CITY OF COLUMBIA
TENNESSEE

AGENDA

The Columbia Planning Commission Development Review Committee will meet on Tuesday, November 12, 2024 at 10:00 AM in Conference Room B, First Floor, City Hall, *(location subject to change based on availability)* to consider the following:

I. Items For Review

1. 24-0467 - Request from Julia Lannon for Preliminary Plat approval of a three (3) lot subdivision known as Columbia Commons at 115 S. James M. Campbell Blvd, being Tax Map 113E Group B Parcel 4.

Documents:

1. 24-0467_Preliminary Plat_10-18-2024
2. 24-0467_Columbia Commons Plans - Part 1 _10-18-2024
3. 24-0467_Columbia Commons Plans - Part 2_10-18-2024
4. 24-0467_TIS_10-18-2024
5. 24-0467_Will Serve Letter - Atmos Gas_10-14-2024
6. 24-0467_Will-Serve Letter - ATT_03-15-2024
7. 24-0467_Will Serve Letter - CPWS Power_10-14-2024
8. 24-0467_Will-Serve Letter - Columbia Water_03-15-2024
9. 24-0467_Survey_10-18-2024
10. 24-0467_Deed_10-18-2024
11. 24-0467_Checklist_10-18-2024
12. 24-0467_Application_10-18-2024

2. 24-0471 - Request from Abigail Overstreet for Final Plat approval with surety for Hillcrest Village Phase 2 consisting of 24 lots on 6.308 acres being a portion of property at Tax Map 113 Parcel 80.54 off Morrow Lane.

Documents:

1. 24-0471_Final Plat_10-21-2024
2. 24-0471_Stormwater Management Agreement_10-21-2024
3. 24-0471_Waterford Developer Agreement_10-21-2024
4. 24-0471_Owner Affidavit_10-21-2024
5. 24-0471_Application_10-21-2024

3. 24-0457 - Request from Jacob Vincent for Final Plat approval with surety of Bear Springs Phase 1A consisting of 58 lots on 19.14 acres, being a portion of Tax Map 92 Parcel 12.05 off Bear Creek Pike and Seminole Drive.

Documents:

1. 24-0457_Final Plat_10-21-2024
2. 24-0457_Development Agreement_10-21-2024
3. 24-0457_Application_10-21-2024

4. 24-0458 - Request from Jacob Vincent for Final Plat approval with surety for Bear Springs Phase 1B consisting of 35 townhome units on a 3.47 acre portion of Tax Map 92 parcel 12.05 off Bear Creek Pike at Octavia Way.

Documents:
None

5. 24-0469 - Request from Allen O'Leary for Final Plat approval for a revision of three (3) lots in Wellington Section 2 on Rugby Court at Tax Map 101F Group K Parcels 68-70.

Documents:

1. 24-0469_Final Plat_10-21-2024
2. 24-0469_Development Agreement_10-21-2024
3. 24-0469_Submittal Letter_10-21-2024
4. 24-0469_Application_10-21-2024

6. 24-0473 - Request from WES Engineers & Surveyors for Preliminary Plat and Site Development Plan approval of Hunters Glen Section 4 consisting of 148 lots on 53.48 acres off Hunters Glen Drive, being Tax Map 112 Parcel 18.02.

Documents:

1. 24-0473_Preliminary Plat_10-21-2024
2. 24-0473_Joint Sewer Agreements Letter_10-21-2024

3. 24-0473_Aerial Map_10-21-2024
4. 24-0473_Parcel Map_10-21-2024
5. 24-0473_Plat of Survey_10-21-2024
6. 24-0473_Fire Flow Requirements_10-21-2024
7. 24-0473_Submittal Letter_10-21-2024
8. 24-0473_Checklist_10-21-2024
9. 24-0473_Application_10-21-2024

7. 24-0431 - Request from Zach Moore for Site Development Plan approval at Tax Map 66 Parcl 20.22 off Northpointe Road.

Documents:

1. 24-0431_Site Plan_10-21-2024
2. 24-0431_Building 10 Plans_10-21-2024
3. 24-0431_Building 8 Plans_10-21-2024
4. 24-0431_Building 5 Plans_10-21-2024
5. 24-0431_Building 3 Plans_10-21-2024
6. 24-0431_Stormwater Supporting Documentation_09-20-2024
7. 24-0431_FEMA FIRM_10-21-2024
8. 24-0431_Soil Report_10-21-2024
9. 24-0431_Geotechnical Report_10-21-2024
10. 24-0431_Traffic Study_10-21-2024
11. 24-0431_Water Availability Letter_08-29-2024
12. 24-0431_Sewer Availability_10-24-2024
13. 24-0431_Submittal Letter_10-21-2024
14. 24-0431_Checklist_10-21-2024
15. 24-0431_Application_10-21-2024

8. 24-0468 - Request from Jon Clark for Alternative Compliance Architectural Design Review approval at 2904 Cayce Lane, being Tax Map 112 Parcel 4.04.

Documents:

1. 24-0468_Original Elevations_10-21-2024
2. 24-0468_Updated Elevations_10-21-2024
3. 24-0468_Original Rendering_10-21-2024

9. 24-0472 - Request from M2 Group, LLC for Final Plat approval of Hampshire Hills Subdivision located off Hampshire Pike, being a portion of Tax Map 89P Group A Parcel 15, and consisting of 43 lots, four (4) open spaces with dedication of right-of-way and easements.

Documents:

1. 24-0472_Final Plat_10-21-2024
2. 24-0472_Notice to Proceed_06-20-2024
3. 24-0472_Notice of State Approval Letter_05-06-2024
4. 24-0472_Development Agreement_10-21-2024
5. 24-0472_Water Availability Letter_10-21-2024
6. 24-0472_Application_10-21-2024

10. 24-0466 - Request from Crunk Engineering LLC for Annexation with a Plan of Services of a 98.34 ft. distance of right-of-way along Greens Mill Road and a 0.07 acre portion of Tax Map 51 Parcel 34.03 at 2622 Poplar Knoll Drive and Lot 1 of The Landings at Greens Mill.

Documents:

1. 24-0466_Annexation Exhibit Adjacent Property_10-21-2024
2. 24-0466_Annexation Exhibit Greens Mill Rd_10-21-2024
3. 24-0466_Roundabout-Concept Plan_10-21-2024
4. 24-0466_Roadway Legal Description_10-21-2024
5. 24-0466_Legal Description for Parcel 051 03403_10-21-2024
6. 24-0466_ Conway Property Owner Permission Form_10-21-2024
7. 24-0466_Application_10-21-2024

II. Items for Additional Review

1. 24-0422 - Request from Crunk Engineering, LLC for Final Plat approval with surety for The Landings at Greens Mill PUD Subdivision Phase 1B located off Greens Mill Road and consisting of 40 lots, one open space, and including right-of-way dedication and easements on 10.50 acres at Tax Map 51 Parcel 55.

Documents:

1. 24-0422_Final Plat_09-16-2024
2. 24-0422_Development Agreement_09-16-2024
3. 24-0422_LTMP_09-16-2024
4. 24-0422_Stormwater Maintenance Agreement_09-16-2024
5. 24-0422_Application_09-16-2024

2. 24-0421 - Request from Crunk Engineering, LLC for Final Plat approval with surety for The Landings at Greens Mill PUD Subdivision Phase 1C located off Greens Mill Road and consisting of 27 lots, right-of-way and easements on a 6.67 acre portion of Tax Map 51 Parcel 55.

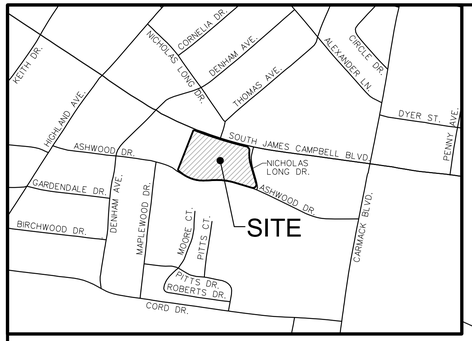
Documents:

1. 24-0421_Final Plat_09-16-2024
2. 24-0421_Development Agreement_09-16-2024
3. 24-0421_LTMP_09-16-2024
4. 24-0421_Stormwater Maintenance Agreement_09-16-2024
5. 24-0421_Application_09-16-2024

3. 24-0417 - Request from T-Square Engineering for Final Plat approval with surety for Carter's Station West Phase 3 consisting of 60 lots on a 14.88 acre portion of Tax Map 41 Parcel 15.05 off Fellowship Road.

Documents:

1. 24-0417_Final Plat_09-16-2024
2. 24-0417_ SWMA LTMP_09-16-2024
3. 24-0417_Development Agreement_09-16-2024
4. 24-0417_Application_09-16-2024



VICINITY MAP
(N.T.S.)

LINE TABLE

LINE	BEARING	DISTANCE
L-1	S 35° 53' 44" E	22.19'
L-2	S 04° 30' 57" E	7.20'
L-3	N 51° 43' 18" W	37.01'
L-4	S 86° 47' 12" W	64.75'
L-5	S 86° 47' 12" W	3.81'

CURVE TABLE

CURVE	DELTA	RADIUS	TANGENT	ARC	CHORD BRG.	CHORD
C-1	08° 31' 30"	2924.93'	218.00'	435.20'	S 72° 42' 04" E	434.80'
C-2	21° 39' 56"	292.13'	55.90'	110.46'	S 04° 34' 07" E	109.81'
C-3	124° 57' 00"	26.06'	50.01'	56.83'	S 44° 16' 42" W	46.22'
C-4	19° 58' 00"	451.09'	79.40'	157.20'	N 83° 13' 48" W	156.40'
C-5	41° 26' 55"	268.80'	101.70'	194.45'	N 72° 29' 20" W	190.24'
C-6	18° 20' 46"	268.80'	43.41'	86.07'	N 60° 53' 41" W	85.70'
C-7	03° 59' 28"	2924.93'	101.91'	203.74'	S 70° 26' 03" E	203.70'
C-8	02° 54' 00"	2924.93'	74.03'	148.04'	S 73° 52' 47" E	148.08'
C-9	01° 38' 02"	2924.93'	41.71'	83.42'	S 76° 08' 48" E	83.41'
C-10	08° 29' 31"	451.09'	33.49'	66.86'	N 77° 29' 33" W	66.80'
C-11	11° 28' 29"	451.09'	45.32'	90.34'	N 87° 28' 33" W	90.19'

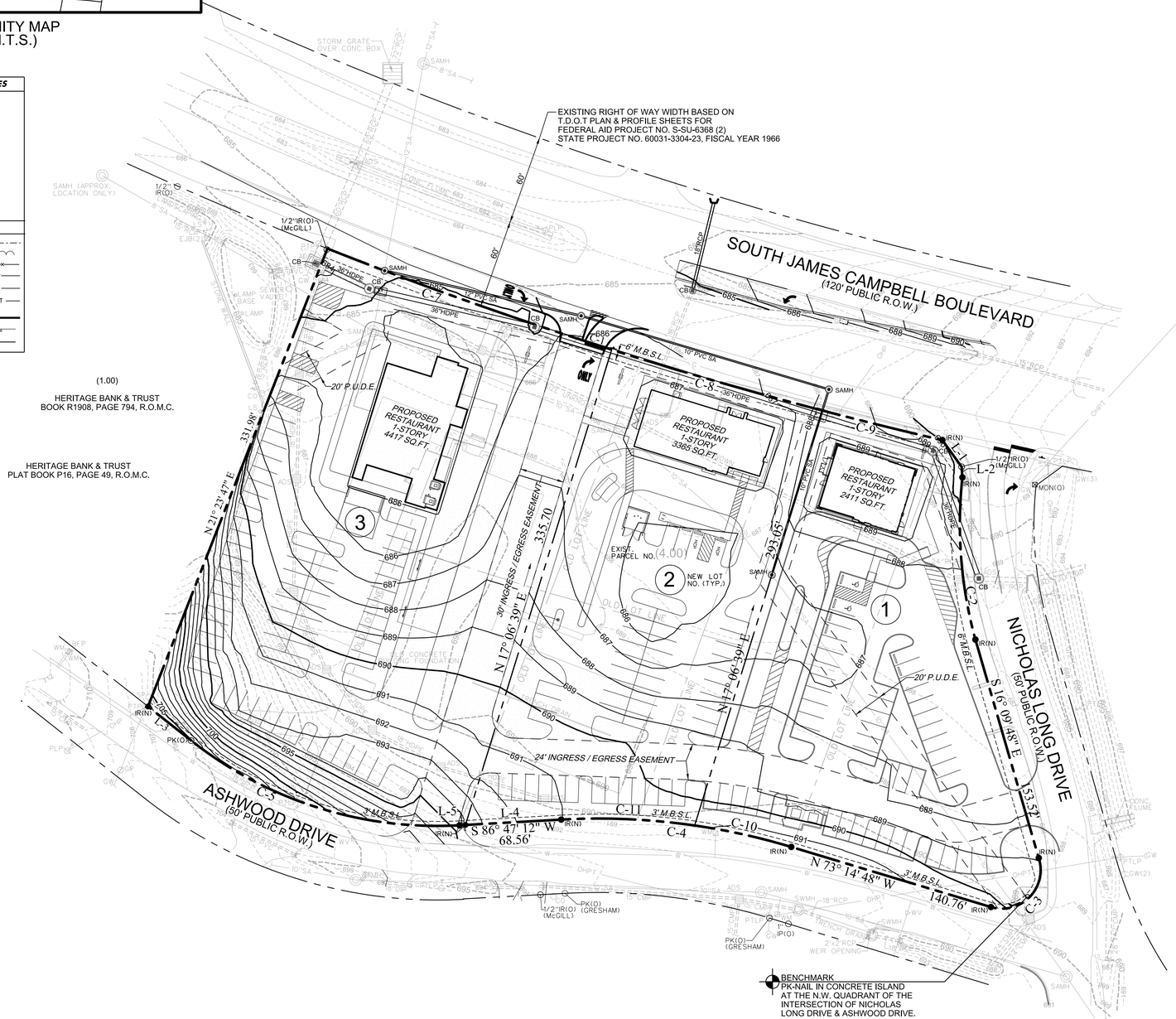
LEGEND

MAPPING SYMBOLS AND CODES

- POST
- IRON ROD NEW (IRN)
- IRON ROD OLD (IRO)
- IRON PIPE OLD (IPO)
- IRON SPIKE OLD (ISO)
- RIGHT-OF-WAY MONUMENT (RWM)
- P.K. NAIL OLD (PK(O))
- P.K. NAIL NEW (PK(N))
- POWER POLE (PP)
- TREE

LINE STYLES

- CENTERLINE
- EDGE OF WOODS LINE
- FENCE LINE
- OVERHEAD POWER LINE — OHP —
- OVERHEAD TELEPHONE LINE — OHT —
- OVERHEAD POWER AND TELEPHONE LINE — OHPT —
- PROPERTY LINE
- GUARDRAIL
- EDGE OF WATER



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 APPURTENANCES, ATLAS MAPS AS MAY BE AVAILABLE FROM MUNICIPALITIES OR UTILITY COMPANIES, AND OTHER DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE 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 INFORMATION CONSULTED. THE SURVEYOR HAS 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 ALTA/NSPS 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: 10-18-2024
MARK E. SAWYER
TN. LIC. NO. 1649
Digitally signed by Mark E Sawyer
Date: 2024.10.18 15:19:16-05'00'

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 DEPARTMENT- ONLINE 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.

SITE DATA

LOT 1
AREA 47,547 SQ.FT. OR 1.09 AC.
PROPOSED USE - RESTAURANT
BUILDING AREA - 2411 SQ.FT.

LOT 2
AREA 46,007 SQ.FT. OR 1.06 AC.
PROPOSED USE - RESTAURANT
BUILDING AREA - 3365 SQ. FT.

LOT 3
AREA 75,522 SQ.FT. OR 1.73 AC.
PROPOSED USE - RESTAURANT
BUILDING AREA - 4417 SQ.FT.

TOTAL SITE AREA - 169,076 SQ.FT. OR 3.88 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

IN STATE PLANE COORDINATE SYSTEM 1983

40 20 0 20 40
SCALE: 1" = 40'

BARGE DESIGN SOLUTIONS
615 Third Avenue South, Suite 700, Nashville, Tennessee 37210
PHONE (615)254-1500 FAX (615) 255-8572

MARK E. SAWYER
TENNESSEE
REGISTERED
LAND SURVEYOR
2211
10-18-2024
Digitally signed by Mark E Sawyer
Date: 2024.10.18 15:17:50-05'00'

COLUMBIA COMMONS

PRELIMINARY SUBDIVISION PLAT

115 SOUTH JAMES CAMPBELL BOULEVARD

9TH CIVIL DISTRICT
COLUMBIA, MAURY COUNTY, TENNESSEE

DR.	CHK.	DATE	DESCRIPTION
JMJ	MES	10-16-24	ORIGINAL ISSUE
MES	MES	10-18-24	REVISED OWNER/DEVELOPER NAME

FILE NO. 3853101

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10/18/2024
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MESawyer
LandRes.pen Workspace: LandRes

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MASS GRADING & INFRASTRUCTURE PACKAGE
COLUMBIA COMMONS
115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

CONTACTS

DEVELOPER	OM3, LLC 3841 GREEN HILLS VILLAGE | SUITE 400 NASHVILLE, TN 37215 CONTACT: JULIA LANNON
DESIGN PROFESSIONAL	BARGE DESIGN SOLUTIONS 615 3RD AVENUE SOUTH | SUITE 700 NASHVILLE, TN 37210 615.252.4296 CONTACT: DREW HARDISON, PE
COLUMBIA ENGINEERING DIVISION	700 N GARDEN STREET COLUMBIA, TN 38401 931.560.1500
COLUMBIA PUBLIC WORKS	110 SANTE FE PIKE COLUMBIA, TN 38401 931.388.8650

VICINITY MAP

NOT TO SCALE

INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
C0.00	COVER SHEET
C0.01	CIVIL CONSTRUCTION NOTES
C0.21	EXISTING CONDITIONS
C0.41	DEMOLITION PLAN
C1.01	SITE LAYOUT PLAN
C2.01	GRADING & DRAINAGE PLAN
C2.02	ROADWAY CROSS SECTIONS
C2.41	INITIAL EROSION AND SEDIMENT CONTROL PLAN
C2.42	INTERMEDIATE EROSION AND SEDIMENT CONTROL PLAN
C2.43	FINAL EROSION AND SEDIMENT CONTROL PLAN
C3.01	UTILITY PLAN
C4.01	SANITARY SEWER PROFILE
C4.21	STORM PROFILE
C4.22	STORM PROFILE
C7.01	SITE DETAILS
C7.02	SITE DETAILS
C7.03	SITE DETAILS

PERMIT NUMBERS

PROPERTY DATA	
PARCEL ID	113E B 004.00
TAX DISTRICT	
MAP	113E
ZONING	CD-4C

FEMA NOTE

THIS PARCEL IS NOT LOCATED IN A FLOOD HAZARD AREA ACCORDING TO FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP COMMUNITY NO. 47119C, PANEL NO. 0285E, DATED APRIL 16, 2007. ZONE "X."

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BARGE DESIGN SOLUTIONS

615 3rd Avenue South // Suite 700 // Nashville, Tennessee 37210
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BARGE DESIGN SOLUTIONS

615 3rd Avenue South | Suite 700 | Nashville, Tennessee 37210
Phone (615) 254-1500 | FAX (615) 255-6572

ANDREW BLAKE HARDISON — No. 130276 — STATE OF TENNESSEE — REGISTERED ENGINEER

Digitally signed by Andrew B Hardison
Date: 2024.10.08 09:54:35 -05'00'

COVER SHEET

MASS GRADING & INFRASTRUCTURE PACKAGE
COLUMBIA COMMONS
115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

REV	BY	CHK	DATE/DESCRIPTION
1	AMB	JG	09.19.2024 PERMIT SET

C0.00

FILE NO. 38531-01

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GENERAL NOTES

1. THE FOLLOWING NOTES ARE APPLICABLE TO ALL CIVIL DOCUMENTS.
2. THE CONTRACTOR SHALL USE MATERIALS AND EMPLOY CONSTRUCTION METHODS IN ORDER TO COMPLY WITH THE DRAWINGS AND SPECIFICATIONS. WHERE A CONFLICT OCCURS, THE STRICTEST DESIGN SHALL GOVERN. ENGINEER'S REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC. DOES NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL INFORM THE OWNER AND ENGINEER IN WRITING OF ANY SPECIFIC DEVIATIONS AND OBTAIN OWNER'S AND ENGINEER'S WRITTEN APPROVAL OF THE SPECIFIC DEVIATION.
3. THE CONTRACTOR SHALL CONFORM TO ALL LOCAL CODES AND OBTAIN ALL PERMITS AND BOND, IF REQUIRED, PRIOR TO BEGINNING WORK.
4. THE SITE LAYOUT IS BASED ON THE CONTROL POINTS AS NOTED.
5. DO NOT SCALE DRAWING AS THEY ARE REPRODUCTION AND SUBJECT TO DISTORTION.
6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE STARTING ANY WORK. DAMAGES TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE REPAIRED ACCORDING TO LOCAL STANDARDS AND SPECIFICATIONS AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY.
7. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFICATIONS AND LIAISON WITH UTILITY COMPANIES IN THE PROCESS OF LOCATING, RELOCATION AND TIE-IN TO PUBLIC UTILITIES. ALSO, CONTRACTOR IS RESPONSIBLE FOR NOTIFYING ALL INSPECTORS A MINIMUM 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITIES, VERIFY WITH GOVERNING AGENCY
8. ALL DAMAGE TO EXISTING ASPHALT PAVEMENT TO REMAIN, WHICH RESULTS FROM NEW CONSTRUCTION, SHALL BE REPLACED WITH LIKE MATERIALS AT CONTRACTOR'S EXPENSE.
9. CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN THE USE OF EQUIPMENT IN AND AROUND OVERHEAD ELECTRICAL WIRES AND SERVICES. IF AT ANY TIME IN THE PURSUIT OF THIS WORK, THE CONTRACTOR MUST WORK IN CLOSE PROXIMITY OF THE ABOVE NOTED WIRES, THE ELECTRICAL COMPANY SHALL BE CONTACTED PRIOR TO SUCH WORK AND THE PROPER SAFETY MEASURES TAKEN.
10. IN EASEMENTS AND RIGHTS-OF-WAY, CONTRACTOR SHALL PROTECT AND RESTORE SAID PROPERTY TO A CONDITION SIMILAR OR EQUAL TO THAT EXISTING AT THE COMMENCEMENT OF CONSTRUCTION EXCEPT AS NOTED.
11. THESE PLANS, PREPARED BY BARGE DESIGN SOLUTIONS, DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF BARGE DESIGN SOLUTIONS REGISTERED PROFESSIONAL ENGINEER HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND /OR LOCAL REGULATIONS.
12. THE CONTRACTOR SHALL PROTECT ALL MONUMENTS, IRON PINS, AND PROPERTY CORNERS DURING CONSTRUCTION.
13. UNLESS NOTED, SUBMIT SHOP DRAWINGS OF ALL FABRICATED MATERIALS FOR REVIEW. DESIGN DRAWINGS SHALL NOT BE REPRODUCED FOR USE AS SHOP DRAWINGS.
14. ALL REQUIRED TESTING REPORTS SHALL BE AVAILABLE AT THE JOB SITE.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AND MAINTAINING AS-BUILT INFORMATION WHICH SHALL BE RECORDED AS CONSTRUCTION PROGRESSES OR AT THE COMPLETION OF APPROPRIATE CONSTRUCTION INTERVALS AND SHALL BE RESPONSIBLE FOR PROVIDING AS-BUILT DRAWINGS TO THE OWNER FOR THE PURPOSE OF CERTIFICATION TO JURISDICTIONAL AGENCIES AS REQUIRED. ALL AS-BUILT DATA SHALL BE COLLECTED BY A STATE OF TN PROFESSIONAL LAND SURVEYOR WHOSE SERVICES ARE ENGAGED AND PAID FOR BY THE CONTRACTOR.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO EXISTING VEGETATION DURING CONSTRUCTION. THE COST TO REPLACE OR RESTORE VEGETATION SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
17. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ON COPY OF THE CURRENT CONSTRUCTION DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, SPECIAL CONDITIONS AND COPIES OF ANY REQUIRED PERMITS.
18. ALL PAVING, CONSTRUCTION, MATERIALS AND WORKMANSHIP WITHIN THE STATE ROW SHALL BE IN ACCORDANCE WITH (TDOT) SPECIFICATIONS AND STANDARDS (2021 EDITION).
19. ALL PAVING, CONSTRUCTION, MATERIALS AND WORKMANSHIP WITHIN THE CITY OF COLUMBIA RIGHT-OF-WAY (ROW) SHALL BE IN ACCORDANCE WITH COLUMBIA SPECIFICATIONS AND STANDARDS (LATEST EDITION)
20. ANY WELLS DISCOVERED ON SITE THAT WILL HAVE NO USE MUST BE PLUGGED BY A LICENSED WELL DRILLING CONTRACTOR IN A MANNER APPROVED BY ALL JURISDICTIONAL AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY WELL ABANDONMENT PERMITS REQUIRED.
21. ANY WELLS DISCOVERED DURING EARTH MOVING OR EXCAVATION SHALL BE REPORTED TO THE APPROPRIATE JURISDICTIONAL AGENCIES WITHIN 24 HOURS AFTER DISCOVERY IS MADE.

DEMOLITION NOTES

1. THE A/E SHALL BE NOTIFIED OF ANY ITEMS REMAINING THAT ARE NOT SPECIFICALLY NOTED TO BE REMOVED AND THAT INTERFERE WITH CONSTRUCTION.
2. CONTRACTOR SHALL CHECK ALL EXISTING GRADES AND DIMENSIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE A/E PRIOR TO BEGINNING WORK.
3. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES, NOTIFY OWNERS PRIOR TO BEGINNING WORK, AND REPAIR CONTRACTOR-CAUSED DAMAGE ACCORDING TO LOCAL STANDARDS AND CODES AT THE EXPENSE OF THE CONTRACTOR.
4. ALL DAMAGE TO EXISTING PAVEMENTS AND SIDEWALKS/CURBS TO REMAIN, WHICH RESULT FROM NEW CONSTRUCTION, SHALL BE REPLACED WITH LIKE MATERIALS AT THE EXPENSE OF THE CONTRACTOR.
5. CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN THE USE OF EQUIPMENT IN AND AROUND ELECTRICAL WIRES AND SERVICES. ANY TIME IN THE PURSUIT OF THIS WORK THE CONTRACTOR MUST WORK IN CLOSE PROXIMITY OF THE ABOVE-NOTED WIRES, THE ELECTRIC COMPANY SHALL BE CONTACTED PRIOR TO SUCH WORK AND THE PROPER SAFETY MEASURES TAKEN.
6. CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES AND OBTAIN ALL PERMITS REQUIRED FOR DEMOLITION AND CONSTRUCTION.
7. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. IF THE ENGINEER IS NOT NOTIFIED, THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR THE COST OF ANY REVISION.
8. THE CONTRACTOR SHALL SAWCUT CONCRETE WALKS, CURBS AND ASPHALT PAVEMENTS AT THE NEAREST CONSTRUCTION/EXPANSION/CONTROL JOINT IN AREAS WHERE PROPOSED AND EXISTING CONSTRUCTION MEET.
9. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIAL PROPERLY OFF-SITE AT HIS OWN EXPENSE.

GRADING NOTES

1. ALL STORMWATER PIPES, STRUCTURES, AND APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF COLUMBIA STANDARD SPECIFICATIONS AND DETAILS.
2. NO TREES ARE TO BE REMOVED AND/OR VEGETATION DISTURBED EXCEPT AS NECESSARY FOR GRADING PURPOSES AND ONLY AS APPROVED BY OWNER'S REPRESENTATIVE AND CITY ENGINEER. SEE DEMO PLANS FOR TREES VEGETATION TO REMAIN.
3. STRIP ALL TOPSOIL AND OTHER DELETERIOUS MATERIALS AS PER SOIL CONSULTANT'S GEOTECH REPORT, TO ACCOMPLISH GRADING AS INDICATED ON THE PLANS. STOCKPILE TOPSOIL IN AREA(S) DESIGNATED BY THE OWNER FOR REUSE IN LANDSCAPE ISLANDS AND / OR GREEN SPACE AREAS.
4. ADJUST FINAL GRADES TO EXISTING PAVEMENTS TO ASSURE A SMOOTH TRANSITION.
5. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS. SUBGRADE SOFTENED BY PERCHED WATER IN FOUNDATIONS AND PAVEMENT AREAS MUST BE UNDERCUT AND RE-COMPACTED WITH SUITABLE FILL MATERIAL AS DIRECTED BY THE ON-SITE SOIL CONSULTANT.
6. IN NO CASE SHALL SLOPE HEIGHT, SLOPE INCLINATION, OR EXCAVATION DEPTH, INCLUDING TRENCH CONSTRUCTION, EXCEED THOSE SPECIFIED IN LOCAL, STATE AND FEDERAL REGULATIONS, SPECIFICALLY THE CURRENT OSHA HEALTH AND SAFETY STANDARDS FOR EXCAVATIONS (29 CRF PART 1926) SHALL BE FOLLOWED
7. THE SITE GEOTECHNICAL REPORT SHALL BE FOLLOWED FOR THE PLACEMENT AND COMPACTION OF THE MASS GRADED AREA. IT IS INTENDED THAT THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT BE FOLLOWED. IN THE EVENT OF CONFLICT BETWEEN THE DRAWINGS AND THE GEOTECHNICAL REPORT, MAKE NO ASSUMPTIONS. THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR CLARIFICATION.
8. ALL GRADED AREAS, INCLUDING SLOPES, ARE TO BE MULCHED AND SEEDED AS SOON AS POSSIBLE AFTER GRADING IS COMPLETED.
9. CONSTRUCT EROSION CONTROL AS SHOWN ON DRAWINGS PRIOR TO BEGINNING GRADING OPERATIONS.
10. CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS PRIOR TO BEGINNING WORK.
11. CONTOUR LINES AND SPOT ELEVATIONS ARE THE RESULT OF A DETAILED ENGINEERING GRADING DESIGN AND REFLECT A PLANNED INTENT WITH REGARD TO DRAINAGE AND MOVEMENT OF MATERIALS. CONTOUR LINES AND SPOT ELEVATIONS ARE BASED ON ESTABLISHED PROJECT BENCHMARK, WHICH THE CONTRACTOR SHALL VERIFY WITH TOPOGRAPHY SURVEY. SHOULD THE CONTRACTOR HAVE ANY QUESTION OF THE INTENT OR ANY PROBLEMS WITH CONTINUITY OF GRADES, THE ENGINEER SHOULD BE CONTACTED IMMEDIATELY PRIOR TO BEGINNING WORK.
12. ALL UN-SURFACED AREA DISTURBED BY GRADING OPERATIONS SHALL RECEIVE SEED AND STRAW. ALL SLOPES 3:1 OR STEEPER SHALL BE STABILIZED WITH EROSION CONTROL MATTING INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO MAINTAIN DISTURBED AREAS UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
13. PROVIDE TEMPORARY CONSTRUCTION ACCESS(ES) AT THE POINT(S) WHERE CONSTRUCTION VEHICLES EXIT THE CONSTRUCTION AREA, ANY MUD/CONSTRUCTION DEBRIS THAT MAY BE TRANSPORTED ONTO SURROUNDING ROADS OR PARKING AREAS SHALL BE SWEPT AND CLEANED IMMEDIATELY.
14. ALL TRENCHING, PIPE LAYING, AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS.
15. CONSTRUCTION ENTRANCE SHALL BE IN PLACE PRIOR TO ANY COMBUSTIBLES, I.E. CONSTRUCTION TRAILER, LUMBER, ETC. BEING PRESENT ON JOB SITE. IN ADDITION TO THE CONSTRUCTION ENTRANCE, AN ALL WEATHER DRIVE MUST BE IN PLACE AND ACCESSIBLE TO ALL AREAS OF THE CONSTRUCTION SITE THAT WILL CONTAIN COMBUSTIBLES THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROCESS. THE ALL WEATHER DRIVE SHALL BE NO LESS THAN 20 FEET OF UNOBSTRUCTED WIDTH WITH ADEQUATE TURNING RADIUS CAPABLE OF SUPPORTING THE IMPOSED LOADS OF THE FIRE DEPARTMENT PROCESS.
16. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
17. EXISTING AND PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1'.
18. THIS GRADING AND DRAINAGE PLAN IS NOT A DETERMINATION OR GUARANTEE OF THE SUITABILITY OF SURFACE CONDITIONS FOR THE WORK INDICATED. DETERMINATION OF THE SUBSURFACE CONDITIONS FOR THE WORK INDICATED IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
19. DO NOT DISTURB VEGETATION OR REMOVE ANY EXISTING TREES EXCEPT WHERE DESIGNATED ON THE PLAN.
20. TOP OF GRATE ELEVATIONS AND LOCATION OF COORDINATES FOR DRAINAGE STRUCTURES SHALL BE SHOWN ON THE PLAN UNLESS OTHERWISE NOTED. THE GRATES SHALL SLOPE LONGITUDINALLY WITH THE PAVEMENT GRADES.

EROSION CONTROL NOTES

1. NO VEGETATION IS TO BE DISTURBED EXCEPT AS NECESSARY FOR GRADING PURPOSES.
2. TOPSOIL IS TO BE STRIPPED FROM ALL CUT AND FILL AREAS, STOCKPILED, AND REDISTRIBUTED OVER GRADED AREAS TO A MINIMUM DEPTH OF 6". THE SOIL IS TO BE STOCKPILED IN THE LOCATIONS AS DESIGNATED BY THE OWNER.
3. ALL GRADED AREAS INCLUDING 3:1 SLOPES ARE TO BE MULCHED AND SEEDED WITHIN 7 DAYS OF FINAL GRADING. ANY AREAS LEFT UNDISTURBED FOR 7 DAYS SHALL HAVE ADEQUATE STABILIZATION.
4. ALL DIMENSIONS AND LOCATIONS OF TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL DEVICES SHALL BE SUBJECT TO ADJUSTMENT AS DESIGNATED BY THE OWNER'S REPRESENTATIVE OR ENGINEER.
5. WHEN THE TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL DEVICES ARE NO LONGER REQUIRED FOR THE INTENDED PURPOSE, IN THE OPINION OF THE OWNER'S REPRESENTATIVE OR ENGINEER, THEY SHALL BE REMOVED.
6. ALL NEW STRUCTURES AND EXISTING STRUCTURES SHALL HAVE SEDIMENT REMOVED PRIOR TO ACCEPTANCE.
7. SILT BARRIERS SHALL BE CLEANED OF ACCUMULATED SEDIMENT WHEN APPROXIMATELY 50% FILLED WITH SUCH SEDIMENT.
8. REPLACE SILT BARRIERS WHEN CONDITIONS WARRANT AND AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND CITY ENGINEER.
9. INSTALL SILT FENCE AROUND THE BASE OF ANY STOCK PILES.
10. CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA, THE EQUIPMENT MAINTENANCE AND CLEANING AREA, CONTRACTOR'S EMPLOYEE PARKING AREA, AND AREA FOR LOCATING PORTABLE FACILITIES, CONCRETE TRUCK WASHOUT AREA, OFFICE TRAILERS, AND TOILET FACILITIES. CONTRACTOR TO COORDINATE EXACT LOCATION WITH PROJECT ENGINEER AND CITY ENGINEER DURING PRECONSTRUCTION MEETING.
11. ALL UNDISTURBED AREAS INCLUDING WETLAND/STREAM BUFFERS, SHALL BE FIELD MARKED AND KEPT FREE OF CONSTRUCTION EQUIPMENT.
12. CURRENT VERSIONS OF THE STORM WATER POLLUTION PREVENTION PLAN, NOTICE OF INTENT, AND NOTICE OF COVERAGE SHALL BE KEPT ON SITE AND IS TO BE ACCESSIBLE FOR THE DURATION OF THE PROJECT.
13. APPLY PERMANENT SEEDING WHENEVER GRADING OPERATIONS ARE COMPLETED AND ALL CONSTRUCTION OPERATIONS WILL NOT IMPACT THE DISTURBED AREA. APPLY PERMANENT SEEDING TO ALL NON-CONSTRUCTION AREAS THAT SHOW SIGNS OF EXCESSIVE EROSION.
14. MULCH WITH STRAW AT A RATE OF 100 LBS/1000 S.F. OVER THE SEEDED AREAS.
15. EROSION CONTROL DEVICES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH TDEC'S EROSION AND SEDIMENT CONTROL HANDBOOK AND TDEC'S CONSTRUCTION ACTIVITY PERMIT REQUIREMENTS. THE DEVICES SHOWN ON THE DRAWINGS ARE THE MINIMUM REQUIRED. THE CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION CONTROL DEVICES AS NEEDED.
16. CONTRACTOR TO PROVIDE AN AREA FOR CONCRETE WASH DOWN AND EQUIPMENT FUELING IN ACCORDANCE WITH THE CITY OF COLUMBIA. CONTRACTOR TO COORDINATE EXACT LOCATION WITH THE CITY OF COLUMBIA. CONTROL OF OTHER SITE WASTES SUCH AS DISCARDED BUILDING MATERIALS, CHEMICALS, LITTER, AND SANITARY WASTES THAT MAY CAUSE ADVERSE IMPACTS TO WATER QUALITY IS ALSO REQUIRED BY THE GRADING PERMITTEE. LOCATION OF AND/OR NOTES REFERRING TO THESE BMP'S SHALL BE SHOWN ON THE EPSC PLAN.
17. THE SITE SHALL BE STABILIZED WITHIN 14 DAYS AFTER CONSTRUCTION HAS TEMPORARILY/PERMANENTLY CEASED.
18. VEGETATION AND EROSION PREVENTION AND SEDIMENT CONTROL MEASURES THAT ARE AFFECTED BY CONSTRUCTION SHALL BE REPAIRED OR REPLACED WITHIN 7 DAYS.
19. PERIMETER MEASURES SHALL BE IN PLACE AND INSTALLED BEFORE ANY EARTHWORK ACTIVITIES.

UTILITY NOTES

1. ALL WATER AND SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH SPECIFICATIONS OF THE CITY OF COLUMBIA.
2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND INVERTS OF ALL EXISTING UTILITY LINES AND STRUCTURES (INCLUDING STORM DRAINAGE PIPES OR STRUCTURES) PRIOR TO ORDERING OF MATERIALS AND THE COMMENCEMENT OF CONSTRUCTION.
3. THE ROADWAY SHALL BE CONSTRUCTED TO SUBGRADE. ALL PROPOSED FILLS SHALL BE INSTALLED AND COMPACTED PRIOR TO CONSTRUCTION OF SANITARY SEWERS.
4. SEWER SERVICE LINE CLEAN-OUT ASSEMBLY SHALL BE INSTALLED ACCORDING TO THE SPECIFICATIONS OF THE CITY OF COLUMBIA.
5. ALL PUBLIC AND PRIVATE WATER MAINS SHALL COMPLY WITH NFPA 13 AND 24 UNLESS LOCAL JURISDICTION STATES OTHERWISE.
6. CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ANY APPLICABLE FEES.
7. IN THE EVENT OF ANY DISCREPANCIES AND/OR ERRORS FOUND IN THE DRAWINGS, OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. IF ENGINEER IS NOT NOTIFIED, THE CONTRACTOR SHALL TAKE RESPONSIBILITY FOR THE COST OF ANY REVISION.
8. THE CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN, REPAIR ANY DAMAGE ACCORDING TO LOCAL STANDARDS AND AT THE CONTRACTOR'S EXPENSE, AND COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY.
9. CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN THE USE OF EQUIPMENT IN AND AROUND OVERHEAD AND UNDERGROUND ELECTRICAL WIRES AND SERVICES. IF AT ANY TIME IN THE PURSUIT OF THIS WORK THE CONTRACTOR MUST WORK IN THE CLOSE PROXIMITY OF THE ABOVE NOTED WIRES, THE ELECTRIC COMPANY SHALL BE CONTACTED PRIOR TO SUCH WORK AND THE PROPER SAFETY MEASURES IN THE PROJECT AREA SHOULD BE MADE BY THE CONTRACTOR PRIOR TO THE INITIATION OF CONSTRUCTION.
10. THE OWNER AND ENGINEER DO NOT ASSUME RESPONSIBILITY FOR THE POSSIBILITY THAT, DURING CONSTRUCTION, UTILITIES OTHER THAN THOSE SHOWN MAY BE ENCOUNTERED OR THAT ACTUAL LOCATION OF THOSE SHOWN MAY BE DIFFERENT FROM LOCATIONS DESIGNATED ON THE CONTRACT DRAWINGS. IN AREAS WHERE IT IS NECESSARY THAT EXACT LOCATIONS BE KNOWN OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, FURNISH ALL LABOR AND TOOLS NECESSARY TO EITHER VERIFY AND SUBSTANTIATE OR DEFINITELY ESTABLISH THE POSITION OF UNDERGROUND UTILITY LINES.
11. MAINTAIN A MINIMUM OF 18" VERTICAL CLEARANCE BETWEEN ALL SANITARY SEWER AND WATERLINE CROSSINGS, UNLESS LOCAL UTILITY JURISDICTION SPECS STATES OTHERWISE.

TDOT NOTES

1. THERE WILL BE NO INCREASE IN THE Q50 RUNOFF FROM THE DEVELOPMENT ONTO TDOT ROW.
2. ALL DRIVEWAYS MEET AASHTO INTERSECTION SIGHT DISTANCE.
3. ALL STORMWATER PIPES ON TDOT ROW TO BE 18 INCHES OR GREATER.
4. ALL PAVEMENT MARKINGS ON TDOT ROW SHALL BE THERMOPLASTIC.
5. ALL SIGNS TO MEET MUTCD STANDARDS.

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PERMIT NUMBERS.

PARCEL ID: 113E B 004.00

FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007.

DATUM: TNSPC (NAD83) NAVD 1988

BENCHMARK:

30' 15' 0' 30' 60'

SCALE: 1 INCH = 30 FEET

REV'N	BY	DATE	DESCRIPTION
1	DPK	09.13.2024	PERMIT SET
	JAB		
	JD		

BARGE DESIGN SOLUTIONS
193 3rd Avenue South | Suite 700 | Nashville, Tennessee 37210
PHONE: (615) 254-1999 | FAX: (615) 255-0412

Digitally signed by Andrew B Hardison
Date: 2024.10.08 09:55:03 -05'00'

CIVIL CONSTRUCTION NOTES

MASS GRADING & INFRASTRUCTURE PACKAGE

COLUMBIA COMMONS

115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

C0.01

FILE NO. 38531-01

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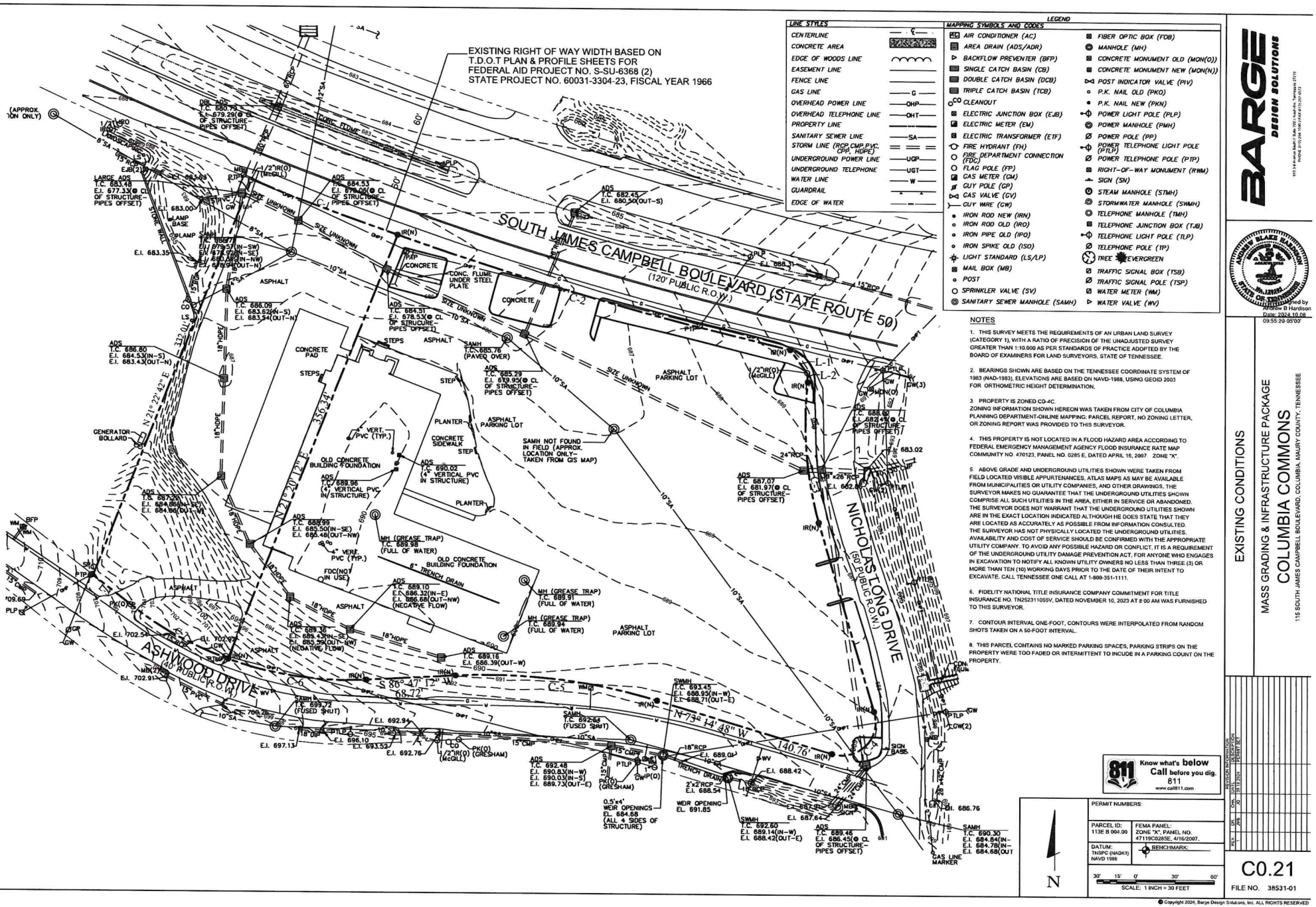
PLOTTED: 10/8/2024


EXISTING RIGHT OF WAY WIDTH BASED ON
T.D.O.T PLAN & PROFILE SHEETS FOR
FEDERAL AID PROJECT NO. S-SU-6368 (2)
STATE PROJECT NO. 60031-3304-23, FISCAL YEAR 1966
SOUTH JAMES CAMPBELL BOULEVARD (STATE ROUTE 50)
(120' PUBLIC R.O.W.)
NICHOLAS LONG DRIVE
(50' PUBLIC R.O.W.)
ASHWOOD DRIVE
(40' PUBLIC R.O.W.)
LEGEND
LINE STYLES
CENTERLINE
CONCRETE AREA
EDGE OF WOODS LINE
EASEMENT LINE
FENCE LINE
GAS LINE
OVERHEAD POWER LINE
OVERHEAD TELEPHONE LINE
PROPERTY LINE
SANITARY SEWER LINE
STORM LINE (RCP,CMP,PVC, CPP, HDPE)
UNDERGROUND POWER LINE
UNDERGROUND TELEPHONE
WATER LINE
GUARDRAIL
EDGE OF WATER
MAPPING SYMBOLS AND CODES
AIR CONDITIONER (AC)
AREA DRAIN (ADS/ADR)
BACKFLOW PREVENTER (BFP)
SINGLE CATCH BASIN (CB)
DOUBLE CATCH BASIN (DCB)
TRIPLE CATCH BASIN (TCB)
CLEANOUT
ELECTRIC JUNCTION BOX (EJB)
ELECTRIC METER (EM)
ELECTRIC TRANSFORMER (ETF)
FIRE HYDRANT (FH)
FIRE DEPARTMENT CONNECTION (FDC)
FLAG POLE (FP)
GAS METER (GM)
GUY POLE (GP)
GAS VALVE (GV)
GUY WIRE (GW)
IRON ROD NEW (IRN)
IRON ROD OLD (IRO)
IRON PIPE OLD (IPO)
IRON SPIKE OLD (ISO)
LIGHT STANDARD (LS/LP)
MAIL BOX (MB)
POST
SPRINKLER VALVE (SV)
SANITARY SEWER MANHOLE (SAMH)
FIBER OPTIC BOX (FOB)
MANHOLE (MH)
CONCRETE MONUMENT OLD (MON(O))
CONCRETE MONUMENT NEW (MON(N))
POST INDICATOR VALVE (PIV)
P.K. NAIL OLD (PKO)
P.K. NAIL NEW (PKN)
POWER LIGHT POLE (PLP)
POWER MANHOLE (PMH)
POWER POLE (PP)
POWER TELEPHONE LIGHT POLE (PTLP)
POWER TELEPHONE POLE (PTP)
RIGHT-OF-WAY MONUMENT (RWM)
SIGN (SN)
STEAM MANHOLE (STMH)
STORMWATER MANHOLE (SWMH)
TELEPHONE MANHOLE (TMH)
TELEPHONE JUNCTION BOX (TJB)
TELEPHONE LIGHT POLE (TLP)
TELEPHONE POLE (TP)
TREE EVERGREEN
TRAFFIC SIGNAL BOX (TSB)
TRAFFIC SIGNAL POLE (TSP)
WATER METER (WM)
WATER VALVE (WV)
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. PROPERTY IS ZONED CG-4C
ZONING INFORMATION SHOWN HEREON WAS TAKEN FROM CITY OF COLUMBIA PLANNING DEPARTMENT-ONLINE MAPPING: PARCEL REPORT, NO ZONING LETTER, OR ZONING REPORT WAS PROVIDED TO THIS SURVEYOR.
4. 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".
5. ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM FIELD LOCATED VISIBLE APPURTENANCES, ATLAS MAPS AS MAY BE AVAILABLE FROM MUNICIPALITIES OR UTILITY COMPANIES, AND OTHER DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE 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 INFORMATION CONSULTED. THE SURVEYOR HAS 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.
6. FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE NO. TN2523110S5V, DATED NOVEMBER 10, 2023 AT 8:00 AM WAS FURNISHED TO THIS SURVEYOR.
7. CONTOUR INTERVAL ONE-FOOT, CONTOURS WERE INTERPOLATED FROM RANDOM SHOTS TAKEN ON A 50-FOOT INTERVAL.
8. THIS PARCEL CONTAINS NO MARKED PARKING SPACES, PARKING STRIPS ON THE PROPERTY WERE TOO FADED OR INTERMITTENT TO INCUDE IN A PARKING COUNT ON THE PROPERTY.
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PERMIT NUMBERS:
PARCEL ID: 113E B 004.00
FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007.
DATUM: TNSPC (NAD83) NAVD 1988
BENCHMARK:
N
30' 15' 0' 30' 60'
SCALE: 1 INCH = 30 FEET
BARGE DESIGN SOLUTIONS
ANDREW BLAKE HARDISON
Digitally signed by Andrew B Hardison
Date: 2024.10.08 09:55:20 -05'00'
EXISTING CONDITIONS
MASS GRADING & INFRASTRUCTURE PACKAGE
COLUMBIA COMMONS
115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE
REV. 1 DR JAS 10.11.2024 PERMIT SET
C0.21
FILE NO. 38531-01
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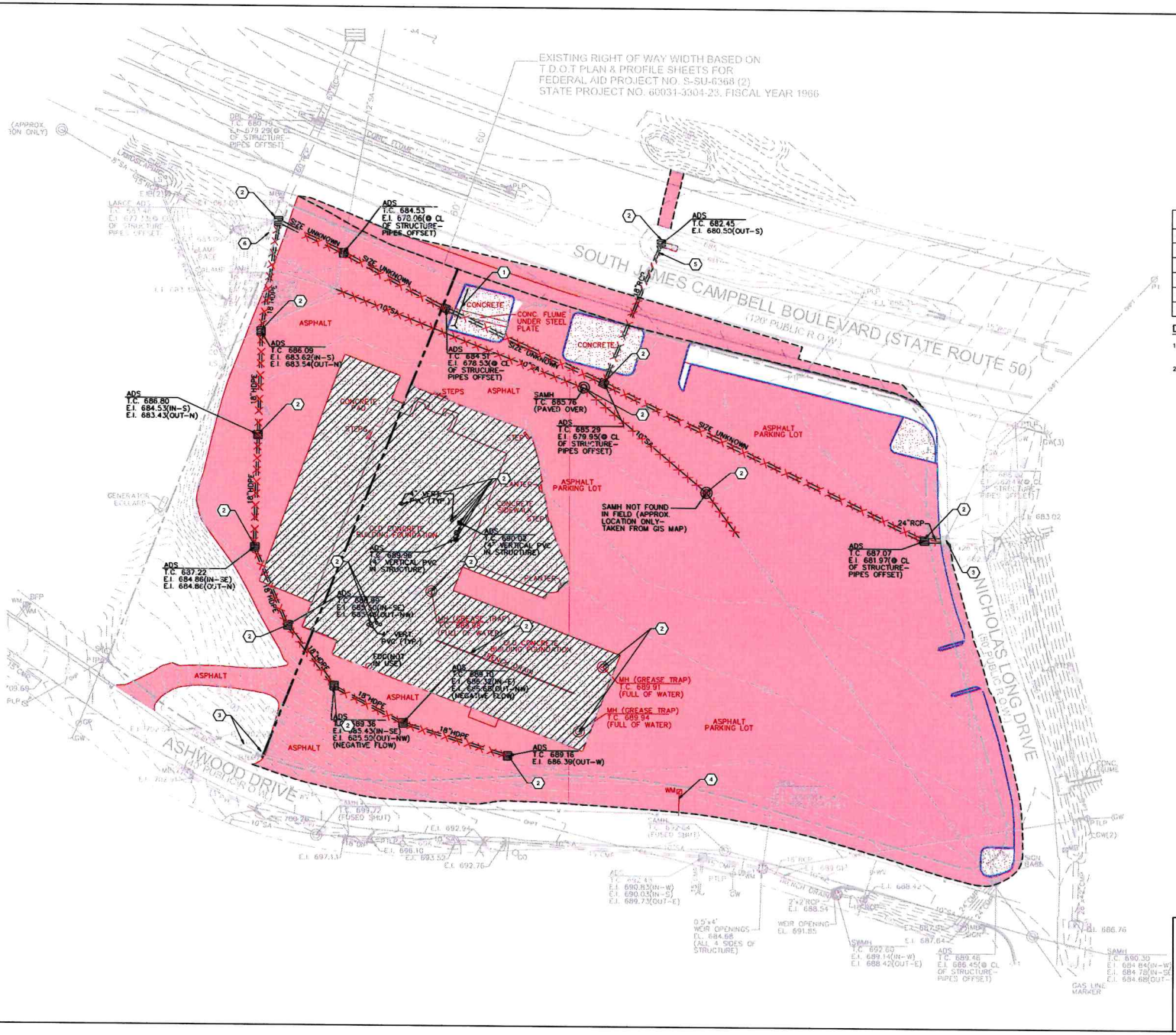

LEGEND

- FOUNDATION REMOVAL
- ASPHALT PAVEMENT REMOVAL
- CONCRETE CURB REMOVAL
- SAWCUT
- PIPE REMOVAL
- ABANDON PIPE (CUT, CAP, AND FILL WITH FLOWABLE FILL)

DEMOLITION KEYNOTES

1	REMOVE GUY WIRE
2	REMOVE EXISTING STRUCTURE
3	PROTECT EXISTING UTILITY IN PLACE
4	REMOVE WATER SERVICE AND METER
5	CUT, GROUT FILL, AND ABANDON EXISTING STORM PIPE
6	ADJUST EXISTING GUY WIRE

DEMOLITION NOTES

1. CONTRACTOR TO FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.
2. CONTRACTOR TO PROVIDE SMOOTH, STRAIGHT SAW-CUT LINES ALONG ALL AREAS OF CURB AND PAVEMENT REMOVAL.

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Date: 2024.10.08 09:55:34 -05'00'

DEMOLITION PLAN

MASS GRADING & INFRASTRUCTURE PACKAGE
COLUMBIA COMMONS
115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

REV	DR	CHK	DATE OF ISSUE/DESCRIPTION
1	JAB	JO	10.11.2024 PERMIT SET

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PARCEL ID: 113E B 004.00
FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007.
DATUM: TNSPC (NAD83) NAVD 1988
BENCHMARK:

N

30' 15' 0' 30' 60'
SCALE: 1 INCH = 30 FEET

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FILE NO. 38531-01

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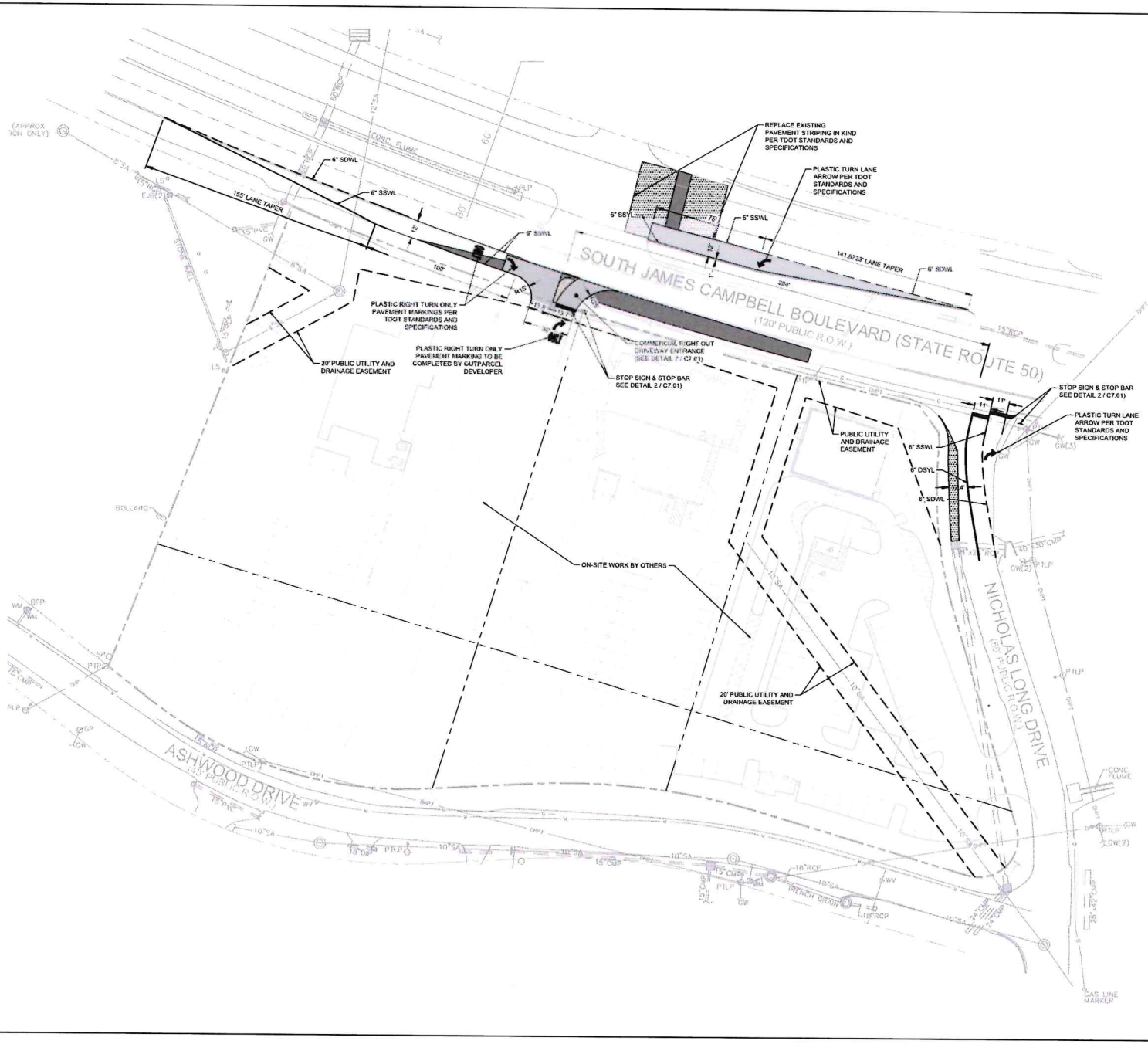
PLOTTED: 10/8/2024



LEGEND

- 6" CONCRETE (SEE DETAIL 6 ON SHEET C7.01)
- HEAVY DUTY ASPHALT PAVEMENT (SEE DETAIL 3 ON SHEET C7.01)
- MILL AND OVERLAY (ADD ADDITIONAL SURFACE COURSE AS NEEDED TO ACHIEVE FINISHED GRADE) (SEE DETAIL 4 ON SHEET C7.01)
- ASPHALT TRENCH REPAIR (SEE DETAIL 5 ON SHEET C7.01)

ABBREVIATIONS

SSWL: SINGLE SOLID WHITE LINE
SDWL: SINGLE DOTTED WHITE LINE
SSYL: SINGLE SOLID YELLOW LINE
DSYL: DOUBLE SOLID YELLOW LINE

SITE AREA DATA

TOTAL SITE AREA	169,065 SF (3.88 AC)

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PERMIT NUMBERS:	
PARCEL ID: 113E B 004.00	FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007,
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615 3rd Avenue South | Suite 700 | Nashville, Tennessee 37210
PHONE (615) 254-1906 | FAX (615) 242-4072

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Date: 2024.10.08 09:55:50 -05'00'

SITE LAYOUT PLAN

MASS GRADING & INFRASTRUCTURE PACKAGE
COLUMBIA COMMONS
115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

REV.	DES.	DRN.	CHK.	DESCRIPTION	DATE
1	JWS	JWS	AB	REVISIONS PER ORIGEN REVIEW	08.13.2024
				PERMIT SET	

C1.00
FILE NO. 38531-01

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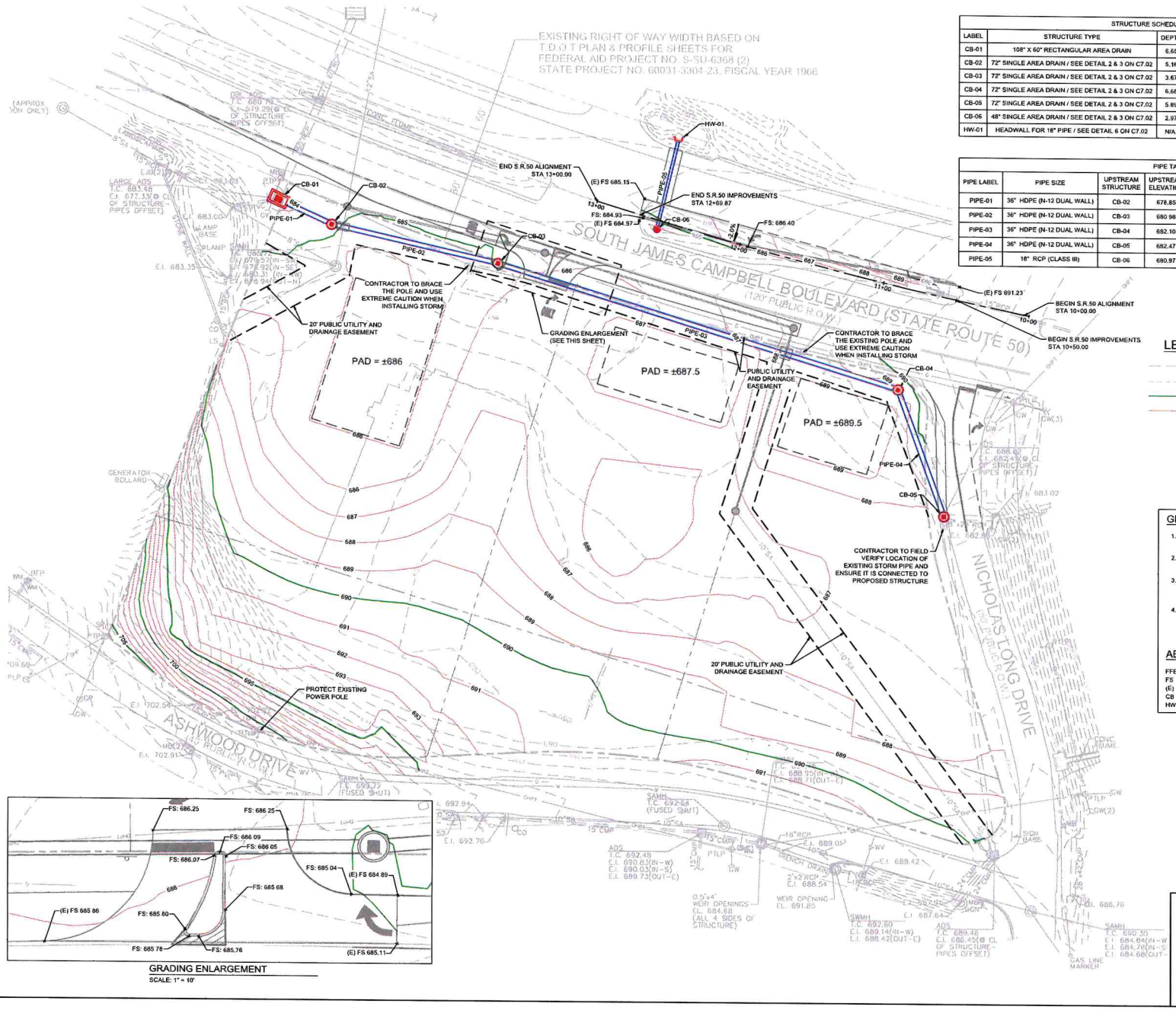
PLOTTED:10/7/2024



GRADING ENLARGEMENT
SCALE: 1" = 10'

STRUCTURE SCHEDULE					
LABEL	STRUCTURE TYPE	DEPTH	GRATE ELEVATION	INVERT IN	INVERT OUT
CB-01	108" X 60" RECTANGULAR AREA DRAIN	6.65	683.48	677.33SE	677.33
CB-02	72" SINGLE AREA DRAIN / SEE DETAIL 2 & 3 ON C7.02	5.16	684.01	680.52E	678.85
CB-03	72" SINGLE AREA DRAIN / SEE DETAIL 2 & 3 ON C7.02	3.67	684.65	680.98E	680.98
CB-04	72" SINGLE AREA DRAIN / SEE DETAIL 2 & 3 ON C7.02	6.68	688.78	682.10S	682.10
CB-05	72" SINGLE AREA DRAIN / SEE DETAIL 2 & 3 ON C7.02	5.89	688.36	N/A	682.47
CB-06	48" SINGLE AREA DRAIN / SEE DETAIL 2 & 3 ON C7.02	2.97	683.47	N/A	680.97
HW-01	HEADWALL FOR 18" PIPE / SEE DETAIL 6 ON C7.02	N/A	N/A	680.66S	N/A

PIPE TABLE							
PIPE LABEL	PIPE SIZE	UPSTREAM STRUCTURE	UPSTREAM ELEVATION	DOWNSTREAM STRUCTURE	DOWNSTREAM ELEVATION	LENGTH (FT)	SLOPE (%)
PIPE-01	36" HDPE (N-12 DUAL WALL)	CB-02	678.85	CB-01	677.33	39.4	3.86%
PIPE-02	36" HDPE (N-12 DUAL WALL)	CB-03	680.98	CB-02	680.52	114.5	0.40%
PIPE-03	36" HDPE (N-12 DUAL WALL)	CB-04	682.10	CB-03	680.98	281.7	0.40%
PIPE-04	36" HDPE (N-12 DUAL WALL)	CB-05	682.47	CB-04	682.10	91.6	0.40%
PIPE-05	18" RCP (CLASS III)	CB-06	680.97	HW-01	680.66	61.3	0.50%

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 470 PROPOSED MAJOR CONTOUR
- 471 PROPOSED MINOR CONTOUR

GRADING AND DRAINAGE NOTES

1. ON SITE CONTOURS REPRESENT APPROXIMATE SUBGRADE OF FINAL BUILD-OUT.
2. SEE SHEET C0.01 FOR ADDITIONAL GRADING AND DRAINAGE NOTES.
3. CONTRACTOR TO FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.
4. HDPE PIPE CONNECTIONS TO CONCRETE STRUCTURES SHALL BE MADEWITH WATERTIGHT CONNECTIONS SUCH AS Z-LOK STM CONNECTORS OR KOR-N-SEAL BOOTS.

ABBREVIATIONS

FFE	FINISHED FLOOR ELEVATION
FS	FINISHED SURFACE
(E)	EXISTING
CB	CATCH BASIN
HW	HEADWALL

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PERMIT NUMBERS:

PARCEL ID: 113E B 004.00

FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007.

DATUM: TNSPC (NAD83) NAVD 1988

BENCHMARK:

N

30' 15' 0' 30' 60'
SCALE: 1 INCH = 30 FEET

BARGE DESIGN SOLUTIONS
315 3rd Avenue South | Suite 700 | Nashville, Tennessee 37210
PHONE # (615) 244-1130 | FAX # (615) 255-8972

ANDREW B. HARDISON — 101.121810 — REGISTERED LANDSCAPE ARCHITECT — STATE OF TENNESSEE
Digitally signed by Andrew B Hardison
Date: 2024.10.08 09:56:07 -05'00'

GRADING & DRAINAGE PLAN

MASS GRADING & INFRASTRUCTURE PACKAGE
COLUMBIA COMMONS
115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

REVISION INFORMATION			
NO.	DESCRIPTION	DATE	BY
1	PERMIT SET	08.13.2024	JC

BEG'T	DN	CHK	JC
	JWB		

C2.01

FILE NO. 38531-01

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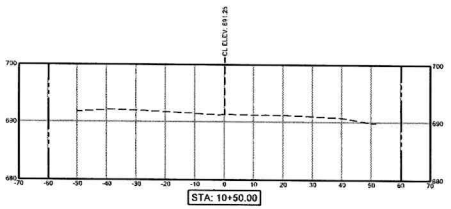
USER: JWB
DWG: I:\2018\038531\CAD\CIVIL\PLOT\GDP.DWG
SAVED: 10/8/2024
PLOTTED: 10/8/2024

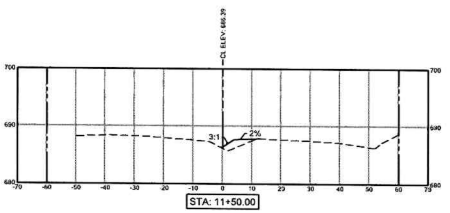
NOTES

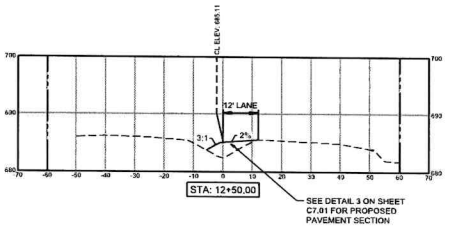
1. ON SITE CONTOURS REPRESENT APPROXIMATE SUBGRADE OF FINAL BUILD-OUT.
2. SEE SHEET C0.01 FOR ADDITIONAL GRADING AND DRAINAGE NOTES.
3. CONTRACTOR TO FIELD VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.
4. HDPE PIPE CONNECTIONS TO CONCRETE STRUCTURES SHALL BE MADEWITH WATERTIGHT CONNECTIONS SUCH AS Z-LOK STM CONNECTORS OR KOR-N-SEAL BOOTS.

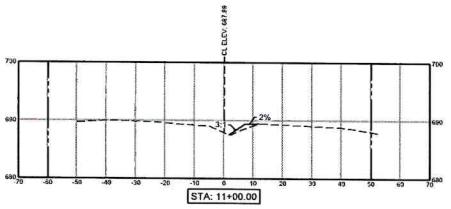
LEGEND

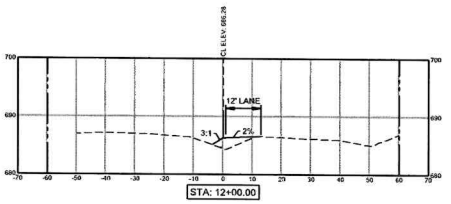
- EXISTING GRADE
- PROPOSED GRADE
- R.O.W.

