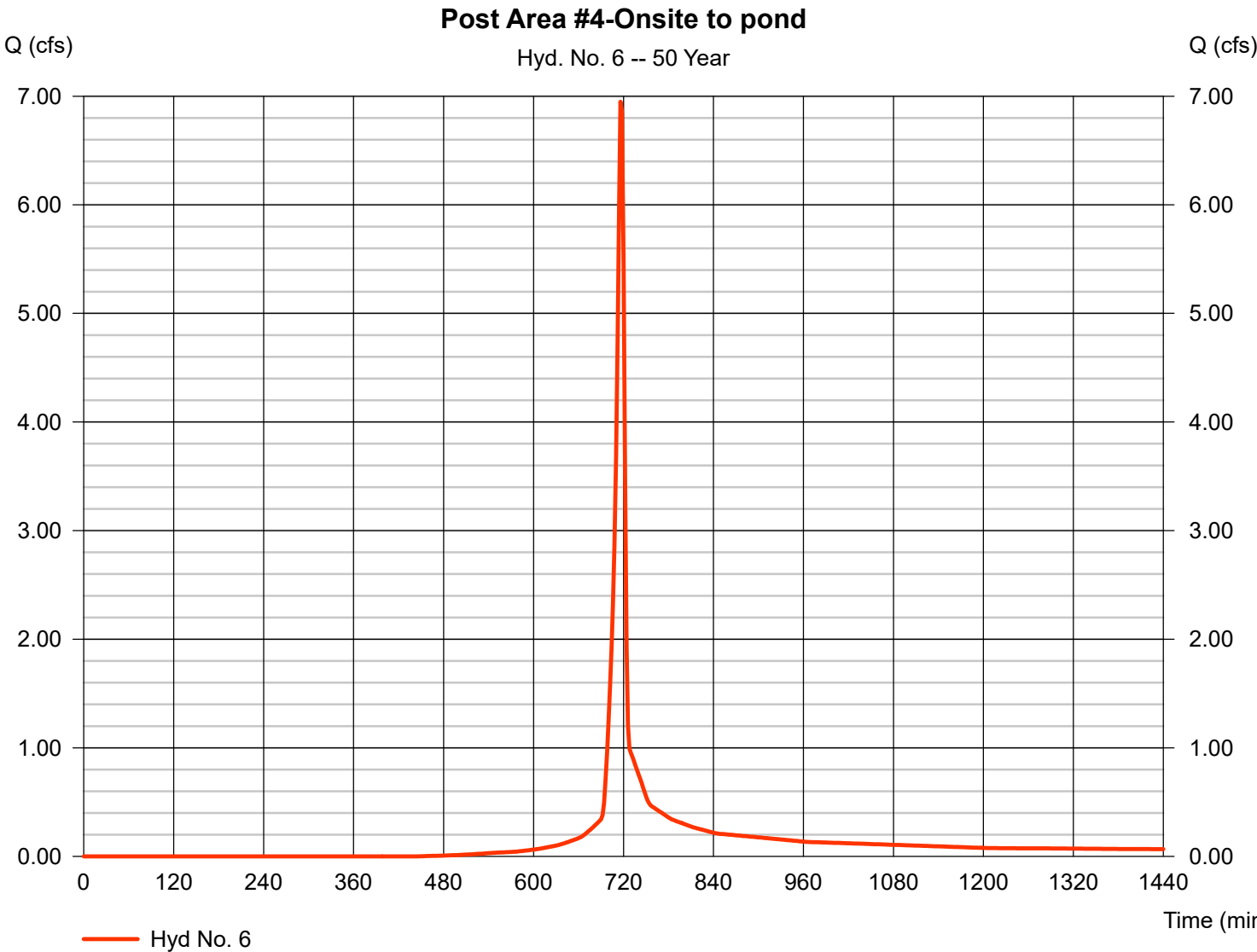


Hydrograph Report

Hyd. No. 6

Post Area #4-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.948 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	14,107 cuft
Drainage area	=	1.160 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.34 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

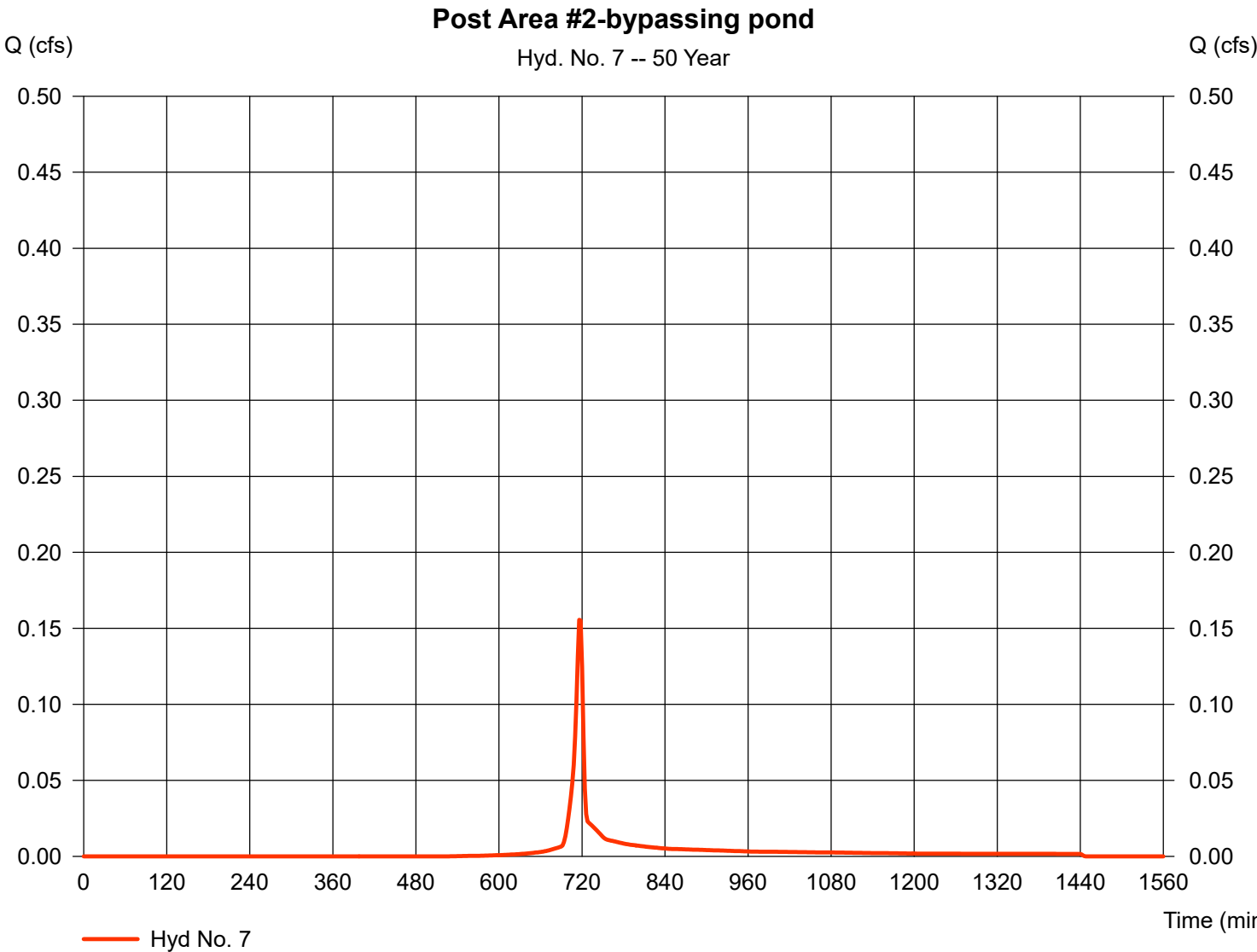


Hydrograph Report

Hyd. No. 7

Post Area #2-bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.156 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	314 cuft
Drainage area	=	0.030 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.34 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

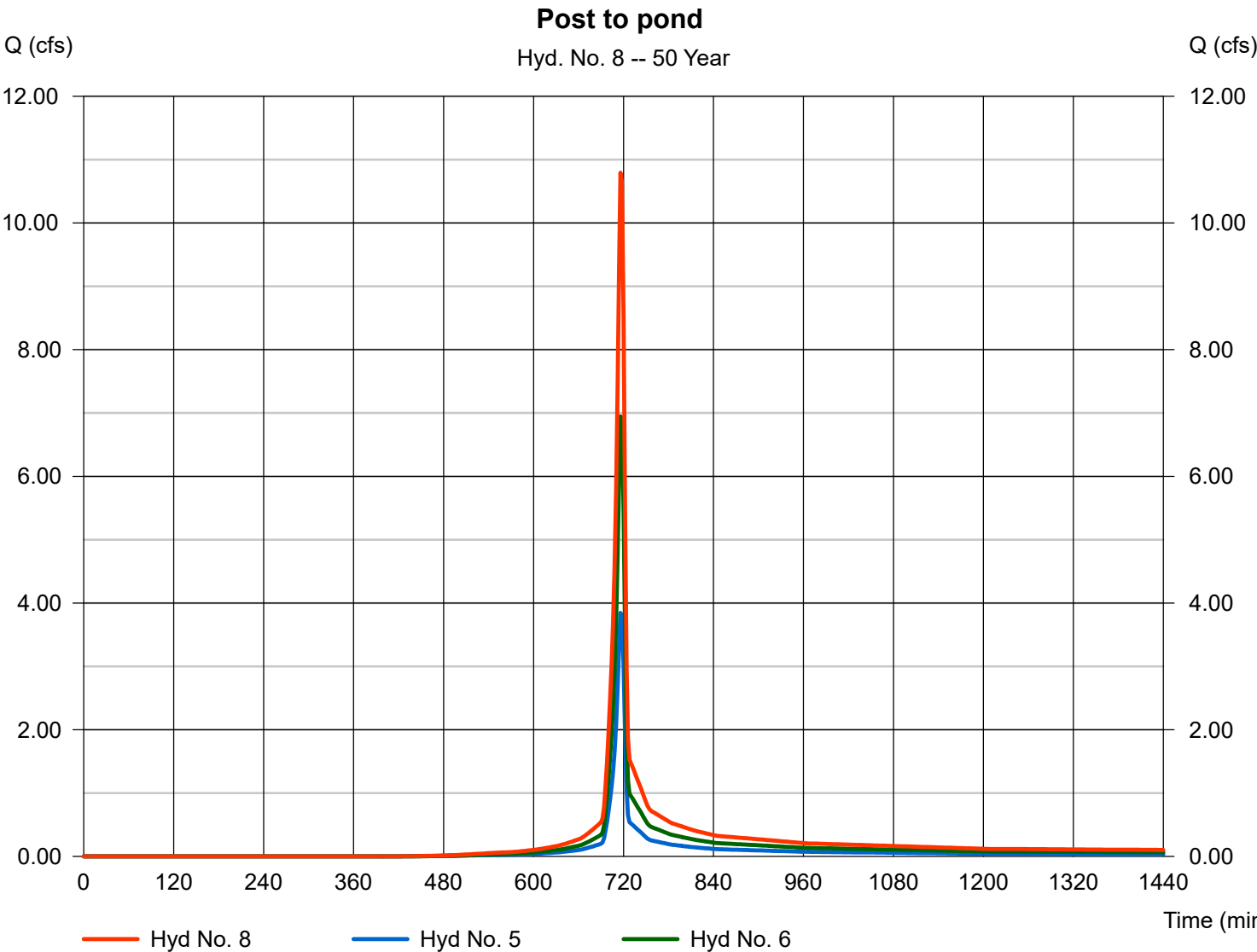


Hydrograph Report

Hyd. No. 8

Post to pond

Hydrograph type	= Combine	Peak discharge	= 10.79 cfs
Storm frequency	= 50 yrs	Time to peak	= 716 min
Time interval	= 2 min	Hyd. volume	= 21,949 cuft
Inflow hyds.	= 5, 6	Contrib. drain. area	= 1.770 ac



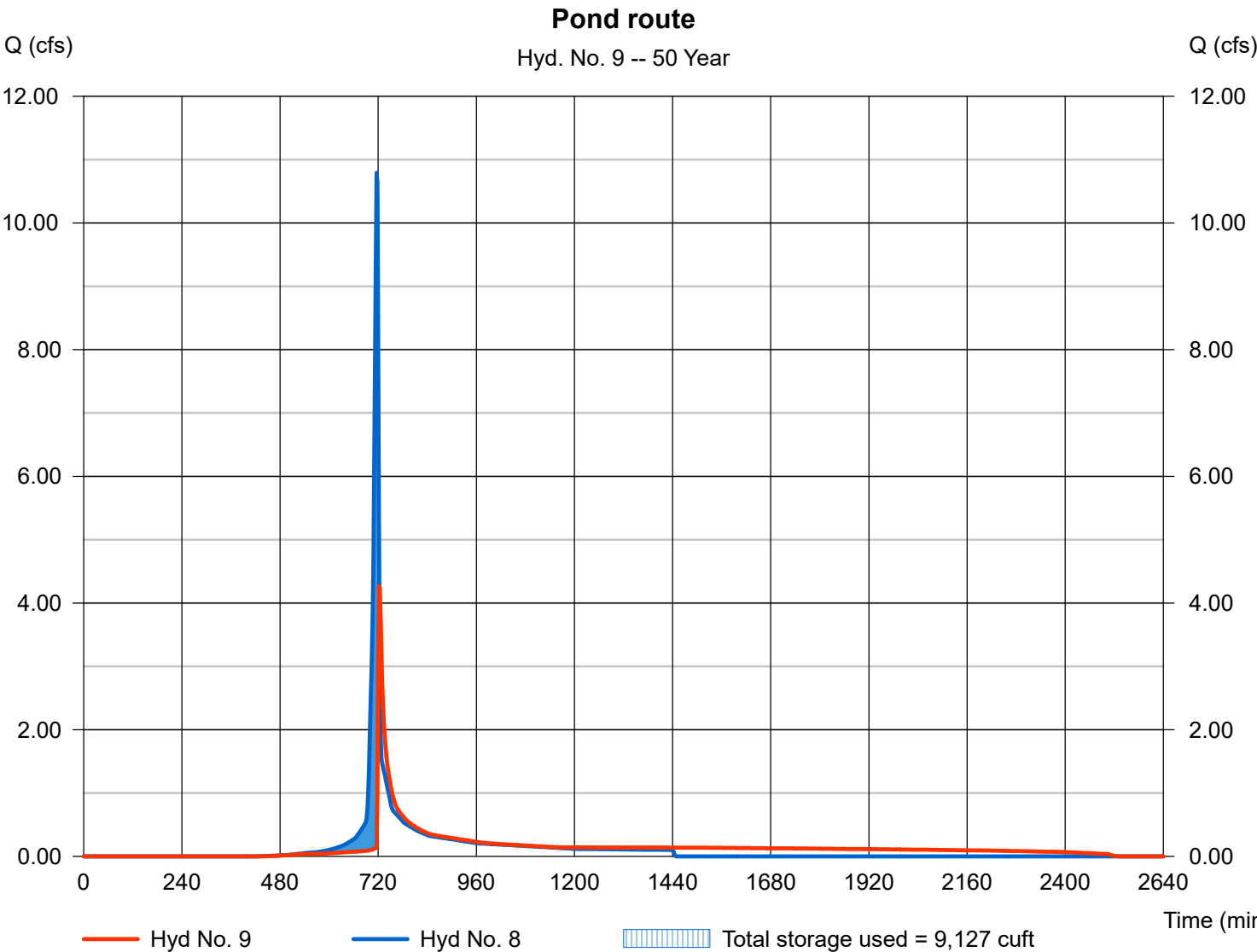
Hydrograph Report

Hyd. No. 9

Pond route

Hydrograph type	= Reservoir	Peak discharge	= 4.265 cfs
Storm frequency	= 50 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 21,949 cuft
Inflow hyd. No.	= 8 - Post to pond	Max. Elevation	= 696.25 ft
Reservoir name	= Pond 1	Max. Storage	= 9,127 cuft

Storage Indication method used.

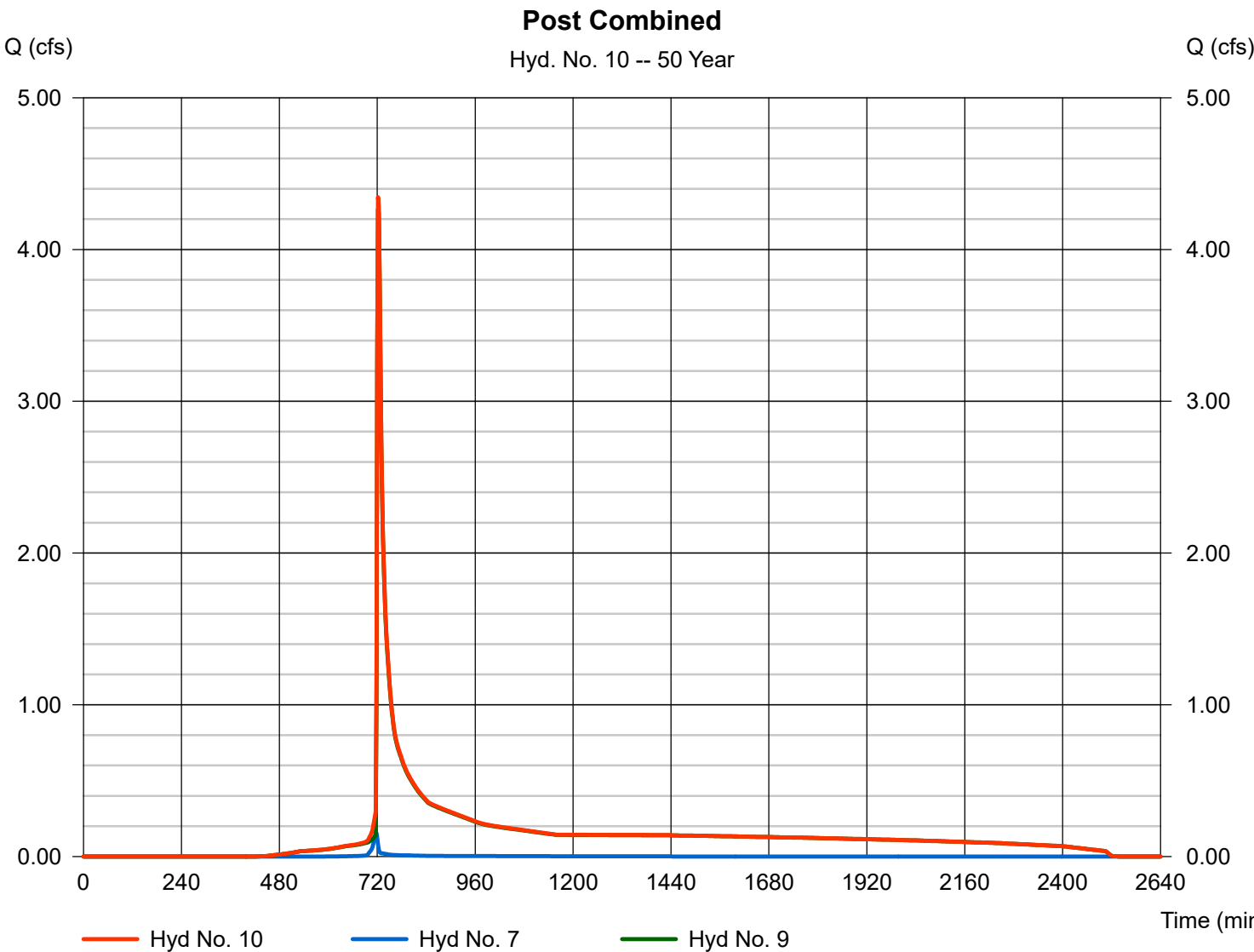


Hydrograph Report

Hyd. No. 10

Post Combined

Hydrograph type	= Combine	Peak discharge	= 4.345 cfs
Storm frequency	= 50 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 22,263 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.030 ac



Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.23

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	4.473	2	716	9,175	----	-----	-----	Pre Area #2-Offsite area to pond
2	SCS Runoff	3.783	2	720	8,767	----	-----	-----	Pre Area #3-Onsite to pond
3	SCS Runoff	0.306	2	718	615	----	-----	-----	Pre Area #4-area bypassing pond
4	Combine	8.370	2	718	18,557	1, 2, 3	-----	-----	Pre combined
5	SCS Runoff	4.473	2	716	9,175	----	-----	-----	Post Area #1-offsite to pond
6	SCS Runoff	8.134	2	716	16,589	----	-----	-----	Post Area #4-Onsite to pond
7	SCS Runoff	0.185	2	716	375	----	-----	-----	Post Area #2-bypassing pond
8	Combine	12.61	2	716	25,764	5, 6,	-----	-----	Post to pond
9	Reservoir	7.235	2	722	25,764	8	696.54	10,001	Pond route
10	Combine	7.329	2	722	26,138	7, 9	-----	-----	Post Combined
Columbia SB site.gpw					Return Period: 100 Year			Tuesday, Jan 28, 2025	

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23

Tuesday, Jan 28, 2025

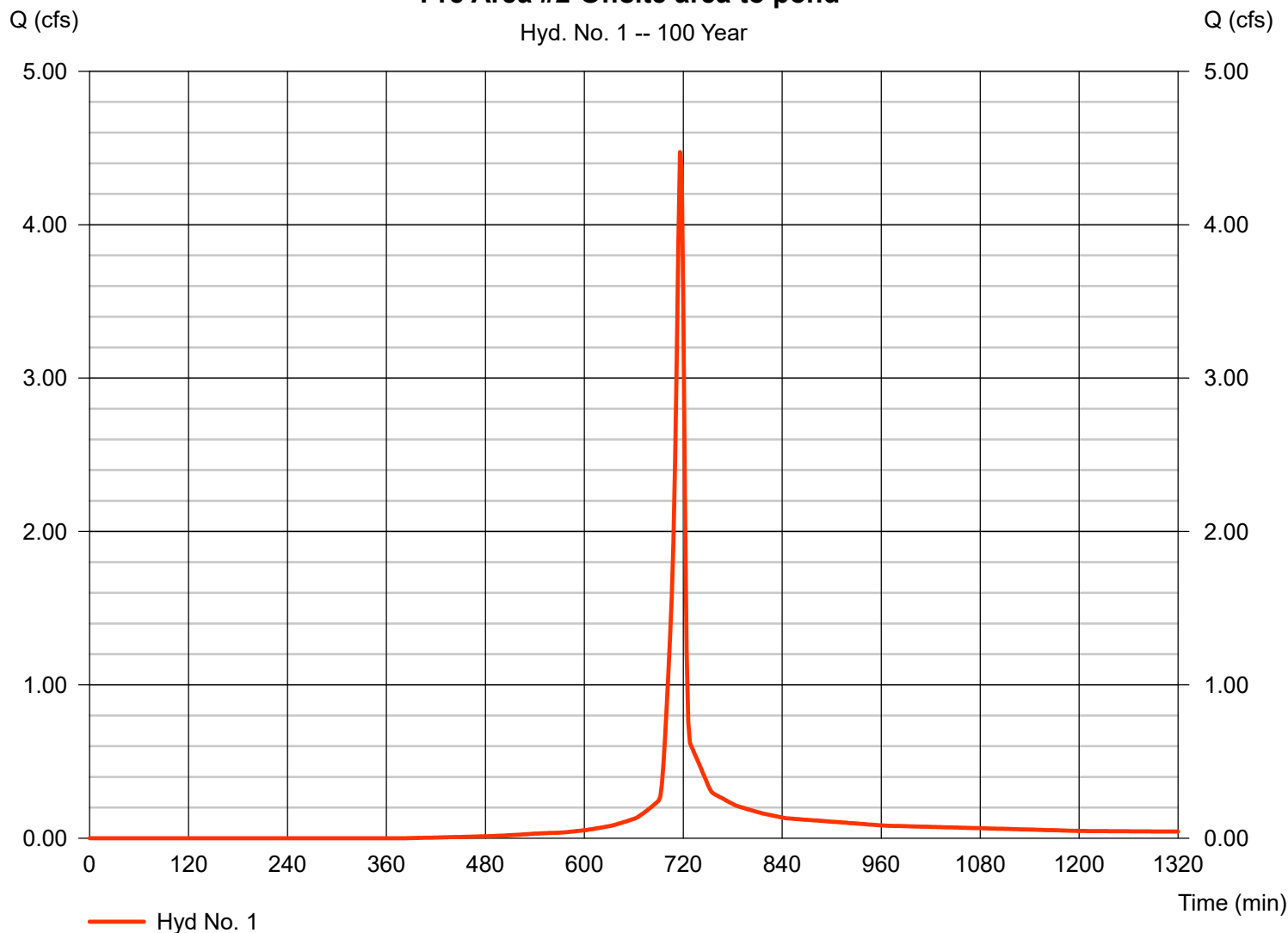
Hyd. No. 1

Pre Area #2-Offsite area to pond

Hydrograph type = SCS Runoff
Storm frequency = 100 yrs
Time interval = 2 min
Drainage area = 0.610 ac
Basin Slope = 0.0 %
Tc method = USER
Total precip. = 7.06 in
Storm duration = 24 hrs

Peak discharge = 4.473 cfs
Time to peak = 716 min
Hyd. volume = 9,175 cuft
Curve number = 77
Hydraulic length = 0 ft
Time of conc. (Tc) = 5.00 min
Distribution = Type II
Shape factor = 484

Pre Area #2-Offsite area to pond

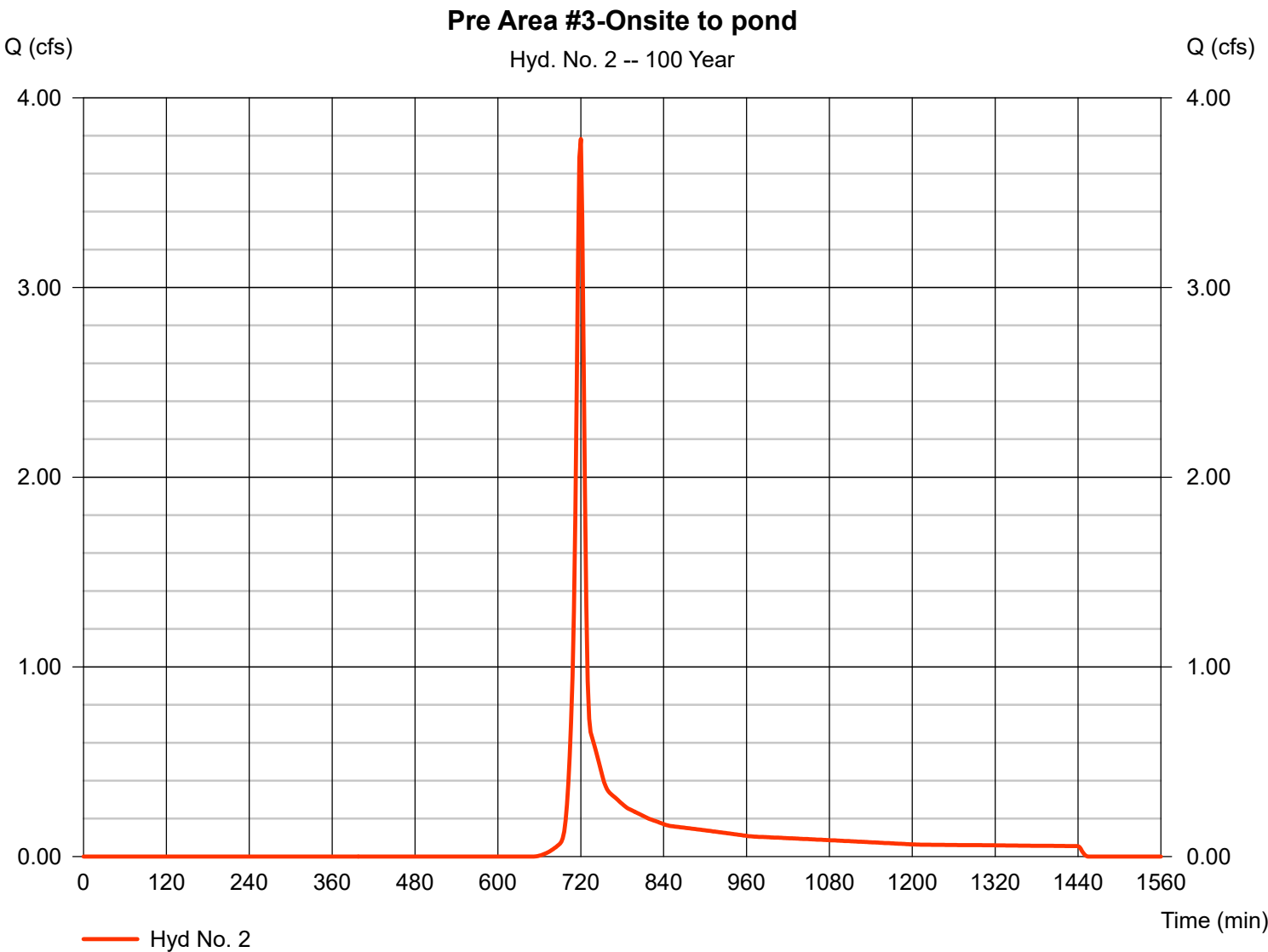


Hydrograph Report

Hyd. No. 2

Pre Area #3-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.783 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	8,767 cuft
Drainage area	=	1.070 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.80 min
Total precip.	=	7.06 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

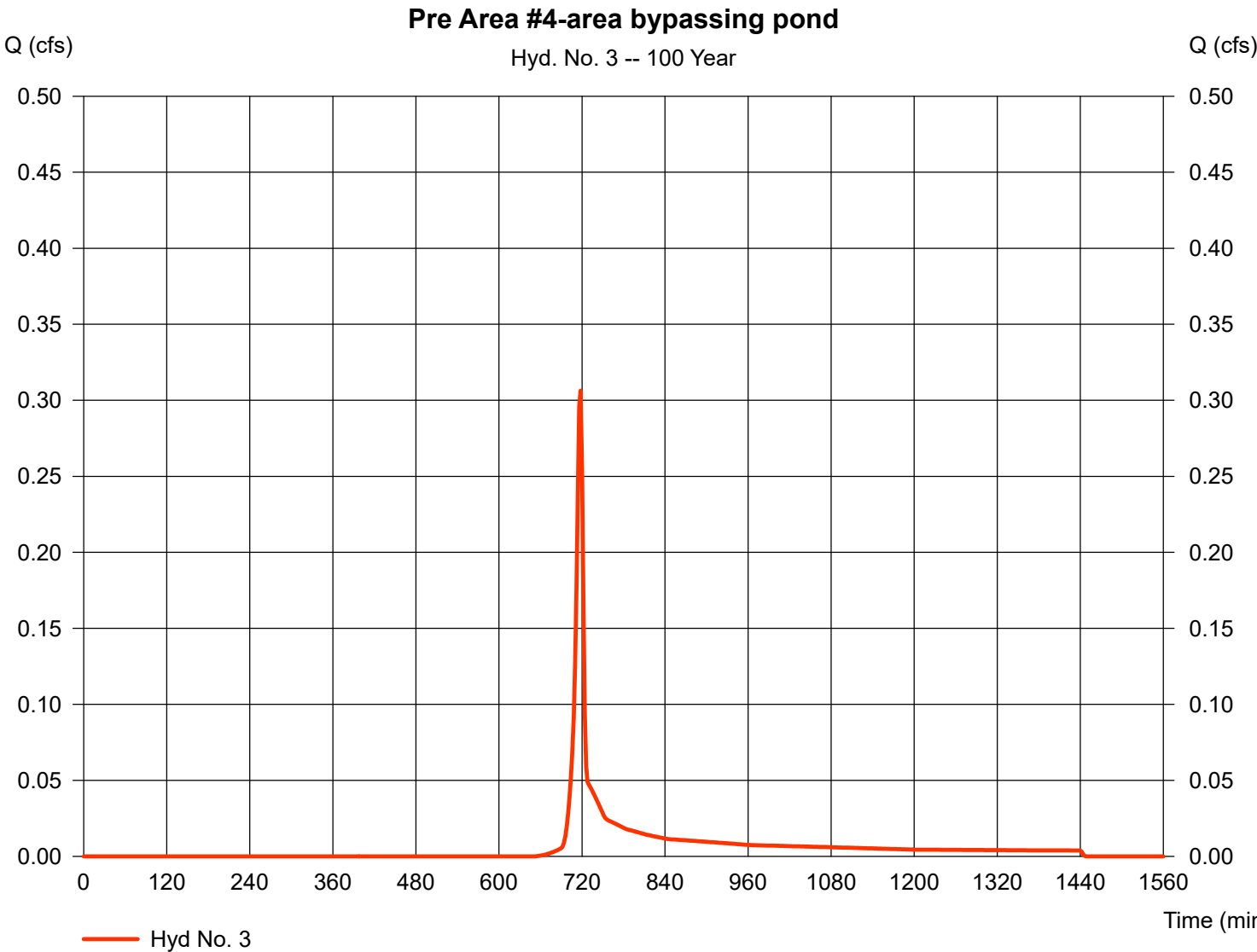


Hydrograph Report

Hyd. No. 3

Pre Area #4-area bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.306 cfs
Storm frequency	=	100 yrs	Time to peak	=	718 min
Time interval	=	2 min	Hyd. volume	=	615 cuft
Drainage area	=	0.080 ac	Curve number	=	56
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.06 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

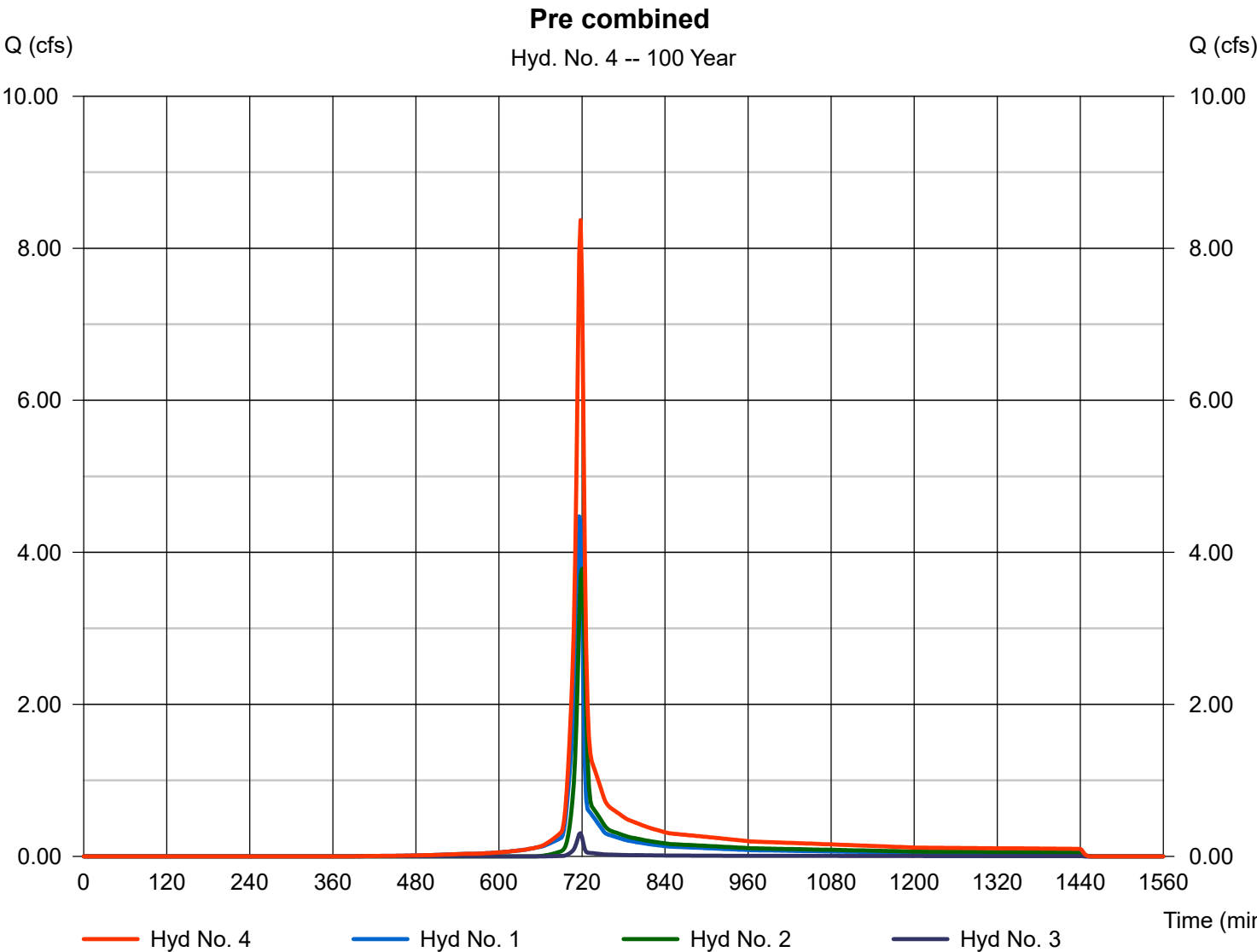


Hydrograph Report

Hyd. No. 4

Pre combined

Hydrograph type	= Combine	Peak discharge	= 8.370 cfs
Storm frequency	= 100 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 18,557 cuft
Inflow hyds.	= 1, 2, 3	Contrib. drain. area	= 1.760 ac

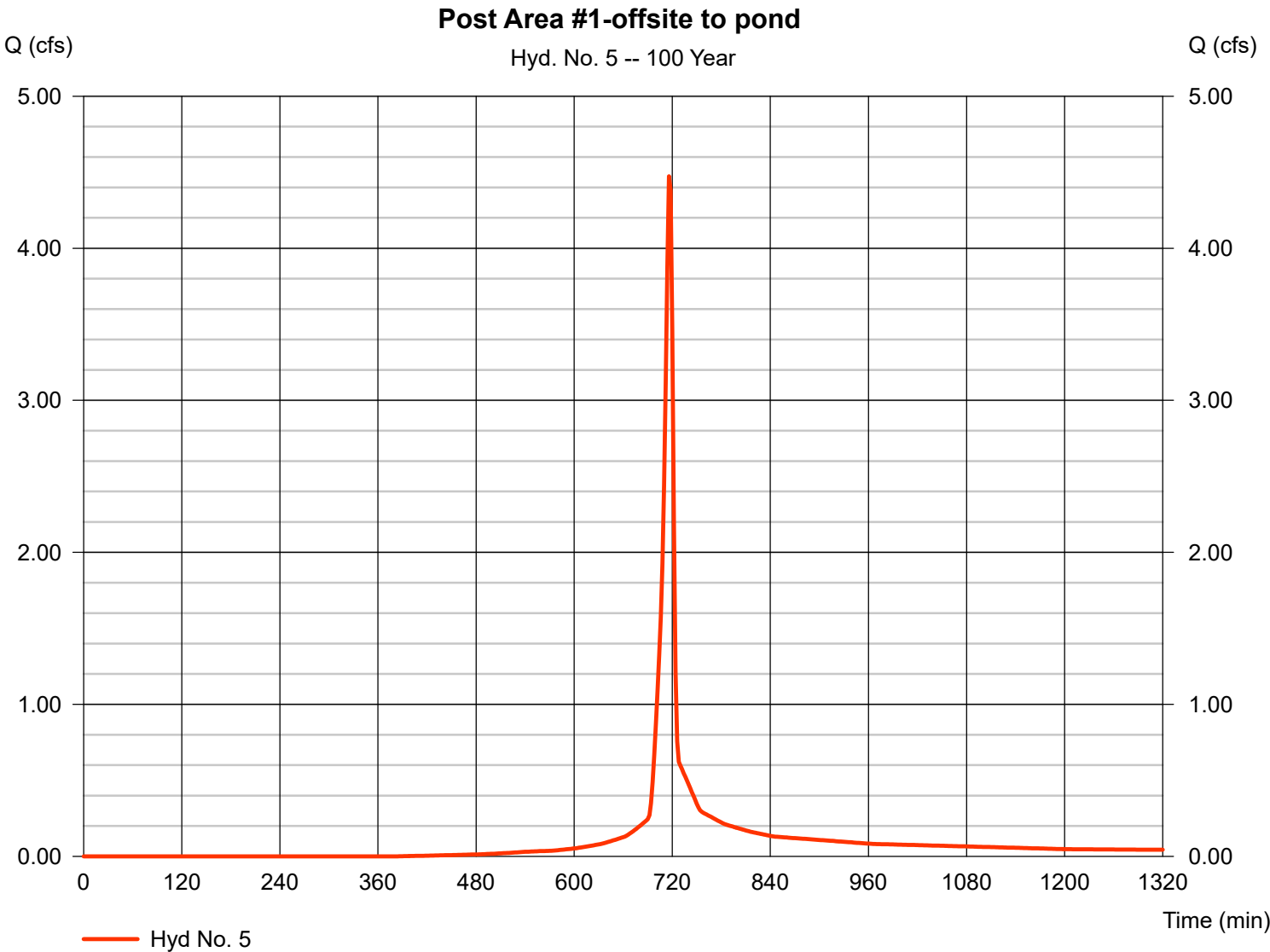


Hydrograph Report

Hyd. No. 5

Post Area #1-offsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.473 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	9,175 cuft
Drainage area	=	0.610 ac	Curve number	=	77
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.06 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

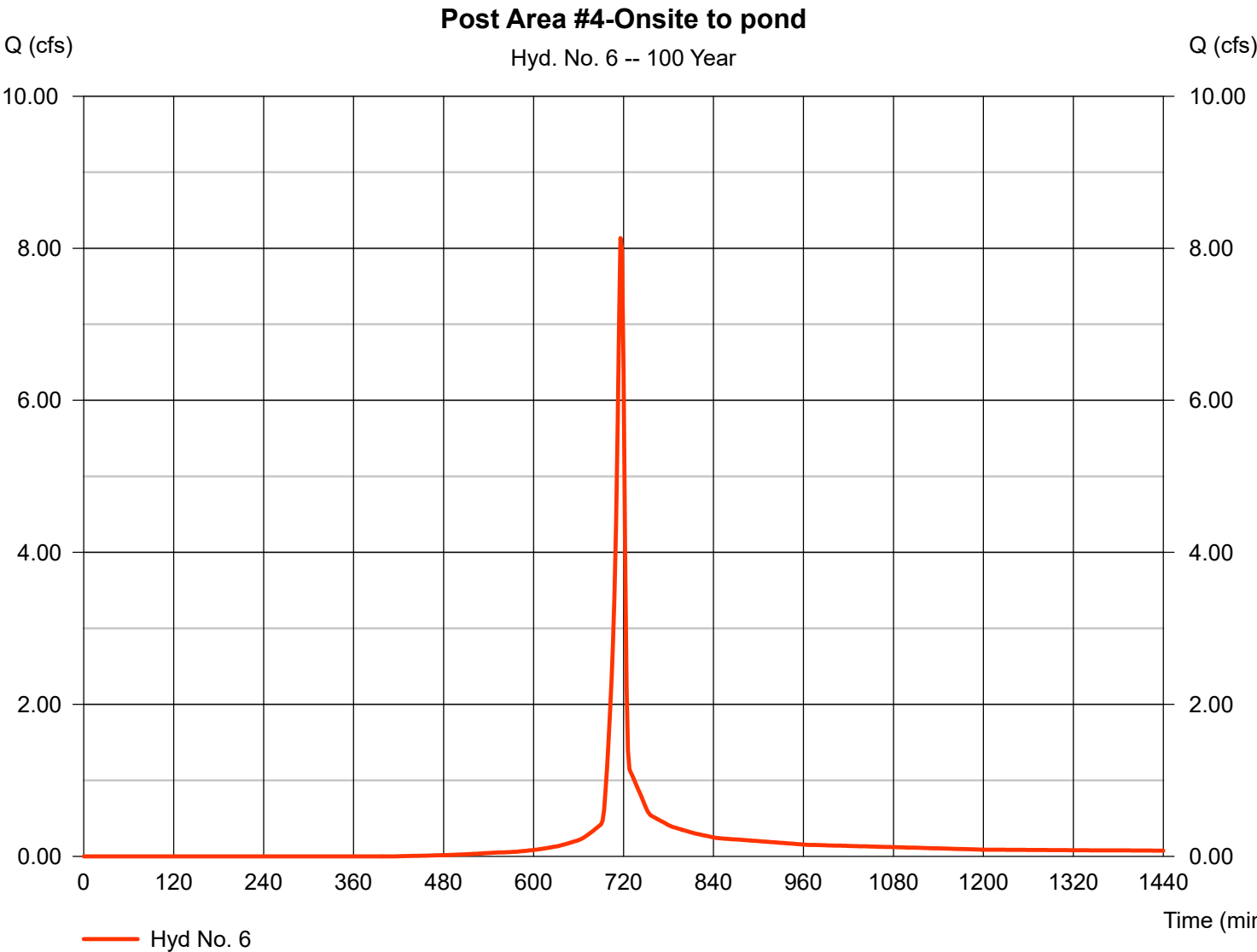


Hydrograph Report

Hyd. No. 6

Post Area #4-Onsite to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	8.134 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	16,589 cuft
Drainage area	=	1.160 ac	Curve number	=	75
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.06 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

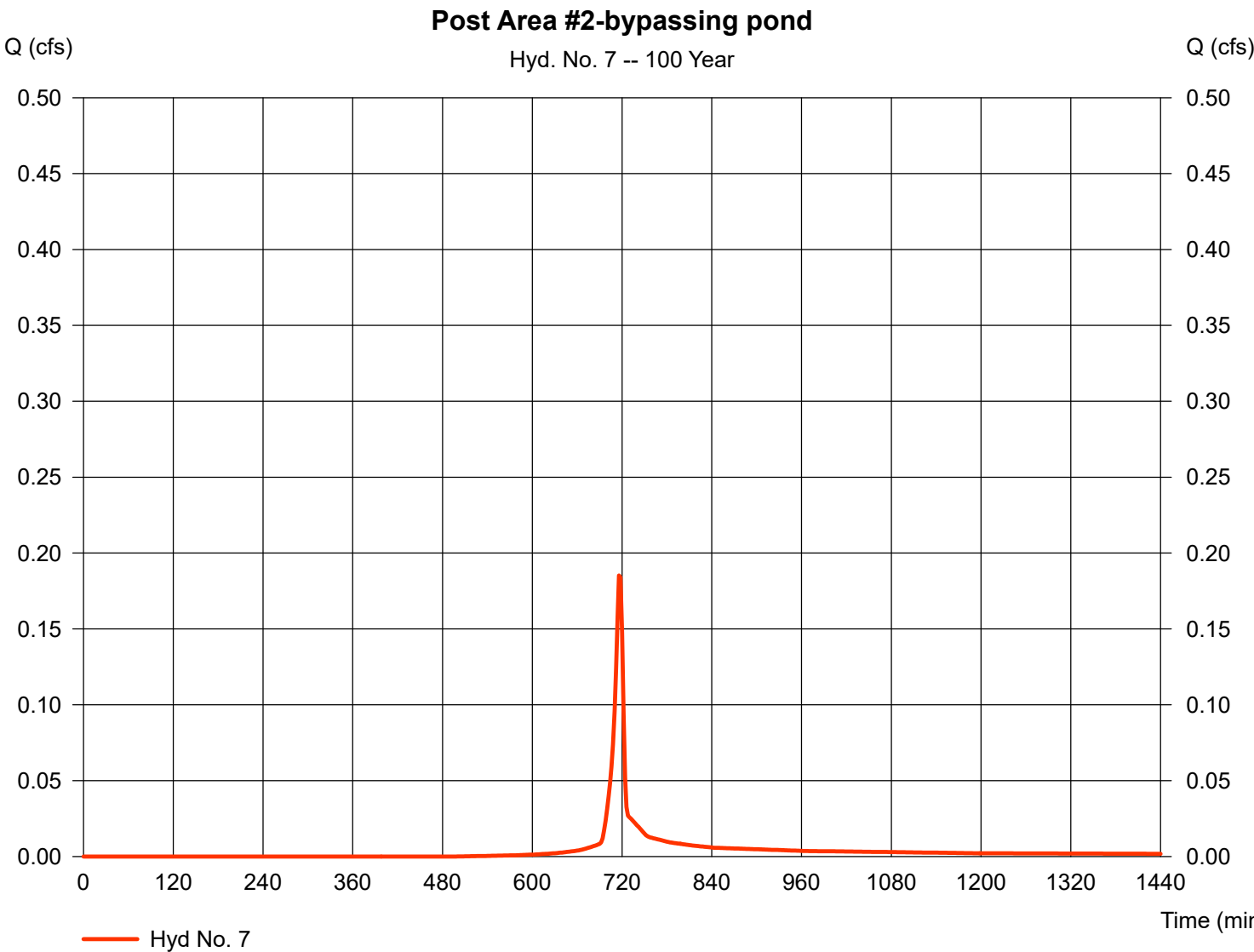


Hydrograph Report

Hyd. No. 7

Post Area #2-bypassing pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.185 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	375 cuft
Drainage area	=	0.030 ac	Curve number	=	70
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.06 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23

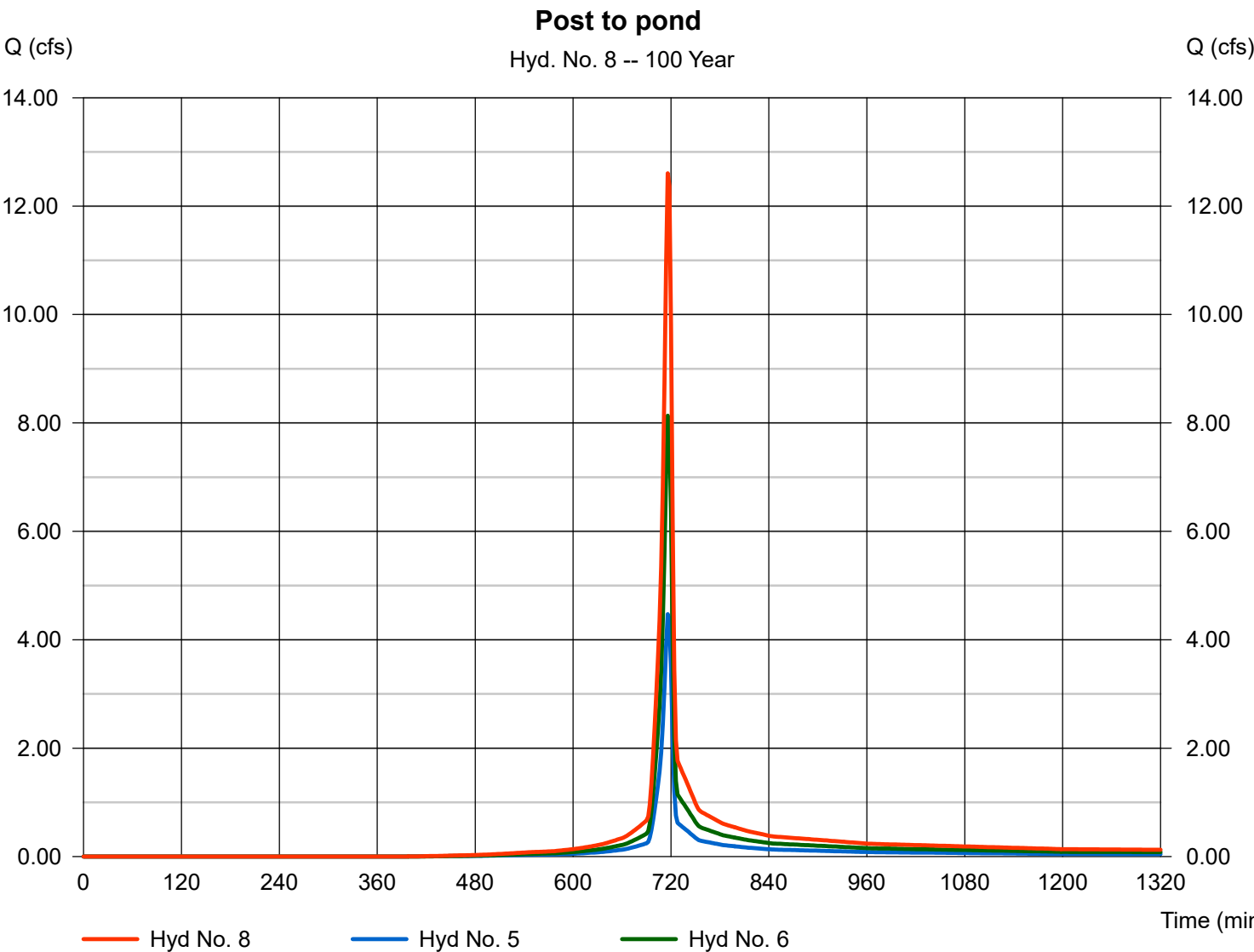
Tuesday, Jan 28, 2025

Hyd. No. 8

Post to pond

Hydrograph type = Combine
Storm frequency = 100 yrs
Time interval = 2 min
Inflow hyds. = 5, 6

Peak discharge = 12.61 cfs
Time to peak = 716 min
Hyd. volume = 25,764 cuft
Contrib. drain. area = 1.770 ac



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.23

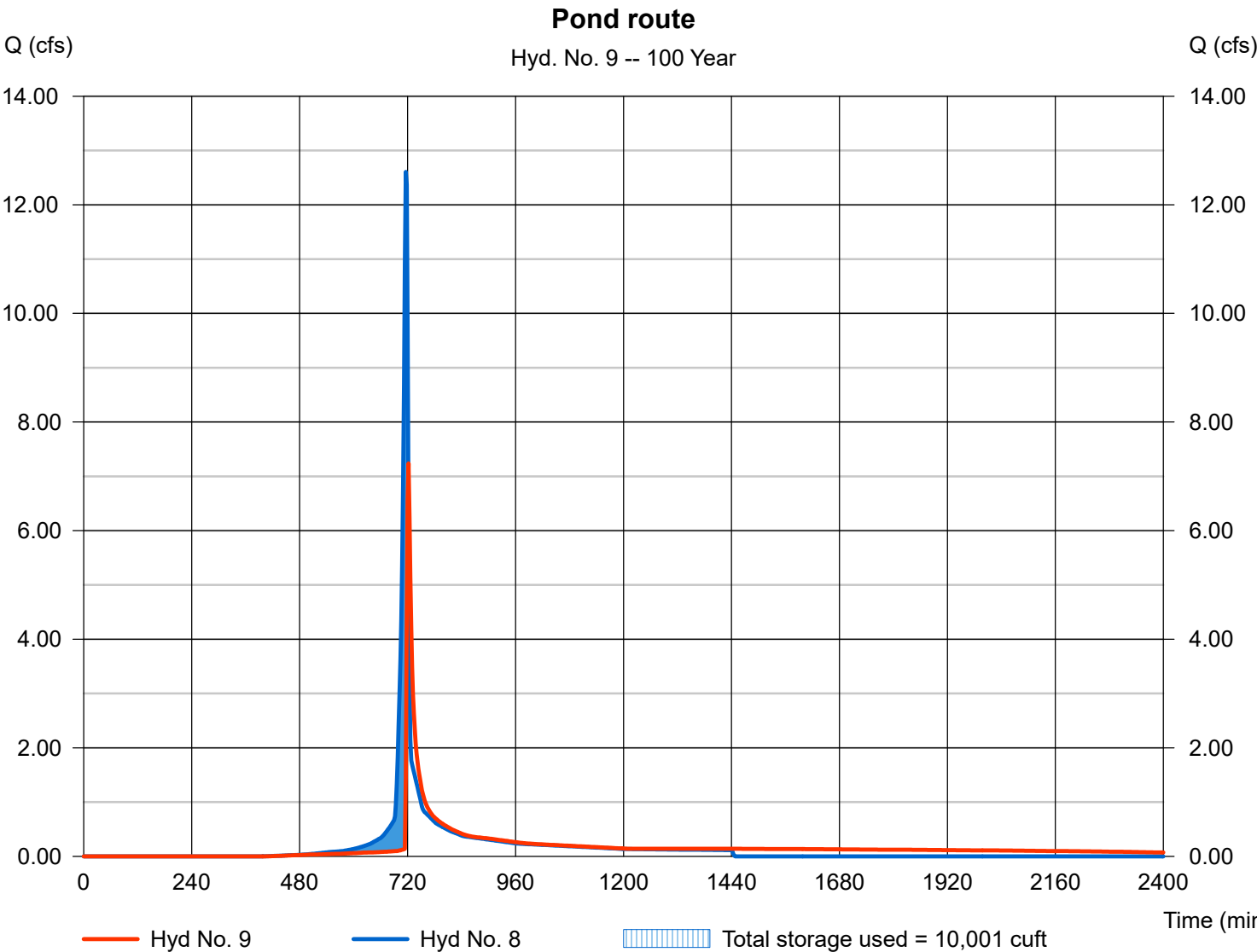
Tuesday, Jan 28, 2025

Hyd. No. 9

Pond route

Hydrograph type	= Reservoir	Peak discharge	= 7.235 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 25,764 cuft
Inflow hyd. No.	= 8 - Post to pond	Max. Elevation	= 696.54 ft
Reservoir name	= Pond 1	Max. Storage	= 10,001 cuft

Storage Indication method used.

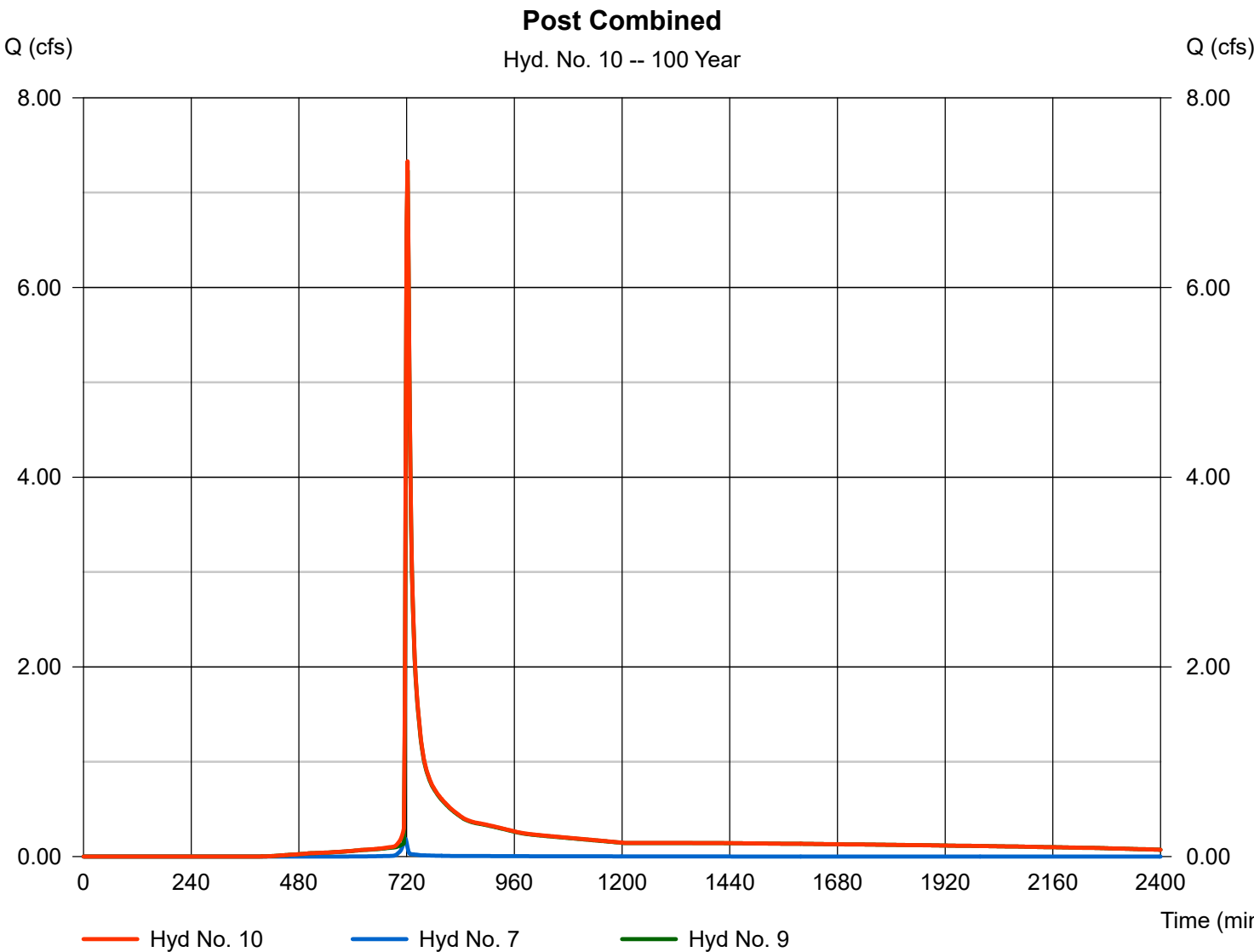


Hydrograph Report

Hyd. No. 10

Post Combined

Hydrograph type	= Combine	Peak discharge	= 7.329 cfs
Storm frequency	= 100 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 26,138 cuft
Inflow hyds.	= 7, 9	Contrib. drain. area	= 0.030 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	-----
2	71.6708	12.9000	0.8793	-----
3	0.0000	0.0000	0.0000	-----
5	75.3430	13.1000	0.8444	-----
10	70.3899	12.3000	0.7992	-----
25	64.5010	11.2000	0.7457	-----
50	59.7032	10.4000	0.7038	-----
100	54.0395	9.3000	0.6589	-----

File name: Dickson.IDF

Intensity = $B / (T_c + D)^E$

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	5.67	4.57	3.84	3.32	2.93	2.63	2.39	2.19	2.02	1.88	1.76	1.65
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.53	5.32	4.51	3.92	3.48	3.14	2.86	2.63	2.44	2.28	2.13	2.01
10	7.21	5.89	5.01	4.38	3.90	3.53	3.23	2.98	2.77	2.59	2.44	2.30
25	8.08	6.61	5.65	4.96	4.44	4.03	3.70	3.43	3.20	3.00	2.83	2.68
50	8.71	7.15	6.13	5.40	4.85	4.42	4.07	3.78	3.54	3.33	3.15	2.99
100	9.36	7.68	6.60	5.84	5.26	4.81	4.45	4.14	3.89	3.67	3.48	3.31

Tc = time in minutes. Values may exceed 60.

Precip. file name: Nashville.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0.00	3.44	0.00	4.19	4.80	5.65	6.34	7.06
SCS 6-Hr	0.00	1.80	0.00	0.00	2.60	0.00	0.00	4.00
Huff-1st	0.00	1.55	0.00	2.75	4.00	5.38	6.50	8.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	1.75	0.00	2.80	3.90	5.25	6.00	7.10

Conveyance system Calcs.

PIPE TABLE					
PIPE	SIZE/TYPE	INV. (IN)	INV. (OUT)	SLOPE %	LENGTH (FT)
A	12" HP	703.80	702.90	2.00%	45
B	12 " HP	702.90	702.00	1.91%	47
C	18 " HP	702.00	700.60	2.06%	68
D	18 " RCP	701.20	700.60	1.05%	57
E	18 " HP	694.20	694.00	2.50%	8
NOTE: HP storm is high performance poly propylene pipe. All pipes to have watertight connections					

DRAINAGE STRUCTURE TABLE						
STR #	T.O.C.	INV. (IN)	INV. (OUT)	DESCRIPTION	STRUCTURE NUMBER	CASTING NUMBER
1	707.7	-----	703.8	CURB INLET	TDOT #12 INLET	JBS 3123
2	707.2	702.9	702.9	CATCH BASIN	JBS 4075	JBS 4075
3	707.3	702	702	CURB INLET	TDOT #12 INLET	JBS 3123
4	705.1	-----	701.2	CURB INLET	TDOT #12 INLET	JBS 3123
5	703.7	700.6 (C & D)	694.2	CURB INLET	TDOT #12 INLET	JBS 3123
6	-----	-----	694.00	END OF PIPE THRU RET. WALL	SEE DETAIL	SEE DETAIL

Hydrology

land, the designer will need to use engineering judgment to select an average condition based on mowing practices and channel lining material for when the greatest likelihood of heavy rainfall would occur. For areas that are or will be infrequently mowed, tall grass should be considered.

Surface Type	Minimum	Normal	Maximum
Concrete	0.010	0.011	0.013
Asphalt	0.010	0.012	0.015
Bare Soil	0.010	0.011	0.030
Bare Sand	0.010	0.010	0.016
Graveled Surface	0.011	0.012	0.030
Bare Clay-Loam (eroded)	0.012	0.020	0.033
Packed Clay		0.030	
Fallow (no residue)	0.006	0.050	0.160
Cultivated (till) (residue $\leq$ 20%)	0.006	0.060	0.120
Cultivated (till) (residue > 20%)	0.070	0.170	0.470
No Till (no residue)	0.030	0.040	0.100
No Till (20% - 40% residue)	0.010	0.070	0.170
No Till (>60% residue)	0.016	0.300	0.470
Plow (fall)	0.020	0.020	0.100
Range (natural)	0.100	0.130	0.320
Pasture	0.300	0.350	0.400
Pasture (sparse vegetation)	0.053	0.070	0.130
Grass (bluegrass sod)	0.390	0.450	0.630
Grass (Bermuda)	0.300	0.410	0.480
Lawns	0.200	0.250	0.300
Woods and Shrubbery	0.400	0.400	0.800

Table 4-3
Manning's n Values for Overland Flow

Table References:

American Society of Civil Engineers and Water Environment Federation. *Design and Construction of Urban Stormwater Management Systems*. ASCE Manuals and Reports of Engineering Practice No. 77 and WEF Manual of Practice FD-20. New York, New York and Alexandria, Virginia. 1992.