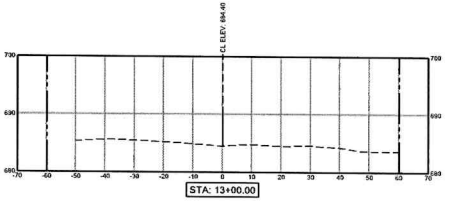












811 Know what's below Call before you dig. 811 www.call811.com

PERMIT NUMBERS:

PARCEL ID: 113E B 004.00

FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007.

DATUM: TNSPC (NAD83) NAVD 1988

BENCHMARK:

SCALE: H: 1" = 20'
V: 1" = 10'

N

REV.	DR.	CHK.	DATE	REVISION DESCRIPTION
1	JRB	JD	09.19.2024	PERMIT SET

BARGE DESIGN SOLUTIONS
115 3rd Avenue South | Suite 700 | Nashville, Tennessee 37201
PHONE (615) 254-7999 | FAX (615) 254-5913

Digitally signed by Andrew B Hardison
Date: 2024.10.08 09:56:23-05'00'

ROADWAY CROSS SECTIONS

MASS GRADING & INFRASTRUCTURE PACKAGE
COLUMBIA COMMONS
115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

C2.02

FILE NO. 38531-01

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USER: jhall
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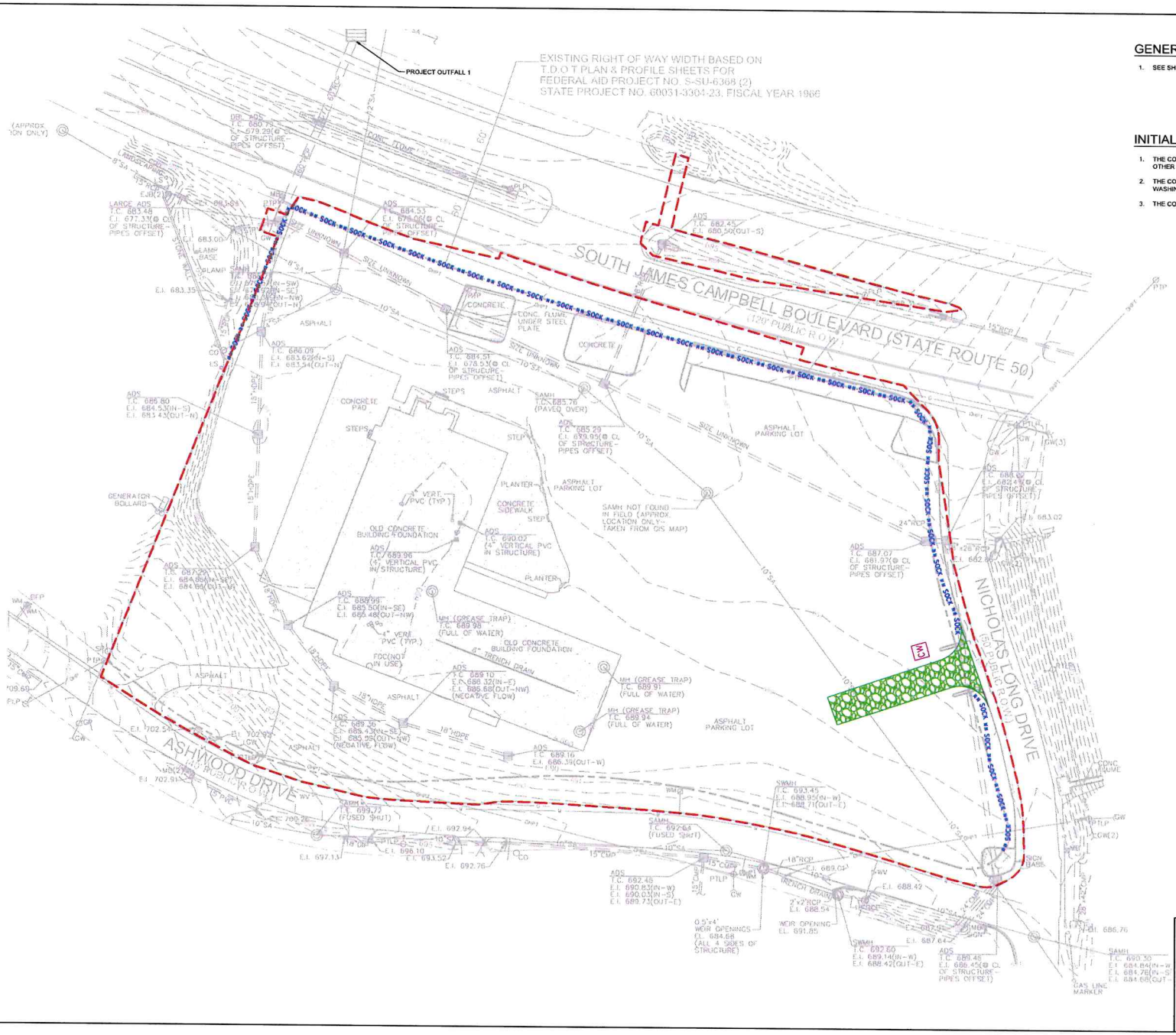
SAVED: 10/8/2024
PLOTTED: 10/8/2024



GENERAL NOTES

1. SEE SHEET C0.01 FOR EROSION AND SEDIMENT CONTROL NOTES.

INITIAL EPSC SEQUENCING

1. THE CONTRACTOR SHALL INSTALL THE CONSTRUCTION EXIT BEFORE ANY OTHER WORK CAN BEGIN ON SITE.
2. THE CONTRACTOR SHALL DESIGNATE A CONCRETE WASHOUT AND TIRE WASHING FACILITY ONSITE.
3. THE CONTRACTOR SHALL INSTALL FILTER SOCK AS SHOWN.

LEGEND

- LIMITS OF DISTURBANCE
- SOCK — FILTER SOCK (SEE DETAIL 1 ON SHEET C7.03)
- CONSTRUCTION EXIT (SEE DETAIL 2 ON SHEET C7.03)
- CW — CONCRETE WASHOUT (SEE DETAIL 3 ON SHEET C7.03)

LIMITS OF DISTURBANCE = 4.38 AC

811 Know what's below Call before you dig. 811 www.call811.com

PERMIT NUMBERS:

PARCEL ID: 113E B 004.00

FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007.

DATUM: TNSPC (NAD83) NAVD 1988

BENCHMARK:

30' 15' 0' 30' 60'

SCALE: 1 INCH = 30 FEET

N

BARGE DESIGN SOLUTIONS

415 3rd Avenue South | Suite 700 | Nashville, Tennessee 37210
Phone: 615.254.5806 | Fax: 615.254.5807

ANDREW BLAKE HARDISON — No. 124010 — STATE OF TENNESSEE — REGISTERED ENGINEER

Digitally signed by Andrew B Hardison
Date: 2024.10.08 09:56:39 05'00'

INITIAL EROSION AND SEDIMENT CONTROL PLAN

MASS GRADING & INFRASTRUCTURE PACKAGE

COLUMBIA COMMONS

115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

REV	BY	JOB#	CHK	DATE	DESCRIPTION
1			JO	09.18.2024	PERMIT SET

C2.41

FILE NO. 38531-01

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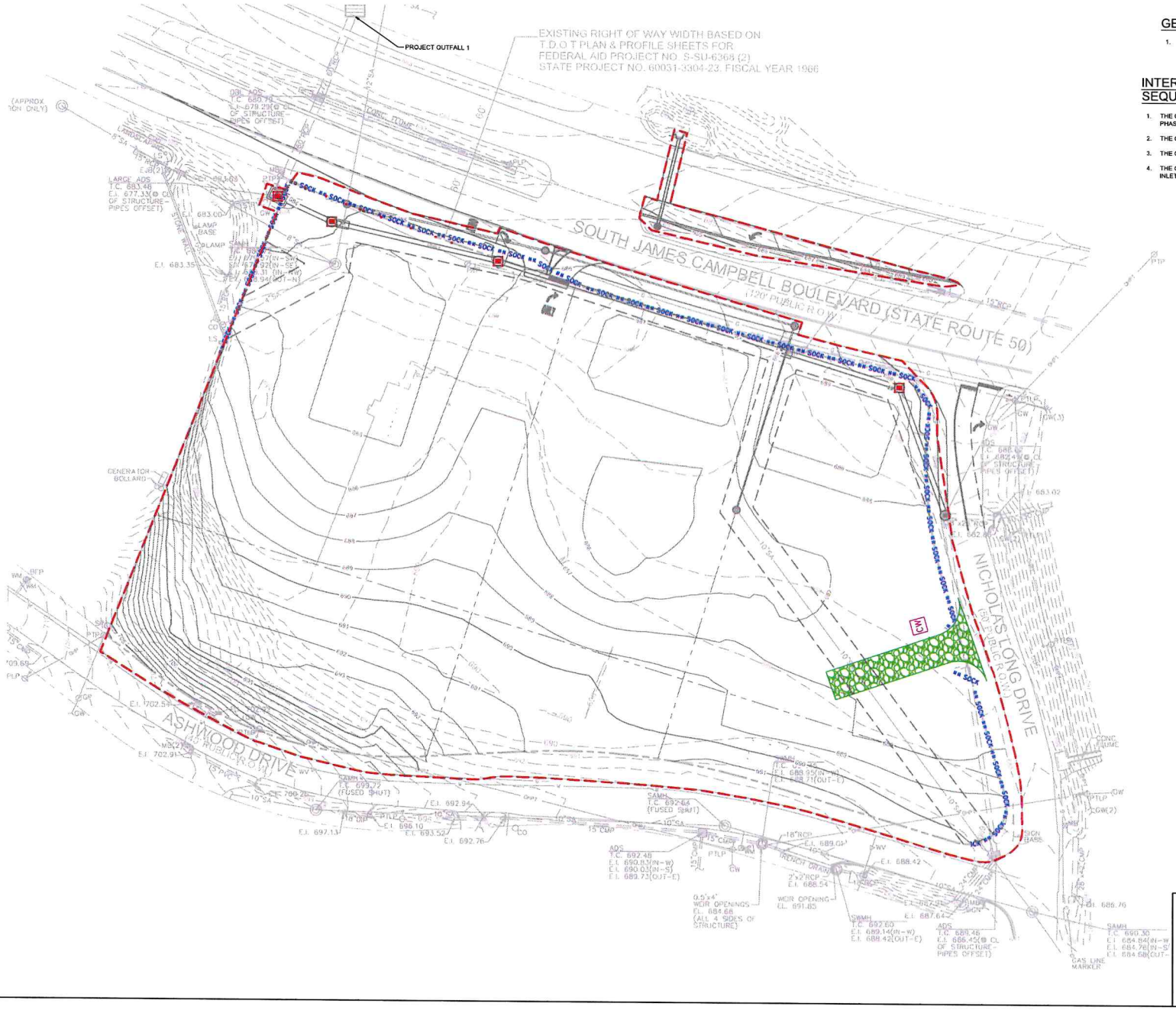
PLOTTED: 9/18/2024



GENERAL NOTES

1. SEE SHEET C0.01 FOR EROSION AND SEDIMENT CONTROL NOTES.

INTERMEDIATE & FINAL EPSC SEQUENCING

1. THE CONTRACTOR SHALL MAINTAIN ALL BMP'S INSTALLED IN THE INITIAL PHASE UNTIL NO LONGER NECESSARY.
2. THE CONTRACTOR SHALL ADJUST FILTER SOCK AS NEEDED.
3. THE CONTRACTOR TO CONSTRUCT THE SITE AS SHOWN.
4. THE CONTRACTOR TO INSTALL INLET PROTECTION ON NEW STORM INLETS AS SHOWN.

LEGEND

- LIMITS OF DISTURBANCE
- ** SOCK ** FILTER SOCK (SEE DETAIL 1 ON SHEET C7.03)
- CONSTRUCTION EXIT (SEE DETAIL 2 ON SHEET C7.03)
- CW CONCRETE WASHOUT (SEE DETAIL 3 ON SHEET C7.03)
- INLET PROTECTION (SEE DETAIL 4 ON SHEET C7.03)

LIMITS OF DISTURBANCE = 4.38 AC

811 Know what's below Call before you dig. 811 www.call811.com

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PERMIT NUMBERS:

PARCEL ID: 113E B 004.00	FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007.
DATUM: TNSPC (NAD83) NAVD 1988	BENCHMARK:

30' 15' 0' 30' 60'
SCALE: 1 INCH = 30 FEET

BARGE DESIGN SOLUTIONS
315 3rd Avenue South | Suite 700 | Nashville, Tennessee 37210
PHONE (615) 254-1568 | FAX (615) 256-6012

ANDREW B. HARDISON — REGISTERED PROFESSIONAL ENGINEER — STATE OF TENNESSEE

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Date: 2024.10.08 09:56:57-05'00'

INTERMEDIATE EROSION AND SEDIMENT CONTROL PLAN

MASS GRADING & INFRASTRUCTURE PACKAGE
COLUMBIA COMMONS
115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

REV	BY	CHK	DATE	DESCRIPTION
1	JKB	JO	08.19.2024	PERMIT SET

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FILE NO. 38531-01

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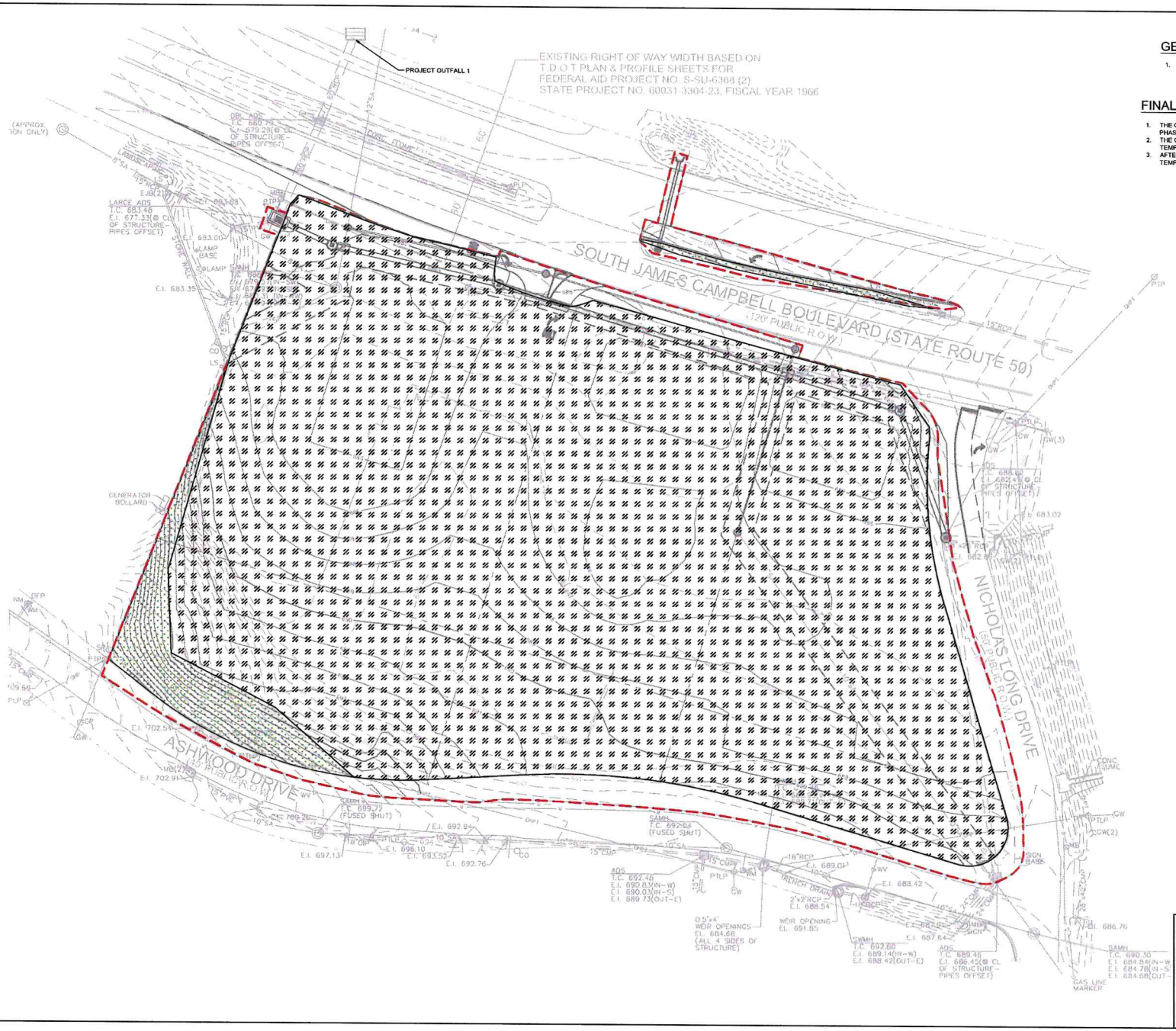
PLOTTED:10/8/2024



GENERAL NOTES

1. SEE SHEET C0.01 FOR EROSION AND SEDIMENT CONTROL NOTES.

FINAL EPSC SEQUENCING

1. THE CONTRACTOR SHALL MAINTAIN ALL BMP'S INSTALLED IN THE INITIAL PHASE UNTIL NO LONGER NECESSARY.
2. THE CONTRACTOR SHALL APPLY NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET W/ SEEDING AS SHOWN.
3. AFTER SITE IS STABILIZED THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

LEGEND

- LIMITS OF DISTURBANCE
- NORTH AMERICAN GREEN SC150 TEMPORARY EROSION CONTROL BLANKET W/ SEEDING (SEE DETAIL 1 ON SHEET C7.05)
- SEED AND STRAW

LIMITS OF DISTURBANCE = 4.38 AC

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PERMIT NUMBERS:

PARCEL ID: 113E B 004.00	FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007.
DATUM: TNSPC (NAD83) NAVD 1988	BENCHMARK:

30' 15' 0' 30' 60'
SCALE: 1 INCH = 30 FEET

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Date: 2024.10.08 09:57:16 05'00'

FINAL EROSION AND SEDIMENT CONTROL PLAN

MASS GRADING & INFRASTRUCTURE PACKAGE

COLUMBIA COMMONS

115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

REVISION DESCRIPTION	DN	CHK	DATE
1	JAB	JD	08.13.2024

C2.43

FILE NO. 38531-01

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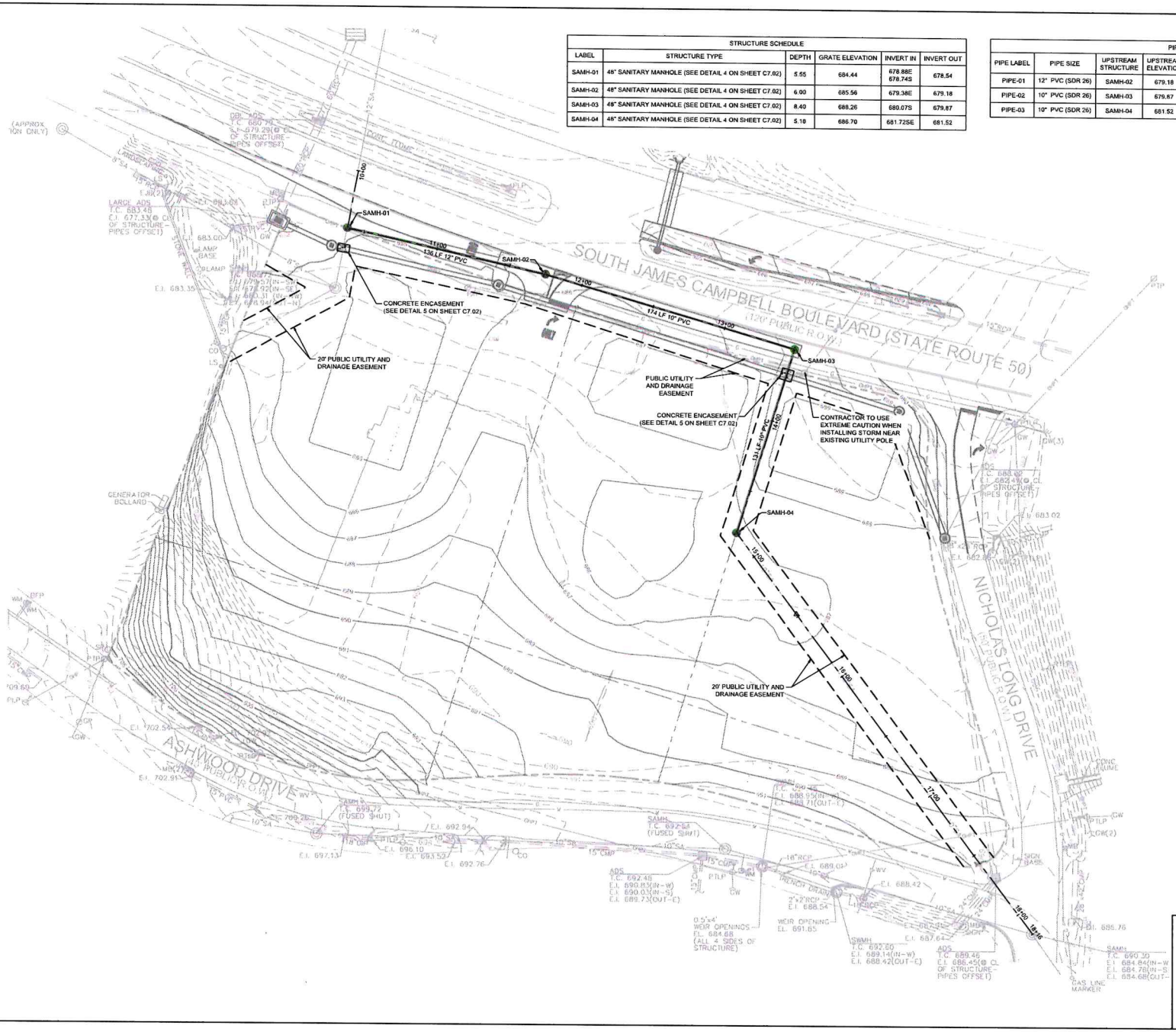

STRUCTURE SCHEDULE					
LABEL	STRUCTURE TYPE	DEPTH	GRATE ELEVATION	INVERT IN	INVERT OUT
SAMH-01	48" SANITARY MANHOLE (SEE DETAIL 4 ON SHEET C7.02)	5.55	684.44	678.88E 678.74S	678.54
SAMH-02	48" SANITARY MANHOLE (SEE DETAIL 4 ON SHEET C7.02)	6.00	685.56	679.38E	679.18
SAMH-03	48" SANITARY MANHOLE (SEE DETAIL 4 ON SHEET C7.02)	8.40	688.26	680.07S	679.87
SAMH-04	48" SANITARY MANHOLE (SEE DETAIL 4 ON SHEET C7.02)	5.18	686.70	681.72SE	681.52

PIPE TABLE							
PIPE LABEL	PIPE SIZE	UPSTREAM STRUCTURE	UPSTREAM ELEVATION	DOWNSTREAM STRUCTURE	DOWNSTREAM ELEVATION	LENGTH (FT)	SLOPE (%)
PIPE-01	12" PVC (SDR 26)	SAMH-02	679.18	SAMH-01	678.88	136.1	0.22%
PIPE-02	10" PVC (SDR 26)	SAMH-03	679.87	SAMH-02	679.38	174.4	0.28%
PIPE-03	10" PVC (SDR 26)	SAMH-04	681.52	SAMH-03	680.07	131.0	1.11%

811 Know what's below Call before you dig. 811 www.call811.com

N

PERMIT NUMBERS:

PARCEL ID: 113E B 004.00

FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007.

DATUM: TNSPC (NAD83) NAVD 1988

BENCHMARK:

30' 15' 0' 30' 60'

SCALE: 1 INCH = 30 FEET

BARGE DESIGN SOLUTIONS

315 3rd Avenue South | Suite 770 | Nashville, Tennessee 37210
Phone: (615) 244-7525 | FAX: (615) 254-5021

ANDREW B. HARDISON — 120.001 — REGISTERED PROFESSIONAL ENGINEER — STATE OF TENNESSEE

Digitally signed by Andrew B Hardison
Date: 2024.10.08 09:57:33-05'00'

SITE UTILITY PLAN

MASS GRADING & INFRASTRUCTURE PACKAGE

COLUMBIA COMMONS

115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

REVISIONS			
NO.	BY	DATE	DESCRIPTION
1	JAB	09.18.2024	PERMIT SET

C3.01

FILE NO. 38531-01

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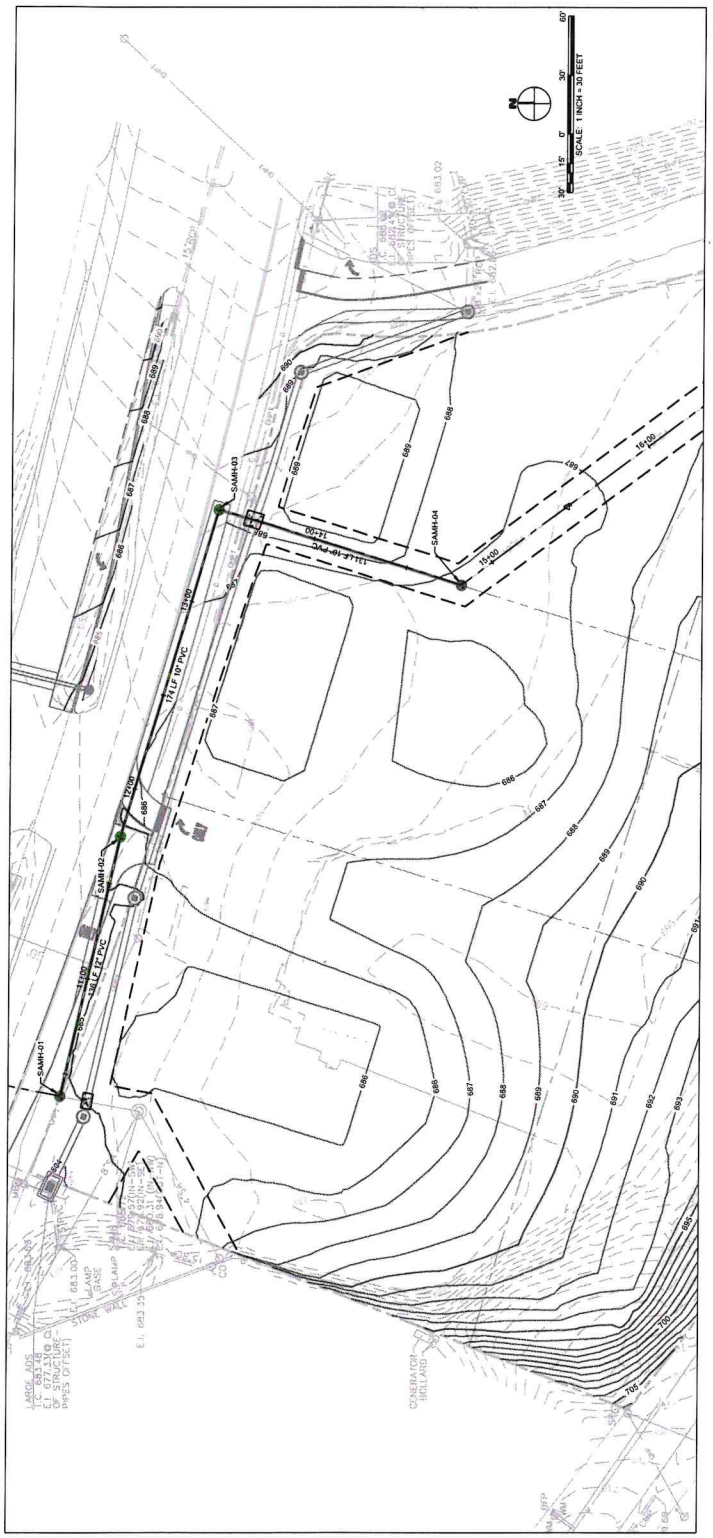
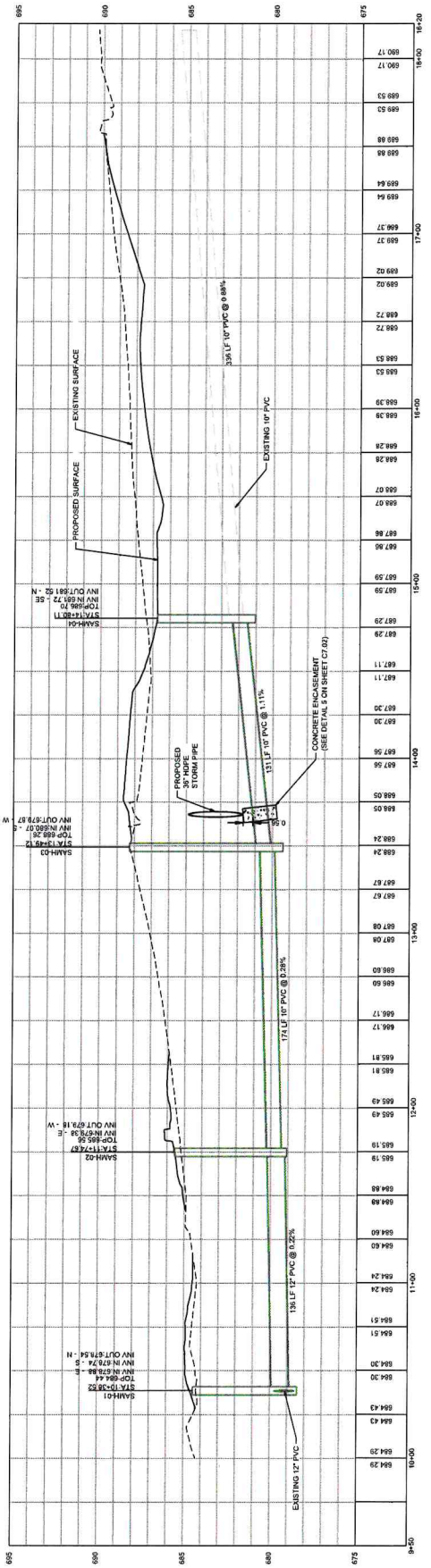
PLOTTED: 10/8/2024





SANITARY SEWER PROFILE

MASS GRADING & INFRASTRUCTURE PACKAGE

COLUMBIA COMMONS

115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

REVISION INFORMATION				
REV.	DR.	CHK.	DATE	DESCRIPTION
1	JHB	JD	09.13.2024	PERMIT SET

C4.01

FILE NO. 38531-01

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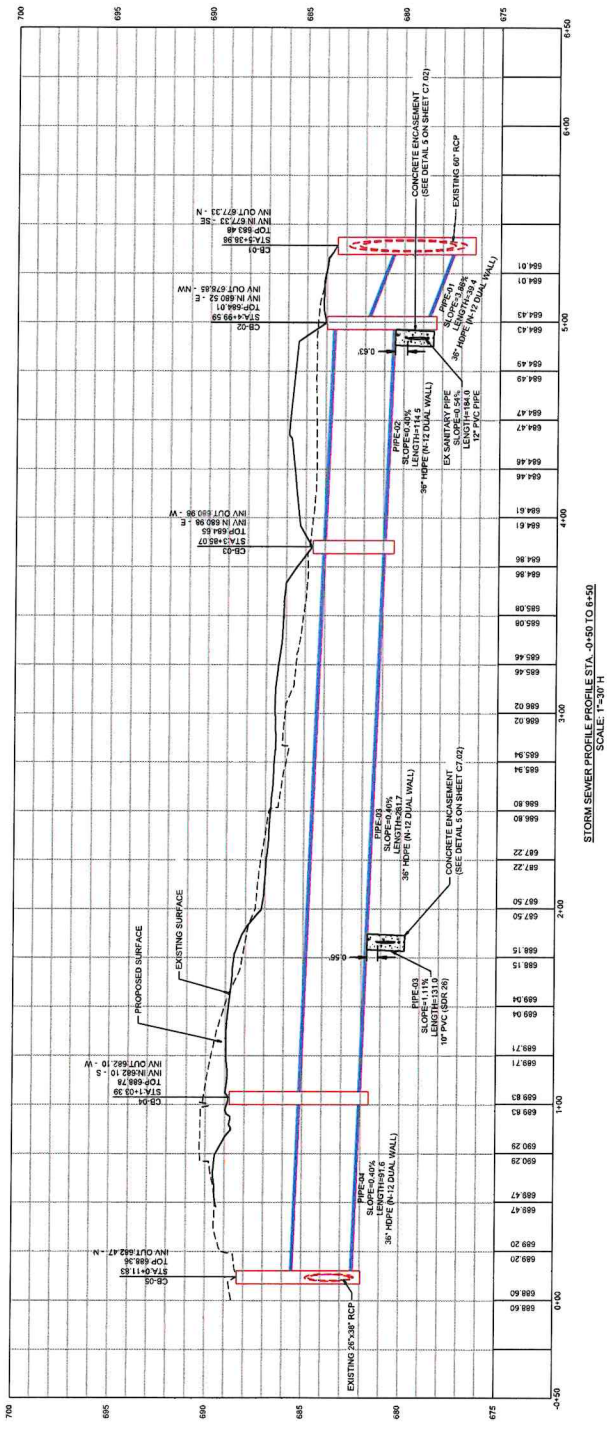

STORM SEWER PROFILE STA. -0+50 TO 6+50
SCALE: 1"=30' H
1"=3' V

STORM SEWER PROFILE

MASS GRADING & INFRASTRUCTURE PACKAGE

COLUMBIA COMMONS

115 SOUTH JAMES CAMPBELL BOULEVARD, COLUMBIA, MAURY COUNTY, TENNESSEE

REVISION INFORMATION				
REV	BY	CHK	DATE	DESCRIPTION
1	JMB	JD	09.19.2024	PERMIT SET

C4.21

FILE NO. 38531-01

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915 3rd Avenue, Suite 700 | Nashville, Tennessee 37210
Phone: (615) 254-7668 | FAX: (615) 256-6227

Approved by Andrew Richard Jackson
Date: 2024.10.09 09:58:10 -05'00'

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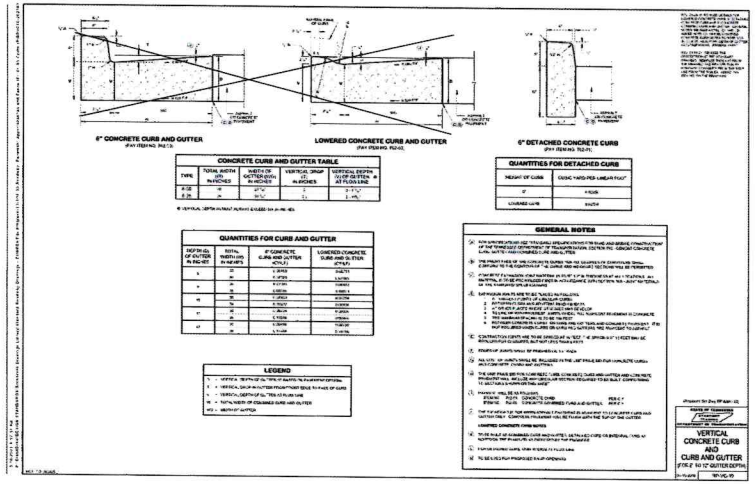

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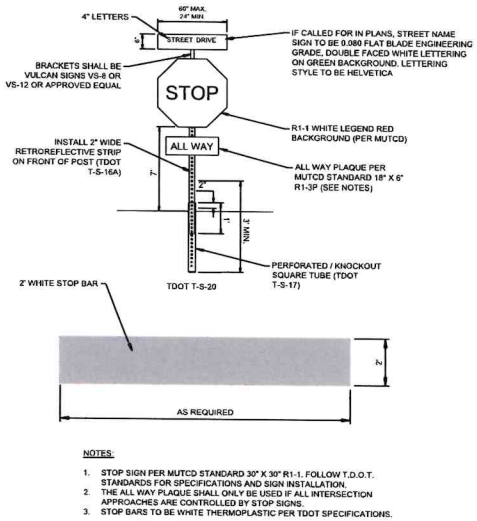
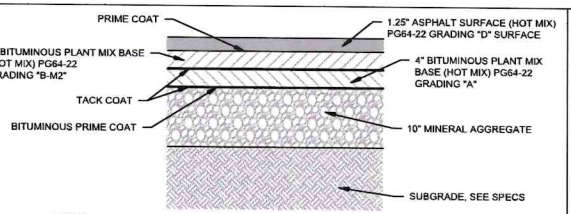


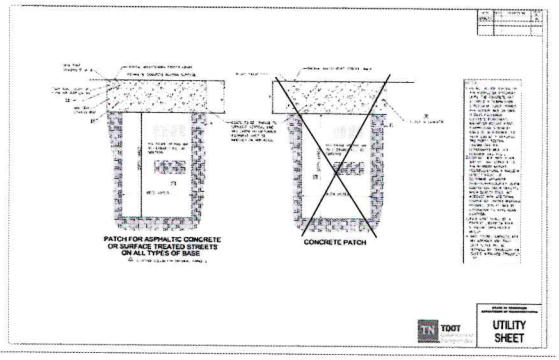
NOTES:
1. STOP SIGN PER MUTCD STANDARD 30" X 30" R1-1, FOLLOW T.D.O.T. STANDARDS FOR SPECIFICATIONS AND SIGN INSTALLATION.
2. THE ALL WAY PLAQUE SHALL ONLY BE USED IF ALL INTERSECTION APPROACHES ARE CONTROLLED BY STOP SIGNS.
3. STOP BARS TO BE WHITE THERMOPLASTIC PER TDOT SPECIFICATIONS.

2 R1-1 STOP SIGN WITH STOP BAR
C7.01 SCALE: N.T.S.



NOTES:
1. CONSTRUCTION SHALL MEET MOST RECENT EDITION OF THE STANDARD SPECIFICATIONS OF THE TN DEPT OF TRANSPORTATION.
2. SEE GEOTECHNICAL REPORT FOR SUBGRADE PREPARATION.
3. REFER TO THE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION.

3 HEAVY DUTY (TDOT) ASPHALT PAVEMENT
C7.01 SCALE: N.T.S.



5 ASPHALT TRENCH REPAIR
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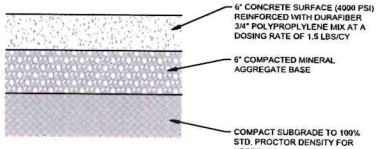

NOTES:
1. ALL CONSTRUCTION SHALL MEET THE MOST RECENT EDITION OF THE STANDARD SPECIFICATIONS OF THE TN DEPT OF TRANSPORTATION.
2. SEE SPECIFICATIONS FOR JOINT INFORMATION.
3. SEE SPECIFICATIONS FOR SUBGRADE PREPARATION.

6 6" CONCRETE PAVEMENT
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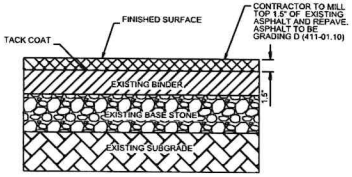
NOTES:
1.5" MILL AND RESURFACE PER STANDARDS.



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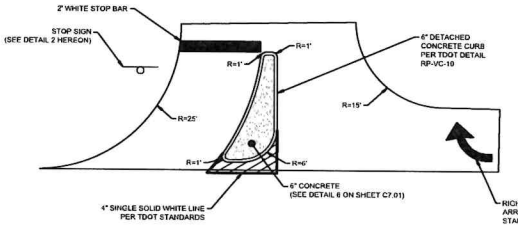

7 RIGHT OUT DRIVEWAY ENTRANCE
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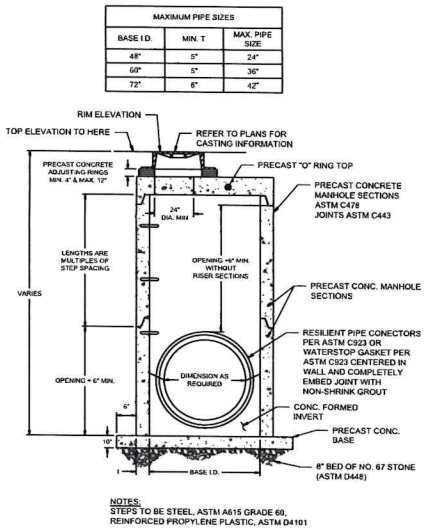

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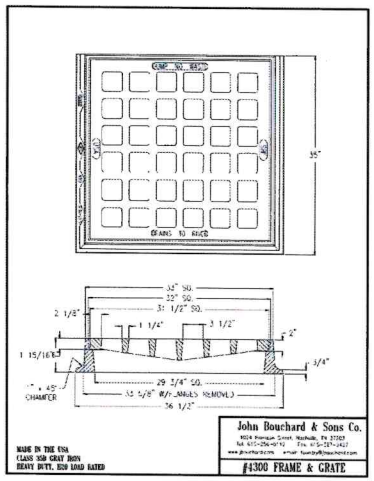

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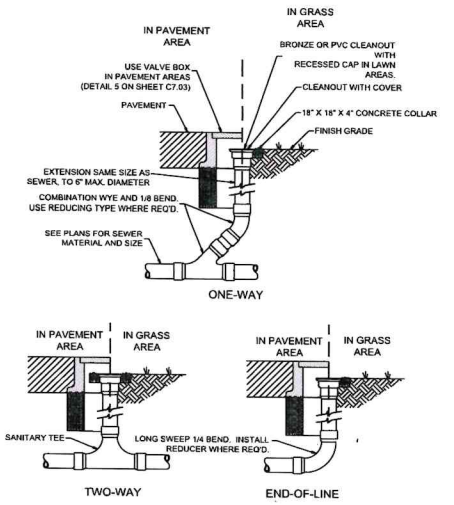

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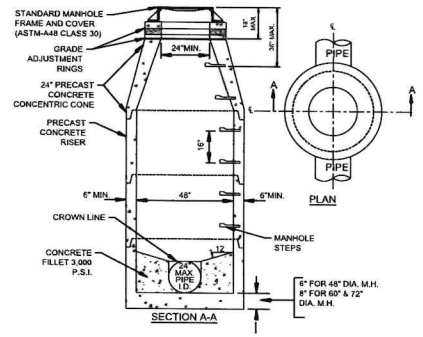

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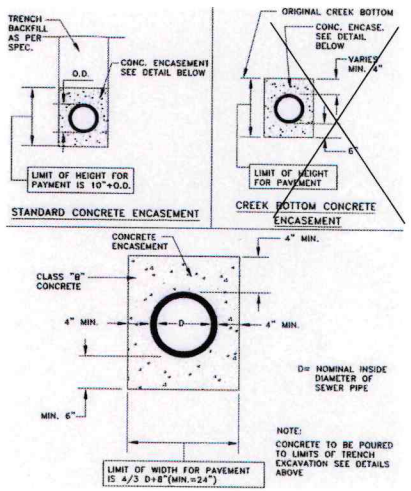

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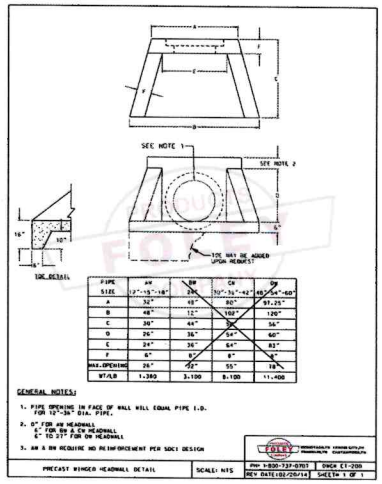

6 C7.02 WINGED HEADWALL
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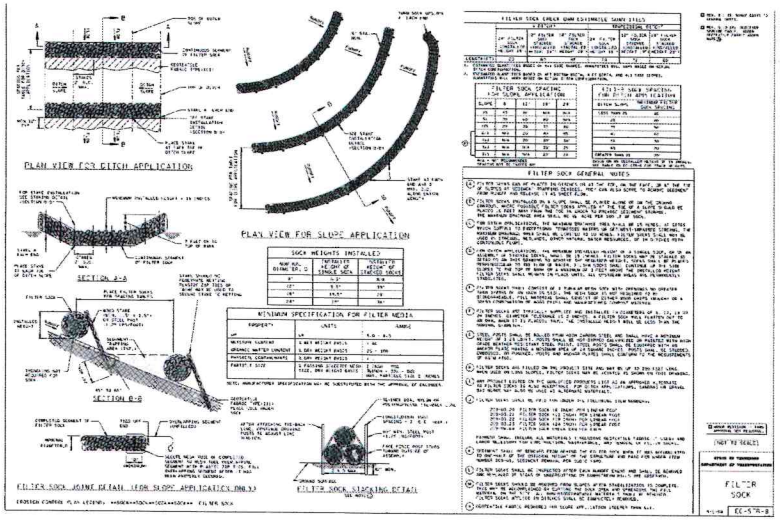

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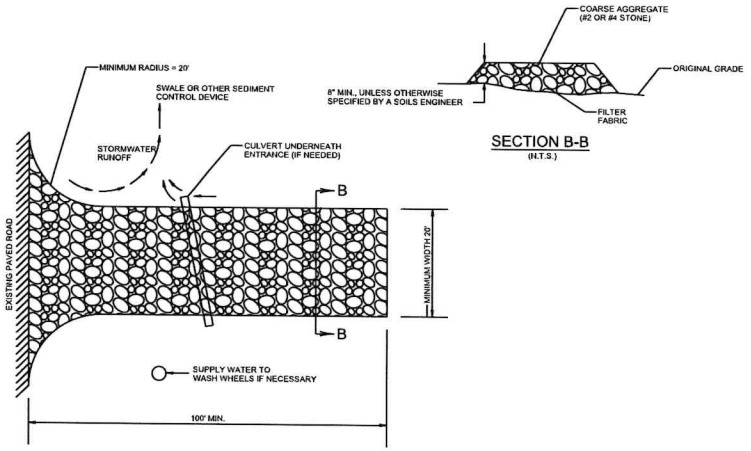

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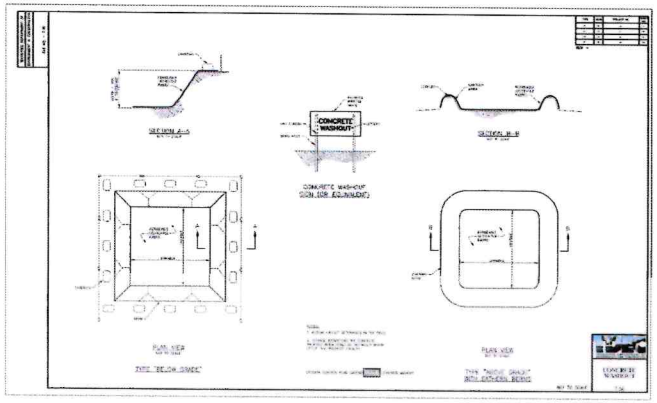

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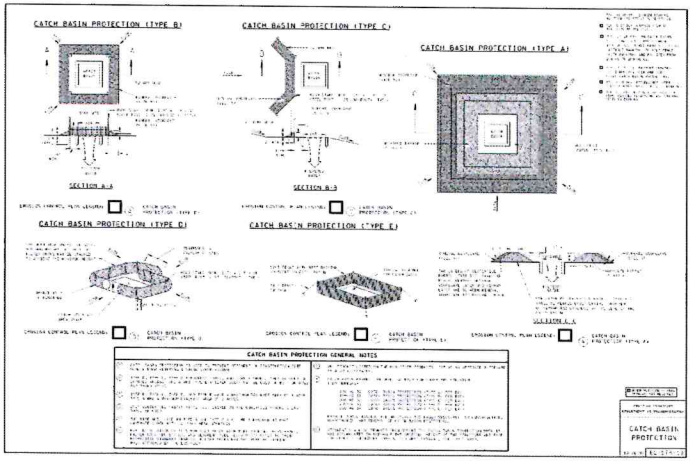

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Traffic Impact Study

115 SOUTH JAMES M CAMPBELL BLVD

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COLUMBIA, TENNESSEE

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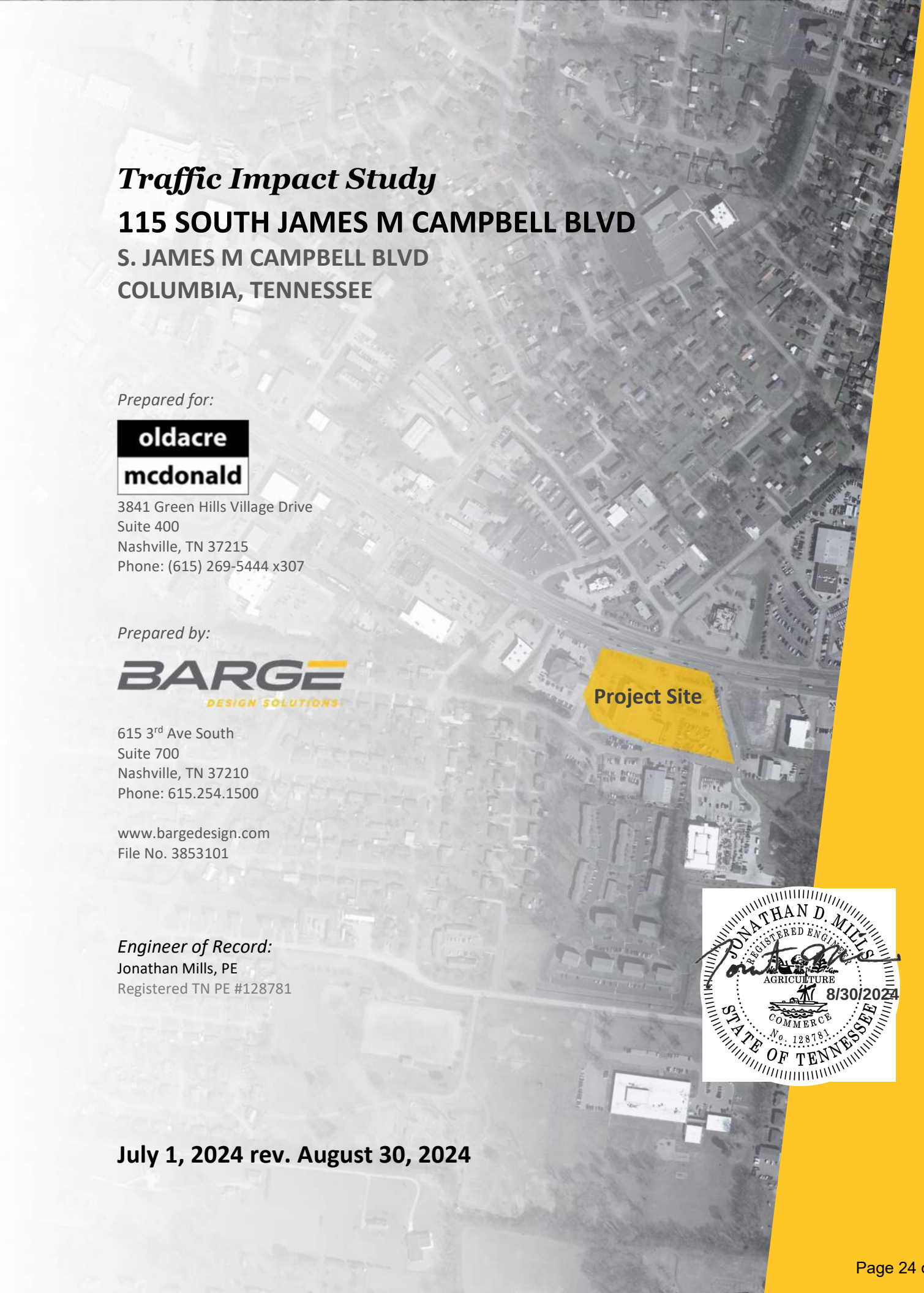

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July 1, 2024 rev. August 30, 2024

NOTICE

This document and its contents have been prepared and are intended solely as information for Oldacre McDonald and their use in relation to the proposed 115 S. James M Campbell Blvd Development.

Document History

Revision	Purpose	Originated	Reviewed	Authorized	Date
1.0	Draft Report	WM/MM	TMN	JM	7/1/2024
2.0	Revised Report	VJ	TMN	JM	8/30/2024

Client Signoff

Client	**Oldacre McDonald**
Project	115 S. James M Campbell Blvd
Job Number	3853101

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A traffic impact study has been prepared for the proposed 115 S. James M Campbell Blvd development in Columbia, Tennessee. It is located south of downtown Columbia and includes an empty lot that is not currently in use. It is served by one access located along S. James M Campbell Boulevard, one access along Nicholas Long Drive, and one access along Ashwood Drive.

The purpose of this study is to assess the potential traffic impacts of the proposed development on the transportation network in the study area. Analysis of the existing traffic conditions was conducted, growth expected to occur on the roadway network prior to the development opening was determined and analyzed, trips expected to be generated by the proposed development were calculated and assigned to the roadway network. Analysis of the roadway network after opening of the proposed development was then conducted. Improvements to the study area network needed to mitigate the impacts of the new development were then evaluated.

Traffic Counts

Traffic counts are collected to determine the existing conditions of the roadway network. 12-hour and peak hour turning movement counts were conducted at four existing intersections on S. James M Campbell Boulevard. The count locations included:

1. S. James M Campbell Boulevard at Campbellsville Pike / Highland Avenue (SR 245)
2. S. James M Campbell Boulevard at Lot Access (Site Access 1) / Nicholas Long Drive
3. S. James M Campbell Boulevard at Nicholas Long Drive / Restaurant Access
4. S. James M Campbell Boulevard at Pulaski Highway / Carmack Boulevard (SR 7 / US 31)

Background Growth

Based on historical TDOT traffic counts and coordination with the City of Columbia, it was determined a growth factor of 2.0% per year should be applied to the existing traffic volumes.

Proposed Development

Applying the industry standard methodology, using the *ITE Trip Generation Manual*, the new trips expected to be generated by the development were calculated. With a pass-by trip reduction of 30% applied to all three restaurants, the net new site trips for the development are expected to increase by 207 trips in the AM peak hour and 158 trips in the PM peak hour. These trips were then distributed and assigned to the study area.

Analysis

Intersection analysis was conducted for the study area using the methodology outlined in the *HCM Manual, 7th Edition*. The results are shown for the Existing 2024, No Build 2026, and Build 2026 scenarios. The proposed improvements near the development are expected to mitigate effects to traffic operations through the study area.

Safety Analysis

A safety analysis using five-year crash data for the study area obtained from AASHTOWare Safety was conducted to determine patterns within the crash data that may result from existing roadway conditions. The results from the data show what, if any, safety improvements should be made.

Recommendations

Based on this study's analysis and evaluation of the transportation network, the following improvements are recommended to better enhance traffic operations within the study area upon completion of the proposed development.

Build 2026

S. James M Campbell Boulevard at Nicholas Long Drive / Restaurant Access

- Restripe the northbound approach on Nicholas Long Drive to provide a left/through lane and separate right turn lane with 75 feet of storage and taper length per TDOT and MUTCD standards.
- Both northbound lanes should be 11 feet wide.

S. James M Campbell Boulevard at Lot Access (Site Access 1) / Nicholas Long Drive

- Install a westbound left turn lane with a minimum of 100 feet of storage and taper per TDOT and MUTCD standards.
- Install an eastbound right turn lane with approximately 100 feet of storage and taper per TDOT and MUTCD standards.
- Install one entering lane and one exiting lane to the development that is stop controlled. Install concrete channelization for northbound right turning movements and restrict northbound left turning movements.

Nicholas Long Drive at Site Access 2

- Install one entering lane and one exiting lane to the development that is stop controlled.

Ashwood Drive at Site Access 3

- Install one entering lane and one exiting lane to the development that is stop controlled.

Design the internal accesses according to federal, state, and local standards, including *Roadway Design Guidelines* (Tennessee Department of Transportation), and *A Policy on Geometric Design of Highways and Streets* (AASHTO, 2018). Placement of all signing should be in accordance with the *Manual on Uniform Traffic Control Devices* (FHWA, 2023).

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1. INTRODUCTION

A traffic impact study has been prepared for the proposed 115 S. James M Campbell Blvd development in Columbia, Tennessee. It is located south of downtown Columbia and includes an empty lot that is not currently in use. It is served by one access located along S. James M Campbell Boulevard, one access along Nicholas Long Drive, and one access along Ashwood Drive.

The purpose of this study is to assess the potential traffic impacts of the proposed development on the transportation network in the study area. Analysis of the existing traffic conditions was conducted, growth expected to occur on the roadway network prior to the development opening was determined and analyzed, trips expected to be generated by the proposed development were calculated and assigned to the roadway network. Analysis of the roadway network after opening of the proposed development was then conducted. Improvements to the study area network needed to mitigate the impacts of the new development were then evaluated.

References

- Manual on Uniform Traffic Control Devices (MUTCD); *US Department of Transportation Federal Highway Administration (FHWA); 2023 Edition*
- A Policy on Geometric Design of Highways and Streets (Green Book); *American Association of State Highway and Transportation Officials (AASHTO), 2018*
- Trip Generation Manual 11th Edition; *Institute of Transportation Engineers (ITE); 2021*
- Trip Generation Handbook 3rd Edition; *Institute of Transportation Engineers (ITE); 2017*
- Study Area Peak Hour Traffic Counts; *Marr Traffic, April 2024*
- Study Area Signal Timings; *Neel-Schaffer*
- The Highway Capacity Manual; *Transportation Research Board; 7th Edition*
- Synchro 12; *CUBIC/Trafficware, 2023*

2. STUDY AREA CONDITIONS

2.1. Project Description

The proposed development is located in Maury County, Tennessee. The study area is south of downtown Columbia and is bound to the east by US Highway 31 and to the west by State Route 245 (SR 245). Existing uses in the area include fast food restaurants, grocery stores, car dealerships and commercial developments. Access to the site will be provided on S. James M Campbell Boulevard, Nicholas Long Drive, and Ashwood Drive as shown on the site plan in Appendix A. The study area for the proposed development includes four intersections:

1. S. James M Campbell Boulevard at Campbellsville Pike / Highland Avenue (SR 245)
2. S. James M Campbell Boulevard at Lot Access (Site Access 1) / Nicholas Long Drive
3. S. James M Campbell Boulevard at Nicholas Long Drive / Restaurant Access
4. S. James M Campbell Boulevard at Pulaski Highway / Carmack Boulevard (SR 7 / US 31)

Figure 2.1 shows the count and access locations on S. James M Campbell Boulevard.

Figure 2.1 – Study Area

2.2. Project Inventory

The analysis of the existing intersections was conducted using the roadway characteristics and traffic control obtained from field inventory. The descriptions provided below include the existing conditions of the transportation network in the study area.

Roadway Inventory

S. James M Campbell Boulevard (SR 50) is classified as a minor arterial according to the Tennessee Department of Transportation (TDOT) function classification map. S. James M Campbell Boulevard runs east-west within the study area and includes two travel lanes in each direction with a grass median. The roadway has a posted speed limit of 40 mph throughout the study area. Sidewalks and bicycle facilities are not provided along S. James M Campbell Boulevard within the study area. Street lighting is present.

Campbellsville Pike / Highland Avenue is classified as a minor arterial according to the TDOT function classification map. Campbellsville Pike / Highland Avenue runs north-south within the study area and includes one travel lane in each direction. The roadway has a posted speed limit of 35 mph throughout the study area. Sidewalks and bicycle facilities are not provided along the roadway within the study area. Street lighting is present.

Nicholas Long Drive is a local road that is not included in the TDOT function classification map. Nicholas Long Drive runs north-south within the study area and includes one travel lane in each direction. The roadway does not have a posted speed limit. Sidewalks and bicycle facilities are not provided along Nicholas Long Drive within the study area. Street lighting is present.

Pulaski Highway / Carmack Boulevard (SR 7 / US 31) is classified as a principal arterial according to the TDOT function classification map. Pulaski Highway / Carmack Boulevard runs north-south within the study area and includes two travel lanes in each direction with a two-way left-turn center lane. The roadway has a posted speed limit of 40 mph to the north of S. James M Campbell Boulevard and a posted speed limit of 45 mph south of S. James M Campbell Boulevard. Sidewalks are provided along both sides of the roadway within the study area, but bicycle facilities are not. Street lighting is present.

Intersection Inventory

S. James M Campbell Boulevard at Campbellsville Pike / Highland Avenue is a signalized four-legged intersection. The eastbound approach of S. James M Campbell Boulevard includes a left-turn lane with 75 feet of storage and protected only phasing, two through lanes, and a right-turn lane with 175 feet of storage. The westbound approach of S. James M Campbell Boulevard includes a left-turn lane with 75 feet of storage and protected only phasing, two through lanes, and a right-turn lane with 110 feet of storage. The northbound approach of Campbellsville Pike includes a left-turn lane with 225 feet of storage and protected-permissive phasing and a shared through/right-turn lane. The southbound approach of Highland Avenue includes a left-turn lane with 225 feet of storage and protected-permissive phasing and a shared through/right-turn lane. No pedestrian or bicycle infrastructure is present at the intersection. Street lighting is included in the northeast, northwest and southwest corners of the intersection and in the eastern median.

S. James M Campbell Boulevard at Lot Access (Site Access 1) / Nicholas Long Drive is an unsignalized four-legged intersection with two-way stop control. The eastbound and westbound approaches of S. James M Campbell Boulevard operate in free-flow and include a shared left-turn/through lane and shared through/right-turn lane. The northbound approach of the lot access is stop controlled and includes a shared left/through/right turn lane. The southbound approach of Nicholas Long Drive is stop controlled includes a shared left-turn/through/right-turn lane. No pedestrian or bicycle infrastructure is present at the intersection. Street lighting is included on the western side of the grassed median.

S. James M Campbell Boulevard at Nicholas Long Drive / Restaurant Access an unsignalized four-legged intersection with two-way stop control. The eastbound and westbound approaches of S. James M Campbell Boulevard operate in free-flow and include a left-turn lane with 75 feet of storage, a through lane, and a shared through/right-turn lane. The northbound approach of Nicholas Long Drive is stop controlled and includes a shared left-turn/through/right-turn lane. The southbound approach of the Access is stop controlled and includes a shared left-turn/through lane and right-turn lane. No pedestrian or bicycle infrastructure is present at the intersection. Street lighting is included on the western side of the grassed median and in the southeast corner of the intersection.

S. James M Campbell Boulevard at Pulaski Highway / Carmack Boulevard is a signalized four-legged intersection. The eastbound approach of S. James M Campbell Boulevard includes two left-turn lanes with 325 feet of storage and protected only phasing, two through lanes, and a yield controlled channelized right-turn lane with 300 feet of storage. The westbound approach of S. James M Campbell Boulevard includes an offset left-turn lane with 250 feet of storage and protected only phasing, two through lanes, and a yield controlled channelized right-turn lane with 190 feet of storage. The northbound approach of Pulaski Highway includes a left-turn lane with 130 feet of storage and protected-permissive phasing, two through lanes, and a yield controlled channelized right-turn lane. The southbound approach of Carmack Boulevard includes a left-turn lane with 130 feet of storage and protected-permissive phasing, two through lanes, and a yield controlled channelized right-turn lane with 300 feet of storage. Pedestrian curb ramps and transverse crosswalk markings are present for all crossings at the intersection, but no pedestrian signal heads or pushbuttons are included. Bicycle infrastructure is not present at the intersection. Street lighting is present in the northeast, northwest, and southwest corners of the intersection.

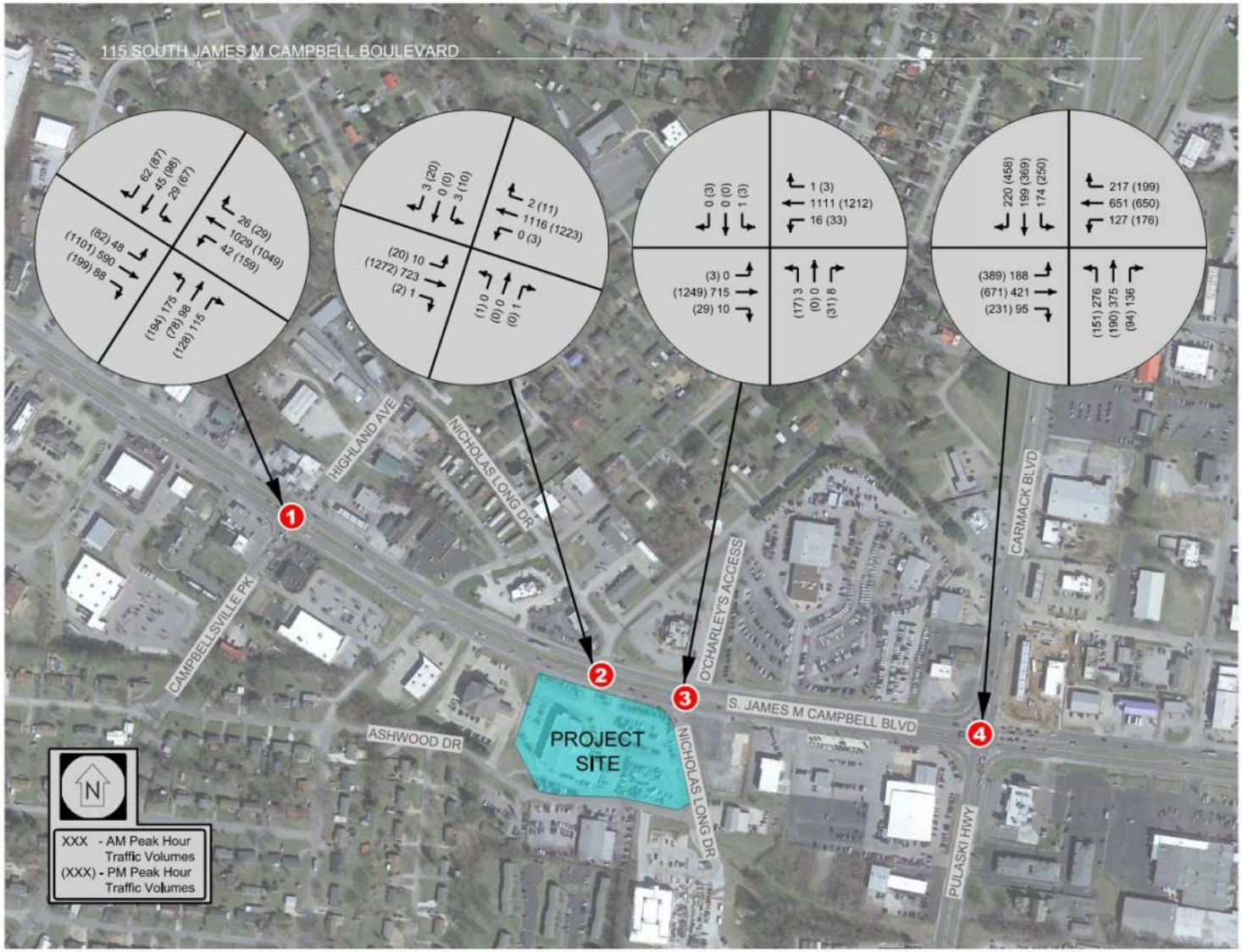
3.1. Existing Traffic Volumes

To analyze the existing traffic operations, peak hour and 12-hour turning movement counts were collected at the existing study area intersections on Tuesday, March 19, 2024. The resulting peak hours for the AM and PM traffic volumes in the study area are shown in Figure 3.1, and listed in Table 3.1. The raw traffic count data is included in Appendix A.

Table 3.1 – 2023 Turning Movement Collection Summary

Peak	Count Collection Period	Peak Hour
AM	6:00 AM – 9:00 AM	**7:15 – 8:15 AM**
PM	3:00 PM – 6:00 PM	**4:15 – 5:15 PM**

Figure 3.1 – Existing 2024 AM and PM Peak Hour Traffic Volumes



3.2. Background Growth

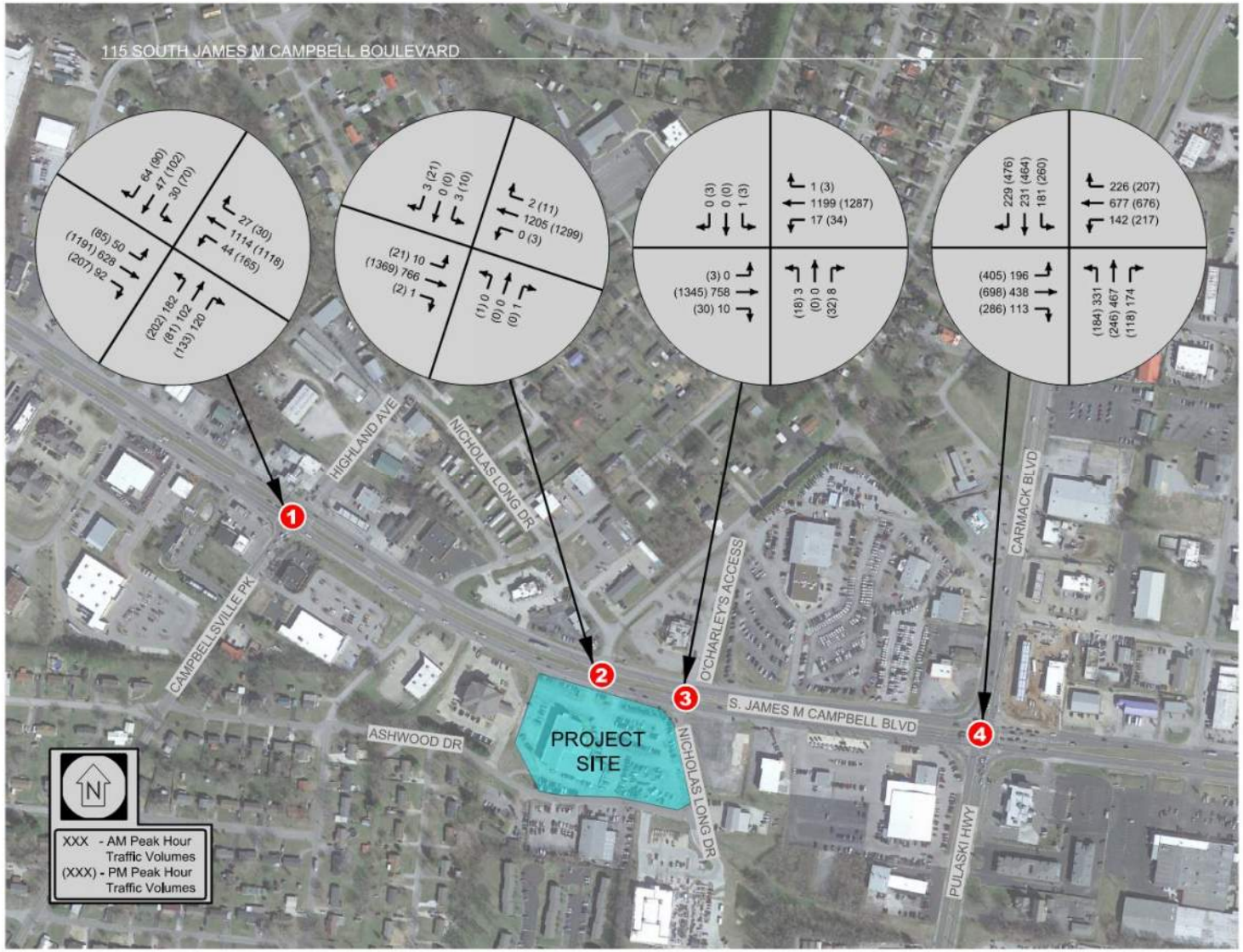
Background growth is the general increase in traffic passing through the study area due to regional development and general population growth. It is typically calculated from historic traffic counts collected on a yearly basis by TDOT. Four TDOT count stations are located near the study area. Count station 60000081 is located along S. James M Campbell Blvd west of the study area and carried an average of 27,920 vehicles per day in 2023. Count station 60000082 is located along S. James M Campbell Blvd east of the study area and carried an average of 20,204 vehicles per day in 2023. Count station 60000099 is located on Carmack Boulevard to the northeast of the study area and carried an average of 16,866 vehicles per day in 2023. Count station 60000041 is located on Pulaski Highway to the southeast of the study area and carried an average of 10,268 vehicles per day in 2023. The count stations showed an annual growth rate of 0.81% over the past ten years.

Based on historical growth rates, an annual background growth rate of 2.0% per year was applied throughout the study area. Historic count data is included in Appendix A.

No Build Traffic Volumes

Background trips were added to the existing traffic volumes to calculate the No Build 2026 traffic volumes. A multifamily housing development south of the study area was included in the background along Pulaski Highway was included in the analysis. These are the volumes expected to be on the roadway before the development opens in 2026. The No Build 2026 peak hour traffic volumes are shown in Figure 3.2. Background development trip generation is included in Appendix A.

Figure 3.2 – No Build 2026 AM and PM Peak Hour Traffic Volumes



4.1. Proposed Development Program

The existing vacant lot is expected to be converted into the following:

- A high turnover restaurant of approximately 3,100 square feet.
- A fast food restaurant with a drive thru of approximately 3,300 square feet.
- A fast food restaurant with a drive thru of approximately 2,700 square feet.

Parking at each establishment will be provided in accordance with Article 4.3.12 of the City of Columbia Zoning Ordinances. An annotated site plan is shown in Figure 4.1.

Figure 4.1 – Annotated Site Plan

4.2. Trip Generation

The trips generated by the proposed development were calculated using ITE methodology, as outlined in the *Trip Generation Handbook* (ITE, 3rd Edition) and using factors from the *Trip Generation Manual* (ITE, 11th Edition). Certain commercial and retail land uses generate pass-by vehicle trips, meaning that vehicles make an intermediate stop on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are not new to the overall roadway network and do not involve route diversion to enter the site driveway(s). The expected new trips are summarized in Table 4.1. Detailed trip generation figures from the *ITE Trip Generation Manual* and pass-by rates are included in Appendix B.

Table 4.1 – Trip Generation Summary

				AM			PM			
ITE Land Use Code	Land Use	Quantity	Units	Enter	Exit	Total	Enter	Exit	Total	Weekday
New Trips										
932	High Turnover Restaurant	3.1	k.s.f.	17	13	**30**	17	11	**28**	336
934	Fast Food w/ Drive Thru	3.3	k.s.f.	75	72	**147**	57	52	**109**	1,543
934	Fast Food w/ Drive Thru	2.7	k.s.f.	61	59	**120**	46	43	**89**	1,262
Subtotal				153	144	**297**	120	106	**226**	3,141
Pass-By Trips		*AM*	*PM*							
932	High Turnover Restaurant	30%	30%	-5	-4	**-9**	-5	-3	**-8**	-101
934	Fast Food w/ Drive Thru	30%	30%	-23	-22	**-45**	-17	-16	**-33**	-463
934	Fast Food w/ Drive Thru	30%	30%	-18	-18	**-36**	-14	-13	**-27**	-379
Subtotal				-46	-44	**-90**	-36	-32	**-68**	-943
Total				**107**	**100**	**207**	**84**	**74**	**158**	**2,198**

4.3. Trip Distribution and Assignment

A distribution of the trips generated by the project site was prepared using the existing traffic counts, historical traffic data, and knowledge of existing travel patterns. The distributions are summarized in Table 4.2.

Table 4.2 – Trip Distribution Summary

Direction of Approach	External Distribution
to/from **West** via **S. James M Campbell Boulevard**	**35%**
to/from **East** via **S. James M Campbell Boulevard**	**30%**
to/from **South** via **Pulaski Highway**	**10%**
to/from **North** via **Carmack Boulevard**	**15%**
to/from **South** via **Campbellsville Parkway**	**7%**
to/from **North** via **Highland Avenue**	**3%**

The generated trips were assigned to the roadway network using the distributions. The expected new trip distributions and assignments are shown in Figure 4.2 and Figure 4.3, respectively. Pass-by Reductions were taken, and the pass-by trip distributions and assignments are shown in Figure 4.4 and Figure 4.5, respectively. Net new site trips to the proposed development are shown in Figure 4.6.

Figure 4.2 – New Trip Distribution

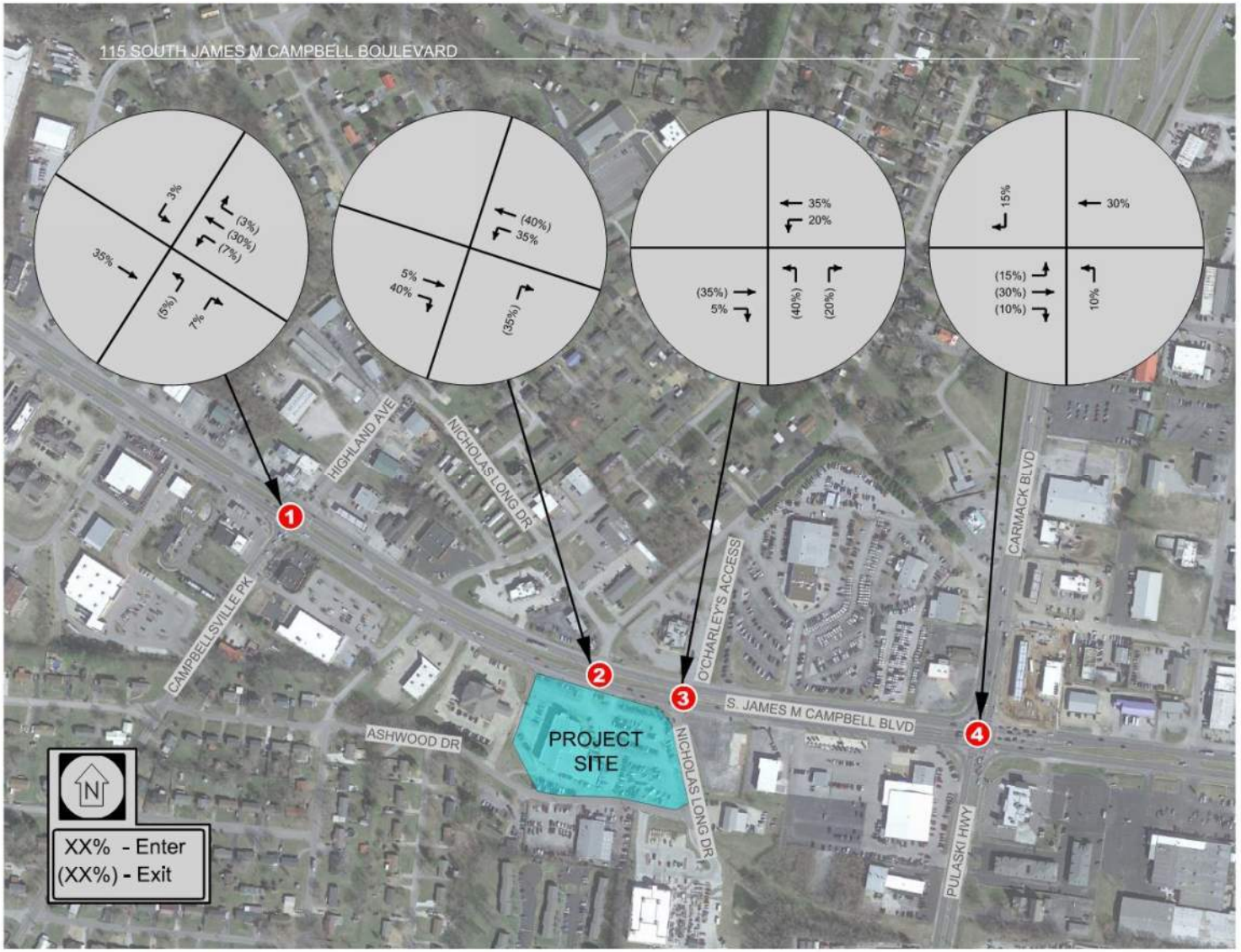


Figure 4.3 – New Trip Assignment

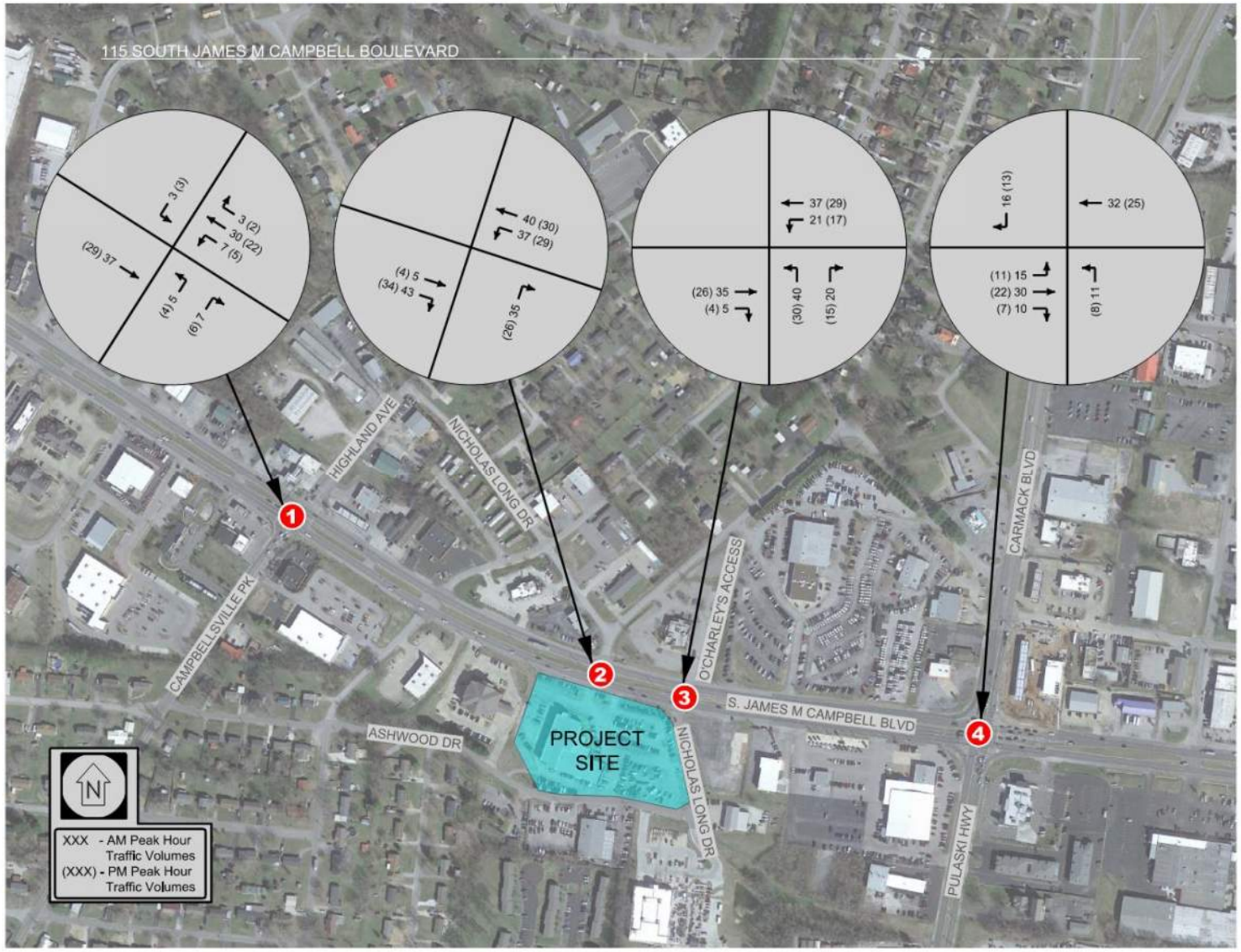


Figure 4.4 – Pass-by Trip Distribution

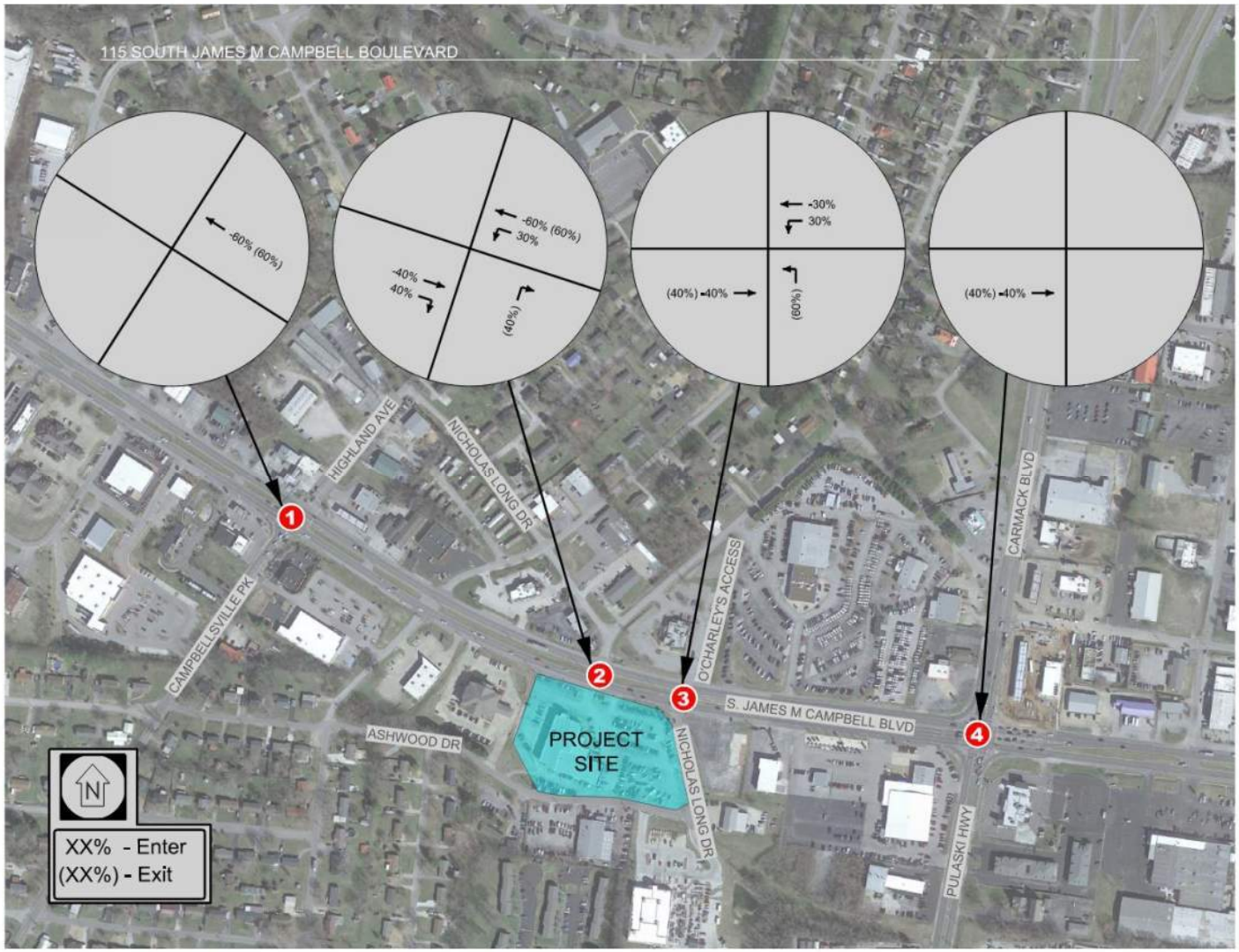


Figure 4.5 – Pass-by Trip Assignment

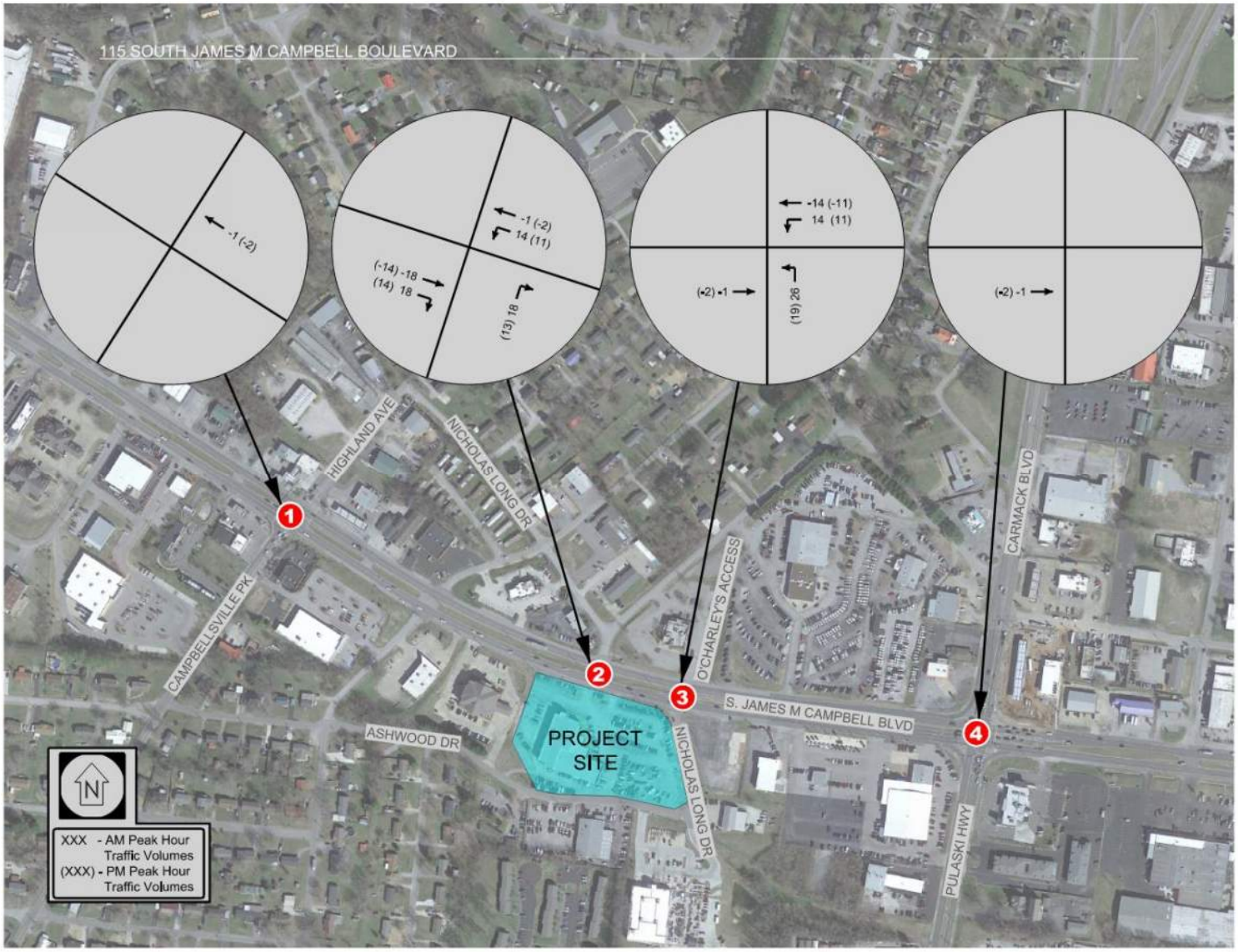
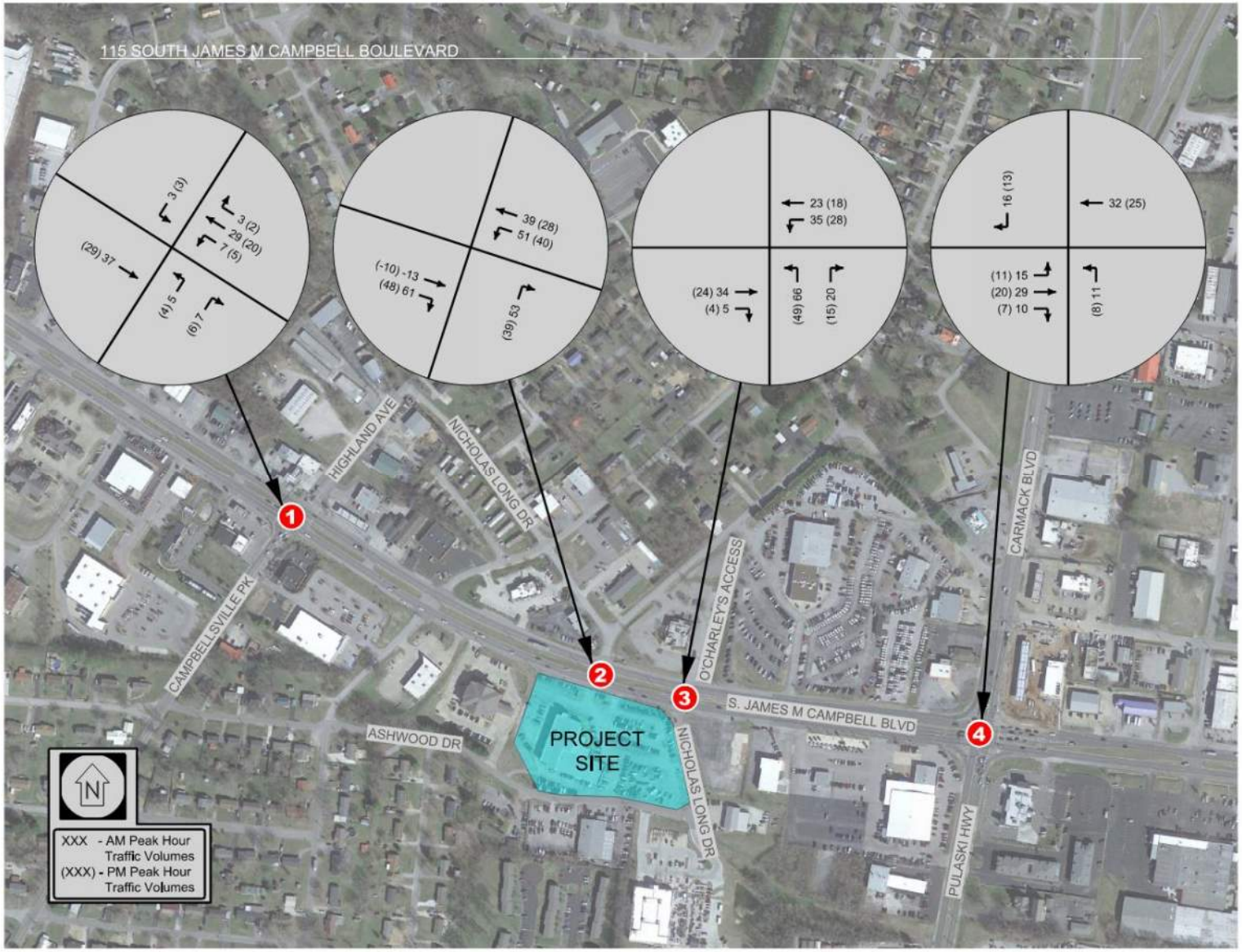


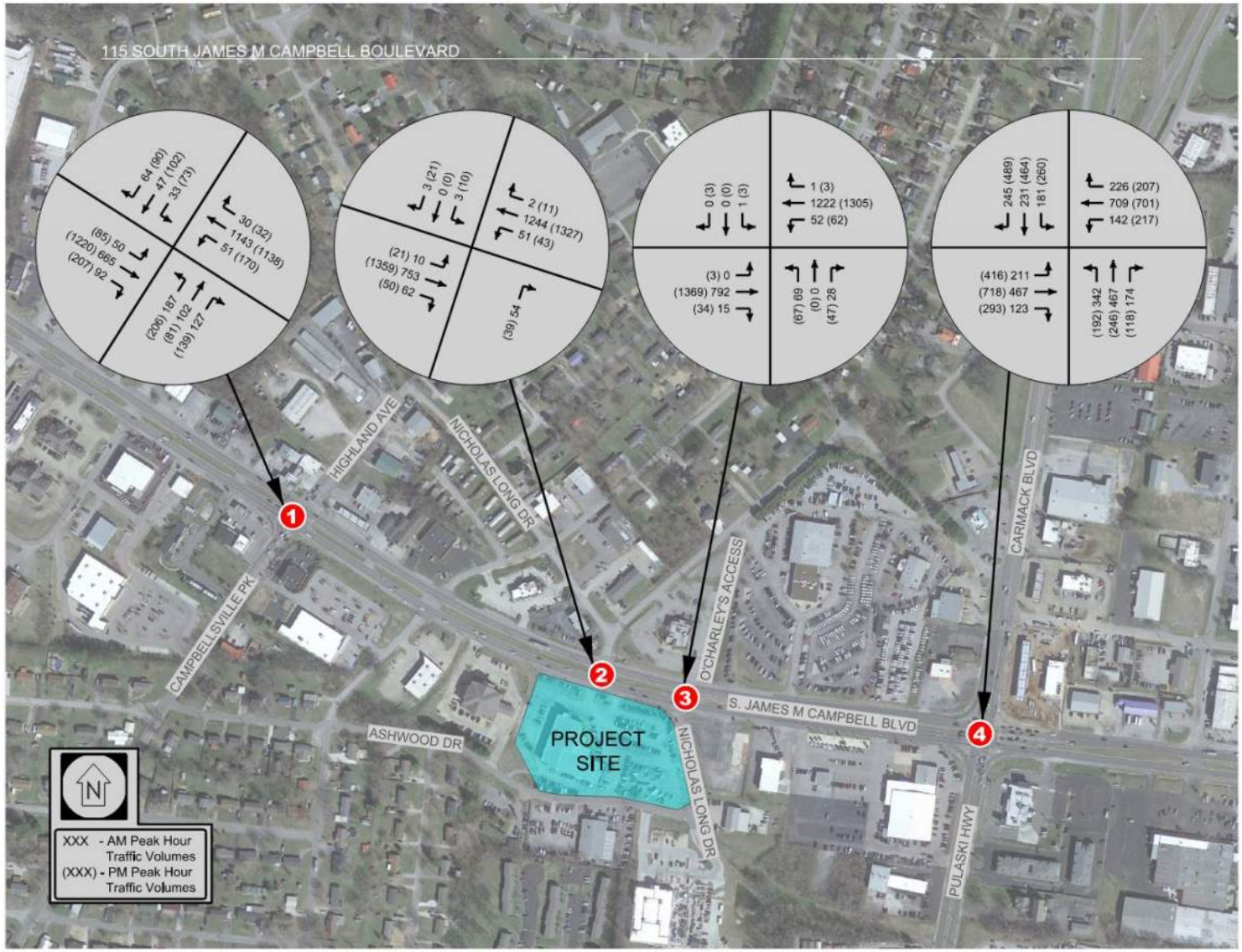
Figure 4.6 – Net New Site Trips



4.4. Build 2026 Traffic Volumes

The Build 2026 volumes represent the traffic volumes expected to be travelling through the study area network after opening of the development. The net site generated peak hour traffic volumes shown in Figure 4.6 were added to the No Build 2026 traffic volumes to determine the Build 2026 traffic volumes, shown in Figure 4.7.

Figure 4.7 – Build 2026 AM and PM Peak Hour Volumes



5.1. Analysis

5.1.1. Methodology

The *Highway Capacity Manual, 7th Edition* (HCM) outlines the methodology used for conducting operational analysis of the study intersections. The performance measure used in this methodology is based on the average delay, in seconds, experienced per vehicle at the intersection. Delay is further summarized in terms of Level of Service (LOS), a letter grade based on the calculated delay that ranges from A, the best, to F, the worst. The relationship between control delay and LOS for signalized and unsignalized intersections is summarized in Table 5.1.

Table 5.1 – Level of Service Criteria

Level of Service	Description	Average Control Delay (seconds per vehicle)	
		Signalized	Unsignalized
A	*Free flow*	≤ 10	≤ 10
B	*Stable flow, slight delay*	> 10 - 20	> 10 - 15
C	*Stable flow, acceptable delay*	> 20 - 35	> 15 - 25
D	*Near-unstable flow, tolerable delay*	> 35 - 55	> 25 - 35
E	*Unstable flow, intolerable delay*	> 55 - 80	> 35 - 50
F	*Forced flow, failure*	> 80	> 50

Source: Highway Capacity Manual (HCM 7th Edition)

5.1.2. Analysis Conditions

The results of the Existing 2024, No Build 2026, Build 2026 and Build 2026 with Improvements scenarios are summarized in Table 5.2 and Table 5.3. The roadway geometry and traffic control used for the analysis of each scenario is summarized below.

Existing 2024

The existing roadway geometry and traffic control along with the existing traffic counts were used in the analysis. The results for the AM and PM peak hours are summarized in Table 5.2 and Table 5.3, respectively. As shown, all approaches operate at LOS D or better, with a few exceptions. For the intersections of (1) S. James M Campbell Blvd at SR245, (2) S. James M Campbell Blvd at Lot Access / Nicholas Long Drive, and (3) S. James M Campbell Blvd at Nicholas Long Drive / Restaurant Access, the northbound approach experiences excessive delay in the PM peak hour and the southbound approaches experience excessive LOS E or worse both peak hours. The northbound and southbound approach for the intersection of S. James M Campbell Blvd at US 31 operates at LOS E in the PM peak hour.

No Build 2026

The No Build 2026 analysis was conducted with the same roadway geometry as the Existing 2024 analysis. Based on this roadway geometry and traffic control, the study intersections will continue to operate at a similar LOS to existing conditions with minor changes. The westbound approach at S. James M Campbell Blvd at US 31 is expected to perform at LOS E during the PM peak hour.

Build 2026

For the Build 2026 analysis, the existing lot access will be converted to Site Access 1 for the proposed development. This access will be controlled to only permit right turns exiting the development, which decreases the delay in the PM peak hour for the approach and provides safer merging for cars onto the roadway. Additional access to the development will be present on Ashwood Drive to the south and Nicholas Long Drive to the east. The analysis showed the study area is expected to operate at an acceptable level when the redevelopment is complete and open.

Build 2026 with Improvements

Analysis was performed to evaluate improvements to the transportation network that includes a northbound right turn lane on Nicholas Long Drive /Restaurant Access at S. James M Campbell Boulevard, a signal at the Intersection of S. James M Campbell Boulevard at Nicholas Long Drive / Restaurant Access, a westbound left turn lane and eastbound right turn lane at S. James M Campbell Blvd at Site Access 1. The need for a signal will be based on MUTCD warrants that are included in the following section.

The results show that installation of a northbound right turn lane will shorten the 95th percentile queue length expected northbound on Nicholas Long Drive /Restaurant Access at S James Campbell Boulevard. The northbound left turn movement is expected to experience a long delay which is common for a minor approach to a major arterial. The HCM analysis does not consider the signalized intersections to the east and west of this intersection, which are anticipated to create vehicle platoons that would provide gaps for left-turn movements.

The westbound left turn lane and eastbound right turn lane on James Campbell Boulevard at Site Access 1 will help provide storage outside of the through lanes for vehicles slowing to make the turning movement.

Table 5.2 – Capacity Analysis Results – AM Peak Hour

Intersection	Approach	2024 Existing Delay	2024 Existing LOS	2024 Existing Queues	2026 No Build Delay	2026 No Build LOS	2026 No Build Queues	2026 Build Delay	2026 Build LOS	2026 Build Queues	2026 Build w Imp Delay	2026 Build w Imp LOS	2026 Build w Imp Queues
AM Peak Hour													
1. S. James M	**Overall**	**29.7**	**C**	--	**30.7**	**C**	--	**33.9**	**C**	--	**33.9**	**C**	--
Campbell Blvd	Eastbound	24.7	C	300+	25.5	C	300+	34.3	C	300+	34.3	C	300+
At SR245	Westbound	20.4	C	300+	22.0	C	300+	22.7	C	300+	22.7	C	300+
	Northbound	52.9	D	238.0	53.3	D	248.0	54.6	D	256.0	54.6	D	256.0
	Southbound	**66.4**	**E**	121.0	**67.6**	**E**	126.0	**67.1**	**E**	126.0	**67.1**	**E**	126.0
2. S. James M	EB Left	11.9	B	< 25.0	12.6	B	< 25.0	12.9	B	< 25.0	12.9	B	< 25.0
Campbell Blvd	EB Through	0.3	A	< 25.0	0.4	A	< 25.0	0.4	B	< 25.0	0.4	A	< 25.0
at Lot Access	WB Left	--	--	--	--	--	--	10.4	B	< 25.0	10.4	B	< 25.0
(Site Access 1)	WB Through	--	--	--	--	--	--	1.2	A	< 25.0	--	--	--
/ Nicholas	Northbound	11.0	B	< 25.0	11.3	B	< 25.0	12.3	B	< 25.0	11.9	B	< 25.0
Long Dr	Southbound	**40.6**	**E**	< 25.0	**49.1**	**E**	< 25.0	**79.0**	**F**	< 25.0	**74.4**	**F**	< 25.0
3. S. James M	WB Left	9.7	A	< 25.0	9.9	A	< 25.0	10.4	B	< 25.0	10.4	B	<25
Campbell Blvd	Northbound	22.6	C	< 25.0	25.5	D	< 25.0	**300+**	**F**	235.0	12.2	B	<25
at Nicholas	*NB Left*										**300+**	**F**	200
Long Dr /	Southbound	**67.5**	**F**	< 25.0	**83.3**	**F**	< 25.0	**113.7**	**F**	< 25.0	**113.7**	**F**	< 25.0
Access	*Signalized*												
	Overall	--	--	--	--	--	--	--	--	--	**12.3**	**B**	--
	Eastbound	--	--	--	--	--	--	--	--	--	10.1	B	55.0
	Westbound	--	--	--	--	--	--	--	--	--	13.5	B	300+
	Northbound	--	--	--	--	--	--	--	--	--	15.9	B	55.0
	Southbound	--	--	--	--	--	--	--	--	--	14.1	B	< 25.0
4. S. James M	**Overall**	**41.2**	**D**	--	**43.9**	**D**	--	**44.4**	**D**	--	**44.3**	**D**	--
Campbell Blvd	Eastbound	36.6	D	248.0	38.8	D	257.0	39.0	D	268.0	38.7	D	244.0
at US 31	Westbound	34.6	C	300+	38.1	D	300+	38.7	D	300+	38.7	D	300+
	Northbound	47.5	D	272.0	49.4	D	300+	50.5	D	300+	50.5	D	300+
	Southbound	51.4	D	176.0	53.0	D	244.0	53.0	D	243.0	53.0	D	243.0

Table 5.3 – Capacity Analysis Results – PM Peak Hour

Intersection	Approach	2024 Existing Delay	2024 Existing LOS	2024 Existing Queues	2026 No Build Delay	2026 No Build LOS	2026 No Build Queues	2026 Build Delay	2026 Build LOS	2026 Build Queues	2026 Build w Imp Delay	2026 Build w Imp LOS	2026 Build w Imp Queues
PM Peak Hour													
1. S. James M	**Overall**	**29.9**	**C**	--	**31.3**	**C**	--	**31.8**	**C**	--	**31.8**	**C**	--
Campbell Blvd	Eastbound	5.2	A	272.0	6.2	A	300+	6.7	A	300+	6.7	A	300+
at SR 245	Westbound	29.5	C	300+	30.7	C	300+	31.3	C	300+	31.3	C	300+
	Northbound	**58.7**	**E**	233.0	**59.9**	**E**	257.0	**61.1**	**E**	268.0	**61.1**	**E**	268.0
	Southbound	**122.1**	**F**	300+	**131.0**	**F**	300+	**130.2**	**F**	300+	**130.2**	**F**	300+
2. S. James M	EB Left	12.2	B	< 25.0	12.8	B	< 25.0	13.0	B	< 25.0	13.0	B	< 25.0
Campbell Blvd	EB Through	0.8	A	< 25.0	1.0	A	< 25.0	1.0	A	< 25.0	1.0	A	< 25.0
at Lot Access	WB Left	12.2	B	< 25.0	12.9	B	< 25.0	14.1	B	< 25.0	14.1	B	< 25.0
(Site Access 1)	WB Through	0.1	A	< 25.0	0.1	A	< 25.0	2.3	A	< 25.0	--	--	--
/ Nicholas	Northbound	**137.6**	**F**	< 25.0	**182.2**	**F**	< 25.0	16.5	C	< 25.0	16.0	C	< 25.0
Long Dr	Southbound	**76.5**	**F**	40.0	**105.4**	**F**	50.0	**224.9**	**F**	75.0	**197.0**	**F**	70.0
3. S. James M	EB Left	11.9	B	85.0	12.4	B	< 25.0	12.5	B	< 25.0	12.5	B	<25
Campbell Blvd	WB Left	12.8	B	< 25.0	13.7	B	< 25.0	14.7	B	< 25.0	14.7	B	<25
at Nicholas	Northbound	**143.6**	**F**	< 25.0	**250.1**	**F**	112.5	**300+**	**F**	375.0	17.0	C	<25
Long Dr /	*NB Left*										**300+**	**F**	250
Access	Southbound	**85.6**	**F**	< 25.0	**112.5**	**F**	< 25.0	**156.2**	**F**	< 25.0	**156.2**	**F**	< 25.0
	Signalized												
	Overall	--	--	--	--	--	--	--	--	--	**15.1**	**B**	--
	Northbound	--	--	--	--	--	--	--	--	--	16.5	B	300+
	Southbound	--	--	--	--	--	--	--	--	--	13.5	B	271.0
	Eastbound	--	--	--	--	--	--	--	--	--	16.3	B	62.0
	Westbound	--	--	--	--	--	--	--	--	--	14.4	B	< 25.0
4. S. James M	**Overall**	**47.7**	**D**	--	**51.8**	**D**	--	**52.0**	**D**	--	**51.4**	**D**	--
Campbell Blvd	Eastbound	42.1	D	255.0	43.8	D	264.0	44.3	D	269.0	42.4	D	300+
at US 31	Westbound	44.5	D	300+	**56.1**	**E**	300+	**56.5**	**E**	300+	**56.5**	**E**	300+
	Northbound	**56.7**	**E**	160.0	54.4	D	211.0	54.1	D	211.0	54.1	D	211.0
	Southbound	**56.7**	**E**	257.0	**57.3**	**E**	300+	**57.1**	**E**	300+	**57.1**	**E**	300+

5.2. Warrants

5.2.1. Turn Lane Warrants

A left turn lane warrant was conducted for the proposed unsignalized intersection of S. James M Campbell Boulevard at Site Access 1. This warrant was only analyzed with Build 2026 traffic volumes since the driveway will only be operational once the proposed development is built. The warrants were evaluated according to the *National Cooperative Highway Research Program (NCHRP) Report 457* methodology. The results of the left turn lane warrant are shown in Table 5.4.

Table 5.4 – Left Turn Lane Warrant Analysis Results

Approach	Peak Hour	Advancing Volume	Opposing Volume	Left Turn Volume	Warrant Met?
Build 2026					
WB – S. James M Campbell Blvd at Site Access 1	AM	1,297	815	51	**YES**
	PM	1,381	1,409	43	**YES**

Based on the warrant analyses in Table 5.4, a left turn lane is warranted based on both the AM and PM peak hours. Full warrant analysis results are included in Appendix C.

A right lane warrant was conducted for the proposed unsignalized intersection of S. James M Campbell Boulevard at Site Access 1. This warrant was only analyzed with Build 2026 traffic volumes. The warrants were evaluated according to the *National Cooperative Highway Research Program (NCHRP) Report 457* methodology. The results of the right turn lane warrant are shown in Table 5.5.

Table 5.5 – Left Turn Lane Warrant Analysis Results

Approach	Peak Hour	Major Road Volume (One-direction)	Right Turn Volume	Warrant Met?
Build 2026				
EB – S. James M Campbell Blvd at Site Access 1	AM	825	62	**NO**
	PM	1,430	50	**YES**

5.2.2. Signal Warrant Analysis

A signal warrant analysis was conducted to evaluate the potential need for a traffic signal at S. James M Campbell Boulevard at Nicholas Long Drive / Restaurant Access.

The *Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways (2023 Edition)* published by *Federal Highway Administration (FHWA)*, sets forth nine different warrants that have been developed to aid in the determination of when a signal is warranted. These warrants present minimum conditions that normally indicate

when a traffic signal is justified at a particular location. The MUTCD states that "traffic control signals should not be installed unless one or more of the factors…are met."

The nine warrants are based on specific transportation characteristics such as traffic volumes, pedestrian related warrants, roadway operations and safety. The nine warrants criteria are listed below:

- #1 – Eight-Hour Vehicular Volumes
  - Condition A - Minimum Vehicular Volume
  - Condition B - Interruption of Continuous Traffic
- #2 – Four-Hour Vehicular Volume
- #3 – Peak Hour
- #4 – Pedestrian Volume
- #5 – School Crossing
- #6 – Coordinated Signal System
- #7 – Crash Experience
- #8 – Roadway Network
- #9 – Intersection Near a Grade Crossing

Volume warrants 1 and 2 were evaluated at the intersection of at S. James M Campbell Boulevard at Nicholas Long Drive / Restaurant Access to determine if a traffic signal is warranted for vehicular operations. The signal warrant analysis hourly data was analyzed directly from 12-hour TMC that was collected on Tuesday, March 19, 2024. The annual growth rate was applied to the existing traffic count to determine the 2026 volumes for the 12-hour analysis. Background development trips were also added to the hourly distributions. Hourly Trip Generation Rates provided by *ITE's Trip Generation Handbook, 11th Edition* were applied to the annual projected growth of the study network to determine the hourly projections for Build 2026 volumes.

Based on TDOT guidelines and engineering judgement, signal warrant analysis can be done with a reduction in right turn volumes from the minor street approach. As presented in the analysis, Nicholas Long Drive is proposed to provide a separate right turn lane. Therefore, the right turn volume was removed from the signal warrant analysis, and the minor approach was analyzed as one lane. As shown in the analysis the signal is not warranted. The results of this analysis are shown in Table 5.6 and full warrant analysis results are included in Appendix C.

Table 5.6 – Signal Warrant Analysis

TIME	TRAFFIC VOLUMES		WARRANTS MET?			
	S. JAMES M CAMPBELL BLVD (BOTH DIRECTIONS)	MINOR ST. HIGHEST APPROACH	#1A	#1B	Combine	#2
6:00 – 7:00 AM	1,018	18	--	--	--	--
7:00 – 8:00 AM	1,983	33	--	--	--	--
8:00 – 9:00 AM	1,816	41	--	--	--	--
9:00 – 10:00 AM	1,725	45	--	--	--	--
10:00 – 11:00 AM	1,911	52	--	--	--	--
11:00 AM – 12:00 PM	2,217	80	--	1	--	--
12:00 – 1:00 PM	2,613	125	--	1	--	1
1:00 – 2:00 PM	2,376	101	--	1	--	--
2:00 – 3:00 PM	2,331	83	--	1	--	--
3:00 – 4:00 PM	2,546	73	--	--	--	--
4:00 – 5:00 PM	2,759	70	--	--	--	--
5:00 – 6:00 PM	2,532	75	--	1	--	--
		TOTAL HOURS SATISFIED	**0**	**5**	**N/A**	**1**

6.1. Historic Crash Analysis

Crash data was analyzed from AASHTOWare Safety to determine how many, if any, crashes occurred throughout the study area. Crashes from the most recent five-year period (April 1, 2019 – March 31, 2024) were analyzed with this study. Crash data included motor vehicle, pedestrian, and bicycle related crashes. Results showed that there has been a total of 328 reported crashes - one of which involved a non-motorist. Figure 6.1 shows a map of the crash locations through the study area.

Figure 6.1 – Study Area Crash Locations – (March 2019 – March 2024)

Table 6.1 details the total number of crashes by severity at an annual breakdown. The total number of crashes by location and crash type are detailed Table 6.2.

Table 6.1 – Crash Severity Annual Breakdown – (April 1, 2019 – March 31, 2024)

Year	Total Crashes	Crash Severity				
		Fatal	Serious Injury	Minor Injury	Possible Injury	Property Damage Only
2024	9	0	0	0	0	9
2023	70	0	1	7	5	57
2022	75	0	3	9	5	58
2021	60	0	0	2	4	54
2020	64	1	0	1	1	61
2019	50	0	0	7	1	42
Total	**328**	**1**	**4**	**26**	**16**	**281**

Table 6.2 – Crash Location and Type Annual Breakdown – (April 1, 2019 – March 31, 2024)

Year	Crash Location		Crash Type					
	Intersection	Along Roadway	Head-On	Rear-End	Angle	Sideswipe	*Non-Motorist Involved	Other / Unknown
2024	5	4	1	4	2	2	0	0
2023	24	46	1	30	9	8	0	22
2022	27	48	2	20	16	9	0	28
2021	15	45	1	13	12	4	0	30
2020	34	30	1	27	16	5	0	15
2019	39	11	1	12	12	5	1	19
Total	**144**	**184**	**7**	**106**	**67**	**33**	**1**	**114**

*Includes pedestrians, bicyclists, and other non-motorists

Out of the 328 crashes that have occurred within the study area during the five-year analysis period, one involved a cyclist, one resulted in a fatality, and four resulted in one or more suspected serious injuries. The cyclist, fatal and suspected serious injury crashes occurred during clear conditions. The pedalcycle crash occurred when a cyclist traveling westbound along the eastbound shoulder of S. James M Campbell Blvd crossed Nicholas Long Drive and was struck by a vehicle making a northbound right-turn at a stop sign. Of the suspected serious injury and fatal crashes, four out of five were the result of improperly following traffic control and the other was the result of a driver who was under the influence of alcohol. A summary of the pedalcycle, fatal, and suspected serious injury crashes is shown in Table 6.3 and the mapped locations are shown in Figure 6.2.

Table 6.3 – Pedalcycle, Fatal, and Suspected Serious Injury Crashes – (April 1, 2019 – March 31, 2024)

Date	Type	Location	Severity	Driver Action	Conditions
06/08/2019	Pedalcycle	S. James M Campbell Blvd at Nicholas Long Dr	Suspected Minor Injury	Right-Turn at Stop Sign While Cyclist was Crossing	Clear; Daylight
12/09/2020	Angle	S. James M Campbell Blvd at US 31	Fatal	Running Red Light	Clear; Daylight
04/16/2022	Angle	S. James M Campbell Blvd at Derham Ave	Suspected Serious Injury	Failure to Yield Right-of-Way	Clear; Daylight
05/12/2022	Angle	S. James M Campbell Blvd at Highland Ave	Suspected Serious Injury	Running Red Light	Clear; Daylight
09/16/2022	Angle	S. James M Campbell Blvd at US 31	Suspected Serious Injury	Running Red Light	Clear; Daylight
07/07/2023	Rear-End	SB on S. James M Campbell Blvd approaching US 31	Suspected Serious Injury	DUI	Clear; Dark-Lighted

Figure 6.2 – Pedalcycle, Fatal, and Suspected Serious Injury Crashes – (April 1, 2019 – March 31, 2024)

Safety concerns at the intersection of S. James M Campbell Boulevard at Pulaski Highway / Carmack Boulevard (US 31) were identified during the preparation of study. Updates to the existing infrastructure could alleviate the severity of the crashes. The addition of concrete channelized islands or channelization bollards at all four approaches could improve safety for right turning vehicles and provide refuge for pedestrians crossing the intersection. Additionally, updates to the existing pedestrian crosswalks and infrastructure could improve safety for pedestrians crossing the intersection.

6.2. Crash Modification Factors (CMFs) Clearinghouse

CMF Clearinghouse was utilized to determine what, if any, proven safety benefit exists with the installation of a concrete channelized island, channelization bollards, pedestrian signals, or high visibility crosswalks. The CMF Clearinghouse is composed of a comprehensive listing of available CMFs and includes all the CMFs included in the Highway Safety Manual (HSM). A CMF is a multiplicative factor used to compute the expected number of crashes after implementing a given countermeasure at a specific site. A CMF reflects the safety effect of a countermeasure, whether it will result in a decrease in crashes (CMF below 1.0), increase in crashes (CMF over 1.0), or no change in crashes (CMF of 1.0). A countermeasure is a strategy intended to reduce crash frequency or severity on the road, and in the case of this study, the installation of concrete channelized islands, channelization bollards, pedestrian signals, or high visibility crosswalks.

A CMF is graded on its star quality rating, which indicates the quality or confidence in the results of the study producing the CMF. The star rating is based on a scale (1 to 5), where a 5 indicates the highest or best rating. The review process to determine the star rating judges the accuracy and precision as well as the general applicability of the study results. Reviewers considered various factors for each study (depending on the study type used to develop the CMFs) — study design, sample size, statistical methodology, statistical significance, etc. — and judged each CMF according to its performance in the various factors (including multiple subcategories within each factor).

This study assessed CMFs from the Clearinghouse database to determine the safety impacts of the installation of improved pedestrian facilities at the intersection of S. James M Campbell Boulevard at Pulaski Highway / Carmack Boulevard (US 31). The results of the Clearinghouse data are summarized below in Table 5.

Table 5 – Crash Modification Factors

CMF ID	Countermeasure	CMF Factor	Star Quality Rating
175	**Install raised median with marked crosswalk (uncontrolled)**	0.54	3/5
4123	**Install high-visibility crosswalk**	0.6	2/5
	Install Pedestrian Signals	Not provided	4/5

Installation of the channelized concrete islands was evaluated using the CMF values for installation of a raised median with marked crosswalk (uncontrolled). As shown in Table 5, the installation of raised median with a marked crosswalk has shown to provide almost a 46% reduction in crashes at the areas studied with this improvement. The installation of a high-visibility crosswalk along an urban arterial roadway has shown a 40% reduction of crashes at locations that were studied with this improvement. The CMF factor for the installation of Pedestrian Signals is not provided but those are expected to improve safety at the intersection.

7. RECOMMENDATIONS

Recommendations

Based on this study's analysis and evaluation of the transportation network, the following improvements are recommended to better enhance traffic operations within the study area upon completion of the proposed development.

Build 2026

S. James M Campbell Boulevard at Nicholas Long Drive / Restaurant Access

- Restripe the northbound approach on Nicholas Long Drive to provide a left/through lane and separate right turn lane with 75 feet of storage and taper length per TDOT and MUTCD standards.
- Both northbound lanes should be 11 feet wide.

S. James M Campbell Boulevard at Lot Access (Site Access 1) / Nicholas Long Drive

- Install a westbound left turn lane with a minimum of 100 feet of storage and taper per TDOT and MUTCD standards.
- Install an eastbound right turn lane with approximately 100 feet of storage and taper per TDOT and MUTCD standards.
- Install one entering lane and one exiting lane to the development that is stop controlled. Install concrete channelization for northbound right turning movements and restrict northbound left turning movements.

Nicholas Long Drive at Site Access 2

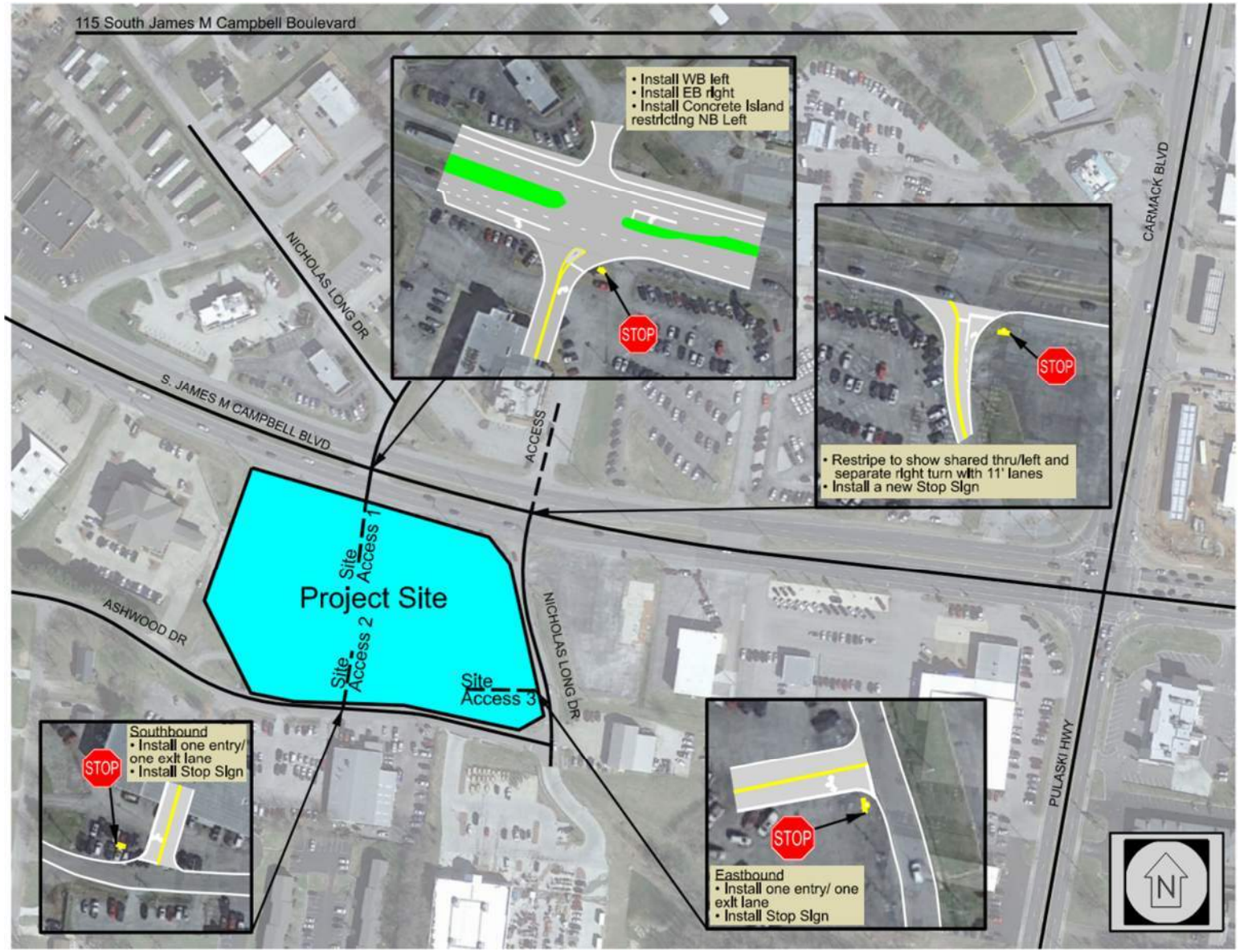
- Install one entering lane and one exiting lane to the development that is stop controlled.

Ashwood Drive at Site Access 3

- Install one entering lane and one exiting lane to the development that is stop controlled.

Design the internal accesses according to federal, state, and local standards, including *Roadway Design Guidelines* (Tennessee Department of Transportation), and *A Policy on Geometric Design of Highways and Streets* (AASHTO, 2018). Placement of all signing should be in accordance with the *Manual on Uniform Traffic Control Devices* (FHWA, 2023).

Figure 7.1 – Recommendations



APPENDIX A – DATA COLLECTION

Site Plan

Existing Data Counts

Historic Traffic Data

Background Development Trip Generation

EXISTING RIGHT OF WAY WIDTH BASED ON
T.D.O.T PLAN & PROFILE SHEETS FOR
FEDERAL AID PROJECT NO. S-SU-6368 (2)
STATE PROJECT NO. 60031-3304-23, FISCAL YEAR 1966

SOUTH JAMES CAMPBELL BOULEVARD
(120' PUBLIC R.O.W.)

ASHWOOD DRIVE
(40' PUBLIC R.O.W.)

NICHOLAS LONG DRIVE
(50' PUBLIC R.O.W.)

DBL ADS
T.C. 680.79
E.I. 679.29(@ CL OF STRUCTURE-PIPES OFFSET)

LARGE ADS
T.C. 683.48
E.I. 677.33(@ CL OF STRUCTURE-PIPES OFFSET)

ADS
T.C. 682.45
E.I. 680.50(OUT-S)

ADS
T.C. 688.02
E.I. 682.47(@ CL OF STRUCTURE-PIPES OFFSET)

ADS
T.C. 692.48
E.I. 690.83(IN-W)
E.I. 690.03(IN-S)
E.I. 689.73(OUT-E)

ADS
T.C. 689.46
E.I. 686.45(@ CL OF STRUCTURE-PIPES OFFSET)

SAMH
T.C. 699.72
(FUSED SHUT)

SAMH
T.C. 692.54
(FUSED SHUT)

SWMH
T.C. 692.60
E.I. 689.14(IN-W)
E.I. 688.42(OUT-E)

SAMH
T.C. 690.30
E.I. 684.84(IN-W
E.I. 684.78(IN-SE
E.I. 684.68(OUT-

0.5'x4' WEIR OPENINGS EL. 684.68 (ALL 4 SIDES OF STRUCTURE)

WEIR OPENING EL. 691.85

GENERATOR BOLLARD

DRIVE THRU

ONLINE PICK-UP

DO NOT ENTER

SIGN BASE

GAS LINE MARKER

BARGE DESIGN SOLUTIONS
615 3rd Avenue South // Suite 700 // Nashville, Tennessee 37210
PHONE (615) 254-1500 // FAX (615) 255-6572

PRELIMINARY
NOT FOR
CONSTRUCTION

DATE

SITE LAYOUT PLAN

115 SOUTH JAMES CAMPBELL BOULEVARD
COLUMBIA, MAURY COUNTY, TENNESSEE

REV.:	DR.	CHK.	DATE	REVISION INFORMATION DESCRIPTION

811 Know what's **below** **Call** before you dig.
811
www.call811.com

PERMIT NUMBERS:

PARCEL ID: 113E B 004.00	FEMA PANEL: ZONE "X", PANEL NO. 47119C0285E, 4/16/2007.
DATUM: TNSPC (NAD83) NAVD 1988	BENCHMARK:

30' 15' 0' 30' 60'
SCALE: 1 INCH = 30 FEET

C1.00
FILE NO. 38531-01

USER:RESURYONO
FILE:F:\38\38531\38531010\4_CAD\CIV\LPLOT\38531010_C1.01.dwg
SAVED:8/22/2024
PLOTTED:8/30/2024

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Prepared by National Data & Surveying Services

Campbellsville Pike/Highlands Ave/SR 245 & S James Campbell Blvd/SR 50/Columbia Bypass

Peak Hour Turning Movement Count

ID: 24-200002-001
City: Columbia

Day: Tuesday
Date: 3/19/2024

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	6:00 AM - 09:00 AM
12:00 PM - 01:00 PM	11:00 AM - 01:00 PM
04:15 PM - 05:15 PM	3:30 PM - 06:30 PM

SOUTHBOUND — Campbellsville Pike/Highlands Ave/SR 245

AM	62	45	29	0	172	AM
NOON	96	65	36	0	174	NOON
PM	87	98	67	0	185	PM
	0.5	0.5	1	0		

EASTBOUND — S James Campbell Blvd/SR 50/Columbia Bypass

AM	NOON	PM	
1266	1325	1334	
0	2	4	0
48	73	78	1
590	967	1101	2
88	148	199	1

WESTBOUND — S James Campbell Blvd/SR 50/Columbia Bypass

	PM	NOON	AM
1	29	29	26
2	1049	1054	1029
1	156	91	41
0	3	0	1
	1299	1107	735

CONTROL

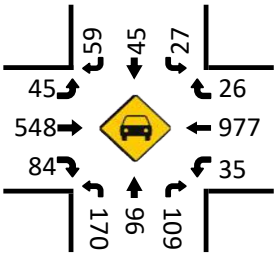
Signalized

	AM	NOON	PM
TEV	2347	2910	3271
PHF	0.90	0.97	0.96

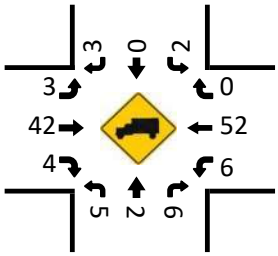
	0	1	0.5	0.5		
PM	453	0	194	78	128	PM
NOON	304	0	173	72	104	NOON
AM	174	0	175	98	115	AM

NORTHBOUND — Campbellsville Pike/Highlands Ave/SR 245

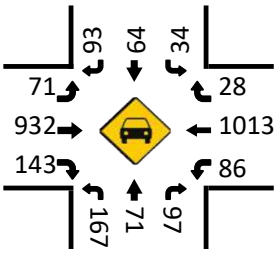
Cars (AM)



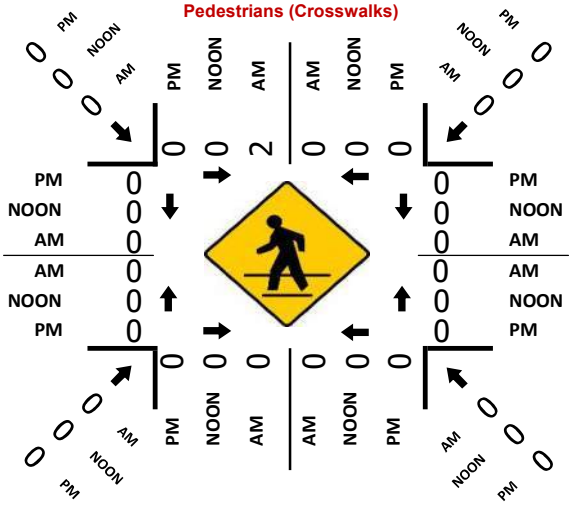
HT (AM)



Cars (NOON)



Pedestrians (Crosswalks)



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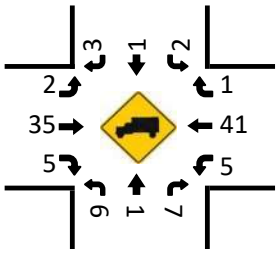
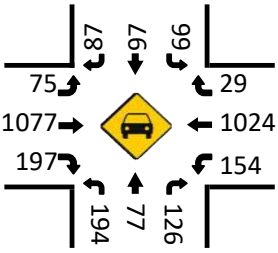


Cars (PM)



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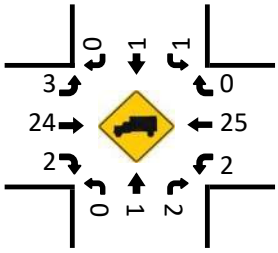


Prepared by National Data & Surveying Services

Nicholas Long Dr/Thomas Ave & S James Campbell Blvd/SR 50/Columbia Bypass

Peak Hour Turning Movement Count

ID: 24-200002-002
City: Columbia

Day: Tuesday
Date: 3/19/2024

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	12:00 PM - 01:00 PM
PM	04:15 PM - 05:15 PM

COUNT PERIODS

AM	6:00 AM - 10:00 AM
NOON	10:00 AM - 02:00 PM
PM	2:00 PM - 06:00 PM

CONTROL: 1-Way Stop(SB)

	AM	NOON	PM
TEV	1859	2343	2562
PHF	0.90	0.96	0.94

SOUTHBOUND (Nicholas Long Dr/Thomas Ave)

	Left	Thru	Right	U-Turn	Peds
AM	3	0	3	0	11
NOON	30	0	22	0	21
PM	20	0	10	0	20

EASTBOUND (S James Campbell Blvd/SR 50/Columbia Bypass)

	AM	NOON	PM
Thru	1120	1226	1255
Left	1	20	11
Right	9	16	9
U-Turn	723	1072	1272
Peds	1	1	2

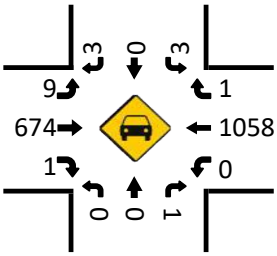
WESTBOUND (S James Campbell Blvd/SR 50/Columbia Bypass)

	PM	NOON	AM
Thru	11	5	2
Left	1223	1176	1116
Right	1	0	0
U-Turn	2	1	0
Peds	1284	1095	727

NORTHBOUND (Nicholas Long Dr/Thomas Ave)

	Left	Thru	Right	U-Turn	Peds
PM	3	0	1	0	0
NOON	1	0	0	0	0
AM	1	0	0	0	1

Cars (AM)



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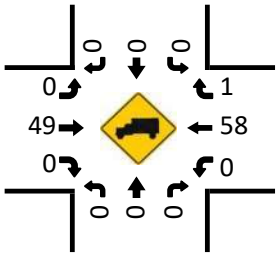
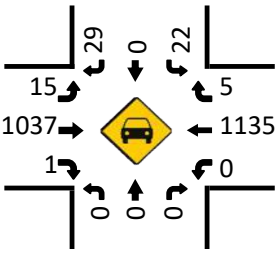
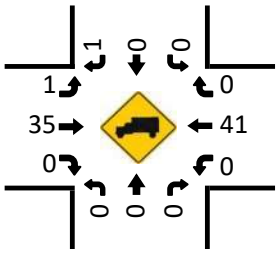


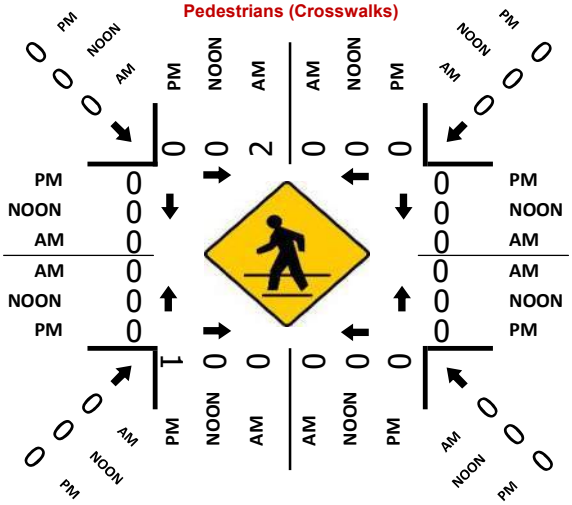
Cars (NOON)



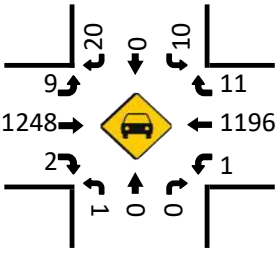
HT (NOON)



Pedestrians (Crosswalks)



Cars (PM)



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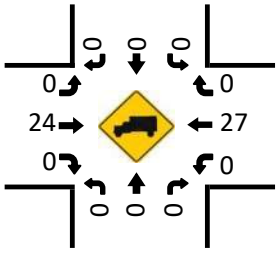


Prepared by National Data & Surveying Services

Ashwood Dr/O'Charley's Access & S James Campbell Blvd/SR 50/Columbia Bypass

Peak Hour Turning Movement Count

ID: 24-200002-003
City: Columbia

Day: Tuesday
Date: 3/19/2024

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	6:00 AM - 10:00 AM
12:15 PM - 01:15 PM	10:00 AM - 02:00 PM
04:15 PM - 05:15 PM	2:00 PM - 06:00 PM

SOUTHBOUND (Ashwood Dr/O'Charley's Access)

	Left	Thru	Right	U-Turn	Peds	
AM	0	0	1	0	1	AM
NOON	7	0	7	0	18	NOON
PM	3	0	3	0	4	PM

EASTBOUND (S James Campbell Blvd/SR 50/Columbia Bypass)

	AM	NOON	PM
Thru	1114	1175	1234
Left	0	5	2
U-Turn	0	12	1
Right	715	1041	1249
Peds	10	33	29

WESTBOUND (S James Campbell Blvd/SR 50/Columbia Bypass)

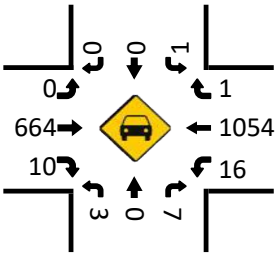
	PM	NOON	AM
Thru	1285	1103	724
Left	3	6	1
U-Turn	2	2	0
Right	1212	1148	1111
Peds	31	42	16

NORTHBOUND (Ashwood Dr/O'Charley's Access)

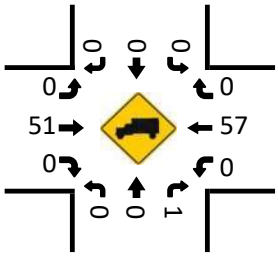
	Left	Thru	Right	U-Turn	Peds	
PM	60	0	17	0	31	PM
NOON	75	0	15	0	53	NOON
AM	26	0	3	0	8	AM

CONTROL	AM	NOON	PM
	1-Way Stop(NB)		
TEV	1865	2371	2583
PHF	0.89	0.94	0.93

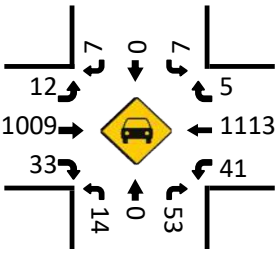
Cars (AM)



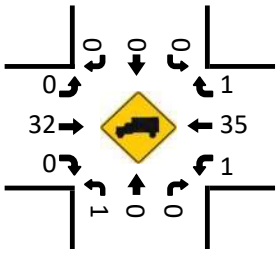
HT (AM)



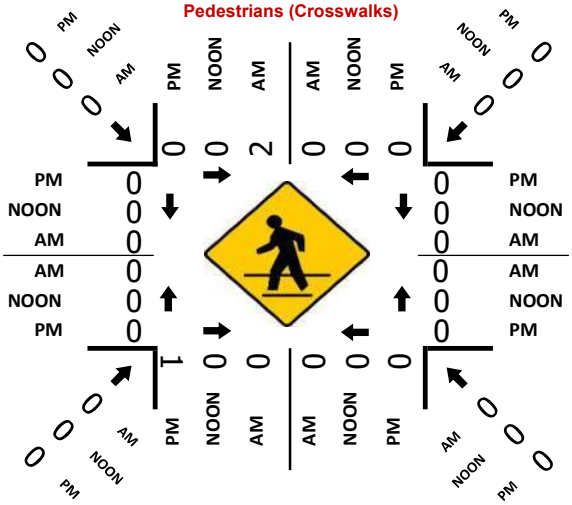
Cars (NOON)



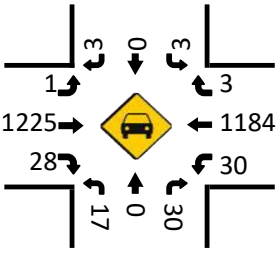
HT (NOON)



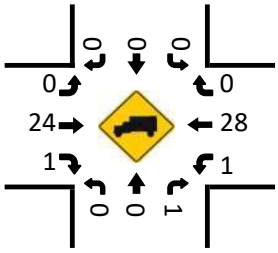
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Carmack Blvd/SR 7/US 31 & S James Campbell Blvd/SR 50/Columbia Bypass

Peak Hour Turning Movement Count

ID: 24-200002-004
City: Columbia

Day: Tuesday
Date: 3/19/2024

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	6:00 AM - 09:00 AM
12:00 PM - 01:00 PM	11:00 AM - 01:00 PM
04:15 PM - 05:15 PM	3:30 PM - 06:30 PM

SOUTHBOUND (Carmack Blvd/SR 7/US 31)

AM	220	199	173	1	781	AM
NOON	473	200	191	0	772	NOON
PM	458	369	250	0	776	PM

EASTBOUND (S James Campbell Blvd/SR 50/Columbia Bypass)

AM	NOON	PM	
1147	1195	1261	
0	1	2	0
188	394	387	2
421	497	671	2
95	179	231	1
AM	NOON	PM	

WESTBOUND (S James Campbell Blvd/SR 50/Columbia Bypass)

PM	NOON	AM	
199	165	217	1
650	533	651	2
173	82	127	1
3	2	0	0
1018	756	730	
PM	NOON	AM	

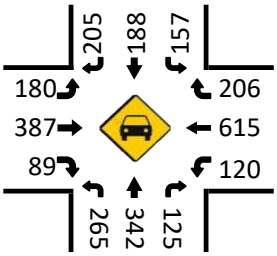
NORTHBOUND (Carmack Blvd/SR 7/US 31)

PM	773	0	151	190	94	PM
NOON	461	0	188	213	66	NOON
AM	421	0	276	375	136	AM

	1	2	1	0
	0	1	1.5	0.5

CONTROL			
Signalized			
TEV	3079 AM	3184 NOON	3828 PM
PHF	0.91	0.94	0.93

Cars (AM)



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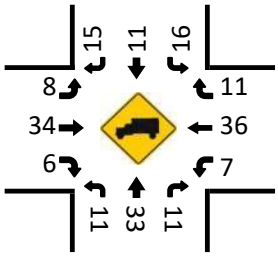
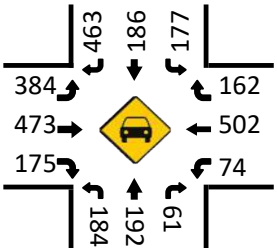
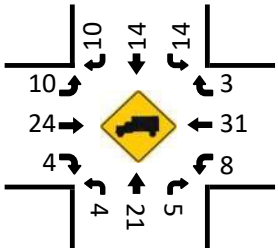