Indiana Department of Transportation. *Indiana Design Manual Part IV Volume I*. Indianapolis, IN. 1999.

Kentucky Transportation Cabinet, *Drainage Guidance Manual - Proposed Revisions*. Frankfort, KY. September 29, 2000.

Metropolitan Government of Nashville and Davidson County Department of Public Works Engineering Division. *Stormwater Management Manual*. Nashville, Tennessee. Sept. 1999.

United States Department of Agriculture. Soil Conservation Service. Engineering Division. *Urban Hydrology for Small Watersheds - Technical Release 55*. June 1996.

Virginia Department of Transportation. *Drainage Manual*. Richmond, Virginia. February 1989.

Surface Type and Condition ^{1,2}	Runoff Coefficient (C)
Rural Areas	
Concrete or sheet asphalt pavement_____	0.8 - 0.9
Asphalt macadam pavement_____	0.6 - 0.8
Gravel roadways or shoulders_____	0.4 - 0.6
Bare earth_____	0.2 - 0.9
Steep grassed areas (2H:1V)_____	0.5 - 0.7
Turf meadows_____	0.1 - 0.4
Forested areas_____	0.1 - 0.3
Cultivated fields_____	0.2 - 0.4
Urban Areas	
Flat residential, with about 30 percent of area impervious_____	0.40
Flat residential, with about 60 percent of area impervious_____	0.55
Moderately steep residential, with about 50 percent of area impervious_____	0.65
Moderately steep developed area, with about 70 percent of area impervious_____	0.80
Flat commercial/industrial, with about 90 percent of area impervious_____	0.80

¹ For flat slopes and/or permeable soil, use the lower values. For steep slopes and/or impermeable soil, use the higher values.

² For areas where there is a shallow bedrock surface, use the higher values.

Table 4-2
Runoff Coefficients (C) for Use in the Rational Method
Reference: USDOT, FHWA, HDS-4 (2001)

4.04.1.2 INTENSITY

Rainfall intensity (I) is the average rainfall rate (in/hr) for a duration equal to the time of concentration for a selected return period. Once a particular return period has been selected for design, and the time of concentration calculated for the drainage area, the rainfall intensity can be determined from Rainfall Intensity Duration Frequency (IDF) Curves. The designer should select the appropriate curve based on the location of the project (refer to Figure 4A-1 in the chapter Appendix for an IDF-zone map). The curves are identified on ten charts and designated by the selected gauged Tennessee city located in each IDF-zone. The intensity-duration-frequency curves for Chattanooga, Clarksville, Cookeville, Jackson, Johnson City, Knoxville, Lawrenceburg, Lebanon, Manchester, and Shelbyville, are provided in the Appendix as Figures 4A-2 through 4A-11.

Columbia SB's Site
Conveyance System
1-24-25

Area to CI#1 / Pipe A

$$A = 0.18 A_c \quad \text{Imp.} = 0.07 A_c \pm \quad C = 0.95 \quad \text{Comp. } C = 0.56$$
$$\text{grass} = 0.11 A_c \pm \quad C = 0.3$$
$$T_c = 5 \text{ mins}$$

Area to CB#2 / Pipe B

$$A = 0.084 A_c \quad C = 0.90$$
$$T_c = 5 \text{ mins}$$

Area to CI#3 / Pipe C

$$A = 0.04 A_c \quad C = 0.9$$
$$T_c = 5 \text{ mins}$$

Area to CI#4 / Pipe D

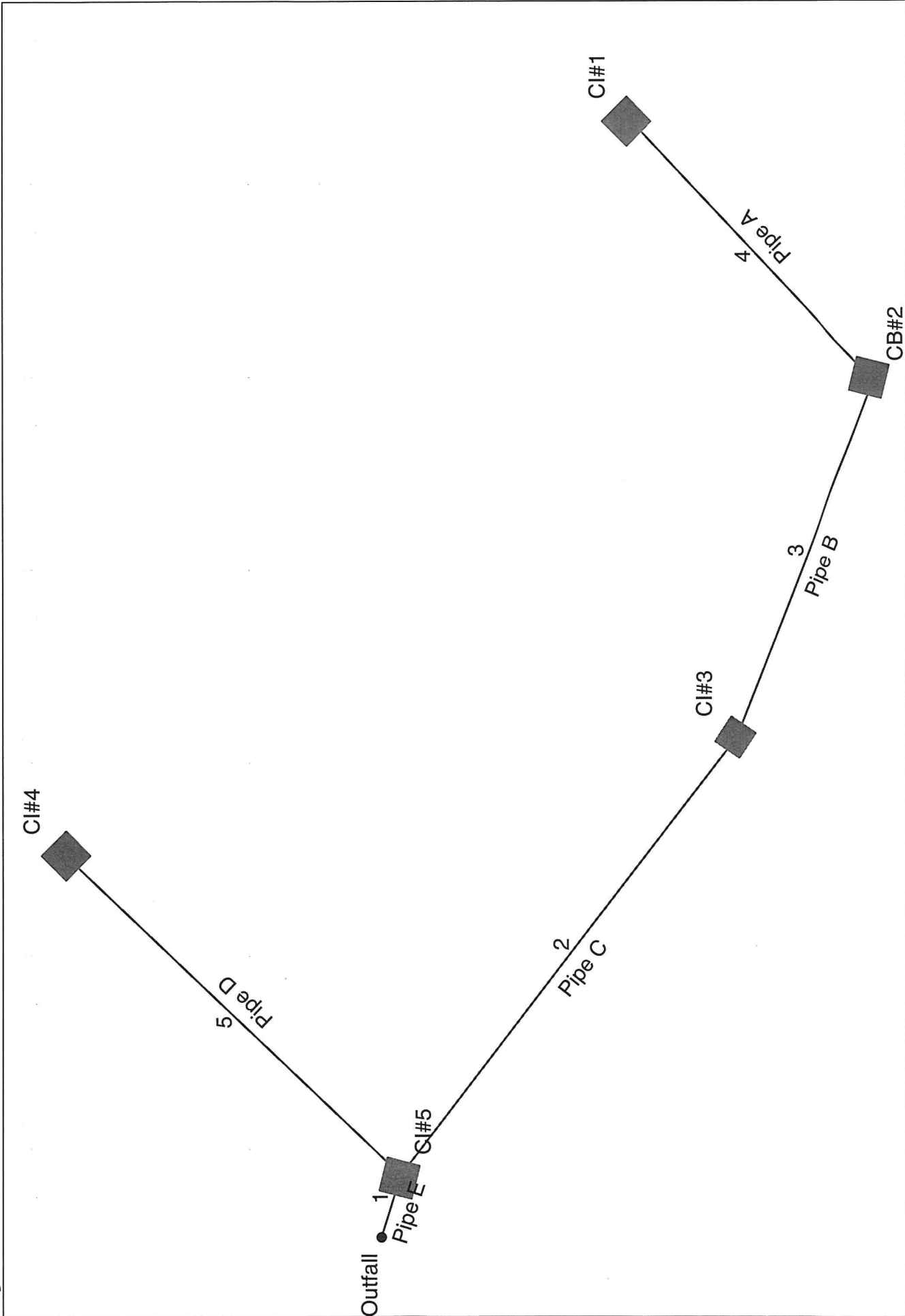
$$A = 0.36 A_c \quad \text{Imp.} = 0.3 A_c \pm \quad C = 0.95 \quad \text{Comp. } C = 0.84$$
$$\text{grass} = 0.06 A_c \pm \quad C = 0.3$$
$$T_c = 5 \text{ mins}$$

Area to CI#5 / Pipe E

$$A = 0.13 A_c \quad C = 0.90$$
$$T_c = 5 \text{ mins}$$

Hydraulics

Hydraflow Storm Sewers Plan



Project File: Columbia SB conveyance system.stm		Number of lines: 5	Date: 01-28-2025
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Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev. (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	CI#5	Combination	705.10	Rect	4.00	4.00	15	Cir	694.20	12	Cir	700.60
2	CI#3	Combination	707.30	Rect	4.00	4.00	12	Cir	702.00	12	Cir	700.60
3	CB#2	DropGrate	707.20	Rect	4.00	4.00	12	Cir	702.90	12	Cir	702.00
4	CI#1	Combination	707.70	Rect	4.00	4.00	12	Cir	703.80	12	Cir	702.90
5	CI#4	Combination	703.70	Rect	4.00	4.00	12	Cir	701.20			
Project File: Columbia SB conveyance system.stm				Number of Structures: 5			Run Date: 01-28-2025					

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.	Junction Type
1	Pipe E	4.74	15	Cir	8	694.00	694.20	2.512	694.87	695.07	n/a	695.72 i	End	Combination
2	Pipe C	1.57	12	Cir	68	700.60	702.00	2.055	700.97	702.53	n/a	702.82 i	1	Combination
3	Pipe B	1.30	12	Cir	47	702.00	702.90	1.921	702.82	703.38	n/a	703.63 i	2	DropGrate
4	Pipe A	0.76	12	Cir	45	702.90	703.80	2.022	703.63	704.17	n/a	704.32 i	3	Combination
5	Pipe D	2.28	12	Cir	57	700.60	701.20	1.045	701.15	701.84	n/a	702.27 i	1	Combination
Project File: Columbia SB conveyance system.stm														
Run Date: 01-28-2025														
Number of lines: 5														
NOTES: Return period = 10 Yrs. ; i - Inlet control.														

Storm Sewer Tabulation

Station Line	To Line	Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
			Incr (ac)	Total (ac)		Incr	Total	Inlet (min)	Syst (min)					Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	8	0.13	0.79	0.90	0.12	0.63	5.0	5.0	7.5	4.74	11.09	5.19	15	2.51	694.00	694.20	694.87	695.07	0.00	705.10	Pipe E
2	1	68	0.04	0.30	0.90	0.04	0.21	5.0	5.0	7.5	1.57	5.53	4.88	12	2.06	700.60	702.00	700.97	702.53	705.10	707.30	Pipe C
3	2	47	0.08	0.26	0.90	0.07	0.17	5.0	5.0	7.5	1.30	5.35	2.67	12	1.92	702.00	702.90	702.82	703.38	707.30	707.20	Pipe B
4	3	45	0.18	0.18	0.56	0.10	0.10	5.0	5.0	7.5	0.76	5.49	2.06	12	2.02	702.90	703.80	703.63	704.17	707.20	707.70	Pipe A
5	1	57	0.36	0.36	0.84	0.30	0.30	5.0	5.0	7.5	2.28	3.94	4.75	12	1.05	700.60	701.20	701.15	701.84	705.10	703.70	Pipe D
Project File: Columbia SB conveyance system.stm																						Run Date: 01-28-2025
Number of lines: 5																						
NOTES: Intensity = 71.31 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; Pipe travel time suppressed. ; c = cir e = ellip b = box																						

Inlet Report

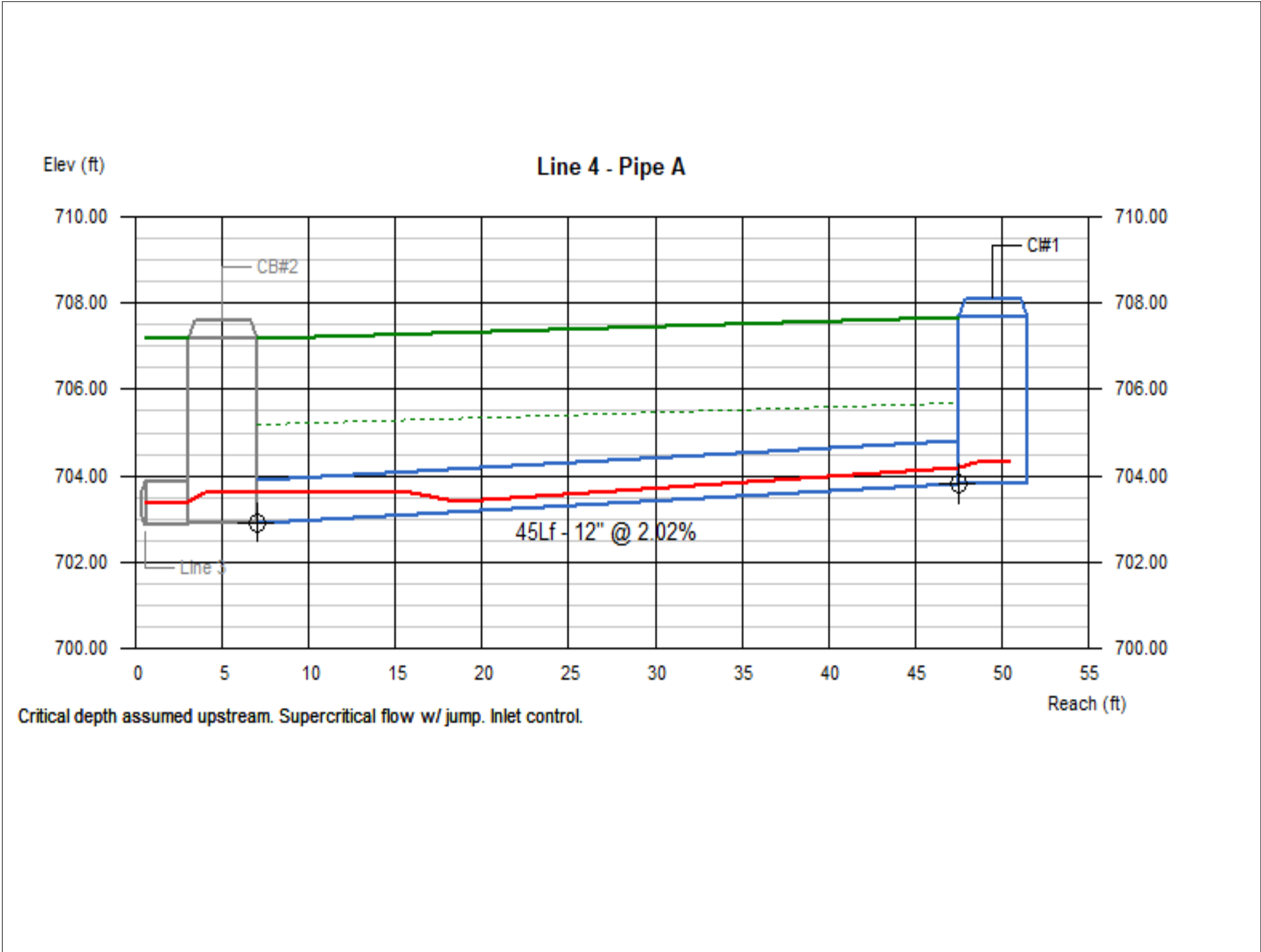
Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q byp (cfs)	Junc type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp line No	
							Ht (in)	L (ft)	area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depth (ft)		Depr (in)
1	CI#5	0.88	0.00	0.88	0.00	Comb	5.0	3.02	2.18	3.02	1.81	Sag	1.00	0.020	0.020	0.020	0.013	0.13	6.50	0.13	6.50	0.0	Off
2	CI#3	0.27	0.00	0.27	0.00	Comb	5.0	3.02	2.18	3.02	1.81	Sag	1.00	0.010	0.010	0.010	0.013	0.06	6.00	0.06	6.00	0.0	1
3	CB#2	0.54	0.00	0.54	0.00	DrGrt	0.0	0.00	1.35	1.96	1.96	Sag	1.00	0.010	0.010	0.010	0.013	0.08	18.15	0.08	18.15	0.0	2
4	CI#1	0.76	0.00	0.76	0.00	Comb	5.0	3.02	2.18	3.02	1.81	Sag	1.00	0.010	0.010	0.010	0.013	0.12	12.00	0.12	12.00	0.0	3
5	CI#4	2.28	0.00	2.28	0.00	Comb	5.0	3.02	2.18	3.02	1.81	Sag	1.00	0.020	0.020	0.020	0.013	0.24	12.00	0.24	12.00	0.0	1
Project File: Columbia SB conveyance system.stm												Number of lines: 5					Run Date: 01-28-2025						
NOTES: Inlet N-Values = 0.016 ; Intensity = 71.31 / (Inlet time + 12.00) ^ 0.79; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.																							

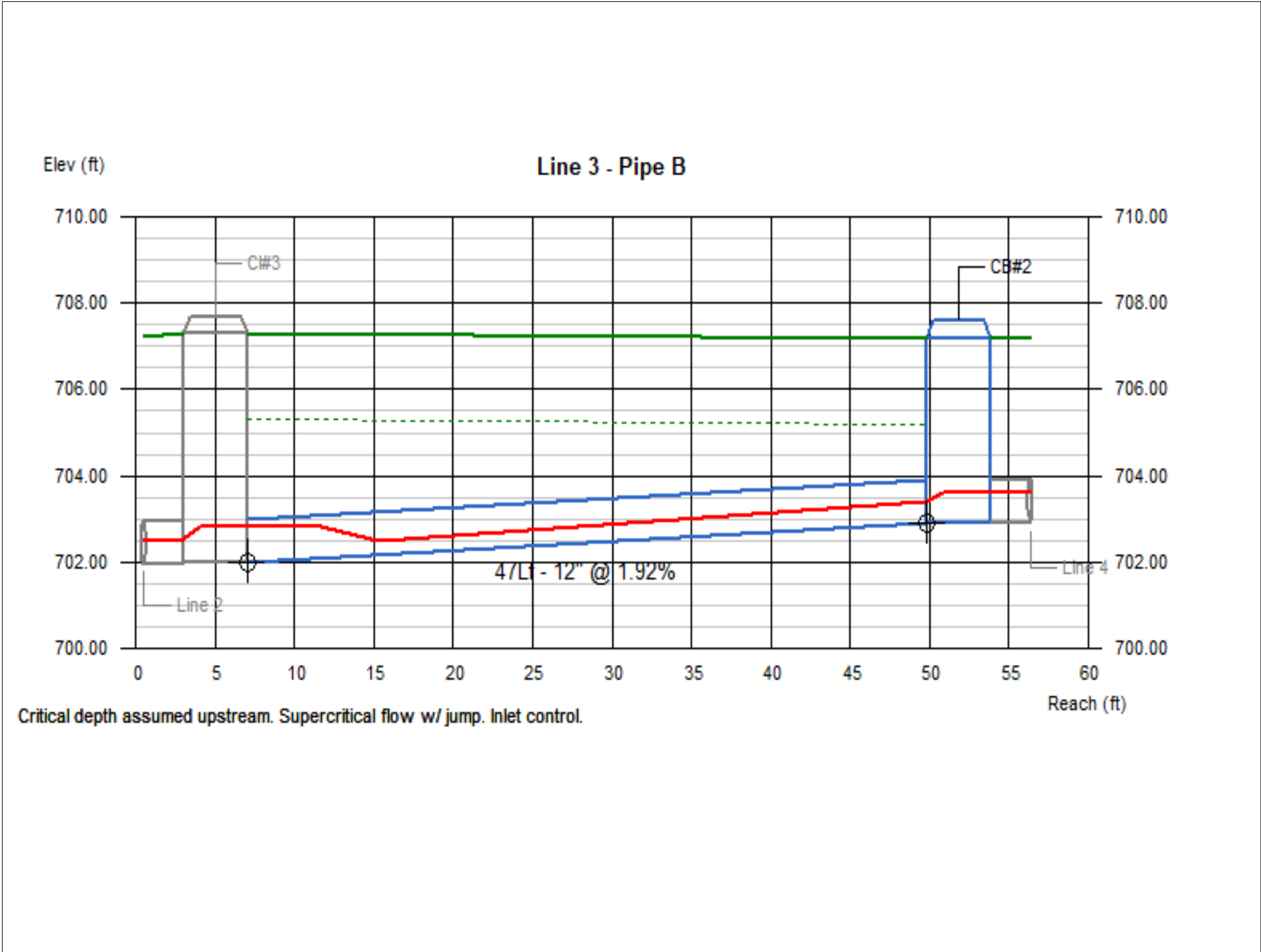
Storm Sewer Inlet Time Tabulation

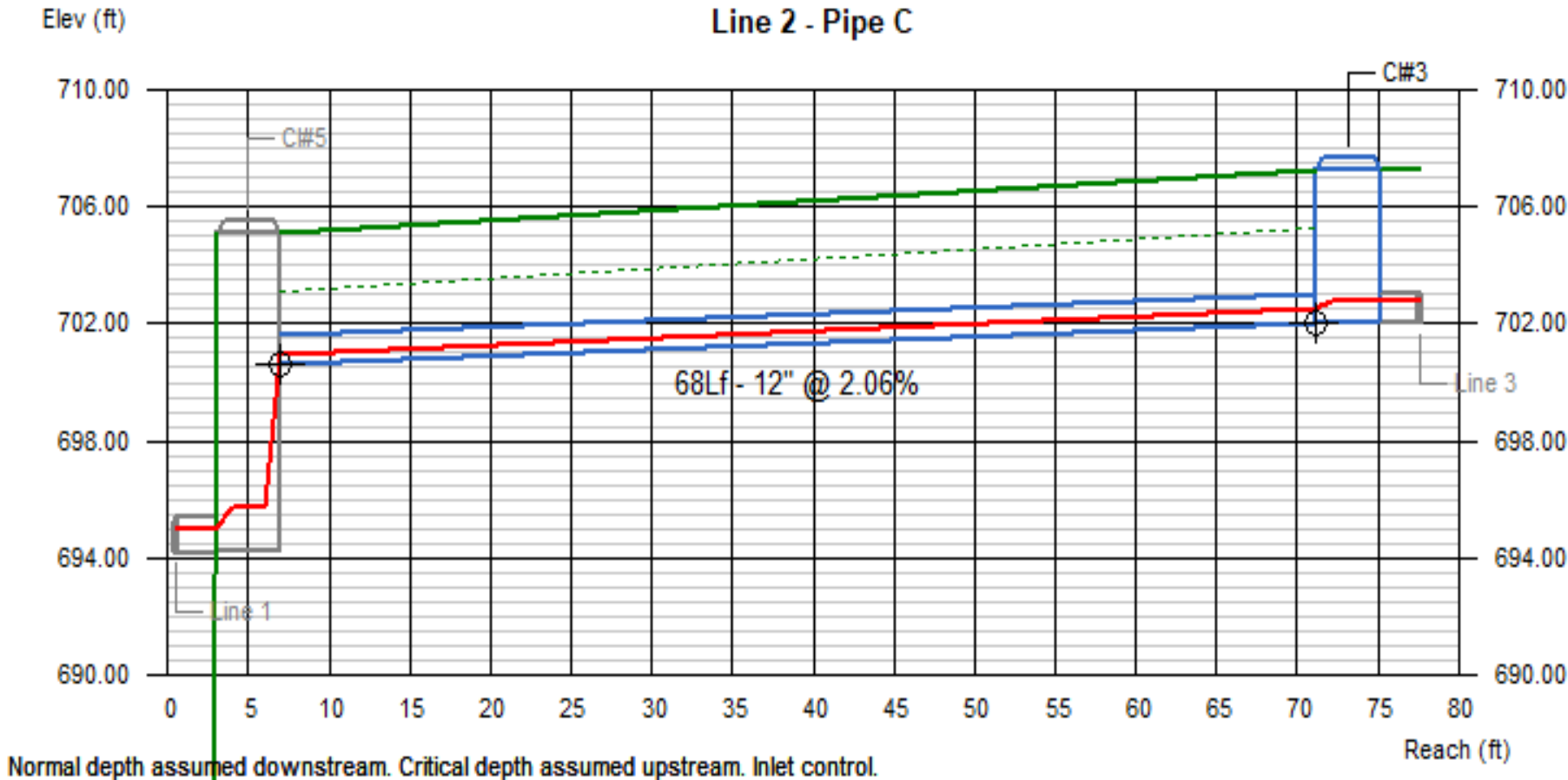
Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	Flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	Flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	Flow Length (ft)	Travel Time (min)	
1	Pipe E	User																	5.00	
2	Pipe C	User																	5.00	
3	Pipe B	User																	5.00	
4	Pipe A	User																	5.00	
5	Pipe D	User																	5.00	
Project File: Columbia SB conveyance system.stm			Min. Tc used for intensity calculations = 0 min							Number of lines: 5							Date: 01-28-2025			

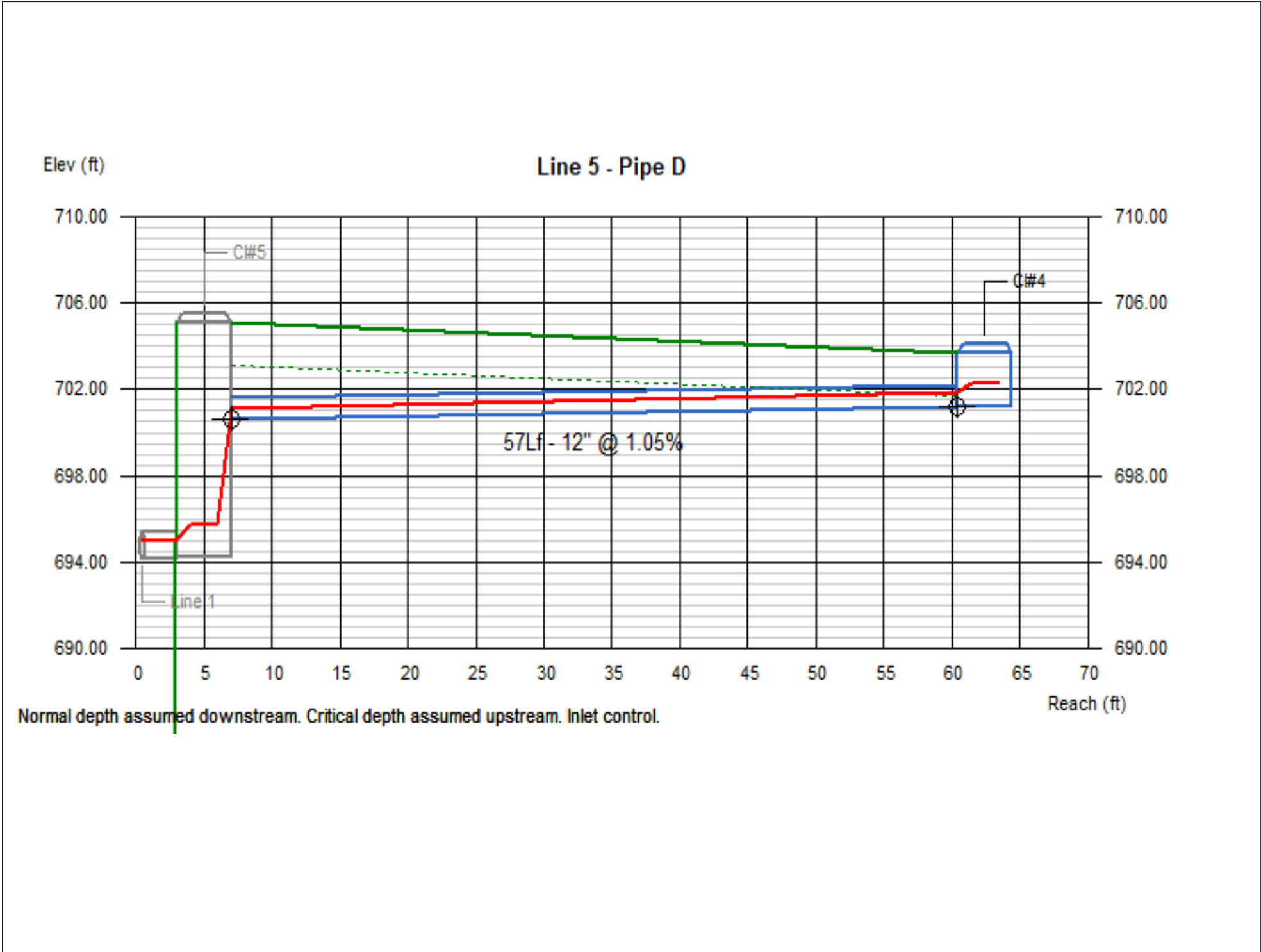
Hydraulic Grade Line Computations

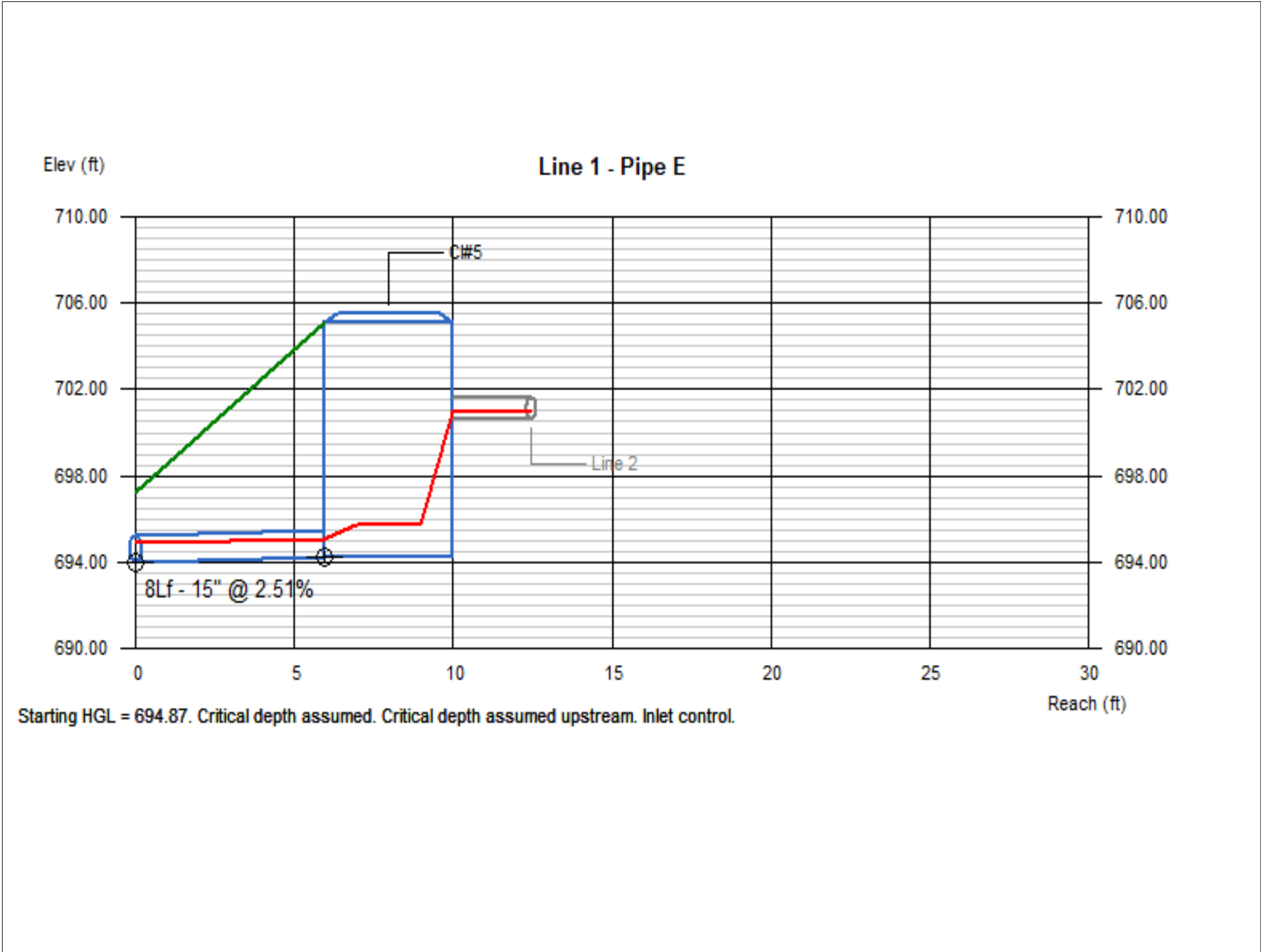
Line	Size (in)	Q (cfs)	Downstream								Len (ft)	Upstream								Check		JL coeff (K)	Minor loss (ft)	
			Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)		Invert elev (ft)	HGL elev (ft)	Depth (ft)	Area (sqft)	Vel (ft/s)	Vel head (ft)	EGL elev (ft)	Sf (%)	Ave Sf (%)	Enrgy loss (ft)			
1	15	4.74	694.00	694.87	0.87	0.91	5.19	0.42	695.29	n/a	8	694.20	695.07	0.87**	0.91	5.19	0.42	695.49i	n/a	n/a	n/a	1.38	n/a	
2	12	1.57	700.60	700.97	0.37*	0.26	6.06	0.57	701.54	n/a	68	702.00	702.53	0.53**	0.42	3.71	0.21	702.75i	n/a	n/a	n/a	0.50	n/a	
3	12	1.30	702.00	702.82	0.82	0.69	1.89	0.06	702.88	n/a	47	702.90	703.38 j	0.48**	0.38	3.46	0.19	703.57i	n/a	n/a	n/a	1.39	n/a	
4	12	0.76	702.90	703.63	0.73	0.61	1.25	0.02	703.65	n/a	45	703.80	704.17 j	0.37**	0.26	2.88	0.13	704.30i	n/a	n/a	n/a	1.00	n/a	
5	12	2.28	700.60	701.15	0.55*	0.44	5.20	0.42	701.57	n/a	57	701.20	701.84	0.64**	0.53	4.29	0.29	702.13i	n/a	n/a	n/a	1.00	n/a	
Project File: Columbia SB conveyance system.stm												Number of lines: 5				Run Date: 01-28-2025								
Notes: * Normal depth assumed.; ** Critical depth.; j-Line contains hyd. jump. ; c = cir e = ellip b = box																								







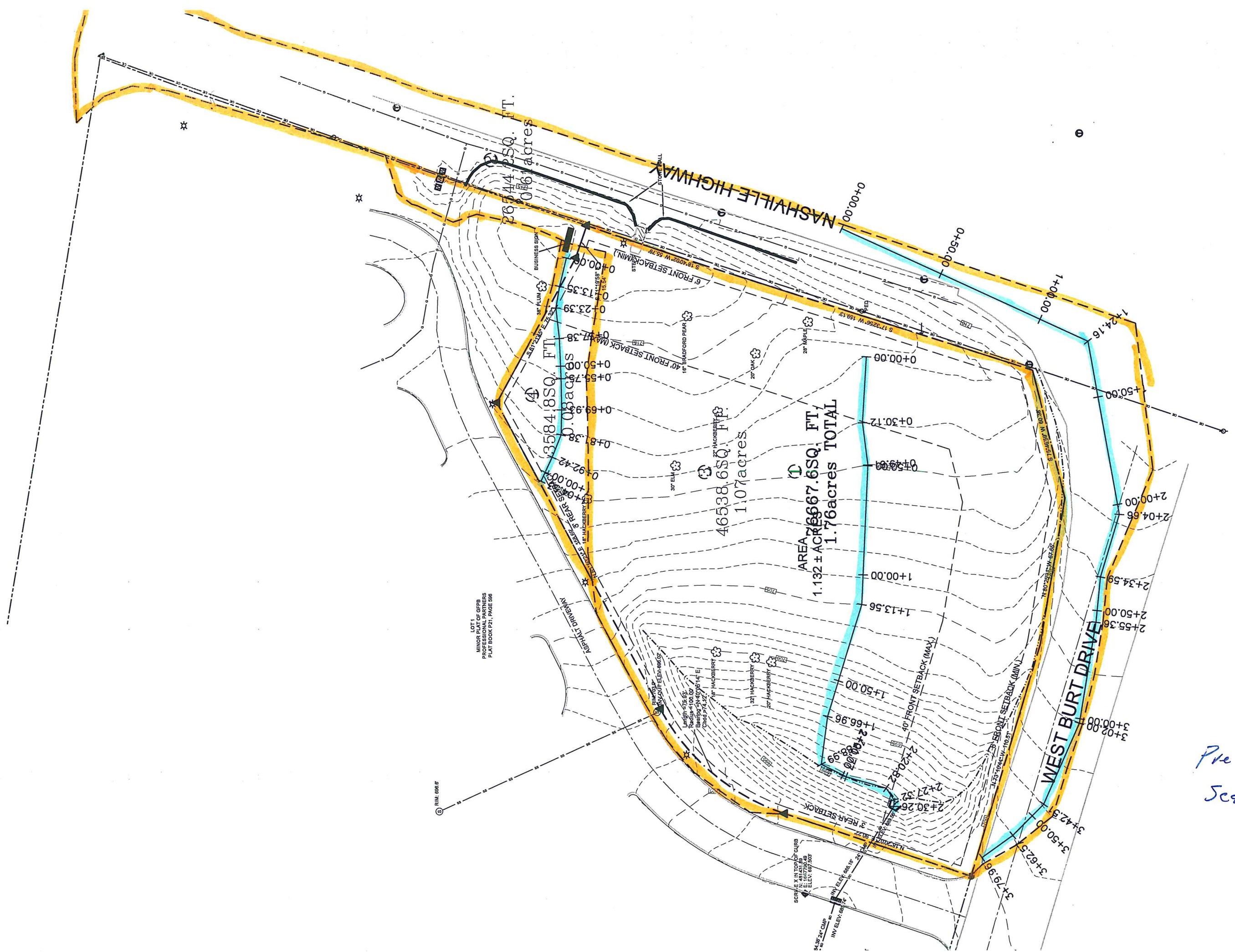




Maps



Pipe Drainage Areas
Scale 1" = 40'



Pre development drainage
Scale 1"=40'

CML

CONSTRUCTION MATERIALS LABORATORY, INC.

David M. Evans, P.E.

Matthew D. Evans, P.E.

October 21, 2024

Mr. Rick Morrow
R&C Enterprises
901 West Main St.
Hohenwald, TN 38462

Re: Test Pits & Report
Starbucks
Columbia, TN

Dear Mr. Morrow:

Enclosed are the results of a site investigation and foundation engineering evaluation report for the proposed Starbucks in Columbia, Tennessee.

We appreciate the opportunity of performing the testing requirements on this project. If you have any questions concerning this report, please do not hesitate to call.

Yours truly,



Matthew D. Evans, P.E.
CONSTRUCTION MATERIALS LABORATORY, INC.

STARBUCKS - COLUMBIA

GEOTECHNICAL REPORT

**W. BURT DRIVE / US HIGHWAY 31
COLUMBIA, TENNESSEE**

**Construction Materials Laboratory, Inc.
41 Heritage Square
Jackson, Tennessee 38305**

**Job No. 102407
October 2024**

1. INTRODUCTION

1.1 Project Overview

This report prepared by Construction Materials Laboratory (CML) of Jackson, Tennessee, details the subsurface geotechnical investigation for the proposed Starbucks in Columbia, Tennessee. This report contains a description of the site conditions and foundation recommendations based on the subsurface testing.

Based on current information, the proposed building will be an approximately 2,400 ft² one-story retail store with a drive thru on the northside of the building. The building will be pushed very close to the southeast corner of the property. Although the exact loading is unknown, conservative estimates of maximum loads for the building are approximately 1.5-2 kips/ft on perimeter wall footings, and 125-150 pounds per square foot (psf) on floor slabs. A large detention area is already located on the west side, and the new parking will extend west and north of the building, connecting to the existing driveway.

2. SITE CHARACTERISTICS

2.1 Site Topography

The site is located on the northwest corner lot at the intersection of US Highway 31 and West Burt Drive. The site is a well-maintained grass surface with scattered trees at the north end. The topographic survey indicates the lot slopes steadily from northeast to southwest. The building footprint appears to have about 6 feet of elevation change from the east end to the west end. Based on the grades near the existing roads, we expect a slight amount of cut at the east end, and 3-4 feet of fill in the center and east end.

2.2 Seismic Parameters

Considering the soil characteristics through the depth of the investigation as well as the knowledge of the area; the IBC site designation should be **Site Class C**. Based on 0.01-degree grid spacing, the ASCE 7-16 hazard tool indicates a 0.2 second period spectral acceleration, S_s , of 0.296(g) and a 1.0 second period spectral acceleration, S_1 , of 0.144(g) and corresponding spectral response acceleration parameters, S_{DS} of 0.257(g) and S_{D1} of 0.144(g).

2.3 Summary Subsurface Investigation

The subsurface investigation was conducted by performing test pit excavations located by CML and subsequent field probing, Pocket Penetrometer Testing and Dynamic Cone Penetrometer Testing. The PPR measures the resistance from the relatively undisturbed soil sample to the penetration of a 0.25-inch diameter steel rod pushed a distance of 0.25 inches. This is an index test that gives a rough estimation of undrained bearing strength and speed of consolidation for fine grained soil samples. The Dynamic Cone Penetrometer (DCP) uses a 15 lb. steel mass falling 20-in to strike an anvil to penetrate a 1.5-inch diameter, 45-degree cone that has been seated in the bottom of the test pit excavation. Based on the soil characteristics the DCP results (blows per 1.75" interval) can be roughly correlated with standard penetration test (SPT) N value results. Based on the scope of the planned construction; 5 test pits were located in project area. A schedule of the test pits, including depth, location, and any remarks or surface conditions is shown in **Table 1** below. Detailed drilling logs for each boring are found in **Appendix A**.

Table 1. Schedule of Test Pits

Test Pit	Depth (ft)	Location	Groundwater	Remarks
TP-1	4' 3"	SE Bldg. Corner	Dry	Rock at 4' 3"
TP-2	3' 8"	North Bldg. Wall – East Side	Dry	Rock at 3' 8"
TP-3	6' 6"	West Bldg. Wall	Dry	Rock at 6' 6"
TP-4	3'	West Parking / Edge of Detention	Dry	Old Construction Entrance Found
TP-5	6'	North Parking	Dry	Stiff Clay Full Depth

***Locations based on the Concept Site Plan**

3. SUBSOIL INVESTIGATION RESULTS

3.1 Laboratory Testing Results

Certain samples were further analyzed for Atterberg limits, grain size analysis and classification according to the Unified Soils Classification System (USCS). The Atterberg limits consist of the liquid and plastic limits of the soil sample and are index tests that help to further characterize the nature of the soil. All laboratory test results are found in **Appendix B**.

3.2 Soil Profile

Through the limited depths investigated this site generally consists of two soil layers, designated strata A and B. Soil strata and classifications are based on penetration test results, visual-manual inspection of the samples and Atterberg limits of selected samples.

Stratum A is composed of stiff to very stiff, brown lean clay (CL), sandy lean clay (CL) and some deeper clayey sands (SC). The upper clays exhibit moderate undrained shear strength (1,000-1,300 psf), The in-place moisture ranges from 19-23%. Sand content ranges from 10-55% increasing with depth. These clays exhibit liquid limits of 29-42% and low to moderate plasticity of 10-21%.

Stratum B is a sharp transition to hard limestone bedrock. This rock was shallowest at the southeast corner of the site at a depth of 3' 8" getting deeper further west and north. The min-excavator was able to remove a thin layer at the top of the rock, but overall, this rock appear to be hard with minimal weathering.

3.3 Groundwater Levels

Groundwater levels were monitored during excavation. No groundwater was encountered in any of the test pits and should not be a concern for the planned construction.

4. SITE FEASIBILITY

4.1 Foundation Analysis from Subsoil Conditions

Based on the stiff clay and rock profile, the proposed building can be supported by traditional shallow footings and floor slabs on grade. The upper clays are generally very stiff, and advise conducting grading operations during warm weather to help dry and stiffen the top subgrade, and limit pumping and rutting from construction traffic and limit undercut or re-processing. The depth of rock ranges from under four feet to over six feet from east to west and seems to follow the slope of the lot. We assume the west end will have several feet of stiff clay between the bottom of the footing and the top of rock. However, depending on the final grades, the east end may expose the rock near the base of the footings. To help avoid differential settlement concerns, we recommend at least 12 inches of soil remain between the base of the footings and the top of rock. If needed, the rock should be over excavated and replaced with a layer of compacted fill to establish this cushion layer. It does not appear that rock will present significant problems for the parking lot and drives.

4.2 Surface Preparation

Prior to fill placement the site should be cleared of all grass, organic material and any wet, loose, or weak material. Topsoil thickness across the site was about 8-10 inches. Following stripping, the subgrade should be allowed to dry for a day without traffic, which will stiffen the silts and clays at the surface. The new building pad and parking areas should then be proof rolled with a partially loaded 30-ton tandem axle dump truck to check for any weak areas prior to any fill placement.

4.3 Fill Material

Any proposed fill material should contain no topsoil, organic material, or solid particles over 2 inches in diameter. Fill material should have a liquid limit less than 40 and a plasticity index less than 20. On site or haul-in material should meet these specifications and approved by a soil laboratory prior to use. **The on-site soils are brown lean clays and will be a suitable fill material. However, these soils are slightly wet (top 3 feet is generally 3-5% above optimum moisture) and will need to be aerated and allowed to dry for a day prior to compaction.**

All general fill material should be placed in 8-10-inch loose lifts and compacted to 95% of the maximum dry density as defined by the ASTM D-698 (standard Proctor density). Additionally, in place compacting moistures should be $\pm 2-3\%$ of the optimum moisture. Utility trench fill should be placed in thinner lifts and compacted with multiple passes with a whacker packer or a vibratory pad foot trench roller. Moisture density tests should be performed approximately every 2,500 square feet for every layer of fill.

4.4 Site Drainage and Slopes

Positive drainage away from the building should be established and maintained to prevent ponding and excessive water intrusion into the load bearing subgrade material. In order to prevent erosion and maintenance problems, and maintain proper slope stability, 3(H): 1(V) or flatter slopes are recommended. Retaining wall factors are presented in section 6 if needed.

5. BUILDING FOUNDATION TREATMENT

5.1 Shallow Foundation Design

Bearing Capacity and Minimum Size: Following the recommendations for surface preparation and foundation inspection, isolated (column) footings and continuous strip footings can be designed for a maximum bearing pressure of 2,500 pounds per square foot (psf). Bearing pressure is defined as the vertical bearing load divided by the footing area. Regardless of the bearing capacity, isolated footings should be at least 2.5 feet wide and strip footings at least 1.5 feet wide for stability. The maximum bearing pressure may be increased by 1/3 for transient loading conditions.

Inspections: Prior to placement of the reinforcing steel or concrete, the project geotechnical engineer or a technician working under the supervision of the engineer should inspect the excavated footing base. Every portion of excavated footings should be inspected regardless of similar soil characteristics from previously passed inspections. The bottom of the exterior footings should be placed at a minimum depth of 2 feet below the subgrade to provide proper erosion prevention and frost protection.

Lateral Design: For lateral loading considerations active (K_A) and passive (K_P) earth pressure coefficients of 0.32 and 3.70 respectively, can be used. A passive pressure reduction factor of 2 is generally recommended since large movement is required to mobilize the full passive strength in this type of soil. For braced or restrained walls an at-rest earth pressure (K_O) of 0.55 should be used. The unit weight of on-site soil or compacted fill can be taken as 125 lbs/ft³. Equivalent fluid pressures are calculated by multiplying the K-values by the corresponding unit weight. An allowable base sliding friction coefficient of 0.33 can be applied to the dead load. The sliding factor has already been factored with a safety factor of 1.5.

Settlement: Although exact loading conditions are not known, a total settlement of less than 1 inch and a differential settlement of less than 1/2 inch are anticipated for shallow footings across the width of the building.

5.2 Floor Slab Design

We anticipate typical floor loads of 125-175 psf. Following inspection of soil subgrade and all utility trench backfill immediately prior to slab construction, this office recommends a 4-inch-thick layer of No 57 sized stone. This layer will provide subgrade support as well as provide a moisture drainage layer for the slab-on-grade flooring. This blanket should be compacted smooth to at least 95% and topped with a textured polyethylene vapor barrier at least 10 mils thick. A Subgrade Modulus of Reaction of 110 pci can be used for the structural slab design.

6. RETAINING WALL RECOMMENDATIONS

6.1 Retaining Wall Design

General Design

No project details were available regarding a possible retaining wall, however based on the topography it appears a wall could be needed at the west end of the site. Factors for the various soil layers needed for the design of an MSE retaining wall are presented in Table 2. For seismic considerations, the ASCE 7-16 PGA_M criteria was used for the horizontal ground acceleration (k_h). CML can provide additional design factors for another wall type if needed.

Excavation Considerations

The excavation behind the wall should be sloped at least 1(H):1(V) or shallower beginning behind the back heel of the footing or the back edge of the geogrid to provide an adequate factor of safety and avoid a general slope failure or failure between the interface of the compacted fill and natural material. During construction the contractor should protect the wall area from receiving additional surface water runoff from the north that could weaken the wall foundation or fill material.

Footing Preparation

For an MSE wall, the bearing capacity is generally determined through the manufactures design process. Following excavation of the footing, the soil should be checked for stable conditions prior to placing either the crushed limestone leveling pad for an MSE wall, or the rebar and concrete for a cast in-place wall. Any weak soils should be undercut to a stable soil layer as determined by the project geotechnical engineer and replaced with compacted fill material.

Fill Material and Drainage Considerations

This office recommends a drainage layer of open graded stone immediately behind the wall with a perforated toe drain to prevent hydrostatic forces acting on the wall. The toe drain should have an adequate slope and should be allowed to daylight away from the wall. For the reinforced soil an open graded rock (No 57 size or similar) is recommended based on strength, drainage properties and ease of installation and compaction. However, Table 2 also presents design values for on-site sandy clay if needed. If open graded rock will be used, a top layer of geotextile (Mirafi 140N or equivalent) is recommended to separate the clay and prevent fines migration into the rock backfill. A

In order to prevent damage to the wall or excessive bulging or tilt from compaction induced pressures, heavy compaction equipment should not be used be within 3-4 feet of the wall face. Lighter hand operated vibratory compaction equipment (whacker packer or walk-behind vibratory pad foot trench roller)

that does not create high lateral loads should be used behind the wall face. Backfill should be placed in 6-8-inch loose lifts and compacted to a minimum of 95% of a standard proctor. Compaction of the backfill is crucial to the performance of the wall and should be checked every vertical lift and a minimum of one compaction test every 75 linear feet of wall but not less than two tests per lift. If open graded rock is used, lifts should be tamped with a skid steer or plate tamp to ensure dense conditions.

Table 2. Mechanically Stabilized Earth (MSE) Retaining Wall Factors

Condition	Foundation Soil (Very stiff sandy clay)	Reinforced Soil		Retained Soil (Stiff Sandy Clay)
		On-Site Sandy Clay	Open Graded Rock	
Effective Friction Angle (Φ')	30	30	40	32
Cohesion Intercept (c') psf	100	0	0	0
Total Unit Weight (lbs./ft ³)	125	125	105	125
Seismic Design Acceleration(g) $k_h = 0.18(g)$				

Notes:

1. The K_h value was calculated using the from the ASCE 7-16 PGA_M value for site class C. The value is based on the recommendations by NCHRP Report 611 for height-dependent scaling of seismic coefficient. A height of 5 feet was used for the scaling. This value is typically reduced by 50% during the MSE wall design based on allowable deflection.
- 2 The effective friction angle and cohesion intercept should be used for a long term drained analysis.
3. The two options for reinforced soil are based on the locally available material, drainage characteristics and typical preferences by wall builders and designers. The rock option should be No 57, No 67 or similar size clean stone.

7. PAVEMENTS

7.1 Asphalt Pavements

Drainage and Inspection: Prior to placement of base material, the subgrade should be inspected by a competent technician and proof rolled. Positive drainage should be utilized in all pavement areas to prevent ponding and excessive water infiltration into the subgrade. Care should be taken not to allow water to pond in landscape islands or behind curbs prior to paving which could weaken the edge of the subgrade and base.

Design Basis: Pavement recommendations are based on a 20-year pavement life in accordance with AASHTO design methods. Consideration to local practices and knowledge of local pavement performance with these soil conditions is also considered in the following pavement recommendations. The very stiff clays at this site have an estimated CBR of 3-4. This type of lean clay can be sensitive to high moistures and begin pumping and lose stability under heavy construction traffic.

Light Duty: For the passenger car traffic anticipated for the parking areas (<20,000 ESALs), a flexible pavement section should consist of a stabilized base course consisting of 8 inches of crushed limestone base (type A, grading C or D) or 8 inches of soil-cement (minimum 28-day compressive strength of 350 psi), either of which should be topped by at least 2.5 inches of asphalt surface mix.

Medium-Heavy Duty: For driveway sections an 8-inch-thick soil-cement or 8-inch-thick crushed stone layer topped with 2 inches of binder and 2 inches of surface wearing course is recommended. In this type of soil, typically 8% type I Portland cement by weight is required to achieve the required soil cement strength. The strength should be verified with test compressive samples using the on-site subgrade soil and the anticipated type of cement by an experienced testing lab prior to use. For either crushed limestone or soil cement, the thickness should be verified, and moisture density tests should be performed approximately every 2,500 ft² to ensure a minimum compaction of 95% of a standard Proctor.

7.2 Concrete Pavements

Light Duty: Alternately a rigid pavement design could be used for the pavement areas. For passenger car areas, a full depth concrete pavement should include 5 inches of air-entrained, coarse limestone aggregate Portland cement concrete (minimum 4,000 psi at 28 days), underlain by either 4 inches of compacted crushed limestone base or a 6-inch layer of soil-cement (minimum 350 psi @ 28 days) to help better distribute stress and protect the joints.

Medium-Heavy Duty: For a heavier section including dumpster pads, a full depth concrete pavement option should include 7 inches of concrete, underlain by either 4 inches of compacted crushed limestone base or a 6-inch layer of soil-cement. This pavement section is based on the use of load transfer devices at all joints to increase the strength and service life of the rigid pavement. Control joints should be saw cut soon after placement with proper spacing and depth per ACI requirements. The base section should be tested as outlined in section 7.1 and test cylinders should be cast by an experienced testing lab to ensure the strength properties.

7. INSPECTION AND CONTINGENCIES

7.1 Inspection and Quality Control

All modifications to the site should be monitored and inspected by a competent technician. This includes excavations, undercutting, fill operations, and foundation preparation. Prior to fill placement; proposed on-site or haul in fill material should be evaluated for suitable attributes, and ASTM D-698

moisture density tests (Proctor tests) should be performed on every type of fill used on site. Moisture density tests of compacted fill should be checked at a minimum of 1 test per 2,500 square feet for each layer of compacted fill. All building floor slab subgrades and pavement area subgrades should be inspected by a competent technician prior to placement of concrete or other structural material. If these areas are in a cut area, the entire areas should be proof rolled with a loaded dump truck and closely monitored by a technician for any potential weak areas. As previously mentioned, all foundation excavations should be inspected by a technician for suitable bearing capacity prior to concrete placement and effort should be made to prevent excavations from staying open for extended periods of time. Areas of high construction traffic on fine grained material should be limited and controlled to prevent pumping and a loss of stability. Any areas exhibiting pumping when traversed should be undercut and replaced with compacted fill or, dependent on seasonal considerations, pumping areas may be disked, aerated, recompacted and retested.

7.2 Contingencies and Limitations

All recommendations contained in this report are based on the interpretation of the subsurface soil investigation and current knowledge of the area and are for the specific project outlined. Although test pits were conducted at relevant locations according to the proposed construction, it should be noted that the information obtained depicts the subsurface conditions at the specific locations at the particular time of the investigation. Although only minor deviations are expected, soil conditions could differ between test pit locations as well as outside the area of the soil borings. Any significant deviations found during construction should be reported to this office in order to modify the geotechnical report and subsequent recommendations.

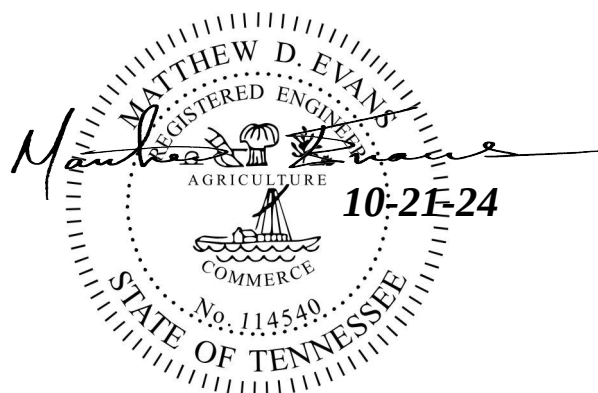
The scope of this report does not contain any environmental investigation or assessment of the site or any adjacent areas. This report does not address the corrosive potential or otherwise hazardous nature of any soil found in the exploration. Any statements contained in this report concerning the location or conditions of organic material are purely an assessment of the subsurface soil profile towards the evaluation of foundation treatment.

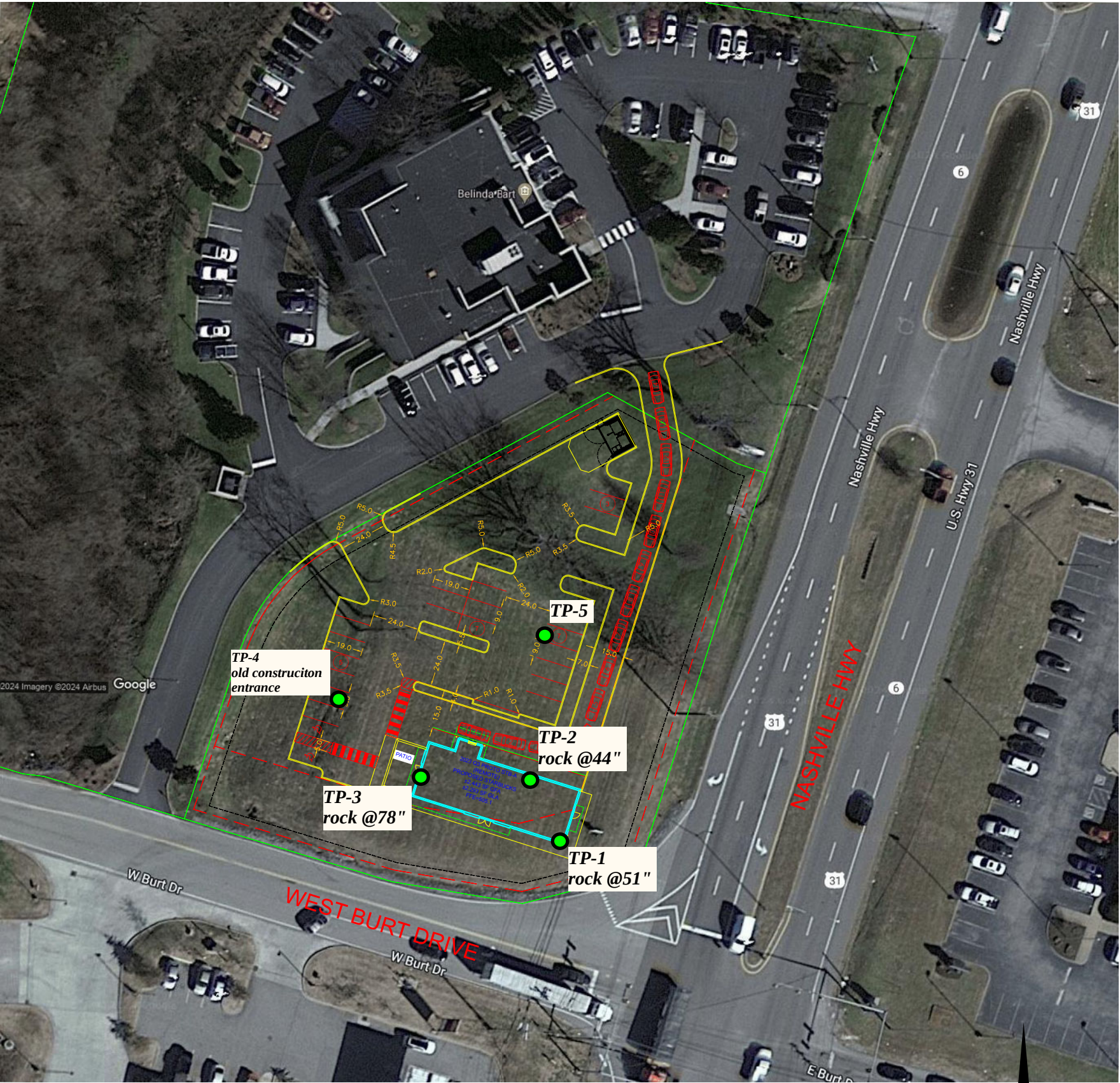
Any changes or revisions to the final plans including loading conditions or locations of structures should be reported to this office in order to modify this report and the subsequent recommendations.

Report Submitted 21 October 2024

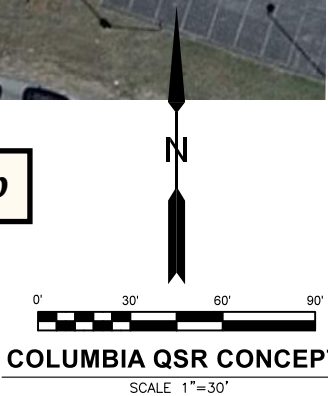
Matthew Evans

Registered Tennessee No. 114540





Test Pit Location Map



THE SITE AS SHOWN ON THESE CONSTRUCTION DRAWINGS IS INTENDED TO ACHIEVE SPECIFIC ENGINEERING DESIGN CRITERIA AND OBJECTIVES. IT IS THE SOLE RESPONSIBILITY OF THE OWNER/DEVELOPER TO ENSURE THAT THE CONSTRUCTION OF THE SITE SHOWN ON THESE CONSTRUCTION DRAWINGS IS IN TOTAL ACCORDANCE WITH THE DESIGN AS NOTED, DESCRIBED, AND ILLUSTRATED. THE ENGINEER ASSUMES NO RESPONSIBILITY IN THE ASSURANCE THAT THE SITE IS CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION PLANS.

Owner/Developer Info:
R&C ENTERPRISES
RICK MORROW
901 WEST MAIN STREET
HOLEN WALD, TN 38462
Land Data:
Zoning: CD-4C
Area: LOT 2-1.13+/-
Floodplain Note:
THIS SITE LIES WITHIN ZONE X, AREA OF MINIMAL FLOOD HAZARD, PER FEMA COMMUNITY PANEL 47119C01170E, DATED APRIL, 16, 2007.
Total Floor Area:
Proposed LOT 3: Total 2,540 S.F.
Deed Reference:
DEED BOOK R2108 PAGE 1072
TAX MAP 675, PARCEL 34.91
Yard Requirements:
CD-4C
Front: 5' MIN. 40' MAX
Side: 0'
Rear: 3'
Intended Use:
Quick service
Parking:
REQUIRED FOR QUICK SERVICE
1 SPACE FOR 100 S.F.
TOTAL SPACES REQUIRED: 25
TOTAL SPACES PROVIDED: 28 (2 HANDICAP)



REVIEW SET
NOT FOR
CONSTRUCTION

SEAL

MB CIVIL
ENGINEERING, LLC
PO BOX 601 759 TIMBER RIDGE DR. LEXINGTON, TN 38351
VOICE 731-265-6827 adam@mbcivil.net

COLUMBIA QSR CONCEPT
PROJECT
OLD NASHVILLE HWY & W. BURT DRIVE
COLUMBIA, TN

REVISION DATES

DATE
MAY 6, 2024

SHEET
C-1.0 OF
1

JOB No.

TEST PIT LOGS

APPENDIX A

TEST PIT LOG

JOB TITLE: Columbia Starbucks

DATE: 10/16/24

Test Pit # 1 **Groundwater:** Dry **Topsoil:** 8"

DEPTH	DESCRIPTION	% MOISTURE	PPR	FIELD PROBING	DCP
1.5'	Very Stiff Brown Lean Clay w/ Sand	19.5%	4.5	¼"	
3'	Very Stiff Brown Lean Clay w/ Sand	20.5%	4.0 – 4.5	¼"	15
4' 3"	Limestone Bedrock				

Test Pit # 2 **Groundwater:** Dry **Topsoil:** 8"

DEPTH	DESCRIPTION	% MOISTURE	PPR	FIELD PROBING	DCP
2'	Stiff Brown Sandy Lean Clay	23.0%	3.0 - 4.25	¼ - 3/8"	13
3' 8"	Limestone Bedrock				

Test Pit # 3 **Groundwater:** Dry **Topsoil:** 11"

DEPTH	DESCRIPTION	% MOISTURE	PPR	FIELD PROBING	DCP
2'	Stiff Brown Sandy Lean Clay	19.9%	3.0 – 3.5	¼" – 3/8"	13
5'	Stiff Brown Clayey Sand	22.7%	2.5 – 3.0	½"	
6' 6"	Limestone Bedrock				

TEST PIT LOG

JOB TITLE: Columbia Starbucks

DATE: 10/16/24

Test Pit # __4__ **Groundwater:** Dry **Topsoil:** 4"

DEPTH	DESCRIPTION	% MOISTURE	PPR	FIELD PROBING	DCP
1.5'	Mix of Chert / Sand / Limestone Gravel			0 – ½"	
2"	Geotextile Fabric layer w/ 8" of oversized limestone (old Construction Entrance)				
2.5'	Brown Lean Clay w/ Sand	19.2%		¼"	

Test Pit # __5__ **Groundwater:** Dry **Topsoil:** 10"

DEPTH	DESCRIPTION	% MOISTURE	PPR	FIELD PROBING	DCP
2'	Stiff Brown Lean Clay w/ Sand	24.7%	3.0 – 3.5	¼ - 3/8"	
4'	Very Stiff Brown Lean Clay w/ Sand	22.7%	3.5	¼"	16
5.5'	Very Stiff Brown Sandy Clay	32.3%	4.5	0-1/4"	

LABORATORY TEST RESULTS

APPENDIX B

CML

CONSTRUCTION MATERIALS LABORATORY, INC.