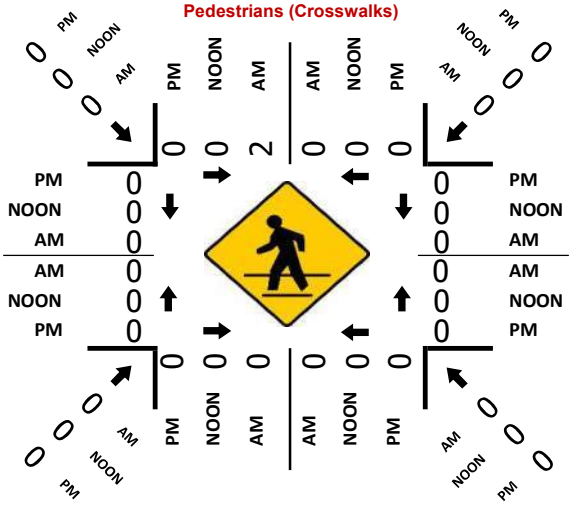
Cars (NOON)



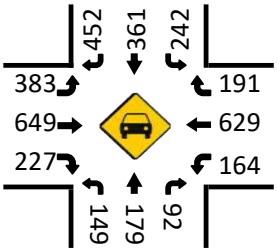
HT (NOON)



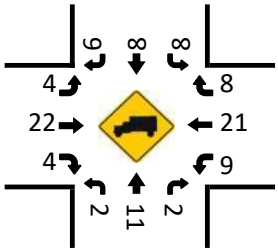
Pedestrians (Crosswalks)



Cars (PM)



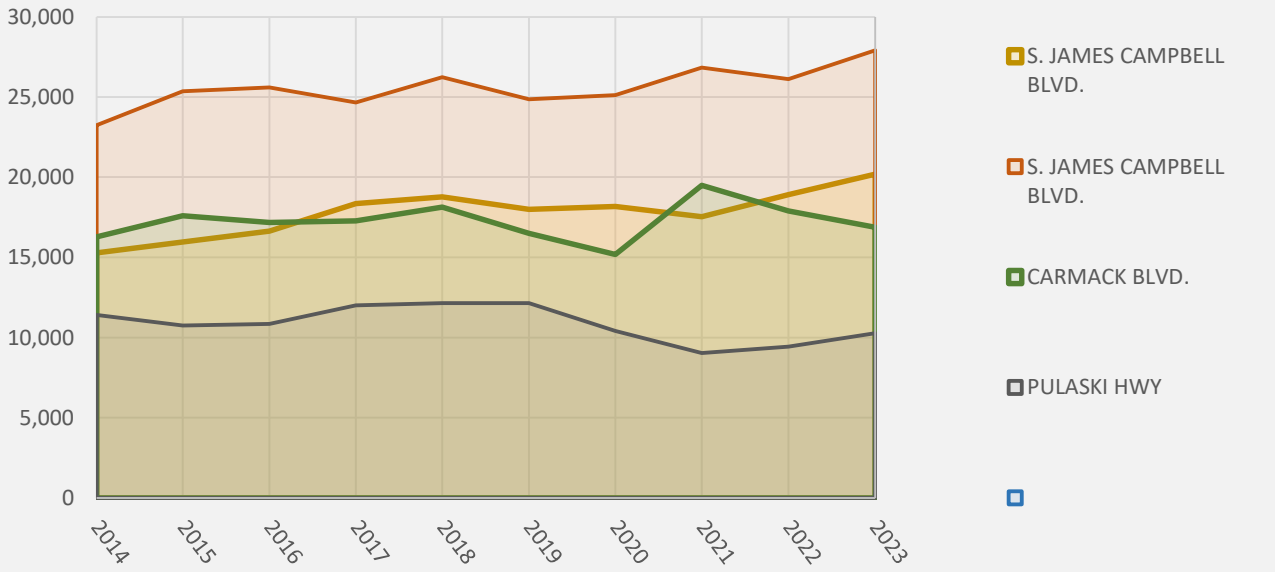
HT (PM)

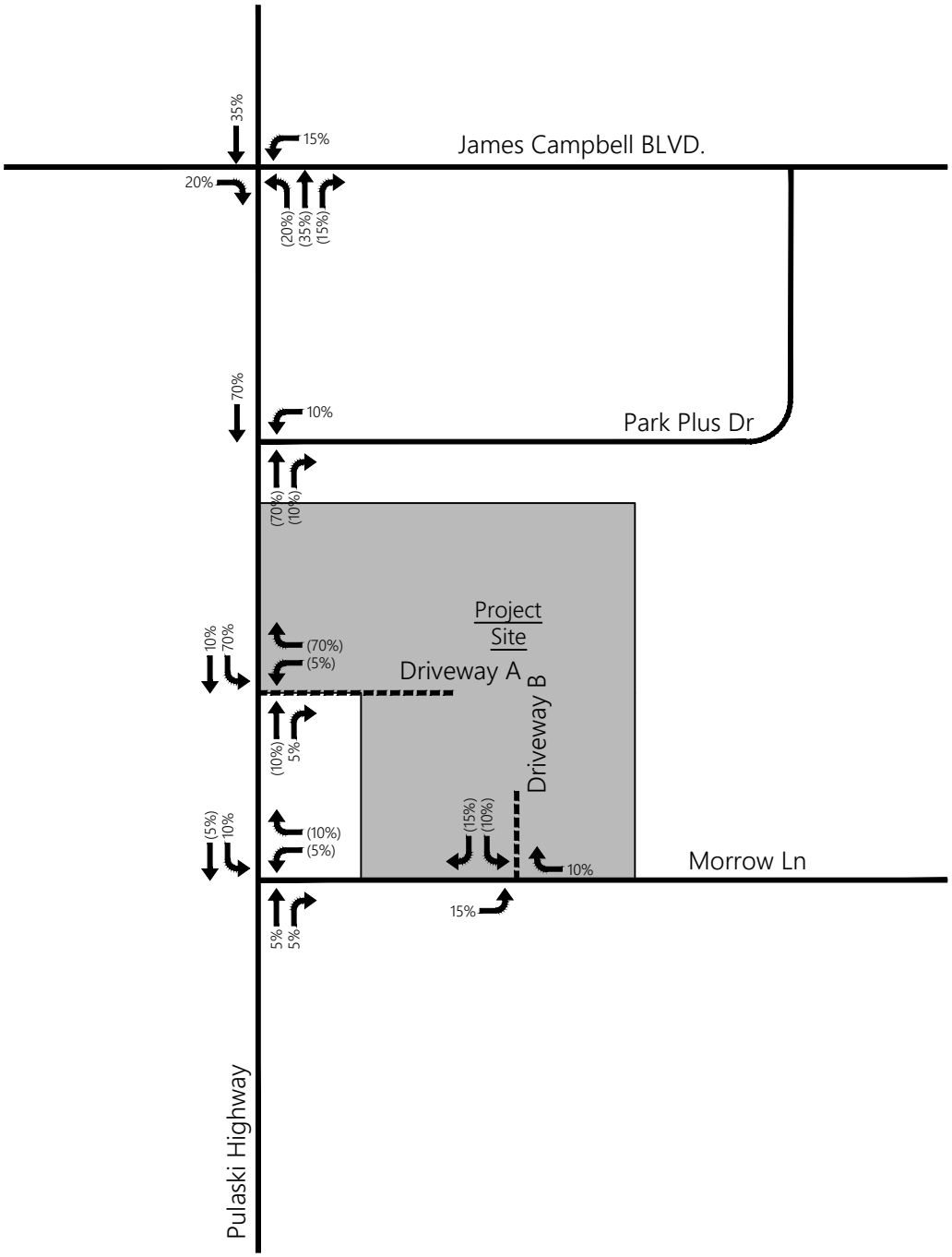


Historic Traffic Data

Year	60000081 S. JAMES CAMPBELL BLVD.	60000082 S. JAMES CAMPBELL BLVD.	60000099 CARMACK BLVD.	60000041 PULASKI HWY		Total
2023	27,920	20,204	16,866	10,268		75,258
2022	26,107	18,902	17,885	9,442		72,336
2021	26,838	17,537	19,495	9,031		72,901
2020	25,106	18,169	15,187	10,417		68,879
2019	24,857	17,989	16,490	12,145		71,481
2018	26,225	18,763	18,138	12,159		75,285
2017	24,664	18,341	17,272	12,003		72,280
2016	25,601	16,629	17,169	10,857		70,256
2015	25,348	15,961	17,586	10,745		69,640
2014	23,244	15,278	16,274	11,408		66,204

Current Year	2023
Horizon Year	2038
Linear Growth Per Year	0.81%
Since	2014

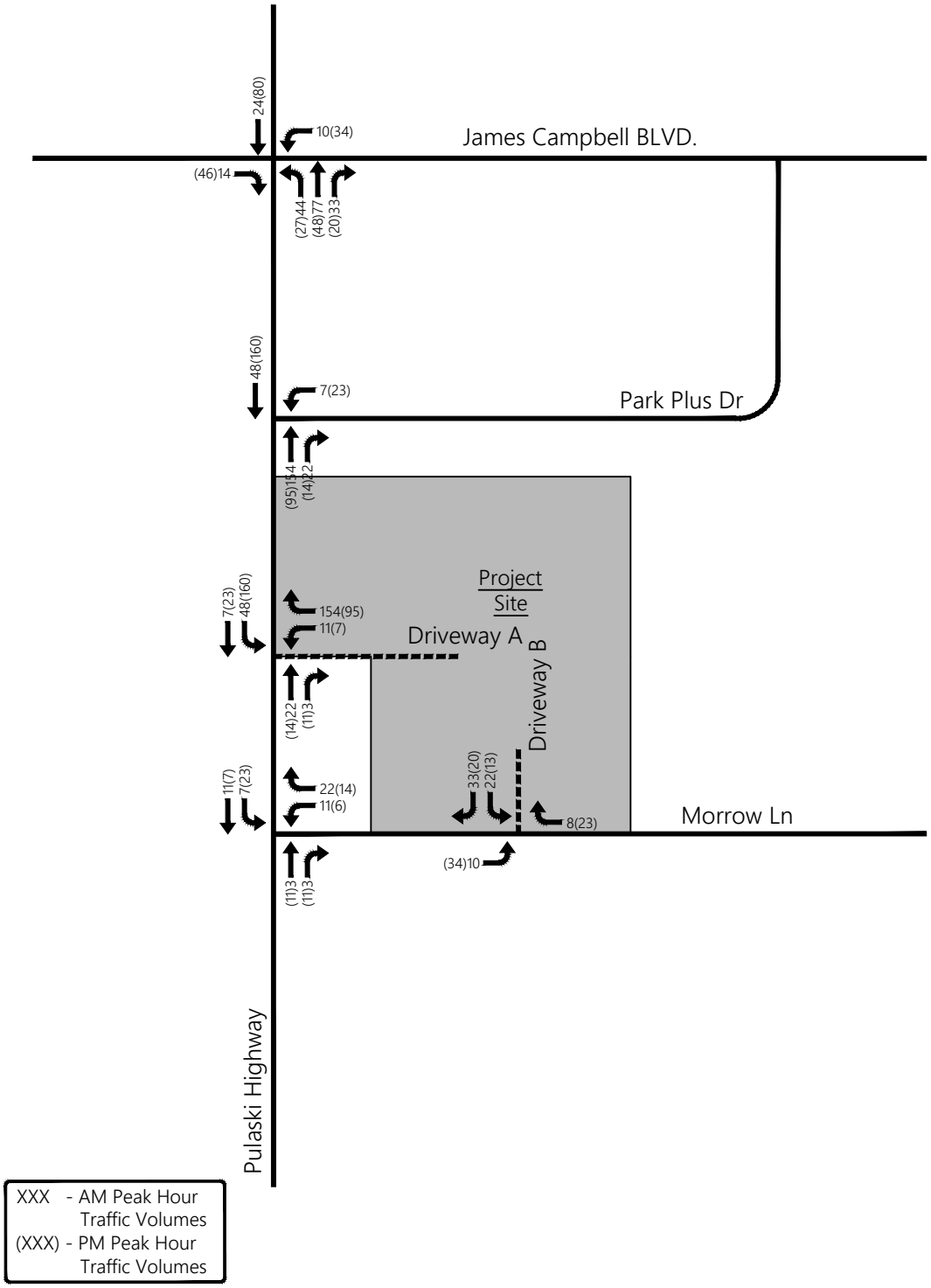




XX% - Enter
(XX%) - Exit

Distribution of Peak Hour Traffic Volumes
Generated by the Project Site
(Not to Scale)

Figure 5.



Assignment of Peak Hour Traffic Volumes
Generated by the Project Site
(Not to Scale)

Figure 6.

APPENDIX B – PROPOSED DEVELOPMENT DATA

Trip Generation Figures

ITE Pass-By Reductions

ITE Hourly Distributions

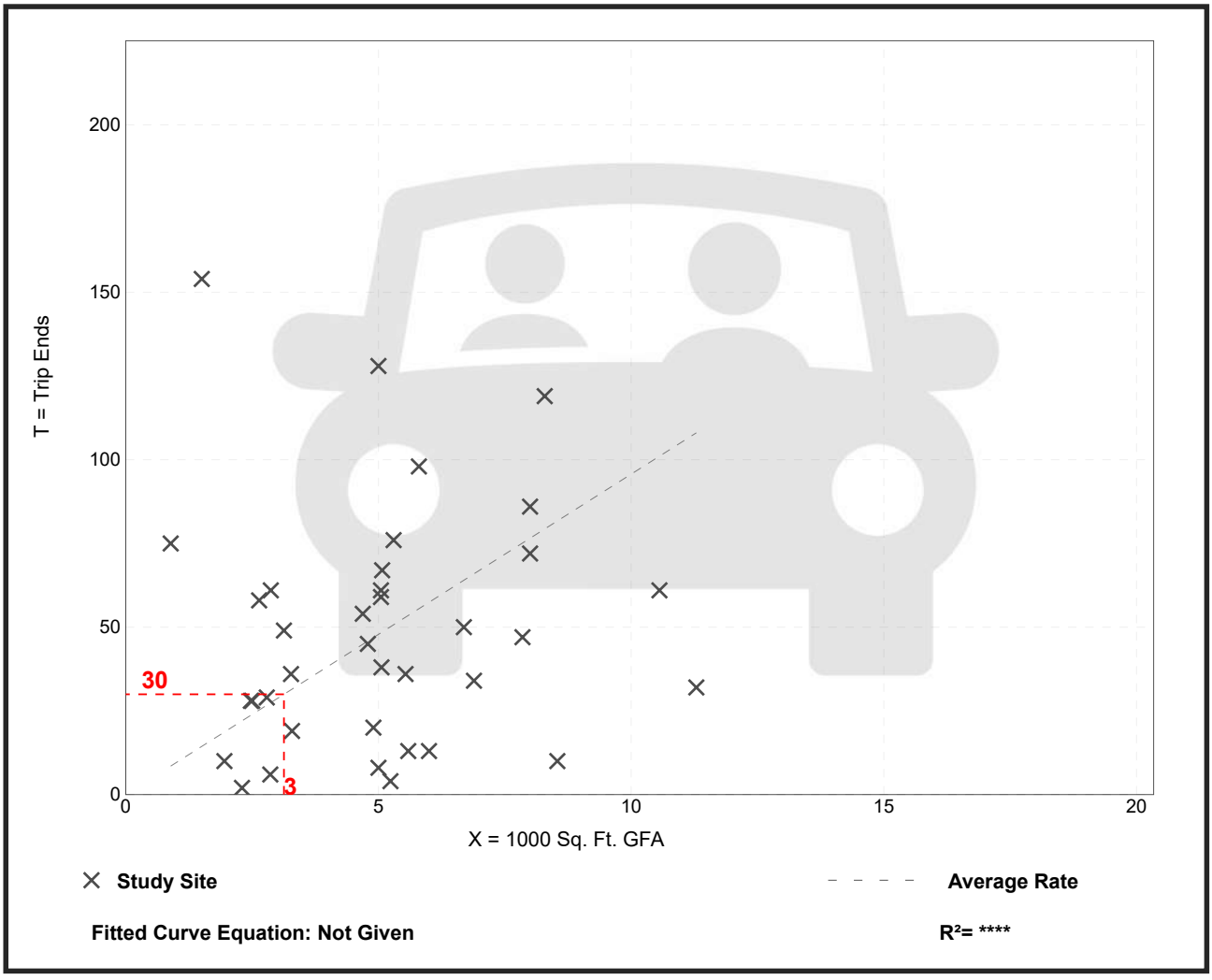
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 37
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.57	0.76 - 102.39	11.61

Data Plot and Equation



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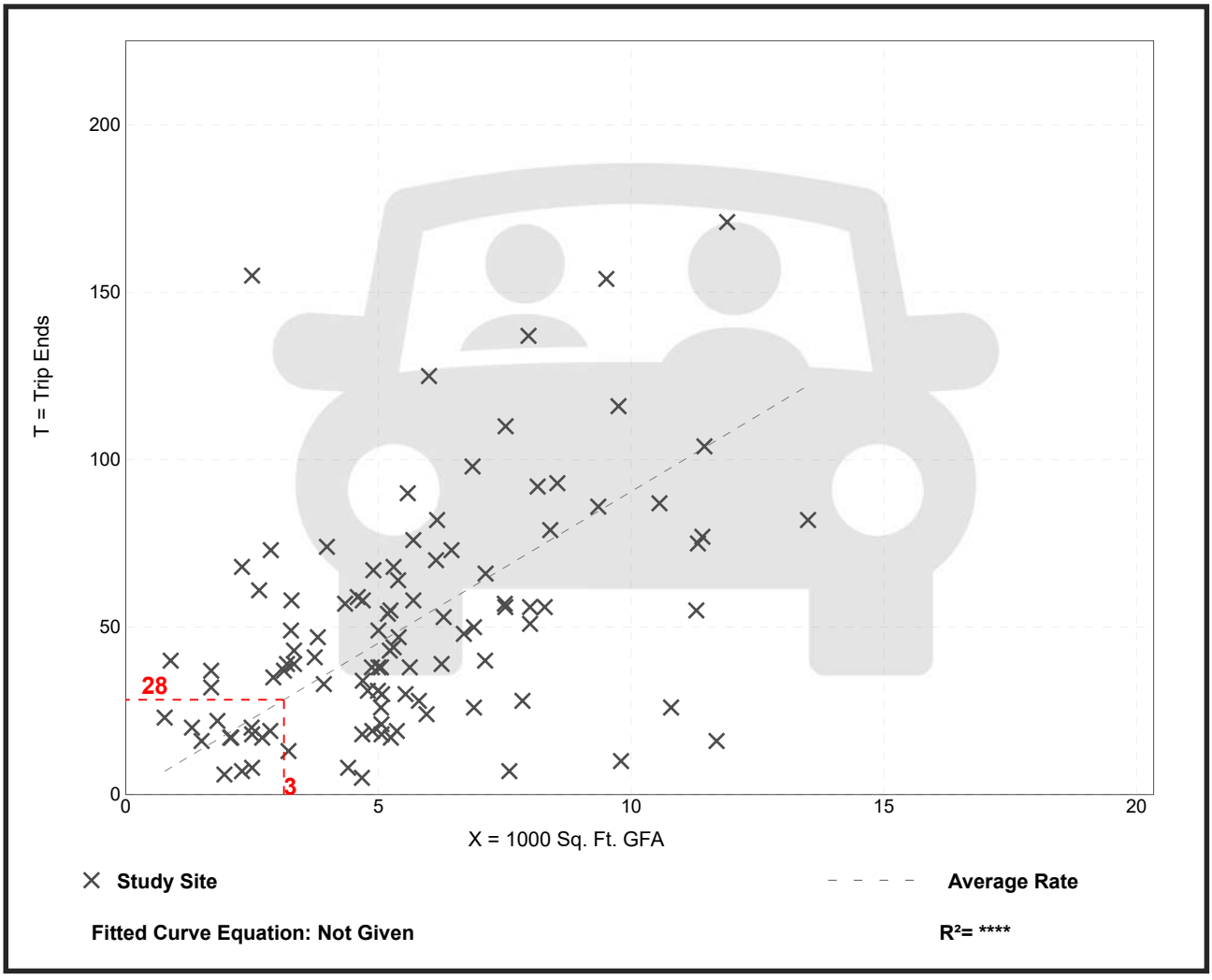
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 104
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.05	0.92 - 62.00	6.18

Data Plot and Equation



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High-Turnover (Sit-Down) Restaurant
(932)

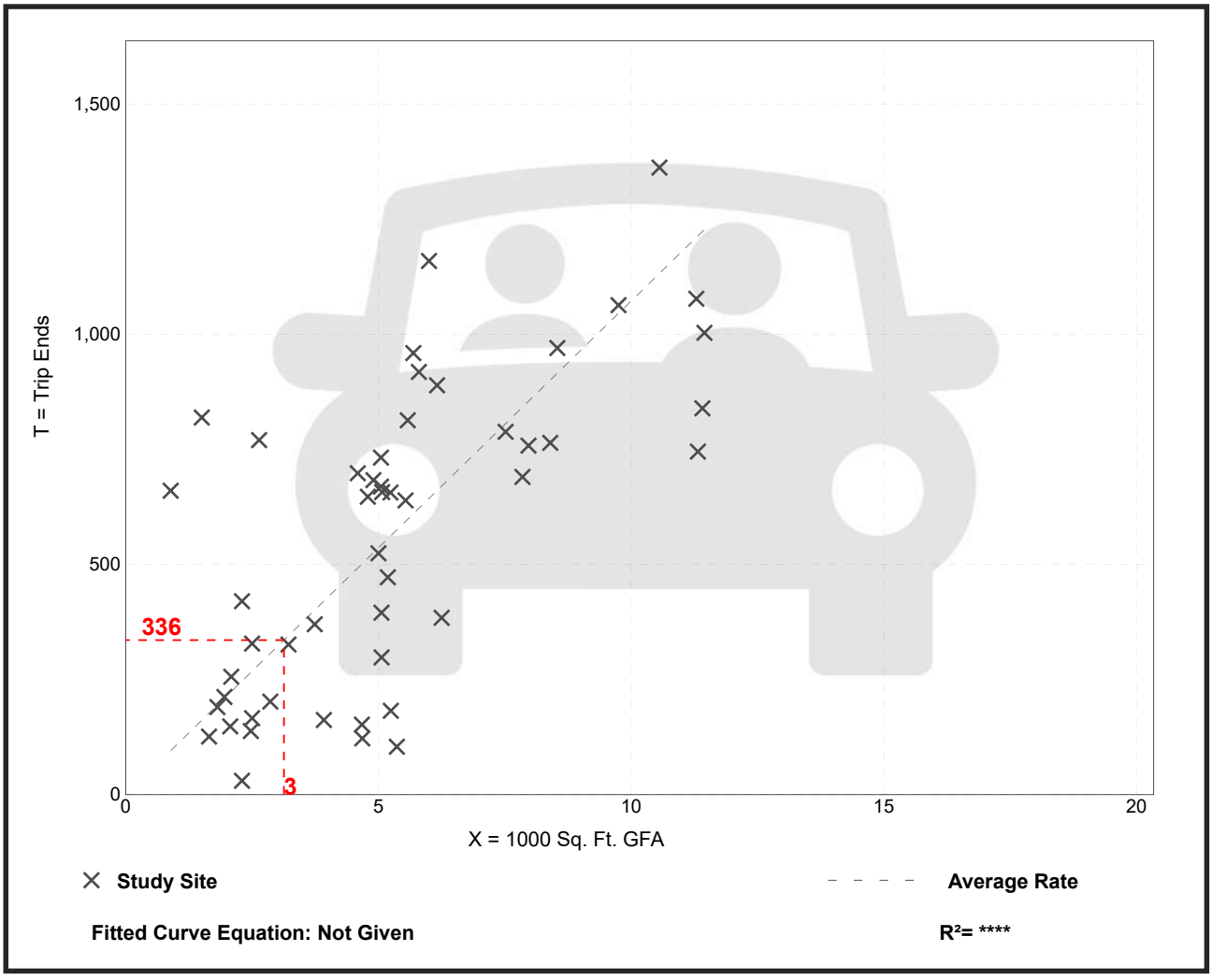
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 50
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
107.20	13.04 - 742.41	66.72

Data Plot and Equation



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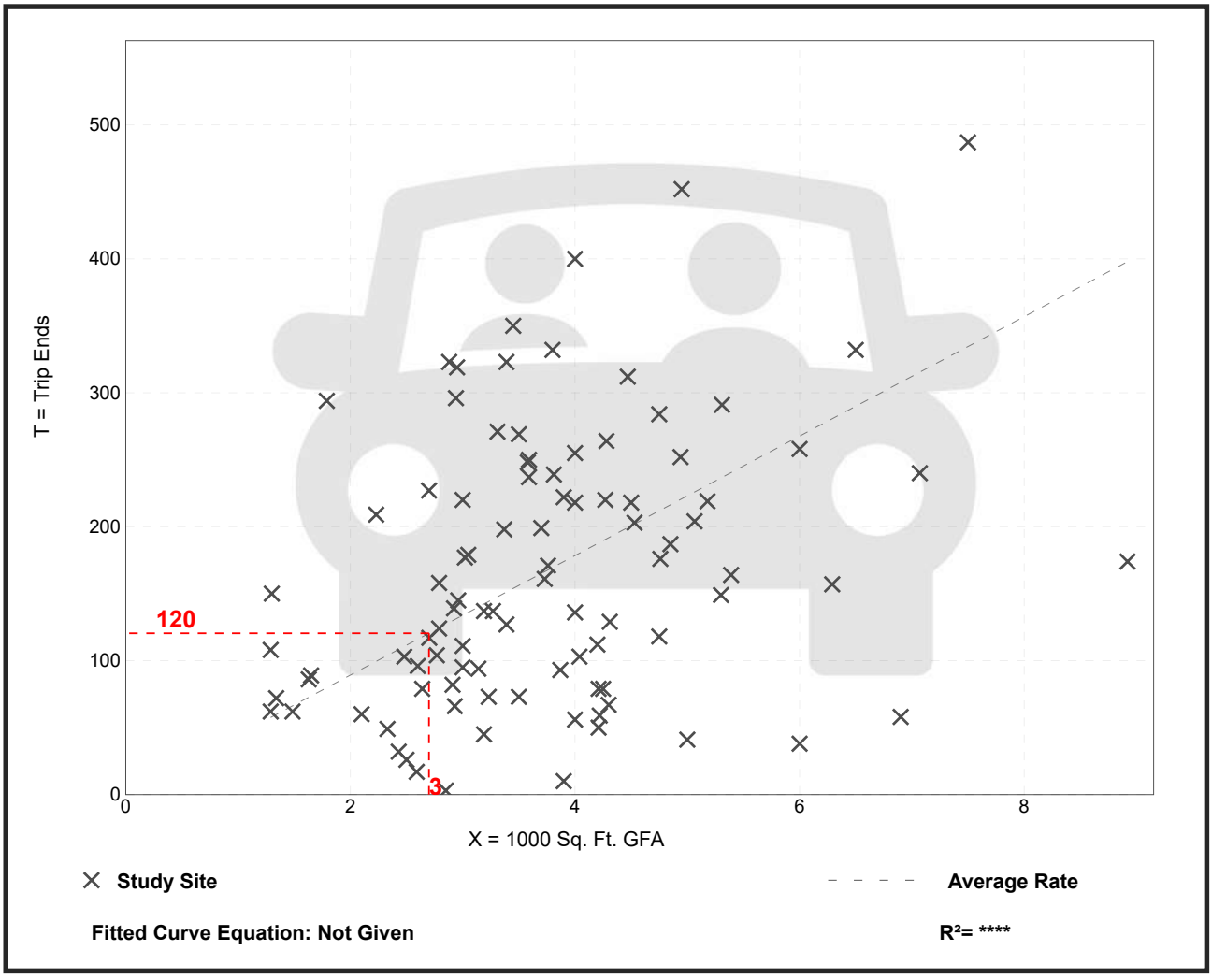
Fast-Food Restaurant with Drive-Through Window
(934)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 96
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
44.61	1.05 - 164.25	27.14

Data Plot and Equation



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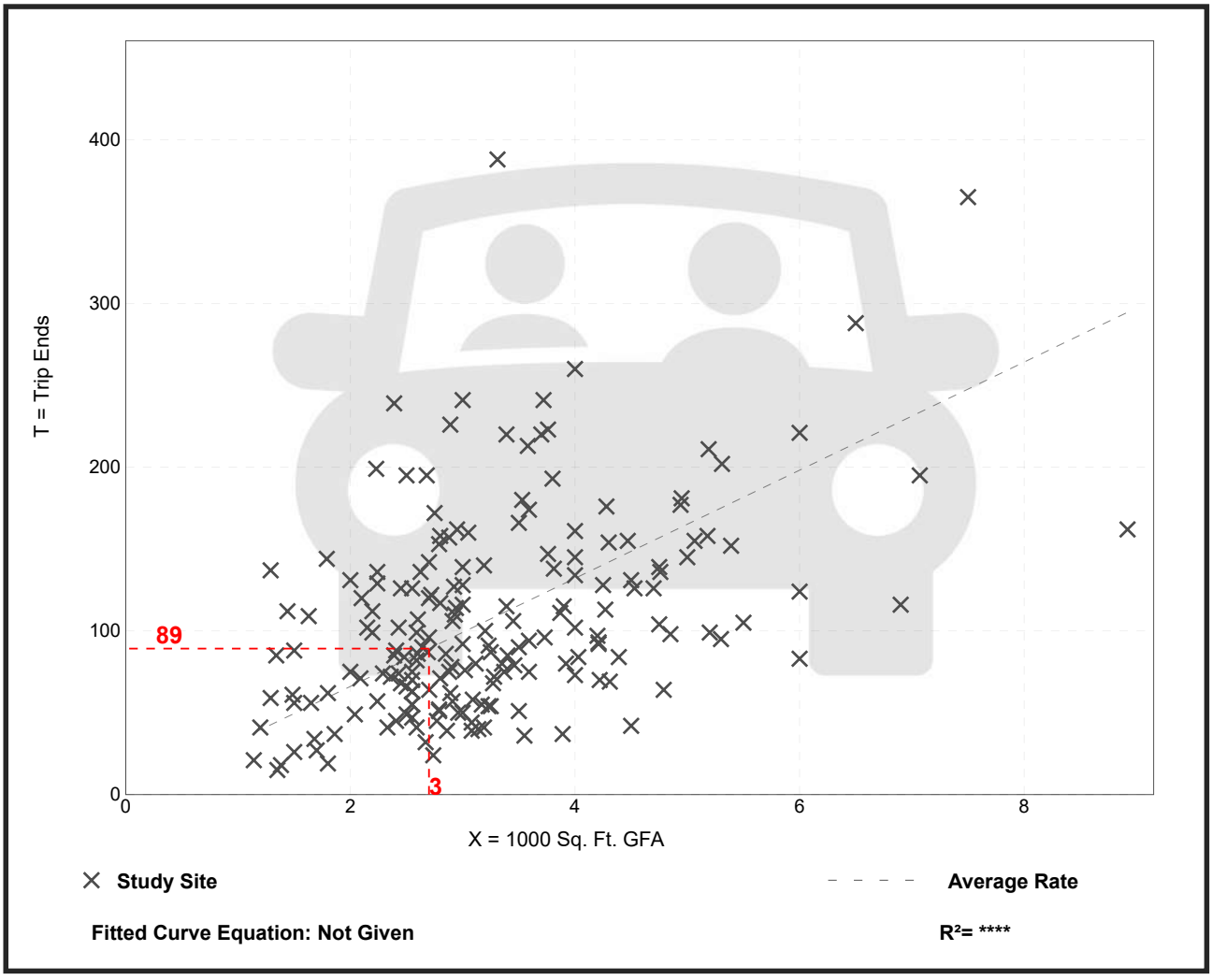
Fast-Food Restaurant with Drive-Through Window
(934)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 190
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
33.03	8.77 - 117.22	17.59

Data Plot and Equation



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Fast-Food Restaurant with Drive-Through Window
(934)

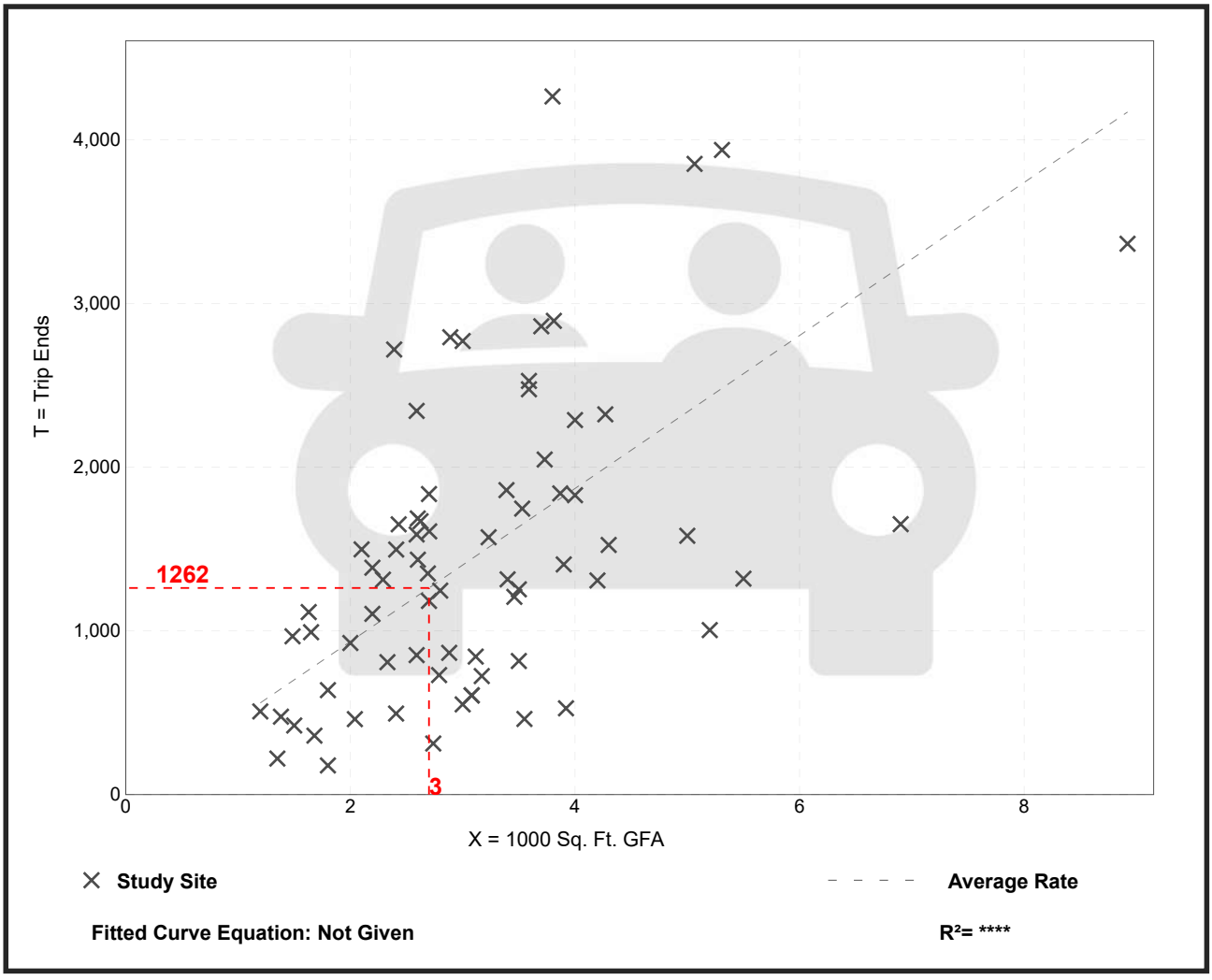
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 71
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
467.48	98.89 - 1137.66	238.62

Data Plot and Equation



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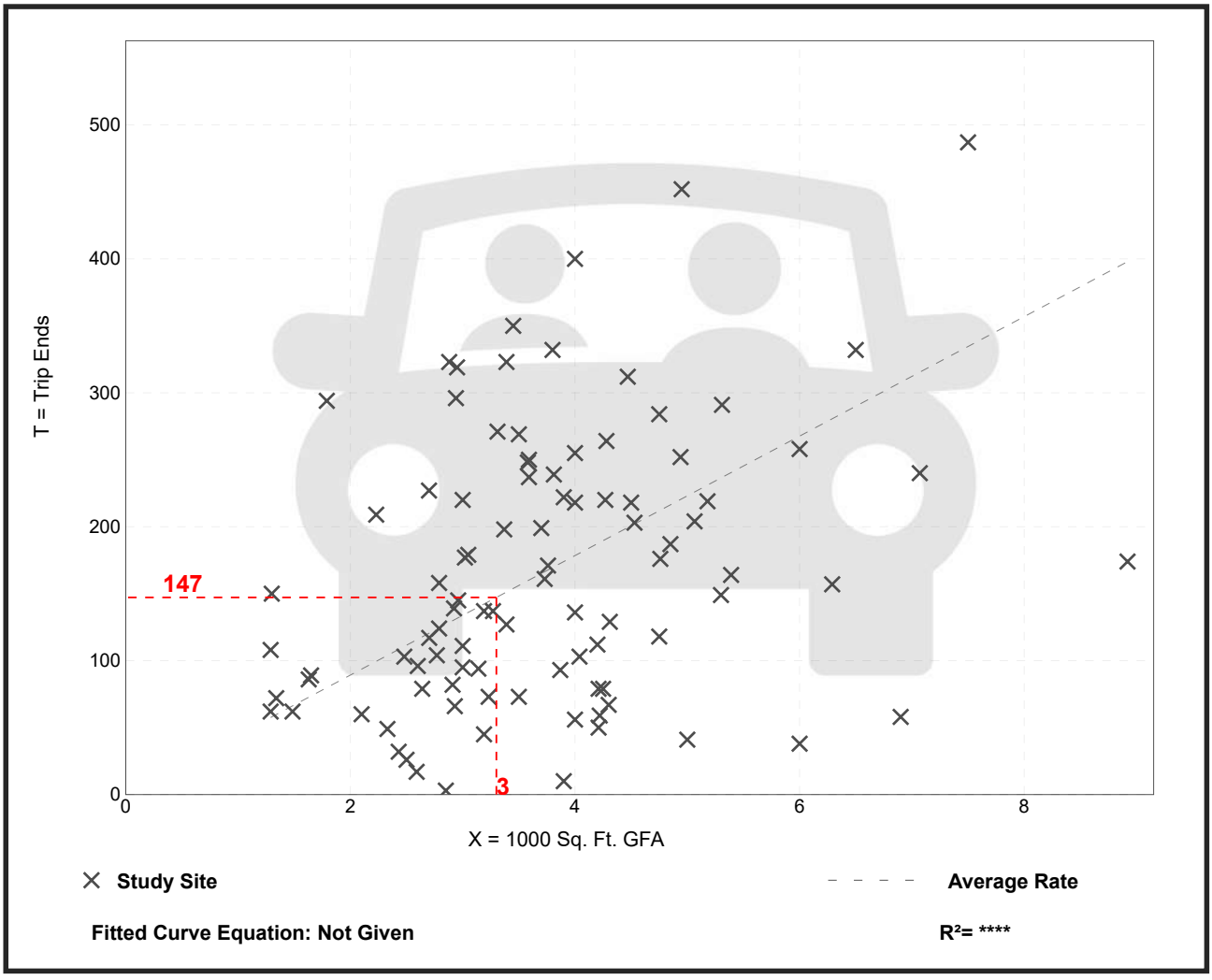
Fast-Food Restaurant with Drive-Through Window
(934)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 96
Avg. 1000 Sq. Ft. GFA: 4
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
44.61	1.05 - 164.25	27.14

Data Plot and Equation



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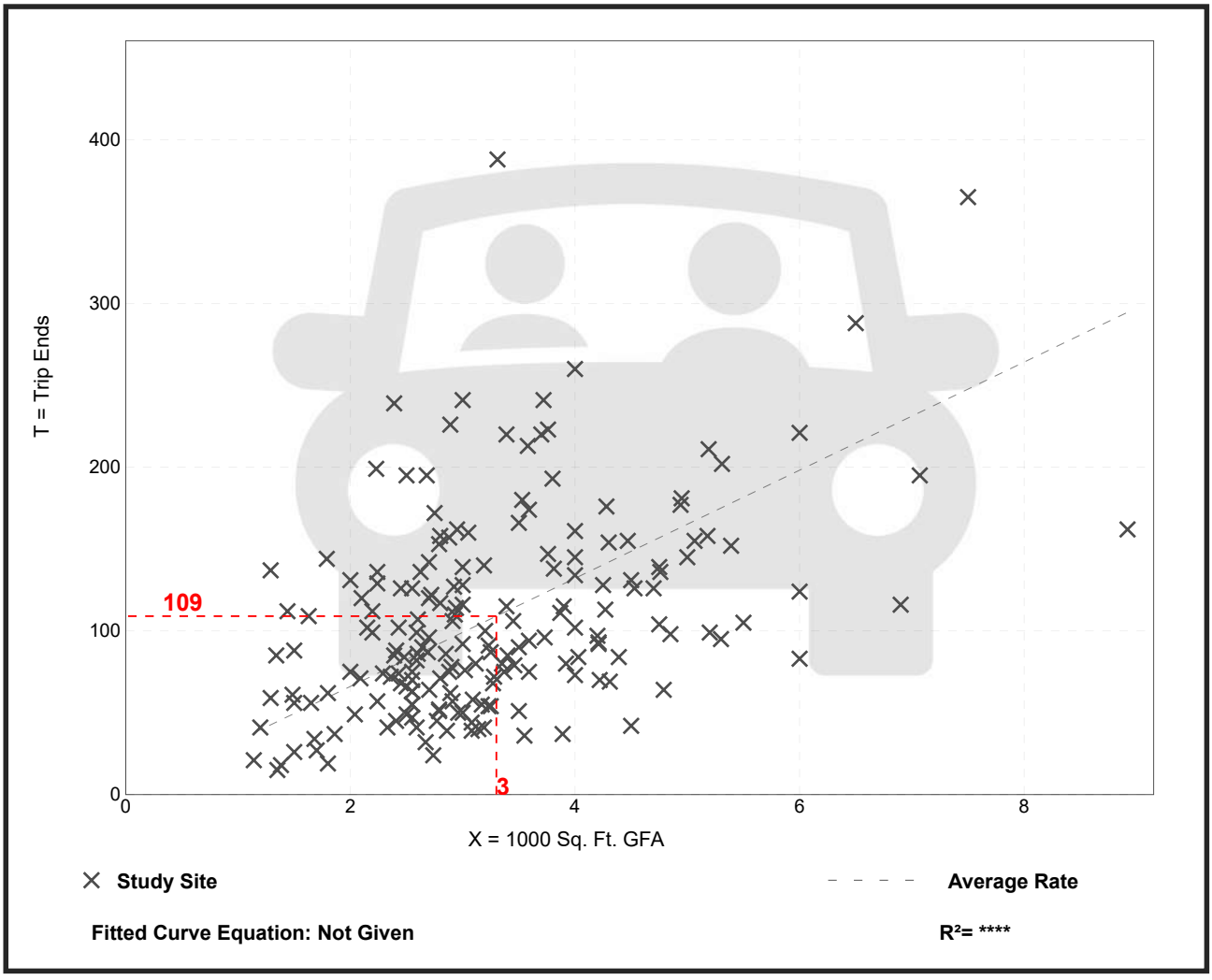
Fast-Food Restaurant with Drive-Through Window
(934)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 190
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
33.03	8.77 - 117.22	17.59

Data Plot and Equation



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Fast-Food Restaurant with Drive-Through Window
(934)

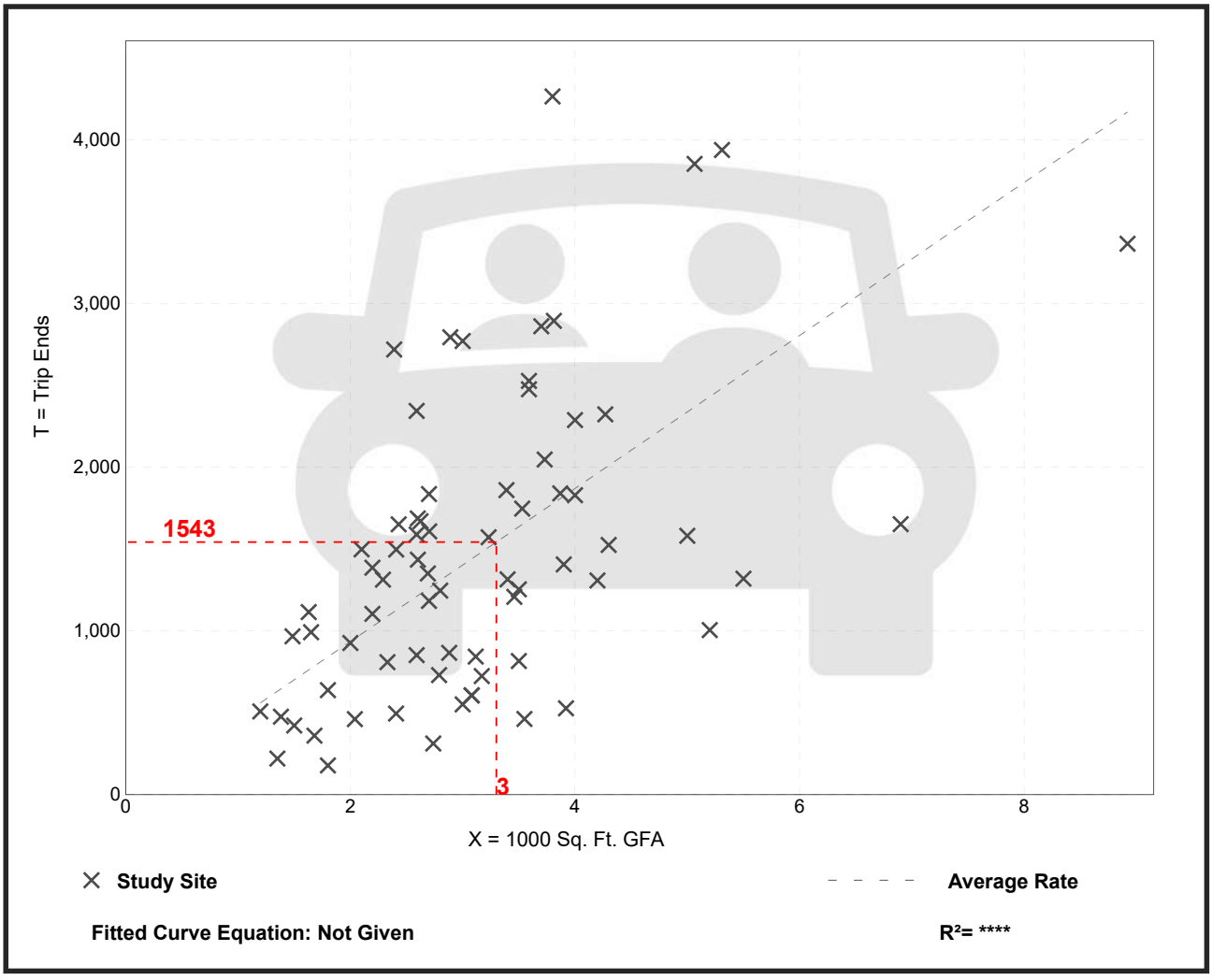
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 71
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
467.48	98.89 - 1137.66	238.62

Data Plot and Equation



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Vehicle Pass-By Rates by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	932
Land Use	High-Turnover (Sit-Down) Restaurant
Setting	General Urban/Suburban
Time Period	Weekday PM Peak Period
# Data Sites	12
Average Pass-By Rate	43%

Pass-By Characteristics for Individual Sites

GFA (000)	State or Province	Survey Year	# Interviews	Pass-By Trip (%)	Non-Pass-By Trips			Adj Street Peak Hour Volume	Source
					Primary (%)	Diverted (%)	Total (%)		
2.9	Kentucky	1993	41	37	27	36	63	3935	2
3.1	Kentucky	1993	21	38	29	33	62	2580	2
4.6	Florida	1992	276	63	—	—	37	—	30
5	Florida	1992	65	58	—	—	42	—	30
5.3	Kentucky	1993	24	50	37	13	50	1615	2
5.7	Florida	1994	308	57	—	—	43	—	30
5.8	Florida	1992	150	32	—	—	68	—	30
6.2	Florida	1995	521	46	43	11	54	—	30
7.1	Indiana	1993	—	23	23	54	77	1565	2
8	Florida	1995	664	40	39	21	60	—	30
11	Florida	1996	267	38	43	19	62	—	30
12	Florida	1996	317	29	51	20	71	—	30

Vehicle Pass-By Rates by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	934
Land Use	Fast-Food Restaurant with Drive-Through Window
Setting	General Urban/Suburban
Time Period	Weekday AM Peak Period
# Data Sites	5
Average Pass-By Rate	50%

Pass-By Characteristics for Individual Sites

GFA (000)	State or Province	Survey Year	# Interviews	Pass-By Trip (%)	Non-Pass-By Trips			Adj Street Peak Hour Volume	Source
					Primary (%)	Diverted (%)	Total (%)		
1.4	Kentucky	1993	—	62	22	16	38	1407	2
3	Kentucky	1993	—	43	14	43	57	2903	2
3.3	--	1996	—	68	—	—	32	—	21
3.6	Kentucky	1993	—	32	47	21	68	437	2
4.2	Indiana	1993	—	46	23	31	54	1049	2

Vehicle Pass-By Rates by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	934
Land Use	Fast-Food Restaurant with Drive-Through Window
Setting	General Urban/Suburban
Time Period	Weekday PM Peak Period
# Data Sites	11
Average Pass-By Rate	55%

Pass-By Characteristics for Individual Sites

GFA (000)	State or Province	Survey Year	# Interviews	Pass-By Trip (%)	Non-Pass-By Trips			Adj Street Peak Hour Volume	Source
					Primary (%)	Diverted (%)	Total (%)		
1.3	Kentucky	1993	—	68	22	10	32	2055	2
1.9	Kentucky	1993	33	67	24	9	33	2447	2
2.8	Florida	1995	47	66	—	—	34	—	30
2.9	Florida	1996	271	41	41	18	59	—	30
3	Kentucky	1993	—	31	31	38	69	4250	2
3.1	Florida	1995	28	71	—	—	29	—	30
3.1	Florida	1996	29	38	—	—	62	—	30
3.2	Florida	1996	202	40	39	21	60	—	30
3.3	—	1996	—	62	—	—	38	—	21
4.2	Indiana	1993	—	56	25	19	44	1632	2
4.3	Florida	1994	304	62	—	—	38	—	30

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	210		
Land Use	Single-Family Detached Housing		
Setting	General Urban/Suburban		
Time Period	Weekday		
# Data Sites	7		
	% of 24-Hour Vehicle Trips		
Time	Total	Entering	Exiting
12:00 - 1:00 AM	0.3%	0.5%	0.2%
1:00 - 2:00 AM	0.2%	0.2%	0.1%
2:00 - 3:00 AM	0.2%	0.3%	0.1%
3:00 - 4:00 AM	0.2%	0.2%	0.2%
4:00 - 5:00 AM	0.6%	0.3%	0.8%
5:00 - 6:00 AM	1.2%	0.5%	2.0%
6:00 - 7:00 AM	3.7%	1.6%	5.8%
7:00 - 8:00 AM	6.5%	3.1%	10.0%
8:00 - 9:00 AM	6.2%	3.8%	8.5%
9:00 - 10:00 AM	4.6%	3.3%	5.8%
10:00 - 11:00 AM	4.9%	4.2%	5.6%
11:00 - 12:00 PM	5.3%	5.4%	5.1%
12:00 - 1:00 PM	5.7%	5.7%	5.7%
1:00 - 2:00 PM	6.1%	6.1%	6.0%
2:00 - 3:00 PM	6.6%	7.1%	6.1%
3:00 - 4:00 PM	7.5%	8.7%	6.2%
4:00 - 5:00 PM	8.9%	10.5%	7.4%
5:00 - 6:00 PM	8.7%	10.0%	7.3%
6:00 - 7:00 PM	7.2%	8.5%	5.9%
7:00 - 8:00 PM	5.1%	6.1%	4.2%
8:00 - 9:00 PM	4.6%	6.1%	3.1%
9:00 - 10:00 PM	3.3%	4.4%	2.3%
10:00 - 11:00 PM	1.6%	2.1%	1.0%
11:00 - 12:00 AM	1.0%	1.3%	0.6%

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	220		
Land Use	Multifamily Housing (Low-Rise)		
Subcategory	Not Close to Rail Transit		
Setting	General Urban/Suburban		
Time Period	Weekday		
# Data Sites	6		
	% of 24-Hour Vehicle Trips		
Time	Total	Entering	Exiting
12:00 - 1:00 AM	0.7%	0.9%	0.4%
1:00 - 2:00 AM	0.4%	0.5%	0.3%
2:00 - 3:00 AM	0.4%	0.4%	0.4%
3:00 - 4:00 AM	0.4%	0.4%	0.3%
4:00 - 5:00 AM	0.9%	0.3%	1.4%
5:00 - 6:00 AM	1.6%	0.5%	2.6%
6:00 - 7:00 AM	4.2%	1.4%	6.9%
7:00 - 8:00 AM	6.5%	2.0%	10.8%
8:00 - 9:00 AM	5.8%	3.1%	8.5%
9:00 - 10:00 AM	3.9%	2.9%	4.9%
10:00 - 11:00 AM	3.6%	2.4%	4.8%
11:00 - 12:00 PM	4.3%	3.8%	4.7%
12:00 - 1:00 PM	4.3%	4.5%	4.1%
1:00 - 2:00 PM	4.2%	4.0%	4.4%
2:00 - 3:00 PM	5.2%	5.6%	4.9%
3:00 - 4:00 PM	6.1%	6.9%	5.3%
4:00 - 5:00 PM	7.9%	10.1%	5.6%
5:00 - 6:00 PM	9.5%	11.4%	7.6%
6:00 - 7:00 PM	8.2%	9.7%	6.7%
7:00 - 8:00 PM	6.4%	8.1%	4.7%
8:00 - 9:00 PM	5.9%	7.7%	4.2%
9:00 - 10:00 PM	4.4%	6.0%	2.7%
10:00 - 11:00 PM	3.5%	4.7%	2.4%
11:00 - 12:00 AM	1.9%	2.5%	1.4%

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	932		
Land Use	High-Turnover (Sit-Down) Restaurant		
Setting	General Urban/Suburban		
Time Period	Weekday		
# Data Sites	37		
	% of 24-Hour Vehicle Trips		
Time	Total	Entering	Exiting
12:00 - 1:00 AM	0.5%	0.3%	0.8%
1:00 - 2:00 AM	0.2%	0.1%	0.3%
2:00 - 3:00 AM	0.3%	0.3%	0.2%
3:00 - 4:00 AM	0.3%	0.2%	0.4%
4:00 - 5:00 AM	0.3%	0.2%	0.3%
5:00 - 6:00 AM	0.5%	0.7%	0.2%
6:00 - 7:00 AM	1.3%	1.7%	0.9%
7:00 - 8:00 AM	2.3%	2.7%	1.8%
8:00 - 9:00 AM	3.2%	3.4%	3.1%
9:00 - 10:00 AM	3.7%	4.0%	3.4%
10:00 - 11:00 AM	4.9%	5.5%	4.4%
11:00 - 12:00 PM	9.5%	12.1%	6.9%
12:00 - 1:00 PM	12.3%	12.4%	12.3%
1:00 - 2:00 PM	8.8%	6.5%	11.2%
2:00 - 3:00 PM	4.5%	4.0%	5.1%
3:00 - 4:00 PM	3.6%	3.3%	4.0%
4:00 - 5:00 PM	5.1%	6.2%	3.9%
5:00 - 6:00 PM	8.5%	10.2%	6.8%
6:00 - 7:00 PM	9.4%	10.1%	8.7%
7:00 - 8:00 PM	8.2%	7.2%	9.2%
8:00 - 9:00 PM	5.7%	4.3%	7.1%
9:00 - 10:00 PM	3.7%	2.6%	4.8%
10:00 - 11:00 PM	2.2%	1.4%	2.9%
11:00 - 12:00 AM	0.9%	0.5%	1.4%

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	934		
Land Use	Fast-Food Restaurant with Drive-Through Window		
Setting	General Urban/Suburban		
Time Period	Weekday		
# Data Sites	53		
	% of 24-Hour Vehicle Trips		
Time	Total	Entering	Exiting
12:00 - 1:00 AM	0.8%	0.8%	0.8%
1:00 - 2:00 AM	0.4%	0.4%	0.5%
2:00 - 3:00 AM	0.3%	0.3%	0.3%
3:00 - 4:00 AM	0.3%	0.2%	0.3%
4:00 - 5:00 AM	0.3%	0.3%	0.3%
5:00 - 6:00 AM	0.7%	0.8%	0.7%
6:00 - 7:00 AM	2.1%	2.3%	1.9%
7:00 - 8:00 AM	3.3%	3.4%	3.1%
8:00 - 9:00 AM	3.5%	3.5%	3.4%
9:00 - 10:00 AM	3.3%	3.4%	3.3%
10:00 - 11:00 AM	3.8%	4.0%	3.7%
11:00 - 12:00 PM	8.4%	9.1%	7.7%
12:00 - 1:00 PM	11.9%	11.9%	12.0%
1:00 - 2:00 PM	8.3%	7.9%	8.7%
2:00 - 3:00 PM	6.2%	5.9%	6.5%
3:00 - 4:00 PM	5.7%	5.7%	5.7%
4:00 - 5:00 PM	5.7%	5.9%	5.6%
5:00 - 6:00 PM	6.7%	6.9%	6.5%
6:00 - 7:00 PM	7.4%	7.4%	7.4%
7:00 - 8:00 PM	6.5%	6.3%	6.6%
8:00 - 9:00 PM	5.7%	5.6%	5.8%
9:00 - 10:00 PM	4.4%	4.1%	4.6%
10:00 - 11:00 PM	2.7%	2.5%	2.9%
11:00 - 12:00 AM	1.6%	1.4%	1.8%

APPENDIX C – ANALYSIS RESULTS

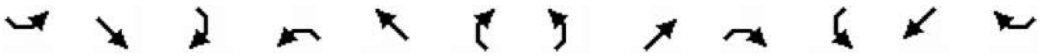
Capacity Analysis Results

Warrant Analysis Results

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	53	656	98	47	1143	29	194	237	32	119
v/c Ratio	0.48	0.34	0.10	0.43	0.59	0.03	0.65	0.62	0.19	0.69
Control Delay (s/veh)	56.0	23.6	4.9	89.1	12.2	0.0	49.8	47.2	37.6	54.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	56.0	23.6	4.9	89.1	12.2	0.0	49.8	47.2	37.6	54.3
Queue Length 50th (ft)	43	170	4	40	342	0	132	153	20	59
Queue Length 95th (ft)	84	309	28	m69	480	m0	194	238	44	121
Internal Link Dist (ft)		1626			1042			369		418
Turn Bay Length (ft)	200		175	90		110	230		230	
Base Capacity (vph)	146	1882	955	151	1929	949	316	389	195	230
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.35	0.10	0.31	0.59	0.03	0.61	0.61	0.16	0.52

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	48	590	88	42	1029	26	175	98	115	29	45	62
Future Volume (veh/h)	48	590	88	42	1029	26	175	98	115	29	45	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1773	1773	1844	1826	1826	1826	2011	2011	1934	1788	1788	1788
Adj Flow Rate, veh/h	53	656	98	47	1143	29	194	109	128	32	50	69
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	7	7	7	5	5	5	3	3	3	4	4	4
Cap, veh/h	67	1932	896	60	1971	879	285	143	167	153	61	85
Arrive On Green	0.03	0.38	0.38	0.03	0.57	0.57	0.11	0.17	0.17	0.03	0.09	0.09
Sat Flow, veh/h	1688	3368	1562	1739	3469	1547	1915	843	990	1703	680	939
Grp Volume(v), veh/h	53	656	98	47	1143	29	194	0	237	32	0	119
Grp Sat Flow(s),veh/h/ln	1688	1684	1562	1739	1735	1547	1915	0	1833	1703	0	1619
Q Serve(g_s), s	3.9	17.2	5.0	3.4	26.5	1.0	11.1	0.0	15.4	2.1	0.0	9.0
Cycle Q Clear(g_c), s	3.9	17.2	5.0	3.4	26.5	1.0	11.1	0.0	15.4	2.1	0.0	9.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.54	1.00		0.58
Lane Grp Cap(c), veh/h	67	1932	896	60	1971	879	285	0	310	153	0	146
V/C Ratio(X)	0.79	0.34	0.11	0.78	0.58	0.03	0.68	0.00	0.76	0.21	0.00	0.82
Avail Cap(c_a), veh/h	149	1932	896	153	1971	879	335	0	330	223	0	188
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.3	21.7	18.0	59.9	17.4	11.9	43.8	0.0	49.6	49.8	0.0	55.8
Incr Delay (d2), s/veh	7.1	0.5	0.2	8.0	1.3	0.1	3.0	0.0	8.4	0.2	0.0	15.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	7.4	1.9	1.6	10.3	0.4	5.5	0.0	7.7	0.9	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.4	22.2	18.2	67.8	18.6	11.9	46.7	0.0	58.0	50.0	0.0	70.9
LnGrp LOS	E	C	B	E	B	B	D		E	D		E
Approach Vol, veh/h		807			1219			431			151	
Approach Delay, s/veh		24.7			20.4			52.9			66.4	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	77.2	19.7	16.8	12.0	76.5	9.9	26.6
Change Period (Y+Rc), s	7.0	5.5	6.5	5.5	7.0	5.5	6.5	5.5
Max Green Setting (Gmax), s	11.0	58.5	16.5	14.5	11.0	58.5	8.5	22.5
Max Q Clear Time (g_c+I1), s	5.4	19.2	13.1	11.0	5.9	28.5	4.1	17.4
Green Ext Time (p_c), s	0.0	18.9	0.1	0.2	0.0	24.6	0.0	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	29.7
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	723	1	0	1116	2	0	0	1	3	0	3
Future Vol, veh/h	10	723	1	0	1116	2	0	0	1	3	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	7	7	7	5	5	5	2	2	2	2	2	2
Mvmt Flow	11	803	1	0	1240	2	0	0	1	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1242	0	0	804	0	0	1446	2068	402	1665	2068	621
Stage 1	-	-	-	-	-	-	826	826	-	1241	1241	-
Stage 2	-	-	-	-	-	-	620	1242	-	424	827	-
Critical Hdwy	4.24	-	-	4.2	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	530	-	-	796	-	-	92	54	598	63	54	430
Stage 1	-	-	-	-	-	-	332	385	-	185	245	-
Stage 2	-	-	-	-	-	-	442	245	-	578	384	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	530	-	-	796	-	-	89	52	598	62	52	430
Mov Cap-2 Maneuver	-	-	-	-	-	-	89	52	-	62	52	-
Stage 1	-	-	-	-	-	-	323	374	-	185	245	-
Stage 2	-	-	-	-	-	-	439	245	-	562	374	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.47	0	11.03	40.63
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	598	49	-	-	796	-	-	108
HCM Lane V/C Ratio	0.002	0.021	-	-	-	-	-	0.062
HCM Control Delay (s/veh)	11	11.9	0.3	-	0	-	-	40.6
HCM Lane LOS	B	B	A	-	A	-	-	E
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	715	10	16	1111	1	3	0	8	1	0	0
Future Vol, veh/h	0	715	10	16	1111	1	3	0	8	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	7	7	7	5	5	5	9	9	9	2	2	2
Mvmt Flow	0	803	11	18	1248	1	3	0	9	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1249	0	0	815	0	0	1469	2094	407	1687	2099	625
Stage 1	-	-	-	-	-	-	809	809	-	1285	1285	-
Stage 2	-	-	-	-	-	-	660	1285	-	402	815	-
Critical Hdwy	4.24	-	-	4.2	-	-	7.68	6.68	7.08	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	3.59	4.09	3.39	3.52	4.02	3.32
Pot Cap-1 Maneuver	526	-	-	789	-	-	83	47	574	61	51	428
Stage 1	-	-	-	-	-	-	326	376	-	174	234	-
Stage 2	-	-	-	-	-	-	402	220	-	596	389	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	526	-	-	789	-	-	81	46	574	59	50	428
Mov Cap-2 Maneuver	-	-	-	-	-	-	81	46	-	59	50	-
Stage 1	-	-	-	-	-	-	326	376	-	170	228	-
Stage 2	-	-	-	-	-	-	393	215	-	587	389	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.14	22.65	67.5
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	216	526	-	-	789	-	-	59
HCM Lane V/C Ratio	0.057	-	-	-	0.023	-	-	0.019
HCM Control Delay (s/veh)	22.6	0	-	-	9.7	-	-	67.5
HCM Lane LOS	C	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	207	463	104	140	715	238	303	561	191	219	242
v/c Ratio	0.54	0.40	0.15	0.64	0.58	0.34	0.66	0.74	0.70	0.41	0.55
Control Delay (s/veh)	49.2	34.1	6.4	66.6	36.3	5.2	36.7	48.4	44.4	50.4	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	49.2	34.1	6.4	66.6	36.3	5.2	36.7	48.4	44.4	50.4	10.9
Queue Length 50th (ft)	91	148	14	109	251	0	179	206	105	85	0
Queue Length 95th (ft)	100	248	m60	177	332	59	263	272	#176	126	76
Internal Link Dist (ft)		890			679			468		458	
Turn Bay Length (ft)	300		315	255		250	135		135		380
Base Capacity (vph)	580	1152	681	249	1213	696	477	788	272	526	439
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.40	0.15	0.56	0.59	0.34	0.64	0.71	0.70	0.42	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	421	95	127	651	217	276	375	136	174	199	220
Future Volume (veh/h)	188	421	95	127	651	217	276	375	136	174	199	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1844	1773	1844	1899	1826	1826	1949	1874	1874	1862	1790	1790
Adj Flow Rate, veh/h	207	463	0	140	715	0	303	412	0	191	219	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	7	7	7	5	5	5	7	7	7	7	7	7
Cap, veh/h	281	1395		169	1475		421	628		301	401	
Arrive On Green	0.08	0.41	0.00	0.09	0.43	0.00	0.16	0.18	0.00	0.10	0.12	0.00
Sat Flow, veh/h	3406	3368	1562	1809	3469	1547	1856	3654	0	1773	3402	1517
Grp Volume(v), veh/h	207	463	0	140	715	0	303	412	0	191	219	0
Grp Sat Flow(s),veh/h/ln	1703	1684	1562	1809	1735	1547	1856	1780	0	1773	1701	1517
Q Serve(g_s), s	7.4	11.7	0.0	9.5	18.7	0.0	17.3	13.5	0.0	11.8	7.6	0.0
Cycle Q Clear(g_c), s	7.4	11.7	0.0	9.5	18.7	0.0	17.3	13.5	0.0	11.8	7.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	1395		169	1475		421	628		301	401	
V/C Ratio(X)	0.74	0.33		0.83	0.48		0.72	0.66		0.63	0.55	
Avail Cap(c_a), veh/h	572	1395		246	1475		461	826		301	517	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.0	24.9	0.0	55.7	26.0	0.0	38.0	48.0	0.0	43.0	52.0	0.0
Incr Delay (d2), s/veh	5.3	0.6	0.0	16.9	1.1	0.0	5.5	2.5	0.0	4.9	2.5	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	4.7	0.0	5.1	7.7	0.0	8.3	6.0	0.0	5.5	3.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	61.3	25.5	0.0	72.6	27.2	0.0	43.6	50.4	0.0	48.0	54.4	0.0
LnGrp LOS	E	C		E	C		D	D		D	D	
Approach Vol, veh/h		670			855			715			410	
Approach Delay, s/veh		36.6			34.6			47.5			51.4	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.3	58.6	20.0	29.0	18.7	57.3	27.3	21.7
Change Period (Y+Rc), s	7.0	5.5	7.5	7.0	7.0	5.5	7.5	7.0
Max Green Setting (Gmax), s	21.0	35.5	12.5	29.0	17.0	39.5	22.5	19.0
Max Q Clear Time (g_c+I1), s	9.4	20.7	13.8	15.5	11.5	13.7	19.3	9.6
Green Ext Time (p_c), s	0.9	10.4	0.0	6.6	0.3	10.7	0.5	2.4

Intersection Summary	
HCM 7th Control Delay, s/veh	41.2
HCM 7th LOS	D

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	85	1147	207	166	1093	30	202	214	70	193
v/c Ratio	0.63	0.66	0.23	0.85	0.58	0.03	0.79	0.57	0.34	0.94
Control Delay (s/veh)	82.9	18.6	3.3	76.0	27.9	0.0	64.5	46.0	44.3	99.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	82.9	18.6	3.3	76.0	27.9	0.0	64.5	46.0	44.3	99.9
Queue Length 50th (ft)	79	160	0	146	433	0	147	134	47	148
Queue Length 95th (ft)	136	272	46	m#226	473	m0	#233	222	89	#300
Internal Link Dist (ft)		1626			1042			369		418
Turn Bay Length (ft)	200		175	90		110	230		230	
Base Capacity (vph)	168	1729	892	209	1865	920	265	372	212	207
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.66	0.23	0.79	0.59	0.03	0.76	0.58	0.33	0.93

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	82	1101	199	159	1049	29	194	78	128	67	98	87
Future Volume (veh/h)	82	1101	199	159	1049	29	194	78	128	67	98	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1921	1870	1870	1870	2027	2027	1949	1817	1817	1817
Adj Flow Rate, veh/h	85	1147	207	166	1093	30	202	81	133	70	102	91
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	105	1751	812	190	1940	865	257	115	188	197	95	85
Arrive On Green	0.12	1.00	1.00	0.11	0.55	0.55	0.11	0.17	0.17	0.05	0.11	0.11
Sat Flow, veh/h	1759	3509	1628	1781	3554	1585	1930	690	1133	1731	885	790
Grp Volume(v), veh/h	85	1147	207	166	1093	30	202	0	214	70	0	193
Grp Sat Flow(s),veh/h/ln	1759	1754	1628	1781	1777	1585	1930	0	1823	1731	0	1675
Q Serve(g_s), s	6.4	0.3	0.1	12.4	27.2	1.2	12.2	0.0	15.0	4.8	0.0	14.5
Cycle Q Clear(g_c), s	6.4	0.3	0.1	12.4	27.2	1.2	12.2	0.0	15.0	4.8	0.0	14.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.62	1.00		0.47
Lane Grp Cap(c), veh/h	105	1751	812	190	1940	865	257	0	303	197	0	180
V/C Ratio(X)	0.81	0.66	0.25	0.87	0.56	0.03	0.79	0.00	0.71	0.36	0.00	1.07
Avail Cap(c_a), veh/h	169	1751	812	211	1940	865	275	0	303	225	0	180
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.7	0.1	0.1	59.4	20.1	14.2	46.0	0.0	53.2	50.5	0.0	60.3
Incr Delay (d2), s/veh	4.9	1.6	0.6	26.8	1.2	0.1	11.8	0.0	6.3	0.4	0.0	87.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.4	0.2	6.9	11.1	0.4	6.7	0.0	7.4	2.1	0.0	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	63.5	1.7	0.7	86.2	21.3	14.3	57.7	0.0	59.5	50.9	0.0	148.0
LnGrp LOS	E	A	A	F	C	B	E		E	D		F
Approach Vol, veh/h		1439			1289			416			263	
Approach Delay, s/veh		5.2			29.5			58.7			122.1	
Approach LOS		A			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.4	72.8	20.7	20.0	15.1	79.2	12.8	27.9
Change Period (Y+Rc), s	7.0	5.5	6.5	5.5	7.0	5.5	6.5	5.5
Max Green Setting (Gmax), s	16.0	64.5	15.5	14.5	13.0	67.5	8.5	21.5
Max Q Clear Time (g_c+I1), s	14.4	2.3	14.2	16.5	8.4	29.2	6.8	17.0
Green Ext Time (p_c), s	0.0	46.2	0.1	0.0	0.0	29.2	0.0	0.7