David M. Evans, P.E.

Matthew D. Evans, P.E.

Project: Columbia Starbucks

Date: 10/19/24

Lab No.:

Analysis of SOIL CLASSIFICATION & PHYSICAL TEST CONSTANTS
Contractor
Producer
Reported To

Test Pit # 1 SAMPLE # 1 DEPTH 2'

VISUAL DESCRIPTION OF SAMPLE: Brown and Gray Lean Clay with Sand

SIEVE ANALYSIS

<u>PASSING</u>	<u>RETAINED ON</u>	<u>PERCENT</u>	<u>CHARACTERISTICS</u>
No. 4	No. 10	0.0	Coarse Sand
No. 10	No. 40	4.9	Medium Sand
No. 40	No. 200	13.1	Fine Sand
No. 200	Pan	82.0	Combined Silty & Clay

LIQUID LIMIT: 32

PLASTIC LIMIT: 22

PLASTICITY INDEX: 10

UNIFIED CLASSIFICATION: CL

41 HERITAGE SQUARE
JACKSON, TN 38305
PHONE: (731) 668-3585
FAX: (731) 668-3586

CML

CONSTRUCTION MATERIALS LABORATORY, INC.

David M. Evans, P.E.

Matthew D. Evans, P.E.

Project: Columbia Starbucks

Date: 10/19/24

Lab No.:

Analysis of SOIL CLASSIFICATION & PHYSICAL TEST CONSTANTS
Contractor
Producer
Reported To

Test Pit # 3 SAMPLE # 1 DEPTH 2'

VISUAL DESCRIPTION OF SAMPLE: Brown Sandy Lean Clay

SIEVE ANALYSIS

<u>PASSING</u>	<u>RETAINED ON</u>	<u>PERCENT</u>	<u>CHARACTERISTICS</u>
1/2"	No. 4	6.5	Gravel
No. 4	No. 10	4.8	Coarse Sand
No. 10	No. 40	7.7	Medium Sand
No. 40	No. 200	18.8	Fine Sand
No. 200	Pan	62.2	Combined Silty & Clay

LIQUID LIMIT: 36

PLASTIC LIMIT: 21

PLASTICITY INDEX: 15

UNIFIED CLASSIFICATION: CL

41 HERITAGE SQUARE
JACKSON, TN 38305
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CML

CONSTRUCTION MATERIALS LABORATORY, INC.

David M. Evans, P.E.

Matthew D. Evans, P.E.

Project: Columbia Starbucks

Date: 10/19/24

Lab No.:

Analysis of SOIL CLASSIFICATION & PHYSICAL TEST CONSTANTS
Contractor
Producer
Reported To

Test Pit # 3 SAMPLE # 2 DEPTH 5'

VISUAL DESCRIPTION OF SAMPLE: Brown Clayey Sand

SIEVE ANALYSIS

<u>PASSING</u>	<u>RETAINED ON</u>	<u>PERCENT</u>	<u>CHARACTERISTICS</u>
No. 4	No. 10	0.0	Coarse Sand
No. 10	No. 40	12.2	Medium Sand
No. 40	No. 200	43.8	Fine Sand
No. 200	Pan	44.0	Combined Silty & Clay

LIQUID LIMIT: 42

PLASTIC LIMIT: 21

PLASTICITY INDEX: 21

UNIFIED CLASSIFICATION: SC

41 HERITAGE SQUARE
JACKSON, TN 38305
PHONE: (731) 668-3585
FAX: (731) 668-3586

CML

CONSTRUCTION MATERIALS LABORATORY, INC.

David M. Evans, P.E.

Matthew D. Evans, P.E.

Project: Columbia Starbucks

Date: 10/19/24

Lab No.:

Analysis of SOIL CLASSIFICATION & PHYSICAL TEST CONSTANTS
Contractor
Producer
Reported To

Test Pit # 4 SAMPLE # 1 DEPTH 2.5'

VISUAL DESCRIPTION OF SAMPLE: Brown Lean Clay with Sand

SIEVE ANALYSIS

<u>PASSING</u>	<u>RETAINED ON</u>	<u>PERCENT</u>	<u>CHARACTERISTICS</u>
No. 4	No. 10	0.0	Coarse Sand
No. 10	No. 40	6.0	Medium Sand
No. 40	No. 200	13.4	Fine Sand
No. 200	Pan	80.6	Combined Silty & Clay

LIQUID LIMIT: 29

PLASTIC LIMIT: 17

PLASTICITY INDEX: 12

UNIFIED CLASSIFICATION: CL

41 HERITAGE SQUARE
JACKSON, TN 38305
PHONE: (731) 668-3585
FAX: (731) 668-3586



WASTEWATER DEPARTMENT

28 January 2025

Adam Ledsinger
MB Civil engineering LLC
759 Timber Ridge Drive
Lexington, TN 38351

RE: Tax Map 075 Parcel 34.01, West Burt Dr and Nashville Hwy, Columbia, TN 38401; Starbucks

Adam,

This letter serves as confirmation that the City of Columbia Wastewater Department has the available capacity to service the subject development. Any extension to the existing sewer infrastructure will be initiated by the owner/developer, reviewed by our department and approved by the State of Tennessee. The project must be advanced in accordance with local, state and federal rules, regulations and policies. Funding and construction of those improvements will remain the responsibility of the owner/developer. New customers will be required to pay all fees applicable at the time of connection. Any Final Plat approval and Dedication are both subject to installation and function, as determined by our Department. No detailed design plan for an extension of the sewer has been proposed at this time.

A handwritten signature in dark ink, appearing to read "Donnie Boshers". The signature is fluid and cursive, with a large initial "D" and "B".

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department

Something Good Around Every Corner

1244 Treatment Plant Road Columbia, Tennessee 38401 Phone 931.560.1001



Preliminary Plat, Site Development Plan, and PUD Checklist

Development: West Burt Drive Starbucks site

This checklist shall be completed, and included with the submittal documents. If the submittal does not contain a completed checklist, it shall be deemed incomplete. All below listed items shall be included in the submittal documents and plans, as well as any further information required by the City of Columbia to evaluate compliance and to perform a full and complete review. See Zoning Ordinance Article 8 and Subdivision Regulations.

General

- ☒ Name of development
- ☒ Contact info for the owner and licensed design professional(s) preparing plan: name, address, email, phone
- ☒ Plan sealed by a design professional licensed in the State of Tennessee.
- ☒ North Arrow, legend, and site vicinity map
- ☒ Graphic Scale: between 1 in. = 10 ft. and 1 in. = 100 ft.
- ☒ Survey stamped by a State of Tennessee Licensed Professional Land Surveyor, with all project boundaries including bearings and angles to the nearest hundredth, utilities, and existing streets and rights-of-way.
- ☒ Note referencing Tennessee State Plane Coordinate System, NAD 83 Datum
- ☒ All property boundaries, existing easements, and encumbrances
- ☒ Parcel identification, owner, and deed and plat references of adjoining properties
- ☒ Proposed phasing and timetable for all phases of development
- ☒ Traffic Impact Study, as required.
- ☒ The substance of all existing and proposed covenants, easements, or other restrictions.

Lots and Land-Use

- ☒ The size of total property to be developed in square feet and acres
- ☒ Lot numbers of all proposed lots, with dimensions, locations, and square footage
- ☒ A tabulation of the land area to be devoted to various uses and activities and overall densities.
- ☒ Typical lot layout depicting proposed setbacks, yards, and easements, where applicable

Structures

- ☒ Location and approximate dimensions of all existing and proposed structures.
- ☒ Location of all earth retaining structures, with approximate top and bottom of wall elevations.
- ☒ Existing and intended use of all buildings and structures on site, including the number of dwelling units and density, where applicable
- ☒ Location, type, and size of proposed signs
- ☒ Approximate height, bulk, and the utilization of structures including activities and the number of living units.



Grading, Drainage, and Storm

- ☒ Existing conditions and contours at vertical intervals of not more than two (2) feet
- ☒ General proposed contours at vertical intervals of not more than two (2) feet
- ☒ FEMA Special Flood Hazard Area (SFHA), 100-year Floodplain (F-P), and Floodway (F-W) boundaries with elevations and the exact location of the nearest benchmark. Indicate the Flood Insurance Rate Map (FIRM) panel number, its effective date, and flood insurance zones
- ☒ Location and dimension of aquatic buffer zones
- ☒ General layout of the proposed storm drainage system including surface and subsurface drainage systems, areas for detention, and water quality devices.
- ☒ Identification of all critical lots

Streets, Parking, and Pedestrian Elements

- ☒ Proposed street and alley rights-of-way, typical sections, widths, classification, names, and proposed ownership and maintenance responsibility
- ☒ Proposed connections to existing and proposed streets (including classification) located outside the development
- ☒ Proposed improvements as identified in the Traffic Impact Study, as required
- ☒ Existing and proposed sidewalks, trails, and other pedestrian elements
- ☒ Existing and proposed on-street and off-street parking and loading areas
- ☒ Summary of all provided and required parking

Landscaping, Open Space, and Amenities

- ☒ Natural features on site including, but not limited to, wetlands, streams, ponds, springs, sinkholes, wells, rock outcroppings, excessive slopes, and forested areas
- ☒ Landscaped areas and buffers with details on proposed plantings, existing vegetation, and other features.
- ☒ The location and size of all common open space, parkland dedications, and dedications and reservations of land for public uses.
- ☒ Any amenity features and structures for private or public benefit.
- ☒ Location, dimension, and materials of fences and walls
- ☒ Tree Canopy retention

Utilities

- ☒ General layout and location of existing and proposed utilities and utility features including, but not limited to potable water, fire hydrants, sanitary sewer, storm sewer, and power and communication facilities.
- ☒ Acknowledgement from water, sewer, and power utility providers that the proposed development may be adequately served with existing infrastructure, or if improvements are required to adequately serve the development, a general statement of the improvements.



PUD Specific Items

- ☐ List of all deviations from PUD Standards requested
- ☐ The nature of the landholder's interest in the land proposed to be developed and a written statement of concurrence from all parties having a beneficial interest in the affected property.
- ☐ Location and approximate dimensions of all existing and proposed structures including approximate height, bulk, and the utilization of structures including activities and the number of living units. Include architectural renderings of all proposed structures with materials listed.
- ☐ The substance of covenants, grants of easements or other restrictions to be imposed upon the use of the land, buildings and structures including proposed easements for public utilities on the property or documentation of off-site easements.
- ☐ Exterior lighting plan.

If the application is deemed incomplete by the Zoning Administrator, a written request shall be made within ten days after the original submittal, for further information. In such case the application shall be held in abeyance until deemed complete for final review. No plan shall be formally presented for Planning Commission action until such plan is found complete, compliant with City standards, and ready for review.

Checklist Completed By:

Adam Ledsinger

Print Name

Signature

1-27-25

Date



759 TIMBER RIDGE DRIVE • LEXINGTON, TN 38351
VOICE: 731-431-5498 • adam@mbcivil.net

January 27, 2025

Mr. Austin Brass
City of Columbia Planning dept.
700 North Garden Street
Columbia, TN 38401

RE: Columbia, TN West Burt Drive/Nashville Hwy Starbuck's site

Ms. Brass,

Please let this letter serve as our project description. R&C Enterprises intends to construct an approximately 2500 SF+/- Starbuck's on the Corner lot at West Burt Drive and Nashville Hwy. The construction will include parking and associated utilities and all necessary stormwater features to meet the city ordinances. The total site area is approximately 1.13 acres. If you have any questions or need any additional information, feel free to call me at 731-431-5498 or email at adam@mbcivil.net.

Sincerely,

Adam Ledsinger, P.E.

Attachments:



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

Final Plat: * 1 hard copy of all materials for submittal + PDF copy on a USB flash drive (no multiple applications on one storage device)

Fold hard copy submittals larger than 8½"x11"

All Others: * Please submit the Application online at [City of Columbia | Permitting \(onlana.com\)](http://City of Columbia | Permitting (onlana.com))

ADDRESS/LOCATION	NW corner of West Burt Drive and Nashville Hwy		
	TAX MAP: 075	GROUP:	PARCEL: 34.01
SUMMARY OF NATURE OF REQUEST AND WORK	R&C Enterprises is intending to construct a 2503 SF +/- Starbucks site with associated parking and utilities and stormwater features on approximately 1.13 acres.		

DATE OF PRE-APPLICATION CONFERENCE	6/5/24	<i>Pre-application meetings are scheduled for Wednesdays.</i>
------------------------------------	--------	---

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Comprehensive Plan Amendment ☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☐ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☒ Site Development Plan ☐ Other: <i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	<u>Annexations:</u> ☐ Annexation Permission Form <u>Annexations/Rezoning/Plan Amendments:</u> ☐ Requested Zone Listed ☐ Statement of Compliance with Comprehensive Plan ☐ Concept Plan <u>Preliminary Plats/Site Development Plans:</u> ☒ Plans and/or Plats conforming to City standards with signed and completed check list <u>All Annexations/Rezoning/Preliminary Plats/Site Development Plans and PUDS:</u> ☐ Receipt of Payment for Pre-Application Meeting ☒ Written Legal Description copy ☒ Columbia Water System Availability Letter ☒ Columbia Waste Water Department Will Serve Letter

	<u>Plats/PUDs:</u>
	☐ Project Name (include Sections & Phases)
	☐ Total Number of Lots/Residential Units
	☐ Square Footage of Non-Residential Floor Space
	☐ Total acreage

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application. Any requests to defer or move the item to future meeting dates must be requested by the resubmittal date listed on the Planning Commission schedule.

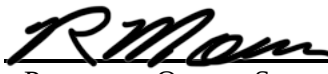
APPLICANT

All communications go to the Applicant's email that is provided.

NAME	Rick Morrow for R&C Enterprises	PHONE	615-430-6663
ADDRESS	901 W. Main Street Hohenwald TN 38462	EMAIL	rmorrow2@bellsouth.net

PROPERTY OWNER NAME	R&C EnterPrises	PHONE	same as above
ADDRESS	901 W. Main Street Hohenwald TN 38462	EMAIL	same as above

If owner is not a natural person, documentation must be provided showing signing authority on behalf of the entity. If multiple persons are listed as owners in the records of the Maury County Assessor, all owners must sign or the signatory must provide documentation of authority to apply on behalf of record owner (i.e., Power of Attorney or notarized Letter of Authorization). In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

<u>Rick Morrow</u> APPLICANT NAME	 APPLICANT SIGNATURE	<u>1/27/25</u> DATE
<u>Rick Morrow for R&C Enterprises</u> PROPERTY OWNER NAME	 PROPERTY OWNER SIGNATURE	<u>1/27/25</u> DATE

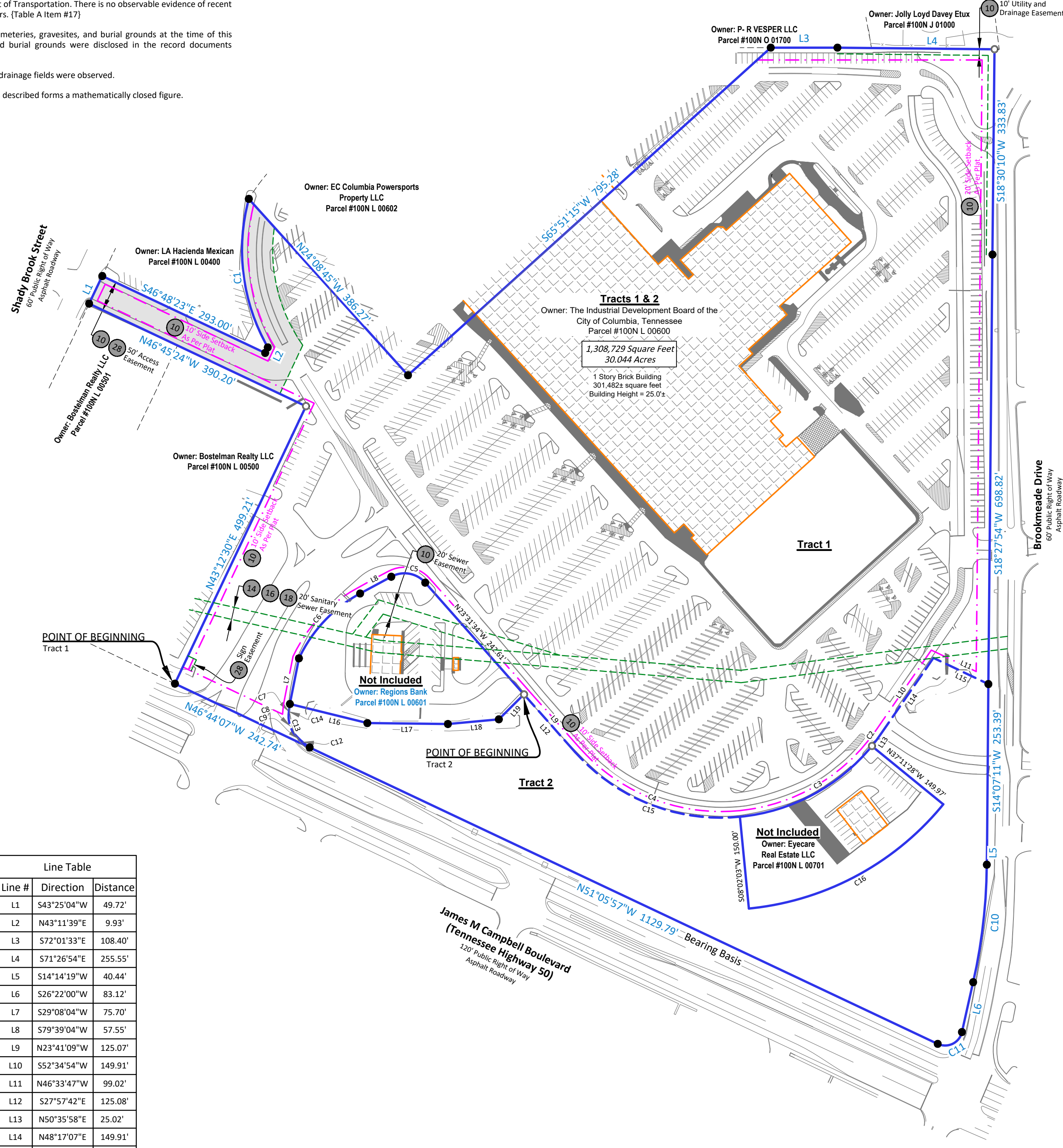
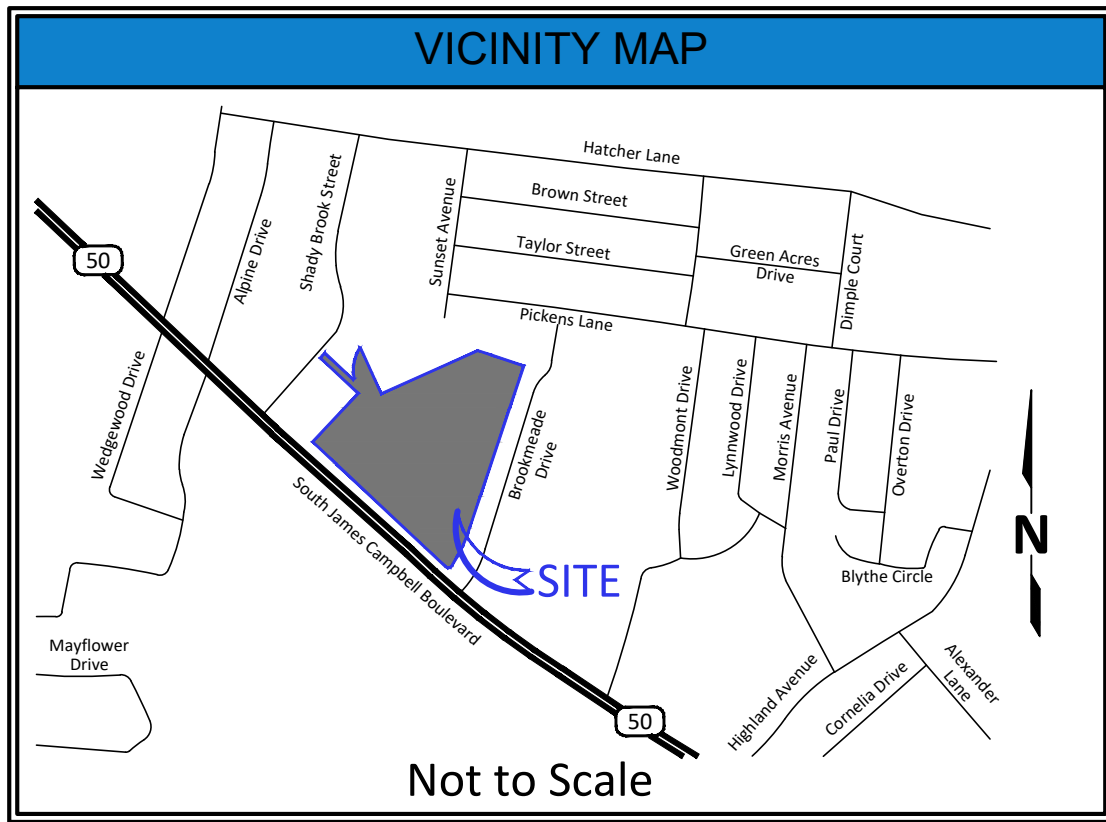
ITEMS CORRESPONDING TO SCHEDULE B-II

10. All matters shown on plat(s) of record in Plat Book 8, Page 126 and Plat Book P22, Page 391, in the Register's Office of Maury County, Tennessee.
Matters of the plat are located on or over the subject property as shown hereon.
11. Terms and provisions of Agreement, by and between J. H. Morgan & wife and Southern Cities Power Company, a Tennessee corporation, of record in Book 147, Page 228, in the Register's Office of Maury County, Tennessee.
Agreement is ambiguous in description. Cannot determine if it covers the subject property.
12. Matters contained in Deed of record in Book 150, Page 246, in the Register's Office of Maury County, Tennessee.
Deed is ambiguous in description. Cannot determine if it covers the subject property.
13. Matters contained in Deed of record in Book 373, Page 489, in the Register's Office of Maury County, Tennessee.
Deed is ambiguous in description. Cannot determine if it covers the subject property.
14. Matters contained in Deed of record in Book 373, Page 491, in the Register's Office of Maury County, Tennessee.
Easement is located on or over the subject property as shown hereon.
15. Terms and provisions of Perpetual Sewer Easement, by and between Horace Rainey, Jr. and City of Columbia, Tennessee, a municipal corporation, of record in Book 375, Page 233, in the Register's Office of Maury County, Tennessee.
Easement is not located on or over the subject property.
16. Terms and provisions of Perpetual Sewer Easement, by and between Horace Rainey, Jr. and City of Columbia, Tennessee, a municipal corporation, of record in Book 375, Page 235, in the Register's Office of Maury County, Tennessee.
Easement is located on or over the subject property as shown hereon.
17. Terms and provisions of Perpetual Sewer Easement, by and between Horace Rainey, Jr. and wife, Elizabeth Rainey and City of Columbia, Tennessee, a municipal corporation, of record in Book 383, Page 74, in the Register's Office of Maury County, Tennessee.
Easement is not located on or over the subject property.
18. Terms and provisions of Perpetual Sewer Easement, by and between Horace Rainey, Jr. and wife, Elizabeth Rainey and City of Columbia, Tennessee, a municipal corporation, of record in Book 383, Page 76, in the Register's Office of Maury County, Tennessee.
Easement is located on or over the subject property as shown hereon.
19. Matters contained in Deed of record in Book 469, Page 17, in the Register's Office of Maury County, Tennessee.
Document is ambiguous in description. Cannot determine if it covers the subject property.
20. Terms and provisions of unrecorded lease, as evidenced by Memorandum of Lease by and between Shady Brook Mall, Inc., a Tennessee corporation and J. C. Penney Company, Inc., a Delaware corporation, of record in Book 655, Page 477, as re-recorded in Book 655, Page 650; as affected by Agreement of Assignment and Assumption of Lease and Restated Memorandum of Lease in Book 655, Page 484; Agreement of Assignment and Assumption of Lease and Restated Memorandum of Lease in Book 655, Page 657; Supplemental Restated Memorandum of Lease in Book 667, Page 393; Memorandum of Lease Amendment Agreement in Book 1201, Page 14; and Memorandum of Lease Amendment Agreement in Book R2046, Page 1050, in the Register's Office of Maury County, Tennessee.
Lease covers the subject property and is blanket in nature. Not a survey related item.
21. Terms and provisions of unrecorded lease, as evidenced by Memorandum of Lease by and between Shady Brook Mall, Ltd., a Tennessee limited partnership and Pic 'N Pay Shoes of Tennessee Inc., of record in Book 665, Page 651, in the Register's Office of Maury County, Tennessee.
Lease covers the subject property and is blanket in nature. Not a survey related item.
22. Terms and provisions of Declaration, by Shady Brook Mall, Ltd., a Tennessee limited partnership, of record in Book 681, Page 93, in the Register's Office of Maury County, Tennessee.
Declaration covers the subject property and is blanket in nature. Nothing to plot.
23. Dedication of Brookmeade Drive (formerly Lawrence Street) of record in Book 731, Page 146, in the Register's Office of Maury County, Tennessee.
Dedication does not cover the subject property.
24. Terms and provisions of Reciprocal Easement Agreement, by and between The Equitable Life Assurance Society of the United States and Shady Brook Mall, Ltd., a Tennessee limited partnership, of record in Book 733, Page 40, in the Register's Office of Maury County, Tennessee.
Agreement covers the subject property and is blanket in nature. Nothing to plot.
25. Terms and provisions of Consent, by and between The Equitable Life Assurance Society of the United States and Hook Super, Inc., of record in Book 779, Page 523, in the Register's Office of Maury County, Tennessee.
Lease covers the subject property and is blanket in nature. Not a survey related item.
26. Terms and provisions of Certificate of Ownership and Dedication, by and between Fred H. Gilham, Sr. and City of Columbia, of record in Book 1116, Page 35, in the Register's Office of Maury County, Tennessee.
Dedication does not cover the subject property.
27. Matters contained in Deed of record in Book 1116, Page 47, in the Register's Office of Maury County, Tennessee.
Deed does not cover the subject property.
28. Terms and provisions of Declaration of Easements and Restrictions, by H/S Columbia, LLC, a Georgia limited liability company, of record in Book R2728, Page 640; as affected by Quitclaim Deed and Partial Release and Subordination in Book R2746, Page 55, in the Register's Office of Maury County, Tennessee.
Matters of the plat are located on or over the subject property as shown hereon.
29. Terms and provisions of unrecorded lease, as evidenced by Memorandum of Facility Lease by and between The Industrial Development Board of the City of Columbia, Tennessee, a public nonprofit corporation and H/S Columbia, LLC, a Georgia limited liability company, of record in Book R2801, Page 1488, in the Register's Office of Maury County, Tennessee.
Lease covers the subject property and is blanket in nature. Not a survey related item.

MISCELLANEOUS NOTES

1. BASIS OF BEARING : Bearings shown hereon are based on the Northeasterly right-of-way line of James M. Campbell Boulevard (Tennessee Highway 50), as being North 51°05'57" West. Bearings and distances shown hereon are the same record as measured unless otherwise noted.
2. This property has direct physical access to James M. Campbell Boulevard (Tennessee Highway 50), Shady Brook Street and Brookmeade Drive, which are dedicated public roads or highways, with no gaps, gores or overlaps.
3. Monuments have been recovered or placed at all corners of the property as shown hereon. (Table A Item #1)
4. Buildings located on this property are as shown. The address of this property was physically observed and noted as being 800 South James Campbell Boulevard. (Table A Item #2)
5. The gross land area of this property is 1,308,729 square feet or 30.044 acres. (Table A Item #4)
Tract 1 1,074,042 Square feet 24.657 Acres
Tract 2 234,687 Square feet 5.388 Acres
Total 1,308,729 Square feet 30.044 Acres
6. The buildings shown on this survey reflect the exterior dimensions along with the square footage of each building as located at ground level. Measured heights of all buildings are noted to the highest point of the building above ground level. (Table A Item #7a, 7b1, & 7c)
7. All substantial features and improvements located and observed on site and within five feet of the property boundaries are shown. (Table A Item #8)
8. A division or party wall exists along the Northerly property line of the subject property. The relationship and location of this party wall are shown with the dimensions indicated as noted. (Table A Item #10)
9. Adjacent owner information was taken from the latest tax assessors property owners map when this land title survey was prepared. (Table A Item #13)
10. At the time of this survey, the building was not under construction including additions. No evidence of earth moving or other construction was observed. (Table A Item #16)
11. There are no proposed changes in street right-of-way lines according to the City of Columbia, Maury County, and the Tennessee Department of Transportation. There is no observable evidence of recent street or sidewalk construction or repairs. (Table A Item #17)
12. There is no observable evidence of cemeteries, gravesites, and burial grounds at the time of this survey. No cemeteries, gravesites, and burial grounds were disclosed in the record documents provided to the surveyor.
13. No visible evidence of existing tanks or drainage fields were observed.
14. The boundary of the survey property as described forms a mathematically closed figure.

Curve Table					
Curve #	Length	Radius	Delta	Chord Bearing	Chord Distance
C1	252.65'	249.77'	45°00'07"	N10°39'06"E	243.40'
C2	25.03'	316.82'	04°31'33"	N54°53'45"E	25.02'
C3	250.02'	316.82'	45°12'52"	S79°43'59"W	243.58'
C4	299.13'	316.28'	54°11'24"	S50°37'21"E	288.11'
C5	60.36'	45.00'	76°51'11"	S62°01'44"E	55.94'
C6	147.41'	233.22'	36°12'54"	N61°16'02"E	144.97'
C7	17.61'	145.00'	06°57'32"	N25°29'50"E	17.60'
C8	37.80'	45.00'	48°07'50"	N01°38'26"W	36.70'
C9	29.06'	145.00'	11°29'03"	N31°37'32"W	29.01'
C10	192.81'	900.59'	12°15'59"	S20°16'10"W	192.44'
C11	50.24'	28.08'	102°30'20"	S77°37'30"W	43.80'
C12	28.87'	145.00'	11°24'25"	N35°53'00"W	28.82'
C13	37.80'	45.00'	48°07'50"	N05°56'13"W	36.70'
C14	17.61'	145.00'	06°57'32"	N21°12'03"E	17.60'
C15	299.11'	316.82'	54°05'31"	S54°55'12"E	288.12'
C16	368.36'	466.82'	45°12'41"	N75°25'39"E	358.88'

See Sheets 2 - 3
for Survey Details

PROJECT REVISION RECORD			
Date	Description	Date	Description
07/19/2024	First Draft		
07/25/2024	Network Comments		
07/29/2024	Client Comments		
Field Work: JBM	Drafted: TDR	Checked by: AJK	

RECORD DESCRIPTION

The land referred to herein below is situated in the County of Maury, State of Tennessee, and described as follows:

Tract 1:

All that tract or parcel of land, lying and being in Columbia, Maury County, Tennessee, described as follows:

All of the parcel labeled Lot 1 on "Minor Plat 800 S. James M. Campbell Blvd for H/S Columbia, LLC", and recorded in the Register of Deeds for Maury County, Tennessee, in Plat Book P22, Page 391.

Being the same property conveyed to The Industrial Development Board of the City of Columbia, Tennessee, a Public Nonprofit Corporation, by Deed from H/S Columbia, LLC, a Georgia Limited Liability Company, of record in Book R2801, Page 1479, in the Register's Office of Maury County, Tennessee.

Tract 2:

All that tract or parcel of land being and lying in the 9th Civil District of Maury County, Tennessee, lying North of and adjacent to James M. Campbell Blvd and West of and adjacent to Brookmeade Drive, being more particularly described as follows:

Beginning at an iron pin found in the South Boundary of Shadybrook RPF III, LLC as recorded in Deed Book 1321, Page 879, ROMCT, said iron pin being the Northeast corner of AmSouth Bank as recorded in Deed Book 733, Page 521, ROMCT, and being the Northwest corner of the tract being described; thence leaving AmSouth Bank with South boundary of Shadybrook RPF III LLC South 27 degrees, 57 minutes, 42 seconds East 125.08 feet to an iron pin found; thence continuing with Shadybrook RPF III LLC and a curve to the left with a radius of 116.82 feet, a length of 298.11 feet, and a chord bearing and distance of South 54 degrees, 55 minutes, 12 seconds East 288.12 feet to an iron pin found, said iron pin being the Northwest corner of Eyecare Properties, Inc. as recorded in Deed Book 1382, Page 683, ROMCT; thence leaving Shadybrook with Eyecare Properties, LLC South 8 degrees, 02 minutes, 03 seconds West 150.00 feet to an iron pin found, said iron pin being the Southwest corner of Eyecare Properties, LLC, thence continuing with said Eyecare Properties, LLC and a curve to the left with a radius of 466.82 feet, a length of 368.36 feet, and a chord bearing and distance of North 75 degrees, 25 minutes, 39 seconds East 358.88 feet to an iron pin found, said iron pin being the Southeast corner of Eyecare Properties, LLC, thence North 37 degrees, 11 minutes, 28 seconds West 149.97 feet to an iron pin found in the South boundary of Shadybrook RPF III LLC, said iron pin being the Northeast corner of Eyecare Properties, LLC, thence continuing with said Eyecare Properties, LLC and a curve to the left with a radius of 466.82 feet, a length of 368.36 feet, and a chord bearing and distance of North 75 degrees, 25 minutes, 39 seconds East 358.88 feet to an iron pin found, said iron pin being the Southeast corner of Eyecare Properties, LLC, thence North 37 degrees, 11 minutes, 28 seconds West 149.97 feet to an iron pin found in the South boundary of Shadybrook RPF III LLC, said iron pin being the Northeast corner of the tract being described; thence leaving Shadybrook with said West R.O.W. South 14 degrees, 07 minutes, 11 seconds West 253.39 feet to an iron pin found in the North R.O.W. of a 50 foot Ingress and Egress easement; thence continuing with said West R.O.W. South 14 degrees, 14 minutes, 19 seconds West 40.44 feet to an iron pin found, thence continuing with said West R.O.W. and a curve with radius of 900.59 feet, a length of 192.81 feet, and a chord bearing and distance of South 20 degrees, 16 minutes, 10 seconds West 192.44 feet to an iron pin set, South 26 degrees, 22 minutes, 00 seconds West 83.12 feet to an iron pin set; thence continuing with said West R.O.W. and a curve with a radius of 28.08 feet, a length of 50.24 feet, and a chord bearing and distance of South 77 degrees, 37 minutes, 30 seconds West 43.80 feet to an iron pin set in the North R.O.W. of James M. Campbell Blvd, said iron pin being the Southeast corner of the tract being described; thence with said North R.O.W. North 51 degrees, 05 minutes, 57 seconds West 1129.79 feet to an iron pin set, said iron pin being the Southwest corner of the tract being described; thence continuing with said North R.O.W. and a curve with a radius of 145.00 feet, a length of 28.87 feet, and a chord bearing and distance of North 35 degrees, 53 minutes, 00 seconds West 28.82 feet to an iron pin found; thence with a curve with a radius of 45.00 feet, a length of 37.80 feet, and a chord bearing and distance of North 5 degrees, 56 minutes, 13 seconds West 36.70 feet to an iron pin set; thence with a curve with a radius of 145.00 feet, a length of 17.61 feet, and a chord bearing and distance of North 21 degrees, 12 minutes, 03 seconds East 17.60 feet to an iron pin found, said iron pin being the Southwest corner of AmSouth Bank; thence leaving said road with AmSouth and a branch South 62 degrees, 31 minutes, 02 seconds East 129.77 feet, South 75 degrees, 41 minutes 43 seconds East 131.05 feet, South 81 degrees, 39 minutes, 29 seconds East 83.22 feet; thence leaving branch and continuing with AmSouth Bank North 58 degrees, 53 minutes, 54 seconds East 57.30 feet to the Point of the Beginning.

Being the same property conveyed to The Industrial Development Board of the City of Columbia, Tennessee, a Public Nonprofit Corporation, by Deed from H/S Columbia Outparcel, LLC, a Georgia Limited Liability Company, of record in Book R2801, Page 1483, in the Register's Office of Maury County, Tennessee.

The lands surveyed, shown and described hereon are the same lands as described in the Title Commitment provided by First American Title Insurance Company, Commitment No. NCS-1214277-DC72, dated April 3, 2024.

ALTA/NSPS LAND TITLE SURVEY

Columbia Mall TN Project

NV5 Project No. 202401259-1

800 South James Campbell Boulevard, Columbia, Tennessee 38201

Based on Title Commitment No. NCS-1214277-DC72
of First American Title Insurance Company
bearing an effective date of April 3, 2024

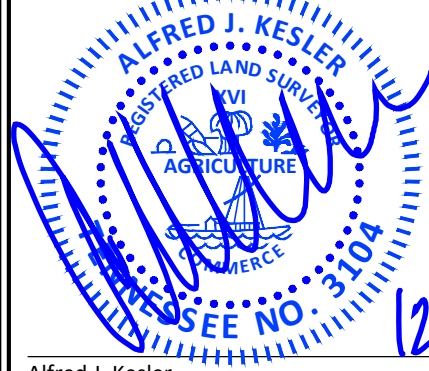
Surveyor's Certification

To: HC Columbia, LLC, Bank of Albuquerque; The Industrial Development Board of the City of Columbia, Tennessee, a Public Nonprofit Corporation; Highland Capital Investments, LLC; First American Title Insurance Company; and Bock & Clark Corporation, an NV5 Company.

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 6a, 6b, 7a, 7b1, 7c, 8, 9, 10, 13, 14, 16, 17, and 19 of Table A thereof. The field work was completed on July 12, 2024.

For boundary and topographic aspects of this survey, RTK GPS positional data was observed on July 12, 2024 utilizing a Leica GS18 dual frequency receiver. The grid coordinates of the boundary points shown hereon were derived using the Tennessee Department of Transportation Network of CORS stations referenced to NAD 83 (2011) (Epoch 2010), Geoid 18. Positional accuracy of the GPS vectors does not exceed: H 0.07', V 0.07'.

I hereby certify: (i) that this plat is true and correct, to the best of my knowledge and belief; (ii) that it was prepared by an actual survey on the ground by me or under my direct supervision; (iii) that it is a Category 1 Survey, with a Linear Error of Closure, of the unadjusted survey, not exceeding that of one foot per ten thousand feet [1:10,000]; (iv) that this survey was performed in compliance with the Minimum Standards of Practice for the State of Tennessee.

Alfred J. Kesler
Professional Land Surveyor #3104
in the State of TennesseeDate of Survey: July 12, 2024
Date of Last Revision: July 29, 2024
NV5 Network Project No. 202401259-1 AAC

Survey performed by:

**SOUTHERN
GEOMATICS
SERVICES**
Southern Geomatics Services, LLC
3737 South Atlantic Avenue, Suite 402
Daytona Beach Shores, Florida 32118
Phone: (985) 801-9990
akesler@southerngeomatics.com
SGS Project #24-205

SHEET 1 OF 3

Bock & Clark Corporation
an NV5 Company**NV5****Transaction Services**
3550 W. Market Street, Suite 200, Akron, Ohio 44333
1-800-SURVEYS (787-8397)
www.BockandClark.com maywelpyou@bockandclark.com www.NV5.com

SURVEY • ZONING • ENVIRONMENTAL ASSESSMENT

SIGNIFICANT OBSERVATIONS

The surveyor did not observe any significant observations over or upon the subject property.

ZONING INFORMATION

Zoning information has not been provided to surveyor. (Table A Item #6a & #6b)

ON-SITE PARKING CALCULATIONS

Offstreet parking requirements have not been provided per zoning. (Table A Items #6a, #6b & #9)

On Site Parking Observed

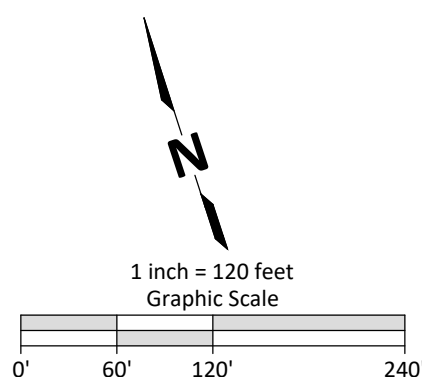
Regular Parking	1296 spaces
Handicap Parking	28 spaces
Truck Bays	2 bays
Total Parking	1326 spaces

FLOOD NOTE

By graphic plotting only, the subject property is located within Zone "X" as shown on Flood Insurance Rate Map, Community No. 475423 0285 E, Map Number 47119C0285E which bears an effective date of April 16, 2007 and is not located in a special flood hazard area. As shown on the FEMA website (https://www.fema.gov/cis/TN.html) we have learned this community does currently participate in the program. Zone "X" denotes areas outside of the 500-year floodplain determined to be outside 1% and 0.2% annual chance floodplains. (Table A Item #3)

LEGAL

This survey was prepared for the purpose of this real estate transaction only and no further parties other than those certified above shall rely on it for any other purpose or transaction.



LEGEND OF SYMBOLS & ABBREVIATIONS

Symbols

- Power Pole
- Light Pole
- Gate Valve
- Fire Hydrant
- Sanitary Manhole
- Sewer Clean Out
- Gas Meter
- Telephone Pedestal
- Electric Transformer
- Air Conditioner Unit
- Storm Drain Inlet
- Storm Drain Manhole
- Bollard
- Fence Gate Double
- Fence Gate Single
- Sign
- Stop Sign
- Handicap Sign
- Handicapped Parking
- BH Building Height Location

Hatching & Line Type

- Concrete
- Building
- Striping
- Ramp
- Access Easement Area
- Wall
- Property Line
- Easement Line
- Building Line
- Setback Line
- CHE
- Overhead Utilities
- Wood Fence
- Chainlink Fence
- Handrails Fence
- Cattle Guard Fence

Monumentation

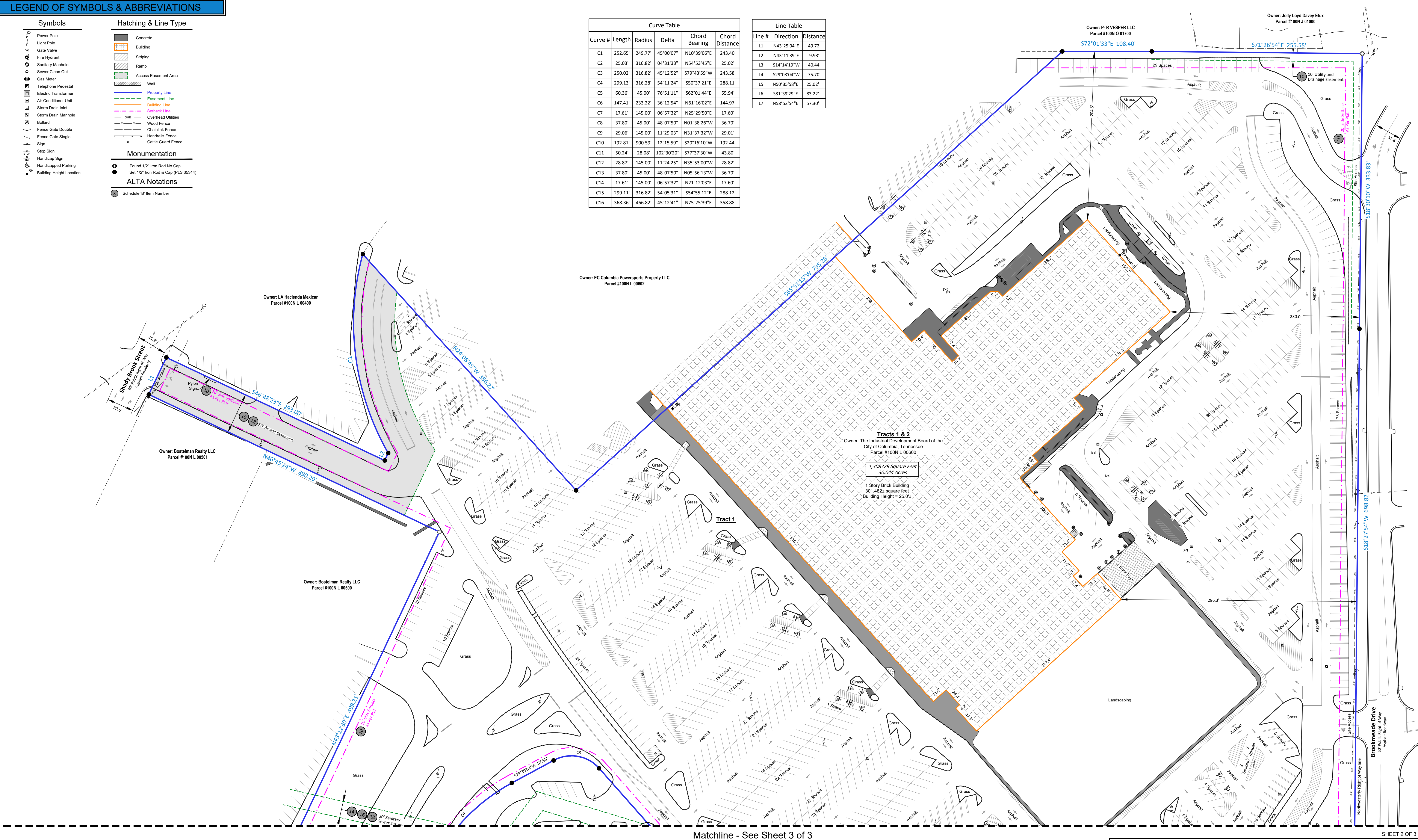
- Found 1/2" Iron Rod No Cap
- Set 1/2" Iron Rod & Cap (PLS 35344)

ALTA Notations

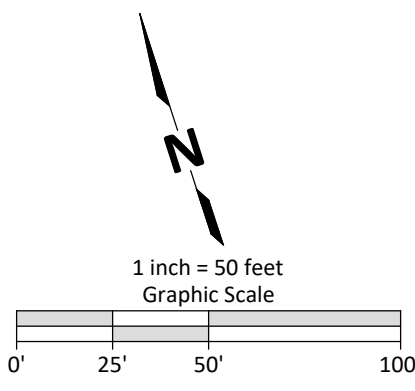
- Schedule 'B' Item Number

Curve Table					
Curve #	Length	Radius	Delta	Chord Bearing	Chord Distance
C1	252.65'	249.77'	45°00'07"	N10°39'06"E	243.40'
C2	25.03'	316.82'	04°31'33"	N54°53'45"E	25.02'
C3	250.02'	316.82'	45°12'52"	S79°43'59"W	243.58'
C4	299.13'	316.28'	54°11'24"	S50°37'21"E	288.11'
C5	60.36'	45.00'	76°51'11"	S62°01'44"E	55.94'
C6	147.41'	233.22'	36°12'54"	N61°16'02"E	144.97'
C7	17.61'	145.00'	06°57'32"	N25°29'50"E	17.60'
C8	37.80'	45.00'	48°07'50"	N01°38'26"W	36.70'
C9	29.06'	145.00'	11°29'03"	N31°37'32"W	29.01'
C10	192.81'	900.59'	12°15'59"	S20°16'10"W	192.44'
C11	50.24'	28.08'	102°30'20"	S77°37'30"W	43.80'
C12	28.87'	145.00'	11°24'25"	N35°53'00"W	28.82'
C13	37.80'	45.00'	48°07'50"	N05°56'13"W	36.70'
C14	17.61'	145.00'	06°57'32"	N21°12'03"E	17.60'
C15	299.11'	316.82'	54°05'31"	S54°55'12"E	288.12'
C16	368.36'	466.82'	45°12'41"	N75°25'39"E	358.88'

Line Table		
Line #	Direction	Distance
L1	N43°25'04"E	49.72'
L2	N43°11'39"E	9.93'
L3	S14°14'19"W	40.44'
L4	S29°08'04"W	75.70'
L5	N50°35'58"E	25.02'
L6	S81°39'29"E	83.22'
L7	N58°53'54"E	57.30'



Matchline - See Sheet 3 of 3



NV5

ALTA/NSPS LAND TITLE SURVEY
PREPARED FOR
Columbia Mall TN Project
Date of Field Survey: July 12, 2024
Network Project Number: 202401259-1 AAC
1-(800)-SURVEYS (787-8397)
TRANSACTION SERVICES
www.bockandclark.com maywehelpyou@bockandclark.com www.NV5.com

SURVEY • ZONING • ENVIRONMENTAL • ASSESSMENT

SITE ADDRESS: 800 S JAMES CAMPBELL BLVD.
COLUMBIA, TN 38401

TOTAL AREA: 30.44 ACRES -1,308,729 SF

OWNER: HIGHLAND CAPITAL GROUP
600 12TH AVENUE S. UNIT 816,
NASHVILLE TN

ENGINEER: PRESTON AYER, P.E.
SWS ENGINEERING, INC.
504 AUTUMN SPRINGS CT, #6
FRANKLIN, TN 37067
951-704-0890

FEMA FIRMS: THIS PARCEL RESIDES IN 47119C0285E,
EFFECTIVE 04/16/2017, ZONE X

COLUMBIA CENTER OUT PARCEL BUILDING
COLUMBIA, TN 38401
COMMERCIAL DEVELOPEMENT



VICINITY MAP
N.T.S.

I HEREBY CERTIFY THAT THIS PROJECT DOES NOT
REQUIRE COVERAGE UNDER A TENNESSEE
CONSTRUCTION GENERAL PERMIT.

THE TOTAL DISTURBED AREA IS: 0.89 ACRES.

THIS SITE DOES NOT DISCHARGE INTO WATERS
IDENTIFIED BY TDEC AS IMPAIRED FOR HABITAT
ALTERATION OR SEDIMENTATION.

SIGNATURE _____

DATE

CIRCLE ONE: DEVELOPER

PROJECT ENGINEER

DEVELOPMENT SUMMARY

SITE ADDRESS: 800 S JAMES CAMPBELL BLVD.
COLUMBIA, TN 38401

TOTAL AREA: 30.44 ACRES -1,308,729 SF

PARCEL: NEW PARCEL TO BE PLATTED

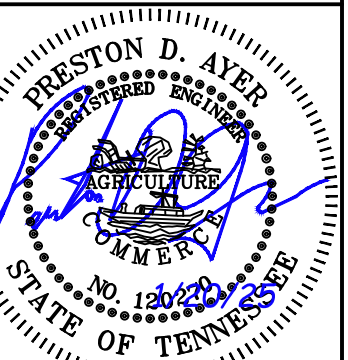
OWNER: HIGHLAND CAPITAL GROUP
600 12TH AVENUE S. UNIT 816,
NASHVILLE TN

ENGINEER: PRESTON AYER, P.E.
SWS ENGINEERING, INC.
504 AUTUMN SPRINGS CT, #6
FRANKLIN, TN 37067
951-704-0890

FEMA FIRMS: THIS PARCEL RESIDES IN 47119C0285E,
EFFECTIVE 04/16/2017, ZONE X

SHEET SUMMARY

C0.00 – COVER
C0.01 – CIVIL NOTES
V1,2,3 – SURVEY SHEETS
C0.02 – EXISTING CONDITIONS AND DEMO PLAN
C1.00 – SITE PLAN
C1.01 – PRELIMINARY PLAT/OVERALL SITE PLAN
C2.00 – GRADING AND DRAINAGE
C4.00 – UTILITY PLANS
C5.00 – DETAILS
C5.30 – UTILITY DETAILS
C5.31 – UTILITY DETAILS



PLANNING COMMISSION SET
COVER
COLUMBIA CTR OUT PARCEL BUILDING
800 S. JAMES CAMPBELL BLVD
COLUMBIA, TENNESSEE

[illegible]

CO.00			
DATE: 08-06-24			
JOB NO.: 24-196T			
AWN Y:	DMO	CHKD BY:	PDA

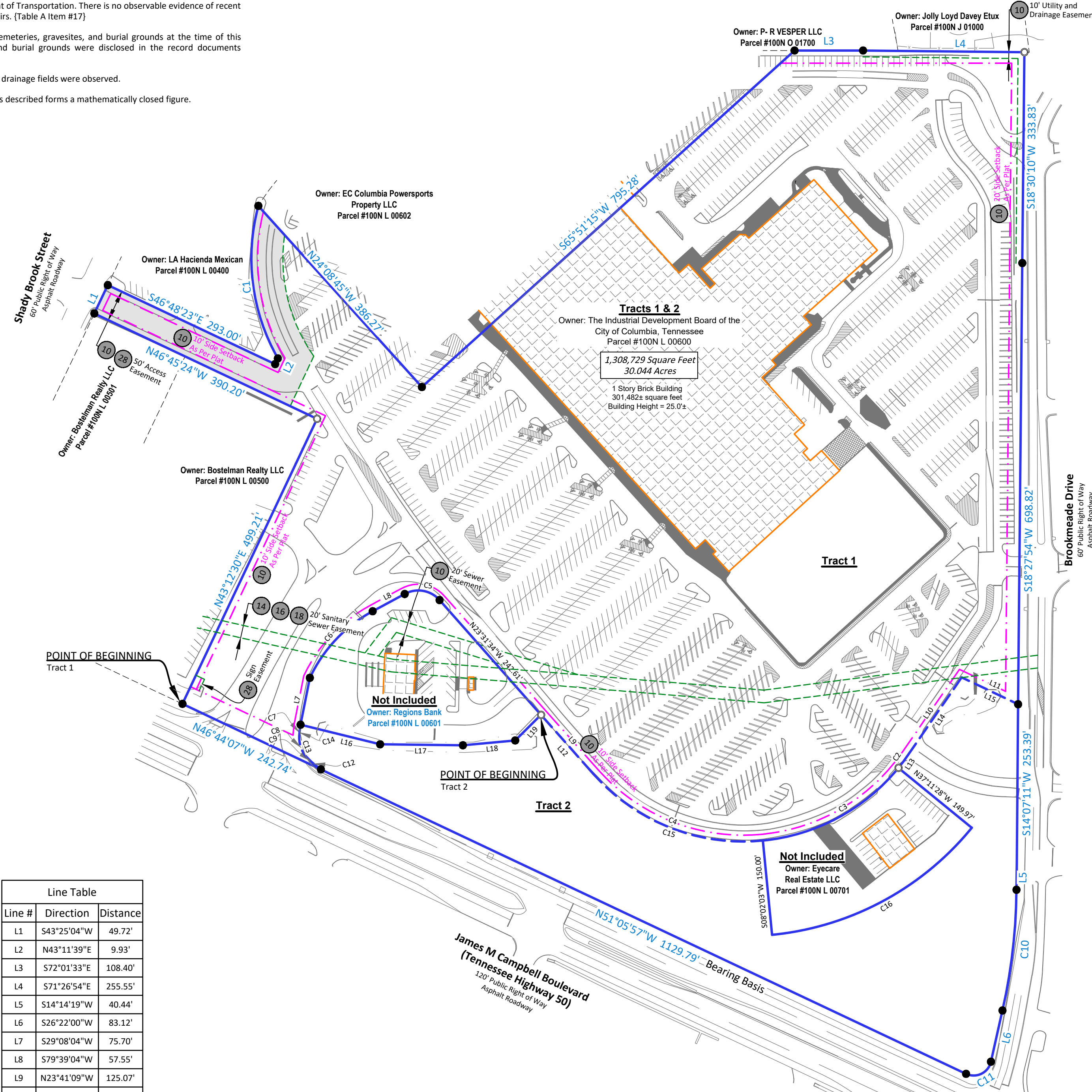
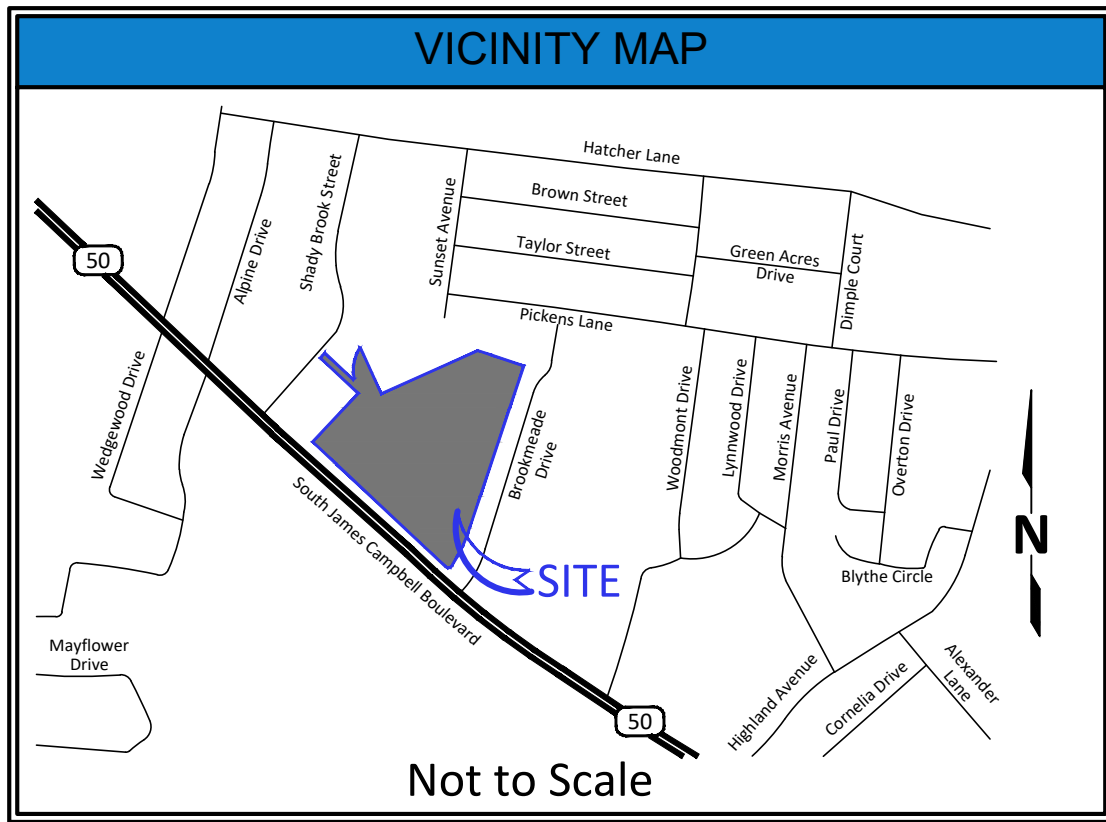
ITEMS CORRESPONDING TO SCHEDULE B-II

10. All matters shown on plat(s) of record in Plat Book 8, Page 126 and Plat Book P22, Page 391, in the Register's Office of Maury County, Tennessee.
Matters of the plat are located on or over the subject property as shown hereon.
11. Terms and provisions of Agreement, by and between J. H. Morgan & wife and Southern Cities Power Company, a Tennessee corporation, of record in Book 147, Page 228, in the Register's Office of Maury County, Tennessee.
Agreement is ambiguous in description. Cannot determine if it covers the subject property.
12. Matters contained in Deed of record in Book 150, Page 246, in the Register's Office of Maury County, Tennessee.
Deed is ambiguous in description. Cannot determine if it covers the subject property.
13. Matters contained in Deed of record in Book 373, Page 489, in the Register's Office of Maury County, Tennessee.
Deed is ambiguous in description. Cannot determine if it covers the subject property.
14. Matters contained in Deed of record in Book 373, Page 491, in the Register's Office of Maury County, Tennessee.
Easement is located on or over the subject property as shown hereon.
15. Terms and provisions of Perpetual Sewer Easement, by and between Horace Rainey, Jr. and City of Columbia, Tennessee, a municipal corporation, of record in Book 375, Page 233, in the Register's Office of Maury County, Tennessee.
Easement is not located on or over the subject property.
16. Terms and provisions of Perpetual Sewer Easement, by and between Horace Rainey, Jr. and City of Columbia, Tennessee, a municipal corporation, of record in Book 375, Page 235, in the Register's Office of Maury County, Tennessee.
Easement is located on or over the subject property as shown hereon.
17. Terms and provisions of Perpetual Sewer Easement, by and between Horace Rainey, Jr. and wife, Elizabeth Rainey and City of Columbia, Tennessee, a municipal corporation, of record in Book 383, Page 74, in the Register's Office of Maury County, Tennessee.
Easement is not located on or over the subject property.
18. Terms and provisions of Perpetual Sewer Easement, by and between Horace Rainey, Jr. and wife, Elizabeth Rainey and City of Columbia, Tennessee, a municipal corporation, of record in Book 383, Page 76, in the Register's Office of Maury County, Tennessee.
Easement is located on or over the subject property as shown hereon.
19. Matters contained in Deed of record in Book 469, Page 17, in the Register's Office of Maury County, Tennessee.
Document is ambiguous in description. Cannot determine if it covers the subject property.
20. Terms and provisions of unrecorded lease, as evidenced by Memorandum of Lease by and between Shady Brook Mall, Inc., a Tennessee corporation and J. C. Penney Company, Inc., a Delaware corporation, of record in Book 655, Page 477, as re-recorded in Book 655, Page 650; as affected by Agreement of Assignment and Assumption of Lease and Restated Memorandum of Lease in Book 655, Page 484; Agreement of Assignment and Assumption of Lease and Restated Memorandum of Lease in Book 655, Page 657; Supplemental Restated Memorandum of Lease in Book 667, Page 393; Memorandum of Lease Amendment Agreement in Book 1201, Page 14; and Memorandum of Lease Amendment Agreement in Book R2046, Page 1050, in the Register's Office of Maury County, Tennessee.
Lease covers the subject property and is blanket in nature. Not a survey related item.
21. Terms and provisions of unrecorded lease, as evidenced by Memorandum of Lease by and between Shady Brook Mall, Ltd., a Tennessee limited partnership and Pic 'N Pay Shoes of Tennessee Inc., of record in Book 665, Page 651, in the Register's Office of Maury County, Tennessee.
Lease covers the subject property and is blanket in nature. Not a survey related item.
22. Terms and provisions of Declaration, by Shady Brook Mall, Ltd., a Tennessee limited partnership, of record in Book 681, Page 93, in the Register's Office of Maury County, Tennessee.
Declaration covers the subject property and is blanket in nature. Nothing to plot.
23. Dedication of Brookmeade Drive (formerly Lawrence Street) of record in Book 731, Page 146, in the Register's Office of Maury County, Tennessee.
Dedication does not cover the subject property.
24. Terms and provisions of Reciprocal Easement Agreement, by and between The Equitable Life Assurance Society of the United States and Shady Brook Mall, Ltd., a Tennessee limited partnership, of record in Book 733, Page 40, in the Register's Office of Maury County, Tennessee.
Agreement covers the subject property and is blanket in nature. Nothing to plot.
25. Terms and provisions of Consent, by and between The Equitable Life Assurance Society of the United States and Hook Super, Inc., of record in Book 779, Page 523, in the Register's Office of Maury County, Tennessee.
Lease covers the subject property and is blanket in nature. Not a survey related item.
26. Terms and provisions of Certificate of Ownership and Dedication, by and between Fred H. Gilham, Sr. and City of Columbia, of record in Book 1116, Page 35, in the Register's Office of Maury County, Tennessee.
Dedication does not cover the subject property.
27. Matters contained in Deed of record in Book 1116, Page 47, in the Register's Office of Maury County, Tennessee.
Deed does not cover the subject property.
28. Terms and provisions of Declaration of Easements and Restrictions, by H/S Columbia, LLC, a Georgia limited liability company, of record in Book R2728, Page 640; as affected by Quitclaim Deed and Partial Release and Subordination in Book R2746, Page 55, in the Register's Office of Maury County, Tennessee.
Matters of the plat are located on or over the subject property as shown hereon.
29. Terms and provisions of unrecorded lease, as evidenced by Memorandum of Facility Lease by and between The Industrial Development Board of the City of Columbia, Tennessee, a public nonprofit corporation and H/S Columbia, LLC, a Georgia limited liability company, of record in Book R2801, Page 1488, in the Register's Office of Maury County, Tennessee.
Lease covers the subject property and is blanket in nature. Not a survey related item.