Intersection Summary	
HCM 7th Control Delay, s/veh	29.9
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	1272	2	3	1223	11	1	0	0	10	0	20
Future Vol, veh/h	20	1272	2	3	1223	11	1	0	0	10	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	1353	2	3	1301	12	1	0	0	11	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1313	0	0	1355	0	0	2054	2716	678	2032	2711	656
Stage 1	-	-	-	-	-	-	1397	1397	-	1313	1313	-
Stage 2	-	-	-	-	-	-	657	1319	-	719	1398	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	523	-	-	503	-	-	32	21	395	33	21	408
Stage 1	-	-	-	-	-	-	148	206	-	167	226	-
Stage 2	-	-	-	-	-	-	420	225	-	386	206	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	523	-	-	503	-	-	28	19	395	31	19	408
Mov Cap-2 Maneuver	-	-	-	-	-	-	28	19	-	31	19	-
Stage 1	-	-	-	-	-	-	139	193	-	165	224	-
Stage 2	-	-	-	-	-	-	394	223	-	360	192	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.95	0.15	137.65	76.53
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	28	56	-	-	9	-	-	80
HCM Lane V/C Ratio	0.038	0.041	-	-	0.006	-	-	0.397
HCM Control Delay (s/veh)	137.6	12.2	0.8	-	12.2	0.1	-	76.5
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	1.6

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1249	29	33	1212	3	17	0	31	3	0	3
Future Vol, veh/h	3	1249	29	33	1212	3	17	0	31	3	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	1343	31	35	1303	3	18	0	33	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1306	0	0	1374	0	0	2088	2742	687	2054	2756	653
Stage 1	-	-	-	-	-	-	1365	1365	-	1376	1376	-
Stage 2	-	-	-	-	-	-	723	1377	-	678	1381	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	526	-	-	495	-	-	30	20	389	32	19	410
Stage 1	-	-	-	-	-	-	155	214	-	153	211	-
Stage 2	-	-	-	-	-	-	384	211	-	408	210	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	526	-	-	495	-	-	28	18	389	27	18	410
Mov Cap-2 Maneuver	-	-	-	-	-	-	28	18	-	27	18	-
Stage 1	-	-	-	-	-	-	154	212	-	142	196	-
Stage 2	-	-	-	-	-	-	353	196	-	371	209	-

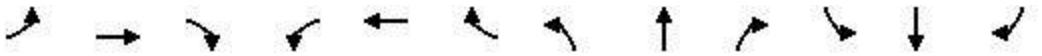
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.03	0.34	143.56	85.81
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	69	526	-	-	495	-	-	51
HCM Lane V/C Ratio	0.745	0.006	-	-	0.072	-	-	0.127
HCM Control Delay (s/veh)	143.6	11.9	-	-	12.8	-	-	85.8
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	3.4	0	-	-	0.2	-	-	0.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	418	722	248	189	699	214	162	305	269	397	492
v/c Ratio	0.71	0.53	0.31	0.83	0.57	0.31	0.50	0.57	0.69	0.61	0.81
Control Delay (s/veh)	75.4	29.1	5.8	87.2	39.3	5.7	38.2	49.1	44.3	55.3	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	75.4	29.1	5.8	87.2	39.3	5.7	38.2	49.1	44.3	55.3	23.2
Queue Length 50th (ft)	200	152	15	164	264	0	101	110	180	170	85
Queue Length 95th (ft)	255	206	56	#288	357	59	157	160	257	226	#242
Internal Link Dist (ft)		888			679			468		458	
Turn Bay Length (ft)	300		315	255		250	135		135		380
Base Capacity (vph)	725	1357	779	233	1209	680	347	543	405	652	608
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.53	0.32	0.81	0.58	0.31	0.47	0.56	0.66	0.61	0.81

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	389	671	231	176	650	199	151	190	94	250	369	458
Future Volume (veh/h)	389	671	231	176	650	199	151	190	94	250	369	458
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1921	1847	1921	1914	1841	1841	2011	1934	1934	1939	1864	1864
Adj Flow Rate, veh/h	418	722	0	189	699	0	162	204	0	269	397	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	4	4	4	3	3	3	2	2	2
Cap, veh/h	508	1539		214	1445		277	366		377	540	
Arrive On Green	0.14	0.44	0.00	0.12	0.41	0.00	0.09	0.10	0.00	0.14	0.15	0.00
Sat Flow, veh/h	3549	3509	1628	1823	3497	1560	1915	3771	0	1847	3542	1580
Grp Volume(v), veh/h	418	722	0	189	699	0	162	204	0	269	397	0
Grp Sat Flow(s),veh/h/ln	1774	1754	1628	1823	1749	1560	1915	1837	0	1847	1771	1580
Q Serve(g_s), s	15.4	19.6	0.0	13.8	19.8	0.0	10.1	7.1	0.0	17.1	14.4	0.0
Cycle Q Clear(g_c), s	15.4	19.6	0.0	13.8	19.8	0.0	10.1	7.1	0.0	17.1	14.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	508	1539		214	1445		277	366		377	540	
V/C Ratio(X)	0.82	0.47		0.88	0.48		0.59	0.56		0.71	0.74	
Avail Cap(c_a), veh/h	710	1539		230	1445		336	544		404	656	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.2	26.8	0.0	58.6	29.0	0.0	48.5	57.9	0.0	44.1	54.6	0.0
Incr Delay (d2), s/veh	6.6	1.0	0.0	30.1	1.2	0.0	2.8	2.8	0.0	6.1	5.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	8.3	0.0	8.1	8.4	0.0	4.9	3.4	0.0	8.4	6.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	62.8	27.8	0.0	88.8	30.2	0.0	51.3	60.8	0.0	50.2	59.7	0.0
LnGrp LOS	E	C		F	C		D	E		D	E	
Approach Vol, veh/h		1140			888			366			666	
Approach Delay, s/veh		40.6			42.7			56.6			55.9	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.3	61.3	27.0	20.4	22.9	64.7	19.8	27.6
Change Period (Y+Rc), s	7.0	5.5	7.5	7.0	7.0	5.5	7.5	7.0
Max Green Setting (Gmax), s	27.0	39.5	21.5	20.0	17.0	49.5	16.5	25.0
Max Q Clear Time (g_c+I1), s	17.4	21.8	19.1	9.1	15.8	21.6	12.1	16.4
Green Ext Time (p_c), s	1.9	11.8	0.3	2.7	0.1	17.1	0.3	4.1

Intersection Summary	
HCM 7th Control Delay, s/veh	46.5
HCM 7th LOS	D

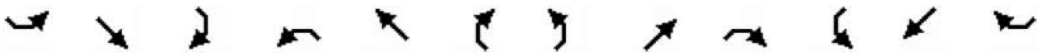
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	56	698	102	49	1238	30	202	246	33	123
v/c Ratio	0.50	0.37	0.10	0.44	0.64	0.03	0.67	0.64	0.19	0.70
Control Delay (s/veh)	57.9	23.9	4.8	87.6	14.3	0.0	50.5	47.8	37.5	56.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.9	23.9	4.8	87.6	14.3	0.0	50.5	47.8	37.5	56.3
Queue Length 50th (ft)	45	184	4	42	377	0	137	160	20	63
Queue Length 95th (ft)	89	323	27	m66	524	m0	201	248	46	126
Internal Link Dist (ft)		1626			1042			369		418
Turn Bay Length (ft)	200		175	90		110	230		230	
Base Capacity (vph)	146	1868	949	151	1913	942	317	391	195	229
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.37	0.11	0.32	0.65	0.03	0.64	0.63	0.17	0.54

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	50	628	92	44	1114	27	182	102	120	30	47	64
Future Volume (veh/h)	50	628	92	44	1114	27	182	102	120	30	47	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1773	1773	1844	1826	1826	1826	2011	2011	1934	1788	1788	1788
Adj Flow Rate, veh/h	56	698	102	49	1238	30	202	113	133	33	52	71
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	7	7	7	5	5	5	3	3	3	4	4	4
Cap, veh/h	71	1907	885	63	1944	867	291	147	173	154	63	86
Arrive On Green	0.03	0.38	0.38	0.04	0.56	0.56	0.11	0.17	0.17	0.03	0.09	0.09
Sat Flow, veh/h	1688	3368	1562	1739	3469	1547	1915	842	991	1703	685	935
Grp Volume(v), veh/h	56	698	102	49	1238	30	202	0	246	33	0	123
Grp Sat Flow(s),veh/h/ln	1688	1684	1562	1739	1735	1547	1915	0	1833	1703	0	1619
Q Serve(g_s), s	4.1	18.7	5.3	3.5	30.5	1.1	11.5	0.0	16.0	2.2	0.0	9.3
Cycle Q Clear(g_c), s	4.1	18.7	5.3	3.5	30.5	1.1	11.5	0.0	16.0	2.2	0.0	9.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.54	1.00		0.58
Lane Grp Cap(c), veh/h	71	1907	885	63	1944	867	291	0	320	154	0	150
V/C Ratio(X)	0.79	0.37	0.12	0.78	0.64	0.03	0.69	0.00	0.77	0.21	0.00	0.82
Avail Cap(c_a), veh/h	149	1907	885	153	1944	867	335	0	330	224	0	188
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.2	22.6	18.5	59.8	18.8	12.3	43.4	0.0	49.2	49.5	0.0	55.7
Incr Delay (d2), s/veh	6.7	0.5	0.3	7.6	1.6	0.1	3.7	0.0	9.2	0.3	0.0	16.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	8.0	2.0	1.7	11.9	0.4	5.7	0.0	8.1	0.9	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	66.9	23.1	18.7	67.4	20.4	12.4	47.1	0.0	58.4	49.8	0.0	72.4
LnGrp LOS	E	C	B	E	C	B	D		E	D		E
Approach Vol, veh/h		856			1317			448			156	
Approach Delay, s/veh		25.5			22.0			53.3			67.6	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	76.3	20.1	17.1	12.3	75.5	9.9	27.3
Change Period (Y+Rc), s	7.0	5.5	6.5	5.5	7.0	5.5	6.5	5.5
Max Green Setting (Gmax), s	11.0	58.5	16.5	14.5	11.0	58.5	8.5	22.5
Max Q Clear Time (g_c+I1), s	5.5	20.7	13.5	11.3	6.1	32.5	4.2	18.0
Green Ext Time (p_c), s	0.0	19.8	0.1	0.2	0.0	22.7	0.0	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	30.7
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	766	1	0	1205	2	0	0	1	3	0	3
Future Vol, veh/h	10	766	1	0	1205	2	0	0	1	3	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	7	7	7	5	5	5	2	2	2	2	2	2
Mvmt Flow	11	851	1	0	1339	2	0	0	1	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1341	0	0	852	0	0	1543	2215	426	1788	2214	671
Stage 1	-	-	-	-	-	-	874	874	-	1340	1340	-
Stage 2	-	-	-	-	-	-	669	1341	-	448	874	-
Critical Hdwy	4.24	-	-	4.2	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	484	-	-	764	-	-	78	43	577	51	43	399
Stage 1	-	-	-	-	-	-	311	365	-	161	220	-
Stage 2	-	-	-	-	-	-	413	219	-	560	365	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	484	-	-	764	-	-	75	42	577	50	42	399
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	42	-	50	42	-
Stage 1	-	-	-	-	-	-	302	354	-	161	220	-
Stage 2	-	-	-	-	-	-	410	219	-	542	354	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.53	0	11.25	49.14
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	577	46	-	-	764	-	-	88
HCM Lane V/C Ratio	0.002	0.023	-	-	-	-	-	0.076
HCM Control Delay (s/veh)	11.3	12.6	0.4	-	0	-	-	49.1
HCM Lane LOS	B	B	A	-	A	-	-	E
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	758	10	17	1199	1	3	0	8	1	0	0
Future Vol, veh/h	0	758	10	17	1199	1	3	0	8	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	7	7	7	5	5	5	9	9	9	2	2	2
Mvmt Flow	0	852	11	19	1347	1	3	0	9	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1348	0	0	863	0	0	1569	2244	431	1812	2249	674
Stage 1	-	-	-	-	-	-	857	857	-	1386	1386	-
Stage 2	-	-	-	-	-	-	712	1387	-	426	863	-
Critical Hdwy	4.24	-	-	4.2	-	-	7.68	6.68	7.08	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	3.59	4.09	3.39	3.52	4.02	3.32
Pot Cap-1 Maneuver	481	-	-	756	-	-	70	38	553	49	41	397
Stage 1	-	-	-	-	-	-	304	356	-	151	209	-
Stage 2	-	-	-	-	-	-	374	196	-	577	370	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	481	-	-	756	-	-	68	37	553	47	40	397
Mov Cap-2 Maneuver	-	-	-	-	-	-	68	37	-	47	40	-
Stage 1	-	-	-	-	-	-	304	356	-	147	203	-
Stage 2	-	-	-	-	-	-	364	191	-	567	370	-

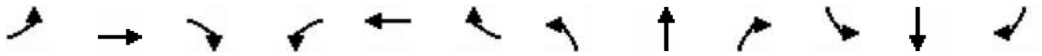
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.14	25.51	83.33
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	188	481	-	-	756	-	-	47
HCM Lane V/C Ratio	0.066	-	-	-	0.025	-	-	0.024
HCM Control Delay (s/veh)	25.5	0	-	-	9.9	-	-	83.3
HCM Lane LOS	D	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	215	481	124	156	744	248	364	704	199	254	252
v/c Ratio	0.55	0.43	0.18	0.69	0.63	0.36	0.78	0.89	0.85	0.47	0.56
Control Delay (s/veh)	47.5	35.1	7.5	69.2	38.2	5.3	43.2	58.7	63.1	51.6	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	47.5	35.1	7.5	69.2	38.2	5.3	43.2	58.7	63.1	51.6	10.9
Queue Length 50th (ft)	94	157	20	121	265	0	225	277	110	100	0
Queue Length 95th (ft)	100	257	m74	195	350	59	#331	#384	#244	145	78
Internal Link Dist (ft)		890			679			468		458	
Turn Bay Length (ft)	300		315	255		250	135		135		380
Base Capacity (vph)	580	1101	661	249	1167	686	471	788	233	530	450
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.44	0.19	0.63	0.64	0.36	0.77	0.89	0.85	0.48	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	438	113	142	677	226	331	467	174	181	231	229
Future Volume (veh/h)	196	438	113	142	677	226	331	467	174	181	231	229
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1844	1773	1844	1899	1826	1826	1949	1874	1874	1862	1790	1790
Adj Flow Rate, veh/h	215	481	0	156	744	0	364	513	0	199	254	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	7	7	7	5	5	5	7	7	7	7	7	7
Cap, veh/h	290	1283		185	1382		450	714		293	410	
Arrive On Green	0.09	0.38	0.00	0.10	0.40	0.00	0.18	0.20	0.00	0.10	0.12	0.00
Sat Flow, veh/h	3406	3368	1562	1809	3469	1547	1856	3654	0	1773	3402	1517
Grp Volume(v), veh/h	215	481	0	156	744	0	364	513	0	199	254	0
Grp Sat Flow(s),veh/h/ln	1703	1684	1562	1809	1735	1547	1856	1780	0	1773	1701	1517
Q Serve(g_s), s	7.7	12.9	0.0	10.6	20.5	0.0	20.8	16.8	0.0	12.3	8.9	0.0
Cycle Q Clear(g_c), s	7.7	12.9	0.0	10.6	20.5	0.0	20.8	16.8	0.0	12.3	8.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	1283		185	1382		450	714		293	410	
V/C Ratio(X)	0.74	0.37		0.84	0.54		0.81	0.72		0.68	0.62	
Avail Cap(c_a), veh/h	572	1283		246	1382		450	826		293	517	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.9	27.9	0.0	55.1	28.8	0.0	37.0	46.7	0.0	43.0	52.2	0.0
Incr Delay (d2), s/veh	5.3	0.8	0.0	20.0	1.5	0.0	11.0	3.7	0.0	6.9	3.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	5.2	0.0	5.8	8.6	0.0	10.5	7.6	0.0	5.9	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	61.1	28.8	0.0	75.1	30.3	0.0	48.0	50.4	0.0	49.9	55.5	0.0
LnGrp LOS	E	C		E	C		D	D		D	E	
Approach Vol, veh/h		696			900			877			453	
Approach Delay, s/veh		38.8			38.1			49.4			53.0	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.6	55.3	20.0	32.1	19.8	53.1	30.0	22.1
Change Period (Y+Rc), s	7.0	5.5	7.5	7.0	7.0	5.5	7.5	7.0
Max Green Setting (Gmax), s	21.0	35.5	12.5	29.0	17.0	39.5	22.5	19.0
Max Q Clear Time (g_c+I1), s	9.7	22.5	14.3	18.8	12.6	14.9	22.8	10.9
Green Ext Time (p_c), s	0.9	9.5	0.0	6.3	0.3	10.8	0.0	2.5

Intersection Summary	
HCM 7th Control Delay, s/veh	43.9
HCM 7th LOS	D

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	89	1241	216	172	1165	31	210	223	73	200
v/c Ratio	0.64	0.72	0.24	0.86	0.62	0.03	0.82	0.59	0.36	0.97
Control Delay (s/veh)	84.0	20.4	3.5	76.7	27.0	0.0	68.2	47.0	44.8	107.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	84.0	20.4	3.5	76.7	27.0	0.0	68.2	47.0	44.8	107.3
Queue Length 50th (ft)	81	187	0	152	451	0	154	142	49	156
Queue Length 95th (ft)	140	304	48	m#230	500	m0	#257	233	92	#317
Internal Link Dist (ft)		1626			1042			369		418
Turn Bay Length (ft)	200		175	90		110	230		230	
Base Capacity (vph)	168	1713	885	209	1851	915	262	376	209	206
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.72	0.24	0.82	0.63	0.03	0.80	0.59	0.35	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	85	1191	207	165	1118	30	202	81	133	70	102	90
Future Volume (veh/h)	85	1191	207	165	1118	30	202	81	133	70	102	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1921	1870	1870	1870	2027	2027	1949	1817	1817	1817
Adj Flow Rate, veh/h	89	1241	216	172	1165	31	210	84	139	73	106	94
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	1727	801	196	1919	856	264	115	190	196	95	85
Arrive On Green	0.12	0.98	0.98	0.11	0.54	0.54	0.11	0.17	0.17	0.05	0.11	0.11
Sat Flow, veh/h	1759	3509	1628	1781	3554	1585	1930	686	1136	1731	888	788
Grp Volume(v), veh/h	89	1241	216	172	1165	31	210	0	223	73	0	200
Grp Sat Flow(s),veh/h/ln	1759	1754	1628	1781	1777	1585	1930	0	1822	1731	0	1676
Q Serve(g_s), s	6.7	2.6	0.4	12.8	30.3	1.2	12.7	0.0	15.7	5.0	0.0	14.5
Cycle Q Clear(g_c), s	6.7	2.6	0.4	12.8	30.3	1.2	12.7	0.0	15.7	5.0	0.0	14.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.62	1.00		0.47
Lane Grp Cap(c), veh/h	109	1727	801	196	1919	856	264	0	305	196	0	180
V/C Ratio(X)	0.81	0.72	0.27	0.88	0.61	0.04	0.80	0.00	0.73	0.37	0.00	1.11
Avail Cap(c_a), veh/h	169	1727	801	211	1919	856	275	0	305	220	0	180
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.3	0.6	0.5	59.2	21.2	14.6	45.8	0.0	53.3	50.4	0.0	60.3
Incr Delay (d2), s/veh	7.1	2.2	0.7	28.6	1.4	0.1	13.2	0.0	7.6	0.4	0.0	100.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.8	0.3	7.3	12.4	0.5	7.0	0.0	7.8	2.2	0.0	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	65.4	2.8	1.2	87.7	22.7	14.6	59.0	0.0	60.8	50.9	0.0	160.3
LnGrp LOS	E	A	A	F	C	B	E		E	D		F
Approach Vol, veh/h		1546			1368			433			273	
Approach Delay, s/veh		6.2			30.7			59.9			131.0	
Approach LOS		A			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	71.9	21.2	20.0	15.4	78.4	13.1	28.1
Change Period (Y+Rc), s	7.0	5.5	6.5	5.5	7.0	5.5	6.5	5.5
Max Green Setting (Gmax), s	16.0	64.5	15.5	14.5	13.0	67.5	8.5	21.5
Max Q Clear Time (g_c+I1), s	14.8	4.6	14.7	16.5	8.7	32.3	7.0	17.7
Green Ext Time (p_c), s	0.0	48.0	0.0	0.0	0.0	28.5	0.0	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	31.3
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	1369	2	3	1299	11	1	0	0	10	0	21
Future Vol, veh/h	21	1369	2	3	1299	11	1	0	0	10	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	1456	2	3	1382	12	1	0	0	11	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1394	0	0	1459	0	0	2199	2902	729	2167	2897	697
Stage 1	-	-	-	-	-	-	1502	1502	-	1394	1394	-
Stage 2	-	-	-	-	-	-	697	1400	-	773	1503	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	487	-	-	459	-	-	25	16	365	26	16	384
Stage 1	-	-	-	-	-	-	127	183	-	149	207	-
Stage 2	-	-	-	-	-	-	397	205	-	358	183	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	487	-	-	459	-	-	21	14	365	24	14	384
Mov Cap-2 Maneuver	-	-	-	-	-	-	21	14	-	24	14	-
Stage 1	-	-	-	-	-	-	118	169	-	147	204	-
Stage 2	-	-	-	-	-	-	370	203	-	330	169	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	1.13	0.17	182.23	105.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	21	54	-	-	8	-	-	66
HCM Lane V/C Ratio	0.05	0.046	-	-	0.007	-	-	0.501
HCM Control Delay (s/veh)	182.2	12.8	1	-	12.9	0.1	-	105.4
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	2

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1345	30	34	1287	3	18	0	32	3	0	3
Future Vol, veh/h	3	1345	30	34	1287	3	18	0	32	3	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	1446	32	37	1384	3	19	0	34	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1387	0	0	1478	0	0	2234	2929	739	2188	2944	694
Stage 1	-	-	-	-	-	-	1469	1469	-	1459	1459	-
Stage 2	-	-	-	-	-	-	765	1460	-	730	1485	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	490	-	-	451	-	-	23	15	360	25	15	385
Stage 1	-	-	-	-	-	-	134	190	-	136	192	-
Stage 2	-	-	-	-	-	-	362	192	-	380	187	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	490	-	-	451	-	-	21	14	360	21	13	385
Mov Cap-2 Maneuver	-	-	-	-	-	-	21	14	-	21	13	-
Stage 1	-	-	-	-	-	-	133	189	-	125	177	-
Stage 2	-	-	-	-	-	-	330	176	-	341	185	-

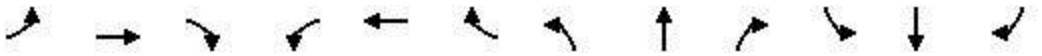
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.03	0.35	250.12	112.48
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	53	490	-	-	451	-	-	40
HCM Lane V/C Ratio	1.01	0.007	-	-	0.081	-	-	0.162
HCM Control Delay (s/veh)	250.1	12.4	-	-	13.7	-	-	112.5
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	4.5	0	-	-	0.3	-	-	0.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	435	751	308	233	727	223	198	392	280	499	512
v/c Ratio	0.72	0.57	0.38	1.00	0.62	0.33	0.67	0.71	0.77	0.76	0.87
Control Delay (s/veh)	76.3	29.1	5.2	117.4	41.3	5.7	44.5	55.7	49.4	60.9	33.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	76.3	29.1	5.2	117.4	41.3	5.7	44.5	55.7	49.4	60.9	33.1
Queue Length 50th (ft)	208	155	18	207	285	0	124	153	185	221	143
Queue Length 95th (ft)	264	207	63	#383	373	61	190	211	#269	286	#351
Internal Link Dist (ft)		888			679			468		458	
Turn Bay Length (ft)	300		315	255		250	135		135		380
Base Capacity (vph)	725	1314	800	233	1168	670	310	547	378	652	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.57	0.39	1.00	0.62	0.33	0.64	0.72	0.74	0.77	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	405	698	286	217	676	207	184	246	118	260	464	476
Future Volume (veh/h)	405	698	286	217	676	207	184	246	118	260	464	476
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1921	1847	1921	1914	1841	1841	2011	1934	1934	1939	1864	1864
Adj Flow Rate, veh/h	435	751	0	233	727	0	198	265	0	280	499	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	4	4	4	3	3	3	2	2	2
Cap, veh/h	524	1394		230	1313		289	480		396	610	
Arrive On Green	0.15	0.40	0.00	0.13	0.38	0.00	0.10	0.13	0.00	0.15	0.17	0.00
Sat Flow, veh/h	3549	3509	1628	1823	3497	1560	1915	3771	0	1847	3542	1580
Grp Volume(v), veh/h	435	751	0	233	727	0	198	265	0	280	499	0
Grp Sat Flow(s),veh/h/ln	1774	1754	1628	1823	1749	1560	1915	1837	0	1847	1771	1580
Q Serve(g_s), s	16.1	22.2	0.0	17.0	22.1	0.0	11.9	9.1	0.0	17.4	18.3	0.0
Cycle Q Clear(g_c), s	16.1	22.2	0.0	17.0	22.1	0.0	11.9	9.1	0.0	17.4	18.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	524	1394		230	1313		289	480		396	610	
V/C Ratio(X)	0.83	0.54		1.01	0.55		0.68	0.55		0.71	0.82	
Avail Cap(c_a), veh/h	710	1394		230	1313		323	544		420	656	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.9	31.2	0.0	59.0	33.2	0.0	44.8	55.0	0.0	41.9	53.8	0.0
Incr Delay (d2), s/veh	7.1	1.5	0.0	63.3	1.7	0.0	6.0	2.1	0.0	5.6	8.9	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	9.5	0.0	11.8	9.5	0.0	6.0	4.3	0.0	8.4	8.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	63.0	32.7	0.0	122.3	34.9	0.0	50.8	57.1	0.0	47.6	62.7	0.0
LnGrp LOS	E	C		F	C		D	E		D	E	
Approach Vol, veh/h		1186			960			463			779	
Approach Delay, s/veh		43.8			56.1			54.4			57.3	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.9	56.2	27.2	24.6	24.0	59.1	21.6	30.3
Change Period (Y+Rc), s	7.0	5.5	7.5	7.0	7.0	5.5	7.5	7.0
Max Green Setting (Gmax), s	27.0	39.5	21.5	20.0	17.0	49.5	16.5	25.0
Max Q Clear Time (g_c+I1), s	18.1	24.1	19.4	11.1	19.0	24.2	13.9	20.3
Green Ext Time (p_c), s	1.9	10.8	0.3	3.1	0.0	16.5	0.2	2.9

Intersection Summary	
HCM 7th Control Delay, s/veh	51.8
HCM 7th LOS	D

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	56	739	102	57	1270	33	208	254	37	123
v/c Ratio	0.50	0.39	0.10	0.50	0.66	0.03	0.68	0.65	0.22	0.70
Control Delay (s/veh)	58.6	24.2	4.5	87.6	15.0	0.0	51.1	48.1	38.0	56.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.6	24.2	4.5	87.6	15.0	0.0	51.1	48.1	38.0	56.3
Queue Length 50th (ft)	45	195	3	48	398	0	141	164	23	63
Queue Length 95th (ft)	89	338	26	m73	538	m0	207	256	49	126
Internal Link Dist (ft)		1626			1042			369		418
Turn Bay Length (ft)	200		175	90		110	230		230	
Base Capacity (vph)	146	1855	944	151	1907	940	318	393	191	229
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.40	0.11	0.38	0.67	0.04	0.65	0.65	0.19	0.54

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	50	665	92	51	1143	30	187	102	127	33	47	64
Future Volume (veh/h)	50	665	92	51	1143	30	187	102	127	33	47	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1773	1773	1844	1826	1826	1826	2011	2011	1934	1788	1788	1788
Adj Flow Rate, veh/h	56	739	102	57	1270	33	208	113	141	37	52	71
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	7	7	7	5	5	5	3	3	3	4	4	4
Cap, veh/h	71	1878	871	73	1934	863	296	143	178	152	63	86
Arrive On Green	0.01	0.18	0.18	0.04	0.56	0.56	0.11	0.18	0.18	0.03	0.09	0.09
Sat Flow, veh/h	1688	3368	1562	1739	3469	1547	1915	813	1015	1703	685	935
Grp Volume(v), veh/h	56	739	102	57	1270	33	208	0	254	37	0	123
Grp Sat Flow(s),veh/h/ln	1688	1684	1562	1739	1735	1547	1915	0	1828	1703	0	1619
Q Serve(g_s), s	4.1	24.1	6.8	4.1	31.9	1.2	11.9	0.0	16.6	2.4	0.0	9.3
Cycle Q Clear(g_c), s	4.1	24.1	6.8	4.1	31.9	1.2	11.9	0.0	16.6	2.4	0.0	9.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	1.00		0.58
Lane Grp Cap(c), veh/h	71	1878	871	73	1934	863	296	0	321	152	0	150
V/C Ratio(X)	0.79	0.39	0.12	0.78	0.66	0.04	0.70	0.00	0.79	0.24	0.00	0.82
Avail Cap(c_a), veh/h	149	1878	871	153	1934	863	335	0	329	219	0	188
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	61.1	32.4	25.3	59.3	19.3	12.5	43.2	0.0	49.4	49.5	0.0	55.7
Incr Delay (d2), s/veh	6.7	0.6	0.3	6.6	1.8	0.1	4.2	0.0	11.1	0.3	0.0	16.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	11.0	2.7	1.9	12.5	0.4	5.9	0.0	8.5	1.0	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.7	33.0	25.6	65.9	21.1	12.6	47.4	0.0	60.4	49.8	0.0	72.4
LnGrp LOS	E	C	C	E	C	B	D		E	D		E
Approach Vol, veh/h		897			1360			462			160	
Approach Delay, s/veh		34.3			22.7			54.6			67.1	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	75.2	20.5	17.1	12.3	75.2	10.1	27.4
Change Period (Y+Rc), s	7.0	5.5	6.5	5.5	7.0	5.5	6.5	5.5
Max Green Setting (Gmax), s	11.0	58.5	16.5	14.5	11.0	58.5	8.5	22.5
Max Q Clear Time (g_c+I1), s	6.1	26.1	13.9	11.3	6.1	33.9	4.4	18.6
Green Ext Time (p_c), s	0.0	19.0	0.1	0.2	0.0	21.8	0.0	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	33.9
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	753	62	51	1244	2	0	0	54	3	0	3
Future Vol, veh/h	10	753	62	51	1244	2	0	0	54	3	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	7	7	7	5	5	5	2	2	2	2	2	2
Mvmt Flow	11	837	69	57	1382	2	0	0	60	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1384	0	0	906	0	0	1698	2391	453	1937	2424	692
Stage 1	-	-	-	-	-	-	893	893	-	1497	1497	-
Stage 2	-	-	-	-	-	-	804	1498	-	441	928	-
Critical Hdwy	4.24	-	-	4.2	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	466	-	-	728	-	-	60	33	554	39	32	386
Stage 1	-	-	-	-	-	-	303	358	-	128	184	-
Stage 2	-	-	-	-	-	-	343	184	-	565	345	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	466	-	-	728	-	-	50	28	554	30	27	386
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	28	-	30	27	-
Stage 1	-	-	-	-	-	-	293	346	-	112	161	-
Stage 2	-	-	-	-	-	-	297	161	-	488	334	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.52	1.57	12.28	78.95
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	554	39	-	-	141	-	-	55
HCM Lane V/C Ratio	0.108	0.024	-	-	0.078	-	-	0.121
HCM Control Delay (s/veh)	12.3	12.9	0.4	-	10.4	1.2	-	79
HCM Lane LOS	B	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.3	-	-	0.4

Intersection	
Int Delay, s/veh	19.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	792	15	52	1222	1	69	0	28	1	0	0
Future Vol, veh/h	0	792	15	52	1222	1	69	0	28	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	7	7	7	5	5	5	9	9	9	2	2	2
Mvmt Flow	0	890	17	58	1373	1	78	0	31	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1374	0	0	907	0	0	1702	2389	453	1935	2397	687
Stage 1	-	-	-	-	-	-	898	898	-	1490	1490	-
Stage 2	-	-	-	-	-	-	803	1491	-	445	907	-
Critical Hdwy	4.24	-	-	4.2	-	-	7.68	6.68	7.08	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	3.59	4.09	3.39	3.52	4.02	3.32
Pot Cap-1 Maneuver	470	-	-	728	-	-	~ 55	30	535	40	33	389
Stage 1	-	-	-	-	-	-	287	340	-	130	186	-
Stage 2	-	-	-	-	-	-	328	174	-	562	353	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	470	-	-	728	-	-	~ 51	28	535	34	30	389
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 51	28	-	34	30	-
Stage 1	-	-	-	-	-	-	287	340	-	119	171	-
Stage 2	-	-	-	-	-	-	302	160	-	529	353	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.42	$ 422.82	113.66
HCM LOS			F	F

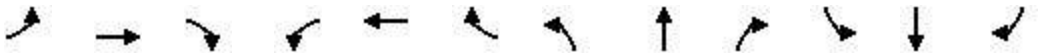
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	69	470	-	-	728	-	-	34
HCM Lane V/C Ratio	1.585	-	-	-	0.08	-	-	0.033
HCM Control Delay (s/veh)	$ 422.8	0	-	-	10.4	-	-	113.7
HCM Lane LOS	F	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	9.4	0	-	-	0.3	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	232	513	135	156	779	248	376	704	199	254	269
v/c Ratio	0.57	0.46	0.20	0.69	0.67	0.36	0.81	0.89	0.85	0.48	0.58
Control Delay (s/veh)	48.3	35.3	7.0	69.2	39.7	5.4	45.1	58.7	62.7	51.8	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.3	35.3	7.0	69.2	39.7	5.4	45.1	58.7	62.7	51.8	11.0
Queue Length 50th (ft)	101	170	21	121	284	0	234	277	110	100	0
Queue Length 95th (ft)	107	268	m73	195	372	60	#358	#384	#243	145	81
Internal Link Dist (ft)		890			679			468		458	
Turn Bay Length (ft)	300		315	255		250	135		135		380
Base Capacity (vph)	580	1101	661	249	1152	680	470	788	234	526	462
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.47	0.20	0.63	0.68	0.36	0.80	0.89	0.85	0.48	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	467	123	142	709	226	342	467	174	181	231	245
Future Volume (veh/h)	211	467	123	142	709	226	342	467	174	181	231	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1844	1773	1844	1899	1826	1826	1949	1874	1874	1862	1790	1790
Adj Flow Rate, veh/h	232	513	0	156	779	0	376	513	0	199	254	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	7	7	7	5	5	5	7	7	7	7	7	7
Cap, veh/h	308	1283		185	1363		450	714		293	410	
Arrive On Green	0.09	0.38	0.00	0.10	0.39	0.00	0.18	0.20	0.00	0.10	0.12	0.00
Sat Flow, veh/h	3406	3368	1562	1809	3469	1547	1856	3654	0	1773	3402	1517
Grp Volume(v), veh/h	232	513	0	156	779	0	376	513	0	199	254	0
Grp Sat Flow(s),veh/h/ln	1703	1684	1562	1809	1735	1547	1856	1780	0	1773	1701	1517
Q Serve(g_s), s	8.3	13.9	0.0	10.6	22.0	0.0	21.7	16.8	0.0	12.3	8.9	0.0
Cycle Q Clear(g_c), s	8.3	13.9	0.0	10.6	22.0	0.0	21.7	16.8	0.0	12.3	8.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	308	1283		185	1363		450	714		293	410	
V/C Ratio(X)	0.75	0.40		0.84	0.57		0.84	0.72		0.68	0.62	
Avail Cap(c_a), veh/h	572	1283		246	1363		450	826		293	517	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.5	28.3	0.0	55.1	29.7	0.0	37.3	46.7	0.0	43.0	52.2	0.0
Incr Delay (d2), s/veh	5.3	0.9	0.0	20.0	1.7	0.0	13.3	3.7	0.0	6.9	3.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	5.7	0.0	5.8	9.2	0.0	11.2	7.6	0.0	5.9	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.8	29.2	0.0	75.1	31.4	0.0	50.6	50.4	0.0	49.9	55.5	0.0
LnGrp LOS	E	C		E	C		D	D		D	E	
Approach Vol, veh/h		745			935			889			453	
Approach Delay, s/veh		39.0			38.7			50.5			53.0	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	54.6	20.0	32.1	19.8	53.1	30.0	22.1
Change Period (Y+Rc), s	7.0	5.5	7.5	7.0	7.0	5.5	7.5	7.0
Max Green Setting (Gmax), s	21.0	35.5	12.5	29.0	17.0	39.5	22.5	19.0
Max Q Clear Time (g_c+I1), s	10.3	24.0	14.3	18.8	12.6	15.9	23.7	10.9
Green Ext Time (p_c), s	1.0	8.8	0.0	6.3	0.3	11.2	0.0	2.5

Intersection Summary	
HCM 7th Control Delay, s/veh	44.4
HCM 7th LOS	D

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	89	1271	216	177	1185	33	215	229	76	200
v/c Ratio	0.64	0.74	0.24	0.88	0.64	0.03	0.84	0.60	0.38	0.97
Control Delay (s/veh)	84.0	21.1	3.5	79.3	26.7	0.0	70.0	47.0	45.4	107.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	84.0	21.1	3.5	79.3	26.7	0.0	70.0	47.0	45.4	107.3
Queue Length 50th (ft)	82	195	0	158	453	0	158	146	52	156
Queue Length 95th (ft)	140	315	47	m#239	m501	m0	#268	238	95	#317
Internal Link Dist (ft)		1626			1042			369		418
Turn Bay Length (ft)	200		175	90		110	230		230	
Base Capacity (vph)	168	1707	883	209	1849	914	262	379	205	206
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.74	0.24	0.85	0.64	0.04	0.82	0.60	0.37	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	85	1220	207	170	1138	32	206	81	139	73	102	90
Future Volume (veh/h)	85	1220	207	170	1138	32	206	81	139	73	102	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1921	1870	1870	1870	2027	2027	1949	1817	1817	1817
Adj Flow Rate, veh/h	89	1271	216	177	1185	33	215	84	145	76	106	94
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	1710	793	201	1911	853	268	112	194	195	95	85
Arrive On Green	0.12	0.97	0.97	0.11	0.54	0.54	0.11	0.17	0.17	0.05	0.11	0.11
Sat Flow, veh/h	1759	3509	1628	1781	3554	1585	1930	667	1152	1731	888	788
Grp Volume(v), veh/h	89	1271	216	177	1185	33	215	0	229	76	0	200
Grp Sat Flow(s),veh/h/ln	1759	1754	1628	1781	1777	1585	1930	0	1819	1731	0	1676
Q Serve(g_s), s	6.7	4.5	0.6	13.2	31.2	1.3	13.0	0.0	16.2	5.2	0.0	14.5
Cycle Q Clear(g_c), s	6.7	4.5	0.6	13.2	31.2	1.3	13.0	0.0	16.2	5.2	0.0	14.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.63	1.00		0.47
Lane Grp Cap(c), veh/h	109	1710	793	201	1911	853	268	0	306	195	0	180
V/C Ratio(X)	0.81	0.74	0.27	0.88	0.62	0.04	0.80	0.00	0.75	0.39	0.00	1.11
Avail Cap(c_a), veh/h	169	1710	793	211	1911	853	275	0	306	216	0	180
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.3	0.9	0.9	59.0	21.6	14.7	45.7	0.0	53.5	50.3	0.0	60.3
Incr Delay (d2), s/veh	7.1	2.5	0.7	29.9	1.5	0.1	14.2	0.0	8.8	0.5	0.0	100.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	1.1	0.3	7.6	12.8	0.5	7.3	0.0	8.1	2.3	0.0	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	65.4	3.4	1.6	88.9	23.2	14.8	59.8	0.0	62.2	50.8	0.0	160.3
LnGrp LOS	E	A	A	F	C	B	E		E	D		F
Approach Vol, veh/h		1576			1395			444			276	
Approach Delay, s/veh		6.7			31.3			61.1			130.2	
Approach LOS		A			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.2	71.3	21.5	20.0	15.4	78.1	13.3	28.2
Change Period (Y+Rc), s	7.0	5.5	6.5	5.5	7.0	5.5	6.5	5.5
Max Green Setting (Gmax), s	16.0	64.5	15.5	14.5	13.0	67.5	8.5	21.5
Max Q Clear Time (g_c+I1), s	15.2	6.5	15.0	16.5	8.7	33.2	7.2	18.2
Green Ext Time (p_c), s	0.0	47.5	0.0	0.0	0.0	28.2	0.0	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	31.8
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	1359	50	43	1327	11	0	0	39	10	0	21
Future Vol, veh/h	21	1359	50	43	1327	11	0	0	39	10	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	1446	53	46	1412	12	0	0	41	11	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1423	0	0	1499	0	0	2314	3032	749	2277	3053	712
Stage 1	-	-	-	-	-	-	1517	1517	-	1509	1509	-
Stage 2	-	-	-	-	-	-	797	1515	-	768	1544	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	474	-	-	443	-	-	20	13	354	22	12	375
Stage 1	-	-	-	-	-	-	125	180	-	126	182	-
Stage 2	-	-	-	-	-	-	346	180	-	361	175	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	474	-	-	443	-	-	15	10	354	15	9	375
Mov Cap-2 Maneuver	-	-	-	-	-	-	15	10	-	15	9	-
Stage 1	-	-	-	-	-	-	115	165	-	105	151	-
Stage 2	-	-	-	-	-	-	270	150	-	293	160	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	1.16	2.6	16.51	224.89
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	354	50	-	-	111	-	-	42
HCM Lane V/C Ratio	0.117	0.047	-	-	0.103	-	-	0.789
HCM Control Delay (s/veh)	16.5	13	1	-	14.1	2.3	-	224.9
HCM Lane LOS	C	B	A	-	B	A	-	F
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.3	-	-	3

Intersection	
Int Delay, s/veh	74.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1369	34	62	1305	3	67	0	47	3	0	3
Future Vol, veh/h	3	1369	34	62	1305	3	67	0	47	3	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	1472	37	67	1403	3	72	0	51	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1406	0	0	1509	0	0	2332	3037	754	2281	3053	703
Stage 1	-	-	-	-	-	-	1497	1497	-	1538	1538	-
Stage 2	-	-	-	-	-	-	835	1540	-	742	1515	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	481	-	-	439	-	-	~ 20	13	352	22	12	380
Stage 1	-	-	-	-	-	-	128	184	-	121	176	-
Stage 2	-	-	-	-	-	-	328	175	-	373	180	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	481	-	-	439	-	-	~ 16	11	352	16	10	380
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	11	-	16	10	-
Stage 1	-	-	-	-	-	-	128	183	-	103	149	-
Stage 2	-	-	-	-	-	-	276	149	-	318	179	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.03	0.66	$ 1881.9	156.25
HCM LOS			F	F

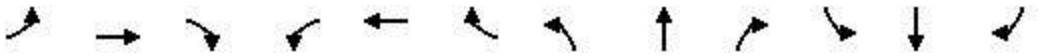
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	27	481	-	-	439	-	-	30
HCM Lane V/C Ratio	4.53	0.007	-	-	0.152	-	-	0.216
HCM Control Delay (s/veh)	$ 1881.9	12.5	-	-	14.7	-	-	156.2
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	15	0	-	-	0.5	-	-	0.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	447	772	315	233	754	223	206	392	280	499	526
v/c Ratio	0.74	0.58	0.39	1.00	0.65	0.33	0.69	0.71	0.77	0.76	0.91
Control Delay (s/veh)	76.0	29.4	5.1	117.4	42.4	5.7	45.9	55.4	49.1	60.9	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	76.0	29.4	5.1	117.4	42.4	5.7	45.9	55.4	49.1	60.9	38.6
Queue Length 50th (ft)	213	163	17	207	300	0	130	153	185	221	167
Queue Length 95th (ft)	269	216	60	#383	390	61	197	211	269	286	#388
Internal Link Dist (ft)		888			679			468		458	
Turn Bay Length (ft)	300		315	255		250	135		135		380
Base Capacity (vph)	725	1311	803	233	1156	666	310	551	379	652	578
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.59	0.39	1.00	0.65	0.33	0.66	0.71	0.74	0.77	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	416	718	293	217	701	207	192	246	118	260	464	489
Future Volume (veh/h)	416	718	293	217	701	207	192	246	118	260	464	489
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1921	1847	1921	1914	1841	1841	2011	1934	1934	1939	1864	1864
Adj Flow Rate, veh/h	447	772	0	233	754	0	206	265	0	280	499	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	4	4	4	3	3	3	2	2	2
Cap, veh/h	536	1383		230	1291		295	492		400	610	
Arrive On Green	0.15	0.39	0.00	0.13	0.37	0.00	0.11	0.13	0.00	0.15	0.17	0.00
Sat Flow, veh/h	3549	3509	1628	1823	3497	1560	1915	3771	0	1847	3542	1580
Grp Volume(v), veh/h	447	772	0	233	754	0	206	265	0	280	499	0
Grp Sat Flow(s),veh/h/ln	1774	1754	1628	1823	1749	1560	1915	1837	0	1847	1771	1580
Q Serve(g_s), s	16.5	23.1	0.0	17.0	23.4	0.0	12.3	9.1	0.0	17.4	18.3	0.0
Cycle Q Clear(g_c), s	16.5	23.1	0.0	17.0	23.4	0.0	12.3	9.1	0.0	17.4	18.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	536	1383		230	1291		295	492		400	610	
V/C Ratio(X)	0.83	0.56		1.01	0.58		0.70	0.54		0.70	0.82	
Avail Cap(c_a), veh/h	710	1383		230	1291		323	544		425	656	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.7	31.8	0.0	59.0	34.3	0.0	44.3	54.6	0.0	41.7	53.8	0.0
Incr Delay (d2), s/veh	7.5	1.6	0.0	63.3	1.9	0.0	6.7	2.0	0.0	5.3	8.9	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	9.9	0.0	11.8	10.1	0.0	6.3	4.3	0.0	8.4	8.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	63.2	33.4	0.0	122.3	36.2	0.0	51.0	56.5	0.0	47.0	62.7	0.0
LnGrp LOS	E	C		F	D		D	E		D	E	
Approach Vol, veh/h		1219			987			471			779	
Approach Delay, s/veh		44.3			56.5			54.1			57.1	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.4	55.3	27.2	25.1	24.0	58.7	22.0	30.3
Change Period (Y+Rc), s	7.0	5.5	7.5	7.0	7.0	5.5	7.5	7.0
Max Green Setting (Gmax), s	27.0	39.5	21.5	20.0	17.0	49.5	16.5	25.0
Max Q Clear Time (g_c+I1), s	18.5	25.4	19.4	11.1	19.0	25.1	14.3	20.3
Green Ext Time (p_c), s	1.9	10.3	0.3	3.1	0.0	16.4	0.2	2.9

Intersection Summary	
HCM 7th Control Delay, s/veh	52.0
HCM 7th LOS	D

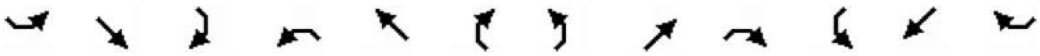
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	56	739	102	57	1270	33	208	254	37	123
v/c Ratio	0.50	0.39	0.10	0.50	0.66	0.03	0.68	0.65	0.22	0.70
Control Delay (s/veh)	58.6	24.2	4.5	78.1	20.1	0.0	51.1	48.1	38.0	56.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	58.6	24.2	4.5	78.1	20.1	0.0	51.1	48.1	38.0	56.3
Queue Length 50th (ft)	45	195	3	46	411	0	141	164	23	63
Queue Length 95th (ft)	89	338	26	m61	511	m0	207	256	49	126
Internal Link Dist (ft)		1626			1042			369		418
Turn Bay Length (ft)	200		175	90		110	230		230	
Base Capacity (vph)	146	1855	944	151	1907	940	318	393	191	229
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.40	0.11	0.38	0.67	0.04	0.65	0.65	0.19	0.54

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	50	665	92	51	1143	30	187	102	127	33	47	64
Future Volume (veh/h)	50	665	92	51	1143	30	187	102	127	33	47	64
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1773	1773	1844	1826	1826	1826	2011	2011	1934	1788	1788	1788
Adj Flow Rate, veh/h	56	739	102	57	1270	33	208	113	141	37	52	71
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	7	7	7	5	5	5	3	3	3	4	4	4
Cap, veh/h	71	1878	871	73	1934	863	296	143	178	152	63	86
Arrive On Green	0.01	0.18	0.18	0.04	0.56	0.56	0.11	0.18	0.18	0.03	0.09	0.09
Sat Flow, veh/h	1688	3368	1562	1739	3469	1547	1915	813	1015	1703	685	935
Grp Volume(v), veh/h	56	739	102	57	1270	33	208	0	254	37	0	123
Grp Sat Flow(s),veh/h/ln	1688	1684	1562	1739	1735	1547	1915	0	1828	1703	0	1619
Q Serve(g_s), s	4.1	24.1	6.8	4.1	31.9	1.2	11.9	0.0	16.6	2.4	0.0	9.3
Cycle Q Clear(g_c), s	4.1	24.1	6.8	4.1	31.9	1.2	11.9	0.0	16.6	2.4	0.0	9.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.56	1.00		0.58
Lane Grp Cap(c), veh/h	71	1878	871	73	1934	863	296	0	321	152	0	150
V/C Ratio(X)	0.79	0.39	0.12	0.78	0.66	0.04	0.70	0.00	0.79	0.24	0.00	0.82
Avail Cap(c_a), veh/h	149	1878	871	153	1934	863	335	0	329	219	0	188
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	61.1	32.4	25.3	59.3	19.3	12.5	43.2	0.0	49.4	49.5	0.0	55.7
Incr Delay (d2), s/veh	6.7	0.6	0.3	6.6	1.8	0.1	4.2	0.0	11.1	0.3	0.0	16.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	11.0	2.7	1.9	12.5	0.4	5.9	0.0	8.5	1.0	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	67.7	33.0	25.6	65.9	21.1	12.6	47.4	0.0	60.4	49.8	0.0	72.4
LnGrp LOS	E	C	C	E	C	B	D		E	D		E
Approach Vol, veh/h		897			1360			462			160	
Approach Delay, s/veh		34.3			22.7			54.6			67.1	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	75.2	20.5	17.1	12.3	75.2	10.1	27.4
Change Period (Y+Rc), s	7.0	5.5	6.5	5.5	7.0	5.5	6.5	5.5
Max Green Setting (Gmax), s	11.0	58.5	16.5	14.5	11.0	58.5	8.5	22.5
Max Q Clear Time (g_c+I1), s	6.1	26.1	13.9	11.3	6.1	33.9	4.4	18.6
Green Ext Time (p_c), s	0.0	19.0	0.1	0.2	0.0	21.8	0.0	0.8

Intersection Summary	
HCM 7th Control Delay, s/veh	33.9
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	753	62	51	1244	2	0	0	54	3	0	3
Future Vol, veh/h	10	753	62	51	1244	2	0	0	54	3	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	7	7	7	5	5	5	2	2	2	2	2	2
Mvmt Flow	11	837	69	57	1382	2	0	0	60	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1384	0	0	906	0	0	-	-	418	1937	2424	692
Stage 1	-	-	-	-	-	-	-	-	-	1497	1497	-
Stage 2	-	-	-	-	-	-	-	-	-	441	928	-
Critical Hdwy	4.24	-	-	4.2	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	466	-	-	728	-	-	0	0	583	39	32	386
Stage 1	-	-	-	-	-	-	0	0	-	128	184	-
Stage 2	-	-	-	-	-	-	0	0	-	565	345	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	466	-	-	728	-	-	-	-	583	32	28	386
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	32	28	-
Stage 1	-	-	-	-	-	-	-	-	-	118	170	-
Stage 2	-	-	-	-	-	-	-	-	-	491	334	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.52	0.41	11.88	74.45
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	583	47	-	-	728	-	-	58
HCM Lane V/C Ratio	0.103	0.024	-	-	0.078	-	-	0.114
HCM Control Delay (s/veh)	11.9	12.9	0.4	-	10.4	-	-	74.4
HCM Lane LOS	B	B	A	-	B	-	-	F
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.3	-	-	0.4

Intersection	
Int Delay, s/veh	14.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	792	15	52	1222	1	69	0	28	1	0	0
Future Vol, veh/h	0	792	15	52	1222	1	69	0	28	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	7	7	7	5	5	5	9	9	9	2	2	2
Mvmt Flow	0	890	17	58	1373	1	78	0	31	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1374	0	0	907	0	0	1702	2389	453	1935	2397	687
Stage 1	-	-	-	-	-	-	898	898	-	1490	1490	-
Stage 2	-	-	-	-	-	-	803	1491	-	445	907	-
Critical Hdwy	4.24	-	-	4.2	-	-	7.68	6.68	7.08	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.68	5.68	-	6.54	5.54	-
Follow-up Hdwy	2.27	-	-	2.25	-	-	3.59	4.09	3.39	3.52	4.02	3.32
Pot Cap-1 Maneuver	470	-	-	728	-	-	~ 55	30	535	40	33	389
Stage 1	-	-	-	-	-	-	287	340	-	130	186	-
Stage 2	-	-	-	-	-	-	328	174	-	562	353	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	470	-	-	728	-	-	~ 51	28	535	34	30	389
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 51	28	-	34	30	-
Stage 1	-	-	-	-	-	-	287	340	-	119	171	-
Stage 2	-	-	-	-	-	-	302	160	-	529	353	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0.42	$ 319.82	113.66
HCM LOS			F	F

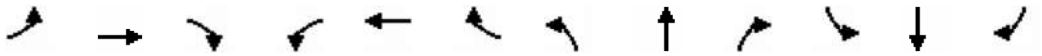
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	51	535	470	-	-	728	-	-	34
HCM Lane V/C Ratio	1.526	0.059	-	-	-	0.08	-	-	0.033
HCM Control Delay (s/veh)	$ 444.7	12.2	0	-	-	10.4	-	-	113.7
HCM Lane LOS	F	B	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	7.3	0.2	0	-	-	0.3	-	-	0.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	907	58	1374	109	1
v/c Ratio	0.49	0.22	0.72	0.24	0.00
Control Delay (s/veh)	7.8	7.3	9.4	14.1	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.8	7.3	9.4	14.1	15.0
Queue Length 50th (ft)	121	6	172	22	0
Queue Length 95th (ft)	55	m22	318	55	3
Internal Link Dist (ft)	202		890	306	288
Turn Bay Length (ft)		75			
Base Capacity (vph)	1840	261	1897	438	418
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.22	0.72	0.25	0.00

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	792	15	52	1222	1	69	0	28	1	0	0
Future Volume (veh/h)	0	792	15	52	1222	1	69	0	28	1	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1773	1773	1773	1826	1826	1826	1767	1767	1767	1870	1870	1870
Adj Flow Rate, veh/h	0	890	17	58	1373	1	78	0	31	1	0	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	7	7	7	5	5	5	9	9	9	2	2	2
Cap, veh/h	114	1775	34	328	1868	1	414	15	131	594	0	0
Arrive On Green	0.00	0.53	0.53	0.53	0.53	0.53	0.33	0.00	0.33	0.33	0.00	0.00
Sat Flow, veh/h	374	3381	65	600	3557	3	950	46	396	1444	0	0
Grp Volume(v), veh/h	0	443	464	58	669	705	109	0	0	1	0	0
Grp Sat Flow(s),veh/h/ln	374	1684	1761	600	1735	1825	1392	0	0	1444	0	0
Q Serve(g_s), s	0.0	10.7	10.7	4.3	18.8	18.8	2.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	10.7	10.7	15.0	18.8	18.8	3.4	0.0	0.0	0.0	0.0	0.0
Prop In Lane	1.00		0.04	1.00		0.00	0.72		0.28	1.00		0.00
Lane Grp Cap(c), veh/h	114	884	925	328	911	959	560	0	0	594	0	0
V/C Ratio(X)	0.00	0.50	0.50	0.18	0.73	0.73	0.19	0.00	0.00	0.00	0.00	0.00
Avail Cap(c_a), veh/h	123	922	964	341	950	1000	560	0	0	594	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.66	0.66	0.66	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.6	9.6	14.5	11.6	11.6	15.2	0.0	0.0	14.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.4	0.2	1.9	1.8	0.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.1	3.2	0.5	5.9	6.2	1.2	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	10.1	10.1	14.7	13.5	13.4	15.9	0.0	0.0	14.1	0.0	0.0
LnGrp LOS		B	B	B	B	B	B			B		
Approach Vol, veh/h		907			1432			109			1	
Approach Delay, s/veh		10.1			13.5			15.9			14.1	
Approach LOS		B			B			B			B	

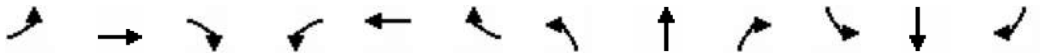
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.4		37.6		25.4		37.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		19.0		34.5		19.0		34.5				
Max Q Clear Time (g_c+I1), s		5.4		12.7		2.0		20.8				
Green Ext Time (p_c), s		0.3		9.8		0.0		12.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.3									
HCM 7th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	232	513	135	156	779	248	376	704	199	254	269
v/c Ratio	0.57	0.46	0.20	0.69	0.67	0.36	0.81	0.89	0.85	0.48	0.58
Control Delay (s/veh)	42.8	30.9	7.6	69.2	39.7	5.4	45.1	58.7	62.7	51.8	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.8	30.9	7.6	69.2	39.7	5.4	45.1	58.7	62.7	51.8	11.0
Queue Length 50th (ft)	101	152	22	121	284	0	234	277	110	100	0
Queue Length 95th (ft)	108	244	78	195	372	60	#358	#384	#243	145	81
Internal Link Dist (ft)		890			679			468		719	
Turn Bay Length (ft)	300		315	255		250	135		135		380
Base Capacity (vph)	580	1101	661	249	1152	680	470	788	234	526	462
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.47	0.20	0.63	0.68	0.36	0.80	0.89	0.85	0.48	0.58

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	467	123	142	709	226	342	467	174	181	231	245
Future Volume (veh/h)	211	467	123	142	709	226	342	467	174	181	231	245
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1844	1773	1844	1899	1826	1826	1949	1874	1874	1862	1790	1790
Adj Flow Rate, veh/h	232	513	0	156	779	0	376	513	0	199	254	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	7	7	7	5	5	5	7	7	7	7	7	7
Cap, veh/h	308	1283		185	1363		450	714		293	410	
Arrive On Green	0.09	0.38	0.00	0.10	0.39	0.00	0.18	0.20	0.00	0.10	0.12	0.00
Sat Flow, veh/h	3406	3368	1562	1809	3469	1547	1856	3654	0	1773	3402	1517
Grp Volume(v), veh/h	232	513	0	156	779	0	376	513	0	199	254	0
Grp Sat Flow(s),veh/h/ln	1703	1684	1562	1809	1735	1547	1856	1780	0	1773	1701	1517
Q Serve(g_s), s	8.3	13.9	0.0	10.6	22.0	0.0	21.7	16.8	0.0	12.3	8.9	0.0
Cycle Q Clear(g_c), s	8.3	13.9	0.0	10.6	22.0	0.0	21.7	16.8	0.0	12.3	8.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	308	1283		185	1363		450	714		293	410	
V/C Ratio(X)	0.75	0.40		0.84	0.57		0.84	0.72		0.68	0.62	
Avail Cap(c_a), veh/h	572	1283		246	1363		450	826		293	517	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.5	28.3	0.0	55.1	29.7	0.0	37.3	46.7	0.0	43.0	52.2	0.0
Incr Delay (d2), s/veh	4.6	0.8	0.0	20.0	1.7	0.0	13.3	3.7	0.0	6.9	3.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	5.6	0.0	5.8	9.2	0.0	11.2	7.6	0.0	5.9	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.1	29.1	0.0	75.1	31.4	0.0	50.6	50.4	0.0	49.9	55.5	0.0
LnGrp LOS	E	C		E	C		D	D		D	E	
Approach Vol, veh/h		745			935			889			453	
Approach Delay, s/veh		38.7			38.7			50.5			53.0	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	54.6	20.0	32.1	19.8	53.1	30.0	22.1
Change Period (Y+Rc), s	7.0	5.5	7.5	7.0	7.0	5.5	7.5	7.0
Max Green Setting (Gmax), s	21.0	35.5	12.5	29.0	17.0	39.5	22.5	19.0
Max Q Clear Time (g_c+I1), s	10.3	24.0	14.3	18.8	12.6	15.9	23.7	10.9
Green Ext Time (p_c), s	1.0	8.8	0.0	6.3	0.3	11.2	0.0	2.5

Intersection Summary	
HCM 7th Control Delay, s/veh	44.3
HCM 7th LOS	D

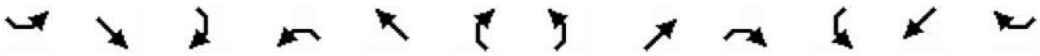
Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Group Flow (vph)	89	1271	216	177	1185	33	215	229	76	200
v/c Ratio	0.64	0.74	0.24	0.88	0.64	0.03	0.84	0.60	0.38	0.97
Control Delay (s/veh)	84.0	21.1	3.5	97.7	25.6	0.0	70.0	47.0	45.4	107.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	84.0	21.1	3.5	97.7	25.6	0.0	70.0	47.0	45.4	107.3
Queue Length 50th (ft)	82	195	0	154	388	0	158	146	52	156
Queue Length 95th (ft)	140	315	47	#284	478	0	#268	238	95	#317
Internal Link Dist (ft)		1626			1042			369		418
Turn Bay Length (ft)	200		175	90		110	230		230	
Base Capacity (vph)	168	1707	883	209	1849	914	262	379	205	206
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.74	0.24	0.85	0.64	0.04	0.82	0.60	0.37	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	85	1220	207	170	1138	32	206	81	139	73	102	90
Future Volume (veh/h)	85	1220	207	170	1138	32	206	81	139	73	102	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.04	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1921	1870	1870	1870	2027	2027	1949	1817	1817	1817
Adj Flow Rate, veh/h	89	1271	216	177	1185	33	215	84	145	76	106	94
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	1710	793	201	1911	853	268	112	194	195	95	85
Arrive On Green	0.12	0.97	0.97	0.11	0.54	0.54	0.11	0.17	0.17	0.05	0.11	0.11
Sat Flow, veh/h	1759	3509	1628	1781	3554	1585	1930	667	1152	1731	888	788
Grp Volume(v), veh/h	89	1271	216	177	1185	33	215	0	229	76	0	200
Grp Sat Flow(s),veh/h/ln	1759	1754	1628	1781	1777	1585	1930	0	1819	1731	0	1676
Q Serve(g_s), s	6.7	4.5	0.6	13.2	31.2	1.3	13.0	0.0	16.2	5.2	0.0	14.5
Cycle Q Clear(g_c), s	6.7	4.5	0.6	13.2	31.2	1.3	13.0	0.0	16.2	5.2	0.0	14.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.63	1.00		0.47
Lane Grp Cap(c), veh/h	109	1710	793	201	1911	853	268	0	306	195	0	180
V/C Ratio(X)	0.81	0.74	0.27	0.88	0.62	0.04	0.80	0.00	0.75	0.39	0.00	1.11
Avail Cap(c_a), veh/h	169	1710	793	211	1911	853	275	0	306	216	0	180
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	58.3	0.9	0.9	59.0	21.6	14.7	45.7	0.0	53.5	50.3	0.0	60.3
Incr Delay (d2), s/veh	7.1	2.5	0.7	29.9	1.5	0.1	14.2	0.0	8.8	0.5	0.0	100.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	1.1	0.3	7.6	12.8	0.5	7.3	0.0	8.1	2.3	0.0	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	65.4	3.4	1.6	88.9	23.2	14.8	59.8	0.0	62.2	50.8	0.0	160.3
LnGrp LOS	E	A	A	F	C	B	E		E	D		F
Approach Vol, veh/h		1576			1395			444			276	
Approach Delay, s/veh		6.7			31.3			61.1			130.2	
Approach LOS		A			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.2	71.3	21.5	20.0	15.4	78.1	13.3	28.2
Change Period (Y+Rc), s	7.0	5.5	6.5	5.5	7.0	5.5	6.5	5.5
Max Green Setting (Gmax), s	16.0	64.5	15.5	14.5	13.0	67.5	8.5	21.5
Max Q Clear Time (g_c+I1), s	15.2	6.5	15.0	16.5	8.7	33.2	7.2	18.2
Green Ext Time (p_c), s	0.0	47.5	0.0	0.0	0.0	28.2	0.0	0.6

Intersection Summary	
HCM 7th Control Delay, s/veh	31.8
HCM 7th LOS	C

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	1359	50	43	1327	11	0	0	39	10	0	21
Future Vol, veh/h	21	1359	50	43	1327	11	0	0	39	10	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	100	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	1446	53	46	1412	12	0	0	41	11	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1423	0	0	1499	0	0	2288	3005	723	2277	3053	712
Stage 1	-	-	-	-	-	-	1490	1490	-	1509	1509	-
Stage 2	-	-	-	-	-	-	797	1515	-	768	1544	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	474	-	-	443	-	-	21	13	369	22	12	375
Stage 1	-	-	-	-	-	-	130	186	-	126	182	-
Stage 2	-	-	-	-	-	-	346	180	-	361	175	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	474	-	-	443	-	-	16	11	369	16	10	375
Mov Cap-2 Maneuver	-	-	-	-	-	-	16	11	-	16	10	-
Stage 1	-	-	-	-	-	-	119	170	-	113	163	-
Stage 2	-	-	-	-	-	-	292	162	-	294	160	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	1.16	0.44	16	196.99
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	369	55	-	-	443	-	-	45
HCM Lane V/C Ratio	0.113	0.047	-	-	0.103	-	-	0.731
HCM Control Delay (s/veh)	16	13	1	-	14.1	-	-	197
HCM Lane LOS	C	B	A	-	B	-	-	F
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.3	-	-	2.8

Intersection	
Int Delay, s/veh	47

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1369	34	62	1305	3	67	0	47	3	0	3
Future Vol, veh/h	3	1369	34	62	1305	3	67	0	47	3	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	75	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	1472	37	67	1403	3	72	0	51	3	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1406	0	0	1509	0	0	2332	3037	754	2281	3053	703
Stage 1	-	-	-	-	-	-	1497	1497	-	1538	1538	-
Stage 2	-	-	-	-	-	-	835	1540	-	742	1515	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	481	-	-	439	-	-	~ 20	13	352	22	12	380
Stage 1	-	-	-	-	-	-	128	184	-	121	176	-
Stage 2	-	-	-	-	-	-	328	175	-	373	180	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	481	-	-	439	-	-	~ 16	11	352	16	10	380
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 16	11	-	16	10	-
Stage 1	-	-	-	-	-	-	128	183	-	103	149	-
Stage 2	-	-	-	-	-	-	276	149	-	318	179	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.03	0.66	$ 1178	156.25
HCM LOS			F	F

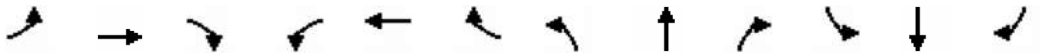
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	16	352	481	-	-	439	-	-	30
HCM Lane V/C Ratio	4.386	0.144	0.007	-	-	0.152	-	-	0.216
HCM Control Delay (s/veh)	$ 1992.5	17	12.5	-	-	14.7	-	-	156.2
HCM Lane LOS	F	C	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	9.7	0.5	0	-	-	0.5	-	-	0.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	3	1509	67	1406	123	6
v/c Ratio	0.02	0.80	0.56	0.74	0.25	0.01
Control Delay (s/veh)	7.6	16.1	34.3	14.1	14.2	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.6	16.1	34.3	14.1	14.2	1.1
Queue Length 50th (ft)	1	223	15	196	26	0
Queue Length 95th (ft)	4	310	#75	271	62	2
Internal Link Dist (ft)		206		888	225	239
Turn Bay Length (ft)	75		75			
Base Capacity (vph)	117	1873	118	1897	491	530
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.81	0.57	0.74	0.25	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1369	34	62	1305	3	67	0	47	3	0	3
Future Volume (veh/h)	3	1369	34	62	1305	3	67	0	47	3	0	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	1472	37	67	1403	3	72	0	51	3	0	3
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	1860	47	180	1935	4	353	23	202	305	27	246
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.33	0.00	0.33	0.33	0.00	0.33
Sat Flow, veh/h	378	3498	88	347	3638	8	807	70	621	673	84	757
Grp Volume(v), veh/h	3	737	772	67	685	721	123	0	0	6	0	0
Grp Sat Flow(s),veh/h/ln	378	1754	1831	347	1777	1869	1498	0	0	1513	0	0
Q Serve(g_s), s	0.4	21.4	21.5	12.0	18.5	18.5	2.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.9	21.4	21.5	33.5	18.5	18.5	3.6	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.00	0.59		0.41	0.50		0.50
Lane Grp Cap(c), veh/h	204	933	974	180	945	994	578	0	0	578	0	0
V/C Ratio(X)	0.01	0.79	0.79	0.37	0.73	0.73	0.21	0.00	0.00	0.01	0.00	0.00
Avail Cap(c_a), veh/h	204	933	974	180	945	994	578	0	0	578	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.58	0.58	0.58	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.4	11.9	11.9	25.6	11.2	11.2	15.5	0.0	0.0	14.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.7	4.5	0.7	1.6	1.6	0.8	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.4	7.7	0.9	5.8	6.1	1.3	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	18.5	16.6	16.5	26.3	12.9	12.8	16.3	0.0	0.0	14.4	0.0	0.0
LnGrp LOS	B	B	B	C	B	B	B			B		
Approach Vol, veh/h		1512			1473			123			6	
Approach Delay, s/veh		16.5			13.5			16.3			14.4	
Approach LOS		B			B			B			B	

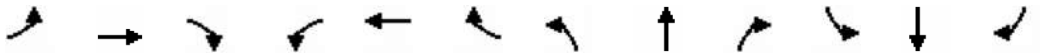
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		25.0		38.0		25.0		38.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		20.0		33.5		20.0		33.5				
Max Q Clear Time (g_c+I1), s		5.6		23.5		2.1		35.5				
Green Ext Time (p_c), s		0.3		8.5		0.0		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			15.1									
HCM 7th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	447	772	315	233	754	223	206	392	280	499	526
v/c Ratio	0.74	0.58	0.39	1.00	0.65	0.33	0.69	0.71	0.77	0.76	0.91
Control Delay (s/veh)	61.0	36.3	4.5	117.4	42.4	5.7	45.9	55.4	49.1	60.9	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	61.0	36.3	4.5	117.4	42.4	5.7	45.9	55.4	49.1	60.9	38.6
Queue Length 50th (ft)	193	287	0	207	300	0	130	153	185	221	167
Queue Length 95th (ft)	243	355	61	#383	390	61	197	211	269	286	#388
Internal Link Dist (ft)		888			679			468		458	
Turn Bay Length (ft)	300		315	255		250	135		135		380
Base Capacity (vph)	725	1311	803	233	1156	666	310	551	379	652	578
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.59	0.39	1.00	0.65	0.33	0.66	0.71	0.74	0.77	0.91

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	416	718	293	217	701	207	192	246	118	260	464	489
Future Volume (veh/h)	416	718	293	217	701	207	192	246	118	260	464	489
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.04	1.00	1.00	1.04	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1921	1847	1921	1914	1841	1841	2011	1934	1934	1939	1864	1864
Adj Flow Rate, veh/h	447	772	0	233	754	0	206	265	0	280	499	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	4	4	4	3	3	3	2	2	2
Cap, veh/h	536	1383		230	1291		295	492		400	610	
Arrive On Green	0.15	0.39	0.00	0.13	0.37	0.00	0.11	0.13	0.00	0.15	0.17	0.00
Sat Flow, veh/h	3549	3509	1628	1823	3497	1560	1915	3771	0	1847	3542	1580
Grp Volume(v), veh/h	447	772	0	233	754	0	206	265	0	280	499	0
Grp Sat Flow(s),veh/h/ln	1774	1754	1628	1823	1749	1560	1915	1837	0	1847	1771	1580
Q Serve(g_s), s	16.5	23.1	0.0	17.0	23.4	0.0	12.3	9.1	0.0	17.4	18.3	0.0
Cycle Q Clear(g_c), s	16.5	23.1	0.0	17.0	23.4	0.0	12.3	9.1	0.0	17.4	18.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	536	1383		230	1291		295	492		400	610	
V/C Ratio(X)	0.83	0.56		1.01	0.58		0.70	0.54		0.70	0.82	
Avail Cap(c_a), veh/h	710	1383		230	1291		323	544		425	656	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.49	0.49	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	55.7	31.8	0.0	59.0	34.3	0.0	44.3	54.6	0.0	41.7	53.8	0.0
Incr Delay (d2), s/veh	3.8	0.8	0.0	63.3	1.9	0.0	6.7	2.0	0.0	5.3	8.9	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	9.7	0.0	11.8	10.1	0.0	6.3	4.3	0.0	8.4	8.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.5	32.6	0.0	122.3	36.2	0.0	51.0	56.5	0.0	47.0	62.7	0.0
LnGrp LOS	E	C		F	D		D	E		D	E	
Approach Vol, veh/h		1219			987			471			779	
Approach Delay, s/veh		42.4			56.5			54.1			57.1	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.4	55.3	27.2	25.1	24.0	58.7	22.0	30.3
Change Period (Y+Rc), s	7.0	5.5	7.5	7.0	7.0	5.5	7.5	7.0
Max Green Setting (Gmax), s	27.0	39.5	21.5	20.0	17.0	49.5	16.5	25.0
Max Q Clear Time (g_c+I1), s	18.5	25.4	19.4	11.1	19.0	25.1	14.3	20.3
Green Ext Time (p_c), s	1.9	10.3	0.3	3.1	0.0	16.4	0.2	2.9

Intersection Summary	
HCM 7th Control Delay, s/veh	51.4
HCM 7th LOS	D

Notes

Unsignalized Delay for [NBR, EBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

4-lane roadway

INPUT

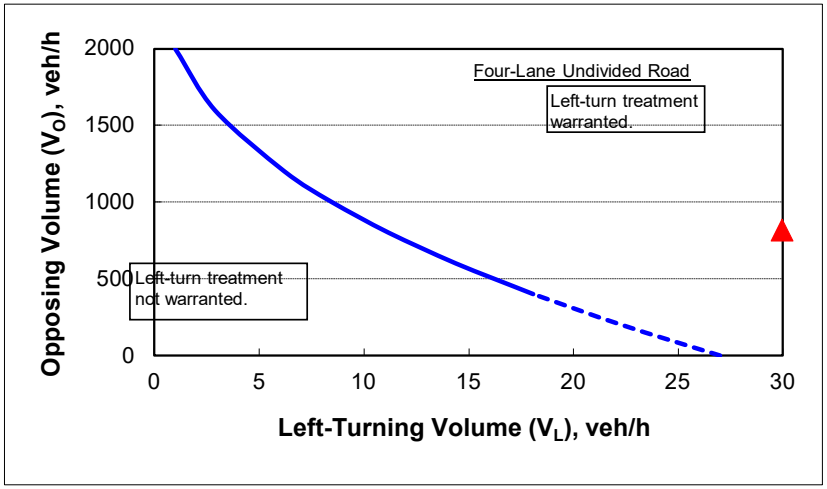
Variable	Value
Left-turning volume (V_L), veh/h:	30
Advancing volume (V_A), veh/h:	1297
Opposing volume (V_O), veh/h:	815

OUTPUT

Variable	Message
Opposing volume (Vo) check:	O.K.
Combined volume (V_A and V_O) check:	O.K.
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	4.0
Critical headway, s:	6.0



Note: When V_O < 400 veh/h (dashed line), a left-turn lane is not normally warranted unless the advancing volume (V_A) in the same direction as the left-turning traffic exceeds 400 veh/h (V_A > 400 veh/h).