MISCELLANEOUS NOTES

1. BASIS OF BEARING : Bearings shown hereon are based on the Northeasterly right-of-way line of James M. Campbell Boulevard (Tennessee Highway 50), as being North 51°05'57" West. Bearings and distances shown hereon are the same record as measured unless otherwise noted.
2. This property has direct physical access to James M. Campbell Boulevard (Tennessee Highway 50), Shady Brook Street and Brookmeade Drive, which are dedicated public roads or highways, with no gaps, gores or overlaps.
3. Monuments have been recovered or placed at all corners of the property as shown hereon. (Table A Item #1)
4. Buildings located on this property are as shown. The address of this property was physically observed and noted as being 800 South James Campbell Boulevard. (Table A Item #2)
5. The gross land area of this property is 1,308,729 square feet or 30.044 acres. (Table A Item #4)
Tract 1 1,074,042 Square feet 24.657 Acres
Tract 2 234,687 Square feet 5.388 Acres
Total 1,308,729 Square feet 30.044 Acres
6. The buildings shown on this survey reflect the exterior dimensions along with the square footage of each building as located at ground level. Measured heights of all buildings are noted to the highest point of the building above ground level. (Table A Item #7a, 7b1, & 7c)
7. All substantial features and improvements located and observed on site and within five feet of the property boundaries are shown. (Table A Item #8)
8. A division or party wall exists along the Northerly property line of the subject property. The relationship and location of this party wall are shown with the dimensions indicated as noted. (Table A Item #10)
9. Adjacent owner information was taken from the latest tax assessors property owners map when this land title survey was prepared. (Table A Item #13)
10. At the time of this survey, the building was not under construction including additions. No evidence of earth moving or other construction was observed. (Table A Item #16)
11. There are no proposed changes in street right-of-way lines according to the City of Columbia, Maury County, and the Tennessee Department of Transportation. There is no observable evidence of recent street or sidewalk construction or repairs. (Table A Item #17)
12. There is no observable evidence of cemeteries, gravesites, and burial grounds at the time of this survey. No cemeteries, gravesites, and burial grounds were disclosed in the record documents provided to the surveyor.
13. No visible evidence of existing tanks or drainage fields were observed.
14. The boundary of the survey property as described forms a mathematically closed figure.

Curve Table					
Curve #	Length	Radius	Delta	Chord Bearing	Chord Distance
C1	252.65'	249.77'	45°00'07"	N10°39'06"E	243.40'
C2	25.03'	316.82'	04°31'33"	N54°53'45"E	25.02'
C3	250.02'	316.82'	45°12'52"	S79°43'59"W	243.58'
C4	299.13'	316.28'	54°11'24"	S50°37'21"E	288.11'
C5	60.36'	45.00'	76°51'11"	S62°01'44"E	55.94'
C6	147.41'	233.22'	36°12'54"	N61°16'02"E	144.97'
C7	17.61'	145.00'	06°57'32"	N25°29'50"E	17.60'
C8	37.80'	45.00'	48°07'50"	N01°38'26"W	36.70'
C9	29.06'	145.00'	11°29'03"	N31°37'32"W	29.01'
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C16	368.36'	466.82'	45°12'41"	N75°25'39"E	358.88'



Line Table		
Line #	Direction	Distance
L1	S43°25'04"W	49.72'
L2	N43°11'39"E	9.93'
L3	S72°01'33"E	108.40'
L4	S71°26'54"E	255.55'
L5	S14°14'19"W	40.44'
L6	S26°22'00"W	83.12'
L7	S29°08'04"W	75.70'
L8	S79°39'04"W	57.55'
L9	N23°41'09"W	125.07'
L10	S52°34'54"W	149.91'
L11	N46°33'47"W	99.02'
L12	S27°57'42"E	125.08'
L13	N50°35'58"E	25.02'
L14	N48°17'07"E	149.91'
L15	S50°51'34"E	99.02'
L16	S62°31'02"E	129.77'
L17	S75°41'43"E	131.05'
L18	S81°39'29"E	83.22'
L19	N58°53'54"E	57.30'

See Sheets 2 - 3
for Survey Details

PROJECT REVISION RECORD			
Date	Description	Date	Description
07/19/2024	First Draft		
07/25/2024	Network Comments		
07/29/2024	Client Comments		
Field Work: JBM	Drafted: TDR	Checked by: AJK	

RECORD DESCRIPTION

The land referred to herein below is situated in the County of Maury, State of Tennessee, and described as follows:

Tract 1:

All that tract or parcel of land, lying and being in Columbia, Maury County, Tennessee, described as follows:

All of the parcel labeled Lot 1 on "Minor Plat 800 S. James M. Campbell Blvd for H/S Columbia, LLC", and recorded in the Register of Deeds for Maury County, Tennessee, in Plat Book P22, Page 391.

Being the same property conveyed to The Industrial Development Board of the City of Columbia, Tennessee, a Public Nonprofit Corporation, by Deed from H/S Columbia, LLC, a Georgia Limited Liability Company, of record in Book R2801, Page 1479, in the Register's Office of Maury County, Tennessee.

Tract 2:

All that tract or parcel of land being and lying in the 9th Civil District of Maury County, Tennessee, lying North of and adjacent to James M. Campbell Blvd and West of and adjacent to Brookmeade Drive, being more particularly described as follows:

Beginning at an iron pin found in the South Boundary of Shadybrook RPF III, LLC as recorded in Deed Book 1321, Page 879, ROMCT, said iron pin being the Northeast corner of AmSouth Bank as recorded in Deed Book 733, Page 521, ROMCT, and being the Northwest corner of the tract being described; thence leaving AmSouth Bank with South boundary of Shadybrook RPF III LLC South 27 degrees, 57 minutes, 42 seconds East 125.08 feet to an iron pin found; thence continuing with Shadybrook RPF III LLC and a curve to the left with a radius of 116.82 feet, a length of 298.11 feet, and a chord bearing and distance of South 54 degrees, 55 minutes, 12 seconds East 288.12 feet to an iron pin found, said iron pin being the Northwest corner of Eyecare Properties, Inc. as recorded in Deed Book 1382, Page 683, ROMCT; thence leaving Shadybrook with Eyecare Properties, LLC South 8 degrees, 02 minutes, 03 seconds West 150.00 feet to an iron pin found, said iron pin being the Southwest corner of Eyecare Properties, LLC; thence continuing with said Eyecare Properties, LLC and a curve to the left with a radius of 466.82 feet, a length of 368.36 feet, and a chord bearing and distance of North 75 degrees, 25 minutes, 39 seconds East 358.88 feet to an iron pin found, said iron pin being the Southeast corner of Eyecare Properties, LLC; thence North 37 degrees, 11 minutes, 28 seconds West 149.97 feet to an iron pin found in the South boundary of Shadybrook RPF III LLC, said iron pin being the Northeast corner of Eyecare Properties, LLC; thence continuing with said Eyecare Properties, LLC and a curve to the left with a radius of 466.82 feet, a length of 368.36 feet, and a chord bearing and distance of North 75 degrees, 25 minutes, 39 seconds East 358.88 feet to an iron pin found, said iron pin being the Southeast corner of Eyecare Properties, LLC; thence North 37 degrees, 11 minutes, 28 seconds West 149.97 feet to an iron pin found in the South boundary of Shadybrook RPF III LLC, said iron pin being the Northeast corner of the tract being described; thence leaving Shadybrook with said West R.O.W. South 14 degrees, 07 minutes, 11 seconds West 253.39 feet to an iron pin found in the North R.O.W. of a 50 foot Ingress and Egress easement; thence continuing with said West R.O.W. South 14 degrees, 14 minutes, 19 seconds West 40.44 feet to an iron pin found, thence continuing with said West R.O.W. and a curve with radius of 900.59 feet, a length of 192.81 feet, and a chord bearing and distance of South 20 degrees, 16 minutes, 10 seconds West 192.44 feet to an iron pin set, South 26 degrees, 22 minutes, 00 seconds West 83.12 feet to an iron pin set; thence continuing with said West R.O.W. and a curve with a radius of 28.08 feet, a length of 50.24 feet, and a chord bearing and distance of South 77 degrees, 37 minutes, 30 seconds West 43.80 feet to an iron pin set in the North R.O.W. of James M. Campbell Blvd, said iron pin being the Southeast corner of the tract being described; thence with said North R.O.W. North 51 degrees, 05 minutes, 57 seconds West 1129.79 feet to an iron pin set, said iron pin being the Southwest corner of the tract being described; thence continuing with said North R.O.W. and a curve with a radius of 145.00 feet, a length of 28.87 feet, and a chord bearing and distance of North 35 degrees, 53 minutes, 00 seconds West 28.82 feet to an iron pin found; thence with a curve with a radius of 45.00 feet, a length of 37.80 feet, and a chord bearing and distance of North 5 degrees, 56 minutes, 13 seconds West 36.70 feet to an iron pin set; thence with a curve with a radius of 145.00 feet, a length of 17.61 feet, and a chord bearing and distance of North 21 degrees, 12 minutes, 03 seconds East 17.60 feet to an iron pin found, said iron pin being the Southwest corner of AmSouth Bank; thence leaving said road with AmSouth and a branch South 62 degrees, 31 minutes, 02 seconds East 129.77 feet, South 75 degrees, 41 minutes 43 seconds East 131.05 feet, South 81 degrees, 39 minutes, 29 seconds East 83.22 feet; thence leaving branch and continuing with AmSouth Bank North 58 degrees, 53 minutes, 54 seconds East 57.30 feet to the Point of the Beginning.

Being the same property conveyed to The Industrial Development Board of the City of Columbia, Tennessee, a Public Nonprofit Corporation, by Deed from H/S Columbia Outparcel, LLC, a Georgia Limited Liability Company, of record in Book R2801, Page 1483, in the Register's Office of Maury County, Tennessee.

The lands surveyed, shown and described hereon are the same lands as described in the Title Commitment provided by First American Title Insurance Company, Commitment No. NCS-1214277-DC72, dated April 3, 2024.

ALTANSPPS LAND TITLE SURVEY

Columbia Mall TN Project

NVS Project No. 202401259-1

800 South James Campbell Boulevard, Columbia, Tennessee 38201

Based on Title Commitment No. NCS-1214277-DC72
of First American Title Insurance Company
bearing an effective date of April 3, 2024

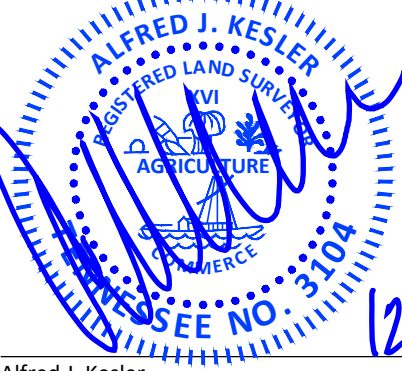
Surveyor's Certification

To: HC Columbia, LLC, Bank of Albuquerque; The Industrial Development Board of the City of Columbia, Tennessee, a Public Nonprofit Corporation; Highland Capital Investments, LLC; First American Title Insurance Company; and Bock & Clark Corporation, an NVS Company.

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 6a, 6b, 7a, 7b1, 7c, 8, 9, 10, 13, 14, 16, 17, and 19 of Table A thereof. The field work was completed on July 12, 2024.

For boundary and topographic aspects of this survey, RTK GPS positional data was observed on July 12, 2024 utilizing a Leica GS18 dual frequency receiver. The grid coordinates of the boundary points shown hereon were derived using the Tennessee Department of Transportation Network of CORS stations referenced to NAD 83 (2011) (Epoch 2010), Geoid 18. Positional accuracy of the GPS vectors does not exceed: H 0.07', V 0.07'.

I hereby certify: (i) that this plat is true and correct, to the best of my knowledge and belief; (ii) that it was prepared by an actual survey on the ground by me or under my direct supervision; (iii) that it is a Category 1 Survey, with a Linear Error of Closure, of the unadjusted survey, not exceeding that of one foot per ten thousand feet [1:10,000]; (iv) that this survey was performed in compliance with the Minimum Standards of Practice for the State of Tennessee.



Alfred J. Kesler
Professional Land Surveyor #3104
in the State of Tennessee

Date of Survey: July 12, 2024
Date of Last Revision: July 29, 2024
NVS Network Project No. 202401259-1 AAC

Survey performed by:

SOUTHERN
GEOMATICS
SERVICES

Southern Geomatics Services, LLC
3737 South Atlantic Avenue, Suite 402
Daytona Beach Shores, Florida 32118
Phone: (985) 801-9990
akesler@southerngeomatrics.com
SGS Project #24-205

SHEET 1 OF 3

Bock & Clark Corporation
an NVS Company

NVS

Transaction Services 1-800-SURVEYS (787-8397)
3550 W. Market Street, Suite 200, Akron, Ohio 44333

www.BockandClark.com maywelpyou@bockandclark.com www.NVS.com

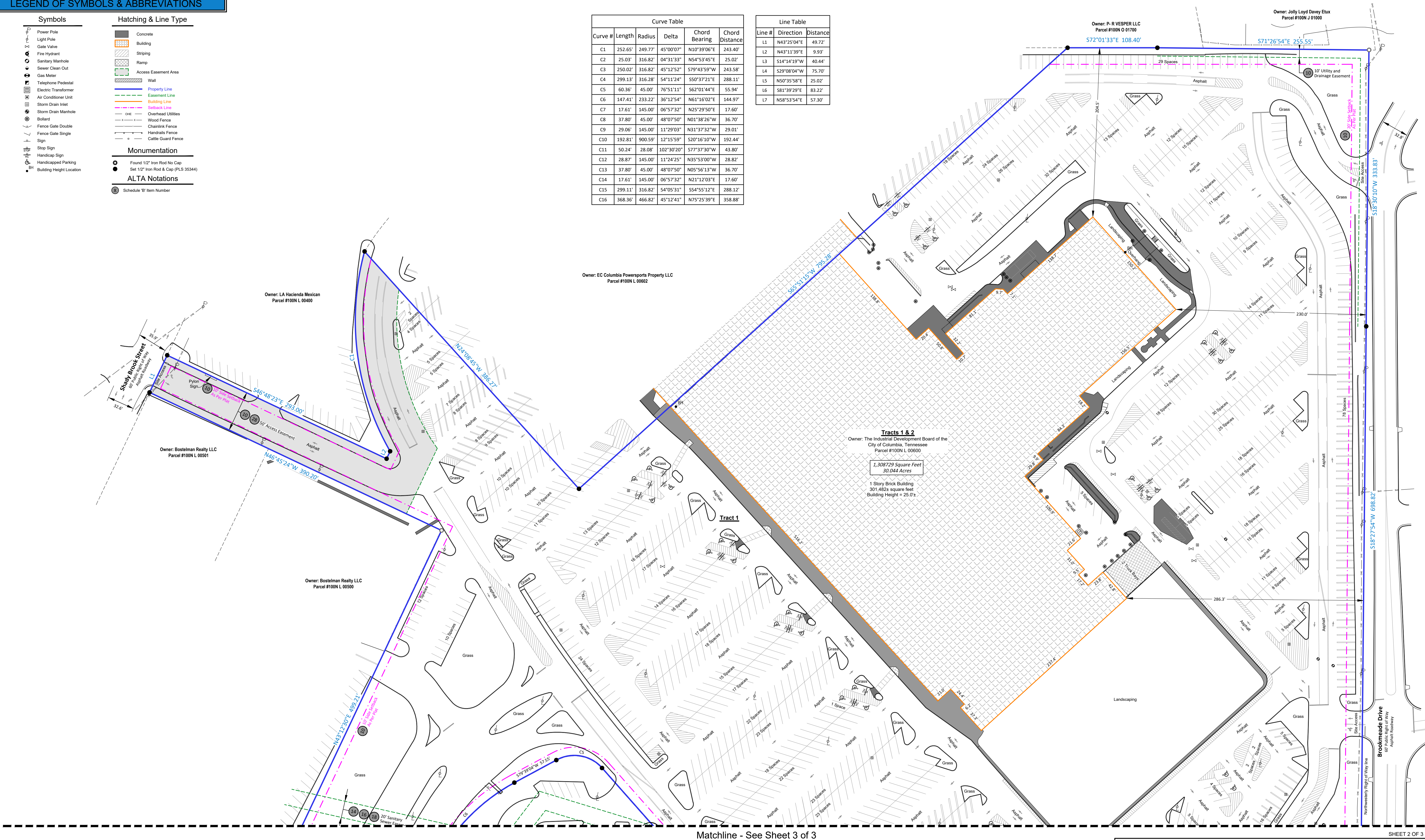
SURVEY • ZONING • ENVIRONMENTAL ASSESSMENT

LEGEND OF SYMBOLS & ABBREVIATIONS

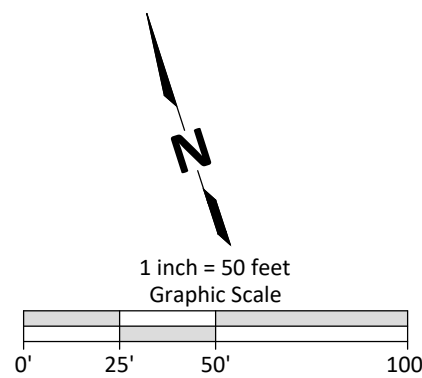
Symbols	Hatching & Line Type
Power Pole	Concrete
Light Pole	Building
Gate Valve	Striping
Fire Hydrant	Ramp
Sanitary Manhole	Access Easement Area
Sewer Clean Out	Wall
Gas Meter	Property Line
Telephone Pedestal	Easement Line
Electric Transformer	Building Line
Air Conditioner Unit	Setback Line
Storm Drain Inlet	Overhead Utilities
Storm Drain Manhole	Wood Fence
Bollard	Chainlink Fence
Fence Gate Double	Handrails Fence
Fence Gate Single	Cattle Guard Fence
Sign	
Stop Sign	
Handicap Sign	
Handicapped Parking	
BH Building Height Location	
	Monumentation

Curve Table					
Curve #	Length	Radius	Delta	Chord Bearing	Chord Distance
C1	252.65'	249.77'	45°00'07"	N10°39'06"E	243.40'
C2	25.03'	316.82'	04°31'33"	N54°53'45"E	25.02'
C3	250.02'	316.82'	45°12'52"	S79°43'59"W	243.58'
C4	299.13'	316.28'	54°11'24"	S50°37'21"E	288.11'
C5	60.36'	45.00'	76°51'11"	S62°01'44"E	55.94'
C6	147.41'	233.22'	36°12'54"	N61°16'02"E	144.97'
C7	17.61'	145.00'	06°57'32"	N25°29'50"E	17.60'
C8	37.80'	45.00'	48°07'50"	N01°38'26"W	36.70'
C9	29.06'	145.00'	11°29'03"	N31°37'32"W	29.01'
C10	192.81'	900.59'	12°15'59"	S20°16'10"W	192.44'
C11	50.24'	28.08'	102°30'20"	S77°37'30"W	43.80'
C12	28.87'	145.00'	11°24'25"	N35°53'00"W	28.82'
C13	37.80'	45.00'	48°07'50"	N05°56'13"W	36.70'
C14	17.61'	145.00'	06°57'32"	N21°12'03"E	17.60'
C15	299.11'	316.82'	54°05'31"	S54°55'12"E	288.12'
C16	368.36'	466.82'	45°12'41"	N75°25'39"E	358.88'

Line Table		
Line #	Direction	Distance
L1	N43°25'04"E	49.72'
L2	N43°11'39"E	9.93'
L3	S14°14'19"W	40.44'
L4	S29°08'04"W	75.70'
L5	N50°35'58"E	25.02'
L6	S81°39'29"E	83.22'
L7	N58°53'54"E	57.30'



Matchline - See Sheet 3 of 3



ALTA/NSPS LAND TITLE SURVEY
PREPARED FOR
Columbia Mall TN Project
Date of Field Survey: July 12, 2024
Network Project Number: 202401259-1 AAC
1-(800)-SURVEYS (787-8397)
TRANSACTION SERVICES
www.bockandclark.com maywehelpyou@bockandclark.com www.NV5.com

SURVEY • ZONING • ENVIRONMENTAL • ASSESSMENT

LEGEND OF SYMBOLS & ABBREVIATIONS

Symbols

- Power Pole
- Light Pole
- Gate Valve
- Fire Hydrant
- Sanitary Manhole
- Sewer Clean Out
- Gas Meter
- Telephone Pedestal
- Electric Transformer
- Air Conditioner Unit
- Storm Drain Inlet
- Storm Drain Manhole
- Bollard
- Fence Gate Double
- Fence Gate Single
- Sign
- Stop Sign
- Handicap Sign
- Handicapped Parking
- Building Height Location

Hatching & Line Type

- Concrete
- Building
- Striping
- Ramp
- Access Easement Area
- Wall
- Property Line
- Easement Line
- Building Line
- Setback Line
- O&E
- Overhead Utilities
- Wood Fence
- Chainlink Fence
- Handrails Fence
- Cattle Guard Fence

Monumentation

- Found 1/2" Iron Rod No Cap
- Set 1/2" Iron Rod & Cap (PLS 35344)

ALTA Notations

- Schedule "B" Item Number

Matchline - See Sheet 2 of 3

Not Included
Owner: Regions Bank
Parcel #100N L 00691

Not Included
Owner: Eyecare Real Estate LLC
Parcel #100N L 00701

James M Campbell Boulevard
(Tennessee Highway 50)
120' PUBLIC RIGHT OF WAY
Asphalt Roadway

Tract 2

POINT OF BEGINNING
Tract 2

Curve Table

Curve #	Length	Radius	Delta	Chord Bearing	Chord Distance
C1	252.65'	249.77'	45°00'07"	N10°39'06"E	243.40'
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C4	299.13'	316.28'	54°11'24"	S50°37'21"E	288.11'
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L5	N50°35'58"E	25.02'
L6	S81°39'29"E	83.22'
L7	N58°53'54"E	57.30'

Scale
1 inch = 50 feet
Graphic Scale
0' 25' 50' 100'

North Arrow

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NV5

ALTA/NSPS LAND TITLE SURVEY

PREPARED FOR

Columbia Mall TN Project

Date of Field Survey: July 12, 2024

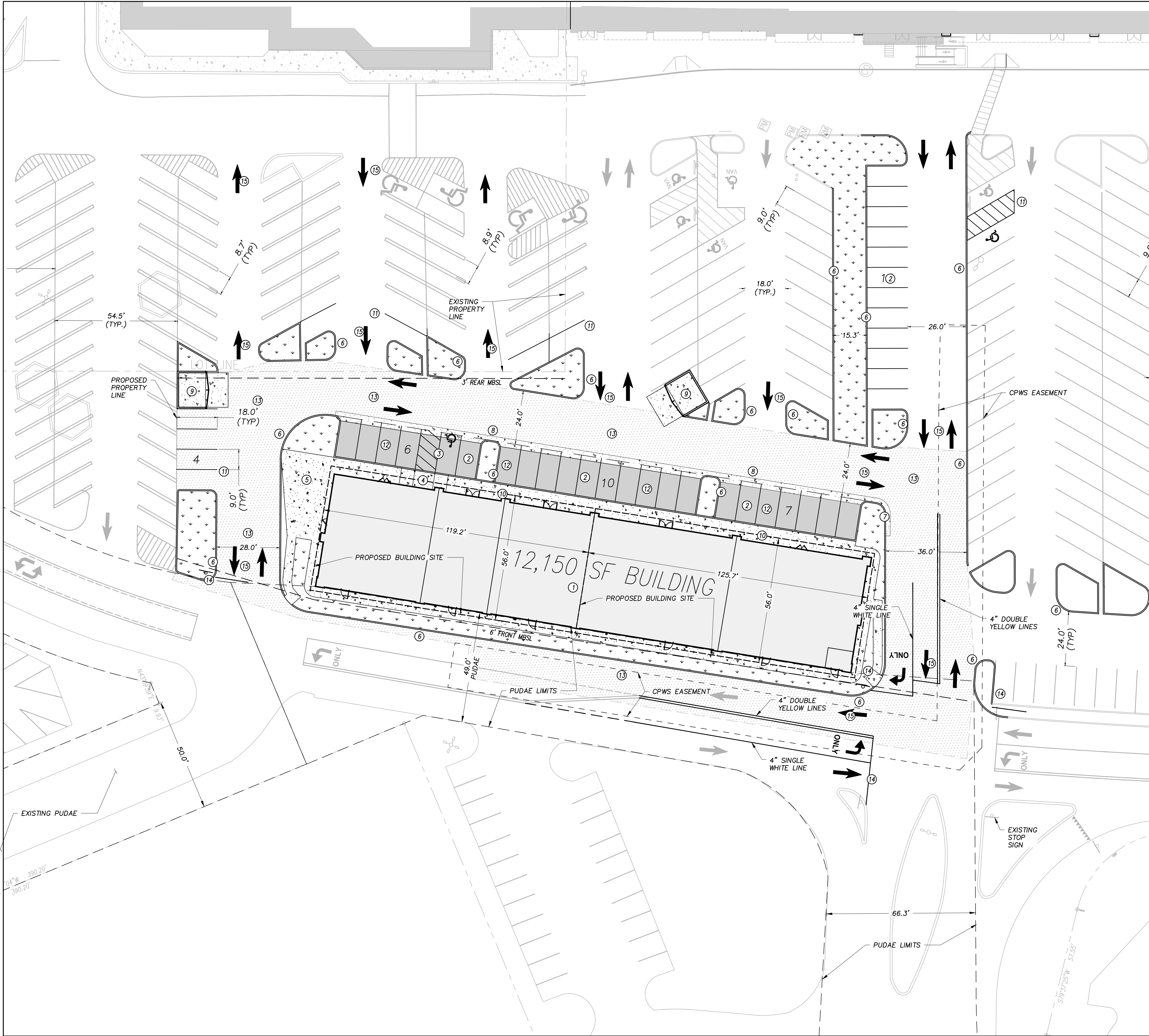
Network Project Number: 202401259-1 AAC

1-(800)-SURVEYS (787-8397)

TRANSACTION SERVICES

www.rockandclark.com maywehelpyou@rockandclark.com www.NV5.com

SURVEY • ZONING • ENVIRONMENTAL • ASSESSMENT

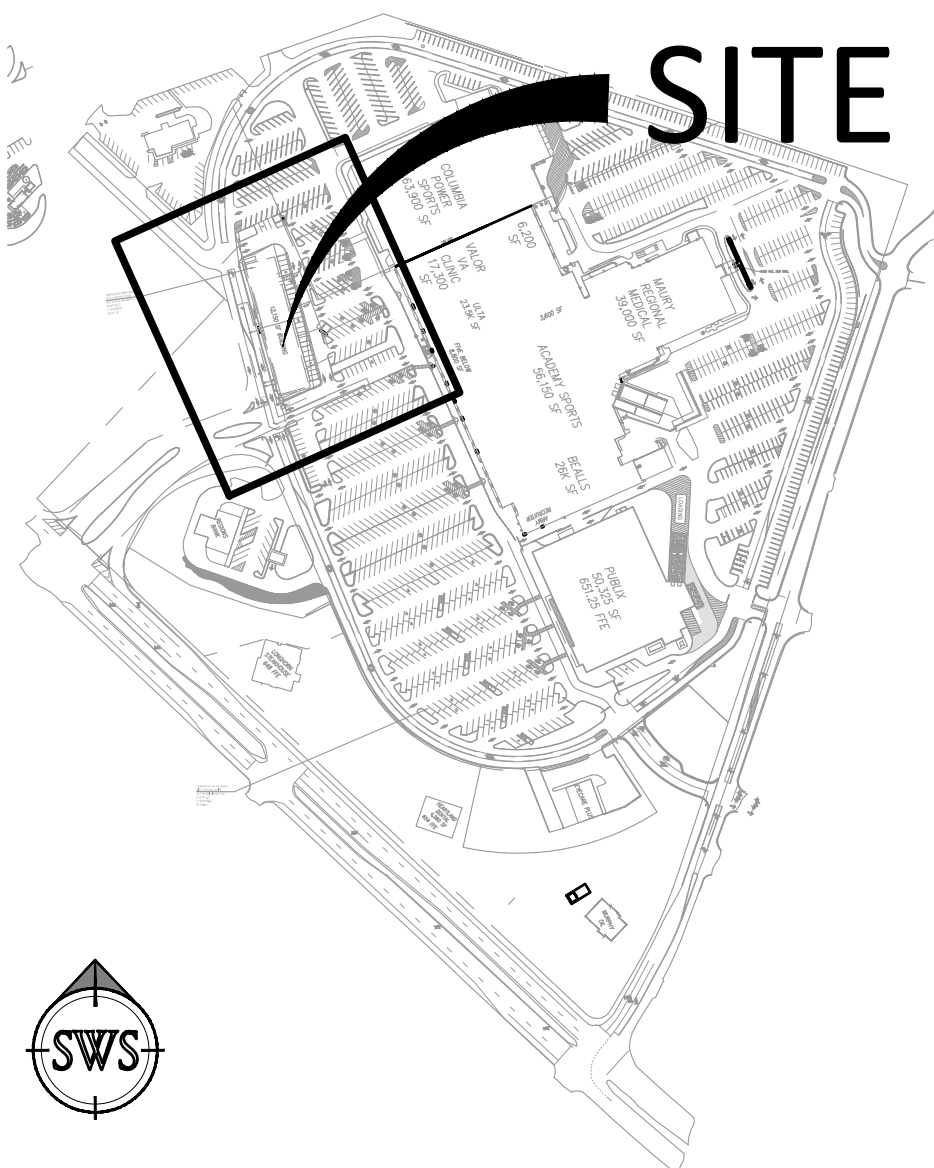


SITE LEGEND

- ASPHALT
- MILL AND OVERLAY ASPHALT
- BUILDING
- CONCRETE
- LANDSCAPING
- PROPOSED BUILDING
- 9'x18' PARKING SPACE
- ADA PARKING SPACE, #1/C5.00
- ADA CURB RAMP
- CONCRETE PATIO AREA
- CONCRETE CURB, #4/C5.00
- CONCRETE CURB AND GUTTER, #4/C5.00
- CONCRETE VALLEY GUTTER, #5/C5.00
- DUMPSTER ENCLOSURE, #3/C5.00
- CONCRETE WALKWAY, #6/C5.00
- PARKING SPACE STRIPING
- ASPHALT PAVING, #2/C5.00
- MILL AND OVERLAY ASPHALT PAVING, #2/C5.00
- STOP BAR/SIGN
- PAINTED TRAFFIC ARROW

SITE DATA TABLE

PROPOSED LAND USE:	12,150 SF RETAIL BUILDING
ZONE:	CD4C
ACREAGE:	30.44 ACRES -1,308,729 SF
DENSITY ALLOWED:	24 DU UNITS PER ACRE - 24 UNITS
DENSITY PROPOSED:	5 UNITS PER ACRE - 5 UNITS
MAX BLOCK PERIMETER :	2400 FT
BLOCK PERIMETER PROPOSED:	950 FT
PRINCIPAL BUILDING:	1 MAX
PRINCIPAL BUILDING PROPOSED:	1
ACCESSORY BUILDINGS ALLOWED:	0
ACCESSORY BUILDINGS PROPOSED:	0
LOT WIDTH MAX (COMMERCIAL):	200 FT BUILDING SITES
LOT WIDTH PROPOSED:	2 BUILDING SITES - 119' AND 126' WIDTHS
FRONTAGE BUILDOUT (COMMERCIAL):	40%
FRONTAGE BUILDOUT PROPOSED:	240/355 = 67%
EXISTING IMPERVIOUS SURFACE:	100%
IMPERVIOUS SURFACE PROPOSED:	80% MAX
BUILDING SITE ENFRONTMENT:	PRIVATE RING ROAD WITH PUDAE
BUILDING SITE ACCESS:	ACCESS EASEMENTS THROUGH PRIVATE RING ROAD/ACCESS TO JAMES CAMPBELL AND BROOKMEADE DRIVE
PARKING REQUIRED:	1 SPACE PER 100 SF RESTAURANT - 59 SPACES
PARKING PROPOSED:	1 SPACE PER 5000 SF RETAIL - 2 SPACES
	1245 SPACES - SHARED PARKING AGREEMENT WITH OVERALL PARCEL
FRONT SETBACK:	6FT, 11FT PROVIDED
SIDE SETBACK:	0FT
REAR SETBACK:	3FT, 46FT PROVIDED



SITE KEY

MAP NO. 100N - PARCELS 6.00 + 7.00

PROJECT BENCHMARK

BENCHMARK DESCRIPTION:

ELEVATION:

NAD83 & NAVD88

20' 10' 0' 20' 40'

SCALE IN FEET

GRAPHIC SCALE 1"=20'

SWS ENGINEERING, INC.

CIVIL ENGINEERING • LAND PLANNING • SURVEYING

504 Atlanta Springs Court, Suite A-6
Franklin, TN 37067
615-761-0483

SAN DIEGO • NASHVILLE • PHOENIX • ORLANDO

STATE OF TENNESSEE

PRESTON D. AYER

REGISTERED PROFESSIONAL ENGINEER

NO. 0000000000

EXPIRATION DATE: 12/31/2024

Know what's below.
Call before you dig.

Tennessee811

SITE PLAN

PLANNING COMMISSION SET

COLUMBIA CTR OUT PARCEL BUILDING

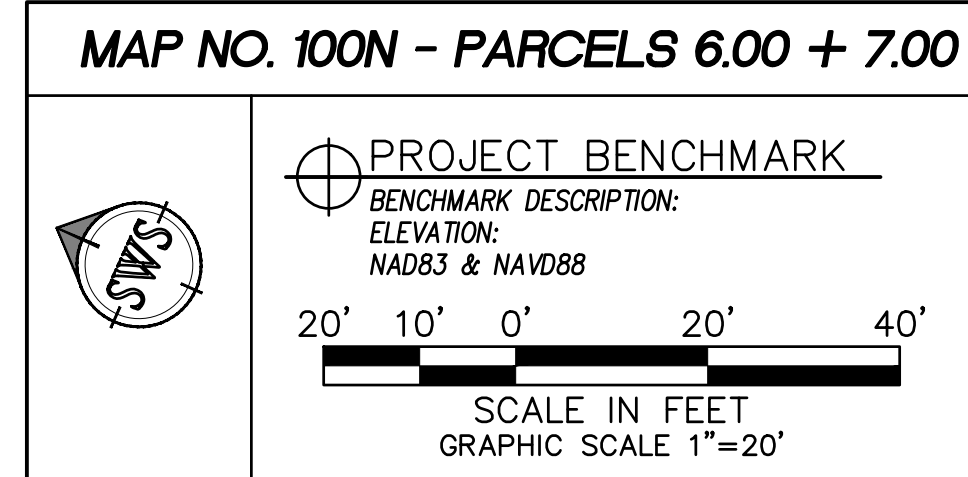
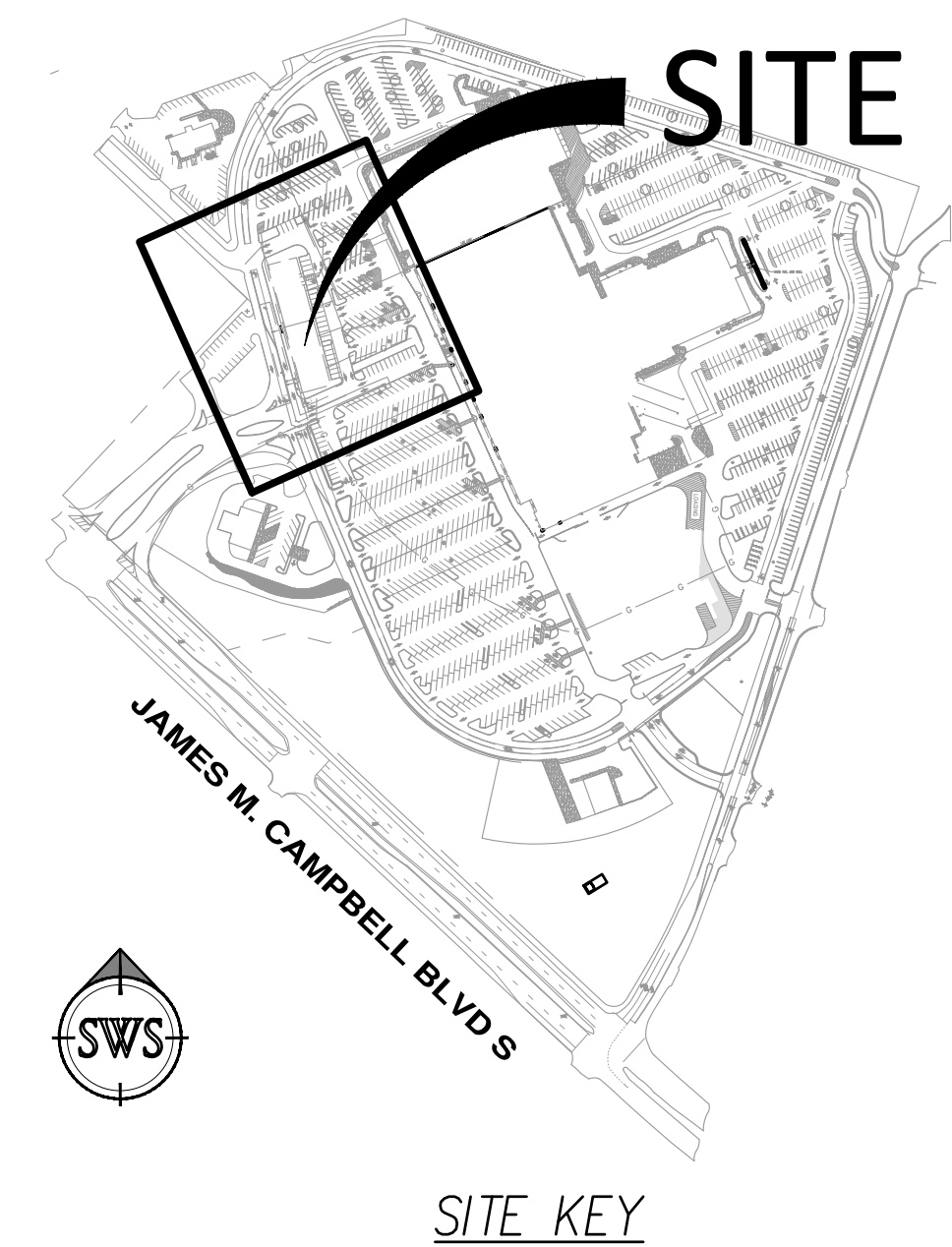
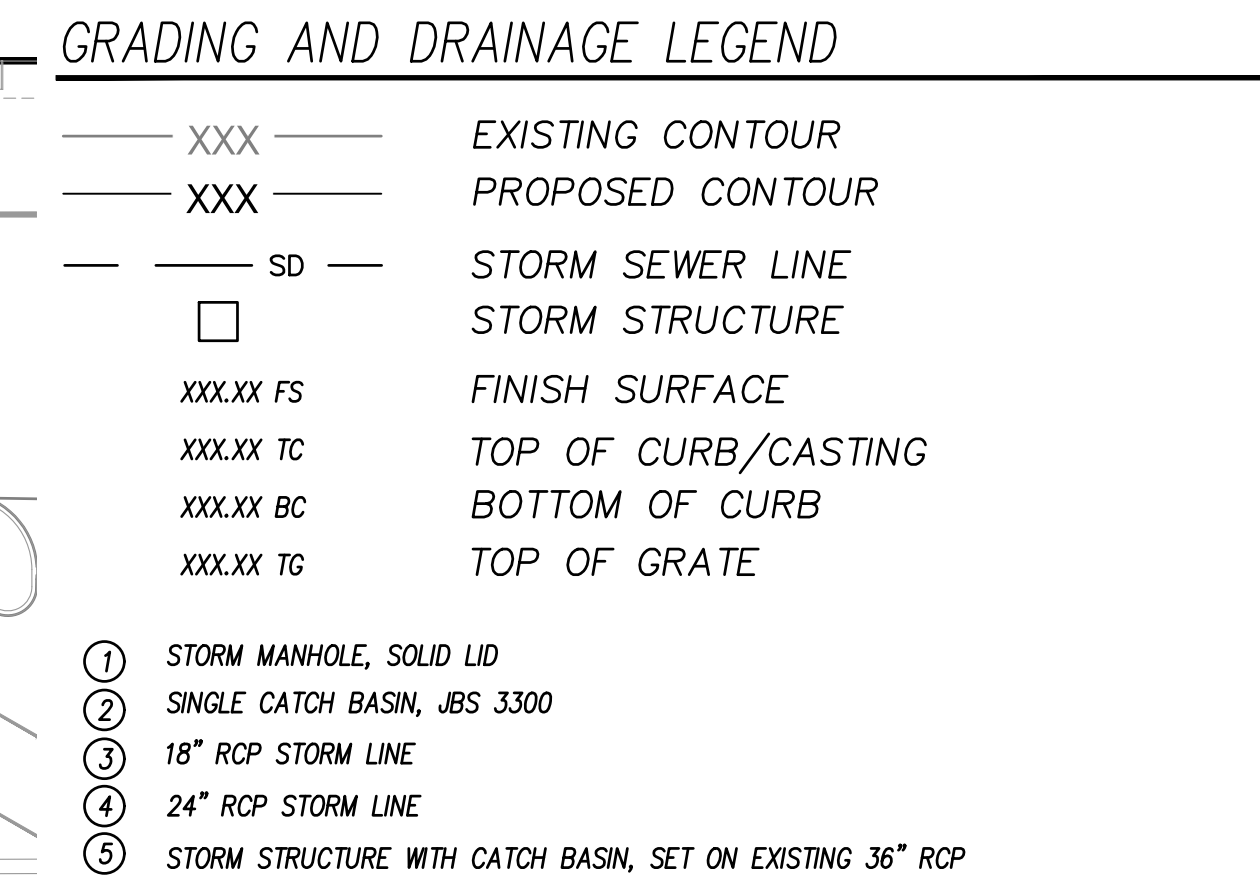
800 S JAMES CAMPBELL BLVD
COLUMBIA, TENNESSEE

REV.	COMMENTS	DATE

C1.00

DATE: 08-06-24
JOB NO.: 24-196T

DRAWN BY:	DMO	CHKD BY:	PDA





COLUMBIA OUTPARCEL BUILDING

Columbia, TN

100% Code Minimum: Landscape Architecture

01/20/2025

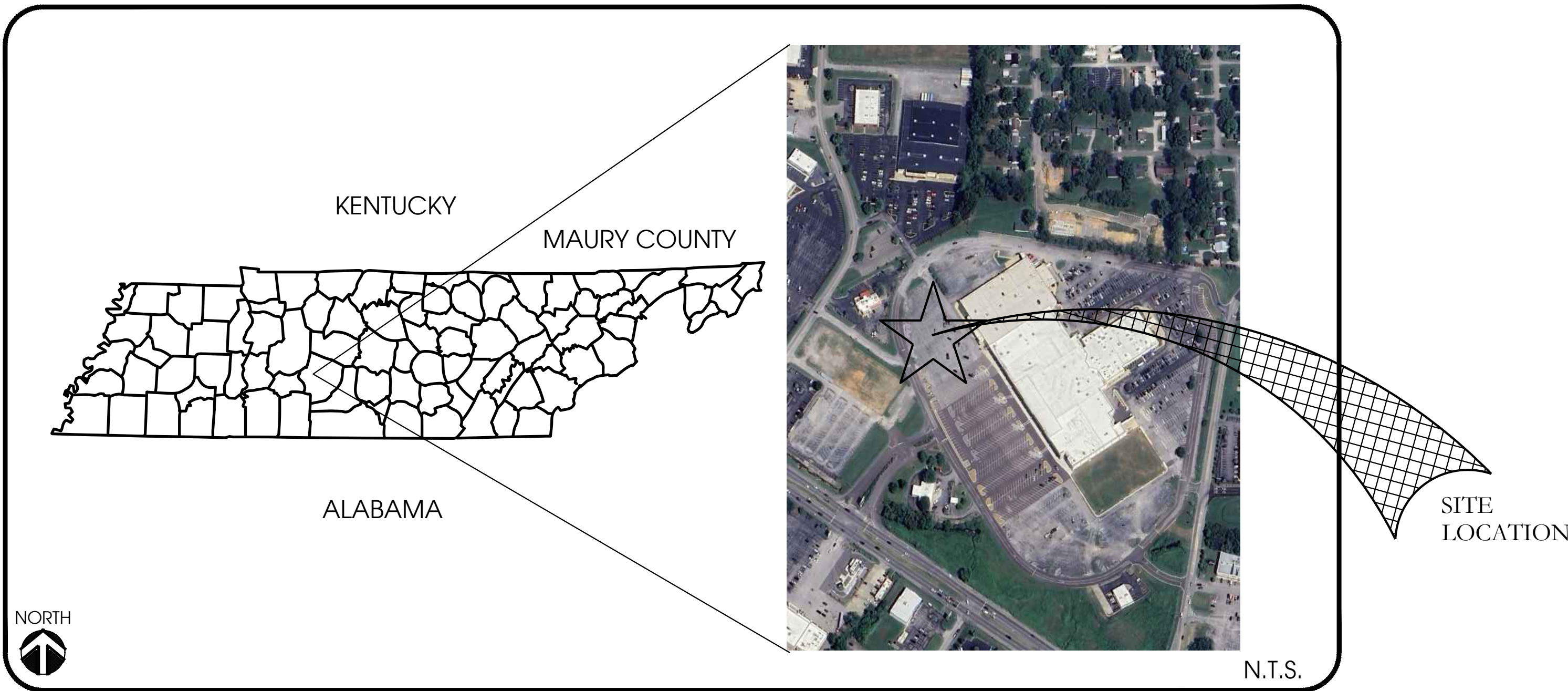
PREPARED FOR:



VICINITY MAP

SHEET INDEX	
SHEET #	SHEET TITLE
COVER	COVER
LT-00	GENERAL LANDSCAPE NOTES
LT-01	TREE PLAN
LS-01	SHRUB PLAN
LD-00	LANDSCAPE DETAILS
IR-00	IRRIGATION NOTES
IR-01	IRRIGATION PLAN
IR-02	IRRIGATION DETAILS

REVISIONS		
REV	DATE	COMMENT



PREPARED BY:



101 S. GARLAND AVE STE 202 ■ ORLANDO ■ FLORIDA ■ 32801
WWW.INNOVATIONS-DESIGN.COM ■ 407-440-3574

DRAWING SIZE: 24" X 36"

DRAWING SIZE: 24" X 36"

PLANT REQUIREMENTS :

1. CONTRACTOR IS TO SUBMIT TO THE LANDSCAPE ARCHITECT THE GROWERS AND/OR STATE INSPECTION CERTIFICATE FOR PLANT MATERIAL TWO (2) WEEKS BEFORE COMMENCEMENT OF WORK, IF APPLICABLE.

2. ALL PLANT MATERIAL SHALL BE PROTECTED DURING TRANSPORT AND DELIVERY TO JOB SITE WITH SHADE CLOTH OR OTHER ACCEPTABLE MEANS OF WINDBURN PREVENTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PLANTS MEETING SPECIFICATION AS NOTED PRIOR TO INSTALLATION. CONTRACTOR SHALL IMMEDIATELY REMOVE ALL PLANT MATERIAL FROM THE PROJECT THAT DOES NOT CONFORM TO SPECIFICATIONS.
4. CONTRACTOR SHALL VERIFY ALL QUANTITIES OF PLANT MATERIAL FROM THE PLANT LEGEND TO THE DRAWINGS. QUANTITIES FROM THE DRAWINGS SHALL GOVERN UNLESS OTHERWISE NOTED.
5. ALL SIZES SHOWN FOR PLANT MATERIAL ON THE PLANS ARE TO BE CONSIDERED MINIMUM. ALL PLANT MATERIAL MUST MEET OR EXCEED THESE MINIMUM REQUIREMENTS FOR BOTH HEIGHT AND SPREAD. ANY OTHER REQUIREMENTS FOR SPECIFIC SHAPE OR EFFECT AS NOTED ON THE PLANS SHALL ALSO BE REQUIRED FOR ACCEPTANCE. ALL TREES TO BE SINGLE TRUNK UNLESS OTHERWISE NOTED.
6. ALL TREES SHALL BE STRAIGHT TRUNKED, FULL HEADED, AND MEET ALL REQUIRED AS SPECIFIED, UNLESS OTHERWISE NOTED.
7. ANY TREE WITH A TRUNK FORMED "V" SHAPE CROTCH WILL BE REJECTED.
8. CANOPY TREES OF ALL SIZES ARE TO BE SELECTIVELY PRUNED AFTER PLANTING TO REMOVE INNER TWIGGY GROWTH, OPENUP THE CENTER AND EXPOSE MAJOR BRANCHES.
9. ALL ROOTBALLS SHALL CONFORM TO THE SIZE STANDARDS SET FORTH IN "AMERICAN STANDARDS FOR NURSERY STOCK".
10. SUBSTITUTION OF FIELD GROWN TREES FOR TREES THAT ARE SPECIFIED AS CONTAINER GROWN WILL NOT BE PERMITTED UNLESS OTHERWISE APPROVED BY THE LANDSCAPE ARCHITECT. ALL SPECIFICATIONS WILL STILL APPLY TO APPROVED B&B MATERIAL.
11. ALL SOD SHALL BE 100% SOLID SOD, 99% FREE OF NOXIOUS WEEDS, WITH A 2" THICKNESS OF ROOTS CAPABLE OF HOLDING SAND. SOD SHALL BE FRESHLY-CUT WITHIN TWENTY-FOUR (24) HOURS OF LAYING, LAID WITH TIGHTLY-BUTTED JOINTS, AND ROLLED. HAND RAKING SHALL BE DONE AS NECESSARY TO ENSURE PROPER EVEN GRADES AND CLEAR SURFACES FOR SOD.
12. ALL PLANT MATERIAL SHALL BE MAINTAINED AT OR ABOVE THE SPECIFIED CONDITIONS THROUGH SUBSTANTIAL COMPLETION AND THE END OF THE ESTABLISHMENT PERIOD. DECLINE IN CONDITION OF PLANT MATERIAL DURING INSTALLATION, AND THE MAINTENANCE PERIOD SHALL BE GROUNDS FOR REJECTION AND REPLACEMENT AT CONTRACTOR'S EXPENSE.
13. ALL LANDSCAPE AREAS TO BE IRRIGATED WITH A FULLY AUTOMATED IRRIGATION SYSTEM (UNLESS OTHERWISE NOTED).
14. ALL TREES SHALL BE LOCATED AT LEAST SIX (6) FEET FROM THE FLOW LINE OF PERIMETER SWALES AND PROPOSED STORM WATER INLETS.

1. ALL PLANT MATERIAL SHALL BE INSTALLED IN A SOUND, WORKMANLIKE MANNER AND ACCORDING TO ACCEPTED GOOD PLANTING PROCEDURES WITH THE QUALITY OF THE PLANT MATERIALS AS HEREIN DESCRIBED. ALL ELEMENTS OF LANDSCAPING SHALL BE INSTALLED SO AS TO MEET ALL APPLICABLE ORDINANCES AND CODE REQUIREMENTS.
2. CONTRACTOR SHALL ENSURE DRAINAGE AND PERCOLATION OF ALL PLANTING-PITS PRIOR TO INSTALLATION OF PLANT MATERIAL. CONTRACTOR SHALL FILL ALL TREE PITS WITH WATER BEFORE PLANTING TO ASSURE THAT PROPER DRAINAGE AND PERCOLATION IS AVAILABLE. CORRECT IF REQUIRED TO ENSURE PERCOLATION. CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ALL PLANTS LOST DUE TO INADEQUATE DRAINAGE CONDITION.
3. TREES GROWN IN GROW BAGS OR GROW BAG TYPE MATERIAL MUST HAVE THE GROW HAD REMOVED ENTIRELY PRIOR TO PLANTING.
4. BALLED AND BURLAPPED OR ANY BASKETED MATERIAL SHALL HAVE THE TOP ONE HALF (½) OF THE BURLAP AROUND THE BASE OF THE TRUNK CUT AND PULLED BACK. DO NOT REMOVE BURLAP. WIRE CAGES, STRAPS, ETC. MUST BE CUT AND REMOVED PRIOR TO INSTALLATION. CONTRACTOR TO REPLACE REJECTED PLANT MATERIAL WITHIN ONE WEEK (5 BUSINESS DAYS) OF NOTICE.
5. CONTRACTOR SHALL REFER TO THE LANDSCAPE PLANTING DETAILS, S. PLANT LIST, GENERAL NOTES AND THE PLANTING SPECIFICATIONS FOR COMPLETE LANDSCAPE PLANTING INSTRUCTIONS. NOTIFY LANDSCAPE AROUND OF ANY AND ALL DISCREPANCIES PRIOR TO CONSTRUCTION OR INSTALLATION.
6. THE CONTRACTOR SHALL REFER TO THE LANDSCAPE PLANTING DETAILS, PLANT LIST, GENERAL NOTES AND SPECIFICATIONS FOR FURTHER AND COMPLETE PLANTING INSTRUCTIONS.
7. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL PLANTING WORK WITH THE IRRIGATION WORK. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL HAND WATERING AS REQUIRED BY OWNERS REPRESENTATIVE TO SUPPLEMENT IRRIGATION WATERING AND/OR RAINFALL. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR HAND WATERING IN ALL PLANTING AREAS, REGARDLESS OF THE STATUS OF THE EXISTING OR PROPOSED IRRIGATION.
8. GUYING / STAKING PRACTICES SHALL NOT PERMIT NAILS, SCREWS, WIRES, ETC. TO PENETRATE OUTER SURFACE OF THE TREES, PINES, OR PALMS. TREES, PINES, OR PALMS REJECTED REJECTED DUE TO THIS PRACTICE SHALL BE REPLACED AT THE CONTRACTORS EXPENSE.
9. ALL WOODEN STAKES, BOARDS, BRACES AND BATTENS SHALL BE PAINTED SOLID STAINED DARK GREEN PRIOR TO THEIR USE. TOUCH UP ALL EXPOSED CUTS IN THE FIELD WITHOUT MARRING OR MARKING PLANT MATERIALS.
10. THE CONTRACTOR SHALL MUCH ALL NEW PLANT MATERIAL THROUGHOUT AND COMPLETELY TO A 3" INCH MINIMUM DEPTH WITH CLEAN WEEF FREE CLASS A MULCH OR ROCK MULCH AS SPECIFIED IN THE PLANT LEGEND.
11. THE CONTRACTOR IS RESPONSIBLE FOR COMPLETE MAINTENANCE OF ALL PLANTING AREAS (INCLUDING WATERING, SPRAYING, MULCHING, MOWING, FERTILIZING, ETC.) THROUGHOUT THE COURSE OF THE PROJECT AND THROUGHOUT A 90 DAY ESTABLISHMENT PERIOD FOLLOWING NOTICE OF SUBSTANTIAL COMPLETE BY THE OWNER. THE PROJECT WILL NOT BE ACCEPTED OR DEEMED SUBSTANTIALLY COMPLETE BY ZONES OR PHASES (UNLESS OTHERWISE NOTED ON THE PLANS).

1. THE CONTRACTOR SHALL BEAR ALL COST OF TESTING OF SOILS, AMENDMENTS, ETC., ASSOCIATED WITH THE WORK AND INCLUDED IN THE SPECIFICATIONS. PRIOR TO COMMENCEMENT OF THE LANDSCAPE PLANTING WORK, THE CONTRACTOR SHALL PROVIDE COMPLETE SOIL TEST OF THE INSTALLATION AREA.
- 1.1. APPLY ROUNDUP (MANUFACTURED BY MONSANTO CORP OR APPROVED HERBICIDE EQUAL ACCORDING TO MANUFACTURERS RATE AND SPECIFICATION WITHIN THE LIMITS OF ALL AREAS TO BE PLANTED. PROTECT EXISTING PLANTS TO REMAIN FROM OVER SPRAY OR SPRAY WITHIN THE ROOT ZONE. CONTRACTOR TO ENSURE TOTAL WEED ERADICATION.
- 1.2. BEFORE REPLACING TOPSOIL, RAKE SUBSOIL SURFACE CLEAR OF STONES (1 INCH DIAMETER AND LARGER), DEBRIS, RUBBISH, DELETERIOUS MATERIAL AND ALL REMAINING CONSTRUCTION DEBRIS TO A DEPTH OF 6". CONTAMINATED SOILS SHALL BE REMOVED AND REPLACED TO THEIR FULL DEPTHS AND EXTENTS.
- 1.3. ESTABLISH OR REESTABLISH ROUND GRADES INSURING POSITIVE FLOWS AND AESTHETIC LANDFORMS SHAPES SHOW IN THE GRADING PLANS. SCARIFY SUBSOIL TO A DEPTH OF 3 INCHES ONCE ROUGH GRADE HAS BEEN ESTABLISHED.
- 1.4. CONTRACTOR TO APPLY "RONSTAR" OR APPROVED PRE-EMERGENT HERBICIDE IN ACCORDANCE WITH MANUFACTURER'S RATE AND SPECIFICATIONS.
- 1.5. PLANTING SOIL MIX FOR TREES, SHRUBS, AND GROUND COVERS SHALL CONSIST OF A THOROUGHLY BLENDED MIXTURE OF
 - 1.5.1. TREES
 - 70% CLEAN D.O.T. SAND
 - 30% APPROVED TOPSOIL MIX
 - 1.5.2. SHRUBS AND GROUND COVER
 - 80% CLEAN D.O.T. SAND
 - 20% APPROVED TOPSOIL MIX
 - 1.5.3. TOPSOIL
 - 30% APPROVED FLORIDA TOPSOIL
 - 10% APPROVED FLORIDA PEAT
 - 60% APPROVED SAND

PEAT: FEDERAL SPEC Q-P-166
TYPE 1, CLASS B, SPHAGNUM MOSS

KEY	PRODUCT TYPE	PRODUCT NAME	PRODUCT #	DIMENSIONS	COLOR/ FINISH	IRRIGATION	MOUNTING	MANUFACTURER	CONTACT
SF1	RECTANGULAR PLANTER	BOULEVARD PLANTER RECTANGLE	BV-723630	72"X36"X30"	WOOD: THERMALLY MODIFIED WOOD	CWM-R2920-3K	SECURELY FASTENED TO THE GROUND; SEE MANUFACTURER	TOURNESOL	WWW.TOURNESOL.COM

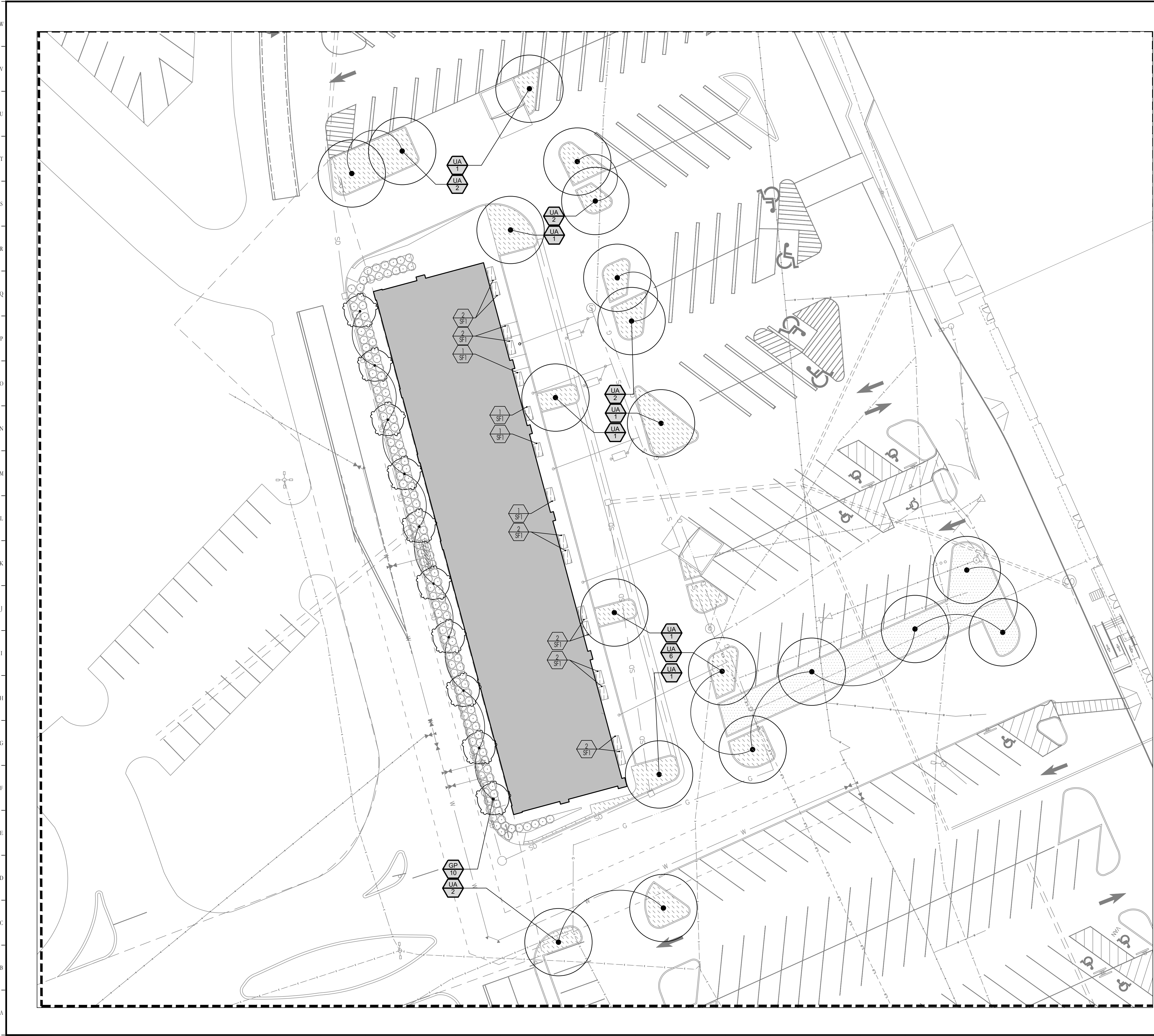
GENERAL LANDSCAPE NOTES

Date: 2025-01-20	Scale: SEE PLAN
Drawn By: KS	Designed By: JS
Approved By: JS	Project No: 25006
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LT-00

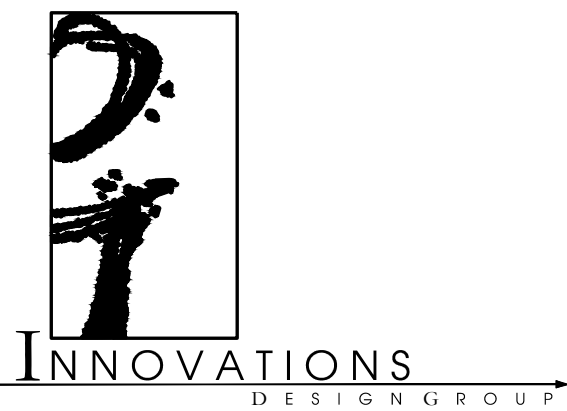
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PRINT DATE: 20-Jan-25
DRAWING SIZE: 24" X 36"



PLANT SCHEDULE

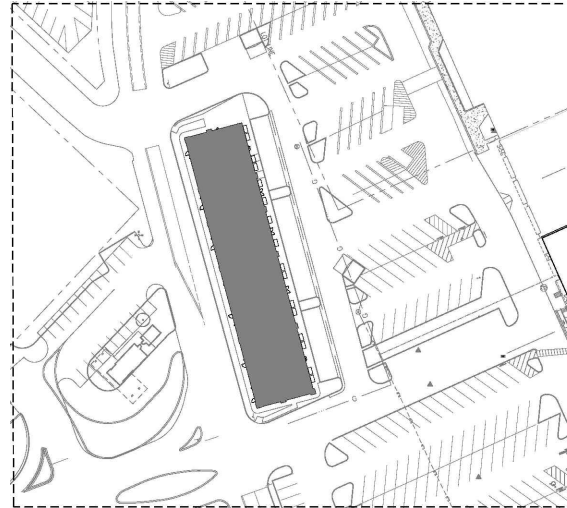
CODE	COMMON NAME
TREES	
UA	Allee® Lacebark Elm
GP	Princeton Sentry Maidenhair Tree
SHRUB AREAS	
PA	White Fountain Grass
GROUND COVERS	
LB	Big Blue Lilyturf
TC	Canadian Blue Fescue

Designed By:



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WWW.INNOVATIONS-DESIGN.COM 407-440-3574

Key Map:



Owner:



PROJECT NAME
COLUMBIA, TN

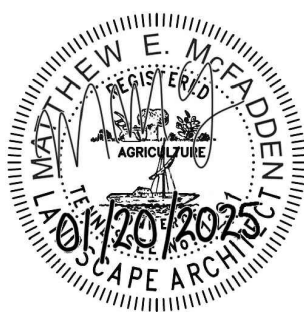
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TREE PLAN