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

4-lane roadway

INPUT

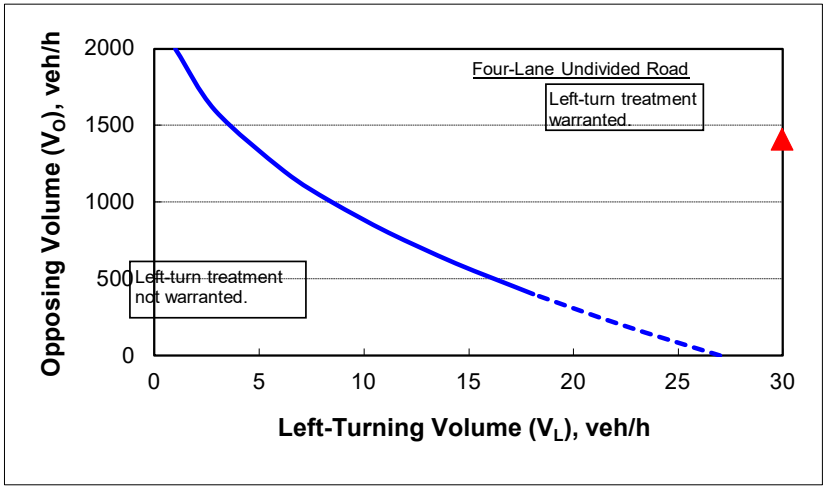
Variable	Value
Left-turning volume (V_L), veh/h:	30
Advancing volume (V_A), veh/h:	1381
Opposing volume (V_O), veh/h:	1409

OUTPUT

Variable	Message
Opposing volume (Vo) check:	O.K.
Combined volume (V_A and V_O) check:	O.K.
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	

CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	4.0
Critical headway, s:	6.0



Note: When V_O < 400 veh/h (dashed line), a left-turn lane is not normally warranted unless the advancing volume (V_A) in the same direction as the left-turning traffic exceeds 400 veh/h (V_A > 400 veh/h).

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	4-lane roadw ay

Variable	Value
Major-road speed, mph:	40
Major-road volume (one direction), veh/h:	825
Right-turn volume, veh/h:	62

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	67
Guidance for determining the need for a major-road right-turn bay for a 4-lane roadway:	
Do NOT add right-turn bay.	

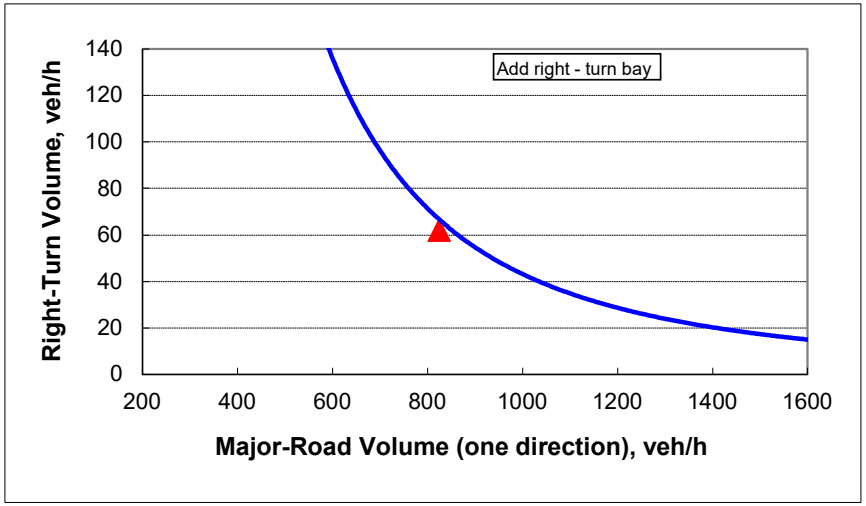


Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

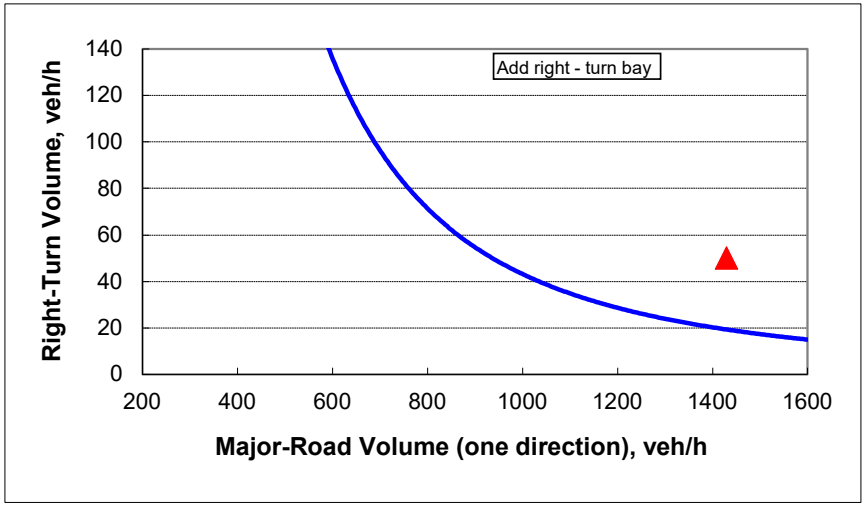
INPUT

Roadway geometry:	4-lane roadw ay

Variable	Value
Major-road speed, mph:	40
Major-road volume (one direction), veh/h:	1430
Right-turn volume, veh/h:	50

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	19
Guidance for determining the need for a major-road right-turn bay for a 4-lane roadway:	
Add right-turn bay.	



Traffic Signal Warrant Analysis Report

Build 2026

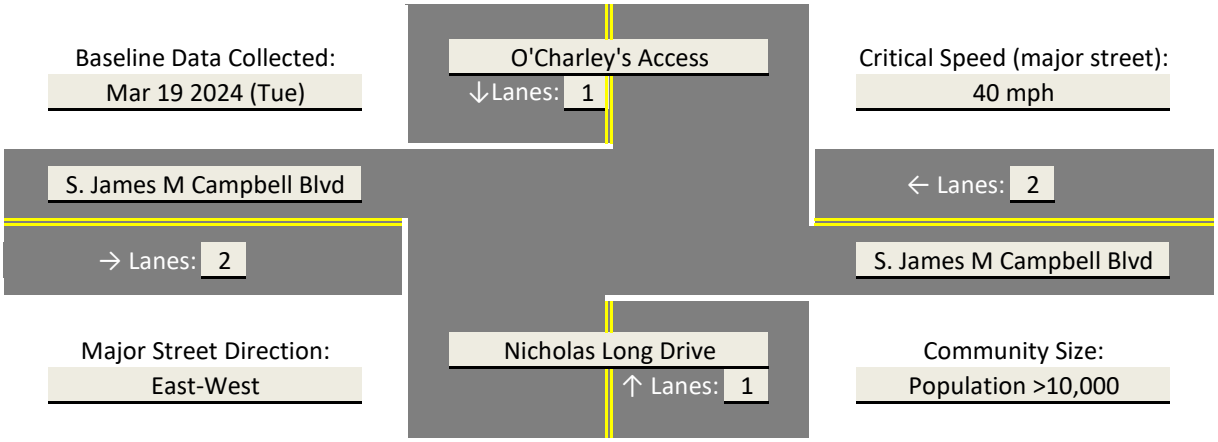
Project Information

Project Name:	115 South James M Campbell Boulevard				
Location:	Columbia, TN				
Project Number:	3853101	Analyst:	TMN	Prepared:	Aug 15 2024
Intersection:	S. James M Campbell Blvd at O'Charley's / Nicholas Long Drive				
Analysis Type:	Build 2026				
Analysis Duration:	6:00 AM to 6:00 PM				
Notes:	100% RT reduction - northbound approach				

Study Intersection

Baseline Data Collected: Mar 19 2024 (Tue)

Critical Speed (major street): 40 mph



Major Street Direction: East-West

Community Size: Population >10,000

Summary of Results

	Warrant Type	Satisfied?	Worksheet
Warrant #1:	Eight-Hour Vehicle Volume	**NO**	Sheet 1
Warrant #2:	Four-Hour Vehicle Volume	**NO**	Sheet 2
Warrant #3:	Peak Hour	**NO**	Sheet 3
Warrant #4:	Pedestrian Volume	*n/a*	~~Sheet 4~~
Warrant #5:	School Crossing	*n/a - no crossing facilities*	~~Sheet 5~~
Warrant #6:	Coordinated Signal System	*n/a - isolated intersection*	~~Sheet 5~~
Warrant #7:	Crash Experience	*n/a*	~~Sheet 6~~
Warrant #8:	Roadway Network	*n/a*	~~Sheet 7~~
Warrant #9:	Intersection Near a Grade Crossing	*n/a - no railroad crossing*	~~Sheet 8~~

Conclusions: 5/8 hours - Warrant 1 - Condition B; 1/4 hours Warrant 2

See following sheets for calculation details and justifications.

Workbook Notes: - Uses MUTCD 2009 methodology; warrant curves developed by R Blankenship (ALDOT)
- Document template last revised *5/27/2020* by *pdk* *(includes IA-19 safety changes*

Urban (70%) Volume Level Criteria

1. Is the critical speed of major street traffic >40 mph? NO
2. Is the intersection in the built-up area of an isolated community of <10,000 population? NO

If Criteria 1 or 2 applies, use 70% volume level for Warrants 1-4. ***Volume Level?*** [ ] 70% [X] 100%

Warrant #1 - Eight-Hour Vehicular Volume

Have other remedial measures failed to address the issue? ***Applicable?*** [X] Yes [ ] No

Description of remedial measures tried (required for 80% combination of A & B)

Warrant is met if Condition A or Condition B is satisfied at 100%; ***Met?*** [ ] Yes [X] No

warrant is also met if both Condition A and Condition B are satisfied at 80%, given that adequate trials of other remedial measures have been tried

Either condition satisfied at 100%? [ ] Yes [X] No

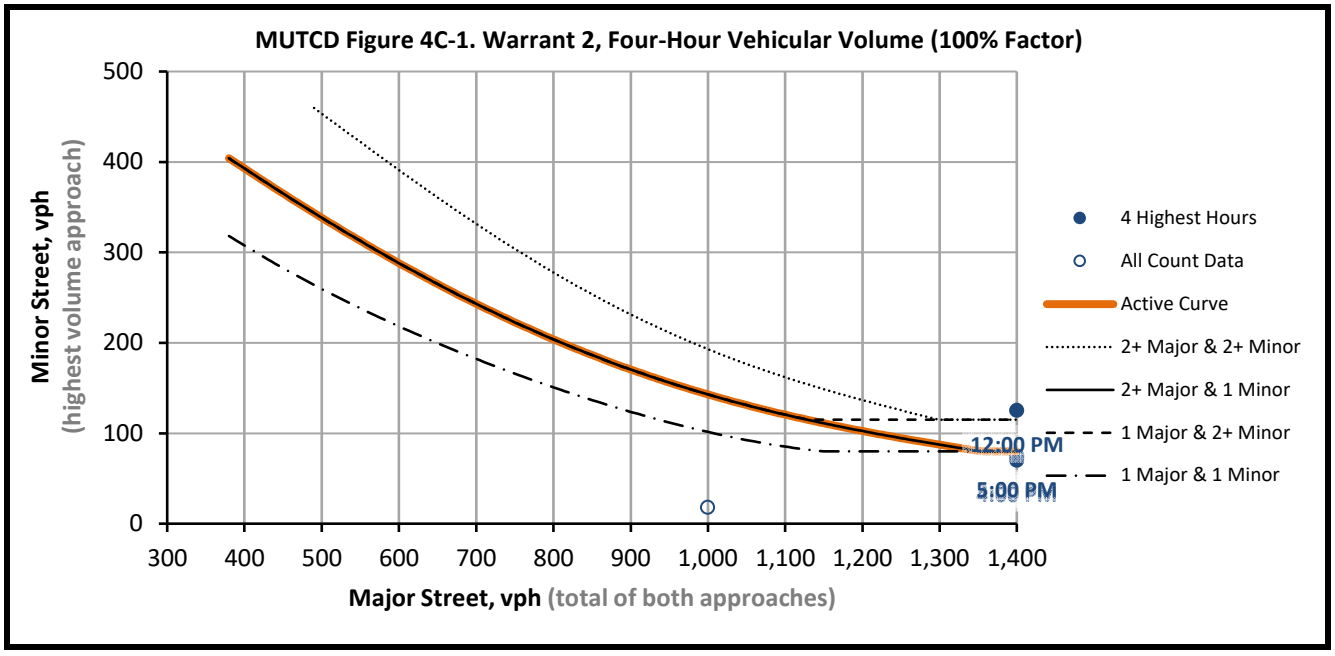
Both conditions satisfied at 80%? [ ] Yes [X] No

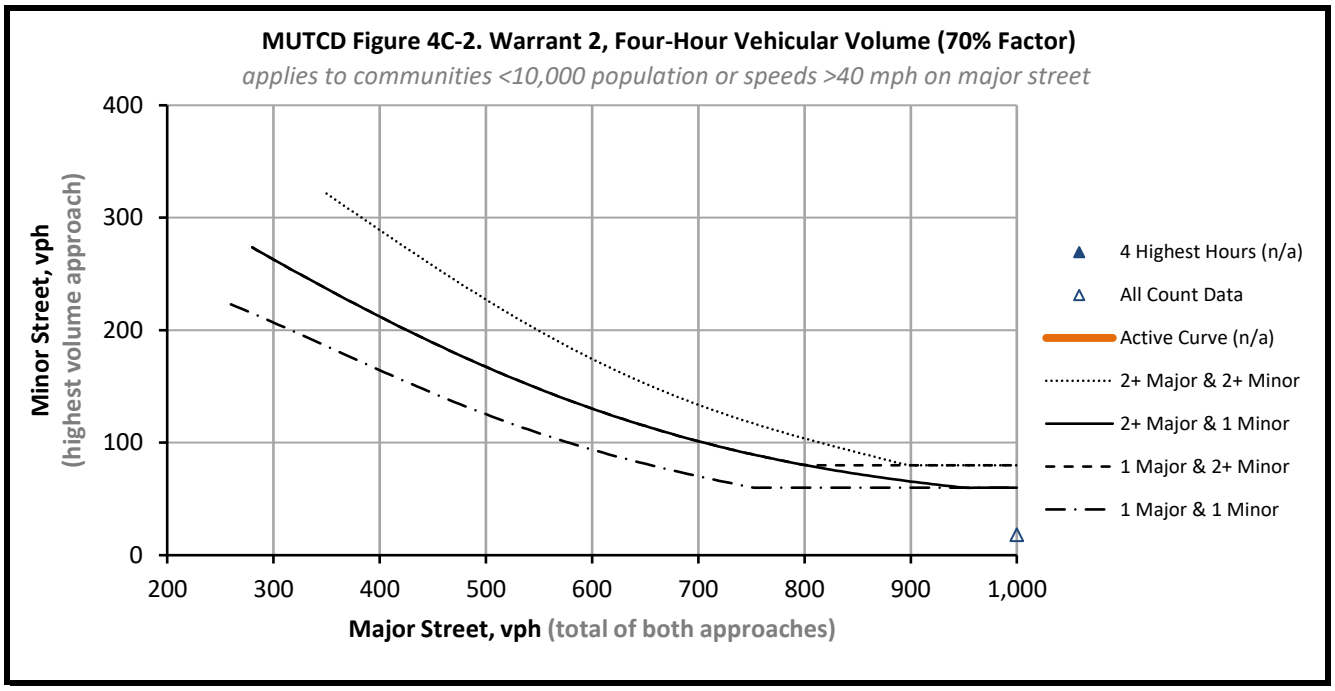
		Minimum Requirements				Eight Highest Hours (veh/hr)							
Approach Lanes		1		2 or more		10:00 AM	11:00 AM	12:00 PM	01:00 PM	02:00 PM	03:00 PM	04:00 PM	05:00 PM
Volume Level		100%	70%	100%	70%								
Condition A: Minimum Vehicular Volume													
100% Satisfied	Both Approaches on Major Street	500	350	***600***	420	***1,911***	***2,217***	***2,613***	***2,376***	***2,331***	***2,546***	***2,759***	***2,532***
	Highest Approach on Minor Street	***150***	105	200	140	52	80	125	101	83	73	70	75
80% Satisfied	Both Approaches on Major Street	400	280	***480***	336	***1,911***	***2,217***	***2,613***	***2,376***	***2,331***	***2,546***	***2,759***	***2,532***
	Highest Approach on Minor Street	***120***	84	160	112	52	80	***125***	101	83	73	70	75
Condition B: Interruption of Continuous Traffic													
100% Satisfied	Both Approaches on Major Street	750	525	***900***	630	***1,911***	***2,217***	***2,613***	***2,376***	***2,331***	***2,546***	***2,759***	***2,532***
	Highest Approach on Minor Street	***75***	53	100	70	52	***80***	***125***	***101***	***83***	73	70	***75***
80% Satisfied	Both Approaches on Major Street	600	420	***720***	504	***1,911***	***2,217***	***2,613***	***2,376***	***2,331***	***2,546***	***2,759***	***2,532***
	Highest Approach on Minor Street	***60***	42	80	56	52	***80***	***125***	***101***	***83***	***73***	***70***	***75***

Warrant #2 - Four-Hour Vehicular Volume

Warrant is met if all four points lie above the appropriate line *Met?* ☐ Yes ☒ No

	Four Highest Hours (veh/hr)			
	12:00 PM	03:00 PM	04:00 PM	05:00 PM
Both Approaches on Major Street	2,613	2,546	2,759	2,532
Highest Approach on Minor Street	125	73	70	75





ALL VEHICLES	Direction:	Northbound					Southbound					Eastbound					Westbound				
	Roadway:	Nicholas Long Drive					O'Charley's Access					S. James M Campbell Blvd					S. James M Campbell Blvd				
	Movement:	NBL	NBT	NBR	NBU	RTOR	SBL	SBT	SBR	SBU	RTOR	EBL	EBT	EBR	EBU	RTOR	WBL	WBT	WBR	WBU	RTOR
06:00 AM to 06:15 AM		18	0				0	0	0			0	372	6			12	610	0		
06:15 AM to 06:30 AM																					
06:30 AM to 06:45 AM																					
06:45 AM to 07:00 AM																					
07:00 AM to 07:15 AM		33	0				2	0	0			0	770	13			30	1133	2		
07:15 AM to 07:30 AM																					
07:30 AM to 07:45 AM																					
07:45 AM to 08:00 AM																					
08:00 AM to 08:15 AM		41	0				0	0	0			0	705	20			32	1059	0		
08:15 AM to 08:30 AM																					
08:30 AM to 08:45 AM																					
08:45 AM to 09:00 AM																					
09:00 AM to 09:15 AM		45	0				0	0	0			2	711	24			41	947	0		
09:15 AM to 09:30 AM																					
09:30 AM to 09:45 AM																					
09:45 AM to 10:00 AM																					
10:00 AM to 10:15 AM		52	0				0	0	3			4	827	28			42	1006	4		
10:15 AM to 10:30 AM																					
10:30 AM to 10:45 AM																					
10:45 AM to 11:00 AM																					
11:00 AM to 11:15 AM		80	0				4	0	3			15	963	35			63	1132	9		
11:15 AM to 11:30 AM																					
11:30 AM to 11:45 AM																					
11:45 AM to 12:00 PM																					
12:00 PM to 12:15 PM		125	0				10	0	9			10	1183	43			101	1269	7		
12:15 PM to 12:30 PM																					
12:30 PM to 12:45 PM																					
12:45 PM to 01:00 PM																					
01:00 PM to 01:15 PM		101	0				2	0	9			7	1101	48			61	1153	6		
01:15 PM to 01:30 PM																					
01:30 PM to 01:45 PM																					
01:45 PM to 02:00 PM																					
02:00 PM to 02:15 PM		81	2				2	0	8			4	1172	41			52	1060	2		
02:15 PM to 02:30 PM																					
02:30 PM to 02:45 PM																					
02:45 PM to 03:00 PM																					
03:00 PM to 03:15 PM		71	2				0	0	8			4	1282	38			55	1164	3		
03:15 PM to 03:30 PM																					
03:30 PM to 03:45 PM																					
03:45 PM to 04:00 PM																					
04:00 PM to 04:15 PM		70	0				4	0	3			4	1372	41			58	1277	7		
04:15 PM to 04:30 PM																					
04:30 PM to 04:45 PM																					
04:45 PM to 05:00 PM																					
05:00 PM to 05:15 PM		75	0				2	0	5			11	1194	26			52	1243	6		
05:15 PM to 05:30 PM																					
05:30 PM to 05:45 PM																					
05:45 PM to 06:00 PM																					

October 14, 2024

RE: 115 S James Campbell Blvd, Columbia, TN 38401 Map and Parcel 113E B 00400 000

To Whom It May Concern:

Please accept this letter as Atmos Energy's willingness to serve 115 S James Campbell Blvd, Map and Parcel 113E B 00400 000 in Columbia, TN.

We can serve this parcel from James M Campbell Blvd S (4" Steel) or Ashwood Dr (2" PE).

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

Atmos Energy Corporation Blake Davis
200 Noah Drive, Franklin, TN
P 629-248-2445 blake.davis@atmosenergy.com

OLDACRE MCDONALD, LLC

Jack Boyd

115 S James M Campbell Blvd

Columbia TN

Dear Jack Boyd,

This letter is in response to your request for information on the availability of service at 115 S James M Campbell Blvd Columbia TN or development by AT&T.

This letter acknowledges that the above referenced 115 S James M Campbell Blvd Columbia, TN is located in an area served by AT&T. Any service arrangements for the list development, location, or development will be subject to later discussions and agreements between the developer and AT&T. Please be advised that this letter is not a commitment by AT&T to provide service to the project, location or development.

Please contact me at the phone number included in this letter with any questions.

Thank you for contacting AT&T.

Brian Gomez

bg3893@exo.att.com

(661) 210-8526

CPWS
Columbia Power & Water Systems

201 Pickens Lane
P.O. Box 379
Columbia, TN 38402

P 931.388.4833
F 931.388.5287
www.cpws.com

October 14, 2024

Oldacre McDonald, LLC
3841 Green Hills Village, Ste. 400
Nashville, TN 37215

Re: 115 S. James Campbell Blvd., being Tax Map and Parcel 113E B 00400 000

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

Kathy Walker

Ryan Massey
Vice President of Power Engineering

kw
Senior Power Engineering Office Coordinator

CITY OF COLUMBIA
TENNESSEE

WASTEWATER DEPARTMENT

14 March 2024

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

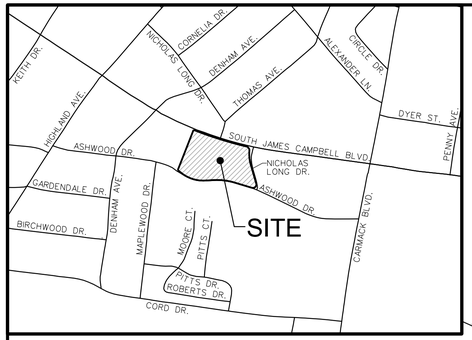
RE: 115 S James Campbell Blvd, Columbia, TN 38401

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.

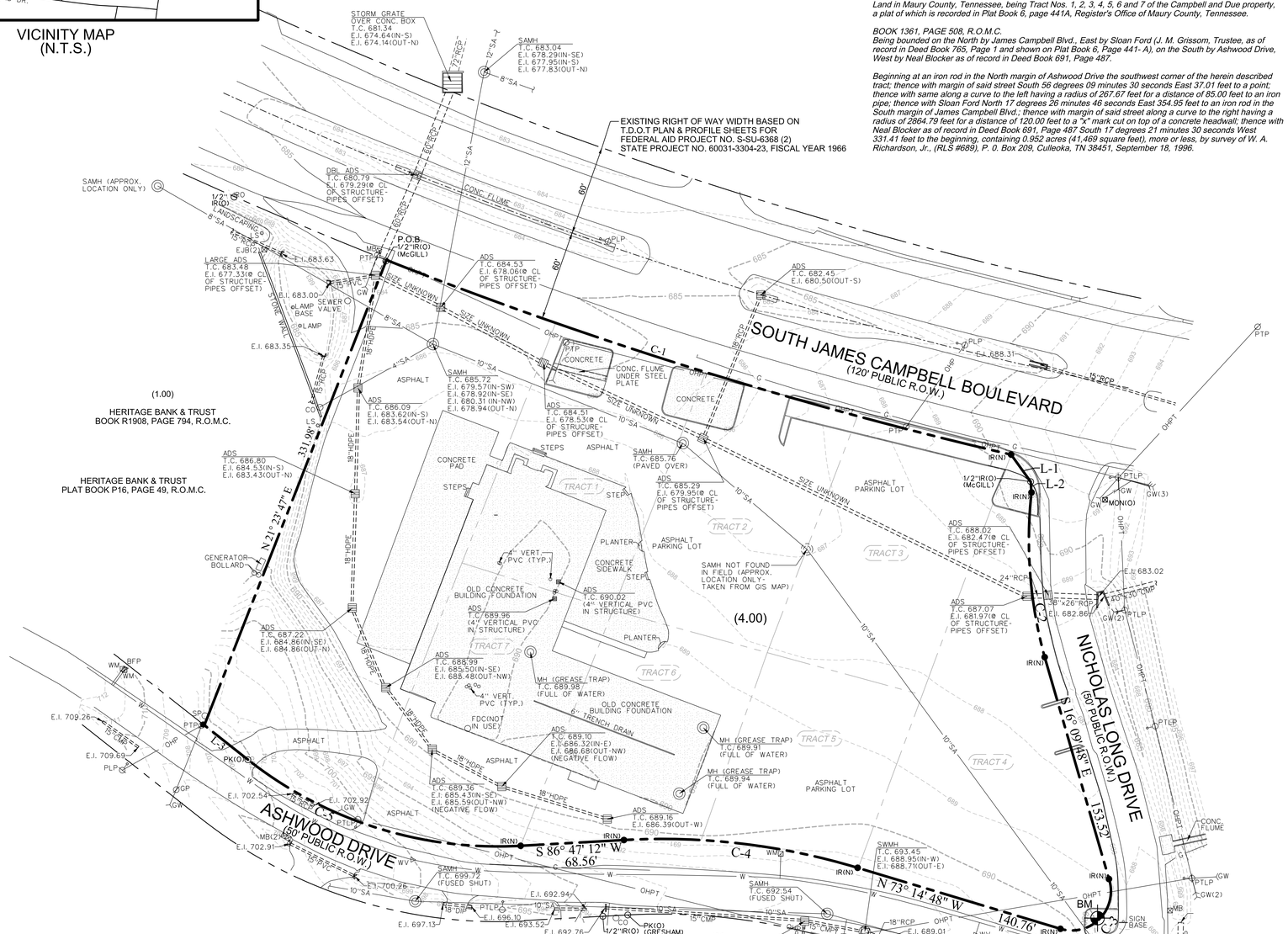
Donnie Boshers, Director
City of Columbia, TN
Wastewater Department



VICINITY MAP
(N.T.S.)

MAPPING SYMBOLS AND CODES		MAPPING SYMBOLS AND CODES	
AIR CONDITIONER (AC)	FIBER OPTIC BOX (FOB)	GAS METER (GM)	SIGN (SN)
AREA DRAIN (ADS/ADR)	MANHOLE (MH)	GUY POLE (GP)	STEAM MANHOLE (STMH)
BACKFLOW PREVENTER (BFP)	CONCRETE MONUMENT OLD (MONO))	GAS VALVE (GV)	STORMWATER MANHOLE (SWMH)
SINGLE CATCH BASIN (CB)	CONCRETE MONUMENT NEW (MONN))	GUY WIRE (GW)	TELEPHONE MANHOLE (TMH)
DOUBLE CATCH BASIN (DCB)	POST INDICATOR VALVE (PIV)	IRON ROD NEW (IRN)	TELEPHONE JUNCTION BOX (TJB)
TRIPLE CATCH BASIN (TCB)	P.K. NAIL OLD (PKO)	IRON ROD OLD (IRO)	TELEPHONE LIGHT POLE (TLP)
CLEANOUT	P.K. NAIL NEW (PKN)	IRON PIPE OLD (IPO)	TELEPHONE POLE (TP)
ELECTRIC JUNCTION BOX (EJB)	POWER LIGHT POLE (PLP)	IRON SPIKE OLD (ISO)	TREE EVERGREEN
ELECTRIC METER (EM)	POWER MANHOLE (PMH)	LIGHT STANDARD (LS/LP)	TRAFFIC SIGNAL BOX (TSB)
ELECTRIC TRANSFORMER (ETF)	POWER POLE (PP)	MAIL BOX (MB)	TRAFFIC SIGNAL POLE (TSP)
FIRE HYDRANT (FH)	POWER TELEPHONE LIGHT POLE (PTLP)	POST	WATER METER (WM)
FIRE DEPARTMENT CONNECTION (FDC)	POWER TELEPHONE POLE (PTP)	SPRINKLER VALVE (SV)	WATER VALVE (WV)
FLAG POLE (FP)	RIGHT-OF-WAY MONUMENT (RWM)	SANITARY SEWER MANHOLE (SAMH)	

LINE STYLES	LINE STYLES
CENTERLINE	OVERHEAD POWER AND PROPERTY LINE — OHPT —
CONCRETE AREA	SANITARY SEWER LINE — SA —
EDGE OF WOODS LINE	STORM LINE (RCP,CMP,PVC, CPP, HDPE)
EASEMENT LINE	UNDERGROUND POWER LINE — UGP —
FENCE LINE	UNDERGROUND TELEPHONE — UGT —
GAS LINE — G —	WATER LINE — W —
OVERHEAD POWER LINE — OHP —	GUARDRAIL
OVERHEAD TELEPHONE LINE — OHT —	EDGE OF WATER
	CENTERLINE — ℄ —



RECORD DESCRIPTION

RECORD BOOK R1399, PAGE 878, R.O.M.C.
Land in Maury County, Tennessee, being Tract Nos. 1, 2, 3, 4, 5, 6 and 7 of the Campbell and Due property, a plat of which is recorded in Plat Book 6, page 441A, Register's Office of Maury County, Tennessee.

BOOK 1361, PAGE 508, R.O.M.C.
Being bounded on the North by James Campbell Blvd., East by Sloan Ford (J. M. Grissom, Trustee, as of record in Deed Book 765, Page 1 and shown on Plat Book 6, Page 441- A), on the South by Ashwood Drive, West by Neal Blocker as of record in Deed Book 691, Page 487.

Beginning at an iron rod in the North margin of Ashwood Drive the southwest corner of the herein described tract; thence with margin of said street South 56 degrees 09 minutes 30 seconds East 37.01 feet to a point; thence with same along a curve to the left having a radius of 267.67 feet for a distance of 85.00 feet to an iron pipe; thence with Sloan Ford North 17 degrees 26 minutes 46 seconds East 354.95 feet to an iron rod in the South margin of James Campbell Blvd.; thence with margin of said street along a curve to the right having a radius of 2864.79 feet for a distance of 120.00 feet to a "x" mark cut on top of a concrete headwall; thence with Neal Blocker as of record in Deed Book 691, Page 487 South 17 degrees 21 minutes 30 seconds West 331.41 feet to the beginning, containing 0.952 acres (41,469 square feet), more or less, by survey of W. A. Richardson, Jr., (RLS #689), P. O. Box 209, Culleoka, TN 38451, September 18, 1996.

SURVEYOR'S DESCRIPTION

Beginning in the southerly right of way line of James Campbell Boulevard (S.R.50, 120 foot public right of way, 60 foot from centerline) at the northeast corner of Heritage Bank & Trust as of record in Plat Book P16, Page 49, R.O.M.C., said point of beginning being located N 14° 13' 57" E, 0.75 feet from a ½"capped rebar "McGill" found;

THENCE, with the southerly right of way line of James Campbell Boulevard along a curve to the left having a central angle of 08° 31' 30", a tangent of 218.00 feet, and a chord of S 02° 42' 04" E, 434.80 feet for an arc length of 435.20 feet to the westerly right of way Of Nicholas Long Drive;

THENCE, with said westerly right of way line, S 35°53'44" E, 22.19 feet to a capped rebar found "McGill);

THENCE, continuing with said right of way line, S 04° 30'57" E, 7.20 feet;

THENCE, continuing with said right of way line along a curve to the left, having a central angle of 21° 39' 56 sec., a radius of 292.13 feet, a tangent of 55.90 feet, and a chord of S 04° 34' 07" E, 109.81 feet for an arc length of 110.46 feet;

THENCE, continuing with said right of way line, S 16° 09' 48" E, 153.52 feet;

THENCE, with a curve to the right, having a central angle of 124° 57' 00 sec., a radius of 26.06 feet, a tangent of 50.01 feet, and a chord of S 44° 16' 42" W, 46.22 feet for an arc length of 56.83 feet to the northerly right of way line Ashwood Drive (50 foot public right of way)

THENCE, with the northerly right of way line of Ashwood N 73° 14' 48" W, 140.76 feet;

THENCE, with a curve to the left, having a central angle of 19° 58' 00 sec., a radius of 451.09 feet, a tangent of 79.40 feet, and a chord of N 83° 13' 48"W, 156.40 feet for an arc length of 157.20 feet;

THENCE, continuing with said northerly right of way line, S 86° 47' 12" W, 68.56 feet;

THENCE, with a curve to the right, having a central angle of 41° 26' 55", a tangent of 101.70 feet, and a chord of N 72° 29' 20" W, 190.24 feet for an arc length of 194.45 feet to an a PK-Nail found;

THENCE, N 51° 43' 18" W, 37.01 feet to the southeast corner of Heritage Bank & Trust as of record in Plat Book P16, Page 49, R.O.M.C

THENCE, with the easterly line of said Heritage Bank & Trust, N 21° 23' 47" E, 331.98 feet to the Point of Beginning.

Containing 169,076 square feet or 3.88 acres, more or less.

DEED REFERENCE

BEING THE PROPERTY CONVEYED TO THE J & R GROUP LLC BY DEED OF RECORD IN BOOK R1399 , PAGE 878, R.O.M.C. AS AFFECTED BY AFFIDAVIT RECORDED NOVEMBER 16, 2023 IN RECORD BOOK R2958, PAGE 1397, R.O.M.C. AND BEING THE PROPERTY CONVEYED TO J & R GROUP LLC IN BOOK 1361, PAGE 508, R.O.M.C.

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

TO: COLUMBIA JAMES CAMPBELL BOULEVARD, LLC, A DELAWARE LIMITED LIABILITY COMPANY, CCRE CT20, LLC, A DELAWARE LIMITED LIABILITY COMPANY, PINNACLE BANK, A STATE-CHARTERED TENNESSEE BANK AND FIDELITY NATIONAL TITLE INSURANCE 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, 5, 6(A), 6(B), 8, 10, 11(A), 12, 13, 16, 17 AND 18 OF TABLE A THEREOF.
THE FIELDWORK WAS COMPLETED ON FEBRUARY 14, 2024.

BARGE DESIGN SOLUTIONS, INC.

DATE OF PLAT OR MAP: OCTOBER 18, 2024

TN.LIC.NO. 1649

NAME: Mark E. Sawyer

PRINTED NAME: MARK E. SAWYER

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. *PROPERTY IS ZONED CD-4C. ZONING INFORMATION SHOWN HEREON WAS TAKEN FROM CITY OF COLUMBIA PLANNING DEPARTMENT-ONLINE MAPPING: PARCEL REPORT, NO ZONING LETTER, OR ZONING REPORT WAS PROVIDED TO THIS SURVEYOR.*

4. *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".*

5. *ABOVE GRADE AND UNDERGROUND UTILITIES SHOWN WERE TAKEN FROM FIELD LOCATED VISIBLE APPURTENANCES, ATLAS MAPS AS MAY BE AVAILABLE FROM MUNICIPALITIES OR UTILITY COMPANIES, AND OTHER DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE 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 INFORMATION CONSULTED. THE SURVEYOR HAS 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.*

6. *TITLE COMMITMENT ORDER NO. TN252311055V, DATED NOVEMBER 10, 2023 AT 8:00 AM BY FIDELITY NATIONAL TITLE INSURANCE COMPANY WAS FURNISHED TO THIS SURVEYOR.*

7. *CONTOUR INTERVAL ONE-FOOT, CONTOURS WERE INTERPOLATED FROM RANDOM SHOTS TAKEN ON A 50-FOOT INTERVAL.*

8. *THIS PARCEL CONTAINS NO MARKED PARKING SPACES, PARKING STRIPS ON THE PROPERTY WERE TOO FADED OR INTERMITTENT TO INCUDE IN A PARKING COUNT ON THE PROPERTY.*

SCHEDULE B - SECTION II EXCEPTIONS TO TITLE

10. All matters shown on plat of survey recorded in Plat Book 6, Page 441A, Register's Office of Maury County, Tennessee. (APPLIES AS SHOWN)

11. For informational purposes only:

a. Notice of Completion recorded in Book NC12 Page 942, in the Register's Office of Maury County, Tennessee. (NOT A SURVEY MATTER

b. Articles of Organization for J & R Group, LLC recorded in Book P Page 531, aforesaid records. (NOT A SURVEY MATTER)

CURVE TABLE

CURVE	DELTA	RADIUS	TANGENT	ARC	CHORD BRG.	CHORD
C-1	08° 31' 30"	2924.93'	218.00'	435.20'	S 72° 42' 04" E	434.80'
C-2	21° 39' 56"	292.13'	55.90'	110.46'	S 04° 34' 07" E	109.81'
C-3	124° 57' 00"	26.06'	50.01'	56.83'	S 44° 16' 42" W	46.22'
C-4	19° 58' 00"	451.09'	79.40'	157.20'	N 83° 13' 48" W	156.40'
C-5	41° 26' 55"	268.80'	101.70'	194.45'	N 72° 29' 20" W	190.24'
C-6	18° 20' 46"	268.80'	43.41'	86.07'	N 60° 53' 41" W	85.70'

LINE TABLE

LINE	BEARING	DISTANCE
L-1	S 35° 53' 44" E	22.19'
L-2	S 04° 30' 57" E	7.20'
L-3	N 51° 43' 18" W	37.01'

PREPARED FOR:
JULIA LANNON
DEVELOPMENT SERVICES MANAGER
OLDACRE McDONALD, LLC
3841 GREEN HILLS VILLAGE DRIVE
SUITE 400
NASHVILLE, TN 37215

AREA= 169,076 SQ. FT. OR 3.88 ACRES +/-

SCALE: 1" = 40'

BARGE DESIGN SOLUTIONS
615 Third Avenue South, Suite 700, Nashville, Tennessee 37210
PHONE (615)254-1500 FAX (615) 255-8572

MARK E. SAWYER — LICENSED PROFESSIONAL LAND SURVEYOR — TENNESSEE
Digitally signed by Mark E. Sawyer
Date: 2024.10.18 13:22:25-05'00'

COLUMBIA JAMES CAMPBELL BOULEVARD, LLC

ALTA/NSPS LAND TITLE SURVEY
115 SOUTH JAMES CAMPBELL BOULEVARD
9TH CIVIL DISTRICT
COLUMBIA, MAURY COUNTY, TENNESSEE

DR.	CHK.	DATE	DESCRIPTION
JMJ	MES	10-21-24	ORIGINAL ISSUE
JMJ	MES	03-22-24	GENERAL REVISIONS TO SURVEY
MES	MES	06-17-24	ADDED ELAT NW MANHOLE
MES	MES	10-17-24	REVISED TITLE COMMITMENT
MES	MES	10-18-24	REVISED NAME IN CERTIFICATE

FILE NO. 3853100

TN STATE PLANE COORDINATE SYSTEM 1983

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10/18/2024
1:20:05 PM
ME:Sawyer
LandRes.pen Workspace: LandRes

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This Instrument prepared by:
Tessa N. Lawson, Attorney
148 Shipley Street
Cookeville, TN 38501

Map and Parcel Number
Map: 113E
Group: B
Parcel: 004.00

PROPERTY OWNERS:
COLUMBIA JAMES CAMPBELL BOULEVARD, LLC
Property Address:
115 South James Campbell Boulevard
Columbia, Tennessee 38401

SEND TAX BILLS:

WARRANTY DEED

FOR AND IN CONSIDERATION of the sum of Ten ($10.00) Dollars cash in hand paid and other good and valuable consideration, the receipt and sufficiency of all of which is hereby acknowledged, **J & R Group, LLC, a Tennessee limited liability company,** hereafter referred to as "Grantor", has this day bargained and sold, all of its rights, title, and interest and does hereby transfer and convey unto, **COLUMBIA JAMES CAMPBELL BOULEVARD, LLC, a Delaware limited liability Company,** its successors and assigns, hereafter referred to as "Grantee" whether one or more, certain tracts of real estate located in Maury County, Tennessee, and more particularly described as follows:

See attached Exhibit A for property description.
Title Exam for property conducted by Fidelity National Title Insurance Company,
See attached Exhibit B for Permitted Exceptions

SOURCE OF DESCRIPTION: Survey performed by Barge Design Solutions, Mark E. Sawyer, TN No. 1649, dated March 22, 2024.

THE PREVIOUS AND LAST CONVEYANCE being a Warranty Deed from J.M. Grissim, Trustee to J & R Group, LLC, a Tennessee limited liability company, of record in Book 1399, Page 878, Register's Office of Maury County, Tennessee., as affected by Affidavit recorded November 16, 2023 in Record book R2958, Page 1397, aforesaid records; and J & R Group, LLC, a Tennessee limited liability company, by virtue of Quitclaim deed from James R. Sloan, Riley D. Sloan, et al dated January 16, 1998 and recorded in record Book 1361, page 508, in the register's Office for Maury County, Tennessee.

TO HAVE AND TO HOLD said real estate with the appurtenances, hereditaments, estate, title and interest thereto belonging to said Grantees its successors and assigns, forever. Grantor covenants that it is lawfully seized and possessed of said land in fee simple, has good right to covey it, and that same is unencumbered, except as set forth on Exhibit B attached hereto.

The Grantor further covenants and binds itself and its successors and representatives to warrant and forever defend the title to said land to said Grantee, its successors and assigns, against the lawful claims of all persons.

IN WITNESS WHEREOF, the Grantor has executed this instrument on this 8 day of October, 2024.

J & R Group, LLC, a Tennessee limited liability company

Riley Sloan

Riley Sloan
Its: Manger/President

STATE OF TENNESSEE)
COUNTY OF MAURY)

Personally appeared before me, the undersigned, a Notary Public in and for the State and County Before me, the undersigned authority, a Notary Public of the State and county mentioned, personally appeared Riley Sloan, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who, upon oath, acknowledged himself to be manager/president (or other officer authorized to execute the instrument) of J & R Group, LLC, a Tennessee limited liability company the within named bargainor, a limited liability company, and that such manager/president, executed the foregoing instrument for the purpose therein contained, by personally signing the name of the a limited liability company as manager/president(or other authorized officer).

Witness my hand, at office, this 8 day of October, 2024.

My Commission expires: 09/22/2026

Kassie Sisk
Notary Public

KASSIE SISK
TENNESSEE NOTARY PUBLIC
COUNTY OF MAURY

STATE OF Tennessee)

COUNTY OF Davidson)

The actual consideration for this transfer is $4,250,000.00.

Affiant

Subscribed and sworn to before me this 17th day of October, 2024.

Notary Public

My Commission Expires: 8/6/2028

HANNAH WEAVER
STATE OF TENNESSEE NOTARY PUBLIC
WILLIAMSON COUNTY
My Commission Expires 08-06-2028

Exhibit A
Property Description

Land in Maury County, Tennessee, being Lots Nos. 1, 2, 3, 4, 5, 6 and 7 of the Campbell and Due property, a plat of which is recorded in Plat Book 6, Page 441A, Register's Office of Maury County, Tennessee.

Being a portion of that certain property conveyed to J & R Group, LLC, a Tennessee limited liability company, by virture of Warranty Deed from J. M. Grissim, Trustee, dated October 15, 1998 and recorded in Record Book R1399 Page 878, in the Register's Office for Maury County, Tennessee, as affected by Affidavit recorded November 16, 2023 in Record Book R2958 Page 1397, aforesaid records.

AND

Real property situated in the Ninth (9th) Civil District of Maury County, Tennessee, and more particularly described as follows:

Being bounded on the North by James Campbell Blvd., East by Sloan Ford (J. M. Grissom, Trustee, as of record in Deed Book 765, Page 1 and shown on Plat Book 6, Page 441-A), on the South by Ashwood Drive, West by Neal Blocker as of record in Deed Book 691, Page 487.

Beginning at an iron rod in the North margin of Ashwood Drive the Southwest corner of the herein described tract; thence with margin of said street South 56 degrees 09 minutes 30 seconds East 37.01 feet to a point; thence with same along a curve to the left having a radius of 267.67 feet for a distance of 85.00 feet to an iron pipe; thence with Sloan Ford North 17 degrees 26 minutes 46 seconds East 354.95 feet to an iron rod in the South margin of James Campbell Blvd.; thence with margin of said street along a curve to the right having a radius of 2864.79 feet for a distance of 120.00 feet to a "x" mark cut on top of a concrete headwall; thence with Neal Blocker as of record in Deed Book 691, Page 487 South 17 degrees 21 minutes 30 seconds West 331.41 feet to the beginning, containing 0.952 acres (41,469 square feet), more or less, by survey of W. A. Richardson, Jr., (RLS #689), P. O. Box 209, Culleoka, TN 38451, September 18, 1996.

Being the same property conveyed to J & R Group LLC, a Tennessee limited liability company, by virtue of Quitclaim Deed from James R. Sloan, Riley D. Sloan, et al. dated January 16, 1998 and recorded in Record Book 1361 Page 508, in the Register's Office for Maury County, Tennessee.

Exhibit B
Permitted Exceptions

1. Taxes for the year 2024, a lien not yet due and payable.

2. Subject to all matters shown on the Plat of record in Plat Book 6, Page 441A, Register's Office of Maury County, Tennessee.

CITY OF COLUMBIA TENNESSEE

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

Preliminary Plat, Site Development Plan, and PUD Checklist

Development: Columbia Commons

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
  Building setbacks shown on each lot

Structures

- ☑ Location and approximate dimensions of all existing and proposed structures.
- N/A ☐ 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
- N/A ☐ Location, type, and size of proposed signs
- N/A ☐ Approximate height, bulk, and the utilization of structures including activities and the number of living units.

CITY OF COLUMBIA
TENNESSEE

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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
- N/A ☐ 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.
- N/A ☐ Identification of all critical lots

Streets, Parking, and Pedestrian Elements

- N/A ☐ 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
- N/A ☐ Existing and proposed on-street and off-street parking and loading areas
- N/A ☐ Summary of all provided and required parking

Landscaping, Open Space, and Amenities

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

Detailed landscape plans to be provided on final development plans for each lot

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.

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TENNESSEE

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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:

Jack Boyd	Jack Boyd Digitally signed by Jack Boyd Date: 2024.10.07 16:37:45-05'00'	10/17/2024
Print Name	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 (onlama.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	Preliminary Subdivision 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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	Plats/PUDs: ☒ 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.

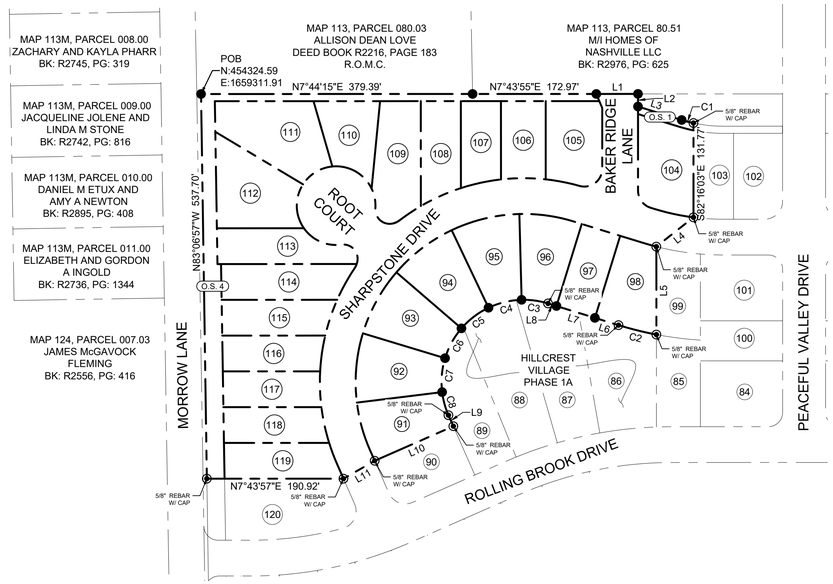
Julia Lannon	Julia Lannon	10/15/2024
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Oliver Oldacre		10/15/2024
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

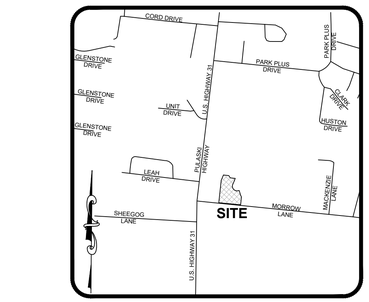
LEGEND

IRON PIN FOUND		FIRE HYDRANT		UTILITY POLE		PUBLIC UTIL. & DRAIN ESMT.	P.U.D.E.	BOUNDARY	
IRON PIN SET		SANITARY SEWER MH	SS	GUY ANCHOR		ADDRESSES	1234	CENTERLINE	
CONC. MON. FOUND		SANITARY SEWER CO	CO	COMMUNICATION BOX	C	HANDICAP SPACE		BUFFER	
CONC. MON. SET		AREA DRAIN		COMMUNICATION MH	C	SANITARY SEWER	8" SA — 8" SA	WATER FEATURE	
CONTROL POINT FOUND		CURB INLET		GAS METER	G	WATER	4" W — 4" W	TREE LINE	
CONTROL POINT SET		STORM MH	ST	GAS VALVE		UNDERGROUND ELEC	UGE — UGE	R.O.W.	RIGHT OF WAY
BENCH MARK		ELECTRIC METER-BOX	E	EVERGREEN TREE		OVERHEAD ELEC	OHE — OHE	PVMT.	EDGE OF PAVEMENT
WATER METER	W	ELECTRIC MH	E	SIDEWALK		GAS	4" G — 4" G	PUDE	PUBLIC UTILITY AND DRAINAGE EASEMENT
WATER VALVE		LIGHT POLE		MIN. BUIDLING SETBACK	M.B.S.L	COMMUNICATIONS	COM — COM	G.I.E.	GREEN INFRASTRUCTURE EASEMENT

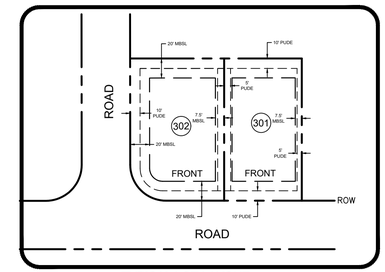
PLAT NOTES

1. THE PURPOSE OF THIS PLAT IS TO CREATE 24 SINGLE-FAMILY RESIDENTIAL LOTS AND 2 OPEN SPACES.
2. SUBJECT PROPERTY IS PRESENTLY IDENTIFIED AS PARCEL 80.54, ON MAURY COUNTY TAX MAP 113. SAID PARCEL IS FURTHER IDENTIFIED AS THE PROPERTY DESCRIBED IN BOOK R2874, PAGE 1163, REGISTERS OFFICE OF MAURY COUNTY, TENNESSEE.
3. 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.
4. EXISTING ZONING: RM-1
5. I HEREBY CERTIFY THAT THIS IS A CATEGORY IV SURVEY AND WAS CONDUCTED IN ACCORDANCE WITH RULE 0820-03.11 (GLOBAL POSITION SYSTEMS SURVEYS) ACCORDING TO THE CURRENT TENNESSEE MINIMUM STANDARDS OF PRACTICE AS PROMULGATED BY THE TENNESSEE STATE BOARD OF EXAMINERS FOR LAND SURVEYORS. THIS SURVEY WAS CONDUCTED WITH DUAL-FREQUENCY RTK GPS EQUIPMENT BASED ON THE TDOT CORPS NETWORK.
   a. POSITIONAL ACCURACY: 0.07'
   b. DATE OF SURVEY: 3/16/2023
   c. DATUM/EPOCH: TENNESSEE STATE PLANE (NAD83). OCCUPATIONS FOR CONTROL POINTS ARE 3 MINUTES EACH, SIDE SHOTS ARE 3 SECONDS.
   d. GEOID 3, ZONE 7 REVISED
6. NO COMBINED GRID FACTORS WERE USED.
7. BEARINGS SHOWN HEREON ARE BASED ON THE TENNESSEE STATE PLANE COORDINATE SYSTEM (NAD83). ELEVATIONS SHOWN HEREON ARE BASED ON NAVD88.
8. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN ZONE "X" AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 47119C0285E, WITH AN EFFECTIVE DATE OF APRIL 16, 2007, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE PROGRAM. ZONE "X" IS AN AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. ZONE "X" HAS TWO DESCRIPTIONS. PLEASE SEE FLOOD PLAIN MAP IF ZONE "X" IS SHADED. ***IF FIELD RUN CONTOURS ARE ESTABLISHED YOU MUST PLOT THE FLOOD LINE BASED ON BFE UNLESS THE PROPERTY IS IN ZONE A.
9. ALL CORNERS SHOWN ON THE FACE OF THE SURVEY WILL BE SET WITH 5/8 IRON ROD WITH CAP BEARING THIS SURVEYORS COMPANY NAME.
10. THE DEVELOPER ACKNOWLEDGES THAT ALL LOTS HAVE ADEQUATE BUILDING ENVELOPES AND NO VARIANCES WILL BE REQUIRED.
11. STORMWATER MAINTENANCE AGREEMENT RECORDED IN DEED BOOK.
12. ALL STREETS AND ALLEYS ARE DESIGNATED AS PUBLIC RIGHT-OF-WAY; THE CITY OF COLUMBIA IS NOT RESPONSIBLE FOR THE REPLACEMENT OR REPAIR OF ANY PRIVATE STRUCTURES WITHIN PUBLIC EASEMENTS SHOULD THE STRUCTURES BE DISTURBED IN THE PROCESS OF THE CITY EXERCISING ITS EASEMENT RIGHTS.
13. STREETS, DRAINAGE EASEMENTS, STRUCTURES, AND CULVERTS SHALL BE MAINTAINED BY THE CITY OF COLUMBIA. DETENTION PONDS AND OUTLET STRUCTURES WITHIN PUBLIC DRAINAGE EASEMENTS ARE TO BE MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.
14. STORMWATER QUALITY SHALL BE ADDRESSED WITH EACH SITE PLAN.
15. OPEN SPACE AREAS, ROADWAY MEDIANS, BRICK PEDESTRIAN CROSSWALKS, BIKE PATHS, SIDEWALKS OUTSIDE OF RIGHT-OF-WAYS, TRAILS AND DETENTION FACILITIES SHALL BE MAINTAINED BY THE HOME OWNER'S ASSOCIATION AND SHALL BE PUBLIC UTILITY, DRAINAGE AND ACCESS EASEMENTS.
16. WITHIN NEW DEVELOPMENTS AND FOR OFF-SITE LINES CONSTRUCTED AS A RESULT OF, OR TO PROVIDE SERVICE TO, THE NEW DEVELOPMENT, ALL UTILITIES, (INCLUDING CABLE TELEVISION, ELECTRICAL, NATURAL GAS, SEWER, TELEPHONE AND WATER LINES) SHALL BE PLACED UNDERGROUND.
17. AT ALL TEMPORARY TURNAROUNDS, A SIGN SHALL BE PLACED STATING, "STREET TO BE EXTENDED BY AUTHORITY OF THE CITY OF COLUMBIA."
18. MAINTENANCE OF ALL STORMWATER MANAGEMENT FEATURES SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER(S) OR HOA.
19. NO OBSTRUCTIONS OR ENCROACHMENTS WHICH IMPEDE THE FLOW OF STORMWATER SHALL BE PERMITTED WITHIN PUBLIC DRAINAGE EASEMENTS BETWEEN LOTS. THE CITY OF COLUMBIA IS NOT RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY ENCROACHMENTS THAT ARE DAMAGED OR REMOVED IN THE COURSE OF MAINTENANCE ACTIVITY WITHIN EASEMENTS.
20. THE CITY OF COLUMBIA WATER MANAGEMENT DEPARTMENT HAS UNRESTRICTED ACCESS TO ITS DOMESTIC WATER, SANITARY SEWER, RECLAIM WATER LINES OR SYSTEM IMPROVEMENTS LOCATED WITHIN ITS EXCLUSIVE EASEMENTS WITHIN THE DEVELOPMENT. IN THE EVENT LANDSCAPING, FENCING, CONCRETE OR OTHER STRUCTURES ARE INSTALLED OR PLACED WITHIN A CITY OF COLUMBIA EASEMENT, THE CITY OF COLUMBIA SHALL HAVE THE RIGHT TO REMOVE SUCH ENCROACHMENTS WITHIN THE EASEMENT AS MAY BE NECESSARY FOR THE CITY OF COLUMBIA TO REPAIR, MAINTAIN OR REPLACE ITS INFRASTRUCTURE WHICH IS NOW OR IN THE FUTURE MAY BE LOCATED WITHIN THE EASEMENT WITHOUT OBTAINING ANY FURTHER PERMISSION FROM THE PROPERTY OWNER OR HOA. THE PROPERTY OWNER OR HOA SHALL BE RESPONSIBLE FOR REPAIRING AND/OR REPLACING ANY SUCH LANDSCAPING, FENCING, CONCRETE, OR OTHER STRUCTURES REMOVED OR DISTURBED BY THE CITY OF COLUMBIA IN COMMON OPEN SPACE LOTS AND IN AREAS OWNED BY THE PROPERTY OWNER OR HOA AT NO EXPENSE TO THE CITY OF COLUMBIA. INDIVIDUAL HOMEOWNERS SHALL BE RESPONSIBLE FOR STRUCTURES REMOVED OR DISTURBED BY THE CITY OF COLUMBIA WITHIN AN EASEMENT ON THE HOMEOWNER'S LOT AT THE HOMEOWNER'S EXPENSE.
21. ALL LOTS WITHIN PHASE 2 REQUIRE A FIRE SPRINKLER SYSTEM INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS. A HORN AND STROBE WILL BE REQUIRED ON THE FRONT OF THE HOUSE. IT WILL ACTIVATE WHEN THE SPRINKLER SYSTEM IS ACTIVATED.
22. PUBLIC UTILITY AND DRAINAGE EASEMENTS (PUDE) 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 A ZERO LOT LINE OR A COMMON WALL ALONG A LOT LINE.





VICINITY MAP
NOT TO SCALE



TYPICAL LOT LAYOUT
N.T.S.

Parcel Area Table		
Parcel #	Area (SF)	Area (AC)
91	8151.84'	0.187
92	8749.01'	0.201
93	8749.01'	0.201
94	8749.01'	0.201
95	8749.01'	0.201
96	8311.55'	0.191
97	6749.24'	0.155
98	8508.34'	0.195
104	9581.86'	0.220
105	8987.85'	0.206
106	6765.74'	0.155
107	6413.32'	0.147

Parcel Area Table		
Parcel #	Area (SF)	Area (AC)
108	7441.65'	0.171
109	10289.34'	0.236
110	7349.02'	0.169
111	12636.20'	0.290
112	11519.94'	0.264
113	8297.76'	0.190
114	8746.33'	0.201
115	7592.80'	0.174
116	6961.38'	0.160
117	6787.93'	0.156
118	7059.12'	0.162
119	7800.48'	0.179

Open Space Area Table		
Parcel #	Area (SF)	Area (AC)
O.S. 1	808.64'	0.019
O.S. 4	17281.89'	0.397

Parcel Line Table		
Line #	Length	Direction
L1	58.18'	N7°43'55"E
L2	17.63'	S82°16'03"E
L3	63.95'	N24°52'05"E
L4	66.09'	S30°29'48"E
L5	122.90'	S82°16'03"E
L6	34.52'	S24°52'05"W

Parcel Line Table		
Line #	Length	Direction
L7	56.24'	S24°52'05"W
L8	12.30'	S24°52'05"W
L9	16.80'	N73°59'42"E
L10	120.00'	S16°00'18"E
L11	50.28'	S22°01'41"E

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	16.95'	195.00'	4° 58' 44"	N22° 22' 43"E	16.94'
C2	54.51'	495.00'	6° 18' 33"	S21° 42' 49"W	54.48'
C3	37.43'	115.00'	18° 38' 55"	S15° 32' 38"W	37.27'
C4	47.91'	115.00'	23° 52' 14"	S5° 42' 57"E	47.57'
C5	47.91'	115.00'	23° 52' 14"	S29° 35' 11"E	47.57'
C6	47.91'	115.00'	23° 52' 14"	S53° 27' 25"E	47.57'
C7	47.91'	115.00'	23° 52' 14"	S77° 19' 39"E	47.57'
C8	33.60'	115.00'	16° 44' 32"	N82° 21' 58"E	33.48'

OWNER: M/I HOMES OF NASHVILLE LLC
4131 WORTH AVE STE 500
COLUMBUS OH 43219

ENGINEER: CRUNK ENGINEERING, LLC
7112 CROSSROADS BLVD STE 201
BRENTWOOD, TN 37027
615-873-1795

SURVEYOR: JOEY C. WILSON II, PE, RLS
WILSON & ASSOCIATES, P.C.
108 BEASLEY DRIVE
FRANKLIN, TN 37064
(615)794-2275
JWILSON@WILSONPC.COM

CERTIFICATE OF 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, TITLE, AGENCY OF AUTHORIZED APPROVING AGENT _____ DATE _____

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

CERTIFICATE OF SURVEY 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 CLASS "IV" 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.

09/30/24
DATE

JOEY C. WILSON II, TENNESSEE RLS NO. 2089
WILSON & ASSOCIATES, P.C.
ENGINEERING/SURVEYING/ENVIRONMENTAL
108 BEASLEY DRIVE, FRANKLIN, TN 37064
OFFICE: 615.794.2275 FAX 615.794.2176
JWILSON@WILSONPC.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 BOOK NUMBER R2874, PAGE 1163, MAURY COUNTY REGISTERS OFFICE, AND THAT I (WE) HEREBY ADOPT THIS FINAL SUBDIVISION PLAT OF THE PROPERTY AS SHOWN HEREON AND DEDICATE ALL PUBLIC WAYS AND EASEMENTS AS NOTED WITH MY (OUR) FREE CONSENT.

OWNER _____ DATE _____

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE & 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 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 APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE 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.

SECRETARY, PLANNING COMMISSION _____ DATE _____
COLUMBIA, TENNESSEE

CERTIFICATE OF APPROVAL OF SUBDIVISION NAME & STREET NAMES

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

MAURY COUNTY E911 _____ DATE _____

RECORDING STAMP HERE

IF YOU CAN READ THIS YOU ARE HOLDING AN UNRECORDED COPY

WILSON & ASSOCIATES, PC.
Engineering/Surveying/Environmental

100 0 50 100 200
GRAPHIC SCALE: 1" = 100'

HILLCREST VILLAGE

PHASE 2

FINAL SUBDIVISION PLAT

CITY OF COLUMBIA - MAURY COUNTY - TENNESSEE

TOTAL ACRES:	6.320	TOTAL NO. OF LOTS:	24
ACRES NEW RD/ST:	1.279 (ROW)	L.F. OF NEW RD/ST:	57371.45 +/-
ACRES OPEN SPACE:	0.416	CIVIL DISTRICT:	3RD
DRAWN BY:	AS	CLOSURE ERROR:	> 1:10,000
SCALE:	1" = 100'	DATE:	09/30/2024

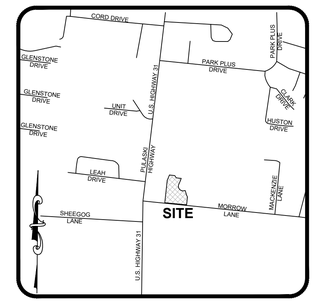
WA PROJECT NO. 22-1861 SHEET 1 OF 2

LEGEND

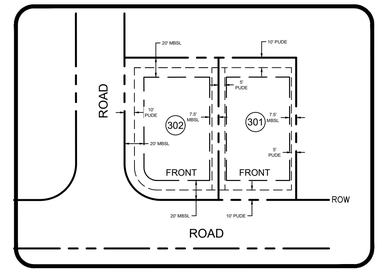
IRON PIN FOUND		FIRE HYDRANT		UTILITY POLE		PUBLIC UTIL. & DRAIN ESMT.	P.U.D.E.	BOUNDARY	
IRON PIN SET		SANITARY SEWER MH	SS	GUY ANCHOR		ADDRESSES	1234	CENTERLINE	
CONC. MON. FOUND		SANITARY SEWER CO	CO	COMMUNICATION BOX	C	HANDICAP SPACE		BUFFER	
CONC. MON. SET		AREA DRAIN		COMMUNICATION MH	C	SANITARY SEWER	8" SA 8" SA	WATER FEATURE	
CONTROL POINT FOUND		CURB INLET		GAS METER	G	WATER	4" W 4" W	TREE LINE	
CONTROL POINT SET		STORM MH	ST	GAS VALVE		UNDERGROUND ELEC	UGE UGE	R.O.W.	RIGHT OF WAY
BENCH MARK		ELECTRIC METER-BOX	E	EVERGREEN TREE		OVERHEAD ELEC	OHE OHE	PVMT.	EDGE OF PAVEMENT
WATER METER	W	ELECTRIC MH	E	SIDEWALK		GAS	4" G 4" G	PUDE	PUBLIC UTILITY AND DRAINAGE EASEMENT
WATER VALVE		LIGHT POLE		MIN. BUIDLING SETBACK	M.B.S.L	COMMUNICATIONS	COM COM	G.I.E.	GREEN INFRASTRUCTURE EASEMENT

HATCH LEGEND

LANDSCAPE BUFFER



VICINITY MAP
NOT TO SCALE



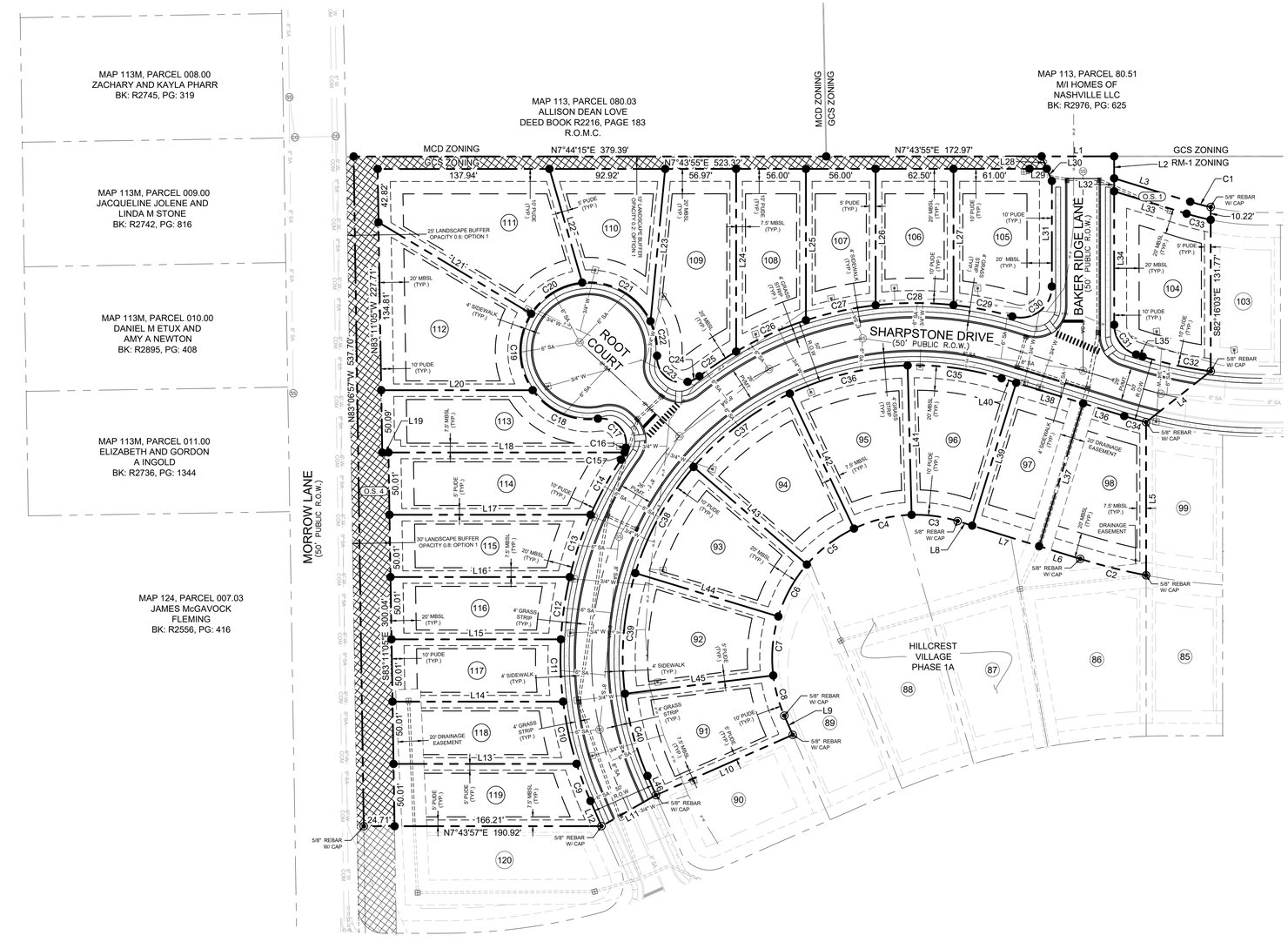
TYPICAL LOT LAYOUT
N.T.S.

Parcel Line Table		
Line #	Length	Direction
L1	58.18'	N7°43'55"E
L2	17.63'	S82°16'03"E
L3	63.95'	N24°52'05"E
L4	66.09'	S30°29'48"E
L5	122.90'	S82°16'03"E
L6	34.52'	S24°52'05"W
L7	56.24'	S24°52'05"W
L8	12.30'	S24°52'05"W
L9	16.80'	N73°59'42"E
L10	120.00'	S16°00'18"E
L11	50.28'	S22°01'41"E
L12	22.07'	N73°59'42"E
L13	146.97'	N7°43'57"E
L14	136.97'	N7°43'57"E
L15	136.02'	N7°43'57"E
L16	143.95'	N7°43'57"E
L17	161.48'	N7°43'57"E
L18	189.56'	N7°43'57"E
L19	5.00'	S6°48'55"W
L20	121.59'	N7°43'57"E
L21	142.84'	N38°39'45"E
L22	94.98'	N81°38'54"E
L23	122.82'	S76°45'15"E

Parcel Line Table		
Line #	Length	Direction
L24	146.64'	S82°16'03"E
L25	121.55'	S82°16'03"E
L26	109.46'	S82°16'03"E
L27	109.33'	S82°16'03"E
L28	10.83'	S75°11'35"W
L29	13.97'	N7°43'59"E
L30	10.52'	N75°11'35"E
L31	84.74'	S82°16'03"E
L32	10.46'	S82°16'03"E
L33	60.87'	S24°52'05"W
L34	107.12'	S82°16'03"E
L35	5.41'	N24°52'05"E
L36	34.52'	N24°52'05"E
L37	120.00'	S65°07'55"E
L38	56.24'	N24°52'05"E
L39	120.00'	S65°07'55"E
L40	12.30'	N24°52'05"E
L41	120.00'	S83°46'50"E
L42	120.00'	N72°20'56"E
L43	120.00'	N48°28'42"E
L44	120.00'	N24°36'28"E
L45	120.00'	N0°44'14"E
L46	16.80'	S73°59'42"W

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	16.95'	195.00'	4° 58' 44"	N22° 22' 43"E	16.94'
C2	54.51'	495.00'	6° 18' 33"	S21° 42' 49"W	54.48'
C3	37.43'	115.00'	18° 38' 55"	S15° 32' 38"W	37.27'
C4	47.91'	115.00'	23° 52' 14"	S5° 42' 57"E	47.57'
C5	47.91'	115.00'	23° 52' 14"	S29° 35' 11"E	47.57'
C6	47.91'	115.00'	23° 52' 14"	S53° 27' 25"E	47.57'
C7	47.91'	115.00'	23° 52' 14"	S77° 19' 39"E	47.57'
C8	33.60'	115.00'	16° 44' 32"	N82° 21' 58"E	33.48'
C9	31.84'	285.00'	6° 24' 00"	N77° 11' 42"E	31.82'
C10	51.22'	285.00'	10° 17' 51"	N85° 32' 38"E	51.15'
C11	50.10'	285.00'	10° 04' 16"	S84° 16' 19"E	50.03'
C12	50.57'	285.00'	10° 10' 01"	S74° 09' 11"E	50.51'
C13	52.80'	285.00'	10° 36' 55"	S63° 45' 43"E	52.73'
C14	50.51'	285.00'	10° 09' 18"	S53° 22' 37"E	50.45'
C15	6.53'	25.00'	14° 58' 31"	S55° 47' 14"E	6.52'
C16	3.93'	25.00'	9° 01' 00"	S67° 46' 59"E	3.93'
C17	37.58'	20.00'	107° 40' 10"	N53° 52' 26"E	32.29'
C18	60.12'	55.00'	62° 37' 56"	N31° 21' 19"E	57.17'
C19	65.13'	55.00'	67° 50' 46"	S83° 24' 20"E	61.39'
C20	49.71'	55.00'	51° 47' 23"	S23° 35' 16"E	48.04'
C21	67.04'	55.00'	69° 50' 03"	S37° 13' 27"W	62.96'

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C22	28.59'	55.00'	29° 47' 03"	S87° 02' 00"W	28.27'
C23	37.58'	20.00'	107° 40' 10"	S48° 05' 27"W	32.29'
C24	10.47'	25.00'	23° 59' 31"	S17° 44' 24"E	10.39'
C25	35.60'	285.00'	7° 09' 22"	S26° 09' 28"E	35.57'
C26	61.48'	285.00'	12° 21' 37"	S16° 23' 59"E	61.36'
C27	57.39'	285.00'	11° 32' 13"	S4° 27' 04"E	57.29'
C28	62.63'	285.00'	12° 35' 25"	S7° 36' 45"W	62.50'
C29	48.11'	285.00'	9° 40' 22"	S18° 44' 39"W	48.06'
C30	46.18'	25.00'	105° 50' 53"	S29° 20' 36"E	39.89'
C31	31.79'	25.00'	72° 51' 52"	N61° 18' 01"E	29.69'
C32	56.02'	325.00'	9° 52' 36"	N19° 55' 47"E	55.95'
C33	19.97'	205.00'	5° 34' 49"	S22° 04' 41"W	19.96'
C34	18.19'	375.00'	2° 46' 47"	N23° 28' 42"E	18.19'
C35	76.49'	235.00'	18° 38' 55"	N15° 32' 38"E	76.15'
C36	97.91'	235.00'	23° 52' 14"	N5° 42' 57"W	97.20'
C37	97.91'	235.00'	23° 52' 14"	N29° 35' 11"W	97.20'
C38	97.91'	235.00'	23° 52' 14"	N53° 27' 25"W	97.20'
C39	97.91'	235.00'	23° 52' 14"	N77° 19' 39"W	97.20'
C40	68.67'	235.00'	16° 44' 32"	S82° 21' 58"W	68.42'



WILSON & ASSOCIATES, PC.
Engineering/Surveying/Environmental

HILLCREST VILLAGE

PHASE 2

RECORDING STAMP HERE

IF YOU CAN READ THIS YOU ARE HOLDING AN UNRECORDED COPY

FINAL SUBDIVISION PLAT

CITY OF COLUMBIA - MAURY COUNTY - TENNESSEE

TOTAL ACRES:	6.320	TOTAL NO. OF LOTS:	24
ACRES NEW RD/ST:	1.279 (ROW)	L.F. OF NEW RD/ST:	57371.45 +/-
ACRES OPEN SPACE:	0.416	CIVIL DISTRICT:	3RD
DRAWN BY:	AS	CLOSURE ERROR:	> 1:10,000
SCALE:	1" = 50'	DATE:	09/30/2024

WA PROJECT NO. 22-1861 SHEET 2 OF 2

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, Parcel 87.40
Project Name: Jim Baker Property, Phase 1

Recorded by deed in the Register of Deeds Office of Maury County in Deed Book R2874, Page(s) 1163 - 1170

THIS AGREEMENT, made this 8 day of August, 2023, 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 ONWER(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. CUMMING

Title VP of Land

Signature

Owner M/I Homes of Nashville, LLC

Address 3020 Stansberry Ln.
Suite 202

City, State ZIP Franklin, TN 37069

STATE OF Tennessee
COUNTY OF Maury

Before me, Erika Root of the state and county mentioned, personally appeared David M. Cumming, 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 14th day of August, 2023.

Notary Public

My Commission Expires: 6-26-2027

ERIKA ROOT STATE OF TENNESSEE NOTARY PUBLIC MAURY COUNTY My Commission Expires 06-26-2027

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

Project Name: Jim Baker Property

Columbia, TN

August 7, 2023

Table of Contents

Section Name

System Description
Maintenance Procedures

System Description

The site consists of a series of stormwater conveyances both open channel and piped, detention / retention and water quality ponds.

- There are two stormwater detention ponds sized to detain through the 100 year peak event. The orifice is designed to contain the first flush, 1 inch, for 24 hour.
- 2,925 feet of grass lined open channel.
- 67 feet of 36 in ADS pipe, 1658 feet 30 in ADS pipe, 670 feet of 24 in ADS pipe, 5,617 feet of 18 in ADS pipe and 72 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. **STORMWATER DETENTION PONDS**
    - **a.** The outlet structures shall be checked regularly for clogging and shall be cleaned and repaired as necessary---monthly after it is first built then a regular sequence should be established or at least quarterly or after a large rain event.
    - **b.** Check banks and bottom surface of basins for erosion and correct as necessary.
    - **c.** Check at least quarterly and after each extreme storm event, the facility should be cleaned of accumulated debris. The banks of surface ponds should be checked and areas of erosion repaired. Remove nuisance wetland species and take appropriate measures to control mosquitos.
    - **d.** This maintenance typically includes sediment, floatable, and debris removal from inlets, outlets and skimmers.
    - **e.** Pond vegetation to be trimmed or harvested as appropriate, grassy areas, frequently mowed. Grass should be mowed so that it does not get over 12.
    - **f.** Remove sediment when accumulation reached 6 inches, or if re-suspension is observed or probable.
    - **g.** Some sediment may contain contaminants which the Tennessee Department of Environment and Conservation (TDEC) requires special disposal procedure. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then TDEC should be consulted and their disposal recommendations followed. The TDEC Division of Water Pollution Control should be contacted at (931) 380-3371. Generally, special attention or sampling should be given to sediment accumulated in facilities serving industrial, manufacturing or heavy commercial sites, Page 2 of 4 Rev. 9/26/2016 fueling centers or automotive maintenance areas, large parking areas, or other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.
    - **h.** Some sediment collected may be innocuous (free of pollutants) and can be used as fill material, cover or land spreading. It is important that this material not be placed in any way that will promote or allow re-suspension in storm runoff.
2. **67 LF OF 36" ADS, 1658 LF OF 30" ADS, 670 LF OF 24" ADS, 5617 LF OF 18" ADS AND 72 STORM INLETS**
    - **a.** These structures will be inspected and cleaned quarterly to ensure pipes and drain inlets do not fill with sediment or trash.

NOTES:

1. GRADING TO MATCH BUILDING TYPE AND ANY LOTS OVER 20% GRADE SHALL BE LABELED AS CRITICAL.
2. A GEOTECHNICAL INVESTIGATION WILL BE REQUIRED TO INVESTIGATE THE EXISTENCE OF SINKHOLES. ANY SINKHOLES DISCOVERED WILL BE REMEDIATED AS NECESSARY.

REFER TO SHEET C6.3
FOR DETAILED INFORMATION
IN THIS AREA.

REFER TO SHEET C6.4
FOR DETAILED INFORMATION
IN THIS AREA.

REFER TO SHEET C6.1
FOR DETAILED INFORMATION
IN THIS AREA.

REFER TO SHEET C6.2
FOR DETAILED INFORMATION
IN THIS AREA.

0 50 100 200
GRAPHIC SCALE

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

ENGINEERING CRUNK

ALAN WILSON CRUNK
REGISTERED
AGRICULTURE
COMMERCE
NO. 114,180
STATE OF TENNESSEE
4/4/23

JIM BAKER PROPERTY

COLUMBIA, TENNESSEE

REVISIONS	
No.	DATE
1	08/29/22
2	09/13/22
3	03/16/23

04/04/23 21022

C6.0

OVERALL GRADING & DRAINAGE PLAN

Drawing Path: P:\2021\21022 - Jim Baker Property\Dwg\Construction\Waterford - Single Family\C6.0-GRA.dwg

GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C8.1 - 3
G2	SINGLE CATCH BASIN	C8.1 - 4
G3	JUNCTION BOX	C8.1 - 2
G4	CONCRETE HEADWALL	C8.1 - 6
G5	POND 1 OUTLET STRUCTURE	C8.1 - 9
G6	POND 3 OUTLET STRUCTURE	C8.4 - 1

NOTES:
1. REFER TO SHEET C6.0 FOR NOTES.
2. ADS PIPE TO BE BACKFILLED WITH #57 STONE TO A DEPTH OF 18" ABOVE RIM ELEVATION.
3. LOTS 15-22, CRITICAL LOTS, WILL REQUIRE INDIVIDUAL GRADING PLAN WITH BUILDING PERMIT AND ELEVATION CERTIFICATION.
4. LOTS WITH OVER 2 FT OF GRADE DIFFERENCE BETWEEN SIDE LOT SETBACKS WILL REQUIRE A CRITICAL LOT GRADING PLAN.

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- +55.10 — PROPOSED SPOT ELEVATION
- A1 — STORM STRUCTURE LABEL
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

MATCH LINE

SEE SHEET C6.3

MAXIMUM WALL HEIGHT IS 8.8 FT. RETAINING WALL TO BE A MINIMUM OF 9 FT FROM PUBLIC R.O.W. TO ENSURE SURCHARGE REMAINS OUTSIDE OF THE ANGLE OF REPOSE OF RETAINING WALL.

MANHOLE A4
TOP=744.7
INV(out)=733.784

N07°43'05"E 885.33

N83°11'05"W 896.96

MORROW LANE (50' R.O.W.)

ROAD A

ROAD B

ROAD D

SEE SHEET C6.2

POND 2 - INJECTION WELL

WELL 2

STORMWATER POND 2

2155.68'
S07°14'08"W

MATCH LINE

SEE SHEET C6.4

0 10 20 30 40 50 100
GRAPHIC SCALE

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04/04/23 21022

C6.1

GRADING & DRAINAGE PLAN

Drawing Path: P:\2021\21022 - Jim Baker Property\Dwg\Construction\Waterford - Single Family\C6.0-GDA.dwg

MATCH LINE

SEE SHEET C6.3

SEE SHEET C6.1

STORMWATER POND 1

ROAD A

ROAD B

ROAD C

ROAD D

ROAD E

OPEN SPACE

SINKHOLE 1 - INJECTION WELL

MAXIMUM FFE TO BE 745 TO SUPPLY SUFFICIENT FIRE WATER TO THESE LOTS

2155.68'
S07°14'08"W

S83°06'36"E

MAP 113 PARCEL 090.37

REBAR FOUND

1"ø OTP FOUND

8" PVC I.E.748.64

24"ø HDPE I.E.713.0

36"ø HDPE I.E.718.1

36"ø HDPE

T.W. = 47.87

T.W. = 52.39

T.W. = 55.73

T.W. = 57.64

T.W. = 54.37

T.W. = 53.05

T.W. = 44.92

T.W. = 31.69

T.W. = 24.65

T.W. = 20.00

T.W. = 21.07

GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C8.1 - 3
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G4	CONCRETE HEADWALL	C8.1 - 6
G5	POND 1 OUTLET STRUCTURE	C8.1 - 9
G6	POND 3 OUTLET STRUCTURE	C8.4 - 1

NOTES:
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- ST — STORM PIPE
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- SINGLE CATCH BASIN
- JUNCTION BOX

0 10 20 30 40 50 100
GRAPHIC SCALE

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LAND
114,180
STATE OF TENNESSEE
4/4/23

JIM BAKER PROPERTY

COLUMBIA, TENNESSEE

REVISIONS		
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1	08/29/22	
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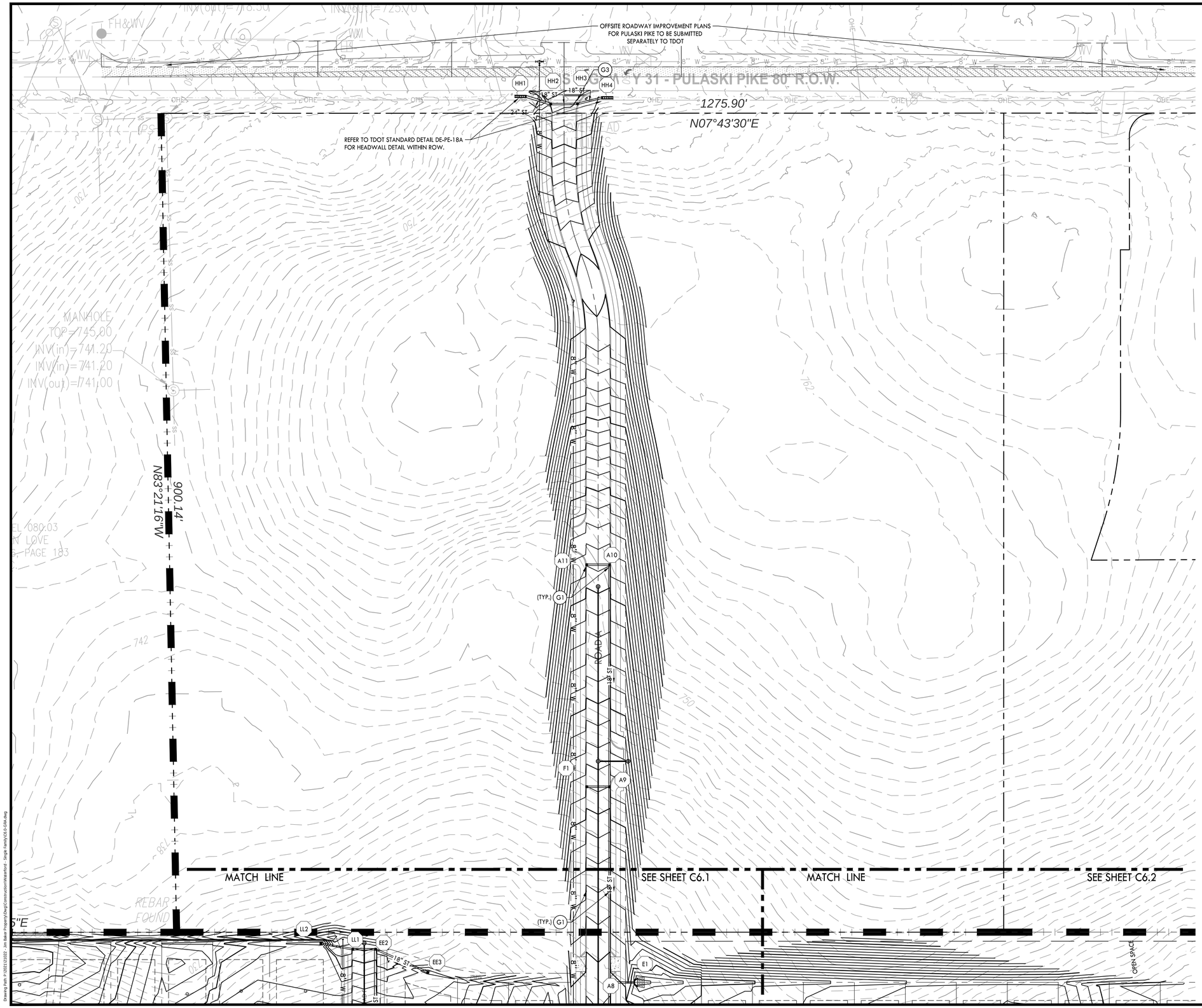
3	03/16/23	

04/04/23 21022

C6.2

GRADING & DRAINAGE PLAN

Drawing Path: P:\2021\212022 - Jim Baker Property\Civil\Construction\Waterford - Single Family\C6.0-GRA.dwg



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C8.1 - 3
G2	SINGLE CATCH BASIN	C8.1 - 4
G3	JUNCTION BOX	C8.1 - 2
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G5	POND 1 OUTLET STRUCTURE	C8.1 - 9
G6	POND 3 OUTLET STRUCTURE	C8.4 - 1

NOTES:
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2. ADS PIPE TO BE BACKFILLED WITH #57 STONE TO A DEPTH OF 18" ABOVE RIM ELEVATION.
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- +55.10 — PROPOSED SPOT ELEVATION
- A1 — STORM STRUCTURE LABEL
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

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ENGINEERING CRUNK

ALAN WILSON CRUNK — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — No. 114180 — STATE OF TENNESSEE — 4/4/23

JIM BAKER PROPERTY

COLUMBIA, TENNESSEE

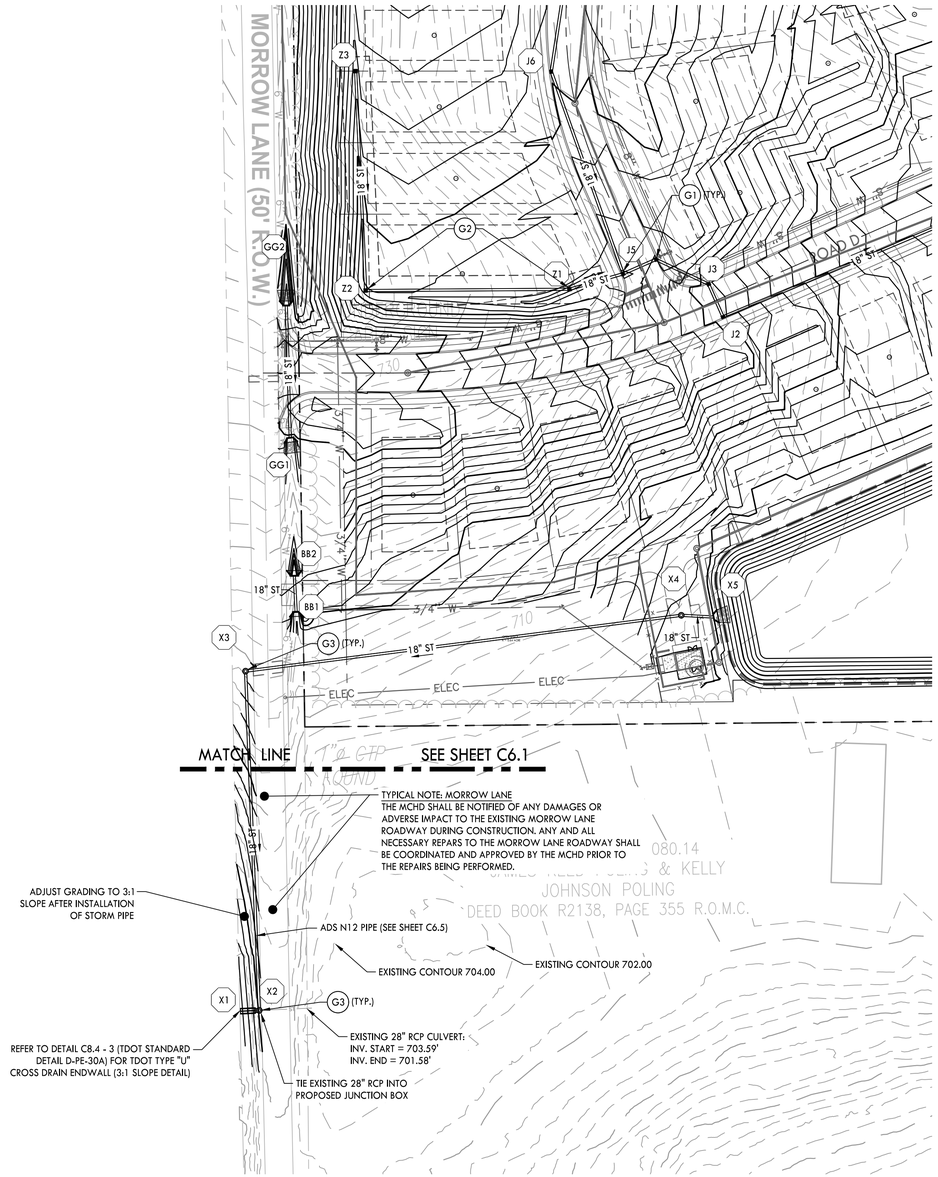
REVISIONS	
No.	DATE
1	08/29/22
2	09/13/22
3	03/16/23

04/04/23 21022

C6.3

GRADING & DRAINAGE PLAN

Drawing Path: P:\2021\121022 - Jim Baker Property\Dwg\Construction\Waterford - Single Family\C6.3-GRA.dwg



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C8.1 - 3
G2	SINGLE CATCH BASIN	C8.1 - 4
G3	JUNCTION BOX	C8.1 - 2
G4	CONCRETE HEADWALL	C8.1 - 6
G5	POND 1 OUTLET STRUCTURE	C8.1 - 9
G6	POND 3 OUTLET STRUCTURE	C8.4 - 1

NOTES:
1. REFER TO SHEET C6.0 FOR NOTES.
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PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- +55.10 — PROPOSED SPOT ELEVATION
- A1 — STORM STRUCTURE LABEL
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

0 10 20 30 40 50 100
GRAPHIC SCALE

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ENGINEERING CRUNK

ADAM WILSON CRUNK — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — 114180 — STATE OF TENNESSEE — 4/4/23

JIM BAKER PROPERTY

COLUMBIA, TENNESSEE

REVISIONS

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04/04/23 21022

C6.4

GRADING & DRAINAGE PLAN

Drawing Path: P:\2021\21022 - Jim Baker Property\Design\Construction\Waterford - Gayle Family\C6.0-GRA.dwg

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
A1	698.90	696.00	CONCRETE HEADWALL
A3	709.66	700.00	SINGLE CURB INLET
A4	710.58	706.60	SINGLE CURB INLET
A5	720.54	714.90	SINGLE CURB INLET
A6	722.59	717.40	SINGLE CURB INLET
A7	722.59	717.90	SINGLE CURB INLET
A8	724.29	719.40	SINGLE CURB INLET
A9	730.99	727.00	SINGLE CURB INLET
A10	741.06	737.00	SINGLE CURB INLET
A11	741.06	737.50	SINGLE CURB INLET
AA1	731.80	726.20	JUNCTION MANHOLE
AA2	734.59	731.60	SINGLE CATCH BASIN
B0	699.46	696.00	CONCRETE HEADWALL
B1	705.94	698.40	JUNCTION MANHOLE
B2	705.03	699.50	SINGLE CURB INLET
B3	709.97	704.40	SINGLE CURB INLET
B4	709.97	705.00	SINGLE CURB INLET
B5	723.86	710.00	JUNCTION MANHOLE
B6	731.86	722.10	JUNCTION MANHOLE
B7	725.32	723.18	CONCRETE HEADWALL
BB1	717.33	714.00	CONCRETE HEADWALL
BB2	718.33	715.00	CONCRETE HEADWALL
C1	710.58	707.00	SINGLE CURB INLET
CC01	711.02	706.90	SINGLE CATCH BASIN
D1	721.80	716.70	SINGLE CURB INLET
D2	721.80	717.60	SINGLE CURB INLET

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
DD01	710.90	706.90	SINGLE CATCH BASIN
E1	723.72	721.50	CONCRETE HEADWALL
EE1	713.33	708.11	SINGLE CURB INLET
EE2	720.91	711.90	SINGLE CURB INLET
EE3	716.40	713.10	SINGLE CATCH BASIN
F1	730.99	727.50	SINGLE CURB INLET
G1	713.68	708.80	SINGLE CURB INLET
G2	713.67	710.40	SINGLE CURB INLET
GG1	723.65	721.50	CONCRETE HEADWALL
GG2	728.15	726.00	CONCRETE HEADWALL
H1	725.75	711.50	JUNCTION MANHOLE
H2	724.79	714.70	JUNCTION MANHOLE
H3	721.13	716.80	CONCRETE HEADWALL
HH1	746.24	743.50	CONCRETE HEADWALL
HH2	747.39	743.80	SINGLE CURB INLET
HH3	748.11	744.50	SINGLE CURB INLET
HH4	748.22	746.00	CONCRETE HEADWALL
I1	699.80	696.00	CONCRETE HEADWALL
I2	703.87	696.90	SINGLE CURB INLET
I3	703.87	699.10	SINGLE CURB INLET
I4	707.18	702.50	SINGLE CATCH BASIN
I5	708.84	703.10	JUNCTION MANHOLE
I6	712.88	707.40	SINGLE CURB INLET
I7	712.49	708.80	SINGLE CURB INLET
I8	712.49	709.20	SINGLE CURB INLET
J1	704.54	700.60	SINGLE CURB INLET

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
J2	714.16	709.90	SINGLE CURB INLET
J3	714.16	710.50	SINGLE CURB INLET
J4	716.94	711.70	SINGLE CURB INLET
J5	716.94	712.10	SINGLE CURB INLET
J6	720.12	713.90	SINGLE CURB INLET
J7	720.02	715.60	SINGLE CURB INLET
J8	719.50	716.70	SINGLE CURB INLET
J9	719.33	717.10	SINGLE CURB INLET
K1	720.02	717.00	SINGLE CURB INLET
KK01	733.56	731.18	CONCRETE HEADWALL
KK02	736.32	732.00	OUTLET STRUCTURE
L1	722.33	719.00	CONCRETE HEADWALL
L2	724.21	719.40	SINGLE CURB INLET
L3	730.06	726.10	SINGLE CURB INLET
L4	730.06	726.70	SINGLE CURB INLET
L5	732.26	727.80	SINGLE CURB INLET
L6	732.26	728.80	SINGLE CURB INLET
LL1	720.91	713.60	SINGLE CURB INLET
LL2	717.62	714.20	SINGLE CATCH BASIN
M1	724.21	720.80	SINGLE CURB INLET
N1	721.76	719.30	CONCRETE HEADWALL
N2	729.00	723.10	SINGLE CURB INLET
N3	740.29	731.10	SINGLE CURB INLET
N4	740.29	731.60	SINGLE CURB INLET
N5	740.82	732.00	SINGLE CURB INLET
N6	736.88	733.70	SINGLE CURB INLET

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
O1	722.17	719.00	CONCRETE HEADWALL
O2	723.94	719.20	SINGLE CURB INLET
O3	723.94	720.00	SINGLE CURB INLET
P1	729.00	724.60	SINGLE CURB INLET
Q1	740.83	735.80	SINGLE CURB INLET
R1	722.17	719.00	CONCRETE HEADWALL
R2	731.13	720.00	SINGLE CURB INLET
R3	731.13	724.90	SINGLE CURB INLET
R4	736.34	728.30	SINGLE CURB INLET
R5	736.60	728.90	SINGLE CURB INLET
R6	734.36	730.40	SINGLE CURB INLET
R7	735.24	732.20	SINGLE CURB INLET
R8	738.04	734.20	SINGLE CURB INLET
R9	738.04	734.70	SINGLE CURB INLET
S1	736.34	731.00	SINGLE CURB INLET
S2	738.17	732.00	SINGLE CURB INLET
T1	734.36	731.00	SINGLE CURB INLET
U1	722.88	717.36	CONCRETE HEADWALL
U2	720.78	716.34	OUTLET STRUCTURE
V1	705.03	701.40	SINGLE CURB INLET
V2	708.51	704.90	SINGLE CATCH BASIN
V3	710.13	706.83	SINGLE CATCH BASIN
W1	712.00	709.50	CONCRETE HEADWALL
X1	704.30	700.79	TDOT ENDWALL D-PE-30A
X2	705.14	701.10	JUNCTION MANHOLE
X3	714.25	701.50	JUNCTION MANHOLE

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
X4	705.77	702.60	JUNCTION MANHOLE
X5	705.44	703.00	CONCRETE HEADWALL
Y1	698.51	696.00	CONCRETE HEADWALL
Y2	717.26	698.00	JUNCTION MANHOLE
Y3	722.00	719.50	CONCRETE HEADWALL
Z1	716.64	712.90	SINGLE CATCH BASIN
Z2	718.42	714.50	SINGLE CATCH BASIN
Z3	721.50	718.30	SINGLE CATCH BASIN

STORM PIPE TABLE								
INLET	INVERT	OUTLET	INVERT	LENGTH (FT)	SLOPE (%)	SHAPE	DIAMETER (IN)	MATERIAL
A3	700.00	A1	696.00	34.27	11.67%	CIRCULAR	24	ADS
A4	706.60	A3	702.70	51.43	7.58%	CIRCULAR	24	ADS
A4	706.70	C1	707.00	25.00	1.20%	CIRCULAR	18	ADS
A5	714.90	A4	706.70	211.83	3.87%	CIRCULAR	24	ADS
A6	717.40	A5	715.00	77.25	3.11%	CIRCULAR	24	ADS
A7	717.90	A6	717.50	25.00	1.60%	CIRCULAR	24	ADS
A8	719.40	A7	718.00	107.00	1.31%	CIRCULAR	24	ADS
A9	727.00	A8	719.50	215.00	3.49%	CIRCULAR	18	ADS
A10	737.00	A9	727.10	244.00	4.06%	CIRCULAR	18	ADS
A11	737.50	A10	737.10	25.00	1.60%	CIRCULAR	18	ADS
AA1	726.20	R3	725.00	21.36	5.62%	CIRCULAR	18	ADS
AA2	731.60	AA1	726.30	120.00	4.42%	CIRCULAR	18	HDPE
B1	698.40	B0	696.00	40.69	5.90%	CIRCULAR	30	ADS
B2	699.50	B1	698.50	40.93	2.44%	CIRCULAR	30	ADS
B3	704.40	B2	699.60	193.28	2.48%	CIRCULAR	30	ADS
B4	705.00	B3	704.50	25.00	2.00%	CIRCULAR	30	ADS
B5	710.00	B4	705.10	197.44	2.48%	CIRCULAR	30	ADS
B6	722.10	B5	715.40	286.59	2.34%	CIRCULAR	18	ADS
B7	723.18	B6	722.20	94.64	1.03%	CIRCULAR	18	HDPE
BB2	715.00	BB1	714.00	25.29	3.95%	CIRCULAR	18	HDPE
CC01	706.90	I4	703.50	149.12	2.28%	CIRCULAR	18	HDPE
D1	716.70	A5	715.90	58.25	1.37%	CIRCULAR	18	ADS
D2	717.60	D1	716.80	25.00	3.20%	CIRCULAR	18	ADS
DD01	706.90	I4	703.50	101.97	3.33%	CIRCULAR	18	HDPE
E1	721.50	A8	719.50	27.49	7.28%	CIRCULAR	18	ADS
EE1	708.11	I6	707.85	45.63	0.57%	CIRCULAR	30	ADS
EE2	711.90	EE1	708.11	122.92	3.08%	CIRCULAR	30	ADS
EE3	713.10	EE2	712.00	62.77	1.75%	CIRCULAR	18	HDPE
F1	727.50	A9	727.10	25.00	1.60%	CIRCULAR	18	ADS
G1	708.80	B3	706.60	36.60	6.01%	CIRCULAR	18	ADS
G2	710.40	G1	708.90	25.50	5.88%	CIRCULAR	18	ADS
GG2	726.00	GG1	721.50	92.47	4.87%	CIRCULAR	18	HDPE
H1	711.50	B5	710.00	290.47	0.52%	CIRCULAR	30	HDPE
H2	714.70	H1	711.60	187.09	1.66%	CIRCULAR	30	ADS
H3	716.80	H2	714.80	130.44	1.53%	CIRCULAR	30	HDPE

STORM PIPE TABLE								
INLET	INVERT	OUTLET	INVERT	LENGTH (FT)	SLOPE (%)	SHAPE	DIAMETER (IN)	MATERIAL
HH2	743.80	HH1	743.50	28.40	1.06%	CIRCULAR	24	ADS
HH3	744.50	HH2	743.90	29.21	2.05%	CIRCULAR	18	ADS
HH4	746.00	HH3	744.60	27.53	5.09%	CIRCULAR	18	ADS
I2	696.90	I1	696.00	41.05	2.19%	CIRCULAR	36	ADS
I3	699.10	I2	698.80	25.00	1.20%	CIRCULAR	36	ADS
I4	702.50	I3	699.20	140.91	2.34%	CIRCULAR	30	HDPE
I5	703.10	I4	702.60	37.66	1.33%	CIRCULAR	30	HDPE
I6	707.40	I5	703.20	132.50	3.17%	CIRCULAR	30	HDPE
I7	708.80	I6	707.50	59.52	2.18%	CIRCULAR	24	ADS
I8	709.20	I7	708.90	25.00	1.20%	CIRCULAR	18	ADS
J1	700.60	I2	698.60	68.59	2.92%	CIRCULAR	18	ADS
J2	709.90	J1	700.70	212.86	4.32%	CIRCULAR	18	ADS
J3	710.50	J2	710.00	25.00	2.00%	CIRCULAR	18	ADS
J4	711.70	J3	710.60	40.72	2.70%	CIRCULAR	18	ADS
J5	712.10	J4	711.80	24.99	1.20%	CIRCULAR	18	ADS
J6	713.90	J5	712.10	149.95	1.20%	CIRCULAR	18	ADS
J7	715.60	J6	714.00	151.24	1.06%	CIRCULAR	18	ADS
J8	716.70	J7	715.70	81.86	1.22%	CIRCULAR	18	ADS
J9	717.10	J8	716.80	25.35	1.18%	CIRCULAR	18	ADS
K1	717.00	J7	716.60	25.00	1.60%	CIRCULAR	18	ADS
KK02	732.00	KK01	731.18	53.59	1.53%	CIRCULAR	18	ADS
L2	719.40	L1	719.00	56.59	0.71%	CIRCULAR	18	HDPE
L3	726.10	L2	719.50	90.37	7.30%	CIRCULAR	18	ADS
L4	726.70	L3	726.20	25.00	2.00%	CIRCULAR	18	ADS
L5	727.80	L4	726.80	34.62	2.89%	CIRCULAR	18	ADS
L6	728.80	L5	727.90	25.00	3.60%	CIRCULAR	18	ADS
LL1	713.60	EE2	713.00	25.00	2.40%	CIRCULAR	18	ADS
LL2	714.20	LL1	713.70	35.60	1.40%	CIRCULAR	18	HDPE
M1	720.80	L2	720.10	25.00	2.80%	CIRCULAR	18	ADS
N2	723.10	N1	719.30	59.51	6.39%	CIRCULAR	18	HDPE
N3	731.10	N2	723.20	182.58	4.33%	CIRCULAR	18	ADS
N4	731.60	N3	731.20	25.00	1.60%	CIRCULAR	18	ADS
N5	732.00	N4	731.70	38.33	0.78%	CIRCULAR	18	ADS
N6	733.70	N5	732.60	146.43	0.75%	CIRCULAR	18	ADS
O2	719.20	O1	719.00	50.99	0.39%	CIRCULAR	30	HDPE

STORM PIPE TABLE								
INLET	INVERT	OUTLET	INVERT	LENGTH (FT)	SLOPE (%)	SHAPE	DIAMETER (IN)	MATERIAL
O3	720.00	O2	719.70	25.00	1.20%	CIRCULAR	24	ADS
P1	724.60	N2	724.10	25.00	2.00%	CIRCULAR	18	ADS
Q1	735.80	N5	734.40	25.00	5.60%	CIRCULAR	18	ADS
R2	720.00	R1	719.00	70.12	1.43%	CIRCULAR	30	HDPE
R3	724.90	R2	724.20	25.00	2.80%	CIRCULAR	24	ADS
R4	728.30	R3	725.00	183.18	1.80%	CIRCULAR	18	ADS
R5	728.90	R4	728.40	43.89	1.14%	CIRCULAR	18	ADS
R6	730.40	R5	729.00	141.18	0.99%	CIRCULAR	18	ADS
R7	732.20	R6	730.50	78.04	2.18%	CIRCULAR	18	ADS
R8	734.20	R7	732.30	82.34	2.31%	CIRCULAR	18	ADS
R9	734.70	R8	734.30	25.00	1.60%	CIRCULAR	18	ADS
S1	731.00	R4	730.00	25.00	4.00%	CIRCULAR	18	ADS
S2	732.00	S1	731.10	50.50	1.78%	CIRCULAR	18	ADS
T1	731.00	R6	730.50	25.00	2.00%	CIRCULAR	18	ADS
U2	717.66	U1	717.36	75.35	0.40%	CIRCULAR	18	ADS
V1	701.40	B2	701.00	25.00	1.60%	CIRCULAR	24	ADS
V2	704.90	V1	701.50	132.51	2.57%	CIRCULAR	18	HDPE
V3	706.83	V2	705.00	112.00	1.63%	CIRCULAR	18	HDPE
W1	709.50	Y2	707.00	41.48	6.03%	CIRCULAR	18	ADS
X2	701.10	X1	701.00	2.99	3.35%	CIRCULAR	30	ADS N12
X3	701.50	X2	701.10	237.29	0.17%	CIRCULAR	18	ADS N12
X4	702.60	X3	701.50	306.91	0.36%	CIRCULAR	18	HDPE
X5	703.00	X4	702.60	22.61	1.77%	CIRCULAR	18	HDPE
Y2	698.00	Y1	696.00	40.80	4.90%	CIRCULAR	18	ADS
Y3	719.50	Y2	710.00	237.61	4.00%	CIRCULAR	18	ADS
Z1	712.90	J5	712.10	39.06	2.05%	CIRCULAR	18	ADS
Z2	714.50	Z1	713.00	142.37	1.05%	CIRCULAR	18	HDPE
Z3	718.30	Z2	714.60	153.52	2.41%	CIRCULAR	18	HDPE

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

ENGINEERING CRUNK

ANDREW WILSON CRUNK
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
114190
4/4/23
STATE OF TENNESSEE

JIM BAKER PROPERTY

COLUMBIA, TENNESSEE

REVISIONS		
No.	DATE	
1	08/29/22	
2	09/13/22	
3	03/16/23	

04/04/23 21022

C6.5

STORM STRUCTURE & PIPE TABLES

Drawing Path: P:\2021\21022 - Jim Baker Property\Dwg\Construction\Waterford - Single Family\C6.5-STR.dwg

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 DEVELEPOR'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.

Hillcrest Village (Baker Property)
PROJECT

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

OWNER AFFIDAVIT
CITY OF COLUMBIA, MAURY COUNTY, TENNESSEE

I/we, DAVID M. CUMMINGS
(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.

Signature

3020 Stansberry 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.

Notary Public

My Commission Expires: 11-19-2025

PAIGE SELLERS
STATE OF TENNESSEE NOTARY PUBLIC
WILLIAMSON COUNTY
My Commission Expires 11-19-2025

DocuSign Envelope ID: A65CD640-417C-421F-934C-E1E716D94AB5

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 (onlama.com)

ADDRESS/LOCATION	2643 Pulaski Hwy, Columbia, TN 38401		
	TAX MAP: 113	GROUP:	PARCEL: 80.50
SUMMARY OF NATURE OF REQUEST AND WORK	The purpose of this plat is to create 24 single-family residential lots and 2 open spaces.		

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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	Plats/PUDs: ☑ Project Name (include Sections & Phases) Hillcrest Village - Phase 2 ☑ Total Number of Lots/Residential Units 24 ☑ Square Footage of Non-Residential Floor Space 18086.68 ☑ Total acreage 6.308

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.

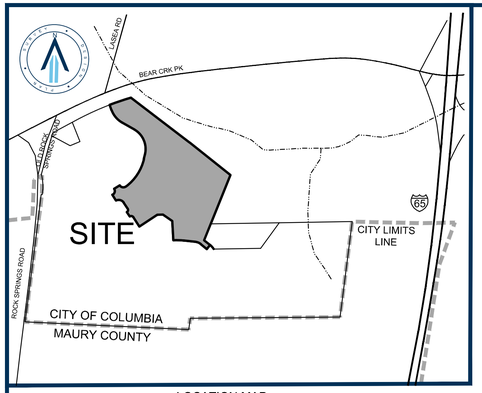
APPLICANT
All communications go to the Applicant's email that is provided.

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

PROPERTY OWNER NAME	M/I Homes of Nashville, LLC	PHONE	919-763-4630
ADDRESS	725 Cool Springs Blvd. St 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	Abigail Overstreet	6/14/2024
APPLICANT NAME	APPLICANT SIGNATURE	DATE
M/I Homes of Nashville, LLC	DocuSigned by: Elias Jordon IV 23D401CDBF9423...	6/14/2024
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE



LOCATION MAP
NOT TO SCALE

GENERAL NOTES

1. THE PURPOSE OF THIS PLAT IS TO CREATE 58 SINGLE FAMILY LOTS AND 4 OPEN SPACE TRACTS AND TO DEDICATE RIGHT-OF-WAY AND EASEMENTS.
2. BEARINGS SHOWN HEREON ARE BASED ON THE TENNESSEE COORDINATE SYSTEM OF 1983.
3. 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.
4. THIS PROPERTY IS CURRENTLY ZONED HDRPUD (MRC BASE ZONE),

   SETBACKS:

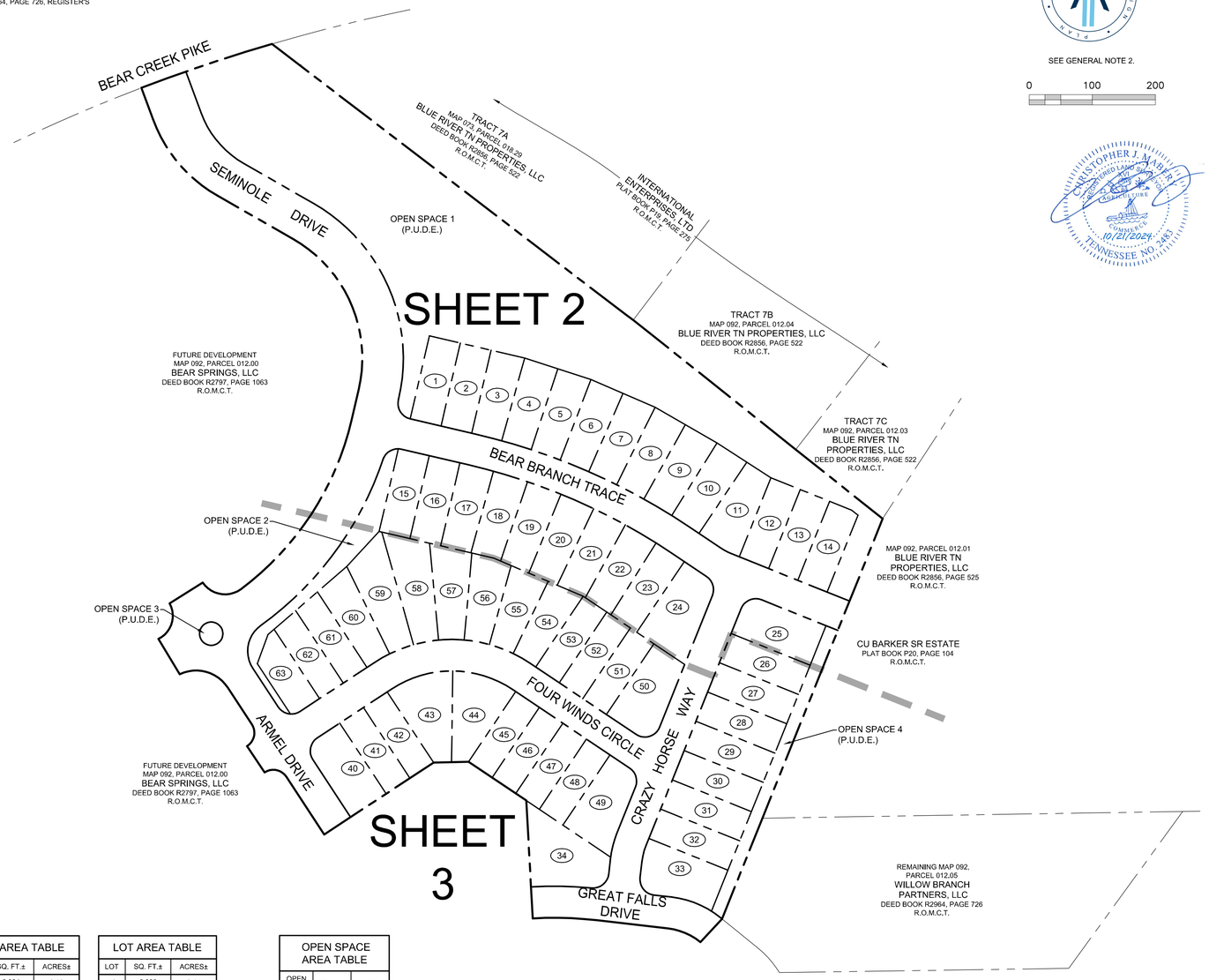
   STREET YARD: 25'
   SIDE YARD: 7.5'
   REAR YARD: 20'
5. BY SCALED MAP LOCATION AND GRAPHIC PLOTTING ONLY, THIS PROPERTY LIES WITHIN FLOOD ZONE X, AS DESIGNATED ON CURRENT FEDERAL EMERGENCY MANAGEMENT AGENCY MAP NO. 47119C0195E, WITH AN EFFECTIVE REVISED DATE OF APRIL 15, 2007 WHICH MAKES UP A PART OF 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.
6. ALL OPEN SPACE TRACTS ARE TO BE PUBLIC UTILITY AND DRAINAGE EASEMENTS.
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 12.05 AS SHOWN ON MAURY COUNTY PROPERTY MAP NUMBER 092.

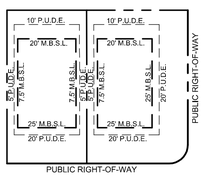
DEED REFERENCE

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.

0 100 200



SINGLE FAMILY
TYPICAL LOT DETAIL
UNLESS SHOWN OTHERWISE
(NOT TO SCALE)

LOT AREA TABLE		
LOT	SQ. FT.±	ACRES±
1	6,775	0.16
2	6,750	0.15
3	7,007	0.16
4	7,040	0.16
5	7,056	0.16
6	7,071	0.16
7	7,085	0.16
8	7,070	0.16
9	7,379	0.17
10	7,314	0.17
11	8,156	0.19
12	6,750	0.15
13	6,750	0.15
14	6,727	0.15
15	6,749	0.15
16	6,750	0.15
17	7,009	0.16
18	7,002	0.16
19	7,065	0.16
20	7,117	0.16

LOT AREA TABLE		
LOT	SQ. FT.±	ACRES±
21	6,984	0.16
22	7,016	0.16
23	6,944	0.16
24	10,330	0.24
25	8,978	0.21
26	6,750	0.15
27	6,750	0.15
28	6,750	0.15
29	6,750	0.15
30	6,750	0.15
31	6,750	0.15
32	6,750	0.15
33	9,508	0.22
34	11,573	0.27
40	8,895	0.20
41	6,030	0.14
42	6,030	0.14
43	9,731	0.22
44	9,287	0.21
45	6,030	0.14

LOT AREA TABLE		
LOT	SQ. FT.±	ACRES±
46	6,030	0.14
47	6,030	0.14
48	6,030	0.14
49	9,621	0.22
50	9,664	0.22
51	6,075	0.14
52	6,075	0.14
53	6,075	0.14
54	6,601	0.15
55	6,642	0.15
56	7,090	0.16
57	7,790	0.18
58	9,397	0.22
59	9,540	0.22
60	7,567	0.17
61	6,313	0.14
62	6,046	0.14
63	6,153	0.14

OPEN SPACE AREA TABLE		
OPEN SPACE	SQ. FT.±	ACRES±
1	174,246	4.00
2	11,087	0.25
3	1,075	0.02
4	9,803	0.23

LEGEND

R.O.M.C.T.	REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE
(123)	LOT NUMBER

811 Know what's below. Call before you dig.

SURVEYOR
RAGAN-SMITH ASSOCIATES, LLC
CHRIS MABERY, RLS #2483
1500 MEDICAL CENTER PKWY,
SUITE 2J
MURFREESBORO, TN 37129
(615) 546-6050
cmabery@ragansmith.com

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

SITE DATA TABLE

LOT AREA	= 9.73 ACRES±
OPEN SPACE AREA	= 4.51 ACRES±
RIGHT-OF-WAY AREA	= 4.90 ACRES±
TOTAL SITE AREA	=19.14 ACRES±

RECORDER'S INFORMATION

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 SHWON 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 10/21/2024 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 UBDIVISION 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 1A

LOTS 1-34, 40-63 AND OPEN SPACES 1-4

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

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

RaganSmith
a Pape Dawson company

G:\21-0311-SS\SURVEY\PLAT\FINAL\PHASE 1A\21-0311_PHASE 1A FINAL PLAT.DWG
PLOTTED BY AMANDA REED ON: 10/17/2024 2:39 PM LAST UPDATED BY AMEED ON: 10/17/2024 2:39 PM

BEAR CREEK PIKE
P&T
TP RCP
HP RCP
CATV
C11
C13
10' ARTERIAL STREET BUFFER
C12
IP(O)
N20°13'48"W
53.73'
S20°13'48"E
65.86'
5' SIDEWALK
100' SETBACK
20' SETBACK
C14
C10
SEMINOLE DRIVE
RIGHT-OF-WAY
S60°12'17"E 197.42'
N60°12'17"W 138.62'
S52°34'51"E 707.93'
TRACT 7A
MAP 073, PARCEL 018.29
BLUE RIVER TN PROPERTIES, LLC
DEED BOOK R2856, PAGE 522
R.O.M.C.T.
INTERNATIONAL ENTERPRISES, LTD
PLAT BOOK P28, PAGE 278
R.O.M.C.T.
OPEN SPACE 1 (P.U.D.E)
POND 1 PROPOSED DETENTION AREA
18" RCP
24" RCP
36" RCP
S54°47'33"E
12.67'
IR(O) NAIL
IR(O) LS #596
TRACT 7B
MAP 092, PARCEL 012.04
BLUE RIVER TN PROPERTIES, LLC
DEED BOOK R2856, PAGE 522
R.O.M.C.T.
FUTURE DEVELOPMENT
MAP 092, PARCEL 012.00
BEAR SPRINGS, LLC
DEED BOOK R2797, PAGE 1063
R.O.M.C.T.
S51°26'17"E 329.30'
S51°27'09"E 175.96'
TRACT 7C
MAP 092, PARCEL 012.03
BLUE RIVER TN PROPERTIES, LLC
DEED BOOK R2856, PAGE 522
R.O.M.C.T.
SEWER EASEMENT DEED BOOK R2822, PAGE 679, R.O.M.C.T.
20' DRAINAGE EASEMENT
IP(O)
S13°05'37"W 2.24'
N13°05'37"E 45.97'
S76°54'23"E 154.83'
N76°54'23"W 108.70'
BEAR BRANCH TRACE
WATER SERVICE (TYPICAL)
OPEN SPACE 2 (P.U.D.E.)
N42°45'55"E 15.55'
4.22'
N76°54'23"W 186.38'
N13°05'37"E 135.00'
S13°05'37"W 135.00'
S76°54'23"E 50.00'
N76°54'23"W 50.00'
S13°05'37"W 135.00'
N13°05'37"E

NOTE

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

CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA	CHD BRG	CHORD	TANGENT
C1	56.71'	100.00'	32°29'36"	N67°13'13"W	55.95'	29.14
C2	101.85'	600.00'	9°43'35"	N88°19'48"W	101.73'	51.05
C3	39.27'	25.00'	90°00'00"	N78°18'15"W	35.36'	25.00
C4	39.71'	25.00'	91°00'55"	N12°12'13"E	35.67'	25.45
C5	86.24'	60.00'	82°21'06"	N74°28'48"W	79.00'	52.48
C6	65.92'	40.83'	92°30'17"	N17°24'28"E	58.99'	42.65
C7	68.28'	42.89'	91°12'12"	S79°57'10"E	61.29'	43.80
C28	26.76'	100.00'	15°20'05"	S14°12'01"W	26.68'	13.46
C29	39.27'	25.00'	90°00'00"	S38°28'01"E	35.36'	25.00
C30	85.07'	150.00'	32°29'36"	S67°13'13"E	83.93'	43.71
C31	67.85'	150.00'	25°54'59"	N70°30'32"W	67.27'	34.51
C32	17.22'	150.00'	6°34'37"	N54°15'44"W	17.21'	8.62
C33	96,08'	650,00'	8°28'08"	S88°57'32"E	95.99'	48,13
C34	38,72'	25,00'	88°44'33"	N50°54'15"E	34.97'	24.46
C35	40.15'	150.00'	15°20'05"	N14°12'01"E	40,03'	20.19
C36	1.65'	150.00'	0°37'44"	S06°50'51"W	1.65'	0.82
C37	38.50'	150.00'	14°42'21"	S14°30'53"W	38.39'	19.36
C38	34.02'	25.00'	77°58'21"	N17°07'06"W	31.46'	20.23
C39	202.90'	173.00'	67°11'58"	N89°42'16"W	191.47'	114.94
C40	102.19'	173.00'	33°50'40"	N73°37'05"E	100.71'	52,63
C41	100,71'	173.00'	33°21'18"	S72°46'56"E	99.30'	51,83
C42	39.27'	25.00'	90°00'00"	S11°41'45"W	35.36'	25.00
C43	39.27'	25.00'	90°00'00"	S78°18'15"E	35.36'	25.00
C44	23.18'	25.00'	53°07'48"	N59°52'09"W	22.36'	12.50
C45	16.09'	25.00'	36°52'12"	S75°07'51"W	15.81'	8.33
C46	261.55'	223.00'	67°11'58"	S89°42'16"E	246.81'	148.16
C47	27.75'	223.00'	7°07'50"	S60°15'40"W	27.73'	13.89
C48	40.52'	223.00'	10°24'39"	S69°01'54"W	40.46'	20.32
C49	40.52'	223.00'	10°24'39"	S79°26'33"W	40.46'	20.32
C50	40.52'	223.00'	10°24'39"	S89°51'11"W	40.46'	20.32
C51	40.52'	223.00'	10°24'39"	N79°44'10"W	40.46'	20.32
C52	40.52'	223.00'	10°24'39"	N69°19'32"W	40.46'	20.32
C53	31.20'	223.00'	8°00'55"	N60°06'45"W	31.17'	15.62
C54	44.52'	25.00'	102°01'39"	N72°52'54"E	38.86'	30.89
C55	76.38'	50.00'	87°31'11"	S10°27'21"W	69.16'	47.88
C56	335.18'	532.50'	36°03'54"	S36°10'59"W	329.68'	173.35
C69	58,12'	18,50'	180°00'00"	N90°00'00"W	37.00'	INFINITY

SEE GENERAL NOTE 2.

0 50 100

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
- HEADWALL
- RCP — REINFORCED CONCRETE PIPE
- SANITARY SEWER MANHOLE
- —SA— SANITARY SEWER LINE
- —W— WATER LINE
- STREET LIGHT
- —X—X— FENCE
- P.U.D.E. PUBLIC UTILITY AND DRAINAGE EASEMENT
- (123) LOT NUMBER
- * CRITICAL LOTS (LOTS CONTAINING 20%+ SLOPES)
- 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.

811 Know what's below. Call before you dig.

CHRISTOPHER J. MASSEY — REGISTERED LAND SURVEYOR — STATE OF TENNESSEE — SURVEYOR — 10/21/2024 — TENNESSEE NO. 2483

FINAL SUBDIVISION PLAT

BEAR SPRINGS SUBDIVISION PHASE 1A

LOTS 1-34, 40-63 AND OPEN SPACES 1-4

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

DATE: OCTOBER 21, 2024 SCALE: 1"=50'
JOB NUMBER: 21-0311

RaganSmith
a Pape Dawson company

SHEET 3 OF 3

(C) 2021 RAGAN SMITH ASSOCIATES, INC.
PLOTTED BY AMANDA REED ON 10/17/2024 2:49 PM
LAST UPDATED BY AMANDA REED ON 10/17/2024 2:49 PM

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

26th day of September, 20 24,
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, 20 24,
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,

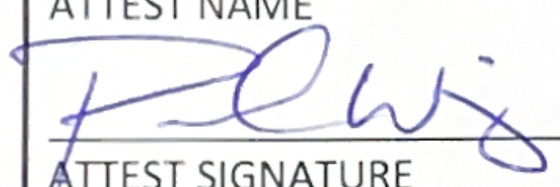
WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and common areas to be constructed within and to serve the PROJECT including but not be limited to roads, 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.

Bear Springs Phase 1A + 1B PROJECT	
Completed by the Developer	*Completed by the City*
Willow Branch Partners LLC DEVELOPER NAME	
Greg Templeton AUTHORIZED AGENT NAME	CITY ENGINEER
 SIGNATURE	SIGNATURE
9/26/24 DATE	DATE
1720 General George Patton Dr., Ste A STREET	
Brentwood, TN 37027 CITY, STATE, ZIP	
615-499-9997 PHONE	
josh@willowbranchpartners.com EMAIL	
Attest	*Attest*
Paul Winegar ATTEST NAME	ATTEST NAME
 ATTEST SIGNATURE	ATTEST SIGNATURE
9/27/2024 DATE	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 (onlama.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 1A		

DATE OF PRE-APPLICATION CONFERENCE	9/25/24	*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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	Plats/PUDs: ☑ Project Name (include Sections & Phases) Bear Springs - Phase 1A ☑ Total Number of Lots/Residential Units 58 single family lots ☐ Square Footage of Non-Residential Floor Space ☑ Total acreage 19.14 acres

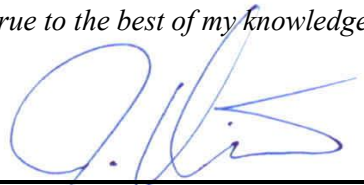
Applications and all required submittals must be filed with the Department of Development Services prior to the established deadline. Both the applicant and property owner (if different from applicant) must sign the application. Any requests to defer or move the item to future meeting dates must be requested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

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

NAME	Jacob Vincent	PHONE	(615) 244-8591
ADDRESS	P.O. Box 60070 Nasvhille, 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.

Jacob Vincent		10/18/24
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Paul Winegar		10/14/2024
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

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

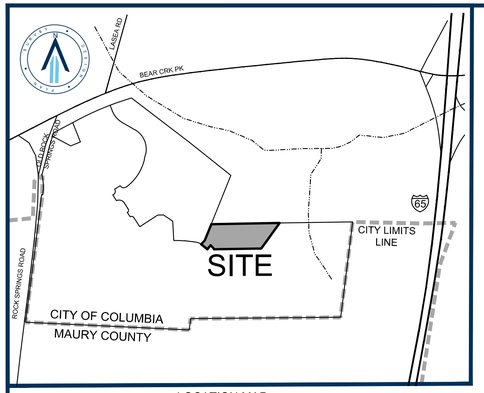
The undersigned, being the Sole Member and Chief Manager of Willow Branch Partners, LLC, a Tennessee limited liability company ("Company"); authorizes Paul Winegar as Authorized Agent to sign the following documents on behalf of the Company:

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.



LOCATION MAP
NOT TO SCALE

GENERAL NOTES

1. 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.

2. BEARINGS SHOWN HEREON ARE BASED ON THE TENNESSEE COORDINATE SYSTEM OF 1983.

3. 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.

4. THIS PROPERTY IS CURRENTLY ZONED HDRPUD (MRC BASE ZONE).

   SETBACKS:

   STREET YARD: 22'
   SIDE YARD: 0' SHARED SIDE WALL, 20'
   REAR YARD: 20'

5. 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. 47119C0195E, 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.

6. ALL SIDEWALKS OUTSIDE THE RIGHT-OF-WAY SHALL BE MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.

PROPERTY MAP REFERENCE

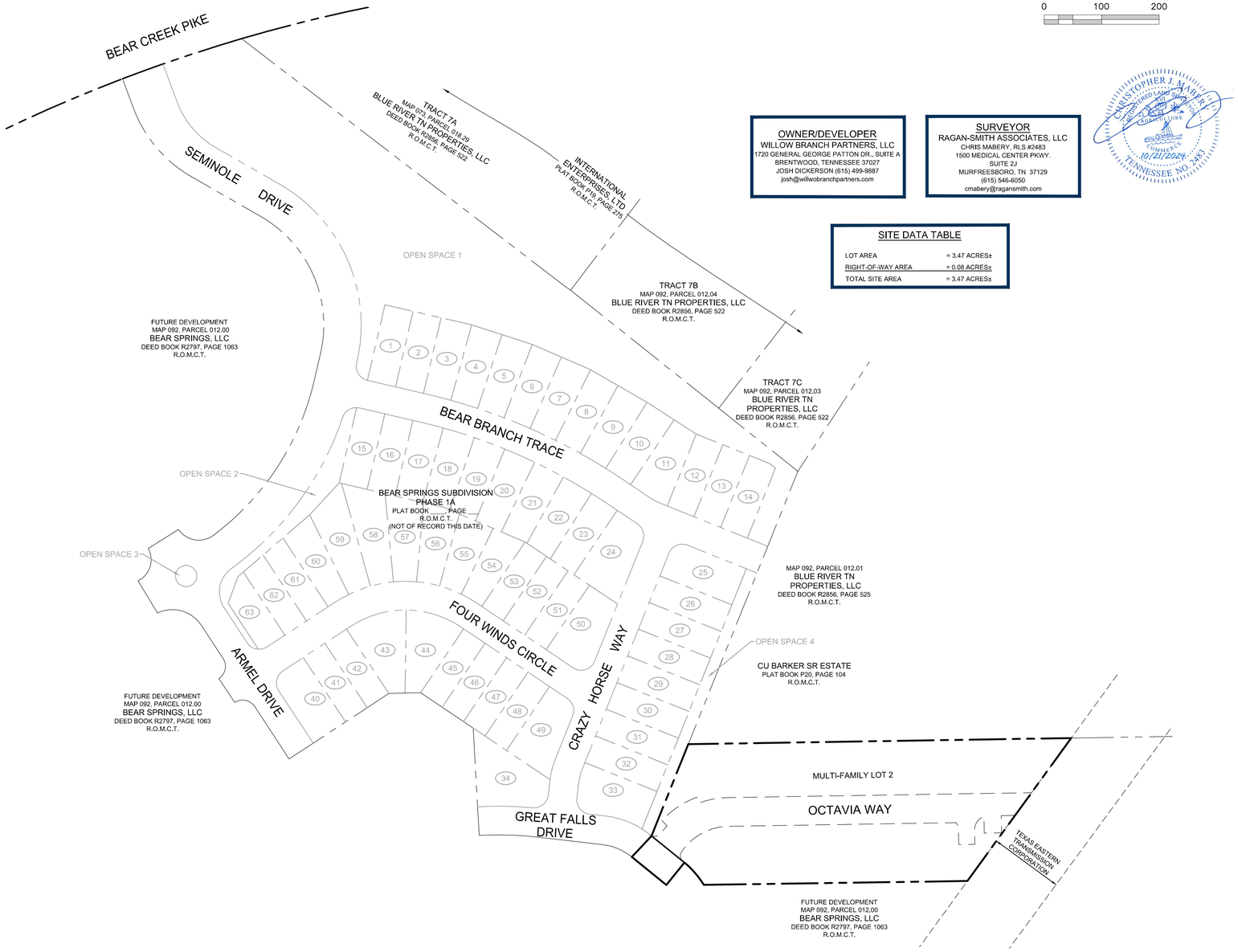
BEING A PORTION OF PARCEL NUMBER 12.05 AS SHOWN ON MAURY COUNTY PROPERTY MAP NUMBER 092.

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.

0 100 200



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

SURVEYOR
RAGAN-SMITH ASSOCIATES, LLC CHRIS MABERY, RLS #2483 1500 MEDICAL CENTER PKWY. SUITE 23 MURFREESBORO, TN 37129 (615) 546-6050 cmabery@ragansmith.com

SITE DATA TABLE

LOT AREA	= 3.47 ACRES±
RIGHT-OF-WAY AREA	= 0.08 ACRES±
TOTAL SITE AREA	= 3.47 ACRES±

LEGEND

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

Know what's below. Call before you dig.

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 SHWON 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

10/21/2024
CHRISTOPHER J. MABERY, RLS NUMBER 2483 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 UBDIVISION 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

RECORDER'S INFORMATION

FINAL SUBDIVISION PLAT

BEAR SPRINGS SUBDIVISION PHASE 1B

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

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

RaganSmith
a Pape Dawson company

G:\21-0311-1\SURVEY\PLAT\FINAL\PHASE 1B\21-0311_PHASE 1B FINAL PLAT.DWG
BY:CMABERY LAST SAVED BY:CMABERY ON 10/21/2024 1:48 PM
PLOTTED BY:CHRISTOPHER MABERY ON 10/21/2024 1:49 PM

NOTE

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

SEE GENERAL NOTE 2.

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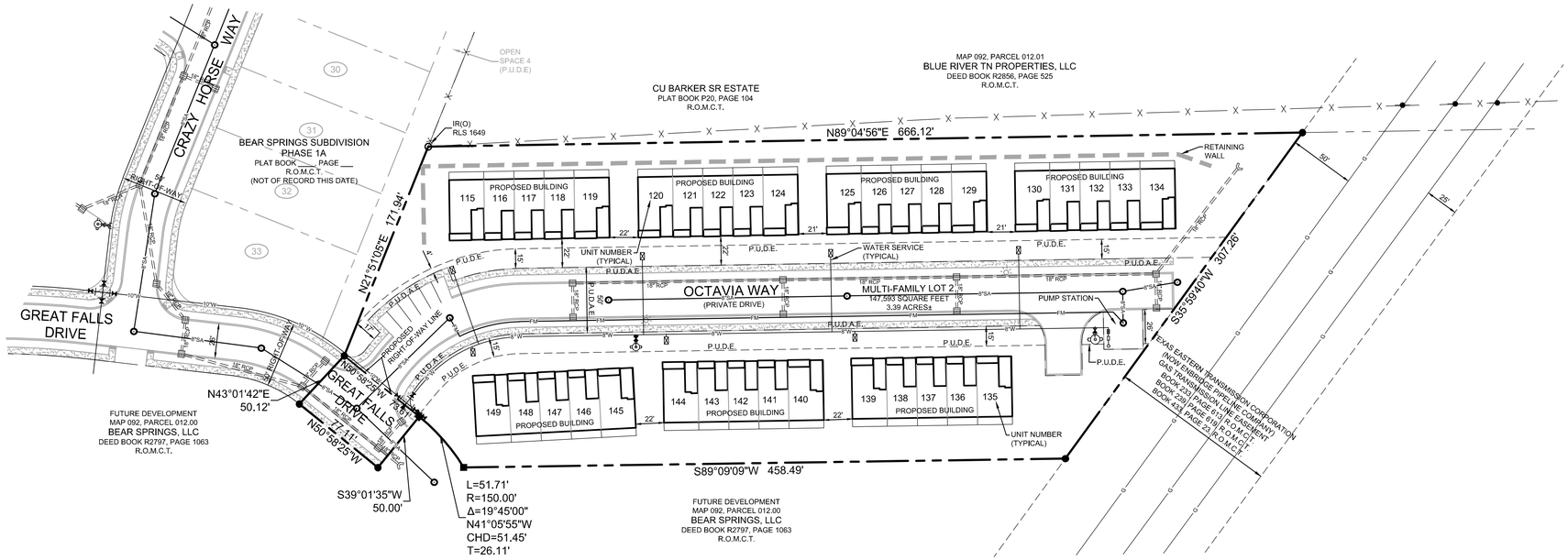


LEGEND

- 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
- —SA— SANITARY SEWER LINE
- —FM— SEWER FORCE MAIN LINE
- —W— WATER LINE
- STREET LIGHT
- —X—X— 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.

811 Know what's below. Call before you dig.

CHRISTOPHER J. MABRY — REGISTERED LAND SURVEYOR — STATE OF TENNESSEE — 10/21/2024 — TENNESSEE NO. 2383

RECORDER'S INFORMATION

FINAL SUBDIVISION PLAT

BEAR SPRINGS SUBDIVISION PHASE 1B

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

DATE: OCTOBER 21, 2024 SCALE: 1"=50'
JOB NUMBER: 21-0311

RaganSmith
a Pape Dawson company

© 2024 RAGAN SMITH ASSOCIATES, INC.
G:\21\0311-AGAINST HEIGHTS\CIVIL\SHEETS\21-0311_PHASE_1B_FINAL PLAT.DWG
PLOTTED BY: Andrew Hall ON: 10/21/2024 1:09 PM

SHEET 2 OF 2

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

26th day of September, 20 24,
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, 20 24,
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,

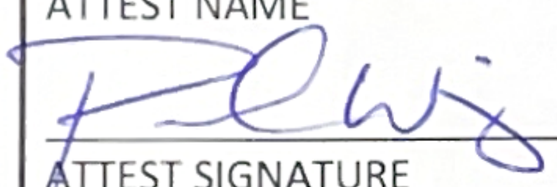
WHEREAS, in order to provide for the health, safety, and welfare of future residents of the PROJECT, it will be necessary for certain improvements to the CITY'S utility systems, public infrastructure, and common areas to be constructed within and to serve the PROJECT including but not be limited to roads, 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.