Rev:	Date:	Description:	By:
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Date: 2025-01-20	Scale: SEE PLAN
Drawn By: KS	Designed By: JS
Approved By: JS	Project No: 25006
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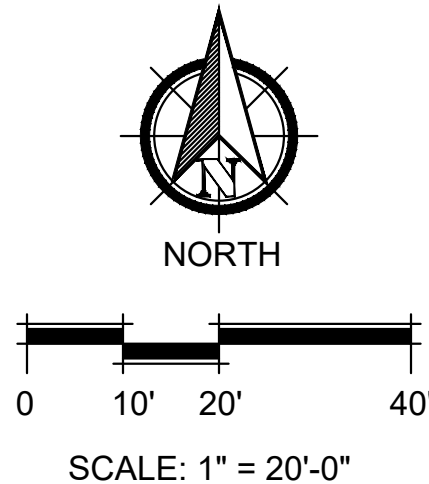
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Seal:



Sheet Number:

LT-01



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PRINT DATE: 20-Jan-25
DRAWING SIZE: 24" X 36"



PLANT SCHEDULE

CODE	COMMON NAME
TREES	
UA	Allee® Lacebark Elm
GP	Princeton Sentry Maidenhair Tree
SHRUBS	
DA	Blue Cascade® Distylium
SHRUB AREAS	
PA	White Fountain Grass
GROUND COVERS	
LB	Big Blue Lilyturf
TC	Canadian Blue Fescue

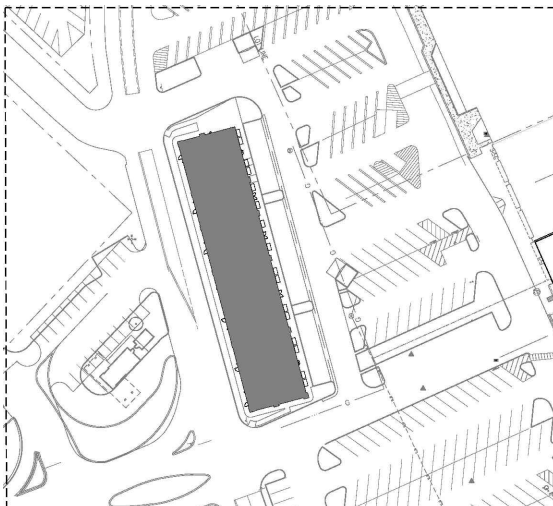
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Key Map:



Owner:



PROJECT NAME
COLUMBIA, TN

CODE MINIMUM
SHRUB PLAN

Rev	Date	Description	By
△			
△			
△			
△			
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Date: 2025-01-20	Scale: SEE PLAN
Drawn By: KS	Designed By: JS
Approved By: JS	Project No: 25006
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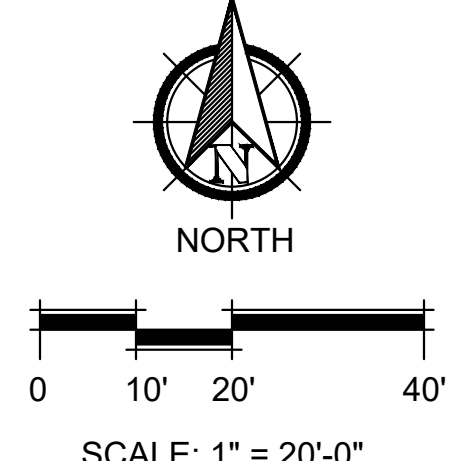
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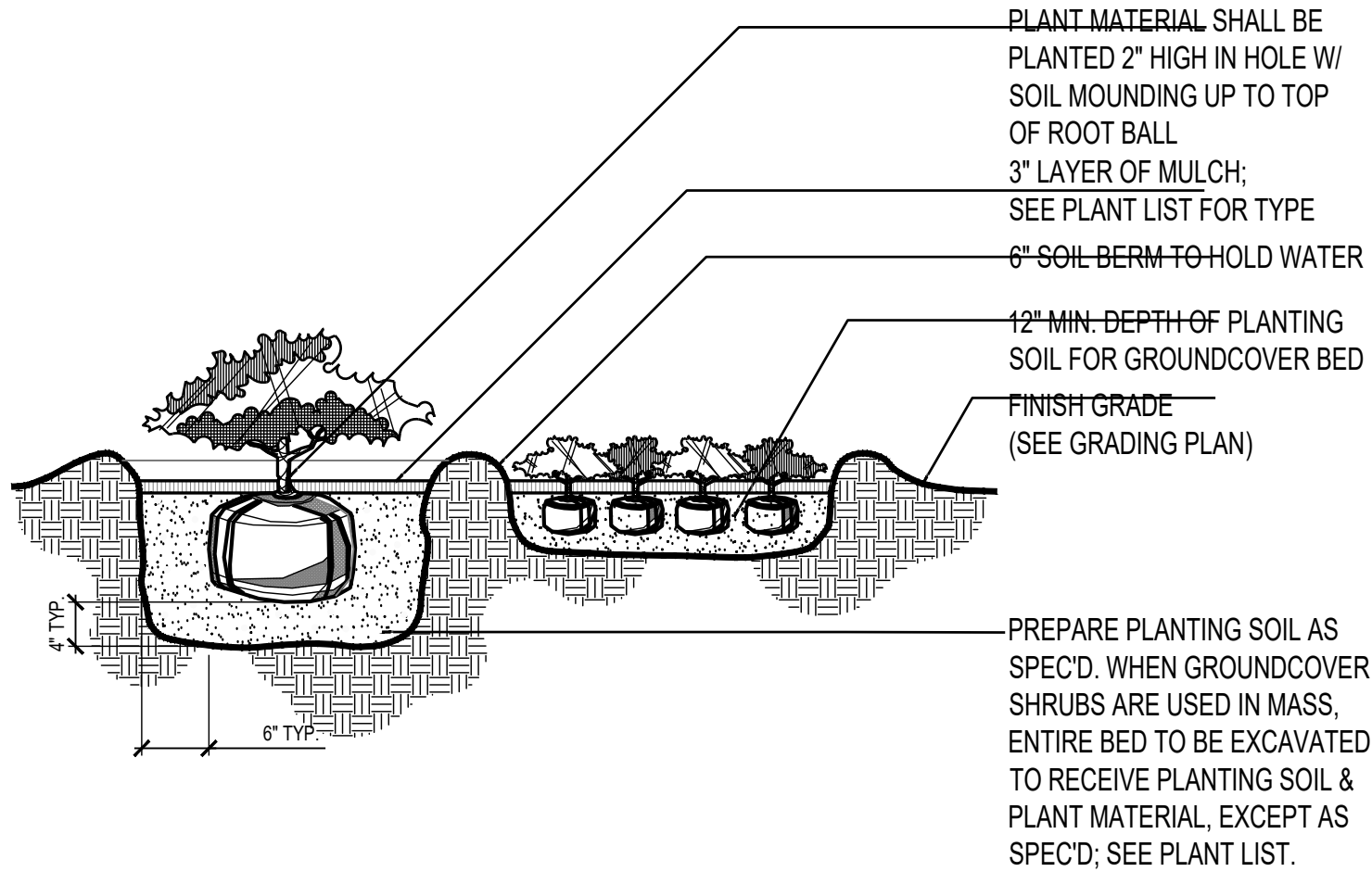
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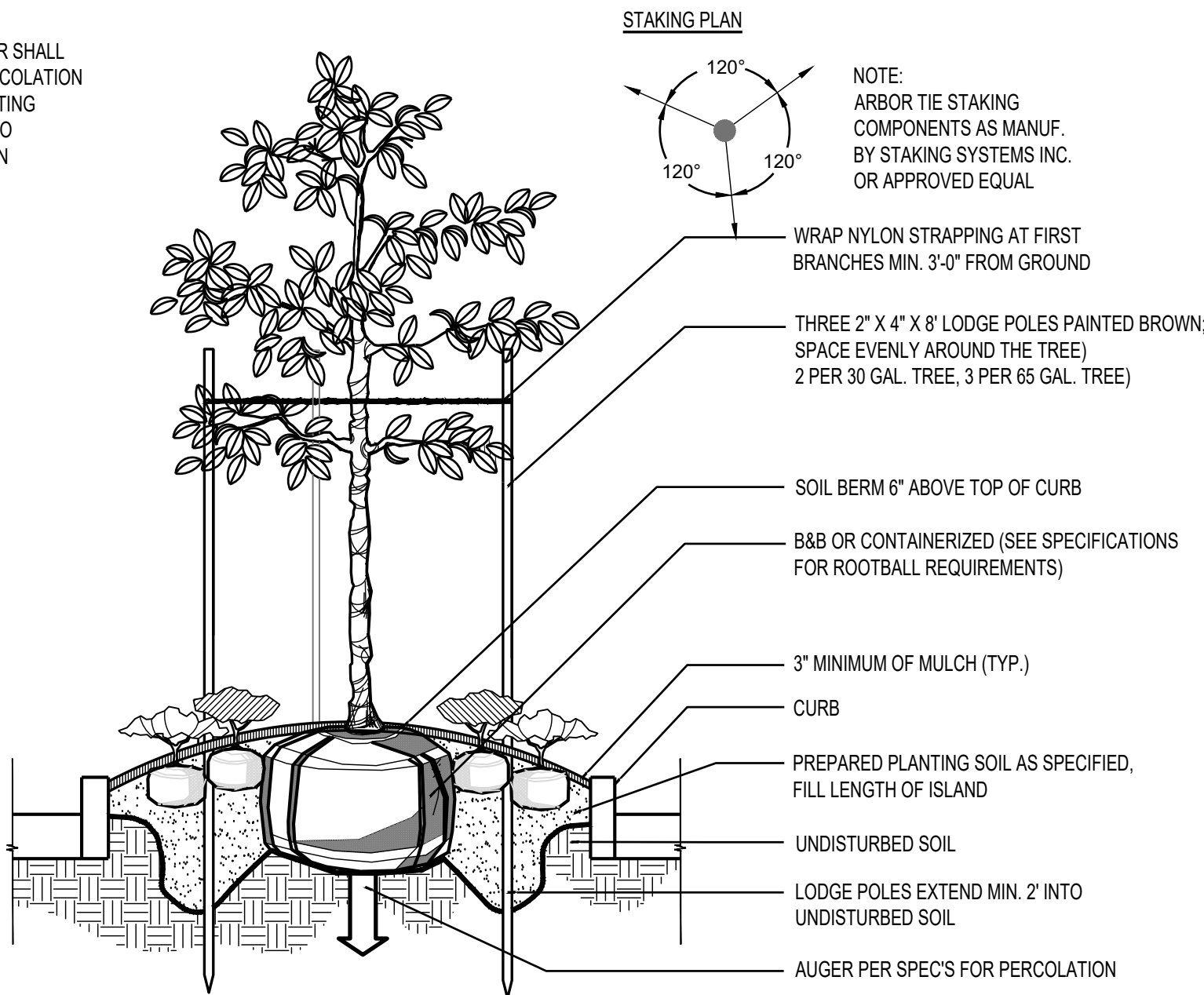
NOTE:
CONTRACTOR SHALL
ASSURE PERCOLATION
OF ALL PLANTING PITS/BEDS
PRIOR TO INSTALLATION



1 Shrub & Groundcover Planting

Scale: N.T.S.

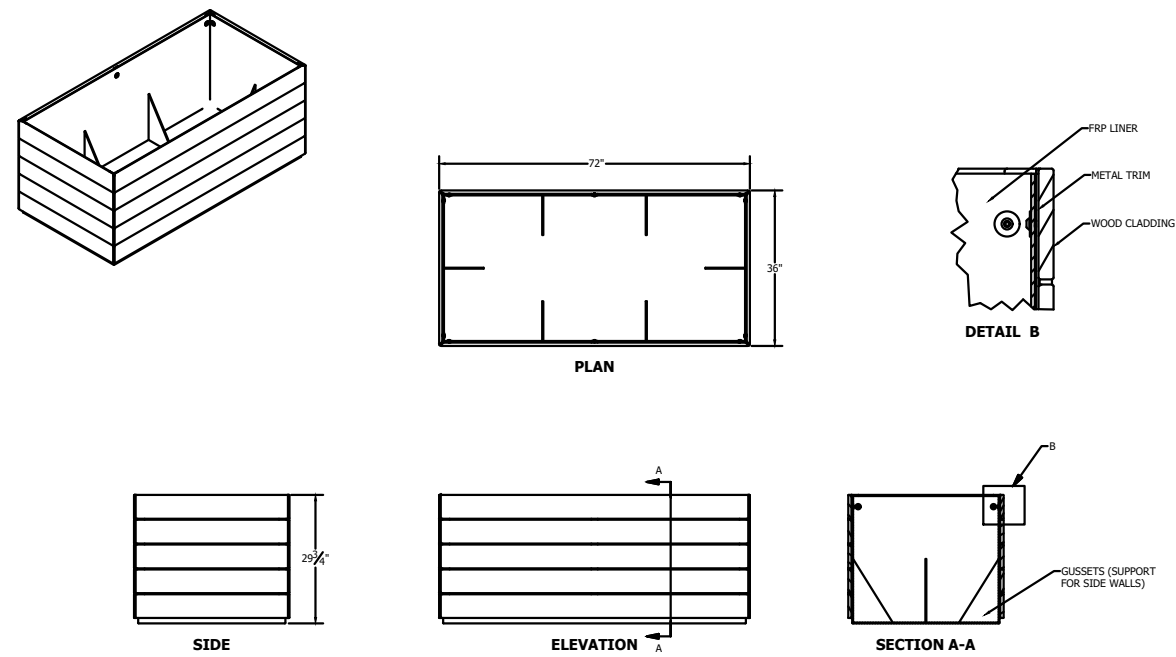
NOTE:
CONTRACTOR SHALL
ASSURE PERCOLATION
OF ALL PLANTING
PITS PRIOR TO
INSTALLATION



4 Curbed Island Plantings

Scale: N.T.S.

Photos shown for reference only; see the site furnishings schedule for all material aspects, colors, wood finishes etc. If contractor has a question on any furnishings, contact the landscape architect for clarification.



5 Foundation Planting

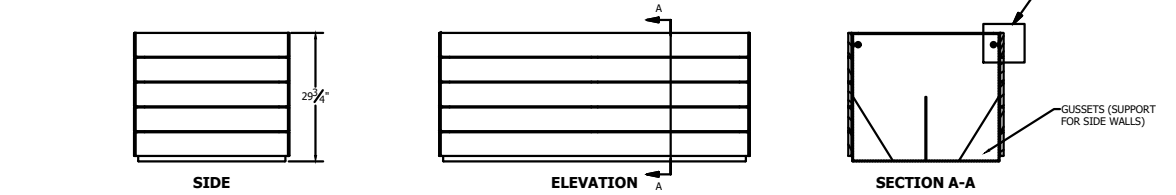
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6 Shrub and Groundcover Spacing

Scale: N.T.S.

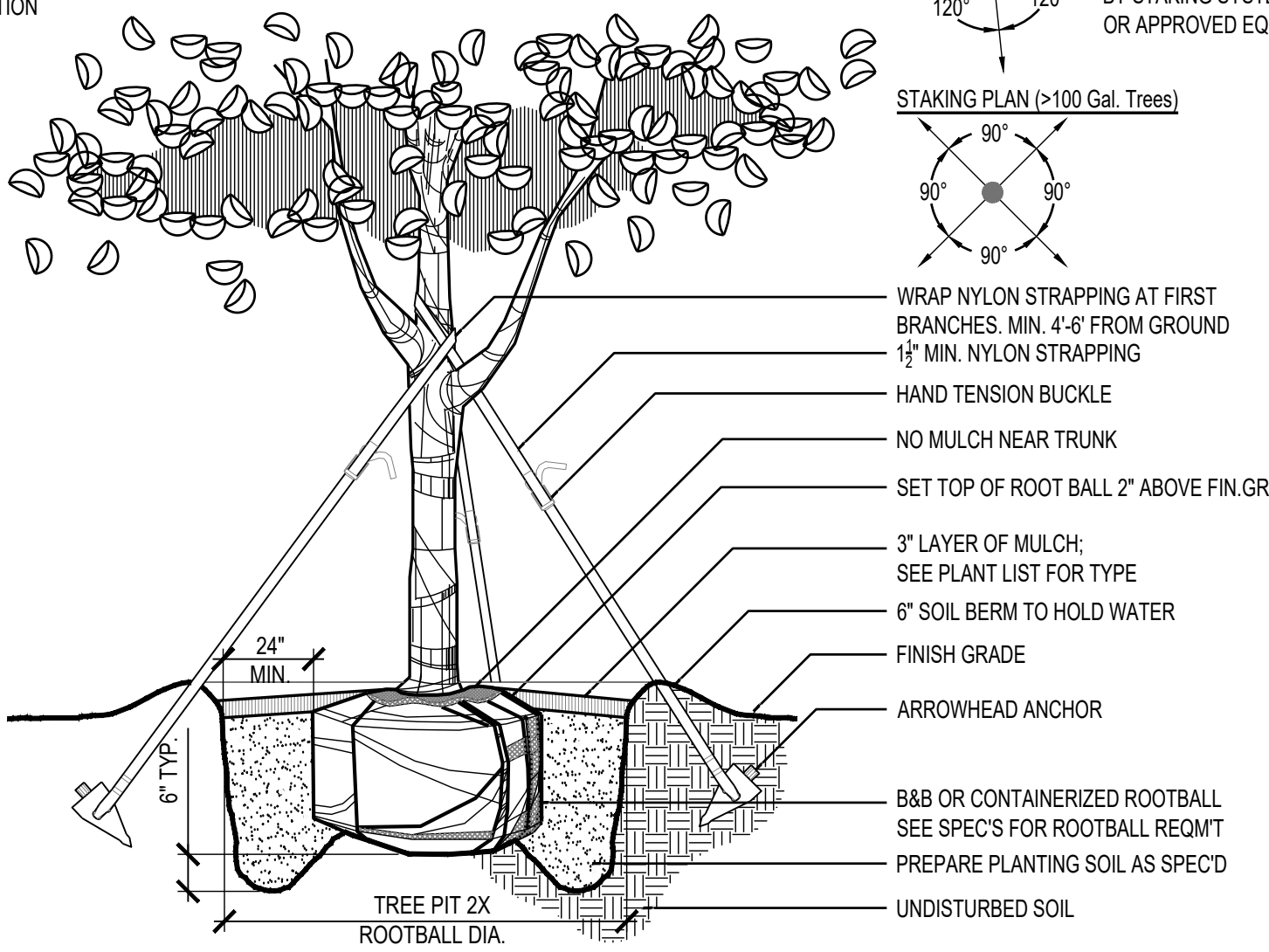
NOTE: SEE PERMANENT SCHEDULE



SF1 Rectangular Planter

Scale: N.T.S.

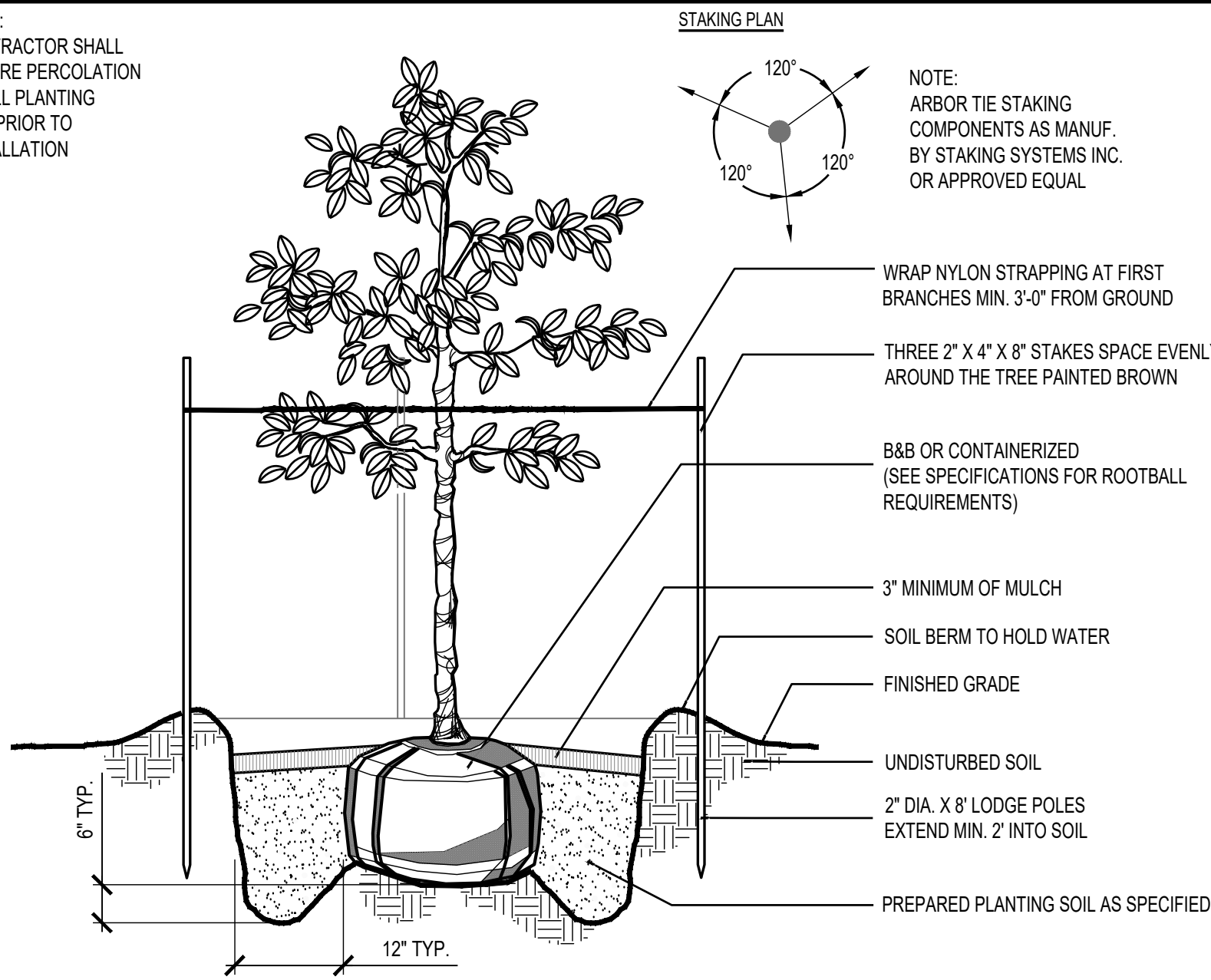
NOTE:
CONTRACTOR SHALL
ASSURE PERCOLATION
OF ALL PLANTING
PITS PRIOR TO
INSTALLATION



2 Tree Planting (65-100 Gal.)

Scale: N.T.S.

NOTE:
CONTRACTOR SHALL
ASSURE PERCOLATION
OF ALL PLANTING
PITS PRIOR TO
INSTALLATION



3 Tree Planting (15-45 Gal.)

Scale: N.T.S.

Designed By:



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Key Map:

Owner:



PROJECT NAME
COLUMBIA, TN

CODE MINIMUM

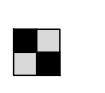
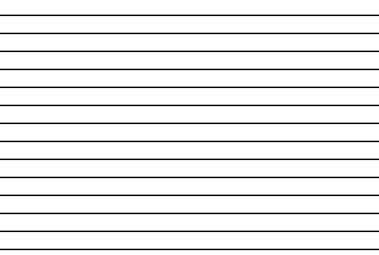
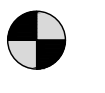
LANDSCAPE DETAILS

Rev:	Date:	Description:	By:
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Date: 2025-01-20	Scale: SEE PLAN
Drawn By: KS	Designed By: JS
Approved By: JS	Project No: 25006
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Seal:	Sheet Number:
	LD-00

FILE: Z:\4 Studio\Projects\2021\Temp Projects\25006_Columbia\2 Autocad\3 Permit\Sheets\25006-08-IRRIGATION.dwg
PRINT DATE: 20-Jan-25
DRAWING SIZE: 24" X 36"

IRRIGATION SCHEDULE		
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Hunter RZWS-10 10in. long RZWS with installed .25 gpm or .50 gpm bubbler options, internal plumbing, and 1/2in. swing joint for connection to 1/2in. pipe	28
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Hunter ICZ-101-40 1" Drip Control Zone Kit. 1in. ICV Globe Valve with 1in. HY100 filter system. Pressure Regulation: 40psi. Flow Range: 2 GPM to 20 GPM. 150 mesh stainless steel screen.	5
	Pipe Transition Point above grade Pipe transition point from PVC lateral to drip tubing with riser to above grade installation.	35
	Area to Receive Dripline Hunter HDL-09-24-R HDL-09-24-R: Hunter Dripline with 0.9 GPH flow. Light brown tubing with purple striping. Emitters at 24" O.C. Dripline laterals spaced at 24" apart, with emitters offset for triangular pattern. Install with Hunter PLD barbed or PLD-LOC fittings.	6,604 l.f.
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Hunter PGV-101G 1" 1in. Plastic Electric Remote Control Valve, for Residential/Light Commercial Use. Female NPT Inlet/Outlet. Globe Configuration, With Flow Control.	5
	United Backflow Solutions, Inc. DC-500 2" 3/4in., 1in., 1-1/2in., and 2in. Shut-Off Valves. Reinforced Nylon Composite.	1
	Hunter HPC-400 w/ (1) PCM 300 Module 4 Station with (1) PCM 300 Module Outdoor Wi-Fi enabled, full-functioning controller with touchscreen. Plastic Cabinet	1

IRRIGATION INSTALLATION GENERAL NOTES
SECTION 02810
PART ONE - GENERAL

1.0 SUMMARY

- A. All portions of Division I - General Requirements are included with this section.
B. Furnish all transportation, materials, labor, equipment, and services to complete all work shown on the drawings and as specified.

1.1 RELATED SECTIONS: section 02900 landscape planting

1.2 TOLERANCE

- A. Install sprinkler heads where indicated by symbol.
B. Drawings are schematic. Adjust pipe and locations to conform to site conditions and to avoid obstructions. Conceal components behind walls of shrubbery where possible. Verify questionable locations before installation.

1.3 SUBMITTAL

- A. Submit two bound folders containing:
1. Written operating instructions for all components.
2. Complete parts list and manufacturer's data.
3. Copy of well completion report.
4. Written maintenance instructions.
5. Provide 2 sets as-built record drawings with the following items dimensioned to the nearest foot:
a. Sprinkler main lines
b. Water source
c. Control valves
d. Gate valve
e. Electric control wire path (Red-line prints).

B. Products furnished but not installed:

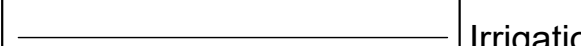
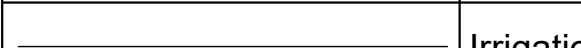
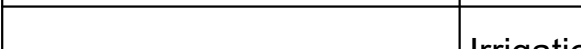
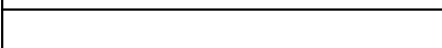
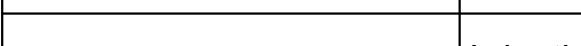
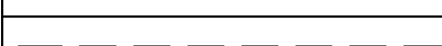
1. 2 extra heads of each type and size
2. 2 extra nozzles of each type and size
3. 2 extra head wrenches for each type of head
4. 1 extra valve box with lid

1.4 COORDINATE WORK WITH OWNER AND OTHER TRADES

- A. A Licensed electrician will install/provide power to the controller, pump, or fountain if utilized on project.

1.5 QUALITY ASSURANCE

- A. Contractor is expected to participate in preconstruction meeting with Owner and landscape architect to coordinate schedule, clarify questions, and discuss acceptable performance criteria for payment.
B. Contractor is expected to participate in contract closeout meeting with Owner and landscape architect to verify proper completion of the work, establish 'Date of Substantial Completion', and advise Owner as to system operation.

	Hunter MINI-CLIK Rain Sensor, mount as noted	1
	Water Meter 2"	1
	Irrigation Lateral Line: PVC Class 200 SDR 21	287.2 l.f.
	Irrigation Lateral Line: PVC Class 200 SDR 21 1/2"	1,952 l.f.
	Irrigation Lateral Line: PVC Class 200 SDR 21 3/4"	159.2 l.f.
	Irrigation Lateral Line: PVC Class 200 SDR 21 1"	130.0 l.f.
	Irrigation Lateral Line: PVC Class 200 SDR 21 1 1/4"	17.9 l.f.
	Irrigation Mainline: PVC Class 200 SDR 21	189.1 l.f.
	Irrigation Mainline: PVC Class 200 SDR 21 1/2"	302.8 l.f.
	Pipe Sleeve: PVC Schedule 40	780.4 l.f.

VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	WIRE	PSI	PSI @ POC	PRECIP
1	Hunter PGV-101G	1"	Bubbler	0.75	264.4	26.1		0.85 in/h
2	Hunter ICZ-101-40	1"	Area for Dripline	10.7	271.6	37.5		0.89 in/h
3	Hunter PGV-101G	1"	Bubbler	1.5	361.8	26.3		0.85 in/h
4	Hunter ICZ-101-40	1"	Area for Dripline	8.48	368.1	35.9		0.6 in/h
5	Hunter ICZ-101-40	1"	Area for Dripline	10.56	21.8	33.3		0.62 in/h
6	Hunter PGV-101G	1"	Bubbler	2.5	28.8	27.7		0.85 in/h
7	Hunter ICZ-101-40	1"	Area for Dripline	5.22	78.3	31.0		0.83 in/h
8	Hunter PGV-101G	1"	Bubbler	1	84.2	26.2		0.85 in/h
9	Hunter ICZ-101-40	1"	Area for Dripline	14.64	140.7	38.2		0.54 in/h
10	Hunter PGV-101G	1"	Bubbler	1.25	144.7	26.4		0.85 in/h
	Common Wire				491.8			

1.6. WARRANTIES

- A. Contractor will be fully responsible for system operation until Date of Substantial Completion.
B. Contractor is fully responsible for all parts and workmanship for one year after Date of Substantial Completion of each specific phase or portion of the project.
C. See to the fulfillment of all manufacturer's warranties.

PART TWO - PRODUCTS

2.0 MATERIALS

Backfill shall be free from stone, trash, or other debris.

2.1 MANUFACTURED UNITS

- A. Automatic electro-mechanical controller fully installed and operating.
B. Electric valve installed in valve box.
C. Valve box with lid manufactured by "Amtek" or "Brooks".
D. Connection for control wires manufactured by "Pentite" or "3M" installed as per manufacturer's directions, and above grade in valve boxes.
E. Gate valves shall be brass and installed in valve box.
F. Automatic drain valves shall be installed in 1 cubic foot gravel.

2.2 COMPONENTS

- A. Control wire shall be direct burial # 14, type UF. Tape to underside of main every 10 feet. Install spare ground wire + 5 extra wires.
B. Main line shall be class 200 PVC (ANSI/ASTM D2241).
C. Lateral lines shall be class 160 PVC minimum (ANSI/ASTM 02241).
D. Sleeve at all road and drive crossings shall be class 200 PVC.
E. All pipe, connectors and misc. fittings for the meter and check valve assembly will be galvanized.
F. all electrical work will conform to year construction N.E.C.

PART THREE - EXECUTION

3.0 EXAMINATION

Examine surfaces to which work will be applied and immediately notify landscape architect in writing if site is not in proper condition for Contractor to perform his duties under the terms of this contract.

3.1 PROTECTION

- A. Locate identify, and mark all known utilities in area of the work. Take reasonable care to avoid damages or hazards.
B. Damage caused by Contractor's work will be repaired to Owner's satisfaction at Contractor's expense.
C. Document any damage to work caused by other trades. Immediately bring costs to Owner's attention and quickly repair at Owner's expense, as directed.

-NOTES-

- ALL IRRIGATION HEADS WITHIN SHRUBS SHALL BE ON RISERS. DO NOT USE METAL REBAR OR ANGLE IRON FOR STAKING (SEE IRRIGATION DETAIL SHEET FOR PROPER INSTALLATION).
-SPRAYS WITHIN BEDS SHALL BE 12" PDP-UPS.
-SPRAYS IN LAWN LAWN AREAS SHALL BE 6" PDP-UPS.
-ADJUST HEADS TO AVOID OVER SPRAY.
-USE PURPLE HEADS, PIPES, & VALVES ONLY.
-FIELD ADJUST IRRIGATION PLAN TO ACCOMMODATE SITE CHANGES.
-VELOCITY SHALL NOT EXCEED 5' PER SEC. IN ALL PIPELINES
-ALL POTS SHALL BE IRRIGATED WITH DRIP BUBBLER AND ATTACHED TO LAND IRRIGATION ZONE

END OF SECTION

Designed By:



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DESIGN GROUP

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Key Map:

Owner:



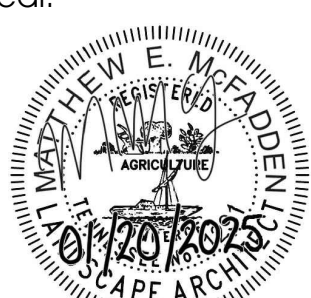
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COLUMBIA, TN

CODE MINIMUM

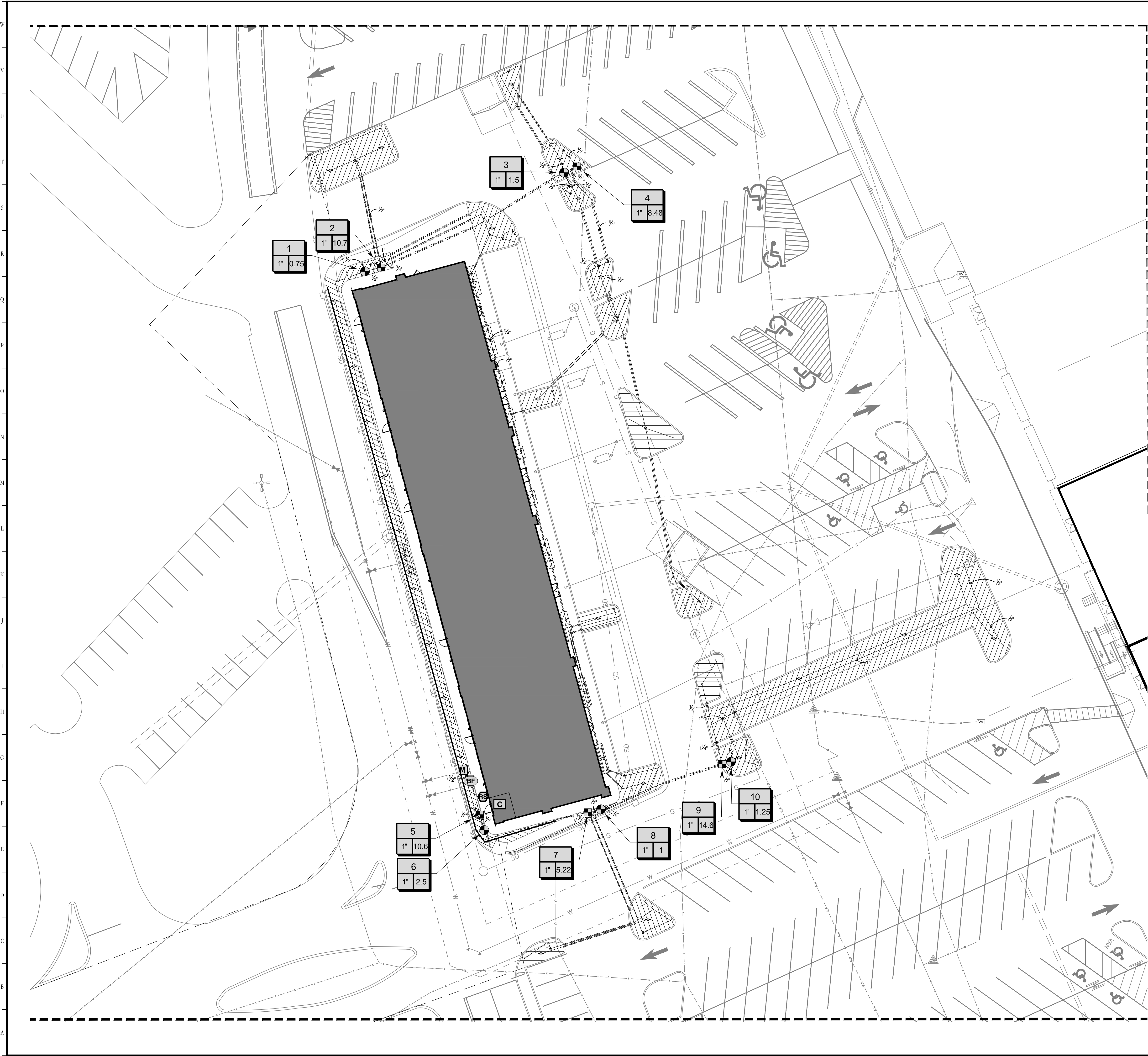
IRRIGATION NOTES

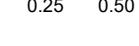
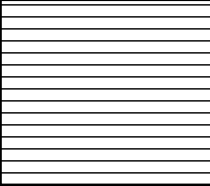
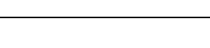
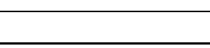
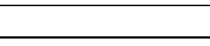
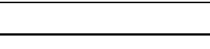
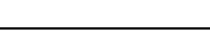
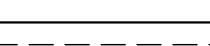
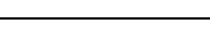
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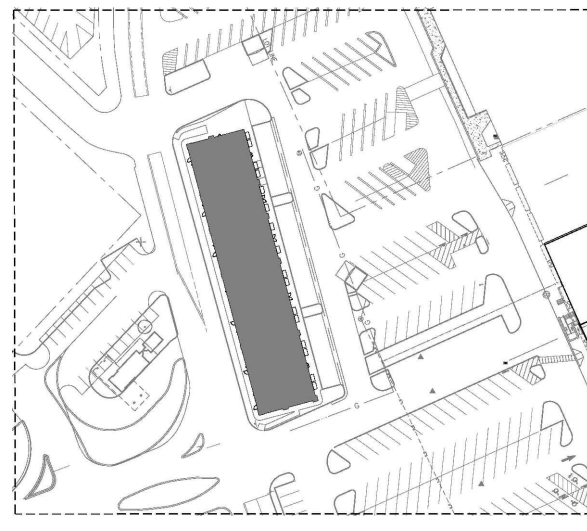
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IRRIGATION LEGEND	
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Hunter RZWS-10 10in. long RZWS with installed .25 gpm or .50 gpm bubbler options, internal plumbing, and 1/2in. swing joint for connection to 1/2in. pipe
	Hunter ICZ-101-40 1" Drip Control Zone Kit. 1in. ICV Globe Valve with 1in. HY100 filter system. Pressure Regulation: 40psi. Flow Range: 2 GPM to 20 GPM. 150 mesh stainless steel screen.
	Pipe Transition Point above grade Pipe transition point from PVC lateral to drip tubing with riser to above grade installation.
	Area to Receive Dripline Hunter HDL-09-24-R HDL-09-24-R: Hunter Dripline with 0.9 GPH flow. Light brown tubing with purple striping. Emitters at 24" O.C. Dripline laterals spaced at 24" apart, with emitters offset for triangular pattern. Install with Hunter PLD barbed or PLD-LOC fittings.
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION
	Hunter PGV-101G 1" 1in. Plastic Electric Remote Control Valve, for Residential/Light Commercial Use. Female NPT Inlet/Outlet. Globe Configuration, With Flow Control.
	United Backflow Solutions, Inc. DC-500 2" 3/4in., 1in., 1-1/2in., and 2in. Shut-Off Valves. Reinforced Nylon Composite.
	Hunter HPC-400 w/ (1) PCM 300 Module 4 Station with (1) PCM 300 Module Outdoor Wi-Fi enabled, full-functioning controller with touchscreen. Plastic Cabinet
	Hunter MINI-CLK Rain Sensor, mount as noted
	Water Meter 2"
	Irrigation Lateral Line: PVC Class 200 SDR 21
	Irrigation Lateral Line: PVC Class 200 SDR 21 1/2"
	Irrigation Lateral Line: PVC Class 200 SDR 21 3/4"
	Irrigation Lateral Line: PVC Class 200 SDR 21 1"
	Irrigation Lateral Line: PVC Class 200 SDR 21 1 1/4"
	Irrigation Mainline: PVC Class 200 SDR 21
	Irrigation Mainline: PVC Class 200 SDR 21 1/2"
	Pipe Sleeve: PVC Schedule 40

Designed By:

101 S. GARLAND AVE., STE 202 ORLANDO, FL 32801
WWW.INNOVATIONS-DESIGN.COM 407-440-3574

Key Map:


Owner:


PROJECT NAME
COLUMBIA, TN

CODE MINIMUM
IRRIGATION PLAN

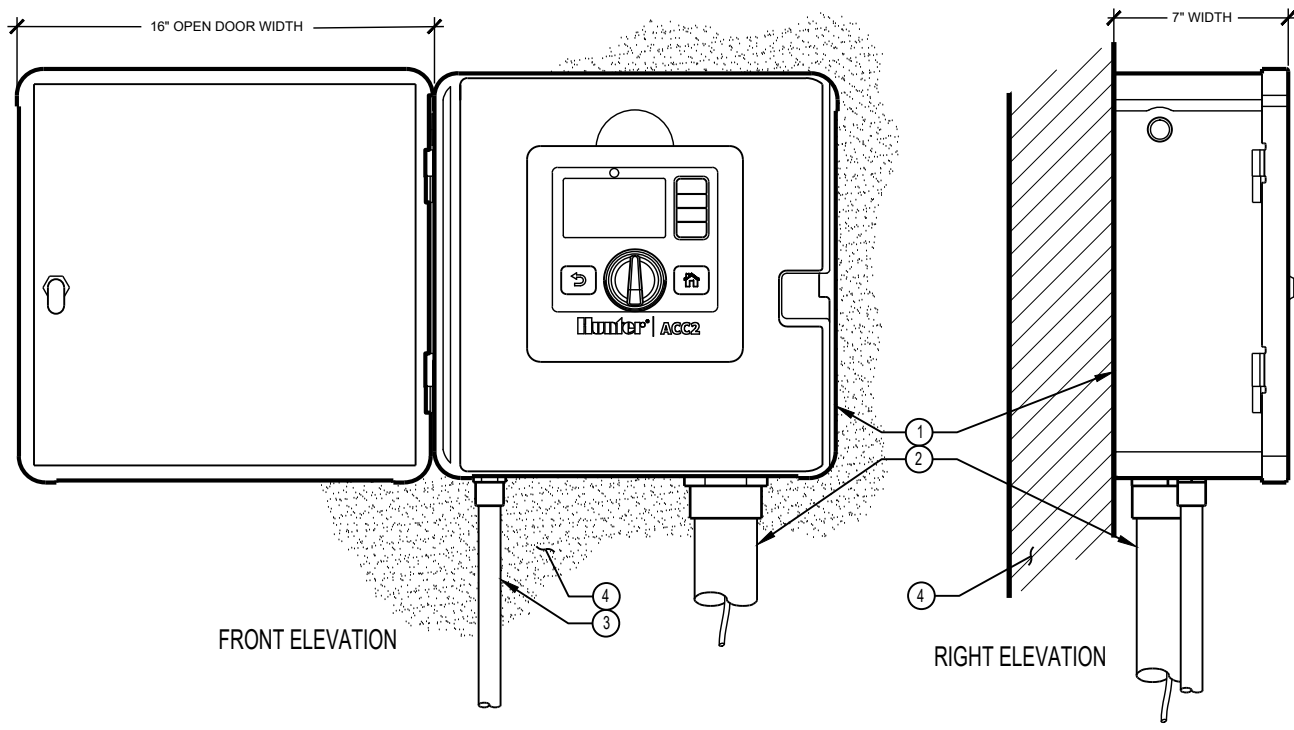
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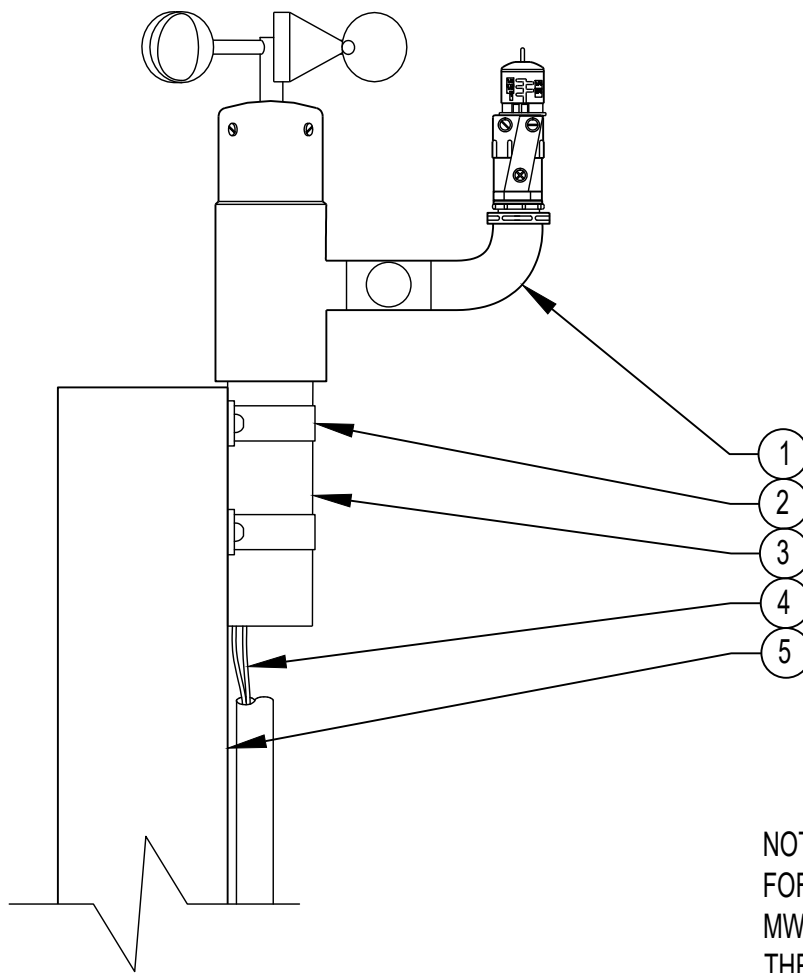
LEGEND:

- 1 IRRIGATION CONTROLLER
- 2 IRRIGATION CONTROL WIRE IN CONDUIT SIZE AND TYPE PER LOCAL CODES
- 3 ELECTRICAL SUPPLY CONDUIT CONNECT TO POWER SOURCE, J-BOX INSIDE CONTROLLER
- 4 ADJACENT SURFACE TO MOUNT CONTROLLER PER PLAN

NOTE:
MOUNT CONTROLLER LCD SCREEN AT EYE LEVEL.
CONTROLLER SHALL BE HARD-WIRED TO GROUNDED 110 VAC POWER SOURCE

1 Irrigation Controller

Scale: N.T.S.



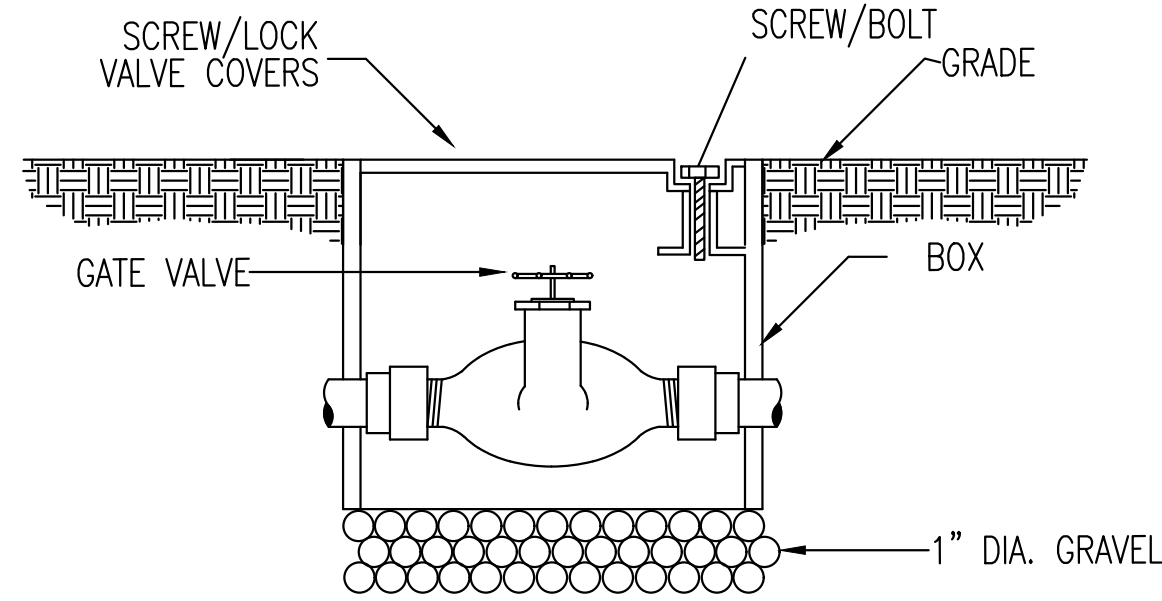
LEGEND:

- 1 MINI WEATHER STATION
- 2 CONDUIT CLAMPS
- 3 2" PIPE
- 4 RUN LEAD WIRES TO CONTROLLER
- 5 POST OR SUITABLE MOUNTING SURFACE

NOTE:
FOR MOST ACCURATE TEMPERATURE SENSING, ROTATE THE MWS SO THAT THE THERMOSTAT PORTION POINTS NORTH.
THE MWS IS DESIGNED TO MOUNT ON A POST OF 2" PIPE.
ANY COMBINATION OF PIPE AND FITTINGS MAY BE USED.

2 Mini Weather Station

Scale: N.T.S.

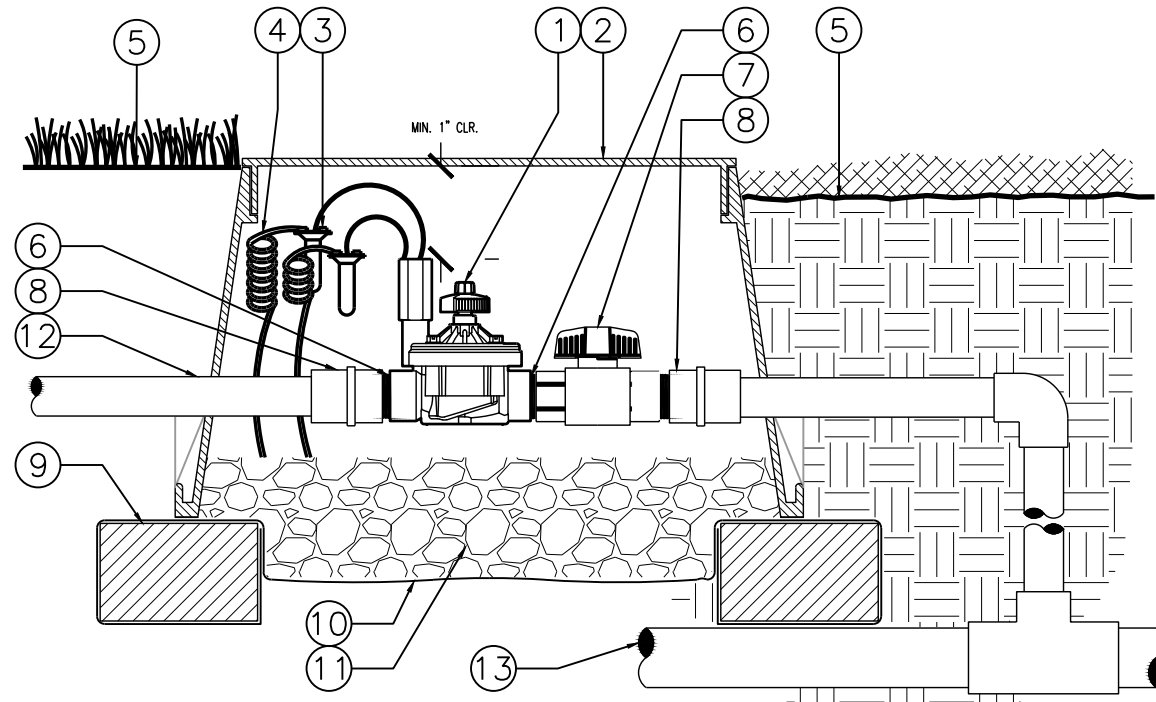


3 Gate Valve

Scale: N.T.S.

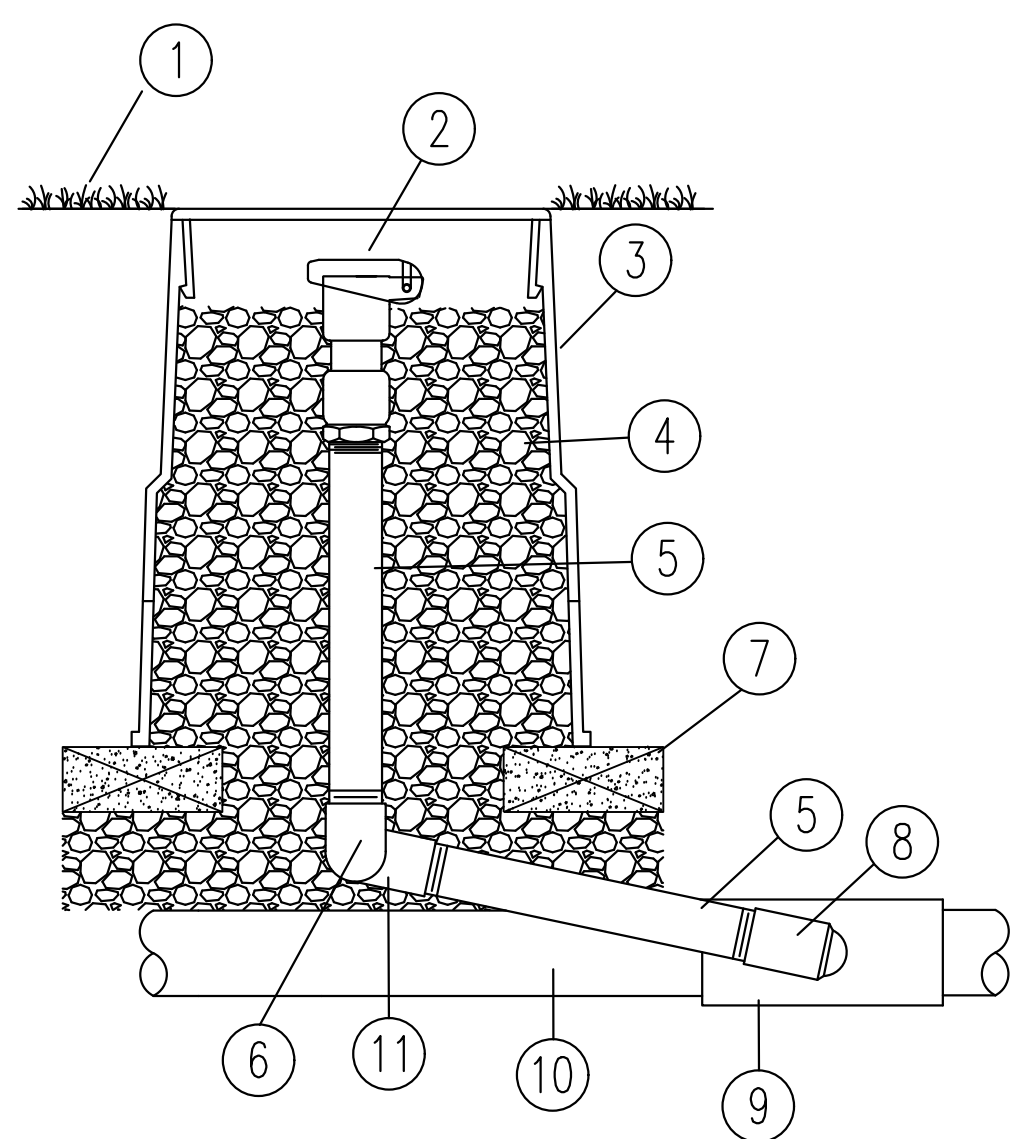
LEGEND

- 1 HUNTER REMOTE CONTROL VALVE (ICV) WITH FLOW CONTROL
- 2 IRRIGATION VALVE BOX: HEAT STAMP LID WITH "RCV" IN 2" LETTERS
- 3 WATERPROOF CONNECTORS (2)
- 4 18"-24" COILED WIRE TO CONTROLLER
- 5 FINISH GRADE AT ADJACENT SURFACE (TURF OR MULCH)
- 6 SCH. 80 CLOSE NIPPLE, MATCH SIZE TO
- 7 VALVE
- 8 ISOLATION VALVE, SIZE AND TYPE PER PLAN
- 9 PVC SLIP X FPT ADAPTOR
- 10 BRICK SUPPORTS (4)
- 11 FILTER FABRIC - WRAP TWICE AROUND BRICK SUPPORTS
- 12 3/4" WASHED GRAVEL - 4" MIN. DEPTH
- 13 IRRIGATION LATERAL MAINLINE AND FITTINGS



4 Remote Control Valve

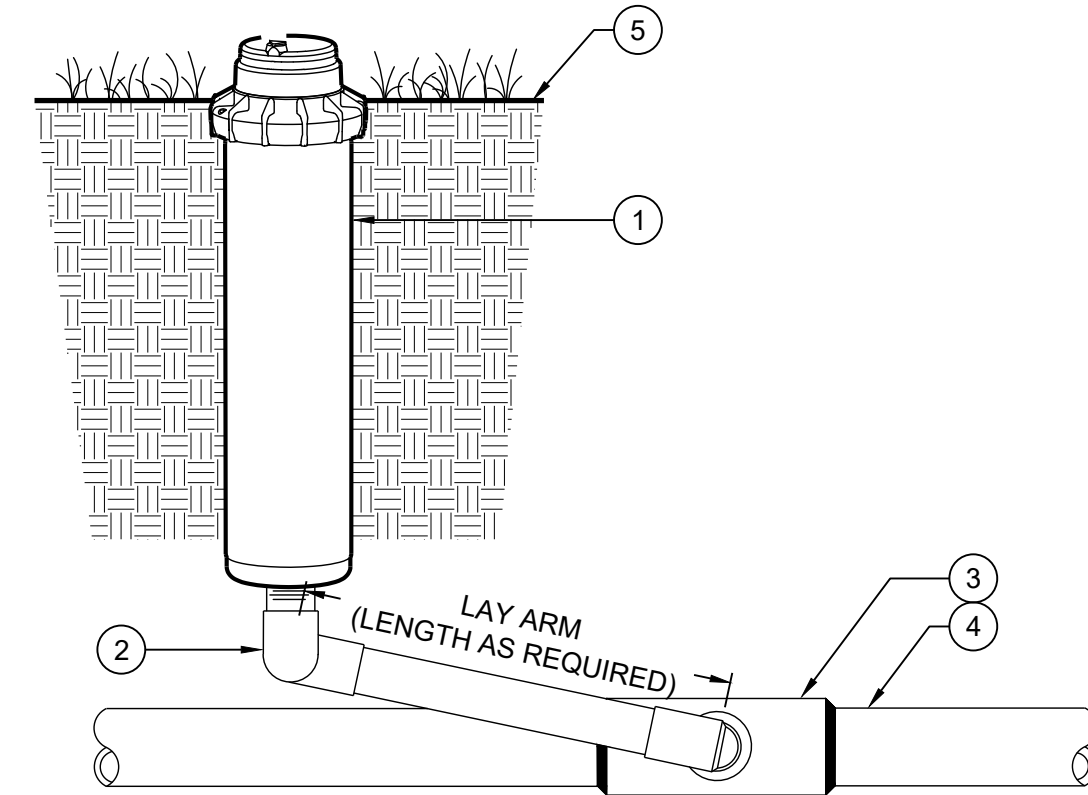
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- 1 FINISH GRADE
- 2 QUICK-COUPLING VALVE ONE-PIECE BODY WITH 3/4 INCH INLET AND 3/4 INCH KEY OUTLET
- 3 VALVE BOX WITH COVER
- 4 3/4" MINUS WASHED GRAVEL
- 5 PVC SCH 80 NIPPLE-3/4" (LENGTH AS REQUIRED)
- 6 PVC SCH 40 STREET ELL-3/4"
- 7 BRICK SUPPORTS (2)
- 8 PVC SCH 40 STREET ELL-3/4"
- 9 PVC SCH 40 TEE OR ELL X 3/4"
- 10 PVC MAINLINE PIPE
- 11 PVC SCH 40 ELL-3/4"

5 Quick Coupler Valve

Scale: N.T.S.

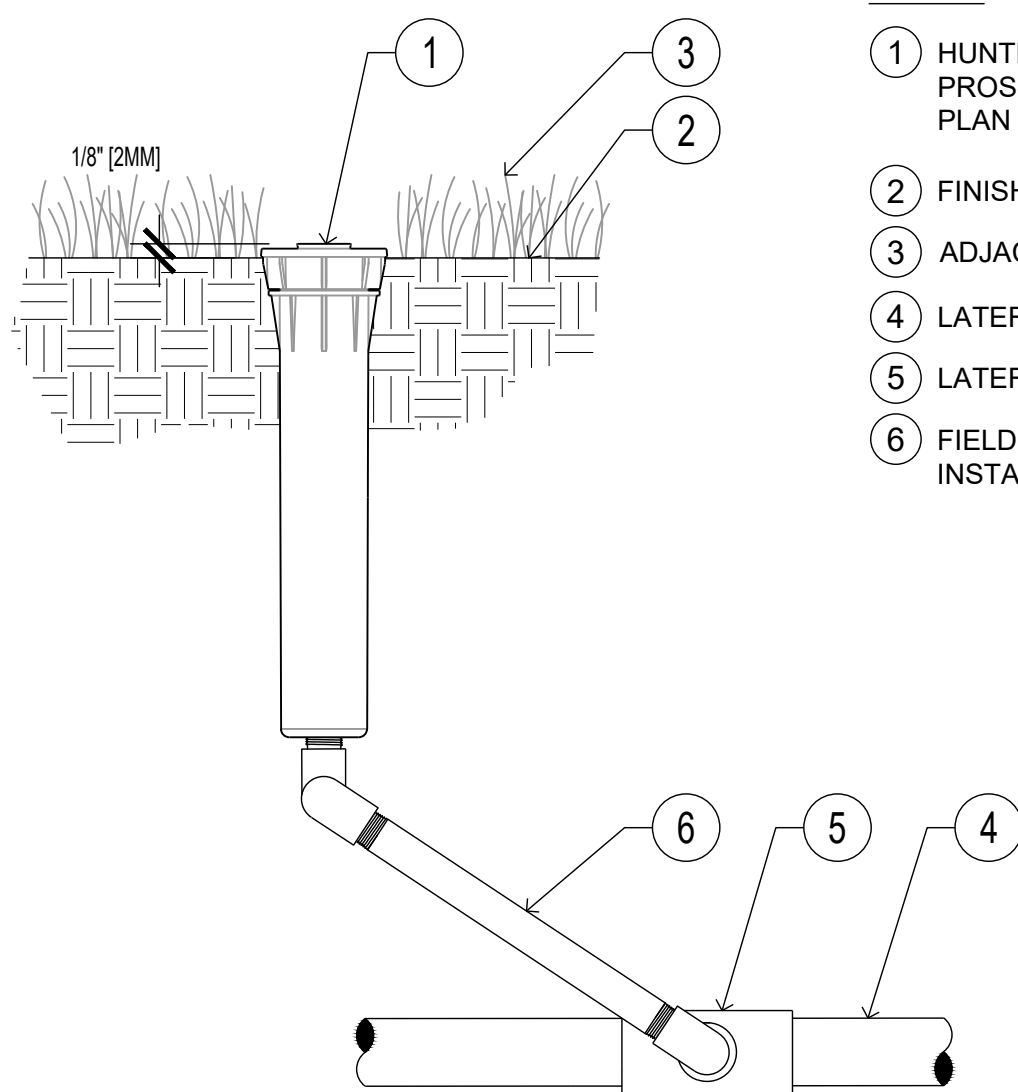


DETAIL LEGEND:

- 1 HUNTER PGP 6" POP-UP ROTOR
- 2 SWING JOINT ASSEMBLY: HUNTER HSJ SERIES, 1" [25 mm] MODELS: HSJ-1-32-212 OR HSJ-1-65-212 1 1/2" [40 mm] MODELS: HSJ-3-32-212 OR HSJ-3-65-212 (REFER TO HUNTER CATALOG FOR OPTIONS).
INSTALL AS FOLLOWS:
A. HAND TIGHTEN O-RING JOINTS. BACK-OFF ONE FULL TURN TO ALLOW FOR SWING JOINT.
B. INSTALL SWING JOINT LAY ARM AT 30°-45° ANGLE TO THE LATERAL.
- 3 LATERAL TEE OR ELL CONNECTION PER LATERAL LINE FITTING SPECIFICATIONS.
- 4 LATERAL PIPE PER LATERAL LINE SPECIFICATIONS. SOIL DEPTH AS SPECIFIED.
- 5 FINISH GRADE

6 Rotor Head

Scale: N.T.S.