Bear Springs Phase 1A + 1B PROJECT	
Completed by the Developer	*Completed by the City*
Willow Branch Partners LLC DEVELOPER NAME	
Greg Templeton AUTHORIZED AGENT NAME	CITY ENGINEER
 SIGNATURE	SIGNATURE
9/26/24 DATE	DATE
1720 General George Patton Dr., Ste A STREET	
Brentwood, TN 37027 CITY, STATE, ZIP	
615-499-9997 PHONE	
josh@willowbranchpartners.com EMAIL	
Attest	*Attest*
Paul Winegar ATTEST NAME	ATTEST NAME
 ATTEST SIGNATURE	ATTEST SIGNATURE
9/27/2024 DATE	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 (onlama.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.*

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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	Plats/PUDs: ☑ Project Name (include Sections & Phases) Bear Springs - Phase 1B ☑ Total Number of Lots/Residential Units 35 Residential Units ☐ Square Footage of Non-Residential Floor Space ☑ Total acreage 3.47 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	Jacob Vincent	PHONE	(615) 244-8591
ADDRESS	P.O. Box 60070 Nasvhille, 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

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Jacob Vincent		10/18/24
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Paul Winegar		10/14/2024
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

CONSENT ACTION AND RESOLUTION
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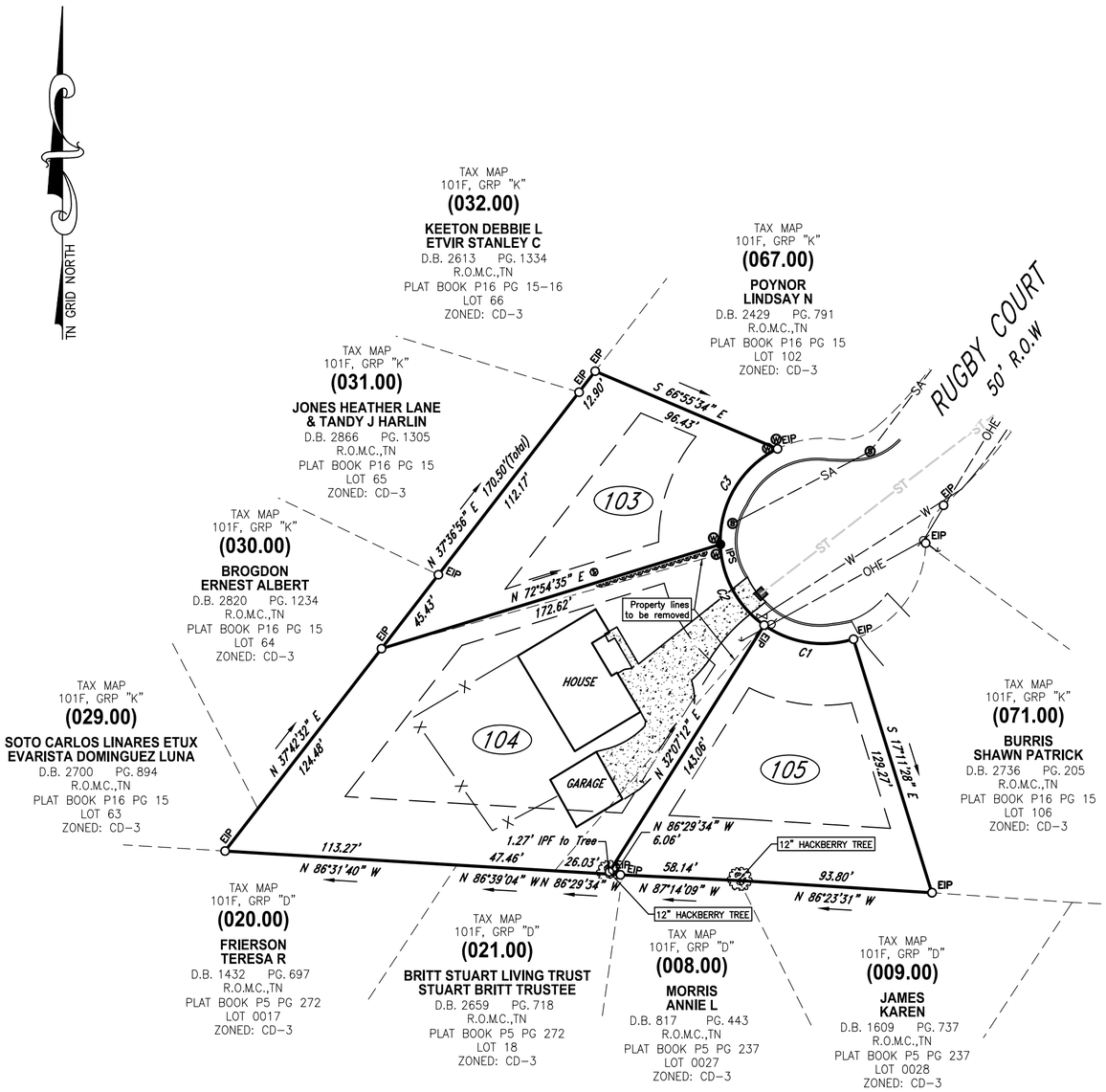
Witness my hand this 14th day of October, 2020.

Henry Preston Ingram, Jr.



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)

1 inch = 50 ft.

Curve Table

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	50.00'	45.54'	43.98'	S 81°10'33" E	52°11'00"
C2	50.00'	46.34'	44.70'	N 28°31'57" W	53°06'11"
C3	50.00'	57.27'	54.19'	N 30°50'03" E	65°37'49"

Legend

- EIP Iron Rod Found
- IPS Iron Rod Set
- I.P.F. Iron Pipe Found
- AXLE Axle Found
- ECM Fence Post
- Concrete Monument Existing
- P.K.F. PK Nail Found
- P.K.S. PK Nail Set
- R.R.S..F Railroad Spike Found
- R.R.S.S. Railroad Spike Set
- Bench Mark
- Stake Found
- Fire Hydrant
- Water Meter
- Water Valve
- Water Reducer
- Clean Out
- Sanitary Sewer Manhole
- Storm Sewer Manhole
- Catch Basin
- Curb Inlet
- Storm Pipe
- Cable Manhole
- Electric Manhole
- Telephone Manhole
- Water Manhole
- Electric Meter
- Cable Riser
- Electric Riser
- Telephone Riser
- Telephone Booth
- Gas Meter
- Gas Valve
- Light Pole
- Power Pole
- Telephone Pole
- Guy Pole
- Power Pole
- Flag Pole
- Guy Wire
- Mailbox
- Parking Block
- Satellite Dish
- Handicap Parking
- Water Spigot
- Bollard
- Evergreen Tree
- Deciduous Tree
- Bush
- Sign
- Adjoining Property Line
- Subject Property Line
- Easement Line
- Building Setback Line
- Centerline
- Edge of Pavement
- Edge of Gravel
- Fence Line
- Landscape
- Woods / Tree line
- Edge of Water
- Ditch / Creek Centerline
- Minor Contour Line
- Index Contour Line
- Gas Line
- Sanitary Sewer Line
- Water Line
- Storm Sewer Line
- Overhead Utility Line
- Overhead Cable Line
- Overhead Electric Line
- Overhead Telephone Line
- Underground Utility Line
- Underground Cable Line
- Underground Electric Line
- Underground Telephone Line
- Forced Main Line

PARCEL NUMBER:
TAX MAP 101F, GROUP "K", PARCEL 069.00

DEED BOOK:
R2852, PAGE 1487

PARCEL ADDRESS:
1610 RUGBY COURT

PROPERTY OWNER:
PAMELA L BRADLEY & RANDY GENE LOAGUE
1610 RUGBY COURT
COLUMBIA TN, 38401

PARCEL NUMBER:
TAX MAP 101F, GROUP "K", PARCEL 068.00 & 070.00

DEED BOOK:
R1459, PAGE 893

PARCEL ADDRESS:
1608 & 1613 RUGBY COURT

PROPERTY OWNER:
MCBROOM FAMILY PARTNERSHIP
943 RIVERVIEW LANE
COLUMBIA TN, 38401

RECORDED PLAT ZONING: R-10
CURRENT ZONING: CD-3

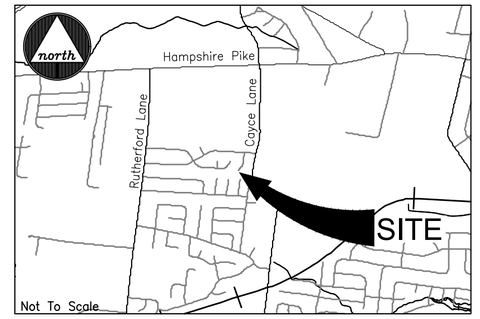
BUILDING SETBACKS (RECORDED PLAT):
FRONT – 30'
SIDE – 10'
REAR – 30'

ACREAGE OF PARCELS:
LOT 103 – ±0.25 ACRES – 10,798.2 S.F
LOT 104 – ±0.55 ACRES – 24,086.9 S.F.
LOT 105 – ±0.28 ACRES – 12,266.6 S.F.

Surveyor's Notes

1. All distances were measured with E.D.M. equipment and have been adjusted for temperature and pressure, portions of the survey were done utilizing a Carlson BRX7, utilizing Base and Rover.
2. The property (Boundary) Line Survey exceeds the minimum requirements of an Urban Land Survey Category IV 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.
3. 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.
4. 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.
5. 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 Development Services.
6. The area of the parcels are as shown hereon.
7. This property currently identified as Tax Map No. 101F, Group "K" Parcel No. 068.00, 069.00, & 070.00, Maury County. For designation shown thus ( ) indicates Parcel Numbers for said map.
8. Plat reference: P16, Page 15, Lots 103, 104, & 105.
9. Deed reference: Book R2852, Page 1487 & R1459, Page 893.
10. Bearings based on: Tennessee State Plane (NAD83).
11. 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.
12. 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.
13. 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.
14. 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.
15. The certification is not an expressed or implied warranty or guarantee.
16. This property is not located in a Special Flood Hazard Area as shown on F.E.M.A. Flood Insurance Rate Map, Community Panel No. 47119C0280E, dated April 16, 2007, and shown hereon graphically.
17. There is a 10' Public Utility and Drainage Easement along the front and rear property lines and 5' on all interior side property lines.

Location Map



©2024

PURPOSE NOTE: The purpose of this plat is to revise the common property lines between lots 103, 104, and lots 104, 105.
DRIVEWAY NOTE: All driveways shall be constructed to contain gutter flow within the street and right-of-way, particularly lots that do not have a sidewalk.
GENERAL NOTE: The recording of this final plat voids, vacates, and superceded the previous plat of record in Plat Book 16, pages 15 and 16, for lots 103, 104, and 105 as shown hereon.

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 *See Below, Page *See Below, Maury County Registers 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.

Book Number R2852, Page 1487

Date _____ Pamela L Bradley _____

Date _____ Randy Gene Loague _____

Book Number R1459, Page 893

Date _____ McBroom Family Partnership _____

CERTIFICATE OF COMPLIANCE

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

Date _____ 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 City of Columbia Subdivision Regulations, with the exception of such variances, if any, as are noted in the minutes of the Planning Commission, and that it has been approved for recording in the Office of the County Register:

Date _____ Secretary, Planning Commission
Columbia, Tennessee

SURVEYOR'S CERTIFICATION (TENNESSEE)

I hereby certify that to the best of my 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 1:10,000.

10/21/24 Date — Allen B. O'Leary — TN RLS #1987 Number

Register of Deed Recording Stamp

ALLEN B. O'LEARY
REGISTERED LAND SURVEYOR
XVI
AGRICULTURE
COMMERCE
TENNESSEE NO. 1987

WES Engineers & Surveyors
CIVIL ENGINEERS & LAND SURVEYORS
2486 NASHVILLE HIGHWAY
COLUMBIA, TN 38401
PHONE: (931) 388-2329
www.wesengineers.com
ENGINEERS & SURVEYORS

Client
McBroom Family Partnership
943 Riverview Lane
Columbia TN, 38401

FINAL PLAT

WELLINGTON PLACE SECTION 2, REVISION TO LOTS 103, 104, & 105
1608, 1610, & 1613 RUGBY COURT, COLUMBIA TN, 38401

REVISIONS	DATE

Drawn: CG
Checked: EB
Approved: AO
Date: 10-21-2024

Job. no. 20514-2
Scale: Vertical: 1"=50' Horizontal:

1 of 1

FILE:J:\ WES_Engineers_Surveyors 2020\20514 - Building Lots - McBroom\20514-2 Wellington 107-108\Dwg\Survey\20514-2 Wellington.dwg

Not Applicable

October 21, 2024

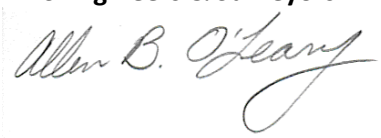
City of Columbia
Development Services
700 North Garden Street
Columbia, TN 38401

RE: **Project Name: Wellington Place, Section 2 Revision to Lots 103, 104, & 105, Final Plat**
City of Columbia Staff Review Submittal

On behalf of McBroom Family Partnership, the owner of existing lots 103 & 105 and Pamela L Bradley & Randy Gene Loague, the owners of existing lot 104, **WES Engineers & Surveyors** would like to submit this Final Plat revising the common property lines between lots 103-105 to the City of Columbia for Planning Commission 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

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 (onlama.com)

ADDRESS/LOCATION	Rugby Court, Columbia, TN 38401		
	TAX MAP: 101F	GROUP: K	PARCEL: 068.00, 069.00, & 070.00
SUMMARY OF NATURE OF REQUEST AND WORK	Request final plat approval for revision to the shared property lines between lots 103, 104, and 105 for Wellington Place Section 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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	Plats/PUDs: ☑ Project Name (include Sections & Phases) Wellington Place Section 2 ☑ Total Number of Lots/Residential Units 3 ☐ Square Footage of Non-Residential Floor Space ☑ Total acreage ±1.08

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

PROPERTY OWNER NAME	McBroom Family Partnership	PHONE	
ADDRESS	943 Riverview Ln, Columbia, TN 38401	EMAIL	

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.

Allen B O'Leary — APPLICANT NAME

Allen B O'Leary — APPLICANT SIGNATURE

10/16/24 — DATE

Randy McBroom — PROPERTY OWNER NAME

Randy McBroom — PROPERTY OWNER SIGNATURE

10/15/24 — DATE

	Plats/PUDs: ☑ Project Name (include Sections & Phases) Wellington Place Section 2 ☑ Total Number of Lots/Residential Units 3 ☐ Square Footage of Non-Residential Floor Space ☑ Total acreage ±1.08

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

PROPERTY OWNER NAME	Bradley Pamela L & Randy Gene League	PHONE	
ADDRESS	1610 Rugby Ct, Columbia, Tn 38401	EMAIL	

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.

Allen B O'Leary — APPLICANT NAME

APPLICANT SIGNATURE

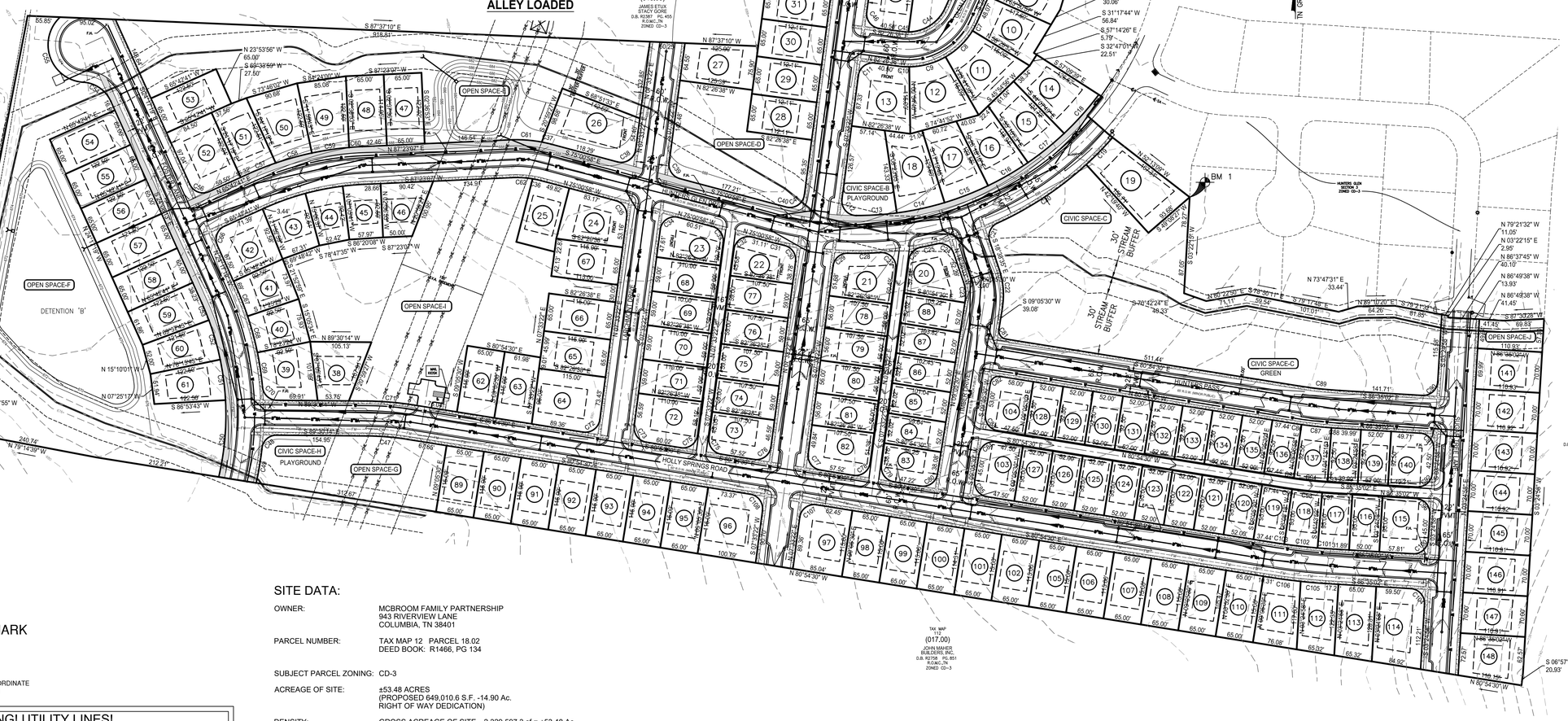
10/16/24 — DATE

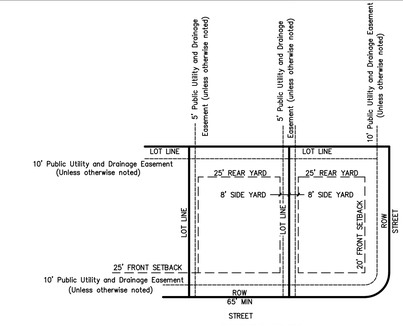
PROPERTY OWNER NAME

Pamela L League — PROPERTY OWNER SIGNATURE

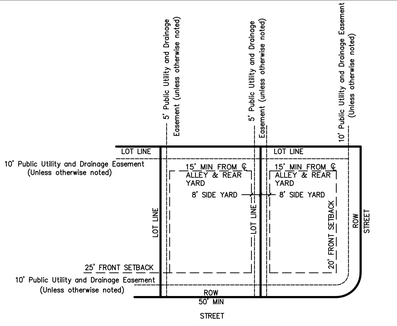
10/15/24 — DATE

PRELIMINARY PLAT



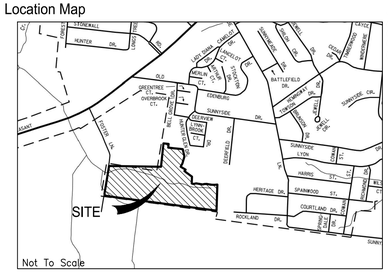


SUBDIVISION
TYPICAL LOT LAYOUT



SUBDIVISION
TYPICAL LOT LAYOUT
ALLEY LOADED

Location Map



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OPEN SPACE / CIVIC AREA TABLES

DESIGNATION	USE	AREA (AC.)
OPEN SPACE-A	OPEN SPACE	18.01 (1)
OPEN SPACE-B	OPEN SPACE	1.44 (2)
OPEN SPACE-D	OPEN SPACE	14.43 (3)
OPEN SPACE-E	OPEN SPACE	10.98 (4)
OPEN SPACE-F	OPEN SPACE	10.98 (4)
OPEN SPACE-G	OPEN SPACE	0.43 (5)
OPEN SPACE-I	OPEN SPACE	0.96 (6)
OPEN SPACE-J	OPEN SPACE	0.50 (7)
TOTAL		457.78 (1)

DESIGNATION	USE	AREA (AC.)
CIVIC SPACE-B	PLAYGROUND	0.37 (1)
CIVIC SPACE-C	GREEN	1.50 (2)
CIVIC SPACE-H	PLAYGROUND	10.31 (3)
CIVIC SPACE-C	GREEN	1.50 (2)
CIVIC SPACE-A	OPEN SPACE	11.97 (4)
CIVIC SPACE-C	GREEN	1.50 (2)
CIVIC SPACE-A	OPEN SPACE	11.97 (4)
TOTAL		39.34 (1)

CANOPY RETENTION TABLE

EXISTING CANOPY			RETAINED CANOPY		
CANOPY	AREA sf	AREA Ac	CANOPY	AREA sf	AREA Ac
A	257,469.1	4.99	A	204,776.2	4.70
B	357,669.0	8.21	B	164,447.4	3.78
C	50,135.8	1.15	C	0.0	0.00
D	6,156.3	0.14	D	0.0	0.00
E	68,183.9	1.57	E	43,859.5	1.01
TOTAL	699,616.1	16.06	TOTAL	413,083.1	9.48

GROSS
AREA 2,327,892.1 53.44

BENCHMARK

BENCHMARK #1
IRON ROD
N = 455,617.25
E = 1,642,262.16
ELEV = 638.68'
TENNESSEE COORDINATE
SYSTEM OF 1983
NAVD 88

WARNING! UTILITY LINES!

THE CONTRACTOR WILL EXERCISE EXTREME CAUTION IN THE USE OF EQUIPMENT IN AND AROUND OVERHEAD AND UNDERGROUND UTILITY WIRES AND SERVICES. IF AT ANY TIME IN THE PURSUIT OF THIS WORK THE CONTRACTOR MUST WORK IN CLOSE PROXIMITY OF OVERHEAD OR UNDERGROUND SERVICES, THE UTILITY COMPANY SHALL BE CONTACTED PRIOR TO SUCH WORK AND THE PROPER SAFETY MEASURES TAKEN. A THOROUGH EXAMINATION OF THE OVERHEAD WIRES IN THE PROJECT AREA SHOULD BE MADE BY THE CONTRACTOR PRIOR TO THE INITIATION OF CONSTRUCTION. THE UNDERGROUND UTILITY LINES HAVE BEEN SHOWN AS BEST AS CAN BE DETERMINED AT THIS TIME FROM THE INFORMATION OBTAINED FROM THE SURVEY. THE CONTRACTOR SHALL CONTACT EACH OF THESE COMPANIES PRIOR TO BEGINNING CONSTRUCTION AND HAVE THEM DETERMINE THE EXACT LOCATION AND TYPE OF THEIR SERVICES.

Tennessee811
Know what's **below** **Call** before you dig.

LEGEND

	EXISTING	PROPOSED
WATER MAIN		
SANITARY SEWER		
STORM SEWER		
OVERHEAD		
FENCE		
GAS		
DRAINAGE DITCH		
TREE PROTECTION FENCE		
SIGN		
UTILITY POLE		
IRON PIN SET	IPS	
EXISTING IRON PIN	EIP	
CONCRETE MONUMENT		
DECIDUOUS TREE		
GATE VALVE IN BOX		
LIGHT POLE		
BENCHMARK	BM 1	
TREE LINE		
STORM STRUCTURE LABEL		ST1
ASPHALT		
CONCRETE		
# PARKING SPACES		14
P.U.D.E.		

SITE DATA:

OWNER: MCBROOM FAMILY PARTNERSHIP
943 RIVERVIEW LANE
COLUMBIA, TN 38401

PARCEL NUMBER: TAX MAP 12 PARCEL 18.02
DEED BOOK: R1466, PG 134

SUBJECT PARCEL ZONING: CD-3

ACREAGE OF SITE: ±53.48 ACRES
(PROPOSED 649,010.6 S.F. -14.90 Ac.
RIGHT OF WAY DEDICATION)

DENSITY: GROSS ACREAGE OF SITE 2,329,597.3 sf = ±53.48 Ac.
R.O.W. DEDICATION 571,484.6 sf = 13.12 Ac.
148 LOTS/40.36 Ac.=3.67/1

MINIMUM REQUIRED BUILDING SETBACKS:

25' FRONT
25' REAR - 15' FROM ℄ OF ALLEY
8' SIDE - 5 SIDE W / ALLEY
20' SIDE FOR CORNER LOTS

UTILITY SERVICES:

COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TENNESSEE 38401
(931) 388-4833

PURPOSE NOTE: REQUEST FOR CHANGE OF COMPREHENSIVE PLAN & AMEND THE EXISTING MASTER PLAN. CONSTRUCT 9,802.9 L.F. OF ROADWAY & PROVIDE 148 RESIDENTIAL LOTS & ±11.89 ACRES OF OPEN SPACE.

NOTES:

1. INSTALLATION OF HVAC EQUIPMENT IN P.U.D.E.'s WITH BURIED PIPES IS PROHIBITED.
2. MINIMUM LOT WIDTH IS 65' OR 40' W/ALLEY ACCESS
3. ALL DRAINAGE SWALES AND BERMS TO BE MAINTAINED BY INDIVIDUAL HOMEOWNERS.

PROPOSED CONSTRUCTION SCHEDULE FOR THE YEAR 2024/2025

ACTIVITY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY
TEMPORARY SEDIMENT STRUCTURES												
SEDIMENT BASINS												
DIVERSION DITCHES												
CLEARING & CHIPPING												
TOPSOIL STRIPPING AND STORAGE												
ROADWAY GRADING												
PERMANENT STORM SEWER												
UTILITIES												
TEMPORARY VEGETATION												
PAVING												
PERMANENT VEGETATION												
REMOVE TEMPORARY STRUCTURES												

SITE BENCHMARK NOTE:

CONTRACTOR SHALL ESTABLISH A BENCHMARK PRIOR TO CONSTRUCTION. EXISTING BENCHMARK MUST BE RE-VERIFIED AND APPROVED BY THE ENGINEER/SURVEYOR PRIOR TO USE.

BOUNDARY & TOPOGRAPHIC SURVEY PROVIDED BY:

W.E.S. ENGINEERS AND SURVEYORS
2486 NASHVILLE HWY
COLUMBIA, TENNESSEE 38401
(931) 388-2329

FLOOD STUDY NOTE:

THIS PROPERTY IS NOT LOCATED IN A FLOOD HAZARD AREA AS PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD BOUNDARY AND FLOODWAY MAP COMMUNITY PANEL NO. 47119C0280E DATED APRIL 16, 2007 (ZONE "X")

GRAPHIC SCALE

100 0 50 100 200 300
(IN FEET)
1 inch = 100 ft.

SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION

WES ENGINEERS & SURVEYORS
CIVIL ENGINEERS & LAND SURVEYORS
2486 NASHVILLE HIGHWAY
COLUMBIA, TN 38401
PHONE: (931) 388-2329
www.wesengineers.com

ENGINEERS & SURVEYORS

Client
MCBROOM FAMILY PARTNERSHIP
943 RIVERVIEW LANE
COLUMBIA, TN 38401

DATE	REVISIONS

HUNTERS GLEN SECTION 4

HUNTERS GLEN DRIVE
COLUMBIA, TENNESSEE
PRELIMINARY PLAT

Drawn: RP | Checked: GV | Approved: GV | Date: 10/21/2024

Job. no. 17608 | Scale: Vertical: 1" = 100' Horizontal:

FILE: J:\WES_Engineers_Surveyors 2017\17608 – Hunters Glen Sec 4 – McBroom\Dwg\Engineering\17608 Hunters Glen Base 13_A_1_CD-3.dwg

PRELIMINARY PLAT

©2024

LOT AREA TABLE

LOT#	AREA sf	AREA Ac
1	7,283.3	0.17
2	7,287.1	0.17
3	7,287.1	0.17
4	7,958.9	0.18
5	10,150.5	0.23
6	17,211.3	0.40
7	16,001.1	0.37
8	12,028.1	0.28
9	8,164.2	0.19
10	8,267.3	0.19
11	8,267.3	0.19
12	10,205.7	0.23
13	10,205.7	0.23
14	10,345.5	0.24
15	8,629.4	0.20
16	8,297.4	0.19
17	8,949.8	0.21
18	9,895.2	0.23
19	12,796.0	0.29
20	7,952.2	0.18
21	8,438.9	0.19
22	6,957.8	0.16
23	7,301.2	0.17
24	8,915.4	0.20
25	7,329.2	0.17
26	13,496.7	0.31
27	8,805.6	0.20
28	7,287.1	0.17
29	7,287.1	0.17
30	7,287.1	0.17
31	7,281.1	0.17
32	7,287.1	0.17
33	7,287.1	0.17
34	7,287.1	0.17
35	7,287.1	0.17
36	8,894.0	0.20
37	8,950.0	0.21
38	8,029.6	0.18
39	8,304.7	0.19
40	6,449.7	0.15
41	6,368.8	0.15
42	8,601.8	0.20
43	6,805.7	0.16
44	5,481.4	0.13
45	5,717.4	0.13
46	6,494.6	0.15
47	7,931.6	0.18
48	7,935.2	0.18
49	9,064.9	0.21
50	9,398.9	0.22
51	7,945.5	0.18
52	10,178.1	0.23
53	7,948.1	0.18
54	7,962.5	0.18
55	7,962.5	0.18
56	7,962.5	0.18
57	7,962.5	0.18
58	7,962.5	0.18
59	8,079.6	0.19
60	7,511.7	0.17
61	7,532.6	0.17
62	7,475.0	0.17
63	7,305.5	0.17
64	11,077.6	0.25
65	7,475.0	0.17
66	7,475.0	0.17
67	7,475.0	0.17
68	6,490.0	0.15
69	6,490.0	0.15
70	6,490.0	0.15
71	6,490.0	0.15
72	8,795.2	0.20
73	7,345.4	0.17
74	6,342.5	0.15
75	6,342.5	0.15
76	6,342.5	0.15
77	6,342.5	0.15
78	6,020.0	0.14
79	6,020.0	0.14
80	6,020.0	0.14
81	6,020.0	0.14
82	7,860.2	0.18
83	5,883.9	0.14
84	5,145.2	0.12
85	5,217.7	0.12
86	5,290.2	0.12
87	5,362.7	0.12
88	5,435.1	0.12
89	7,475.0	0.17
90	7,475.0	0.17
91	7,475.0	0.17
92	7,475.0	0.17
93	7,475.0	0.17
94	7,475.0	0.17
95	7,475.0	0.17
96	11,288.1	0.26
97	9,814.6	0.23
98	7,475.0	0.17
99	7,475.0	0.17
100	7,475.0	0.17
101	7,475.0	0.17
102	7,475.0	0.17
103	7,475.0	0.17
104	7,475.0	0.17
105	7,475.0	0.17
106	7,475.0	0.17
107	7,475.0	0.17
108	7,475.0	0.17
109	7,475.0	0.17
110	7,475.0	0.17
111	8,117.4	0.19
112	7,790.5	0.18
113	8,162.7	0.19
114	11,105.1	0.25
115	7,599.1	0.17
116	4,940.0	0.11
117	5,043.8	0.12
118	5,208.9	0.12
119	5,015.1	0.12
120	4,940.0	0.11
121	4,940.0	0.11
122	4,940.0	0.11
123	4,940.0	0.11
124	4,940.0	0.11
125	4,940.0	0.11
126	4,940.0	0.11
127	4,940.0	0.11
128	4,810.0	0.11
129	4,810.0	0.11
130	4,810.0	0.11
131	4,810.0	0.11
132	4,810.0	0.11
133	4,810.0	0.11
134	4,810.0	0.11
135	4,810.0	0.11
136	4,737.2	0.11
137	5,086.1	0.12
138	4,750.0	0.11
139	4,810.0	0.11
140	6,642.7	0.15
141	7,764.0	0.18
142	7,764.8	0.18
143	7,764.5	0.18
144	7,764.3	0.18
145	7,746.0	0.18
146	7,763.8	0.18
147	7,763.6	0.18
148	8,645.6	0.20

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	25.00'	39.27'	35.36'	S 37°26'38" E	90°00'00"
C2	130.00'	37.46'	37.33'	S 74°11'18" E	16°30'40"
C3	130.00'	65.30'	64.62'	N 51°32'30" W	28°46'56"
C4	130.00'	65.30'	64.62'	N 22°45'34" W	28°46'56"
C5	130.00'	65.30'	64.62'	N 06°01'22" E	28°46'56"
C6	130.00'	8.48'	8.48'	S 22°16'56" W	3°44'13"
C7	130.00'	16.73'	16.72'	S 27°50'15" W	7°22'25"
C8	130.00'	65.30'	64.62'	N 45°54'56" E	28°46'56"
C9	130.00'	65.30'	64.62'	S 74°41'52" W	28°46'56"
C10	130.00'	19.21'	19.19'	S 86°40'39" E	8°28'03"
C11	25.00'	39.27'	35.36'	N 52°33'22" E	90°00'00"
C12	25.00'	42.48'	37.55'	S 41°07'30" E	97°21'44"
C13	517.50'	69.64'	69.59'	S 86°20'19" W	7°42'38"
C14	517.50'	84.07'	83.98'	S 77°49'46" W	9°18'29"
C15	517.50'	80.22'	80.14'	N 68°44'04" E	8°52'55"
C16	517.50'	79.21'	79.14'	S 59°54'31" W	8°46'12"
C17	517.50'	79.96'	79.88'	N 51°05'48" E	8°51'12"
C18	517.50'	89.19'	89.08'	S 41°43'59" W	9°52'28"
C19	582.50'	65.20'	65.16'	S 44°22'06" W	6°24'47"
C20	604.24'	183.55'	182.85'	N 56°34'53" E	17°24'17"
C21	25.00'	36.76'	33.54'	S 23°28'59" W	84°15'08"
C22	132.50'	64.14'	63.51'	S 04°46'33" E	27°44'05"
C23	67.50'	32.67'	32.36'	N 04°46'33" W	27°44'05"
C24	25.00'	36.90'	33.64'	S 61°13'07" E	84°34'08"
C25	582.50'	28.19'	28.19'	S 77°53'01" W	2°46'23"
C26	25.00'	31.29'	29.29'	S 43°24'47" W	71°42'50"
C27	25.00'	44.27'	38.71'	N 43°10'10" W	101°27'05"
C28	582.50'	55.80'	55.78'	N 88°50'56" E	5°29'18"
C29	25.00'	36.67'	33.47'	N 49°34'29" E	84°02'13"
C30	25.00'	37.13'	33.81'	S 34°59'38" E	85°06'01"
C31	582.50'	25.70'	25.70'	S 76°16'48" E	2°31'41"
C32	25.00'	42.51'	37.57'	N 56°16'12" E	97°25'40"
C33	25.00'	36.03'	32.99'	N 33°43'48" W	82°34'20"
C34	25.00'	42.51'	37.57'	S 56°16'12" W	97°25'40"
C35	172.50'	15.41'	15.41'	N 78°08'12" W	5°07'11"
C36	237.50'	15.62'	15.62'	S 77°22'21" E	3°46'09"
C37	25.00'	42.51'	37.57'	N 56°16'12" E	97°25'40"
C38	25.00'	36.03'	32.99'	S 33°43'48" E	82°34'20"
C39	25.00'	39.27'	35.36'	N 75°00'58" W	0°52'50"
C40	772.90'	12.46'	12.46'	N 75°00'58" W	0°52'50"
C41	25.00'	42.51'	37.57'	S 56°16'12" W	97°25'40"
C42	25.00'	39.27'	35.36'	N 52°33'22" E	90°00'00"
C43	70.10'	130.15'	112.24'	N 29°08'47" W	106°23'02"
C44	70.00'	79.65'	75.42'	S 56°44'46" W	65°11'27"
C45	70.00'	10.04'	10.03'	S 86°33'04" E	8°12'52"
C46	25.00'	39.27'	35.36'	S 37°26'38" E	90°00'00"
C47	470.00'	70.51'	70.44'	N 85°12'22" W	8°35'43"
C48	25.00'	36.80'	33.57'	S 48°19'37" W	84°20'18"
C49	532.50'	60.60'	60.57'	S 09°25'05" W	6°31'13"
C50	467.50'	132.85'	132.41'	S 05°02'11" W	16°16'56"
C51	467.50'	70.44'	70.38'	S 07°25'17" E	8°38'00"
C52	467.50'	70.44'	70.38'	S 16°03'17" E	8°38'00"
C53	467.50'	31.96'	31.96'	N 22°19'48" W	3°55'03"
C54	55.50'	60.22'	57.31'	N 55°22'21" W	62°10'03"

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C55	64.50'	150.50	118.61	S 19°36'36" E	133°41'33"
C56	25.00'	39.27'	35.36'	N 69°17'19" W	90°00'00"
C57	532.50'	49.52'	49.50'	N 68°22'31" E	5°19'41"
C58	532.50'	64.74'	64.70'	N 74°31'19" E	6°57'56"
C59	532.50'	64.74'	64.70'	N 81°29'15" E	6°57'56"
C60	532.50'	22.45'	22.44'	N 86°10'40" E	2°24'54"
C61	237.50'	55.37'	55.24'	S 85°56'09" E	13°21'28"
C62	172.50'	35.88'	35.82'	N 86°39'20" W	11°55'06"
C63	467.50'	36.55'	36.54'	N 85°08'43" E	4°28'48"
C64	467.50'	65.40'	65.35'	N 78°53'51" E	8°00'56"
C65	467.50'	74.89'	74.81'	S 70°18'02" W	9°10'42"
C66	25.00'	39.27'	35.36'	N 20°42'41" E	90°00'00"
C67	532.50'	53.10'	53.08'	S 21°25'55" E	5°42'48"
C68	532.50'	64.74'	64.70'	N 15°05'34" W	6°57'56"
C69	532.50'	59.89'	59.86'	S 08°23'16" E	6°26'40"
C70	25.00'	36.80'	33.57'	N 47°20'05" W	84°20'18"
C71	530.00'	79.51'	79.44'	S 85°12'22" E	8°35'43"
C72	25.00'	39.94'	35.83'	S 53°19'26" W	91°32'07"
C73	25.00'	38.60'	34.88'	S 36°40'34" E	88°27'53"
C74	25.00'	39.94'	35.83'	S 53°19'26" W	91°32'07"
C75	25.00'	38.60'	34.88'	S 36°40'34" E	88°27'53"
C76	25.00'	39.94'	35.83'	N 53°19'26" E	91°32'07"
C77	25.00'	38.60'	34.88'	S 36°40'34" E	88°27'53"
C78	25.00'	39.94'	35.83'	S 53°19'26" W	91°32'07"
C79	25.00'	38.60'	34.88'	S 36°40'34" E	88°27'53"
C80	25.00'	39.27'	35.36'	S 54°05'30" W	90°00'00"
C81	14.50'	22.78'	20.51'	S 35°54'30" E	90°00'00"
C82	14.50'	22.78'	20.51'	N 54°05'30" E	90°00'00"
C83	25.00'	39.27'	35.36'	N 35°54'30" W	90°00'00"
C84	25.00'	39.27'	35.36'	N 54°05'30" E	90°00'00"
C85	25.00'	39.27'	35.36'	S 35°54'30" E	90°00'00"
C86	762.50'	12.98'	12.98'	S 81°23'46" E	0°58'32"
C87	762.50'	51.84'	51.83'	S 83°49'54" E	3°53'43"
C88	762.50'	10.71'	10.71'	N 86°10'54" W	0°48'17"
C89	697.50'	69.09'	69.06'	S 83°44'46" E	5°40'32"
C90	25.00'	39.27'	35.36'	S 48°24'58" W	90°00'00"
C91	25.00'	39.27'	35.36'	N 41°35'02" W	90°00'00"
C92	25.00'	39.27'	35.36'	S 48°24'58" W	90°00'00"
C93	855.00'	12.01'	12.01'	N 86°10'54" W	0°48'17"
C94	855.00'	58.13'	58.12'	S 83°49'54" E	3°53'43"
C95	855.00'	14.56'	14.56'	N 81°23'46" W	0°58'32"
C96	25.00'	39.27'	35.36'	S 41°35'02" E	90°00'00"
C97	875.00'	20.11'	20.11'	N 85°55'32" W	1°19'00"
C98	875.00'	52.01'	52.00'	S 83°33'52" E	3°24'20"
C99	875.00'	14.56'	14.56'	N 81°23'06" W	0°57'11"
C100	25.00'	39.27'	35.36'	S 48°24'58" W	90°00'00"
C101	970.00'	22.29'	22.29'	S 85°55'32" E	1°19'00"
C102	970.00'	57.65'	57.65'	S 83°33'52" E	3°24'20"
C103	970.00'	16.14'	16.14'	S 81°23'06" E	0°57'11"
C104	25.00'	39.27'	35.36'	S 41°35'02" E	90°00'00"
C105	1030.00'	47.69'	47.69'	N 85°15'26" W	2°39'11"
C106	1030.00'	54.33'	54.33'	S 82°25'10" E	3°01'20"
C107	25.00'	39.94'	35.83'	N 53°19'26" E	91°32'07"
C108	25.00'	38.60'	34.88'	N 36°40'34" W	88°27'53"

CANOPY RETENTION TABLE

EXISTING CANOPY			RETAINED CANOPY		
CANOPY	AREA sf	AREA Ac	CANOPY	AREA sf	AREA Ac
A	217,469.1	4.99	A	204,776.2	4.70
B	357,669.0	8.21	B	164,447.4	3.78
C	50,135.8	1.15	C	0.0	0.00
D	6,158.3	0.14	D	0.0	0.00
E	68,183.9	1.57	E	43,859.5	1.01
TOTAL	699,616.1	16.06	TOTAL	413,083.1	9.48
GROSS AREA	2,327,892.1	53.44			

OPEN SPACE AREA TABLE

DESIGNATION	AREA sf	AREA Ac
CIVIC SPACE - A	16,171.2	0.37
CIVIC SPACE - B	11,357.6	0.26
CIVIC SPACE - C	144,846.2	3.33
CIVIC SPACE - D	34,426.2	0.79
CIVIC SPACE - E	106,899.3	2.45
CIVIC SPACE - F	162,989.1	3.74
CIVIC SPACE - G	32,456.9	0.75
CIVIC SPACE - H	117,667.0	2.70
CIVIC SPACE - I	5,804.7	0.13
TOTAL	632,620.2	14.52

WES Engineers & Surveyors
CIVIL ENGINEERS & LAND SURVEYORS
2486 NASHVILLE HIGHWAY
COLUMBIA, TN 38401
PHONE: (931) 388-2329
www.wesengineers.com
ENGINEERS & SURVEYORS

Client
MCBROOM FAMILY PARTNERSHIP
943 RIVERVIEW LANE
COLUMBIA, TN 38401

REVISIONS | DATE

HUNTERS GLEN SECTION 4

HUNTERS GLEN DRIVE
COLUMBIA, TENNESSEE
PRELIMINARY PLAT

Drawn: RP
Checked: GV
Approved: GV
Date: 10/21/2024

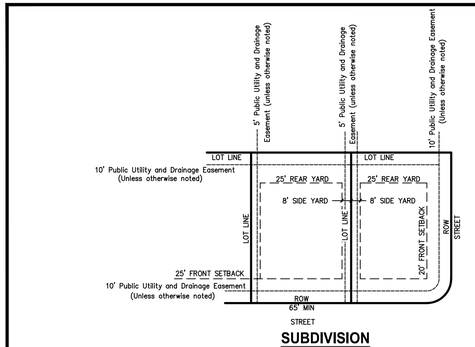
Job. no. 17608
Scale:
Vertical:
Horizontal:

2 of 2

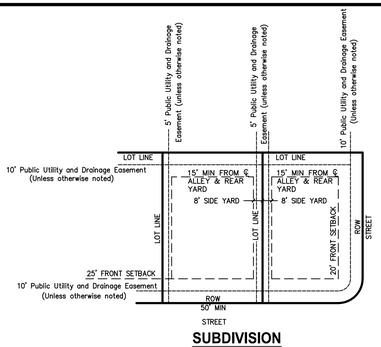
SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION

FILE:J:\WES_Engineers_Surveyors 2017\17608 - Hunters Glen Sec 4 - McBroom\Dwg\Engineering\17608 Hunters Glen Base 13_A_1_CD-3.dwg

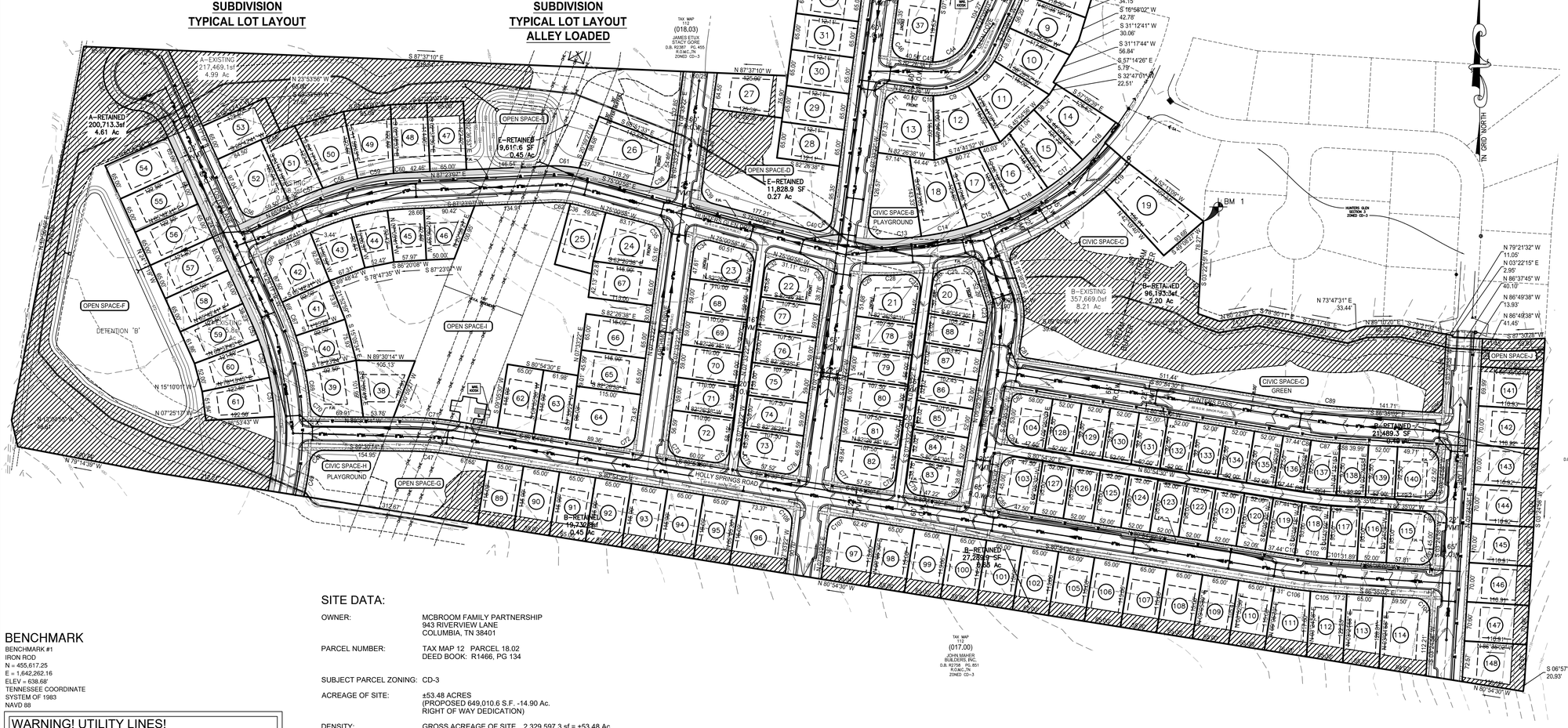
SITE DEVELOPMENT PLAN



SUBDIVISION
TYPICAL LOT LAYOUT



SUBDIVISION
TYPICAL LOT LAYOUT
ALLEY LOADED



OPEN SPACE / CIVIC AREA TABLES

DESIGNATION	USE	AREA (sf)	AREA (ac)
OPEN SPACE-A	OPEN SPACE	18,111.1	0.41
OPEN SPACE-B	OPEN SPACE	54,587.7	1.25
OPEN SPACE-D	OPEN SPACE	14,436.3	0.79
OPEN SPACE-E	OPEN SPACE	19,230.8	0.45
OPEN SPACE-F	OPEN SPACE	152,881.8	3.51
OPEN SPACE-G	OPEN SPACE	12,428.8	0.92
OPEN SPACE-H	OPEN SPACE	13,969.70	0.32
OPEN SPACE-I	OPEN SPACE	13,969.70	0.32
OPEN SPACE-J	OPEN SPACE	13,969.70	0.32
TOTAL		407,786.6	11.20

DESIGNATION	USE	AREA (sf)	AREA (ac)
CIVIC SPACE-A	PLAYGROUND	11,397.0	0.26
CIVIC SPACE-B	PLAYGROUND	10,511.0	0.24
CIVIC SPACE-C	OPEN SPACE	117,882.0	2.71
TOTAL		139,790.0	3.21

CANOPY RETENTION TABLE

EXISTING CANOPY			RETAINED CANOPY		
CANOPY	AREA sf	AREA Ac	CANOPY	AREA sf	AREA Ac
A	217,469.1	4.99	A	204,776.2	4.70
B	357,669.0	8.21	B	164,447.4	3.78
C	50,135.8	1.15	C	0.0	0.00
D	6,358.3	0.14	D	0.0	0.00
E	68,383.9	1.57	E	43,859.5	1.01
TOTAL	699,616.1	16.06	TOTAL	413,083.1	9.48

GROSS
AREA 2,329,597.3 53.48

DENSITY:
TOTAL ACRES 53.48 ACRES
ALLOWED: 4 UNITS PER ACRE
TOTAL ALLOWED: 213 UNITS
TOTAL SHOWN: 148 UNITS
DENSITY SHOWN 3 UNITS PER ACRE

TREE CANOPY PRESERVATION
TOTAL ACRES (TREE CANOPY): 16.06
TOTAL % TREE CANOPY PERCENTAGE: 30.022%
TOTAL RETENTION REQUIRED: 4ES
TOTAL REQUIRED AND TO BE RETAIN: 7.71 ACRES
CALCULATED AREA RETAINED: 9.48 ACRES

CIVIC SPACES
REQUIRED: 5-20% OF GROSS AREA
REQUIRED ACRES: 2.67 – 10.70 ACRES
REQUIRED SHOWN: 3.19 ACRES
CIVIC SPACE USE: PLAYGROUND / GREEN

BENCHMARK

BENCHMARK #1
IRON ROD
N = 455,617.25
E = 1,642,262.16
ELEV = 638.68'
TENNESSEE COORDINATE
SYSTEM OF 1983
NAVD 88

WARNING! UTILITY LINES!

THE CONTRACTOR WILL EXERCISE EXTREME CAUTION IN THE USE OF EQUIPMENT IN AND AROUND OVERHEAD AND UNDERGROUND UTILITY WIRES AND SERVICES. IF AT ANY TIME IN THE PURSUIT OF THIS WORK THE CONTRACTOR MUST WORK IN CLOSE PROXIMITY OF OVERHEAD OR UNDERGROUND SERVICES, THE UTILITY COMPANY SHALL BE CONTACTED PRIOR TO SUCH WORK AND THE PROPER SAFETY MEASURES TAKEN. A THOROUGH EXAMINATION OF THE OVERHEAD WIRES IN THE PROJECT AREA SHOULD BE MADE BY THE CONTRACTOR PRIOR TO THE INITIATION OF CONSTRUCTION. THE UNDERGROUND UTILITY LINES HAVE BEEN SHOWN AS BEST AS CAN BE DETERMINED AT THIS TIME FROM THE INFORMATION OBTAINED FROM THE SURVEY. THE CONTRACTOR SHALL CONTACT EACH OF THESE COMPANIES PRIOR TO BEGINNING CONSTRUCTION AND HAVE THEM DETERMINE THE EXACT LOCATION AND TYPE OF THEIR SERVICES.

Tennessee811 Know what's **below** **Call** before you dig.

LEGEND

	EXISTING	PROPOSED
WATER MAIN	W	8" W
SANITARY SEWER	S	8" S
STORM SEWER	15" ST	18"ST
OVERHEAD		
FENCE		
GAS		
DRAINAGE DITCH		
TREE PROTECTION FENCE		
SIGN		
UTILITY POLE		
IRON PIN SET	IPS	
EXISTING IRON PIN	EIP	
CONCRETE MONUMENT		
DECIDUOUS TREE		
GATE VALVE IN BOX		
LIGHT POLE		
BENCHMARK	BM 1	

TREE LINE
STORM STRUCTURE LABEL (ST)
ASPHALT
CONCRETE
PARKING SPACES (14)
TREE CANOPY PRESERVE

SITE DATA:

OWNER: MCBROOM FAMILY PARTNERSHIP
943 RIVERVIEW LANE
COLUMBIA, TN 38401

PARCEL NUMBER: TAX MAP 12 PARCEL 18.02
DEED BOOK: R1466, PG 134

SUBJECT PARCEL ZONING: CD-3

ACREAGE OF SITE: ±53.48 ACRES
(PROPOSED 649,010.6 S.F. -14.90 Ac.
RIGHT OF WAY DEDICATION)

DENSITY: GROSS ACREAGE OF SITE 2,329,597.3 sf = ±53.48 Ac.
R.O.W. DEDICATION 571,484.6 sf = 13.12 Ac.
148 LOTS/40.36 Ac.=3.67/1

MINIMUM REQUIRED BUILDING SETBACKS:

25' FRONT
25' REAR - 15' FROM ℄ OF ALLEY
8' SIDE - 5 SIDE W / ALLEY
20' SIDE FOR CORNER LOTS

UTILITY SERVICES:

COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TENNESSEE 38401
(931) 388-4833

PURPOSE NOTE: REQUEST FOR CHANGE OF COMPREHENSIVE PLAN & AMEND THE EXISTING MASTER PLAN. CONSTRUCT 9,802.9 L.F. OF ROADWAY & PROVIDE 148 RESIDENTIAL LOTS & ±11.89 ACRES OF OPEN SPACE.

NOTES:

1. INSTALLATION OF HVAC EQUIPMENT IN P.U.D.E.'s WITH BURIED PIPES IS PROHIBITED.
2. MINIMUM LOT WIDTH IS 65' OR 40' W/ALLEY ACCESS
3. ALL DRAINAGE SWALES AND BERMS TO BE MAINTAINED BY INDIVIDUAL HOMEOWNERS.

SITE BENCHMARK NOTE:

CONTRACTOR SHALL ESTABLISH A BENCHMARK PRIOR TO CONSTRUCTION. EXISTING BENCHMARK MUST BE RE-VERIFIED AND APPROVED BY THE ENGINEER/SURVEYOR PRIOR TO USE.

BOUNDARY & TOPOGRAPHIC SURVEY PROVIDED BY:

W.E.S. ENGINEERS AND SURVEYORS
2486 NASHVILLE HWY
COLUMBIA, TENNESSEE 38401
(931) 388-2329

FLOOD STUDY NOTE:

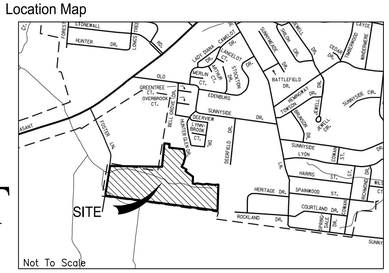
THIS PROPERTY IS NOT LOCATED IN A FLOOD HAZARD AREA AS PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD BOUNDARY AND FLOODWAY MAP COMMUNITY PANEL NO. 47119C0280E DATED APRIL 16, 2007 (ZONE "X")

GRAPHIC SCALE
100 0 50 100 200 300
(IN FEET)
1 inch = 100 ft.

JOSEPH W. WOLFE 10-21-24 No. 107415 STATE OF TENNESSEE

SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION

Location Map



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WES ENGINEERS & SURVEYORS
CIVIL ENGINEERS & LAND SURVEYORS
2486 NASHVILLE HIGHWAY
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www.wesengineers.com
ENGINEERS & SURVEYORS

Client
MCBROOM FAMILY PARTNERSHIP
943 RIVERVIEW LANE
COLUMBIA, TN 38401

REVISIONS | DATE

HUNTERS GLEN SECTION 4
HUNTERS GLEN DRIVE
COLUMBIA, TENNESSEE
SITE DEVELOPMENT PLAN

Drawn: RP | Checked: GV | Approved: GV | Date: 10/21/2024

job. no. 17608 | Scale: Vertical: 1" = 100' Horizontal:

1 of 1

FILE:J:\WES_Engineers_Surveyors 2017\17608 – Hunters Glen Sec 4 – McBroom\Dwg\Engineering\17608 Hunters Glen Base 13_A_1_CD-3.dwg

McBroom Family Partnership
943 Riverview Lane
Columbia, TN 38401
ParrishLumber@hotmail.com
931-388-0412

September 5, 2024

City of Columbia
Department of Public Works
700 North Garden St
Columbia, TN 38401

Subject: Hunters Glen Parcel 112 018.02 Cooperation with Neighboring Properties for Sewer Force Main Connection

Dear City Planning Commission,

I am writing to inform you of our ongoing efforts to facilitate the connection of the required Lift Station and sewer force main to the sewer manhole located on Rockland Drive. We recognize the importance of this connection for ensuring proper waste management and are committed to coordinating closely with neighboring property owners to achieve this goal.

We are actively working with the adjacent property holders (John Maher Builders parcel 112 017.00 and Edwin Halliday parcel 112 004.00) to secure the necessary easements and access rights required for the successful installation of the sewer force main. This cooperation involves negotiating and formalizing agreements to ensure that all legal and logistical requirements are met.

We will keep you updated on our progress and will promptly notify you once the necessary easements and access rights have been secured. If you require any additional information or have any questions regarding this matter, please feel free to contact me directly.

Thank you for your attention to this matter and for your continued support.

Sincerely,

L M Walker

Linda Walker, Partner
McBroom Family Partnership

John Maher
John Maher Builders

Edwin Halliday

Maury County - Parcel: 112 018.02

Date: September 16, 2024

County: Maury
Owner: MCBROOM FAMILY PARTNERSHIP
Address: HUNTERS GLEN DR
Parcel Number: 112 018.02
Deeded Acreage: 0
Calculated Acreage: 53.5
Date of TDOT Imagery: 2021
Date of Vexcel Imagery: 2023

1:9,028

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

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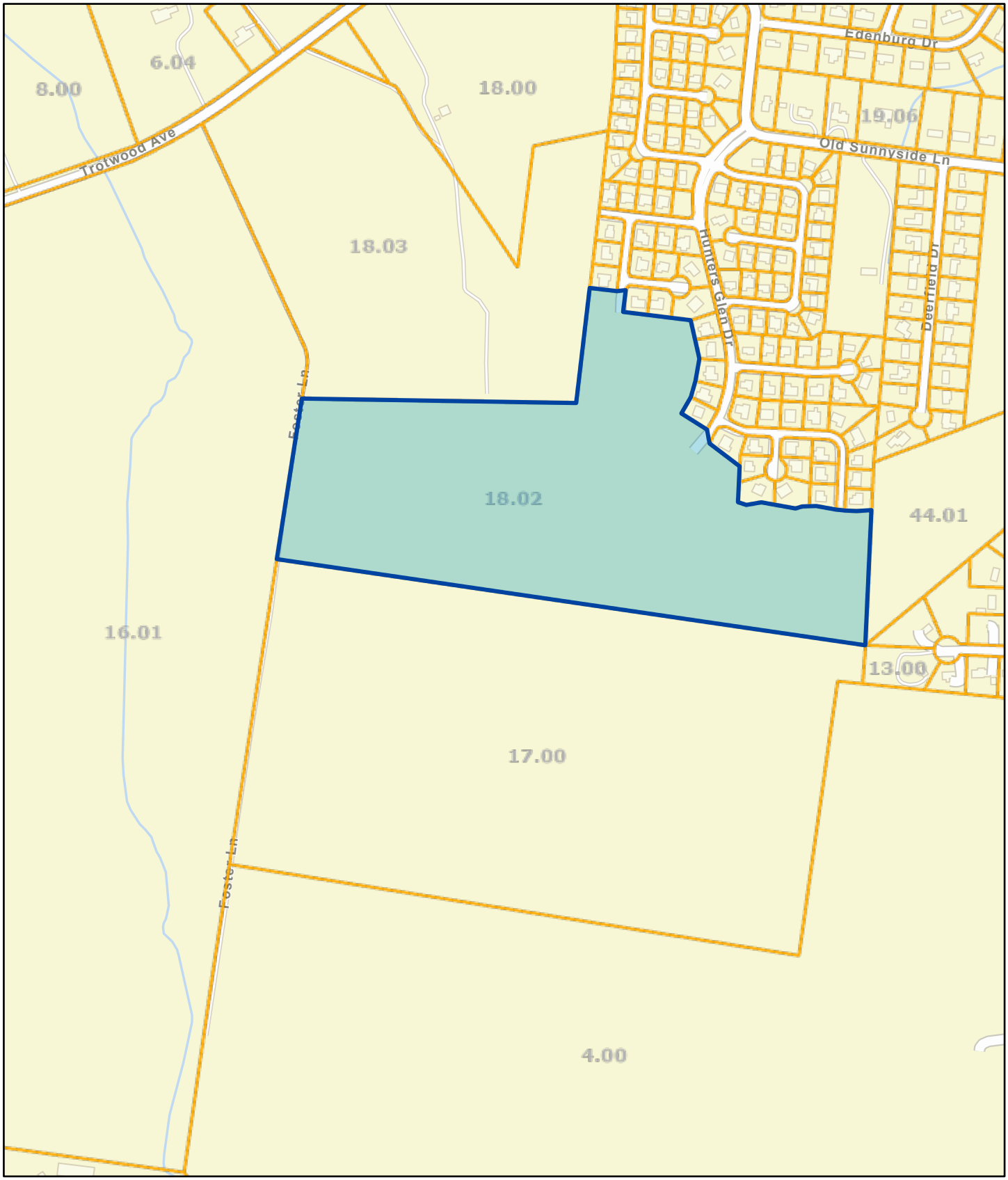
The property lines are compiled from information maintained by your local county Assessor's office but are not conclusive evidence of property ownership in any court of law.

Maury County - Parcel: 112 018.02



Date: September 16, 2024

County: Maury
Owner: MCBROOM FAMILY PARTNERSHIP
Address: HUNTERS GLEN DR
Parcel Number: 112 018.02
Deeded Acreage: 0
Calculated Acreage: 53.5
Date of TDOT Imagery: 2021
Date of Vexcel Imagery: 2023

1:9,028

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

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The property lines are compiled from information maintained by your local county Assessor's office but are not conclusive evidence of property ownership in any court of law.

LEGAL DESCRIPTION

Being a tract of land located in the 9th Civil District of Maury County, Tennessee, and in the city limits of Columbia, Tennessee, and bounded on the North by Campbell P. Ridley remaining portion of farm, and Old Sunnyside Lane; East by Old Sunnyside Lane, Campbell P. Ridley, Jr., Deerfield Subdivision, Lots 13 thru 17; Hubert E. Langley; Leatherwood Estates, Section 1, Lot 13; South by Jennie Jo Hardison; West by Old Thomas Lane, and Campbell P. Ridley remaining portion of farm; and more particularly described as follows:

Beginning at an iron pin in the center of Old Thomas Lane, and being the Northwest corner of Jennie Jo Hardison, and also being the Southwest corner of herein described tract; thence with the center of Old Thomas Lane North 03 deg. 06 min. East 212.05 feet to an iron pin; thence with same North 04 deg. 42 min. East 511.13 feet to an iron pin; thence with Campbell P. Ridley remaining portion of farm North 87 deg. 10 min. East 1255.14 feet to an iron pin; thence with same North 02 deg. 22 min. East passing an iron pin at 950.84 feet, in all 1502.38 feet to an iron pin; thence with same and fence line North 01 deg. 41 min. West 451.50 feet to an iron pin; thence with the South margin of Old Sunnyside Lane South 88 deg. 39 min. East 516.44 feet to an iron pin; thence with same with a curve to the right with a central angle of 90 deg. 05 min., T = 89.99 feet, R = 89.85 feet, a length on curve of 141.27 feet to an iron pin; thence with the West margin of Old Sunnyside Lane South 01 deg. 25 min. West 416.24 feet to an iron pin; thence with same with a curve to the left with a central angle of 88 deg. 07 min., T = 133.89 feet, R = 138.35 feet, a length on curve of 212.77 feet to an iron pin; thence with the South margin of Old Sunnyside Lane South 86 deg. 42 min. East 347.62 feet to an iron pin; thence with Campbell P. Ridley, Jr. South 00 deg. 57 min. West 815.98 feet to an iron pin; thence with same and fence line South 86 deg. 23 min. East 277.52 feet to an iron pin; thence with rock fence and Deerfield Subdivision, Lots 13 thru 17 South 00 deg. 21 min. West 555.75 feet to an iron pin; thence with Hubert E. Langley and rock fence South 01 deg. 48 min. East 835.27 feet to an iron pin; thence with Leatherwood Estates, Section 1, Lot 13 and rock fence South 00 deg. 27 min. East 20.85 feet to an iron pin; thence with Jennie Joe Hardison and fence line North 86 deg. 08 min. West 2478.66 feet to an iron pin; thence with same North 84 deg. 26 min. West 240.92 feet to the point of beginning containing 97.01 acres by survey of James D. Webb, Engineer-Surveyor, Maury County, Columbia, Tennessee, dated February 12, 1988.

Being all of the property obtained by Hunters Glen Limited Partnership as recorded in Deed Book 763, Page 510, Register's Office, Maury County, Columbia, Tennessee.

OLD SUNNYSIDE LANE (60' R.O.W.)

To U.S. Hwy. 43 ℄ — 35' — ℄

S88°39'E → 516.44'

Δ = 90°05'
T = 89.99'
L = 141.27'
R = 89.85'

L = 141.27'

416.24'

S1°25'W →

Δ = 88°07'
T = 133.89'
L = 212.77'
R = 138.35'

L = 212.77'

OLD SUNNYSIDE LANE (60' R.O.W.)

℄ — 35' — 225' — ℄

S86°42'E → 347.62'

815.98'

S0°57'W

STAKED LINE

WIRE FENCE

S86°23'E
277.52'

555.75'

S0°21'W

835.27'

S1°48'E

ROCK FENCE

S0°27'E
20.85'

WIRE FENCE

451.50'

N1°41'W

1502.38'

PP @ 950.84'

N2°22'E

STAKED LINE

CAMPBELL P. RIDLEY
DEED BK. 469, PG. 507
TAX MAP 112, PC. 118

CAMPBELL P. RIDLEY, JR.
DEED BK. 569, PG. 56
TAX MAP 112, PC. 18.01

MAGNETIC NORTH

97.01 ACRES

HUNTERS GLEN LIMITED PARTNERSHIP
DEED BOOK 763, PG. 510
TAX MAP 112, PC. 18.02

NOTE: 97.01 ACRES IS INSIDE CITY LIMITS OF COLUMBIA, TENNESSEE AND IS ZONED RS-10, SINGLE FAMILY MEDIUM DENSITY RESIDENTIAL DISTRICT.

T.V.A. TOWER

STAKED LINE

N87°10'E → 1255.14'

511.13'

℄ DRAINAGE DITCH

℄ OLD THOMAS LANE

N4°42'E

N3°06'E
212.05'

℄ T.V.A. POWER LINE

℄ DRAINAGE DITCH

N84°26'W
240.92'

WIRE FENCE

POINT OF BEGINNING

75' R.O.W.

75' R.O.W.

N86°08'W → 2478.66'

WIRE FENCE

JENNIE JO HARDISON
DEED BOOK 699, PG. 448
TAX MAP 112, PC. 17

HUBERT E. LANGLEY
DEED BOOK 707, PG. 565
TAX MAP 112, PC. 44.01

LOT 17
LOT 16
LOT 15
LOT 14
LOT 13

DEERFIELD SUBDIVISION
PLAT BK. 6, PG. 567-A

LOT 12

LOT 13

LEATHERWOOD EST.
SECTION 1
PLAT BK. 5, PAGE 315

FLOOD NOTE

I HAVE CONSULTED THE FLOOD BOUNDARY AND FLOODWAY MAP AND THE TRACT SHOWN IS NOT IN A DESIGNATED FLOOD AREA.

James D. Webb
JAMES D. WEBB
REGISTERED LAND SURVEYOR
TENNESSEE # 596

NOTE: ALL PROPERTY CORNERS ARE IRON PINS UNLESS OTHERWISE NOTED.

CERTIFICATION

I HEREBY CERTIFY THAT I HAVE SURVEYED THE TRACTS SHOWN AND THAT THIS PLAT IS A TRUE REPRESENTATION OF THE SURVEY.

James D. Webb
REGISTERED LAND SURVEYOR
TENNESSEE #596

JAMES D. WEBB
REGISTERED LAND SURVEYOR
AGRICULTURE COMMERCE
TENNESSEE No. 596

I HEREBY CERTIFY THAT THIS IS A CLASS "A" SURVEY AND THE RATIO OF PRECISION OF THE UNADJUSTED SURVEY IS 1/10,000+ AS SHOWN HEREON.
James D. Webb

NO.	DATE	REVISION	BY

SHEET TITLE: PLAT OF SURVEY (97.01 ACRES) 9TH CIVIL DISTRICT MAURY COUNTY, TENNESSEE

PROJECT: HUNTERS GLEN LIMITED PARTNERSHIP
FIVE POST OAK PARK, SUITE 2150
HOUSTON, TEXAS 77027

PROJECT NO. 88-5
SCALE 1" = 200'
DATE 2-12-88
DRAWN BY D. DALE
CHECKED BY J.D.W.
DRAWING NO. 88-5C
1 OF 1 SHTS

JAMES D. WEBB, ENGINEER-SURVEYOR
223 EAST JAMES M. CAMPBELL BLVD.
COLUMBIA, TN 38401
(615) 388-2329

Columbia Fire & Rescue

Fire Flow Requirements

Water Purveyor: Columbia Power & Water System

Date: 9/9/2024
Name: Gerald W. Vick, PE
Phone: 931-388-2329
Email: gerald@wesengineers.com
Address/Parcel ID: Hunters Glen Drive Map 12 Parcel 18.02
Property Type: (•) Residential ( ) Commercial ( ) Industrial
Construction Type: V-B - Wood Frame
Enclosed Area (ft^2): +/- 3,000 SF per home

FILLED OUT BY COLUMBIA FIRE AND RESCUE

NFPA Sprinkler Type: NFPA 13D

Water System Demand without Sprinkler Credit

Fire flow Requirements (International Fire Code Appendix B)

Fire Flow: 1,000 gpm Duration: 1 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: 500 gpm Duration: 1/2 hours

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

Minimum number of hydrants: 1

Average spacing between hydrants: 500 ft.

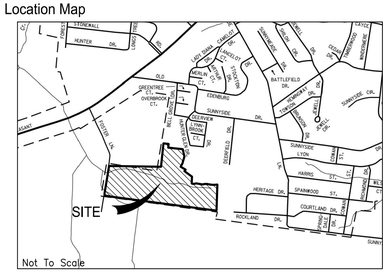
Maximum distance from frontage to hydrant: 250 ft.