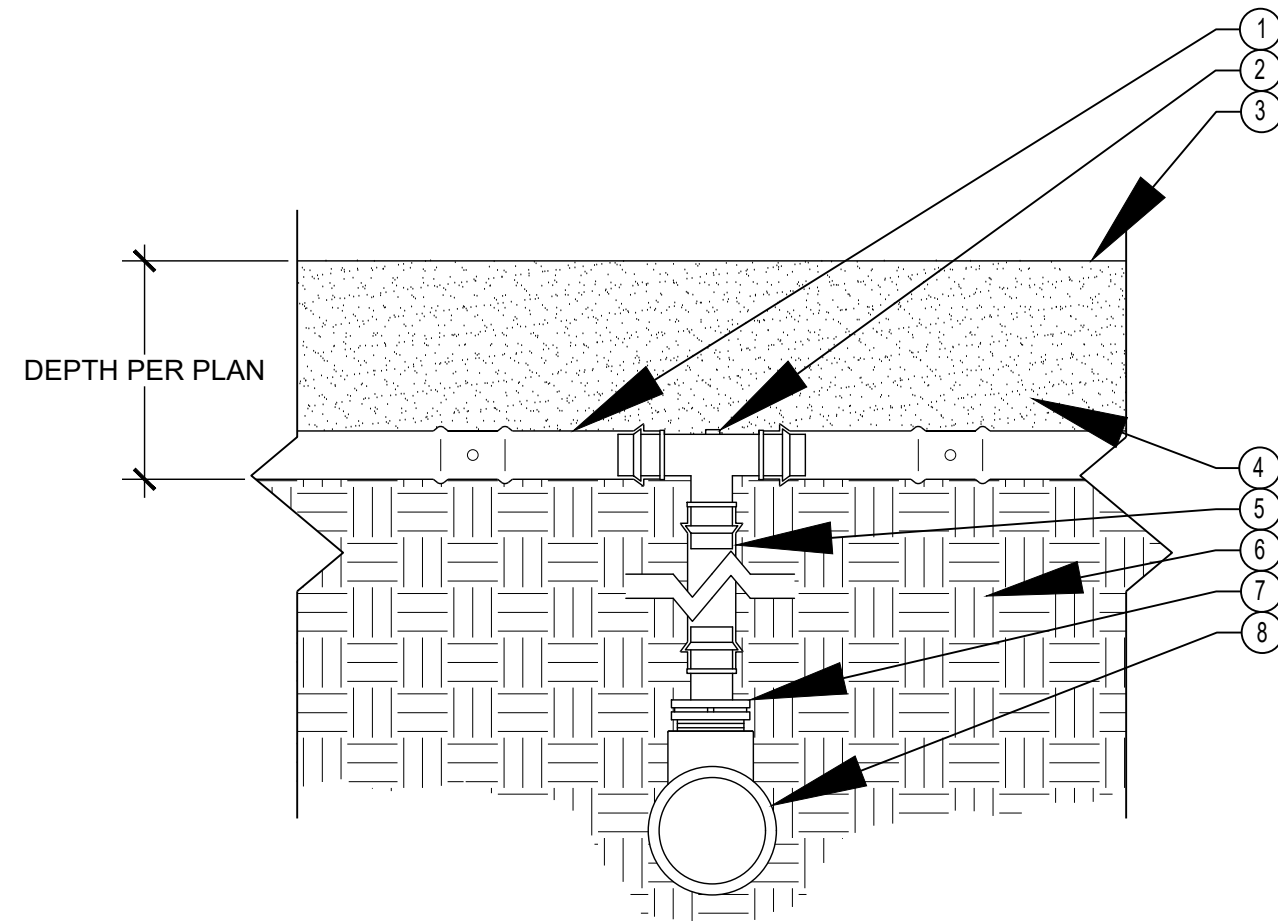


LEGEND

- 1 HUNTER POP-UP BODY PROS-06: NOZZLE AND CAP PER PLAN
- 2 FINISHED GRADE
- 3 ADJACENT LANDSCAPE
- 4 LATERAL PIPE PER PLAN
- 5 LATERAL FITTING PER PLAN
- 6 FIELD BUILT SWING ARM (PER INSTALLING CONTRACTOR)

7 Spray Head

Scale: N.T.S.



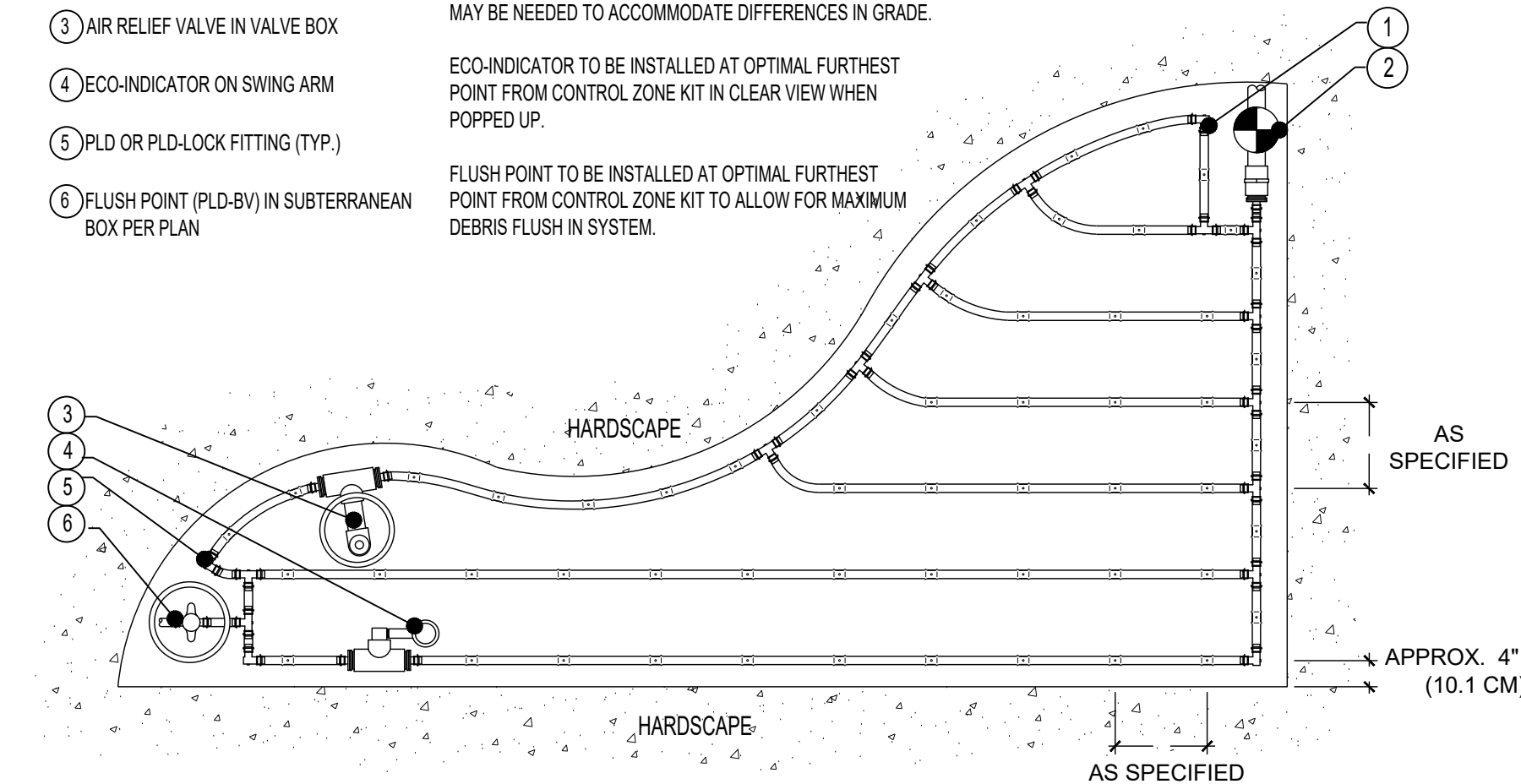
LEGEND:

- 1 HUNTER DRIPLINE (HDL) PER PLAN
- 2 PLD OR PLD-LOC FITTING
- 3 FINISHED GRADE
- 4 MULCH (AS SPECIFIED)
- 5 HDL RISER - LENGTH AS REQUIRED
- 6 SOIL
- 7 PLD OR PLD-LOC FITTING
- 8 PVC SUPPLY HEADER - SIZE PER PLAN

8 Drip Line

Scale: N.T.S.

- LEGEND:
- 1 HUNTER DRIPLINE PER PLAN
 - 2 DRIP CONTROL ZONE KIT PER PLAN
 - 3 AIR RELIEF VALVE IN VALVE BOX
 - 4 ECO-INDICATOR ON SWING ARM
 - 5 PLD OR PLD-LOC FITTING (TYP.)
 - 6 FLUSH POINT (PLD-BV) IN SUBTERRANEAN BOX PER PLAN
- NOTES
AIR RELIEF VALVE (PLD-AVR) INSTALLED IN VALVE BOX AT OPTIMAL HIGHEST POINT FROM CONTROL ZONE KIT. MULTIPLE AIR RELIEF VALVES MAY BE NEEDED TO ACCOMMODATE DIFFERENCES IN GRADE.
ECO-INDICATOR TO BE INSTALLED AT OPTIMAL FURTHEST POINT FROM CONTROL ZONE KIT IN CLEAR VIEW WHEN POPPED UP.
FLUSH POINT TO BE INSTALLED AT OPTIMAL FURTHEST POINT FROM CONTROL ZONE KIT TO ALLOW FOR MAXIMUM DEBRIS FLUSH IN SYSTEM.



9 Drip Line

Scale: N.T.S.

Designed By:



Key Map:

Owner:



PROJECT NAME
COLUMBIA, TN

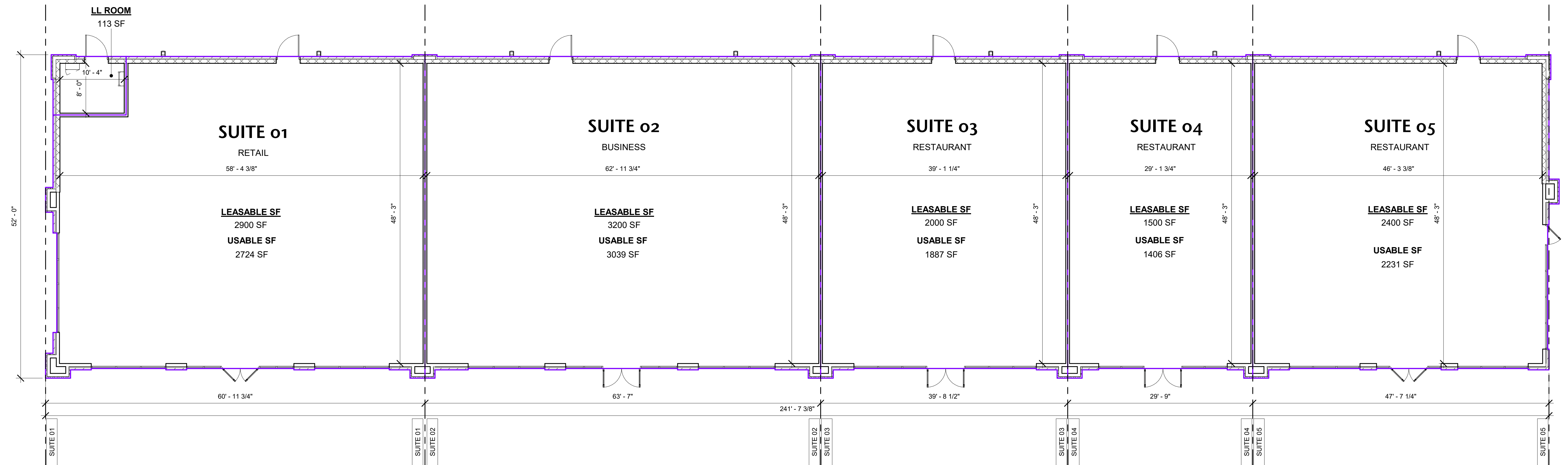
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TOTAL LEASABLE AREA: 12,000 SF
TOTAL AREA: 12,113 SF
MAX HEIGHT: 24'-0"

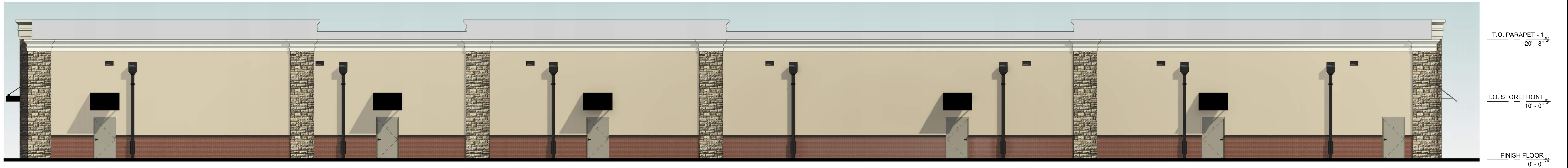


1 LEASABLE AREA PLAN
Scale: 1/8" = 1'-0"





1 FRONT ELEVATION
Scale: 1/8" = 1'-0"



4 REAR ELEVATION
Scale: 1/8" = 1'-0"



2 LEFT ELEVATION
Scale: 1/8" = 1'-0"



3 RIGHT ELEVATION
Scale: 1/8" = 1'-0"

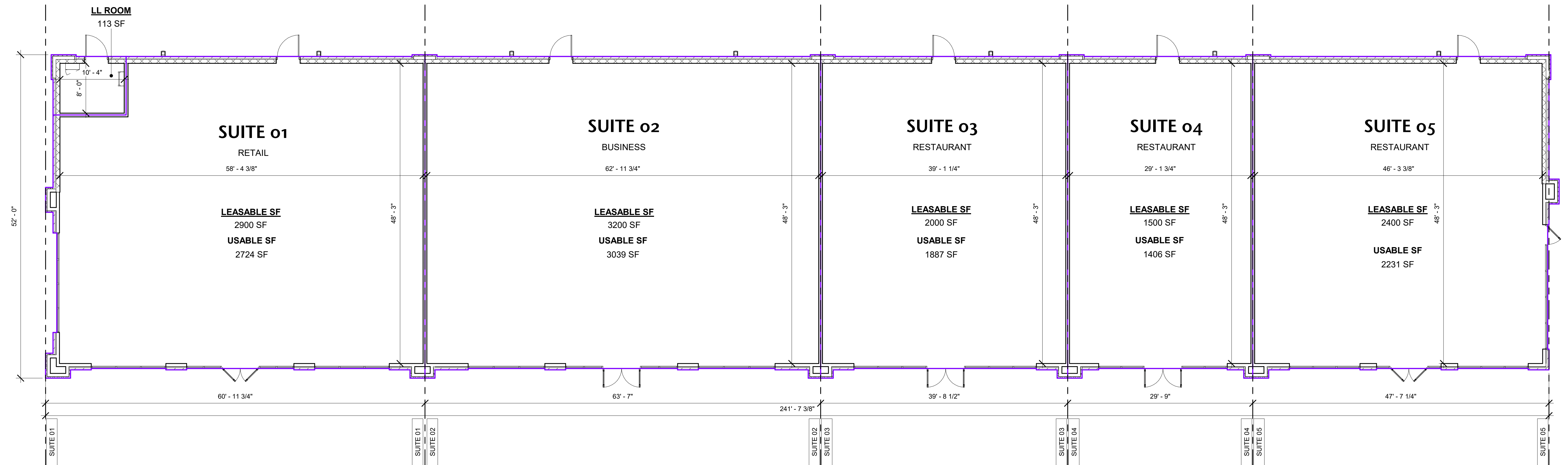
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11/27/2024

TOTAL LEASABLE AREA: 12,000 SF
TOTAL AREA: 12,113 SF
MAX HEIGHT: 24'-0"



1 LEASABLE AREA PLAN
Scale: 1/8" = 1'-0"

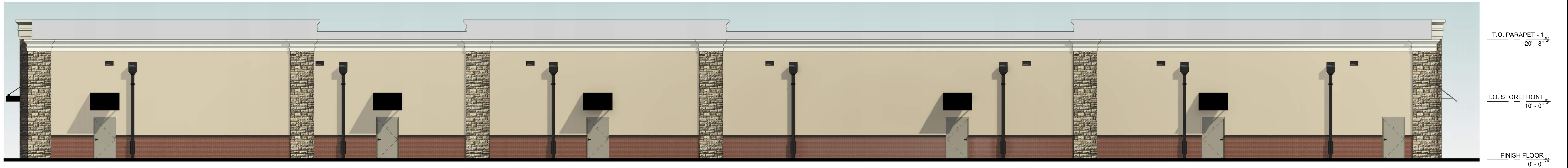


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1 FRONT ELEVATION
Scale: 1/8" = 1'-0"



4 REAR ELEVATION
Scale: 1/8" = 1'-0"



2 LEFT ELEVATION
Scale: 1/8" = 1'-0"



3 RIGHT ELEVATION
Scale: 1/8" = 1'-0"

SIGNAGE TO BE SUBMITTED BY
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11/27/2024

F i s c h b a c h
Transportation Group, LLC
Traffic Engineering and Planning

Traffic Impact Study

Columbia Mall Outparcel
800 S. James Campbell Boulevard
Columbia, TN

Prepared February 2025
For Highland Capital

FTG, LLC
P.O. Box 682736
Franklin, TN 37068
(615) 771-8022 phone
Gillian@FTGtraffic.com

Traffic Impact Study

Columbia Mall Outparcel

800 S. James Campbell Boulevard
Columbia, Tennessee

Prepared February 2025

PREPARED FOR:

Highland Capital
600 12th Avenue, S., Unit 816
Nashville, TN 37203

PREPARED BY:

Ms. Gillian L. Fischbach, P.E., PTOE
Fischbach Transportation Group (FTG, LLC)
P.O. Box 682736
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Phone: (615) 771-8022
FTG Project Number: 11320



Table of Contents

1.	INTRODUCTION	3
2.	PROJECT DESCRIPTION.....	4
	FIGURE 1. LOCATION OF THE PROJECT SITE.....	5
	FIGURE 2. CURRENT PROJECT SITE PLAN	6
3.	YEAR 2025 EXISTING CONDITIONS.....	7
	FIGURE 3. EXISTING LANEAGE WITHIN THE STUDY AREA.....	9
	FIGURE 4. YEAR 2025 EXISTING PEAK HOUR TRAFFIC VOLUMES.....	10
	TABLE 1. DESCRIPTIONS OF LOS FOR SIGNALIZED INTERSECTIONS	11
	TABLE 2. DESCRIPTIONS OF LOS FOR UNSIGNALIZED INTERSECTIONS	12
	TABLE 3. YEAR 2025 EXISTING PEAK HOUR LEVELS OF SERVICE.....	13
4.	YEAR 2025 BACKGROUND TRAFFIC VOLUMES.....	14
	FIGURE 5A. PEAK HOUR TRAFFIC GENERATED BY MURPHY USA	15
	FIGURE 5B. YEAR 2025 BACKGROUND TRAFFIC VOLUMES.....	16
	TABLE 4. YEAR 2025 BACKGROUND PEAK HOUR LEVELS OF SERVICE	17
5.	IMPACTS OF PROPOSED DEVELOPMENT	18
5.1	TRIP GENERATION	18
	TABLE 5. TRIP GENERATION	18
5.2	TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT	19
	FIGURE 6. DISTRIBUTION OF SITE-GENERATED TRAFFIC	20
	FIGURE 7. ASSIGNMENT OF SITE-GENERATED TRAFFIC	21
5.3	CAPACITY ANALYSES.....	22
	FIGURE 8. YEAR 2025 TOTAL PROJECTED TRAFFIC VOLUMES.....	23
	TABLE 6. YEAR 2025 TOTAL PEAK HOUR LEVELS OF SERVICE	24
6.	CONCLUSIONS AND RECOMMENDATIONS	26
	APPENDIX A.....	27
	APPENDIX B.....	34
	APPENDIX C	56

1. INTRODUCTION

This traffic study has been prepared in order to identify the traffic impacts of a retail building that is proposed to be constructed in the existing parking lot of the Columbia Powersports Supercenter on S. James Campbell Boulevard in Columbia, Tennessee.

For the purposes of this study, existing and background traffic volumes were established, and capacity analyses were conducted for these conditions. Also, trip generation calculations were performed, and the trips which are expected to be generated by the proposed project were distributed to the roadway system and added to the background traffic volumes. The roadways and intersections which provide access to the site were then re-evaluated to determine the traffic impacts of the proposed project. Access needs for the project were evaluated, and the necessary roadway and/or traffic control improvements were identified. This report presents the results of these analyses and the subsequent recommendations.

2. PROJECT DESCRIPTION

The location of the proposed project is shown in [Figure 1](#). As shown, the project site is located in the existing parking lot of the Columbia Powersports Supercenter on S. James Campbell Boulevard in Columbia, Tennessee. The developer of the proposed project plans to construct a building with 6,150 sq.ft. of retail space and 6,000 sq.ft. of restaurant space. Access to the project will be provided by the existing infrastructure that is provided for Columbia Powersports Supercenter, which was originally constructed as a shopping mall.

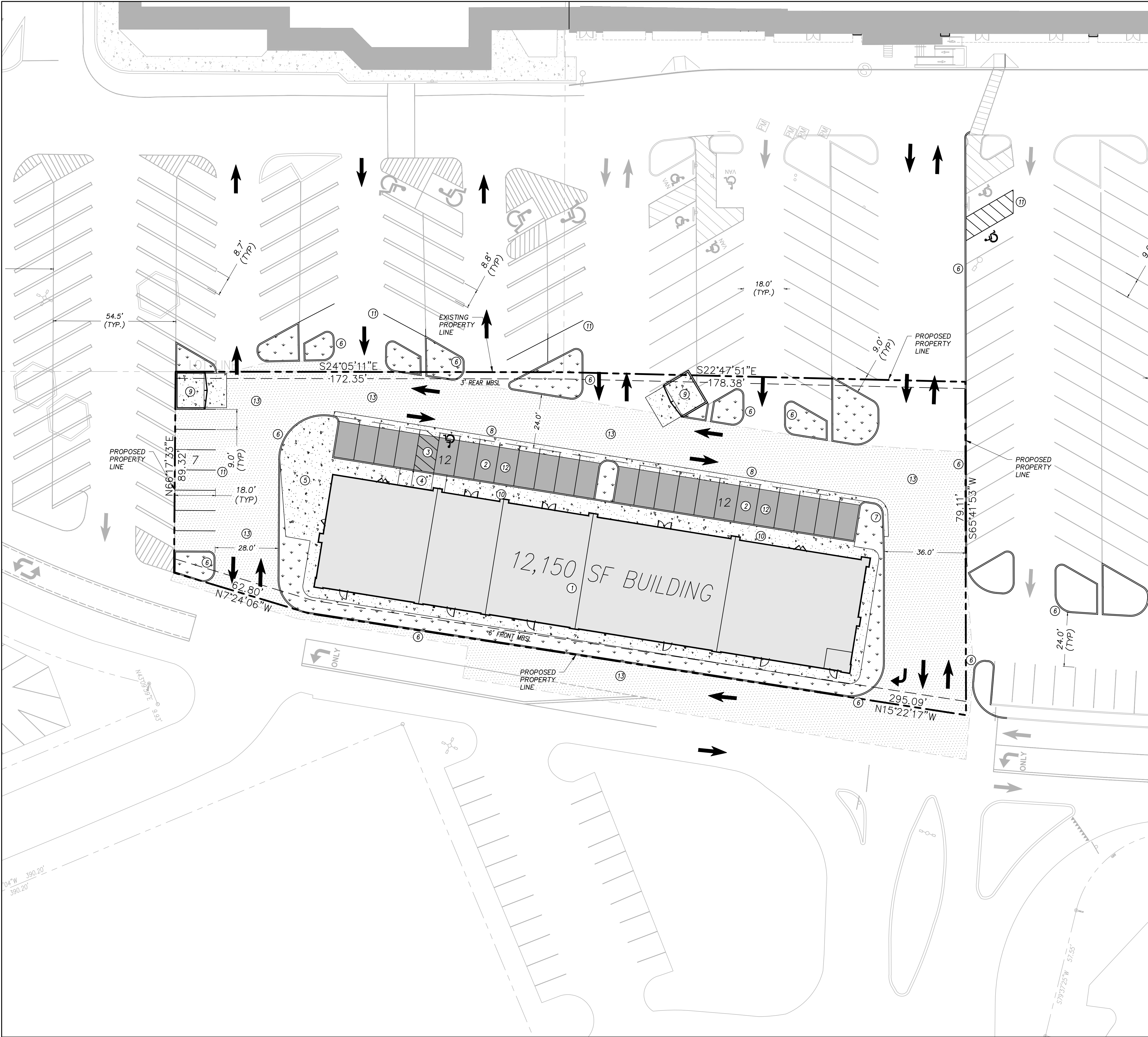
The current site plan for the proposed project is shown in [Figure 2](#). In large part, economic and market considerations will dictate the pace and timing with which the proposed project is actually completed. For the purposes of this study, it was assumed that the proposed project will be completed within one year.

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Traffic Engineering and Planning



No Scale

Figure 1.
Location of the Proposed Project Site

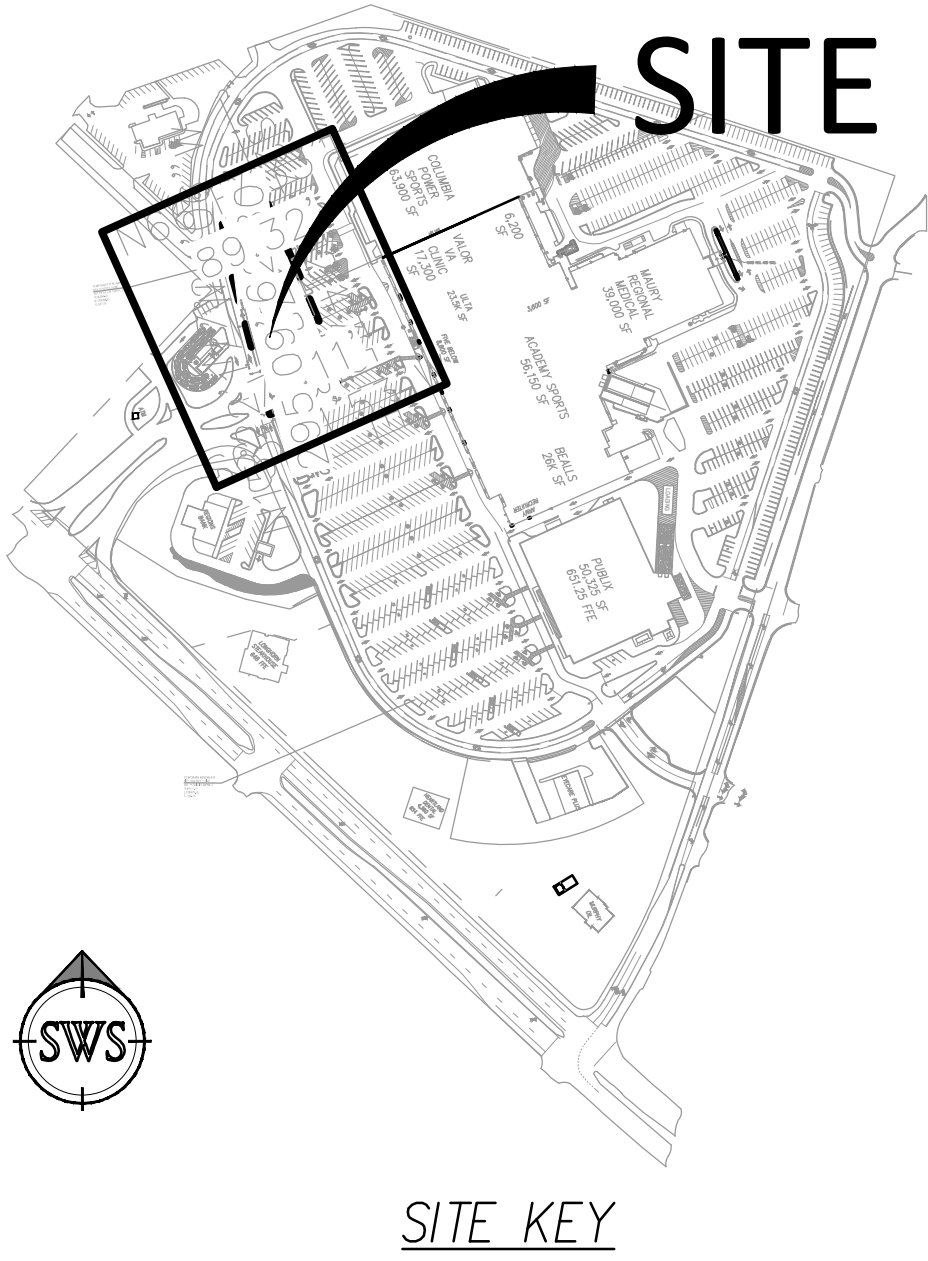


SITE LEGEND

- ASPHALT
- MILL AND OVERLAY ASPHALT
- BUILDING
- CONCRETE
- LANDSCAPING
- PROPOSED BUILDING
- 9'X18' PARKING SPACE
- ADA PARKING SPACE, #1/C5.00
- ADA CURB RAMP
- CONCRETE PATIO AREA
- CONCRETE CURB, #4/C5.00
- CONCRETE CURB AND GUTTER, #4/C5.00
- CONCRETE VALLEY GUTTER, #5/C5.00
- DUMPSTER ENCLOSURE, #3/C5.00
- CONCRETE WALKWAY, #6/C5.00
- PARKING SPACE STRIPING
- ASPHALT PAVING, #2/C5.00
- MILL AND OVERLAY ASPHALT PAVING, #2/C5.00

SITE DATA TABLE

PROPOSED LAND USE:	12,500 SF RETAIL BUILDING
ZONE:	CD4C
ACREAGE:	0.99 ACRES - 43,326 SF
DENSITY ALLOWED:	24 DU UNITS PER ACRE - 24 UNITS
DENSITY PROPOSED:	5 UNITS PER ACRE - 5 UNITS
MAX BLOCK PERIMETER :	2400 FT
BLOCK PERIMETER PROPOSED:	950 FT
PRINCIPAL BUILDING:	1 MAX
PRINCIPAL BUILDING PROPOSED:	1
ACCESSORY BUILDINGS ALLOWED:	1
ACCESSORY BUILDINGS PROPOSED:	0
LOT WIDTH MAX (COMMERCIAL):	600 FT
LOT WIDTH PROPOSED:	355 FT
FRONTAGE BUILDOUT (COMMERCIAL):	40%
FRONTAGE BUILDOUT PROPOSED:	240/355 = 67%
EXISTING IMPERVIOUS SURFACE:	100%
IMPERVIOUS SURFACE PROPOSED:	88.7%
BUILDING SITE ENFRONTMENT:	PRIVATE RING ROAD
BUILDING SITE ACCESS:	ACCESS EASEMENTS THROUGH PRIVATE RING ROAD/ACCESS TO JAMES CAMPBELL AND BROOKMEADE DRIVE
FRONT SETBACK:	6FT, 11FT PROVIDED
SIDE SETBACK:	0FT
REAR SETBACK:	3FT, 46FT PROVIDED



MAP NO. 100N - PARCELS 6.00 + 7.00

PROJECT BENCHMARK

BENCHMARK DESCRIPTION:

ELEVATION:

NAD83 & NAVD88

20' 10' 0' 20' 40'

SCALE IN FEET

GRAPHIC SCALE 1"=20'

SW'S ENGINEERING, INC.

CIVIL ENGINEERING • LAND PLANNING • SURVEYING

504 Atlanta Springs Court, Suite A-6
Franklin, TN 37067
615-761-0483

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Tennessee

Know what's below.
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SITE PLAN

DESIGN DOCUMENT SET

OUT PARCEL RETAIL BUILDING

800 S JAMES CAMPBELL BLVD

COLUMBIA, TENNESSEE

REV.	COMMENTS	DATE

C1.00

DATE: 08-06-24
JOB NO.: 24-196T

DRAWN BY:	DMO	CHKD BY:	PDA
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3. YEAR 2025 EXISTING CONDITIONS

In order to provide data for the traffic impact analysis, traffic volumes were counted in 15-minute increments at the following intersections:

- S. James Campbell Boulevard and Main Access for Columbia Powersports Supercenter
- Shady Brook Street and Access for Columbia Powersports Supercenter
- Mall Ring Road and Connector to S. James Campbell Boulevard
- Mall Ring Road and Connector to Shady Brook Street

The existing laneage and traffic control at the intersections within the study area are shown in [Figure 3](#).

The count data was collected from 6:00 AM – 7:00 PM on typical weekdays in late January and early February 2025 when schools were in session. The raw traffic volumes are included in [Appendix A](#) and are shown in [Figure 4](#). It is important to note that the traffic at the intersections on the Mall Ring Road does not demonstrate clear peak hours similar to those on S. James Campbell Boulevard and Shady Brook Street. Therefore, for the purposes of this study, the peak hours were considered to be consistent with those on S. James Campbell Boulevard and Shady Brook Street, and then certain turning movements were increased as needed to show balanced traffic flows between adjacent intersections.

Using the existing peak hour traffic volumes shown in [Figure 4](#), capacity analyses were conducted for the intersections studied. Specifically, in order to identify current peak hour levels of operation within the study area, the capacity calculations were performed according to the methods outlined in the [Highway Capacity Manual 7](#) (HCM 7). These analyses result in the determination of a Level of Service (LOS), which is a measure of evaluation is used to describe how well an intersection or roadway operates. LOS A represents free flow traffic operations, and LOS F suggests that the traffic demand exceeds the available capacity. In an urbanized area, LOS D is typically considered to be the minimum acceptable LOS. [Table 1](#) presents the descriptions of LOS for signalized intersections, and [Table 2](#) presents the descriptions of LOS for unsignalized intersections.

The results of the capacity analyses for the existing peak hour traffic volumes are shown in [Table 3](#), and [Appendix B](#) includes the capacity analyses worksheets. These analyses indicate the following:

S. James Campbell Boulevard and Main Access for Columbia Powersports Supercenter

This signalized intersection operates at LOS A during both peak hours.

Shady Brook Street and Access for Columbia Powersports Supercenter

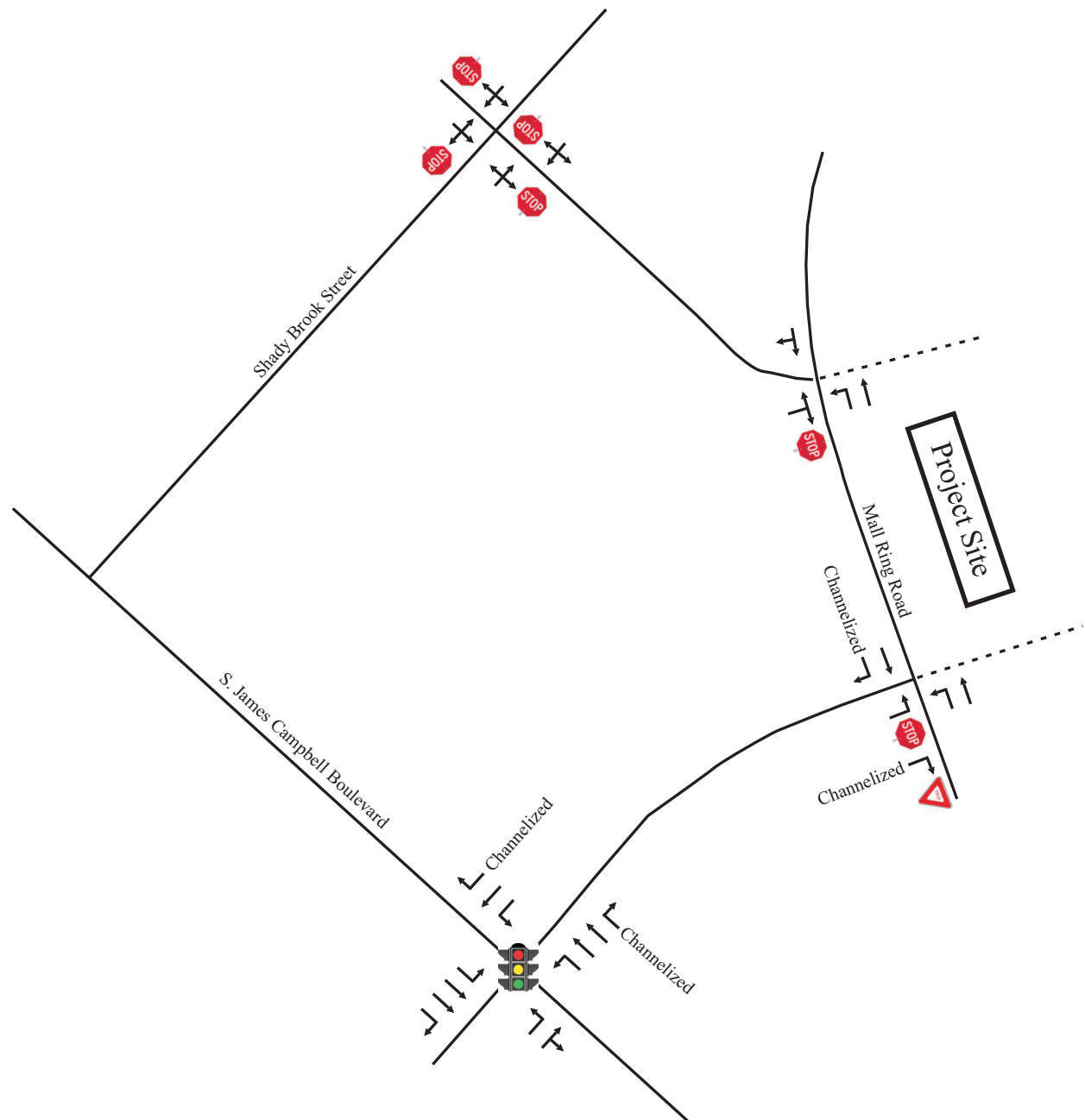
At this unsignalized intersection, which is controlled by an all-way stop installation, all of the critical turning movements currently operate at LOS B or better during both peak hours.

Mall Ring Road and Connector to S. James Campbell Boulevard

At this unsignalized intersection, all of the critical turning movements currently operate at LOS A during both peak hours.

Mall Ring Road and Connector to Shady Brook Street

At this unsignalized intersection, all of the critical turning movements currently operate at LOS A during both peak hours.

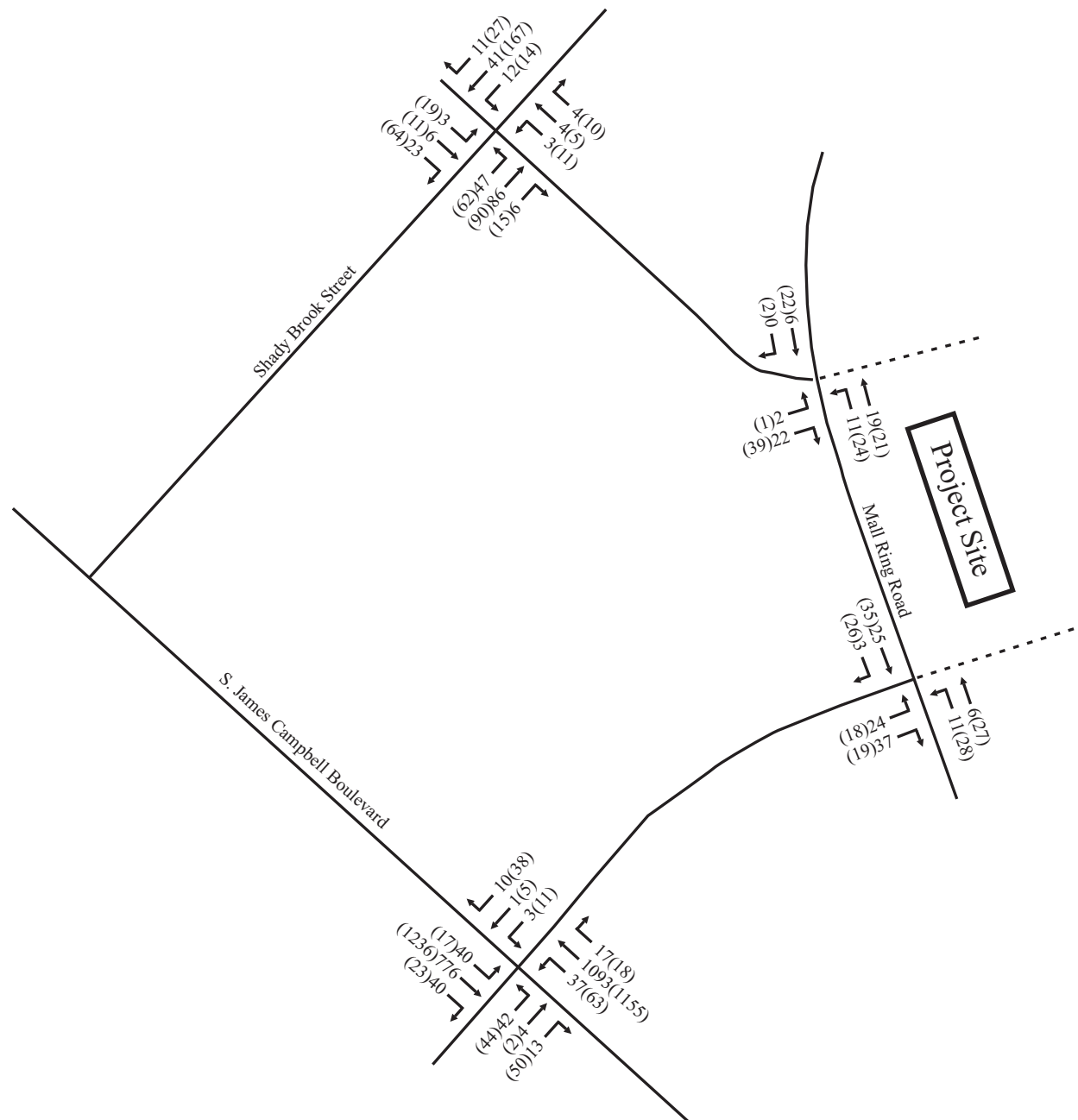


No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 3.
Existing Laneage and Traffic Control

F i s c h b a c h
Transportation Group, LLC
Traffic Engineering and Planning



No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 4.
Existing Year 2025 Peak Hour Traffic Volumes

TABLE 1. DESCRIPTIONS OF LOS FOR SIGNALIZED INTERSECTIONS

Level of Service	Description	Average Control Delay per Vehicle (sec)
A	Operations with very low control delay. Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	≤ 10
B	Operations with stable flows. This generally occurs with good progression, short cycle lengths, or both. More vehicles stop than for LOS A, causing higher levels of average delay.	> 10 and ≤ 20
C	Operations with stable flow. Occurs with fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	> 20 and ≤ 35
D	Approaching unstable flow. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop.	> 35 and ≤ 55
E	Unstable flow. In many cases, this is considered to be the limit for acceptable delay. These high delays generally indicate poor progression, long cycle lengths, and high v/c ratios.	> 55 and ≤ 80
F	Unacceptable delay. This condition often occurs with oversaturation or with high v/c ratios. Poor progression and long cycle lengths may also cause such delay levels.	> 80

Source: Highway Capacity Manual 7 (HCM 7)

TABLE 2. DESCRIPTIONS OF LOS FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Description	Average Control Delay (sec/veh)
A	Minimal delay	≤ 10
B	Brief delay	> 10 and ≤ 15
C	Average delay	> 15 and ≤ 25
D	Significant delay	> 25 and ≤ 35
E	Long delay	> 35 and ≤ 50
F	Extreme delay	> 50

Source: Highway Capacity Manual 7 (HCM 7)

TABLE 3. YEAR 2025 EXISTING PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
		LEVEL OF SERVICE	95 TH %-ILE QUEUE	LEVEL OF SERVICE	95 TH %-ILE QUEUE
S. James Campbell Boulevard and Signalized Access for Columbia Powersports Supercenter	Eastbound Left Turns	LOS E	3 veh (56 sec/veh)	LOS E	2 veh (55 sec/veh)
	Eastbound Thrus / Right Turns	LOS D	1 veh (55 sec/veh)	LOS E	3 veh (59 sec/veh)
	Westbound Left Turns	LOS D	1 veh (54 sec/veh)	LOS E	1 veh (57 sec/veh)
	Westbound Thrus	LOS D	1 veh (53 sec/veh)	LOS D	1 veh (53 sec/veh)
	Westbound Right Turns	LOS D	1 veh (53 sec/veh)	LOS D	2 veh (54 sec/veh)
	Northbound Left Turns	LOS A	1 veh (3 sec/veh)	LOS A	1 veh (4 sec/veh)
	Northbound Thrus	LOS A	8 veh (6 sec/veh)	LOS A	7 veh (5 sec/veh)
	Northbound Right Turns	LOS A	1 veh (4 sec/veh)	LOS A	1 veh (3 sec/veh)
	Southbound Left Turns	LOS A	1 veh (4 sec/veh)	LOS A	1 veh (4 sec/veh)
	Southbound Thrus	LOS A	5 veh (5 sec/veh)	LOS A	9 veh (6 sec/veh)
	Southbound Right Turns	LOS A	0 veh (0 sec/veh)	LOS A	0 veh (0 sec/veh)
	OVERALL INTERSECTION	LOS A (7 sec/veh)		LOS A (9 sec/veh)	
Shady Brook Street and Access for Columbia Powersports Supercenter	Eastbound Turning Movements	LOS A	1 veh (7 sec/veh)	LOS A	1 veh (8 sec/veh)
	Westbound Turning Movements	LOS A	0 veh (7 sec/veh)	LOS A	1 veh (8 sec/veh)
	Northbound Turning Movements	LOS A	1 veh (8 sec/veh)	LOS A	1 veh (9 sec/veh)
	Southbound Turning Movements	LOS B	1 veh (7 sec/veh)	LOS A	1 veh (9 sec/veh)
Mall Ring Road and Connector to S. James Campbell Boulevard	Eastbound Left Turns	LOS A	1 veh (9 sec/veh)	LOS A	1 veh (9 sec/veh)
	Eastbound Right Turns	LOS A	1 veh (9 sec/veh)	LOS A	1 veh (9 sec/veh)
	Northbound Left Turns	LOS A	0 veh (7 sec/veh)	LOS A	1 veh (7 sec/veh)
Mall Ring Road and Connector to Shady Brook Street	Eastbound Left / Right Turns	LOS A	1 veh (9 sec/veh)	LOS A	1 veh (9 sec/veh)
	Northbound Left Turns / Thrus	LOS A	0 veh (7 sec/veh)	LOS A	1 veh (7 sec/veh)

4. YEAR 2025 BACKGROUND TRAFFIC VOLUMES

In order to account for the traffic growth which will occur within the study area even if the proposed project is not constructed, background traffic volumes were established for the intersections within the study area.

Specifically, it is important to note that another commercial project is planned for construction south of the proposed project site. In December 2024, KCI Technologies, Inc. prepared a Traffic Impact Study for a Murphy's USA fueling station and convenience store, and the peak hour traffic volumes generated by this project are shown in [Figure 5A](#) and included in [Appendix A](#).

The traffic volumes shown in [Figure 5A](#) were added to the existing peak hour traffic volumes, and the final background traffic volumes are shown in [Figure 5B](#). Using the background peak hour traffic volumes, capacity analyses were conducted for the intersections within the study area. For these analyses, it was assumed that the existing laneage and traffic control will be maintained, and no improvements will be provided.

The results of the capacity analyses for the background peak hour traffic volumes are shown in [Table 4](#), and [Appendix B](#) includes the capacity analyses worksheets. These analyses indicate the following:

S. James Campbell Boulevard and Main Access for Columbia Powersports Supercenter

This signalized will operate at LOS A during both peak hours.

Shady Brook Street and Access for Columbia Powersports Supercenter

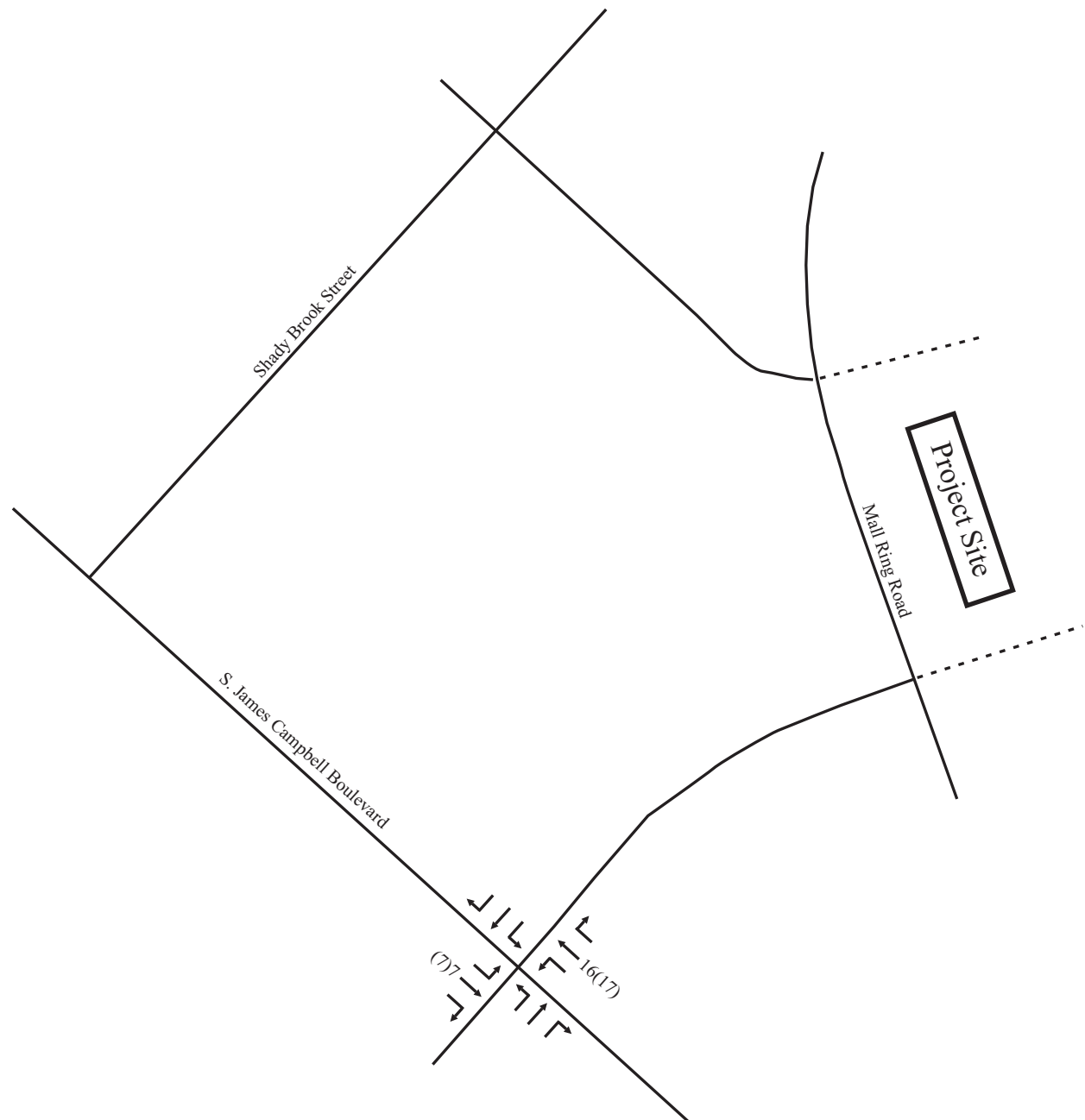
At this unsignalized intersection, which is controlled by an all-way stop installation, all of the critical turning movements will operate at LOS B or better during both peak hours.

Mall Ring Road and Connector to S. James Campbell Boulevard

At this unsignalized intersection, all of the critical turning movements will operate at LOS A during both peak hours.

Mall Ring Road and Connector to Shady Brook Street

At this unsignalized intersection, all of the critical turning movements will operate at LOS A during both peak hours.

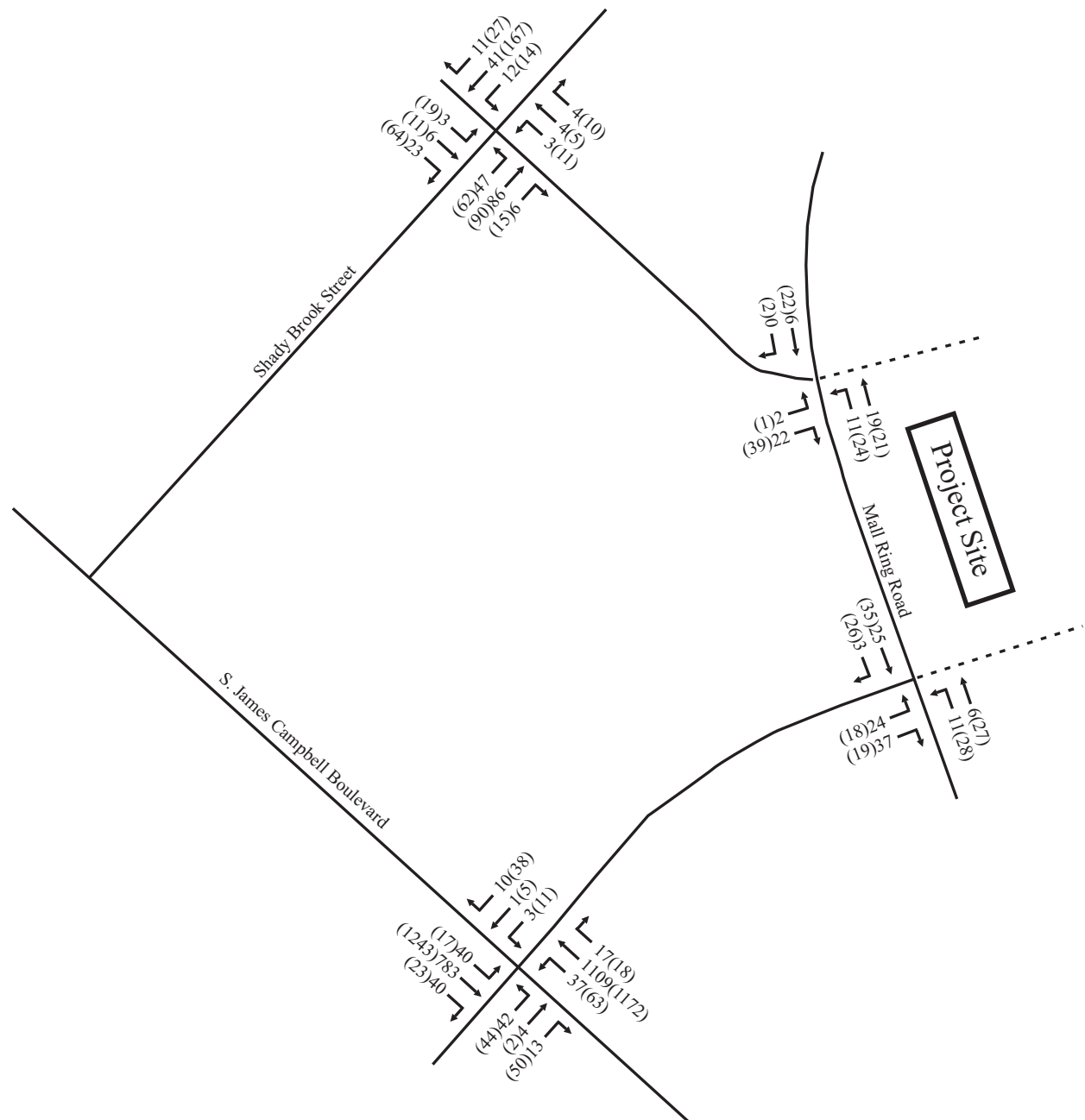


No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 5A.
Peak Hour Traffic Volumes Generated by the
Approved Murphy's USA Project

F i s c h b a c h
 Transportation Group, LLC
 Traffic Engineering and Planning



No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 5B.
Final Year 2025 Background Peak Hour Traffic

TABLE 4. YEAR 2025 BACKGROUND PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
		LEVEL OF SERVICE	95 TH %-ILE QUEUE	LEVEL OF SERVICE	95 TH %-ILE QUEUE
S. James Campbell Boulevard and Signalized Access for Columbia Powersports Supercenter	Eastbound Left Turns	LOS E	3 veh (56 sec/veh)	LOS E	2 veh (55 sec/veh)
	Eastbound Thrus / Right Turns	LOS D	1 veh (55 sec/veh)	LOS E	3 veh (59 sec/veh)
	Westbound Left Turns	LOS D	1 veh (54 sec/veh)	LOS E	1 veh (57 sec/veh)
	Westbound Thrus	LOS D	1 veh (53 sec/veh)	LOS D	1 veh (53 sec/veh)
	Westbound Right Turns	LOS D	1 veh (53 sec/veh)	LOS D	2 veh (54 sec/veh)
	Northbound Left Turns	LOS A	1 veh (3 sec/veh)	LOS A	1 veh (4 sec/veh)
	Northbound Thrus	LOS A	9 veh (6 sec/veh)	LOS A	7 veh (5 sec/veh)
	Northbound Right Turns	LOS A	1 veh (4 sec/veh)	LOS A	1 veh (3 sec/veh)
	Southbound Left Turns	LOS A	1 veh (4 sec/veh)	LOS A	1 veh (4 sec/veh)
	Southbound Thrus	LOS A	5 veh (5 sec/veh)	LOS A	9 veh (7 sec/veh)
	Southbound Right Turns	LOS A	0 veh (0 sec/veh)	LOS A	0 veh (0 sec/veh)
	OVERALL INTERSECTION	LOS A (7 sec/veh)		LOS A (9 sec/veh)	
Shady Brook Street and Access for Columbia Powersports Supercenter	Eastbound Turning Movements	LOS A	1 veh (7 sec/veh)	LOS A	1 veh (8 sec/veh)
	Westbound Turning Movements	LOS A	0 veh (7 sec/veh)	LOS A	1 veh (8 sec/veh)
	Northbound Turning Movements	LOS A	1 veh (8 sec/veh)	LOS A	1 veh (9 sec/veh)
	Southbound Turning Movements	LOS B	1 veh (7 sec/veh)	LOS A	1 veh (9 sec/veh)
Mall Ring Road and Connector to S. James Campbell Boulevard	Eastbound Left Turns	LOS A	1 veh (9 sec/veh)	LOS A	1 veh (9 sec/veh)
	Eastbound Right Turns	LOS A	1 veh (9 sec/veh)	LOS A	1 veh (9 sec/veh)
	Northbound Left Turns	LOS A	0 veh (7 sec/veh)	LOS A	1 veh (7 sec/veh)
Mall Ring Road and Connector to Shady Brook Street	Eastbound Left / Right Turns	LOS A	1 veh (9 sec/veh)	LOS A	1 veh (9 sec/veh)
	Northbound Left Turns / Thrus	LOS A	0 veh (7 sec/veh)	LOS A	1 veh (7 sec/veh)

5. IMPACTS OF PROPOSED DEVELOPMENT

5.1 TRIP GENERATION

Trip generation calculations were conducted in order to identify how much traffic will be generated by the proposed project. Trip generation data for daily and peak hour trips were identified from Trip Generation, 11th Edition, which was published by the Institute of Transportation Engineers (ITE) in 2021. [Table 5](#) presents the daily and peak hour trip generations for proposed project, and these calculations are included in [Appendix C](#).

TABLE 5. TRIP GENERATION

LAND USE	SIZE	DAILY TRAFFIC	GENERATED TRAFFIC			
			AM PEAK HOUR		PM PEAK HOUR	
			ENTER	EXIT	ENTER	EXIT
Strip Retail < 40K sq.ft. (LUC 822)	6,150 sq.ft.	490	13	8	28	28
Fast Casual Restaurant (LUC 930)	6,000 sq.ft.	582	4	4	41	34
TOTAL	12,150 sq.ft.	1,072	17	12	69	62

It is important to note that, typically, a portion of the trips generated by commercial developments are captured, or "pass-by" trips from the adjacent street system. For the purposes of this study, it was assumed that none of the site-generated traffic will be pass-by traffic.

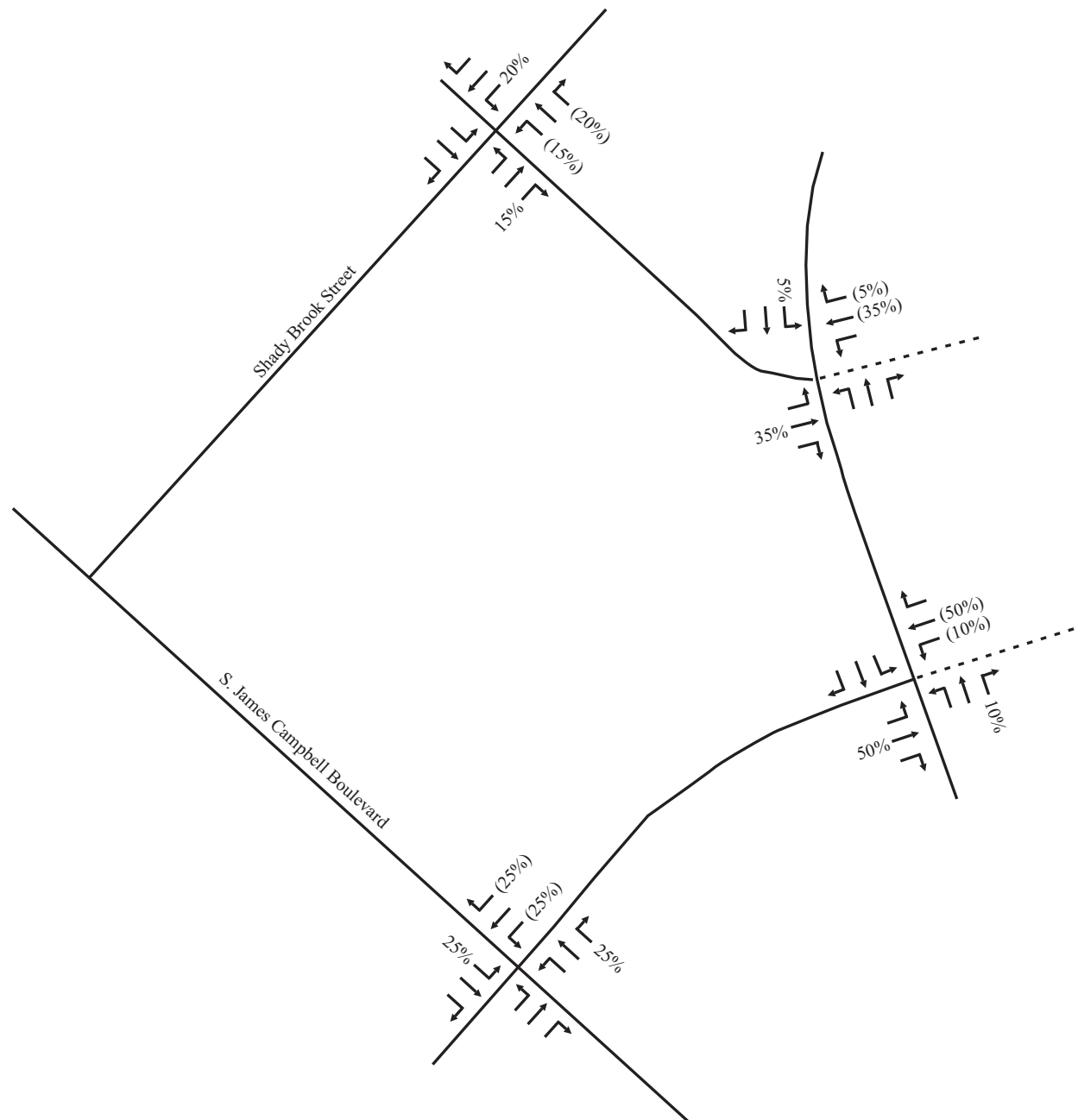
Also, studies have shown that, typically, a portion of the trips generated by mixed-use developments are internal to the site. For example, a portion of the vehicles generated by the retail space will also visit the restaurant. However, for the purposes of this study, none of the daily and peak hour traffic volumes were reduced in order to account for internal, shared trips.

5.2 TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

For the purposes of this study, it was estimated that the trips generated by the proposed development will access the project site according to the directional distribution shown in [Figure 6](#). The development of this distribution was based on the following factors:

- existing land use characteristics,
- the directions of approach of the existing traffic,
- the access proposed for the project, and
- the locations of population centers in the area.

The peak hour trip generations and directional distribution were used to add the site-generated trips to the roadway system. [Figure 7](#) includes the peak hour traffic volumes that are expected to be generated by the proposed project.

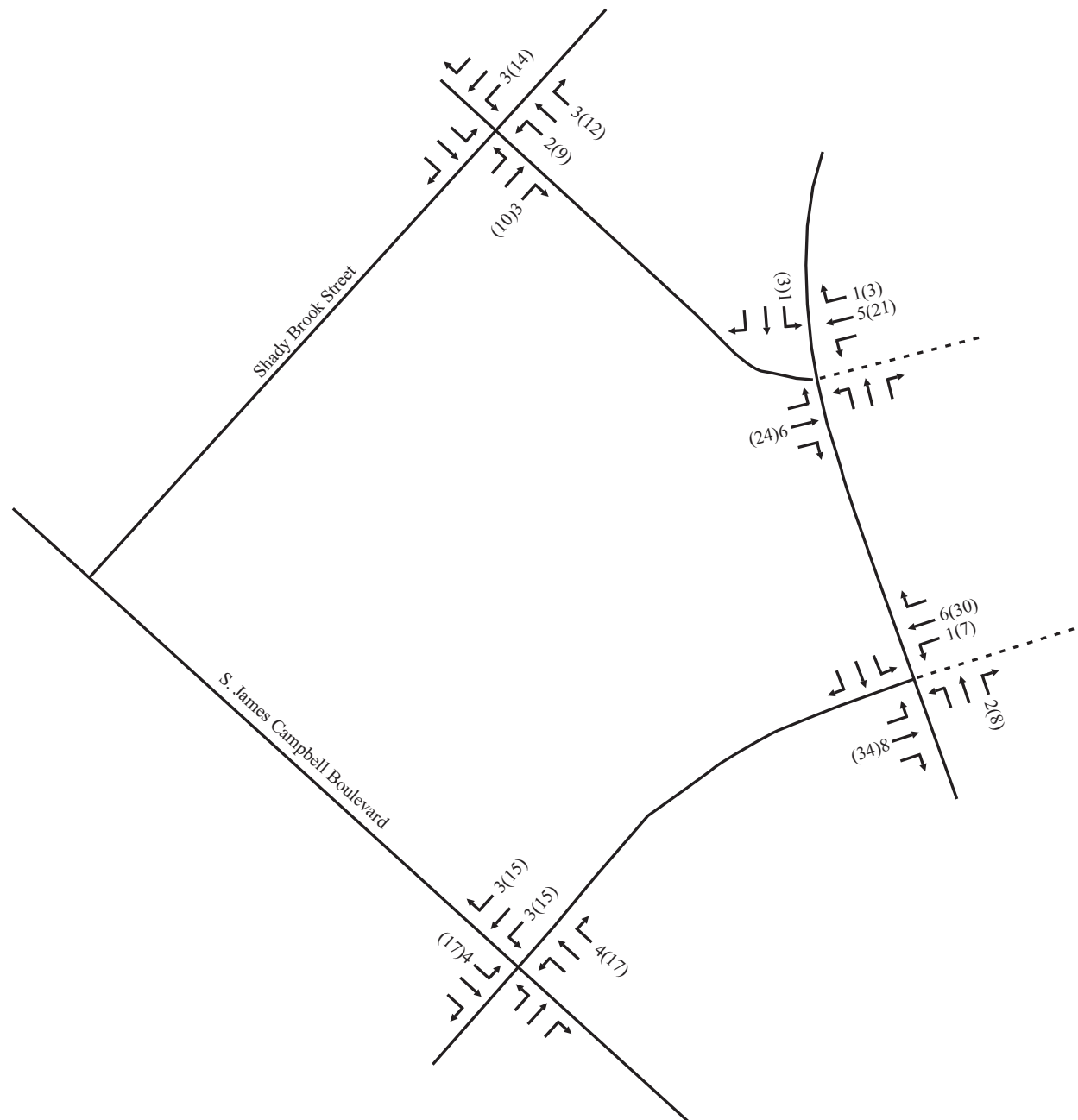


No Scale

XX - Entering Volumes
 (XX) - Exiting Volumes

Figure 6.
Directional Distribution of Peak Hour Traffic
Volumes Generated by the Proposed Project

F i s c h b a c h
Transportation Group, LLC
Traffic Engineering and Planning



No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 7.
Peak Hour Traffic Volumes
Generated by the Proposed Project

5.3 CAPACITY ANALYSES

In order to identify the projected peak hour traffic volumes at the completion of the proposed project, the trips generated by the proposed development were added to the background peak hour traffic volumes within the study area. The resulting peak hour volumes are shown in [Figure 8](#).

Using the total projected peak hour traffic volumes, capacity analyses were conducted in order to determine the impact of the proposed project on the roadway system. Specifically, these capacity analyses were used to evaluate the need for roadway and traffic control improvements within the study area. For these analyses, the following assumptions were made:

- A fourth leg will be provided to the intersection of the mall ring road and the connector to S. James Campbell Boulevard. This driveway will be constructed with one entering lane and one exiting lane.
- A fourth leg will be provided to the intersection of the mall ring road and the connector to Shady Brook Street. This driveway will be constructed with one entering lane and one exiting lane.
- All other laneage and traffic control will be maintained.

The results of the capacity analyses for the total projected peak hour traffic volumes are shown in [Table 6](#), and [Appendix B](#) includes the capacity analyses worksheets. These analyses indicate the following:

S. James Campbell Boulevard and Main Access for Columbia Powersports Supercenter

This signalized intersection will operate at LOS A during both peak hours.

Shady Brook Street and Access for Columbia Powersports Supercenter

At this unsignalized intersection, which is controlled by an all-way stop installation, all of the critical turning movements will operate at LOS B or better during both peak hours.

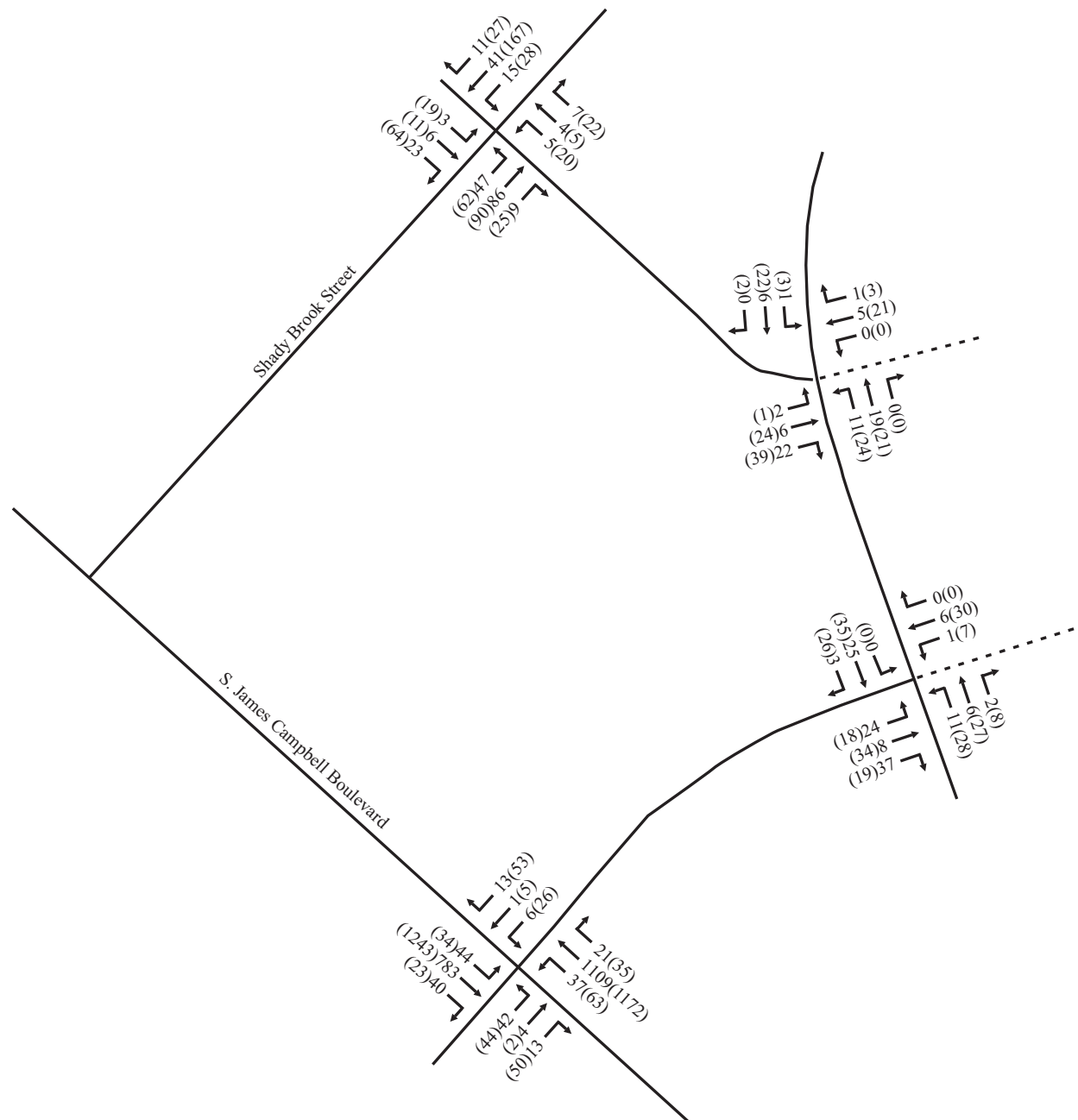
Mall Ring Road and Connector to S. James Campbell Boulevard / Project Access

At this unsignalized intersection, all of the critical turning movements will operate at LOS B during both peak hours.

Mall Ring Road and Connector to Shady Brook Street

At this unsignalized intersection, all of the critical turning movements will operate at LOS A during both peak hours.

F i s c h b a c h
Transportation Group, LLC
Traffic Engineering and Planning



No Scale

XX - AM Peak Hour Volumes
 (XX) - PM Peak Hour Volumes

Figure 8.
Total Projected Peak Hour Traffic Volumes
at the Completion of the Proposed Project

TABLE 6. YEAR 2025 TOTAL PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	AM PEAK HOUR		PM PEAK HOUR	
		LEVEL OF SERVICE	95 TH %-ILE QUEUE	LEVEL OF SERVICE	95 TH %-ILE QUEUE
S. James Campbell Boulevard and Signalized Access for Columbia Powersports Supercenter	Eastbound Left Turns	LOS E	3 veh (56 sec/veh)	LOS D	2 veh (54 sec/veh)
	Eastbound Thrus / Right Turns	LOS D	1 veh (54 sec/veh)	LOS E	3 veh (57 sec/veh)
	Westbound Left Turns	LOS D	1 veh (54 sec/veh)	LOS E	1 veh (57 sec/veh)
	Westbound Thrus	LOS D	1 veh (53 sec/veh)	LOS D	1 veh (52 sec/veh)
	Westbound Right Turns	LOS D	1 veh (54 sec/veh)	LOS D	3 veh (54 sec/veh)
	Northbound Left Turns	LOS A	1 veh (4 sec/veh)	LOS A	1 veh (5 sec/veh)
	Northbound Thrus	LOS A	9 veh (6 sec/veh)	LOS A	8 veh (6 sec/veh)
	Northbound Right Turns	LOS A	1 veh (4 sec/veh)	LOS A	1 veh (4 sec/veh)
	Southbound Left Turns	LOS A	1 veh (4 sec/veh)	LOS A	1 veh (4 sec/veh)
	Southbound Thrus	LOS A	5 veh (5 sec/veh)	LOS A	9 veh (7 sec/veh)
	Southbound Right Turns	LOS A	0 veh (0 sec/veh)	LOS A	0 veh (0 sec/veh)
	OVERALL INTERSECTION	LOS A (7 sec/veh)		LOS A (10 sec/veh)	
Shady Brook Street and Access for Columbia Powersports Supercenter	Eastbound Turning Movements	LOS A	1 veh (7 sec/veh)	LOS A	1 veh (8 sec/veh)
	Westbound Turning Movements	LOS A	1 veh (7 sec/veh)	LOS A	1 veh (8 sec/veh)
	Northbound Turning Movements	LOS A	1 veh (8 sec/veh)	LOS A	1 veh (9 sec/veh)
	Southbound Turning Movements	LOS B	1 veh (7 sec/veh)	LOS A	1 veh (10 sec/veh)
Mall Ring Road and Connector to S. James Campbell Boulevard	Eastbound Left Turns / Thrus	LOS A	1 veh (9 sec/veh)	LOS B	1 veh (11 sec/veh)
	Eastbound Right Turns	LOS A	1 veh (9 sec/veh)	LOS A	1 veh (9 sec/veh)
	Westbound Turning Movements	LOS A	0 veh (9 sec/veh)	LOS B	1 veh (10 sec/veh)
	Northbound Left Turns	LOS A	0 veh (7 sec/veh)	LOS A	1 veh (7 sec/veh)
	Southbound Left Turns / Thrus	LOS A	0 veh (7 sec/veh)	LOS A	0 veh (7 sec/veh)

Mall Ring Road and Connector to Shady Brook Street	Eastbound Turning Movements	LOS A	1 veh (9 sec/veh)	LOS A	1 veh (9 sec/veh)
	Westbound Turning Movements	LOS A	0 veh (9 sec/veh)	LOS A	1 veh (10 sec/veh)
	Northbound Left Turns	LOS A	0 veh (7 sec/veh)	LOS A	1 veh (7 sec/veh)
	Southbound Turning Movements	LOS A	0 veh (7 sec/veh)	LOS A	0 veh (7 sec/veh)

6. CONCLUSIONS AND RECOMMENDATIONS

S. James Campbell Boulevard and Main Access for Columbia Powersports Supercenter

The analyses conducted for the purposes of this study indicate that this signalized intersection operates at LOS A during both peak hours with existing, background, and total projected conditions. Also, the projected queue lengths are expected to remain consistent.

Therefore, no laneage or traffic control modifications are recommended at this intersection in conjunction with the proposed project.

Shady Brook Street and Access for Columbia Powersports Supercenter

The analyses conducted for the purposes of this study indicate that all of the critical turning movements at this unsignalized intersection operate at LOS B or better during both peak hours with existing, background, and projected conditions.

Based on these considerations, no laneage or traffic control modifications are recommended at this intersection in conjunction with the proposed project.

Mall Ring Road and Connector to S. James Campbell Boulevard / Project Access

The analyses conducted for the purposes of this study indicate that all of the critical turning movements at this unsignalized intersection operate at LOS B or better during both peak hours with existing, background, and projected conditions.

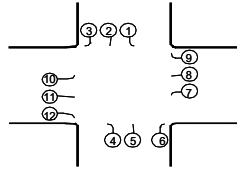
Based on these considerations, a two-lane driveway should be constructed as a fourth leg of this intersection, and a stop sign should be installed on this new leg. No additional laneage or traffic control modifications are recommended at this intersection in conjunction with the proposed project.

Mall Ring Road and Connector to Shady Brook Street

The analyses conducted for the purposes of this study indicate that all of the critical turning movements at this unsignalized intersection operate at LOS A during both peak hours with existing, background, and projected conditions.

Based on these considerations, a two-lane driveway should be constructed as a fourth leg of this intersection, and a stop sign should be installed on this new leg. No additional laneage or traffic control modifications are recommended at this intersection in conjunction with the proposed project.

**APPENDIX A
EXISTING TRAFFIC COUNTS**

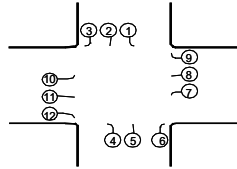


INTERSECTION TRAFFIC VOLUME COUNTS

LOCATION: James Campbell Blvd and Columbia Mall Access / Retail
DATE: 28-Jan-25 Tue
RECORDER: Burns
NOTES: signalized

LOCATION	S/B James Campbell Blvd			N/B James Campbell Blvd			W/B Columbia Mall Access			E/B Retail Access		
TIME	1	2	3	4	5	6	7	8	9	10	11	12
6:00-6:15	1	70	4	3	100					4		
6:15-6:30	3	70	13	3	96				1	6		1
6:30-6:45	6	110	6	2	155					2		1
6:45-7:00	4	108	9	5	182		1		2	4		2
7:00-7:15	5	137	8	10	209				1	9		2
7:15-7:30	17	182	11	7	281				1	9	2	1
7:30-7:45	9	214	7	9	301	3			4	7		1
7:45-8:00	5	227	16	10	296	8	1		4	15	1	5
8:00-8:15	9	153	6	11	215	6	2	1	1	11	1	6
8:15-8:30	9	164	13	9	199	5	6		3	11	1	3
8:30-8:45	9	150	8	8	210	5	4	1	13	9	1	6
8:45-9:00	6	209	11	11	215	3	3	1	3	9		4
9:00-9:15	6	211	11	11	217	3	3	1	4	9		5
9:15-9:30	7	212	11	12	219	4	4	1	5	9		6
9:30-9:45	7	214	11	12	221	4	4		7	10	1	7
9:45-10:00	8	215	11	13	223	5	5		8	10	1	8
10:00-10:15	8	217	11	13	225	5	5		9	10	1	9
10:15-10:30	9	223	13	13	231	4	6	2	5	8	2	5
10:30-10:45	4	251	14	26	248	11	5	2	7	13		11
10:45-11:00	5	234	8	15	246	6	6	1	13	9		15
11:00-11:15	10	300	11	22	216	8	6	1	7	16	1	20
11:15-11:30	9	283	18	10	242	10	2	1	12	10		13
11:30-11:45	10	248	11	17	240	8	6	2	17	12	6	15
11:45-12:00	8	270	9	24	294	9	3	1	15	5	2	18
12:00-12:15	5	267	12	21	289	7	1	1	6	5		14
12:15-12:30	7	292	10	13	288	11	3		6	19	3	15
12:30-12:45	7	270	24	16	347	8	5	2	9	8		13
12:45-1:00	5	263	14	19	305	9	2		6	21	2	22
1:00-1:15	5	267	13	18	300	11	3	1	7	20	2	20
1:15-1:30	5	272	12	17	294	14	4	2	7	20	1	18
1:30-1:45	4	276	11	17	289	16	4	2	8	19	1	17
1:45-2:00	4	281	10	16	283	19	5	3	8	19		15
2:00-2:15	4	285	9	15	278	21	6	4	9	18		13
2:15-2:30	4	242	16	22	280	10	4	1	11	12	2	19
2:30-2:45	8	285	15	17	267	11	10	3	11	16	3	14
2:45-3:00	13	268	9	12	280	10	3	1	11	17	2	16
3:00-3:15	9	303	6	8	267	5	4	1	5	4	1	8
3:15-3:30	9	271	17	18	281	6	7	2	11	10		13
3:30-3:45	7	283	14	16	282	6	5	1	11	11	1	14
3:45-4:00	6	296	10	15	283	6	4	1	11	11	1	16
4:00-4:15	4	308	7	13	284	6	2		11	12	2	17
4:15-4:30	4	302	8	7	261	2	4		16	8	1	8
4:30-4:45	7	322	8	13	271	7	2	2	3	11		15
4:45-5:00	3	302	3	21	303		1	1	8	8	1	15
5:00-5:15	1	334	8	17	274	3			8	13		10
5:15-5:30	2	278	4	12	307	4	4		7	12	1	10
5:30-5:45	1	237	8	14	272	1		1	11	8		15
5:45-6:00	3	243	6	11	226	4	3		6	8		10
6:00-6:15	2	236	9	11	214	3	2	2	8	9		7
6:15-6:30	1	180	4	10	225	1			2	8		6
6:30-6:45	3	182	5	11	210	3	1		3	6		11
6:45-7:00	1	144	6	10	208	2	4	1	2	7	1	9
TOTAL	308	12,161	529	686	12,949	313	165	47	364	557	45	544
AM PK HR	40	776	40	37	1,093	17	3	1	10	42	4	13
PM PK HR	13	1,236	23	63	1,155	14	7	3	26	44	2	50

974 182
1,173 193
1,491 282
1,764 317
2,035 381
2,076 511
1,988 555
1,857 588
1,744 422
1,803 423
1,870 424
1,944 475
1,976 481
2,008 490
2,039 498
2,133 507
2,184 513
2,289 521
2,378 592
2,378 558
2,478 618
2,488 610
2,545 592
2,662 658
2,672 628
2,711 667
2,710 709
2,665 668
2,660 667
2,655 666
2,612 664
2,608 663
2,587 662
2,546 623
2,568 660
2,559 642
2,577 621
2,622 645
2,598 651
2,608 660
2,614 666
2,616 621
2,636 661
2,543 666
2,397 668
2,232 641
2,028 568
1,895 520
1,770 503
437
435
395
7:15-8:15 0.88
4:30-5:30 0.99

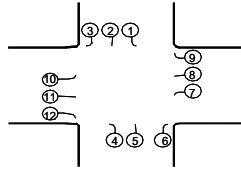


INTERSECTION TRAFFIC VOLUME COUNTS

LOCATION: Shady Brook Street and Mall Access / Retail Access
DATE: 30-Jan-25 Thu
RECORDER: Burns
NOTES: unsignalized

LOCATION	S/B Shady Brook Street			N/B Shady Brook Street			W/B Columbia Mall Access			E/B Retail Access				
TIME	1	2	3	4	5	6	7	8	9	10	11	12		
6:00-6:15	2	1		8	2					1		2	83	16
6:15-6:30	1	1		10	3				2	2	1	2	105	22
6:30-6:45	1	4	1	9	5					2	1	2	111	25
6:45-7:00			1	5	7			1		1	1	4	144	20
7:00-7:15	2	7	1	5	15		2		1	2		3	186	38
7:15-7:30		6		3	13	1						5	210	28
7:30-7:45	4	7	3	12	23	2			1	1	1	4	241	58
7:45-8:00	2	9	4	10	25	1			1	1	3	6	240	62
8:00-8:15	2	9		15	21	2	2	3	1	1		6	239	62
8:15-8:30	2	16	4	10	17	1					2	7	242	59
8:30-8:45	4	13	4	6	21	1			1	3	1	3	255	57
8:45-9:00	5	14		8	23		1	1		3		6	271	61
9:00-9:15	4	15	1	10	23		1	1	1	3		6	290	65
9:15-9:30	4	17	2	12	22	1	2	1	1	3	1	6	309	72
9:30-9:45	3	18	3	13	22	1	2		2	3	1	5	340	73
9:45-10:00	3	20	4	15	21	2	3		2	3	2	5	384	80
10:00-10:15	2	21	5	17	21	2	3		3	3	2	5	433	84
10:15-10:30	5	34	3	11	25	2	4	2	1	1	1	14	471	103
10:30-10:45	9	38	2	16	30	5	1	1	2	2	3	8	491	117
10:45-11:00		45	4	23	22	5	3	2	4	6		15	514	129
11:00-11:15	6	33	3	24	30	3	2	2	4	5	1	9	504	122
11:15-11:30	8	29	6	21	26	3		4	3	3	2	18	524	123
11:30-11:45	6	31	14	15	43	2		2	2	3	6	16	544	140
11:45-12:00	7	47	8	18	16	2	4	1	2	1	1	12	555	119
12:00-12:15	6	43	3	21	35	1		1	3	4	2	23	555	142
12:15-12:30	6	48	9	14	27	6	1	1	2	7	3	19	531	143
12:30-12:45	2	36	6	22	32	17	2	2	2	4	7	19	502	151
12:45-1:00	1	32	5	7	30	13	5	3		6	5	12	468	119
1:00-1:15	1	32	5	10	29	11	5	3	1	5	4	12	462	118
1:15-1:30	1	32	5	12	28	8	5	3	1	4	3	12	456	114
1:30-1:45	2	32	4	15	28	6	5	4	2	4	3	12	458	117
1:45-2:00	2	32	4	17	27	3	5	4	2	3	2	12	448	113
2:00-2:15	2	32	4	20	26	1	5	4	3	2	1	12	443	112
2:15-2:30	6	45	2	14	27	1	1		2	1	1	16	469	116
2:30-2:45	4	32	7	10	30	3	3	1	1	7		9	485	107
2:45-3:00	3	35	3	19	19	4	1	4	1	2	1	16	505	108
3:00-3:15	13	53	4	19	21	2	5	1	1	6	3	10	516	138
3:15-3:30	7	44	5	12	32	1	1	6	5	4	1	14	492	132
3:30-3:45	6	46	6	11	29	1	1	4	4	3	1	15	482	127
3:45-4:00	4	48	7	11	25		1	3	2	3		15	476	119
4:00-4:15	3	50	8	10	22		1	1	1	2		16	462	114
4:15-4:30	6	34	7	17	29	8	2	2	1	3	2	11	489	122
4:30-4:45	1	49	6	16	12	1	3	3	4	3	2	21	481	121
4:45-5:00	3	25	6	16	24	2	1		3	4	1	20	462	105
5:00-5:15	2	59	8	13	25	2	5		2	9	4	12	446	141
5:15-5:30	6	29	10	21	19	3	1	2		3	2	18	402	114
5:30-5:45	2	27	11	11	21	2		4	2	5		17	372	102
5:45-6:00	4	19	5	17	16	1	2			7	2	16	342	89
6:00-6:15	3	31	3	17	15	4	2	1	2	2	1	16	338	97
6:15-6:30	3	23	3	11	18	1	5	3	3	4		10		84
6:30-6:45	3	15	1	13	17	2	1	1	1	3	2	13		72
6:45-7:00	3	22	2	13	15	1	2	1	2	4	4	16		85
TOTAL	187	1,440	222	705	1,154	141	101	83	87	167	87	583		
AM PK HR	10	41	11	47	86	6	2	3	3	3	6	23	7:30-8:30	0.97
PM PK HR	12	167	27	62	90	13	11	5	10	19	9	64	4:15-5:15	0.87

INTERSECTION TRAFFIC VOLUME COUNTS

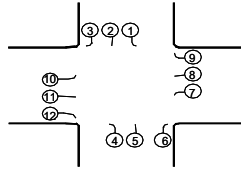


LOCATION: Mall Ring Road and Access to James Campbell Blvd
DATE: 29-Jan-25 Wed
RECORDER: Burns
NOTES: unsignalized

LOCATION	S/B Mail Ring Road			N/B Mail Ring Road			W/B			E/B Access to James Campbell		
TIME	1	2	3	4	5	6	7	8	9	10	11	12
6:00-6:15												4
6:15-6:30												1
6:30-6:45		3		1						1		4
6:45-7:00		1	1	2								1
7:00-7:15					2					1		5
7:15-7:30		2		1	1					2		11
7:30-7:45		5			1					4		5
7:45-8:00		1			2					6		5
8:00-8:15		3		3	2					5		6
8:15-8:30		3	5	4	2					8		8
8:30-8:45		5	8	6	8					7		14
8:45-9:00		5	2	3	5					7		5
9:00-9:15		5	2	4	6					8		6
9:15-9:30		6	2	5	6					9		7
9:30-9:45		6	3	6	7					10		9
9:45-10:00		7	3	7	7					11		10
10:00-10:15		7	3	8	8					12		11
10:15-10:30		7	4	9	2					11		8
10:30-10:45		6	11	7	9					6		9
10:45-11:00		9	8	4	9					12		8
11:00-11:15		5	9	13	7					7		12
11:15-11:30		11	9	14	10					8		6
11:30-11:45		6	9	6	3					7		15
11:45-12:00		12	3	10	4					5		11
12:00-12:15		13	9	11	9					12		13
12:15-12:30		13	10	9	14					9		13
12:30-12:45		12	9	8	13					8		12
12:45-1:00		11	9	7	13					8		11
1:00-1:15		11	8	6	12					7		11
1:15-1:30		10	8	5	12					7		10
1:30-1:45		9	7	4	11					6		9
1:45-2:00		8	6	7	1					10		6
2:00-2:15		10	4	12	5					6		12
2:15-2:30		9	4	15	8					3		8
2:30-2:45		11	6	9	2					2		7
2:45-3:00		8	9	3	5					24		7
3:00-3:15		8	7	12	9					5		9
3:15-3:30		10	3	6	10					2		8
3:30-3:45		10	3	7	9					5		8
3:45-4:00		10	4	8	7					9		7
4:00-4:15		10	4	9	6					12		7
4:15-4:30		7	8	4	6					7		5
4:30-4:45		13	11	7	7					6		3
4:45-5:00		2	2	6	4					5		5
5:00-5:15		14	8	11	11					5		6
5:15-5:30		6	5	4	5					2		5
5:30-5:45		5	2	5	2					10		3
5:45-6:00		8	2	7	1					5		4
6:00-6:15		10	6	1	6					4		4
6:15-6:30		2		3	3							1
6:30-6:45		4	1		5					2		
6:45-7:00			1	3	3					2		2
TOTAL		359	238	302	300					330		377
AM PK HR		11		4	6					17		27
PM PK HR		35	26	28	27					18		19

19 4
23 1
39 9
45 5
54 8
65 17
78 15
111 14
124 19
136 30
141 48
134 27
152 31
170 35
176 41
183 45
188 49
192 41
209 48
207 50
202 53
216 58
226 46
242 45
256 67
244 68
228 62
212 59
191 55
185 52
180 46
171 38
189 49
190 47
182 37
187 56
176 50
174 39
172 42
177 45
156 48
163 37
153 47
133 24
136 55
112 27
94 27
79 27
63 31
9
12
11
7:15-8:15 0.86
4:30-5:30 0.81

INTERSECTION TRAFFIC VOLUME COUNTS



LOCATION: Mall Ring Road and Access to Shady Brook Street
DATE: 5-Feb-25 Wed
RECORDER: Burns
NOTES: unsignalized

LOCATION	S/B Mail Ring Road			N/B Mail Ring Road			W/B			E/B Access to Shady Brook		
TIME	1	2	3	4	5	6	7	8	9	10	11	12
6:00-6:15												2
6:15-6:30					1							1
6:30-6:45				1								
6:45-7:00				1	2							
7:00-7:15					1							1
7:15-7:30				1						1		
7:30-7:45		1			2							2
7:45-8:00		1			2							10
8:00-8:15		2		1	1							4
8:15-8:30		2		3	2					2		6
8:30-8:45				5	7					1		5
8:45-9:00		2	2	2	3					1		11
9:00-9:15		2	2	2	3					1		10
9:15-9:30		3	2	2	4					1		9
9:30-9:45		3	3	3	4							8
9:45-10:00		4	3	3	5							7
10:00-10:15		4	3	3	5							6
10:15-10:30		1	1	6	5					3		8
10:30-10:45		4		3	6							7
10:45-11:00		6	1	7	10					2		5
11:00-11:15		6	1	6	10					2		6
11:15-11:30		7	1	5	9					1		8
11:30-11:45		7	1	4	9					1		9
11:45-12:00		9	1	10	2					2		8
12:00-12:15		7	1	8	5					3		20
12:15-12:30		6	1	9	7							16
12:30-12:45		4	1	11	9							10
12:45-1:00		7		11	8							7
1:00-1:15		9	1	6	5					2		9
1:15-1:30		3		7	18							12
1:30-1:45		2	1	8	13							9
1:45-2:00		2	1	9	7					1		6
2:00-2:15		1	2	10	2					1		3
2:15-2:30		9	2	8	4							6
2:30-2:45		3		8	9							13
2:45-3:00		7		5	4							7
3:00-3:15		14		4	8							14
3:15-3:30		8		3	7							12
3:30-3:45		10		4	8							10
3:45-4:00		12	1	4	8							7
4:00-4:15		14	1	5	9							5
4:15-4:30		4	1	3	4					1		6
4:30-4:45		7	1	3	5							6
4:45-5:00		3		11	6							8
5:00-5:15		4		3	2							12
5:15-5:30		4	1	2	4					1		7
5:30-5:45		2		1	9							8
5:45-6:00		2		4	2					1		2
6:00-6:15		3		3	1							10
6:15-6:30		2		7	2							2
6:30-6:45		1		5	1							6
6:45-7:00		1		2	4							6
TOTAL		215	36	232	264					28		372
AM PK HR		6		4	7					2		22
PM PK HR		18	2	20	17					1		32

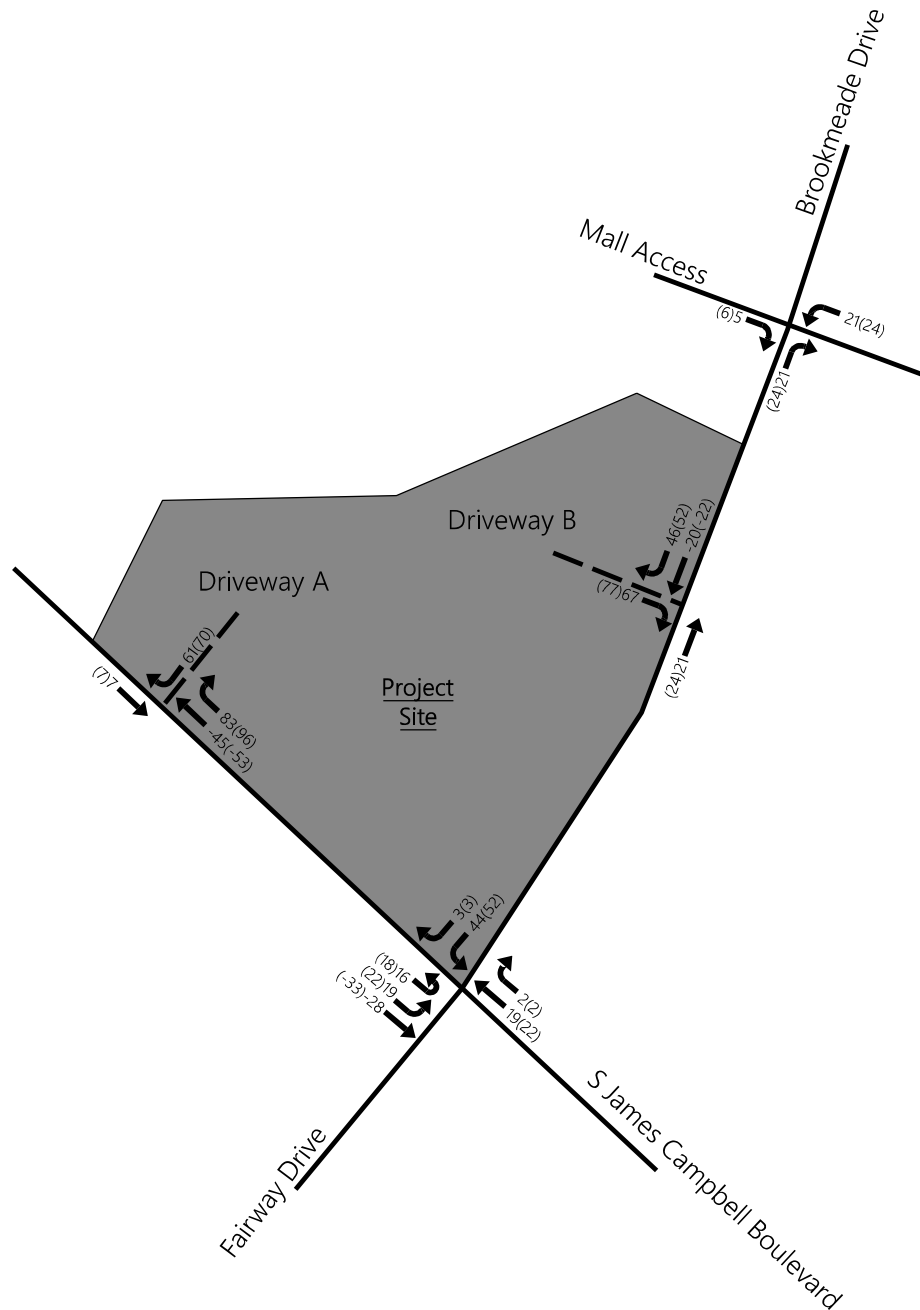
8 2
8 2
8 1
12 3
22 2
28 2
41 5
54 13
62 8
74 15
80 18
83 21
84 20
85 21
88 21
87 22
96 21
106 24
113 20
124 31
125 31
138 31
146 31
150 32
151 44
139 39
140 35
138 33
131 32
118 40
107 33
107 26
104 19
125 29
126 33
125 23
134 40
128 30
117 32
107 32
103 34
90 19
90 22
88 28
71 21
67 19
61 20
54 11
56 17
13
13
13
7:30-8:30 0.68
4:15-5:15 0.80

TRAFFIC IMPACT STUDY

MURPHY'S USA
COLUMBIA, TENNESSEE



ATWELL, LLC // DECEMBER 2024



XXX - AM Peak Hour
Traffic Volumes
(XXX) - PM Peak Hour
Traffic Volumes



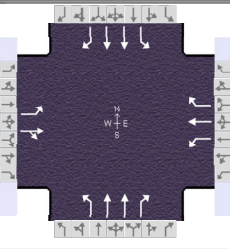
Total Assignment of Traffic Generated by the Project Site
(Not to Scale)

Figure 7.

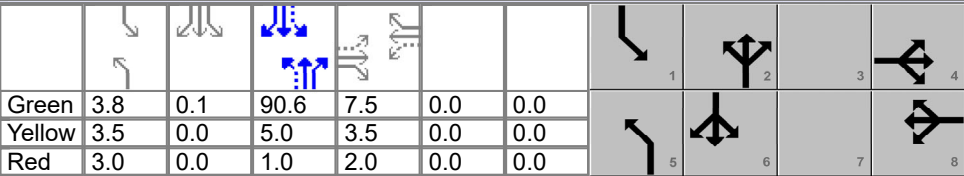
**APPENDIX B
CAPACITY ANALYSES**

EXISTING CONDITIONS

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	2/6/2025	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	AM Peak Hour	PHF	0.88	
Urban Street	S. James Campbell Blvd	Analysis Year	2025 (Existing)	Analysis Period	1> 7:00	
Intersection	Columbia Mall	File Name	1_exam.xus			
Project Description	11320					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	42	4	13	3	1	10	37	1093	17	40	776	40

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		5.0	1.1	3.0	1.1	3.0
Phase Duration, s		13.0		13.0	10.3	96.6	10.4	96.7
Change Period, ($Y+R_c$), s		5.5		5.5	6.5	6.0	6.5	6.0
Max Allow Headway (MAH), s		3.9		3.9	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		5.9		3.7	2.6		2.7	
Green Extension Time (g_e), s		0.2		0.2	0.0	0.0	0.1	0.0
Phase Call Probability		0.94		0.94	0.75		0.78	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	48	19		3	1	11	42	1242	19	45	882	45
Adjusted Saturation Flow Rate (s), veh/h/ln	1439	1503		1415	1900	1610	1810	1809	1610	1810	1809	
Queue Service Time (g_s), s	3.9	1.5		0.3	0.1	0.8	0.6	15.4	0.4	0.7	9.4	
Cycle Queue Clearance Time (g_c), s	3.9	1.5		1.7	0.1	0.8	0.6	15.4	0.4	0.7	9.4	
Green Ratio (g/C)	0.06	0.06		0.06	0.06	0.06	0.79	0.76	0.76	0.79	0.76	
Capacity (c), veh/h	149	94		131	119	101	539	2731	1216	404	2735	
Volume-to-Capacity Ratio (X)	0.320	0.206		0.026	0.010	0.113	0.078	0.455	0.016	0.113	0.322	
Back of Queue (Q), ft/ln (95 th percentile)	64	26		4	1	15	7	208	5	8	131	
Back of Queue (Q), veh/ln (95 th percentile)	2.6	1.0		0.2	0.1	0.6	0.3	8.3	0.2	0.3	5.2	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	54.6	53.4		54.2	52.8	53.1	3.4	5.5	3.6	3.9	4.7	
Incremental Delay (d_2), s/veh	1.2	1.1		0.0	0.0	0.2	0.0	0.5	0.0	0.0	0.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	55.8	54.5		54.3	52.8	53.3	3.4	6.0	3.7	3.9	5.0	0.0
Level of Service (LOS)	E	D		D	D	D	A	A	A	A	A	A
Approach Delay, s/veh / LOS	55.4	E		53.5	D		5.9	A		4.7	A	
Intersection Delay, s/veh / LOS	7.2						A					

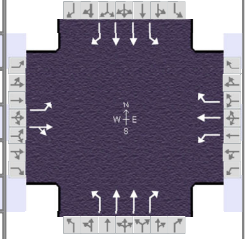
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	2.04	B	1.85	B
Bicycle LOS Score / LOS	0.60	A	0.51	A	1.56	B	1.29	A

HCS Signalized Intersection Results Summary

General Information

Agency	FTG		
Analyst	FTG	Analysis Date	2/6/2025
Jurisdiction	Columbia, TN	Time Period	PM Peak Hour
Urban Street	S. James Campbell Blvd	Analysis Year	2025 (Existing)
Intersection	Columbia Mall	File Name	1_expm.xus
Project Description	11320		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	44	2	50	11	5	38	63	1155	18	17	1236	23

Signal Information

Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	2.2	2.2	89.6	7.9	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	5.0	3.5	0.0	0.0		
				Red	3.0	0.0	1.0	2.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		5.0	1.1	3.0	1.1	3.0
Phase Duration, s		13.4		13.4	10.9	97.9	8.7	95.6
Change Period, ($Y+R_c$), s		5.5		5.5	6.5	6.0	6.5	6.0
Max Allow Headway (MAH), s		3.8		3.8	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		6.2		7.1	2.9		2.3	
Green Extension Time (g_e), s		0.4		0.3	0.1	0.0	0.0	0.0
Phase Call Probability		0.99		0.99	0.88		0.44	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	44	53		11	5	38	64	1167	18	17	1248	23
Adjusted Saturation Flow Rate (s), veh/h/ln	1433	1458		1373	1900	1610	1810	1809	1610	1810	1809	
Queue Service Time (g_s), s	3.6	4.2		0.9	0.3	2.7	0.9	13.4	0.3	0.3	16.0	
Cycle Queue Clearance Time (g_c), s	3.9	4.2		5.1	0.3	2.7	0.9	13.4	0.3	0.3	16.0	
Green Ratio (g/C)	0.07	0.07		0.07	0.07	0.07	0.78	0.77	0.77	0.77	0.75	
Capacity (c), veh/h	151	97		103	126	107	404	2770	1233	404	2703	
Volume-to-Capacity Ratio (X)	0.293	0.544		0.108	0.040	0.360	0.158	0.421	0.015	0.042	0.462	
Back of Queue (Q), ft/ln (95 th percentile)	60	74		15	6	50	12	182	4	4	219	
Back of Queue (Q), veh/ln (95 th percentile)	2.4	3.0		0.6	0.3	2.0	0.5	7.3	0.2	0.1	8.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	54.3	54.3		56.7	52.5	53.6	4.2	4.9	3.3	4.1	5.9	
Incremental Delay (d_2), s/veh	1.1	4.7		0.2	0.0	0.8	0.1	0.5	0.0	0.0	0.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	55.3	59.0		56.9	52.5	54.4	4.2	5.3	3.4	4.1	6.4	0.0
Level of Service (LOS)	E	E		E	D	D	A	A	A	A	A	A
Approach Delay, s/veh / LOS	57.3	E		54.7	D		5.3	A		6.3	A	
Intersection Delay, s/veh / LOS	8.6						A					

Multimodal Results

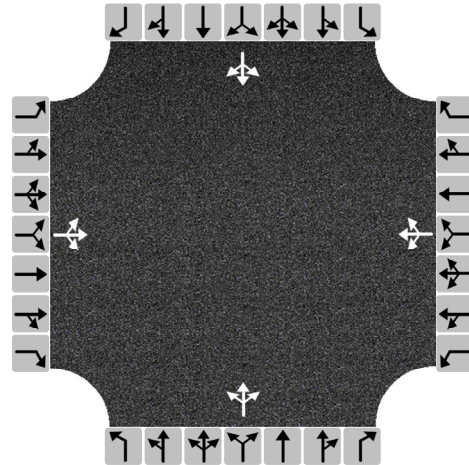
	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.47	B		2.47	B		2.04	B		1.85	B	
Bicycle LOS Score / LOS	0.65	A		0.58	A		1.52	B		1.55	B	

HCS All-Way Stop Control Report

General and Site Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Feb 2025
Analysis Year	2025
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak Hour
Project Description	11320 (Existing)
Intersection	Shady Brook Street
Jurisdiction	Columbia, TN
East/West Street	Mall Access
North/South Street	
Peak Hour Factor	0.97

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	3	6	23	3	4	4	47	86	6	12	41	11
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	33			11			143			66		
Percent Heavy Vehicles	0			0			0			0		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.029			0.010			0.127			0.059		
Final Departure Headway, h_d (s)	3.95			4.22			4.10			4.06		
Final Degree of Utilization, x	0.036			0.013			0.163			0.074		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	1.95			2.22			2.10			2.06		

Capacity, Delay and Level of Service

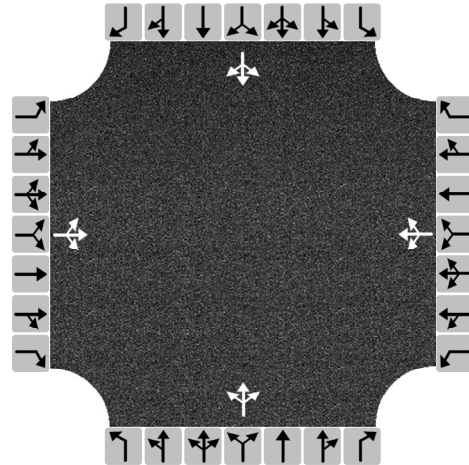
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	33			11			143			66		
Capacity (veh/h)	912			854			879			886		
95% Queue Length, Q ₉₅ (veh)	0.1			0.0			0.6			0.2		
95% Queue Length, Q ₉₅ (ft)	2.5			0.0			15.0			5.0		
Control Delay (s/veh)	7.1			7.3			7.9			7.4		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) LOS	7.1		A		7.3		A		7.9		A	
Intersection Delay (s/veh) LOS	7.6						A					

HCS All-Way Stop Control Report

General and Site Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Feb 2025
Analysis Year	2025
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak Hour
Project Description	11320 (Existing)
Intersection	Shady Brook Street
Jurisdiction	Columbia, TN
East/West Street	Mall Access
North/South Street	
Peak Hour Factor	0.87

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	19	11	64	11	5	10	62	90	15	14	167	27
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	108			30			192			239		
Percent Heavy Vehicles	0			0			0			0		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.096			0.027			0.171			0.213		
Final Departure Headway, h_d (s)	4.55			4.89			4.52			4.39		
Final Degree of Utilization, x	0.137			0.041			0.241			0.292		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	2.55			2.89			2.52			2.39		

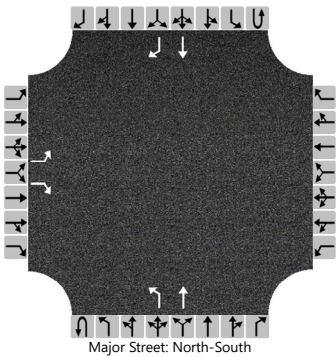
Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	108			30			192			239		
Capacity (veh/h)	791			737			796			820		
95% Queue Length, Q ₉₅ (veh)	0.5			0.1			0.9			1.2		
95% Queue Length, Q ₉₅ (ft)	12.5			2.5			22.5			30.0		
Control Delay (s/veh)	8.3			8.1			9.0			9.2		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) LOS	8.3		A		8.1		A		9.0		A	
Intersection Delay (s/veh) LOS	8.9						A					

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	Mall Ring Road / JCB Connector
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Feb 2025	East/West Street	Connector to James Campbell
Analysis Year	2025	North/South Street	Mall Ring Road
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.86
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	11320 (Existing)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	1	1	0	0	0	1	1
Configuration		L		R						L	T				T	R
Volume (veh/h)		24		37						11	6				25	3
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	Yes												Yes			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		28		43						13						
Capacity, c (veh/h)		942		1052						1597						
v/c Ratio		0.03		0.04						0.01						
95% Queue Length, Q ₉₅ (veh)		0.1		0.1						0.0						
95% Queue Length, Q ₉₅ (ft)		2.5		2.5						0.0						
Control Delay (s/veh)		8.9		8.6						7.3						
Level of Service (LOS)		A		A						A						
Approach Delay (s/veh)	8.7								4.7							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

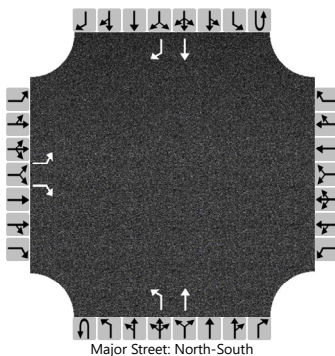
General Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Feb 2025
Analysis Year	2025
Time Analyzed	PM Peak Hour
Intersection Orientation	North-South
Project Description	11320 (Existing)

Site Information

Intersection	Mall Ring Road / JCB Connector
Jurisdiction	Columbia, TN
East/West Street	Connector to James Campbell
North/South Street	Mall Ring Road
Peak Hour Factor	0.81
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	1	1	0	0	0	1	1
Configuration		L		R						L	T				T	R
Volume (veh/h)		18		19						28	27				35	26
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	Yes												Yes			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

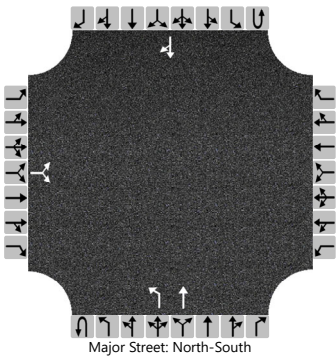
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22		23						35						
Capacity, c (veh/h)		833		1033						1578						
v/c Ratio		0.03		0.02						0.02						
95% Queue Length, Q ₉₅ (veh)		0.1		0.1						0.1						
95% Queue Length, Q ₉₅ (ft)		2.5		2.5						2.5						
Control Delay (s/veh)		9.4		8.6						7.3						
Level of Service (LOS)		A		A						A						
Approach Delay (s/veh)	9.0								3.7							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	Mall Ring Road / Shady Connector
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Feb 2025	East/West Street	Connector to Shady Brook
Analysis Year	2025	North/South Street	Mall Ring Road
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.68
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	11320 (Existing)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	1	1	0	0	0	1	0
Configuration			LR							L	T					TR
Volume (veh/h)		2		22						11	19				6	0
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

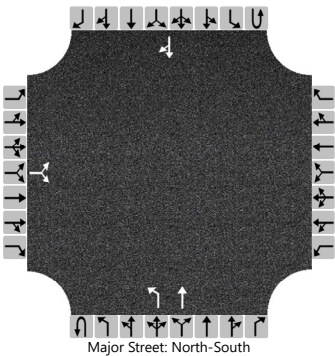
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			35							16						
Capacity, c (veh/h)			1065							1624						
v/c Ratio			0.03							0.01						
95% Queue Length, Q ₉₅ (veh)			0.1							0.0						
95% Queue Length, Q ₉₅ (ft)			2.5							0.0						
Control Delay (s/veh)			8.5							7.2						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)	8.5								2.7							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	Mall Ring Road / Shady Connector
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Feb 2025	East/West Street	Connector to Shady Brook
Analysis Year	2025	North/South Street	Mall Ring Road
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	11320 (Existing)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	1	1	0	0	0	1	0
Configuration			LR							L	T					TR
Volume (veh/h)		1		39						24	21				22	2
Percent Heavy Vehicles (%)		0		0						0						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			50							30						
Capacity, c (veh/h)			1046							1596						
v/c Ratio			0.05							0.02						
95% Queue Length, Q ₉₅ (veh)			0.2							0.1						
95% Queue Length, Q ₉₅ (ft)			5.0							2.5						
Control Delay (s/veh)			8.6							7.3						
Level of Service (LOS)			A							A						
Approach Delay (s/veh)	8.6								3.9							
Approach LOS	A								A							

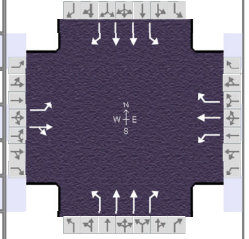
BACKGROUND CONDITIONS

HCS Signalized Intersection Results Summary

General Information

Agency	FTG		
Analyst	FTG	Analysis Date	2/6/2025
Jurisdiction	Columbia, TN	Time Period	AM Peak Hour
Urban Street	S. James Campbell Blvd	Analysis Year	2025 (Back)
Intersection	Columbia Mall	File Name	1_bgam.xus
Project Description	11320		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	42	4	13	3	1	10	37	1109	17	40	783	40

Signal Information

Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	3.8	0.1	90.6	7.5	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	5.0	3.5	0.0	0.0		
				Red	3.0	0.0	1.0	2.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		5.0	1.1	3.0	1.1	3.0
Phase Duration, s		13.0		13.0	10.3	96.6	10.4	96.7
Change Period, ($Y+R_c$), s		5.5		5.5	6.5	6.0	6.5	6.0
Max Allow Headway (MAH), s		3.9		3.9	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		5.9		3.7	2.6		2.7	
Green Extension Time (g_e), s		0.2		0.2	0.0	0.0	0.1	0.0
Phase Call Probability		0.94		0.94	0.75		0.78	
Max Out Probability		0.00		0.00	0.00		0.00	

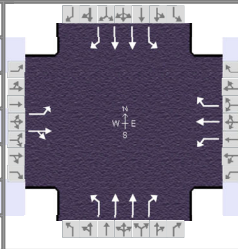
Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	48	19		3	1	11	42	1260	19	45	890	45
Adjusted Saturation Flow Rate (s), veh/h/ln	1439	1503		1415	1900	1449	1810	1809	1610	1810	1809	
Queue Service Time (g_s), s	3.9	1.5		0.3	0.1	0.9	0.6	15.7	0.4	0.7	9.5	
Cycle Queue Clearance Time (g_c), s	3.9	1.5		1.7	0.1	0.9	0.6	15.7	0.4	0.7	9.5	
Green Ratio (g/C)	0.06	0.06		0.06	0.06	0.06	0.79	0.76	0.76	0.79	0.76	
Capacity (c), veh/h	149	94		131	119	91	536	2731	1216	398	2735	
Volume-to-Capacity Ratio (X)	0.320	0.206		0.026	0.010	0.126	0.078	0.461	0.016	0.114	0.325	
Back of Queue (Q), ft/ln (95 th percentile)	64	26		4	1	15	7	212	5	8	132	
Back of Queue (Q), veh/ln (95 th percentile)	2.6	1.0		0.2	0.1	0.6	0.3	8.5	0.2	0.3	5.3	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	54.6	53.4		54.2	52.8	53.2	3.4	5.5	3.6	3.9	4.7	
Incremental Delay (d_2), s/veh	1.2	1.1		0.0	0.0	0.2	0.0	0.6	0.0	0.0	0.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	55.8	54.5		54.3	52.8	53.4	3.4	6.1	3.7	4.0	5.0	0.0
Level of Service (LOS)	E	D		D	D	D	A	A	A	A	A	A
Approach Delay, s/veh / LOS	55.4	E		53.5	D		6.0	A		4.8	A	
Intersection Delay, s/veh / LOS	7.2						A					

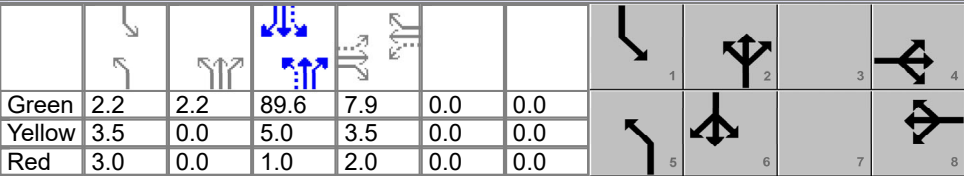
Multimodal Results

	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.47	B		2.47	B		2.04	B		1.85	B	
Bicycle LOS Score / LOS	0.60	A		0.51	A		1.58	B		1.30	A	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	FTG			Duration, h	0.250	
Analyst	FTG	Analysis Date	2/6/2025	Area Type	Other	
Jurisdiction	Columbia, TN	Time Period	PM Peak Hour	PHF	0.99	
Urban Street	S. James Campbell Blvd	Analysis Year	2025 (Back)	Analysis Period	1> 7:00	
Intersection	Columbia Mall	File Name	1_bgpm.xus			
Project Description	11320					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	44	2	50	11	5	38	63	1172	18	17	1243	23

Signal Information											
Cycle, s	120.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								
											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		5.0	1.1	3.0	1.1	3.0
Phase Duration, s		13.4		13.4	10.9	97.9	8.7	95.6
Change Period, ($Y+R_c$), s		5.5		5.5	6.5	6.0	6.5	6.0
Max Allow Headway (MAH), s		3.8		3.8	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		6.2		7.1	2.9		2.3	
Green Extension Time (g_e), s		0.4		0.3	0.1	0.0	0.0	0.0
Phase Call Probability		0.99		0.99	0.88		0.44	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	44	53		11	5	38	64	1184	18	17	1256	23
Adjusted Saturation Flow Rate (s), veh/h/ln	1433	1458		1373	1900	1610	1810	1809	1610	1810	1809	
Queue Service Time (g_s), s	3.6	4.2		0.9	0.3	2.7	0.9	13.7	0.3	0.3	16.1	
Cycle Queue Clearance Time (g_c), s	3.9	4.2		5.1	0.3	2.7	0.9	13.7	0.3	0.3	16.1	
Green Ratio (g/C)	0.07	0.07		0.07	0.07	0.07	0.78	0.77	0.77	0.77	0.75	
Capacity (c), veh/h	151	97		103	126	107	401	2770	1233	398	2703	
Volume-to-Capacity Ratio (X)	0.293	0.544		0.108	0.040	0.360	0.159	0.427	0.015	0.043	0.465	
Back of Queue (Q), ft/ln (95 th percentile)	60	74		15	6	50	12	185	4	4	220	
Back of Queue (Q), veh/ln (95 th percentile)	2.4	3.0		0.6	0.3	2.0	0.5	7.4	0.2	0.1	8.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	54.3	54.3		56.7	52.5	53.6	4.2	4.9	3.3	4.1	5.9	
Incremental Delay (d_2), s/veh	1.1	4.7		0.2	0.0	0.8	0.1	0.5	0.0	0.0	0.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	55.3	59.0		56.9	52.5	54.4	4.2	5.4	3.4	4.1	6.5	0.0
Level of Service (LOS)	E	E		E	D	D	A	A	A	A	A	A
Approach Delay, s/veh / LOS	57.3	E		54.7	D		5.3	A		6.3	A	
Intersection Delay, s/veh / LOS	8.6						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	2.04	B	1.85	B
Bicycle LOS Score / LOS	0.65	A	0.58	A	1.53	B	1.56	B

TOTAL PROJECTED CONDITIONS

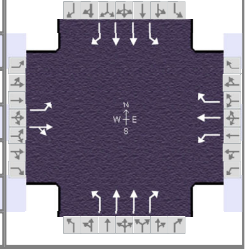
HCS Signalized Intersection Results Summary

General Information

Agency	FTG		
Analyst	FTG	Analysis Date	2/6/2025
Jurisdiction	Columbia, TN	Time Period	AM Peak Hour
Urban Street	S. James Campbell Blvd	Analysis Year	2025 (Total)
Intersection	Columbia Mall	File Name	1_fuam.xus
Project Description	11320		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.88
Analysis Period	1> 7:00



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	42	4	13	6	1	13	37	1109	21	44	783	40

Signal Information

Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	3.8	0.3	90.3	7.6	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	5.0	3.5	0.0	0.0		
				Red	3.0	0.0	1.0	2.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		5.0	1.1	3.0	1.1	3.0
Phase Duration, s		13.1		13.1	10.3	96.3	10.6	96.6
Change Period, ($Y+R_c$), s		5.5		5.5	6.5	6.0	6.5	6.0
Max Allow Headway (MAH), s		3.8		3.8	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		5.9		4.0	2.6		2.7	
Green Extension Time (g_e), s		0.2		0.2	0.0	0.0	0.1	0.0
Phase Call Probability		0.95		0.95	0.75		0.81	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	48	19		7	1	15	42	1260	24	50	890	45
Adjusted Saturation Flow Rate (s), veh/h/ln	1439	1503		1415	1900	1449	1810	1809	1610	1810	1809	
Queue Service Time (g_s), s	3.9	1.5		0.6	0.1	1.2	0.6	15.9	0.4	0.7	9.6	
Cycle Queue Clearance Time (g_c), s	3.9	1.5		2.0	0.1	1.2	0.6	15.9	0.4	0.7	9.6	
Green Ratio (g/C)	0.06	0.06		0.06	0.06	0.06	0.78	0.75	0.75	0.79	0.76	
Capacity (c), veh/h	150	95		132	120	92	535	2724	1212	399	2732	
Volume-to-Capacity Ratio (X)	0.317	0.203		0.051	0.009	0.161	0.079	0.463	0.020	0.125	0.326	
Back of Queue (Q), ft/ln (95 th percentile)	64	26		9	1	19	8	215	6	9	133	
Back of Queue (Q), veh/ln (95 th percentile)	2.6	1.0		0.4	0.1	0.8	0.3	8.6	0.2	0.4	5.3	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	54.5	53.3		54.3	52.7	53.2	3.4	5.6	3.7	4.0	4.8	
Incremental Delay (d_2), s/veh	1.2	1.0		0.1	0.0	0.3	0.0	0.6	0.0	0.1	0.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	55.7	54.4		54.3	52.7	53.5	3.5	6.2	3.7	4.0	5.1	0.0
Level of Service (LOS)	E	D		D	D	D	A	A	A	A	A	A
Approach Delay, s/veh / LOS	55.3	E		53.7	D		6.1	A		4.8	A	
Intersection Delay, s/veh / LOS	7.4						A					

Multimodal Results

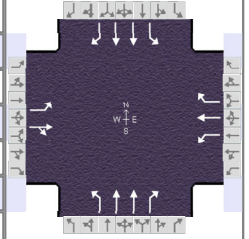
	EB			WB			NB			SB		
Pedestrian LOS Score / LOS	2.47	B		2.47	B		2.04	B		1.85	B	
Bicycle LOS Score / LOS	0.60	A		0.53	A		1.58	B		1.30	A	

HCS Signalized Intersection Results Summary

General Information

Agency	FTG		
Analyst	FTG	Analysis Date	2/6/2025
Jurisdiction	Columbia, TN	Time Period	PM Peak Hour
Urban Street	S. James Campbell Blvd	Analysis Year	2025 (Total)
Intersection	Columbia Mall	File Name	1_fupm.xus
Project Description	11320		

Intersection Information



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	44	2	50	26	5	53	63	1172	35	34	1243	23

Signal Information

Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	3.4	1.0	88.8	8.8	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.5	0.0	5.0	3.5	0.0	0.0		
				Red	3.0	0.0	1.0	2.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		6.0		5.0	1.1	3.0	1.1	3.0
Phase Duration, s		14.3		14.3	10.9	95.8	9.9	94.8
Change Period, ($Y+R_c$), s		5.5		5.5	6.5	6.0	6.5	6.0
Max Allow Headway (MAH), s		3.7		3.7	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		6.2		8.4	3.0		2.5	
Green Extension Time (g_e), s		0.4		0.4	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	0.88		0.68	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	44	53		26	5	54	64	1184	35	34	1256	23
Adjusted Saturation Flow Rate (s), veh/h/ln	1433	1458		1373	1900	1610	1810	1809	1610	1810	1809	
Queue Service Time (g_s), s	3.6	4.2		2.2	0.3	3.8	1.0	14.7	0.7	0.5	16.6	
Cycle Queue Clearance Time (g_c), s	3.9	4.2		6.4	0.3	3.8	1.0	14.7	0.7	0.5	16.6	
Green Ratio (g/C)	0.07	0.07		0.07	0.07	0.07	0.78	0.75	0.75	0.77	0.74	
Capacity (c), veh/h	162	108		113	140	119	397	2705	1204	404	2675	
Volume-to-Capacity Ratio (X)	0.275	0.488		0.232	0.036	0.451	0.160	0.438	0.029	0.085	0.469	
Back of Queue (Q), ft/ln (95 th percentile)	59	72		35	6	70	12	205	9	7	228	
Back of Queue (Q), veh/ln (95 th percentile)	2.4	2.9		1.4	0.3	2.8	0.5	8.2	0.4	0.3	9.1	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d_1), s/veh	53.4	53.4		56.5	51.6	53.2	4.4	5.7	3.9	4.4	6.2	
Incremental Delay (d_2), s/veh	0.9	3.4		0.4	0.0	1.0	0.1	0.5	0.0	0.0	0.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Control Delay (d), s/veh	54.3	56.8		56.9	51.6	54.2	4.5	6.2	3.9	4.4	6.8	0.0
Level of Service (LOS)	D	E		E	D	D	A	A	A	A	A	A
Approach Delay, s/veh / LOS	55.7	E		54.9	D		6.0	A		6.6	A	
Intersection Delay, s/veh / LOS	9.6						A					

Multimodal Results

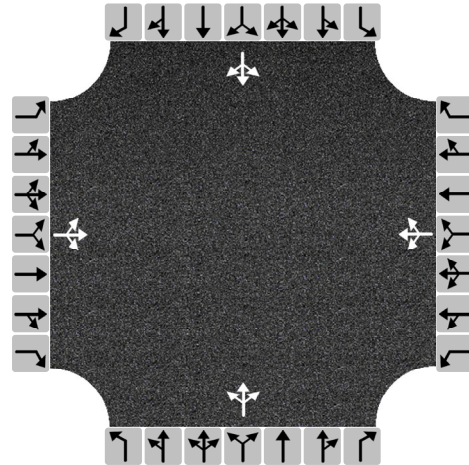
	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	2.04	B	1.85	B
Bicycle LOS Score / LOS	0.65	A	0.63	A	1.55	B	1.57	B

HCS All-Way Stop Control Report

General and Site Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Feb 2025
Analysis Year	2025
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak Hour
Project Description	11320 (Total)
Intersection	Shady Brook Street
Jurisdiction	Columbia, TN
East/West Street	Mall Access
North/South Street	
Peak Hour Factor	0.97

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	3	6	23	5	4	7	47	86	9	15	41	11
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	33			16			146			69		
Percent Heavy Vehicles	0			0			0			0		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.029			0.015			0.130			0.061		
Final Departure Headway, h_d (s)	3.97			4.19			4.10			4.09		
Final Degree of Utilization, x	0.036			0.019			0.167			0.078		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	1.97			2.19			2.10			2.09		

Capacity, Delay and Level of Service

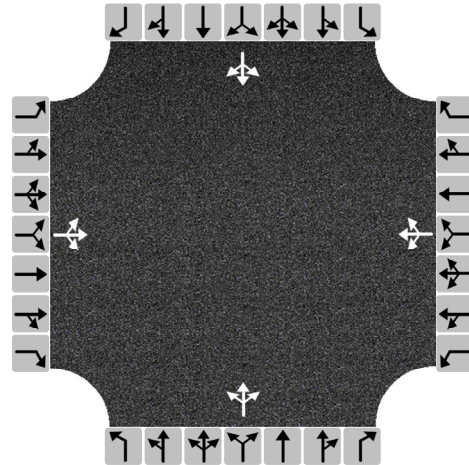
Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	33			16			146			69		
Capacity (veh/h)	908			858			878			880		
95% Queue Length, Q ₉₅ (veh)	0.1			0.1			0.6			0.3		
95% Queue Length, Q ₉₅ (ft)	2.5			2.5			15.0			7.5		
Control Delay (s/veh)	7.1			7.3			7.9			7.4		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) LOS	7.1		A		7.3		A		7.9		A	
Intersection Delay (s/veh) LOS	7.7						A					

HCS All-Way Stop Control Report

General and Site Information

Analyst	FTG
Agency/Co.	FTG
Date Performed	Feb 2025
Analysis Year	2025
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak Hour
Project Description	11320 (Total)
Intersection	Shady Brook Street
Jurisdiction	Columbia, TN
East/West Street	Mall Access
North/South Street	
Peak Hour Factor	0.87

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	19	11	64	20	5	22	62	90	25	28	167	27
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	108			54			203			255		
Percent Heavy Vehicles	0			0			0			0		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.096			0.048			0.181			0.227		
Final Departure Headway, h_d (s)	4.67			4.92			4.58			4.49		
Final Degree of Utilization, x	0.140			0.074			0.259			0.319		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	2.67			2.92			2.58			2.49		

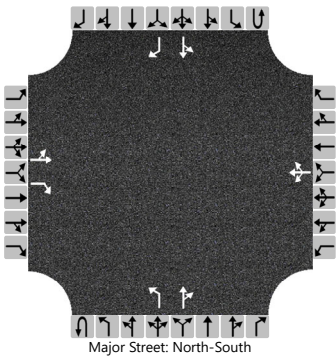
Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	108			54			203			255		
Capacity (veh/h)	771			732			786			801		
95% Queue Length, Q ₉₅ (veh)	0.5			0.2			1.0			1.4		
95% Queue Length, Q ₉₅ (ft)	12.5			5.0			25.0			35.0		
Control Delay (s/veh)	8.4			8.3			9.2			9.6		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh) LOS	8.4		A		8.3		A		9.2		A	
Intersection Delay (s/veh) LOS	9.1						A					

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	Mall Ring Road / JCB Connector
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Feb 2025	East/West Street	Connector to James Campbell
Analysis Year	2025	North/South Street	Mall Ring Road
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.86
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	11320 (Total)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	0	1	1
Configuration		LT		R			LTR			L		TR		LT		R
Volume (veh/h)		24	8	37		1	6	0		11	6	2		0	25	3
Percent Heavy Vehicles (%)		0	0	0		0	0	0		0				0		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	Yes												Yes			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.20		

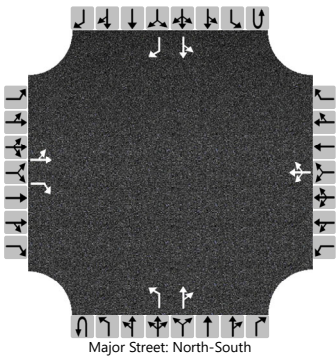
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		37		43			8			13				0		
Capacity, c (veh/h)		889		1049			828			1597				1624		
v/c Ratio		0.04		0.04			0.01			0.01				0.00		
95% Queue Length, Q ₉₅ (veh)		0.1		0.1			0.0			0.0				0.0		
95% Queue Length, Q ₉₅ (ft)		2.5		2.5			0.0			0.0				0.0		
Control Delay (s/veh)		9.2		8.6			9.4			7.3				7.2	0.0	
Level of Service (LOS)		A		A			A			A				A	A	
Approach Delay (s/veh)	8.9				9.4				4.2				0.0			
Approach LOS	A				A				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	Mall Ring Road / JCB Connector
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Feb 2025	East/West Street	Connector to James Campbell
Analysis Year	2025	North/South Street	Mall Ring Road
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.81
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	11320 (Total)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	1		0	1	0	0	1	1	0	0	0	1	1
Configuration		LT		R			LTR			L		TR		LT		R
Volume (veh/h)		18	34	19		7	30	0		28	27	8		0	35	26
Percent Heavy Vehicles (%)		0	0	0		0	0	0		0				0		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	Yes												Yes			
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.20		

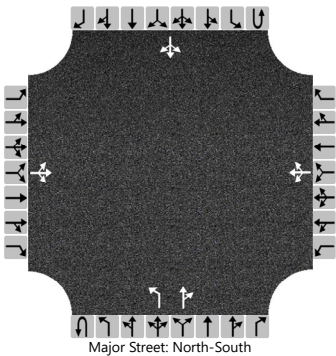
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		64		23			46			35				0		
Capacity, c (veh/h)		715		1012			724			1578				1578		
v/c Ratio		0.09		0.02			0.06			0.02				0.00		
95% Queue Length, Q ₉₅ (veh)		0.3		0.1			0.2			0.1				0.0		
95% Queue Length, Q ₉₅ (ft)		7.5		2.5			5.0			2.5				0.0		
Control Delay (s/veh)		10.5		8.6			10.3			7.3				7.3	0.0	
Level of Service (LOS)		B		A			B			A				A	A	
Approach Delay (s/veh)	10.0				10.3				3.3				0.0			
Approach LOS	B				B				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	Mall Ring Road / Shady Connector
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Feb 2025	East/West Street	Connector to Shady Brook
Analysis Year	2025	North/South Street	Mall Ring Road
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.68
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	11320 (Total)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	0	1	0
Configuration			LTR				LTR			L		TR			LTR	
Volume (veh/h)		2	6	22		0	5	1		11	19	0		1	6	0
Percent Heavy Vehicles (%)		0	0	0		0	0	0		0				0		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.20		

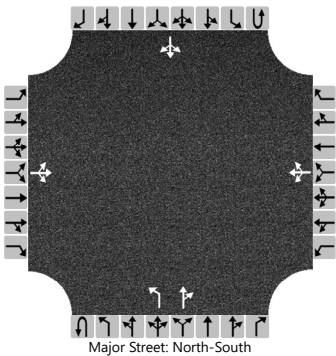
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			44				9			16				1		
Capacity, c (veh/h)			1000				845			1624				1599		
v/c Ratio			0.04				0.01			0.01				0.00		
95% Queue Length, Q ₉₅ (veh)			0.1				0.0			0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			2.5				0.0			0.0				0.0		
Control Delay (s/veh)			8.8				9.3			7.2				7.3	0.0	0.0
Level of Service (LOS)			A				A			A				A	A	A
Approach Delay (s/veh)	8.8				9.3				2.7				1.0			
Approach LOS	A				A				A				A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	FTG	Intersection	Mall Ring Road / Shady Connector
Agency/Co.	FTG	Jurisdiction	Columbia, TN
Date Performed	Feb 2025	East/West Street	Connector to Shady Brook
Analysis Year	2025	North/South Street	Mall Ring Road
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	11320 (Total)		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	0	1	0
Configuration			LTR				LTR			L		TR			LTR	
Volume (veh/h)		1	24	39		0	21	3		24	21	0		3	22	2
Percent Heavy Vehicles (%)		0	0	0		0	0	0		0				0		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.10				4.10		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.20				2.20		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			80				30			30				4		
Capacity, c (veh/h)			913				782			1596				1601		
v/c Ratio			0.09				0.04			0.02				0.00		
95% Queue Length, Q ₉₅ (veh)			0.3				0.1			0.1				0.0		
95% Queue Length, Q ₉₅ (ft)			7.5				2.5			2.5				0.0		
Control Delay (s/veh)			9.3				9.8			7.3				7.3	0.0	0.0
Level of Service (LOS)			A				A			A				A	A	A
Approach Delay (s/veh)	9.3				9.8				3.9				0.8			
Approach LOS	A				A				A				A			

**APPENDIX C
TRIP GENERATION**

TRIP GENERATION CALCULATIONS – Shopping Plaza < 40K sq.ft.

The following calculations are based on the data compiled for ITE Land Use Code 822.

Average Daily Traffic

$$T = 42.20 (X) + 229.68$$

$$T = 42.20 (6.150) + 229.68$$

$$T = 490 \text{ vehicle-trips}$$

$$\text{Enter} = 0.50 (490) = 245 \text{ vehicles}$$

$$\text{Exit} = 0.50 (490) = 245 \text{ vehicles}$$

A.M. traffic during peak hour of adjacent street

$$\ln(T) = 0.66 (X) + 1.84$$

$$\ln(T) = 0.66 (6.150) + 1.84$$

$$T = 21 \text{ vehicle-trips}$$

$$\text{Enter} = 0.60 (21) = 13 \text{ vehicles}$$

$$\text{Exit} = 0.40 (21) = 8 \text{ vehicles}$$

P.M. traffic during peak hour of adjacent street

$$\ln(T) = 0.71 (X) + 2.72$$

$$\ln(T) = 0.71 (6.150) + 2.72$$

$$T = 56 \text{ vehicle-trips}$$

$$\text{Enter} = 0.50 (56) = 28 \text{ vehicles}$$

$$\text{Exit} = 0.50 (56) = 28 \text{ vehicles}$$

TRIP GENERATION CALCULATIONS – Fast Casual Restaurant

The following calculations are based on the data compiled for ITE Land Use Code 930.

Average Daily Traffic

$$T = 97.14 \text{ (X)}$$

$$T = 97.14 \text{ (6.000)}$$

$$T = 582 \text{ vehicle-trips}$$

$$\text{Enter} = 0.50 (582) = 291 \text{ vehicles}$$

$$\text{Exit} = 0.50 (582) = 291 \text{ vehicles}$$

A.M. traffic during peak hour of adjacent street

$$T = 1.43 \text{ (X)}$$

$$T = 1.43 \text{ (6.000)}$$

$$T = 8 \text{ vehicle-trips}$$

$$\text{Enter} = 0.50 (8) = 4 \text{ vehicles}$$

$$\text{Exit} = 0.50 (8) = 4 \text{ vehicles}$$

P.M. traffic during peak hour of adjacent street

$$T = 12.55 \text{ (X)}$$

$$T = 12.55 \text{ (6.000)}$$

$$T = 75 \text{ vehicle-trips}$$

$$\text{Enter} = 0.55 (75) = 41 \text{ vehicles}$$

$$\text{Exit} = 0.45 (75) = 34 \text{ vehicles}$$



January 16, 2025

Mr. Preston Ayer
SWS Engineering
504 Autumn Springs Ct.
Franklin, TN 37067

Sent via email: preston@sws-engr.com

**RE: Water Availability Letter
Columbia Mall Outparcel Building - 5 Units**

Expires: 5/16/2025

800 S. James Campbell Blvd.
New Parcel to be Platted
Columbia, TN

Dear Mr. Ayer:

Columbia Power & Water Systems ("the Utility"/CPWS) is a municipal corporation authorized to provide water services in accordance with State law. CPWS has adopted rules, regulations, and standard operation procedures, prescribing the conditions under which CPWS will furnish water service. In addition, certain State laws delegate authority to the Tennessee Department of Environment and Conservation (TDEC), various Planning Commissions, and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Water service will be made available on a first-come, first-served basis, subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies. Water service is subject to availability of all CPWS furnished equipment and materials appropriate for the development and provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development is a new 12,150 square foot multi-unit commercial/retail building. CPWS has evaluated the projected water demands for the proposed development in the water system hydraulic model and is able to meet a fire-flow demand of 1,000 gpm while maintaining state standards for level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following criteria and requirements:

- Existing water mains located under the proposed building site must be relocated within public right-of-way or utility easements to the satisfaction of CPWS.
- Proposed building is assumed to be served by a single 2-inch master-meter for domestic/commercial uses.

- Proposed building is assumed to be fire sprinkler protected via a single fire-service line and meter.
- Separate fire and domestic/commercial/irrigation meters with backflow devices will be required to serve the proposed Project.

All of the above requirements up to and including the meter(s) are to be constructed and paid for by the Applicant and dedicated to CPWS once complete. No construction of water infrastructure shall be initiated until final construction plans have been approved by CPWS (including TDEC approval).

This Water Availability Letter will expire in one-hundred twenty (120) days unless vested by payment of water service fees and impact fees for the proposed project. If the Applicant elects to pay only a portion of the impact fees due for the proposed development, then the vesting will only apply to the portion for which impact fees were paid. Any request for water availability after the expiration date of this letter will be considered a new application.

Once you have received this Water Availability Letter, next steps in the process to vest water service from CPWS are as follows:

- Remit to CPWS new water service fees for plan review, TDEC coordination, and inspection as follows:

\$1,500 + \$370 per SFU equivalent

- Applicant will prepare design drawings for review and approval by CPWS for construction of the proposed water system improvements.
 - Provide design drawings in AutoCAD and .pdf format for CPWS review of proposed development. Include design drawings for grading, drainage, roadway improvements, buried (wet and dry) utilities, water systems, and surface improvements.
 - CPWS will submit proposed improvements design to TDEC for review and approval.
 - Once comments received from TDEC have been addressed and approved, CPWS will approve the Construction Drawings for the proposed water system improvements.
- Current water service fees due prior to CPWS review of design plans are listed in the table below. *Note that payment of Water Service Fees will extend the expiration of this Water Availability Letter for one year, while the applicant is working with CPWS on design and review of the improvement drawings.*

Water Service Fees	SFUs	Total
\$1,500 + 370 per SFU	8.3	\$4,571

- Upon Construction Drawing approval by CPWS, applicant may then pay Impact Fees and schedule the pre-construction meeting. Pre-construction meeting will be canceled

and re-scheduled unless all impact fees are paid at least 48 hours prior, or surety is provided in lieu of full payment.

- Water meters will be ordered by CPWS once meter fees are paid by the Applicant.
 - Meter fees are subject to change based on final design and the prevailing Board-approved rates at time of payment.
 - If surety is provided in lieu of payment, meters are not ordered until fees are paid and may result in extended lead-times.
 - Note that meter fees are charged at time of purchase, based on price of meter at that time.
- Applicants will be charged Impact Fees and Meter Fees in effect at time of payment. Please see CPWS website for schedule of impact fees and timing of planned fee escalations. Anticipated meter costs and impact fees for this project are according to the following table:

Impact Fees and Meter Costs	Number	\$ / Unit	Total
2" Service Meter Cost	1	Current Price	Deferred
4" Fire Meter Cost	1	Current Price	Deferred
Current Impact Fee for 2" Service Meter	1	\$27,000	\$27,000.00
Estimate of Fees Due Prior to Pre-Construction Meeting =			\$27,000.00

- After the pre-construction meeting, CPWS will then issue a formal Notice to Proceed. No construction of water improvements may take place prior to the Notice to Proceed.
- Applicant is required to construct all public water infrastructure per CPWS standard specifications and provide CPWS personnel unregulated access to the site to inspect the construction of the water infrastructure. No construction of water improvements may take place without a CPWS inspector present.

Please feel free to contact me at 931-388-4833 x7655 or Matt.Wheeler@cpws.com if you have questions or would like to discuss.

Sincerely,



Matthew J. Wheeler, P.E.
Vice President of Water Resources, CPWS

cc: Will Hulshof, Highland Capital
Bart Anderson, CPWS
Eric King, Inflo Design Group
File 25-001



Columbia Fire & Rescue

Fire Flow Requirements



Water Purveyor: Columbia Power & Water System

Date: 12-16-24
Name: Preston Ayer
Phone: 951-704-0890
Email: preston@sws-engr.com
Address/Parcel ID: 800 James Campbell Blvd S
Property Type: ☐ Residential
☒ Commercial
☐ Industrial
Construction Type: Type 2B - Fully Sprin
Enclosed Area (ft²): 12,000 SF

FILLED OUT BY COLUMBIA FIRE AND RESCUE

NFPA Sprinkler Type: NFPA 13

Water System Demand without Sprinkler Credit *Fire flow Requirements (International Fire Code Appendix B)*

Fire Flow: _____ gpm Duration: _____ hours

Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: _____

Average spacing between hydrants: _____ ft.

Maximum distance from frontage to hydrant: _____ ft.

Water System Demand with Sprinkler Credit *Fire flow requirements (International Fire Code Appendix B)*

Fire Flow: 1,000 gpm Duration: 2 hours

Fire Hydrant Location and Distribution (International Fire Code Appendix C)

Minimum number of hydrants: 1

Average spacing between hydrants: 500 ft.

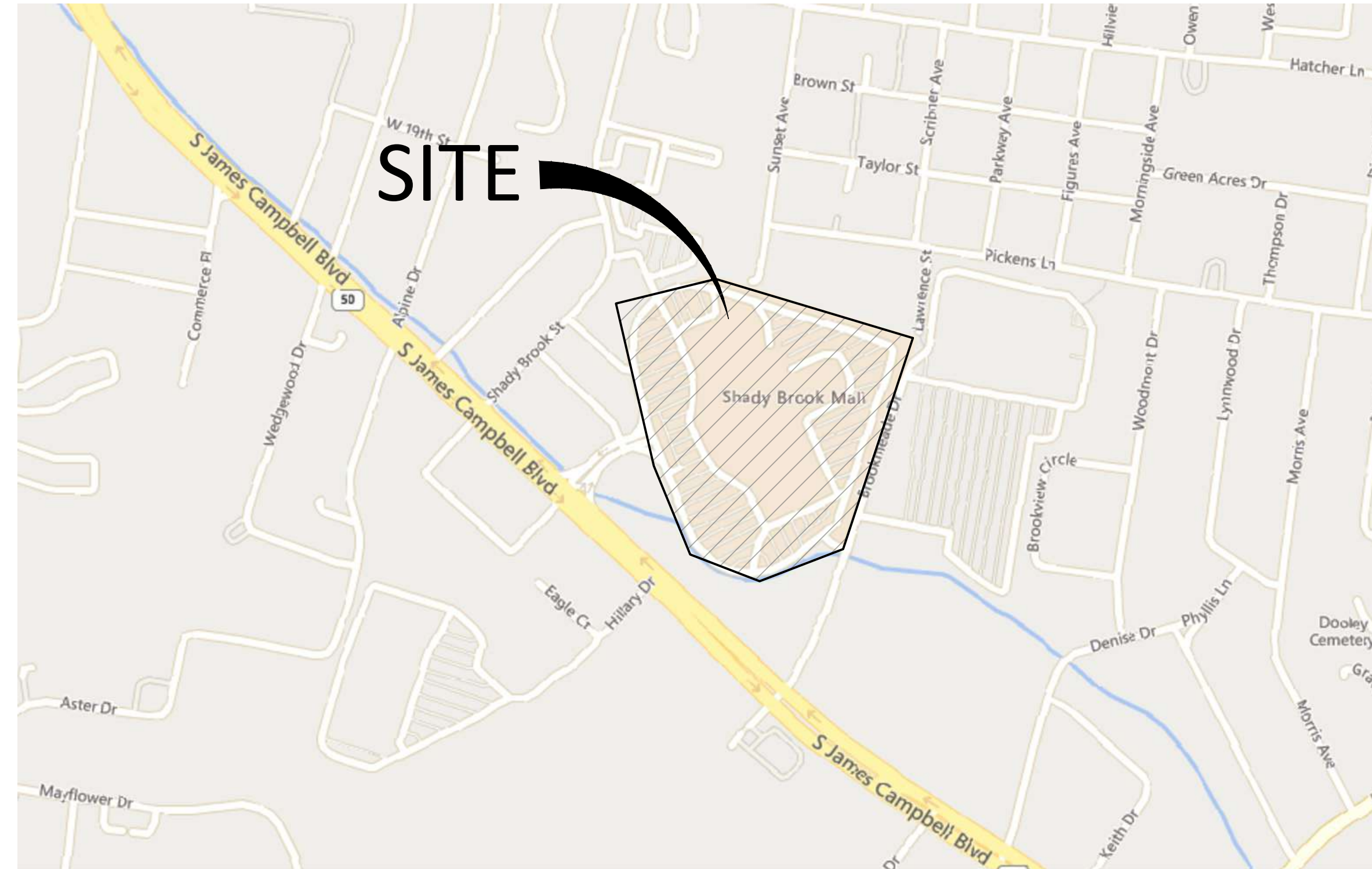
Maximum distance from frontage to hydrant: 250 ft.

Fire Plan Reviewer: Brad Massey Date: 12-20-2024

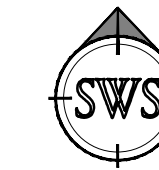
OUT PARCEL RETAIL BUILDING

COLUMBIA, TN 38401

COMMERCIAL DEVELOPEMENT



VICINITY MAP
N.T.S.



I HEREBY CERTIFY THAT THIS PROJECT DOES NOT
REQUIRE COVERAGE UNDER A TENNESSEE
CONSTRUCTION GENERAL PERMIT.

THE TOTAL DISTURBED AREA IS: 0.89 ACRES.

THIS SITE DOES NOT DISCHARGE INTO WATERS
IDENTIFIED BY TDEC AS IMPAIRED FOR HABITAT
ALTERATION OR SEDIMENTATION.

_____12-09-24_____
SIGNATURE DATE

CIRCLE ONE: DEVELOPER

(PROJECT ENGINEER)

DEVELOPMENT SUMMARY

SITE ADDRESS: 800 S JAMES CAMPBELL BLVD.
COLUMBIA, TN 38401

TOTAL AREA: 0.99 AC, 43,326 SQFT

PARCEL: NEW PARCEL TO BE PLATTED

OWNER: HIGHLAND CAPITAL GROUP
600 12TH AVENUE S. UNIT 816,
NASHVILLE TN

ENGINEER: PRESTON AYER, P.E.
SWS ENGINEERING, INC.
504 AUTUMN SPRINGS CT, #6
FRANKLIN, TN 37067
951-704-0890

FEMA FIRMS: THIS PARCEL RESIDES IN 47119C0285E,
EFFECTIVE 04/16/2017, ZONE X

SHEET SUMMARY

C0.00 – COVER
C0.01 – CIVIL NOTES
V1,2,3 – SURVEY SHEETS
C0.02 – EXISTING CONDITIONS AND DEMO PLAN
C1.00 – SITE PLAN
C2.00 – GRADING DRAINAGE
C3.00 – EPSC PLAN
C4.00 – UTILITY PLANS
C5.00 – DETAILS
C5.30 – UTILITY DETAILS
C5.31 – UTILITY DETAILS

[illegible]

**CITY REVIEW SET,
NOT FOR
CONSTRUCTION**



COVER

DESIGN DOCUMENT SET

OUT PARCEL RETAIL BUILDING

800 S JAMES CAMPBELL BLVD
COLUMBIA, TENNESSEE

[illegible]

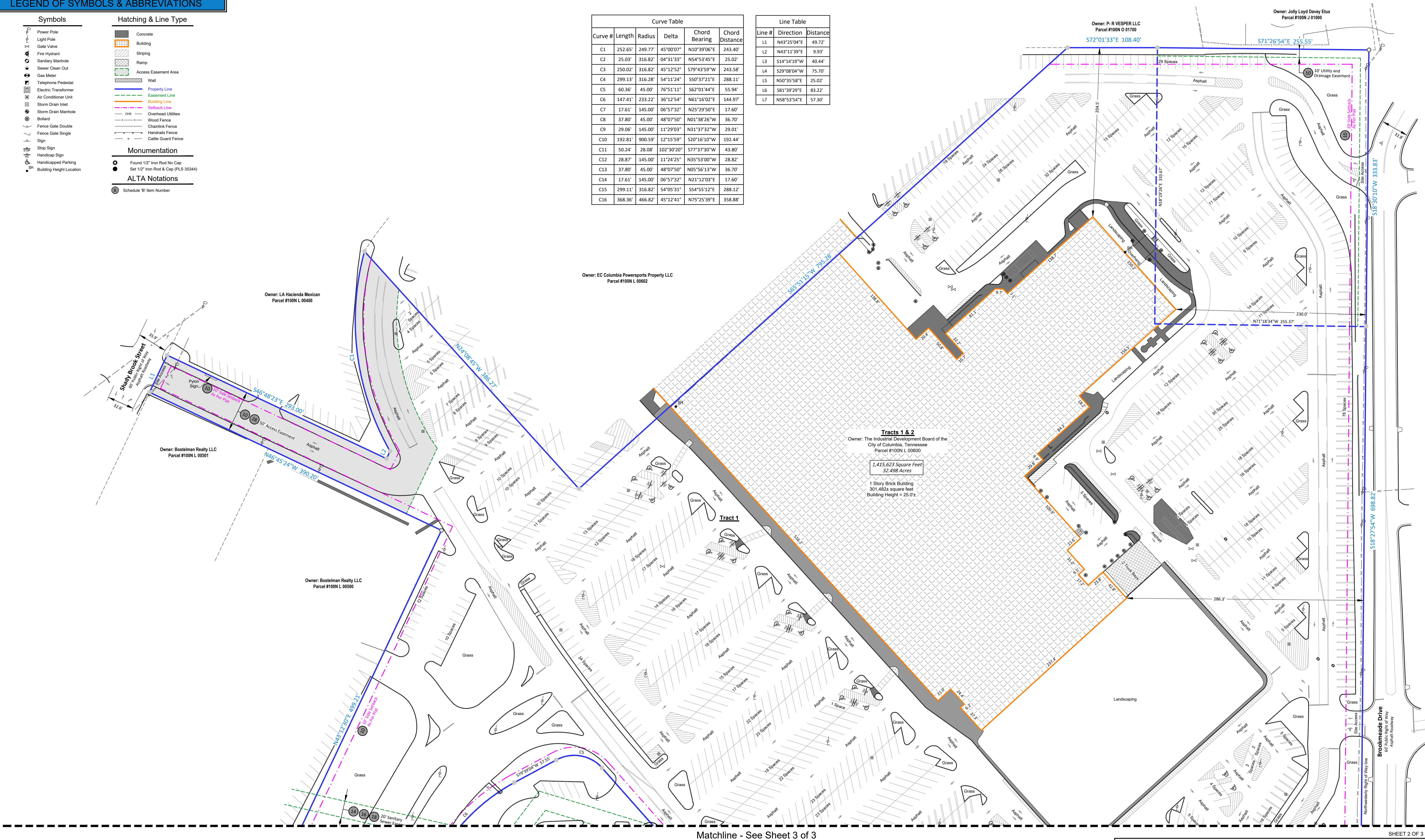
Page 423 of 44

LEGEND OF SYMBOLS & ABBREVIATIONS

Symbols	Hatching & Line Type
Power Pole	Concrete
Light Pole	Building
Gate Valve	Striping
Fire Hydrant	Ramp
Sanitary Manhole	Access Easement Area
Sewer Clean Out	Wall
Gas Meter	Property Line
Telephone Pedestal	Easement Line
Electric Transformer	Building Line
Air Conditioner Unit	Setback Line
Storm Drain Inlet	Overhead Utilities
Storm Drain Manhole	Wood Fence
Bollard	Chainlink Fence
Fence Gate Double	Handrails Fence
Fence Gate Single	Cattle Guard Fence
Sign	
Stop Sign	
Handicap Sign	
Handicapped Parking	
Building Height Location	
	Monumentation

Curve Table					
Curve #	Length	Radius	Delta	Chord Bearing	Chord Distance
C1	252.65'	249.77'	45°00'07"	N10°39'06"E	243.40'
C2	25.03'	316.82'	04°31'33"	N54°53'45"E	25.02'
C3	250.02'	316.82'	45°12'52"	S79°43'59"W	243.58'
C4	299.13'	316.28'	54°11'24"	S50°37'21"E	288.11'
C5	60.36'	45.00'	76°51'11"	S62°01'44"E	55.94'
C6	147.41'	233.22'	36°12'54"	N61°16'02"E	144.97'
C7	17.61'	145.00'	06°57'32"	N25°29'50"E	17.60'
C8	37.80'	45.00'	48°07'50"	N01°38'26"W	36.70'
C9	29.06'	145.00'	11°29'03"	N31°37'32"W	29.01'
C10	192.81'	900.59'	12°15'59"	S20°16'10"W	192.44'
C11	50.24'	28.08'	102°30'20"	S77°37'30"W	43.80'
C12	28.87'	145.00'	11°24'25"	N35°53'00"W	28.82'
C13	37.80'	45.00'	48°07'50"	N05°56'13"W	36.70'
C14	17.61'	145.00'	06°57'32"	N21°12'03"E	17.60'
C15	299.11'	316.82'	54°05'31"	S54°55'12"E	288.12'
C16	368.36'	466.82'	45°12'41"	N75°25'39"E	358.88'

Line Table		
Line #	Direction	Distance
L1	N43°25'04"E	49.72'
L2	N43°11'39"E	9.93'
L3	S14°14'19"W	40.44'
L4	S29°08'04"W	75.70'
L5	N50°35'58"E	25.02'
L6	S81°39'29"E	83.22'
L7	N58°53'54"E	57.30'



Matchline - See Sheet 3 of 3

1 inch = 50 feet
Graphic Scale

0' 25' 50' 100'

NV5

ALTA/NSPS LAND TITLE SURVEY
PREPARED FOR
Columbia Mall TN Project
Date of Field Survey: July 12, 2024
Network Project Number: 202401259-1 AAC
1-(800)-SURVEYS (787-8397)
TRANSACTION SERVICES
www.bockandclark.com maywehelpyou@bockandclark.com www.NV5.com

SURVEY • ZONING • ENVIRONMENTAL • ASSESSMENT

LEGEND OF SYMBOLS & ABBREVIATIONS

Symbols

- Power Pole
- Light Pole
- Gate Valve
- Fire Hydrant
- Sanitary Manhole
- Sewer Clean Out
- Gas Meter
- Telephone Pedestal
- Electric Transformer
- Air Conditioner Unit
- Storm Drain Inlet
- Storm Drain Manhole
- Bollard
- Fence Gate Double
- Fence Gate Single
- Sign
- Stop Sign
- Handicap Sign
- Handicapped Parking
- Building Height Location

Hatching & Line Type

- Concrete
- Building
- Striping
- Ramp
- Access Easement Area
- Wall
- Property Line
- Easement Line
- Building Line
- Setback Line
- OHE
- Overhead Utilities
- Wood Fence
- Chainlink Fence
- Handrails Fence
- Cattle Guard Fence

Monumentation

- Found 1/2" Iron Rod No Cap
- Set 1/2" Iron Rod & Cap (PLS 35344)

ALTA Notations

- Schedule "B" Item Number

Matchline - See Sheet 2 of 3

POINT OF BEGINNING
Tract 1

POINT OF BEGINNING
Tract 2

Not Included
Owner: Regions Bank
Parcel #100N L 00691

Not Included
Owner: Eyecare Real Estate LLC
Parcel #100N L 00701

James M Campbell Boulevard
(Tennessee Highway 50)
120' Public Right of Way
Asphalt Roadway

Curve Table

Curve #	Length	Radius	Delta	Chord Bearing	Chord Distance
C1	252.65'	249.77'	45°00'07"	N10°39'06"E	243.40'
C2	25.03'	316.82'	04°31'33"	N54°53'45"E	25.02'
C3	250.02'	316.82'	45°12'52"	S79°43'59"W	243.58'
C4	299.13'	316.28'	54°11'24"	S50°37'21"E	288.11'
C5	60.36'	45.00'	76°51'11"	S62°01'44"E	55.94'
C6	147.41'	233.22'	36°12'54"	N61°16'02"E	144.97'
C7	17.61'	145.00'	06°57'32"	N25°29'50"E	17.60'
C8	37.80'	45.00'	48°07'50"	N01°38'26"W	36.70'
C9	29.06'	145.00'	11°29'03"	N31°37'32"W	29.01'
C10	192.81'	900.59'	12°15'59"	S20°16'10"W	192.44'
C11	50.24'	28.08'	102°30'20"	S77°37'30"W	43.80'
C12	28.87'	145.00'	11°24'25"	N35°53'00"W	28.82'
C13	37.80'	45.00'	48°07'50"	N05°56'13"W	36.70'
C14	17.61'	145.00'	06°57'32"	N21°12'03"E	17.60'
C15	299.11'	316.82'	54°05'31"	S54°55'12"E	288.12'
C16	368.36'	466.82'	45°12'41"	N75°25'39"E	358.88'

Line Table

Line #	Direction	Distance
L1	N43°25'04"E	49.72'
L2	N43°11'39"E	9.93'
L3	S14°14'19"W	40.44'
L4	S39°08'04"W	75.70'
L5	N50°35'58"E	25.02'
L6	S81°39'29"E	83.22'
L7	N58°53'54"E	57.30'

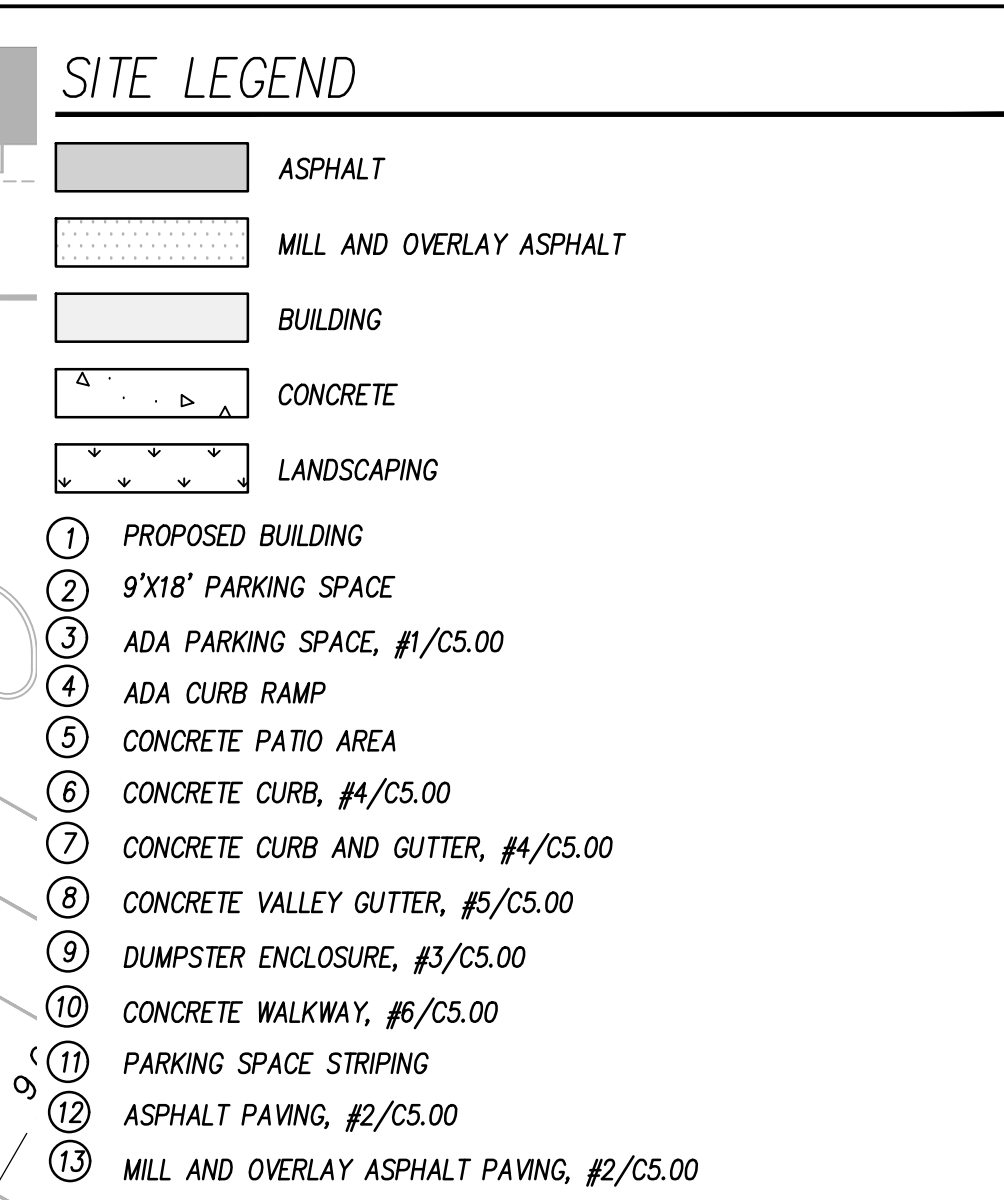
1 inch = 50 feet
Graphic Scale

0' 25' 50' 100'

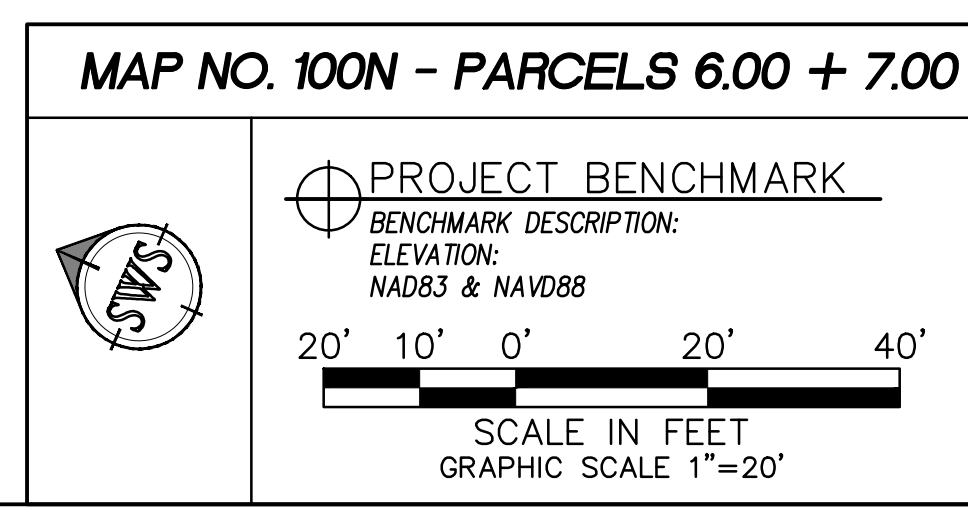
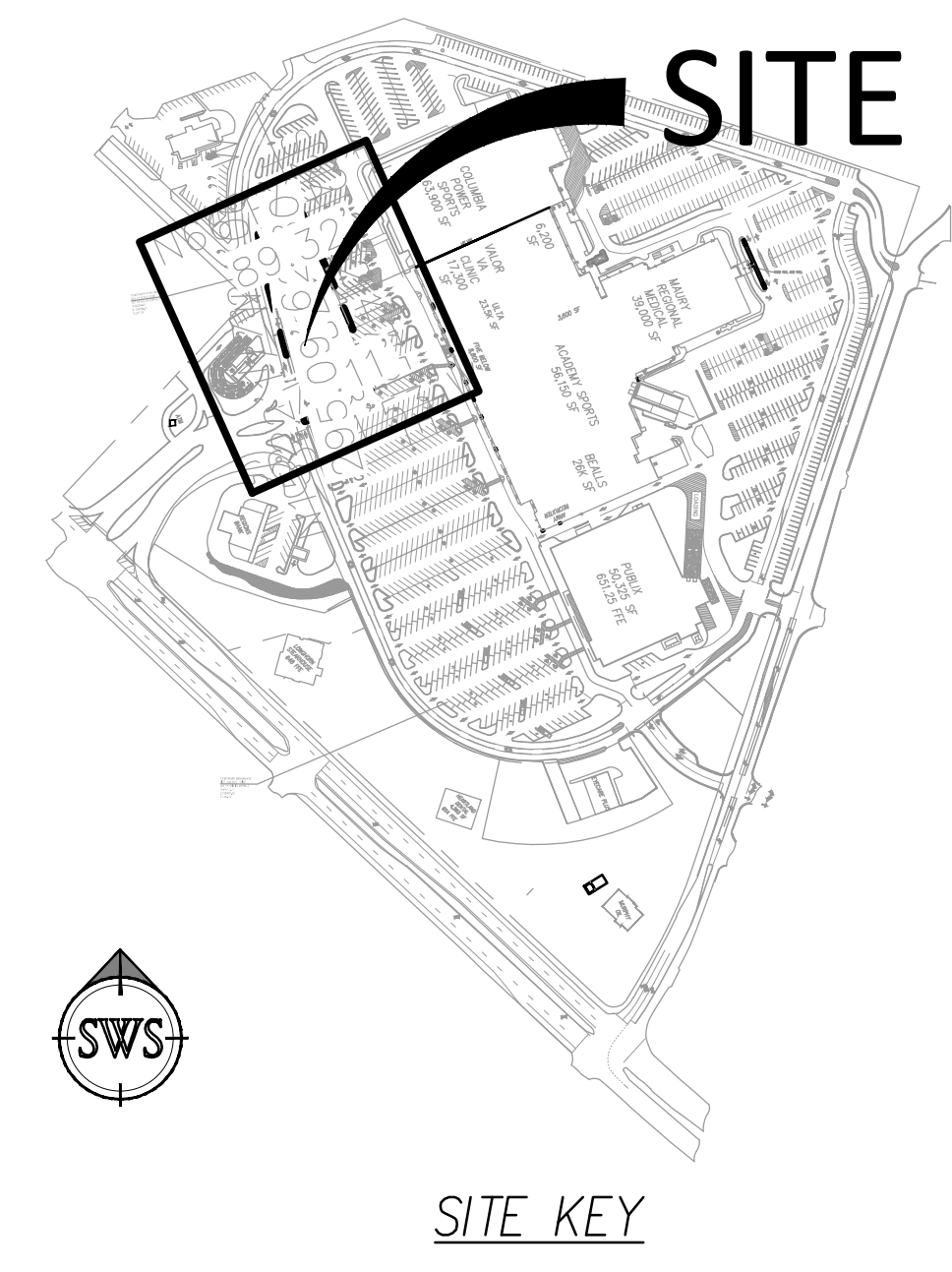
ALTA/NSPS LAND TITLE SURVEY
PREPARED FOR
Columbia Mall TN Project
Date of Field Survey: July 12, 2024
Network Project Number: 202401259-1 AAC
1-(800)-SURVEYS (787-8397)
TRANSACTION SERVICES
www.bockandclark.com maywehelpyou@bockandclark.com www.NV5.com

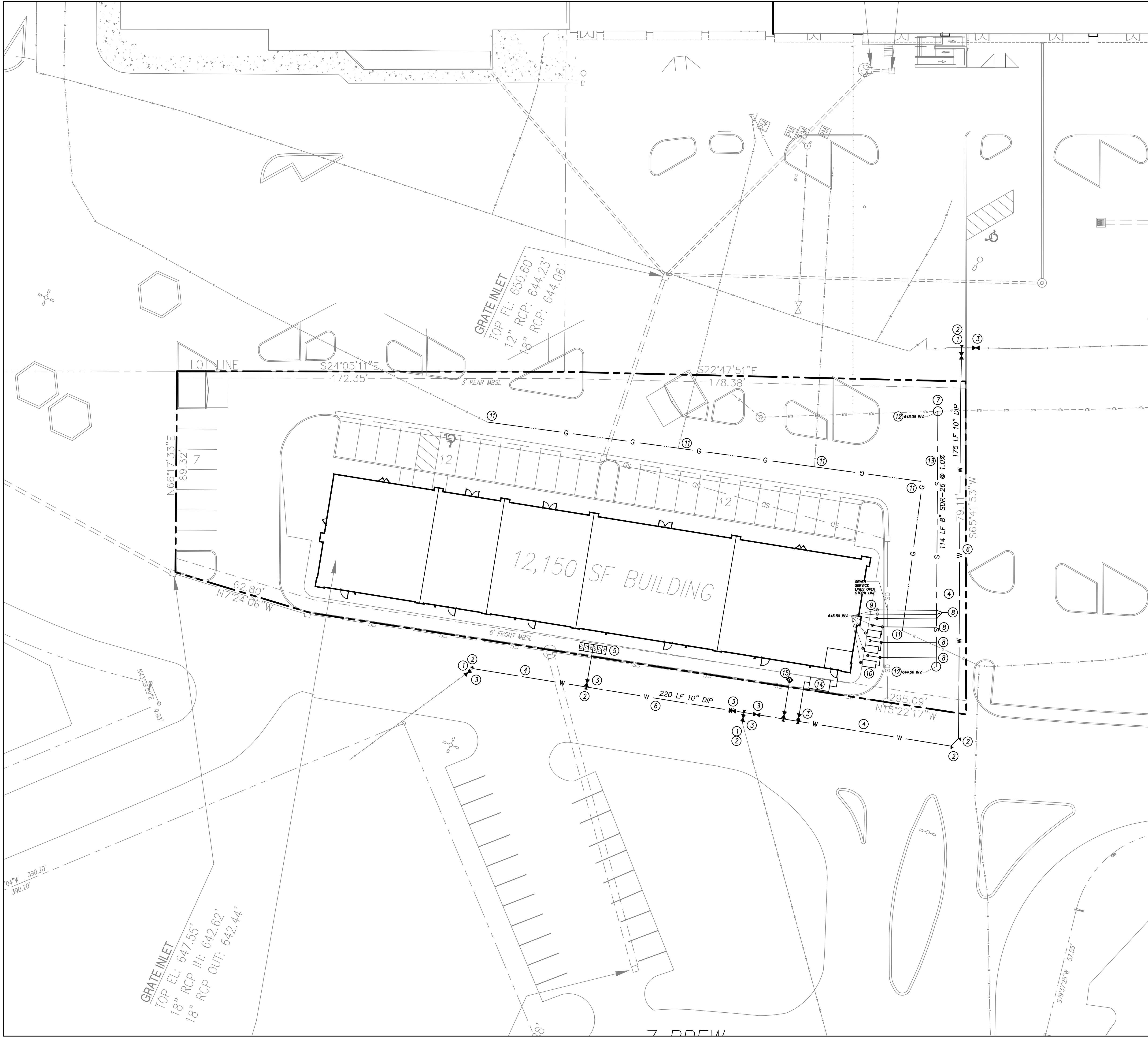
SURVEY • ZONING • ENVIRONMENTAL • ASSESSMENT

SHEET 3 OF 3

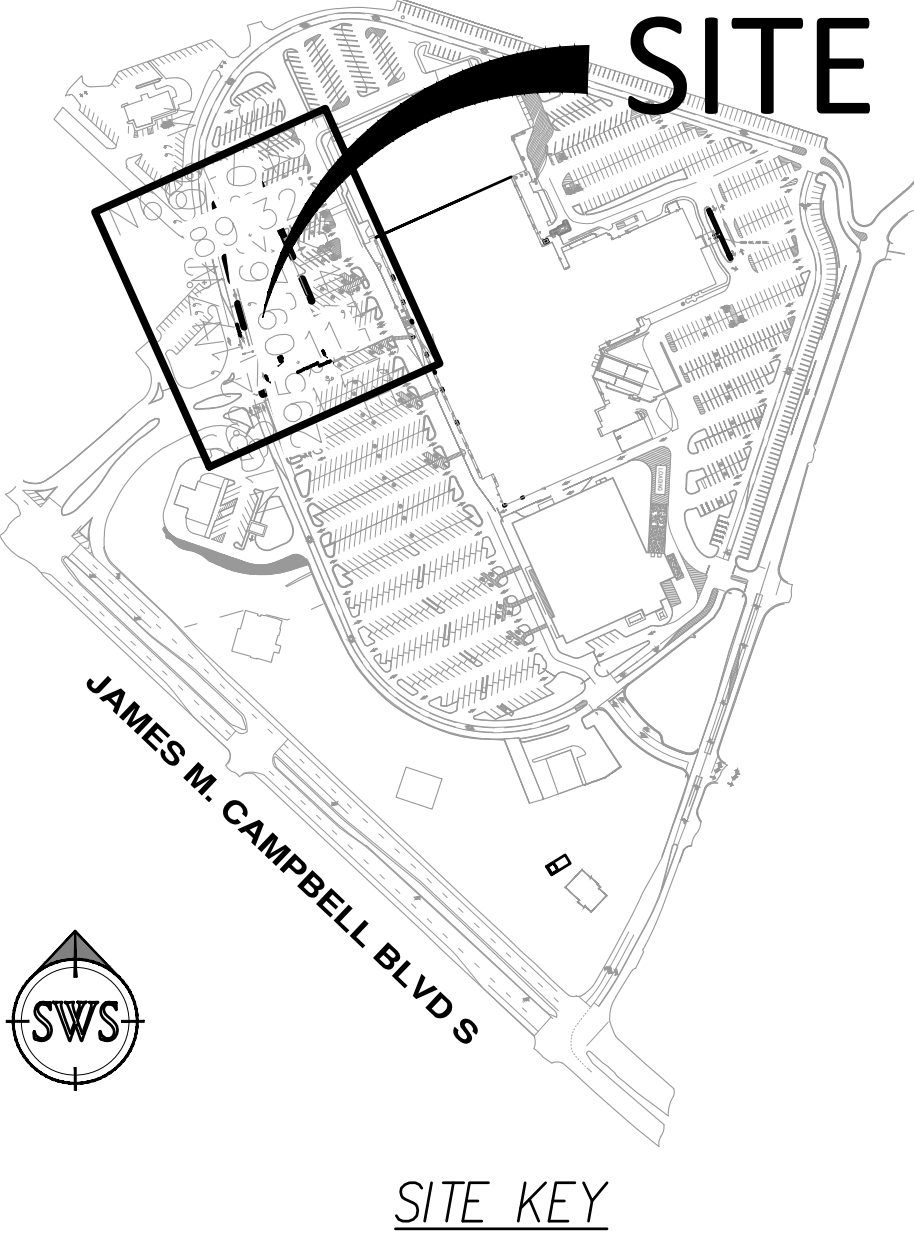


<u>SITE DATA TABLE</u>	
PROPOSED LAND USE:	12,500 SF RETAIL BUILDING
ZONE:	CD4C
ACREAGE:	0.99 ACRES = 43,326 SF
DENSITY ALLOWED:	24 DU UNITS PER ACRE = 24 UNITS
DENSITY PROPOSED:	5 UNITS PER ACRE = 5 UNITS
MAX BLOCK PERIMETER :	2400 FT
BLOCK PERIMETER PROPOSED:	950 FT
PRINCIPAL BUILDING:	1 MAX
PRINCIPAL BUILDING PROPOSED:	1
ACCESSORY BUILDINGS ALLOWED:	1
ACCESSORY BUILDINGS PROPOSED:	0
LOT WIDTH MAX (COMMERCIAL):	600 FT
LOT WIDTH PROPOSED:	355 FT
FRONTAGE BUILDOUT (COMMERCIAL):	40%
FRONTAGE BUILDOUT PROPOSED:	240/355 = 67%
EXISTING IMPERVIOUS SURFACE:	100%
IMPERVIOUS SURFACE PROPOSED:	88.7%
BUILDING SITE FRONTMENT:	PRIVATE RING ROAD
BUILDING SITE ACCESS:	ACCESS EASMENTS THROUGH PRIVATE RING ROAD/ACCESS TO JAMES CAMPBELL AND BROOKMEADE DRIVE
FRONT SETBACK:	6FT, 11FT PROVIDED
SIDE SETBACK:	0FT
REAR SETBACK:	3FT, 46FT PROVIDED





- UTILITY LEGEND
- ① WATER MAIN CONNECTION POINT
 - ② CONCRETE THRUST BLOCK (TYP), #4,5/C5.30
 - ③ GATE VALVE, #2/C5.30
 - ④ TRENCH REPAIR, #1/C5.30
 - ⑤ WATER METER BOX, 6 METERS, BACKFLOWS PROVIDED INTERNALLY AT EACH UNIT, #3/C5.31
 - ⑥ 10" WATER MAIN, DIP
 - ⑦ SEWER CONNECTION POINT
 - ⑧ 6" SEWER SERVICE LINE, SDR-35
 - ⑨ SEWER CLEANOUT (TYP), #1/C5.31
 - ⑩ GREASE TRAP, 3 TOTAL
 - ⑪ GAS LINE RE-ROUTE, COORDINATE WITH GAS COMPANY
 - ⑫ SEWER MANHOLE
 - ⑬ 8" SEWER MAIN SDR-26
 - ⑭ FIRE METER AND VAULT, #4/C5.31
 - ⑮ FIRE HYDRANT, #1/C5.31



MAP NO. 100N - PARCELS 6.00 + 7.00

PROJECT BENCHMARK
BENCHMARK DESCRIPTION:
ELEVATION:
NAD83 & NAVD88

10' 5' 0' 10' 20'
SCALE IN FEET
GRAPHIC SCALE 1"=10'

SW'S ENGINEERING, INC.

CIVIL ENGINEERING

504 Atlanta Springs Court, Suite A-6

Franklin, TN 37067

615-716-0483

LAND PLANNING

• SURVEYING

• ENGINEERING

• DESIGN

• CONSTRUCTION

SAN DIEGO

• NASHVILLE

• PHOENIX

• ORLANDO

DATE: 08-06-24

JOB NO.: 24-196T

DRAWN BY: DMO

CHECKED BY: PDA

CITY REVIEW SET,
NOT FOR
CONSTRUCTION

Know what's below.
Call before you dig.

UTILITY PLAN

DESIGN DOCUMENT SET

OUT PARCEL RETAIL BUILDING

800 S JAMES CAMPBELL BLVD

COLUMBIA, TENNESSEE

REV.

COMMENTS

DATE

C4.00

DATE: 08-06-24

JOB NO.: 24-196T

Page 430 of 442







WASTEWATER DEPARTMENT

19 December 2024

Preston Ayer
SWS Engineering, Inc
504 Autumn Springs Ct
Franklin, TN 37067

RE: 800 S James Campbell Blvd, Columbia, TN 38401; Columbia Mall Outparcel Building

Preston,

This letter serves as confirmation that the City of Columbia Wastewater Department has the available capacity to service the subject development. Any extension to the existing sewer infrastructure will be initiated by the owner/developer, reviewed by our department and approved by the State of Tennessee. The project must be advanced in accordance with local, state and federal rules, regulations and policies. Funding and construction of those improvements will remain the responsibility of the owner/developer. New customers will be required to pay all fees applicable at the time of connection. Any Final Plat approval and Dedication are both subject to installation and function, as determined by our Department. No detailed design plan for an extension of the sewer has been proposed at this time.

A handwritten signature in blue ink, appearing to read "Donnie Boshers". The signature is fluid and cursive, with a large initial "D" and "B".

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department



December 17, 2024

RE: 800 South James Campbell Blvd. Columbia, Tn 38401

To Whom It May Concern:

Please accept this letter as Atmos Energy's willingness to serve 800 South James Campbell Blvd. in Columbia, Tn.

Any costs associated with main line extensions required to serve multiple buildings, parcels, or tenants will be the responsibility of the developer.

If you have any questions or need additional information, please do not hesitate to contact me at (629) 248-2445.

Sincerely,

Blake Davis

Blake Davis
Senior Account Representative

December 11, 2024

Highland Capital
Will Hulshof
will@highlandcpt.com

Re: 800 S James Campbell Blvd

Dear Sir:

Columbia Power System has an existing power line near your proposed development.

We are willing to serve this new development subject to all Columbia Power System policies and procedures in effect at actual time service is rendered provided an approved final plat and complete electrical load information is furnished as soon as possible prior to start of actual construction.

- Unfortunately, due to current supply chain challenges, no timeframe can be guaranteed regarding the availability of meters or transformers appropriate for your development.

Yours truly,

COLUMBIA POWER SYSTEM



Ryan Massey
Vice President of Power Operations

so



Preliminary Plat, Site Development Plan, and PUD Checklist

Development: COLUMBIA CENTER OUT PARCEL BUILDING

This checklist shall be completed, and included with the submittal documents. If the submittal does not contain a completed checklist, it shall be deemed incomplete. All below listed items shall be included in the submittal documents and plans, as well as any further information required by the City of Columbia to evaluate compliance and to perform a full and complete review. See Zoning Ordinance Article 8 and Subdivision Regulations.

General

- ☒ Name of development
- ☒ Contact info for the owner and licensed design professional(s) preparing plan: name, address, email, phone
- ☒ Plan sealed by a design professional licensed in the State of Tennessee.
- ☒ North Arrow, legend, and site vicinity map
- ☒ Graphic Scale: between 1 in. = 10 ft. and 1 in. = 100 ft.
- ☒ Survey stamped by a State of Tennessee Licensed Professional Land Surveyor, with all project boundaries including bearings and angles to the nearest hundredth, utilities, and existing streets and rights-of-way.
- ☒ Note referencing Tennessee State Plane Coordinate System, NAD 83 Datum
- ☒ All property boundaries, existing easements, and encumbrances
- ☒ Parcel identification, owner, and deed and plat references of adjoining properties
- NA ☐ Proposed phasing and timetable for all phases of development
- ☒ Traffic Impact Study, as required.
- ☒ The substance of all existing and proposed covenants, easements, or other restrictions.

Lots and Land-Use

- ☒ The size of total property to be developed in square feet and acres
- NA ☐ Lot numbers of all proposed lots, with dimensions, locations, and square footage
- ☒ A tabulation of the land area to be devoted to various uses and activities and overall densities.
- ☐ Typical lot layout depicting proposed setbacks, yards, and easements, where applicable

Structures

- ☒ Location and approximate dimensions of all existing and proposed structures.
- NA ☐ Location of all earth retaining structures, with approximate top and bottom of wall elevations.
- ☒ Existing and intended use of all buildings and structures on site, including the number of dwelling units and density, where applicable
- ☒ Location, type, and size of proposed signs
- ☒ Approximate height, bulk, and the utilization of structures including activities and the number of living units.



Grading, Drainage, and Storm

- ☒ Existing conditions and contours at vertical intervals of not more than two (2) feet
- ☒ General proposed contours at vertical intervals of not more than two (2) feet
- ☒ FEMA Special Flood Hazard Area (SFHA), 100-year Floodplain (F-P), and Floodway (F-W) boundaries with elevations and the exact location of the nearest benchmark. Indicate the Flood Insurance Rate Map (FIRM) panel number, its effective date, and flood insurance zones
- NA ☐ Location and dimension of aquatic buffer zones
- ☒ General layout of the proposed storm drainage system including surface and subsurface drainage systems, areas for detention, and water quality devices.
- NA ☐ Identification of all critical lots

Streets, Parking, and Pedestrian Elements

- ☒ Proposed street and alley rights-of-way, typical sections, widths, classification, names, and proposed ownership and maintenance responsibility
- ☒ Proposed connections to existing and proposed streets (including classification) located outside the development
- ☒ Proposed improvements as identified in the Traffic Impact Study, as required
- ☒ Existing and proposed sidewalks, trails, and other pedestrian elements
- ☒ Existing and proposed on-street and off-street parking and loading areas
- ☒ Summary of all provided and required parking

Landscaping, Open Space, and Amenities

- ☒ Natural features on site including, but not limited to, wetlands, streams, ponds, springs, sinkholes, wells, rock outcroppings, excessive slopes, and forested areas
- ☒ Landscaped areas and buffers with details on proposed plantings, existing vegetation, and other features.
- ☒ The location and size of all common open space, parkland dedications, and dedications and reservations of land for public uses.
- ☒ Any amenity features and structures for private or public benefit.
- ☒ Location, dimension, and materials of fences and walls
- ☒ Tree Canopy retention

Utilities

- ☒ General layout and location of existing and proposed utilities and utility features including, but not limited to potable water, fire hydrants, sanitary sewer, storm sewer, and power and communication facilities.
- ☒ Acknowledgement from water, sewer, and power utility providers that the proposed development may be adequately served with existing infrastructure, or if improvements are required to adequately serve the development, a general statement of the improvements.



PUD Specific Items

- NA ☐ List of all deviations from PUD Standards requested
- NA ☐ The nature of the landholder's interest in the land proposed to be developed and a written statement of concurrence from all parties having a beneficial interest in the affected property.
- NA ☐ Location and approximate dimensions of all existing and proposed structures including approximate height, bulk, and the utilization of structures including activities and the number of living units. Include architectural renderings of all proposed structures with materials listed.
- NA ☐ The substance of covenants, grants of easements or other restrictions to be imposed upon the use of the land, buildings and structures including proposed easements for public utilities on the property or documentation of off-site easements.
- NA ☐ Exterior lighting plan.

If the application is deemed incomplete by the Zoning Administrator, a written request shall be made within ten days after the original submittal, for further information. In such case the application shall be held in abeyance until deemed complete for final review. No plan shall be formally presented for Planning Commission action until such plan is found complete, compliant with City standards, and ready for review.

Checklist Completed By:

PRESTON AYER

Print Name

Signature

1-20-25

Date



January 21, 2025
PN 24-196T

City of Columbia
Planning Department
700 N Garden Street
Columbia, TN 38401

RE: Columbia Center Outparcel Building

Dear Planning Department,

This SDP application is for the proposed Out Parcel Building at the Columbia Center, former Columbia Mall Property, 800 S James Campbell Blvd. The proposed building will be approximately 12,100 SF and be placed in the existing parking lot, near the S James Campbell Blvd entrance. Proposed uses include Restaurant and Retail.

Sincerely,

Preston Ayer, P.E.
Director – Nashville Office



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

Final Plat: * 1 hard copy of all materials for submittal + PDF copy on a USB flash drive (no multiple applications on one storage device)

Fold hard copy submittals larger than 8½"x11"

All Others: * Please submit the Application online at [City of Columbia | Permitting \(onlana.com\)](http://City of Columbia | Permitting (onlana.com))

ADDRESS/LOCATION	800 S JAMES CAMPBELL BLVD		
	TAX MAP: 100N	GROUP: L	PARCEL: 00600
SUMMARY OF NATURE OF REQUEST AND WORK	12,113 SF BUILDING IN EXISTING PARKING LOT		

DATE OF PRE-APPLICATION CONFERENCE	12-11-24	Pre-application meetings are scheduled for Wednesdays.
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SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Comprehensive Plan Amendment ☐ Annexation ☐ Rezoning ☒ Preliminary Plat ☐ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☒ Site Development Plan ☐ Other:	Annexations: ☐ Annexation Permission Form
	Annexations/Rezoning/Plan Amendments: ☐ Requested Zone Listed ☐ Statement of Compliance with Comprehensive Plan ☐ Concept Plan
	Preliminary Plats/Site Development Plans: ☒ Plans and/or Plats conforming to City standards with signed and completed check list
	All Annexations/Rezoning/Preliminary Plats/Site Development Plans and PUDS: ☒ Receipt of Payment for Pre-Application Meeting ☒ Written Legal Description copy ☒ Columbia Water System Availability Letter ☒ Columbia Waste Water Department Will Serve Letter

**File naming nomenclature examples:*

*Freedom Point Site Plan
Freedom Point Master Plan
Freedom Point Final Plat*

	Plats/PUDs:
	☐ Project Name (include Sections & Phases)
	☐ Total Number of Lots/Residential Units
	☐ Square Footage of Non-Residential Floor Space
	☐ Total acreage

Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application. Any requests to defer or move the item to future meeting dates must be requested by the resubmittal date listed on the Planning Commission schedule.

APPLICANT

All communications go to the Applicant's email that is provided.

NAME	PRESTON AYER	PHONE	615-704-0890
ADDRESS	113 SEABOARD LN FRANKLIN TN 37067	EMAIL	preston@sws-engr.com

PROPERTY OWNER NAME	HC Columbia LLC	PHONE	915-247-9949
ADDRESS	73 White Bridge Rd, STE 103, Nashville, TN 37205	EMAIL	will@highlandcpt.com

If owner is not a natural person, documentation must be provided showing signing authority on behalf of the entity. If multiple persons are listed as owners in the records of the Maury County Assessor, all owners must sign or the signatory must provide documentation of authority to apply on behalf of record owner (i.e., Power of Attorney or notarized Letter of Authorization). In filling out this application, I attest that (1) I am familiar with the rules, regulations, and procedures of the City of Columbia & (2) all information contained herein is accurate & true to the best of my knowledge.

<u>PRESTON AYER</u>		<u>1-17-25</u>
APPLICANT NAME	APPLICANT SIGNATURE	DATE
<u>HC Columbia LLC, Wyatt Woeltje</u>		<u>1/17/2025</u>
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE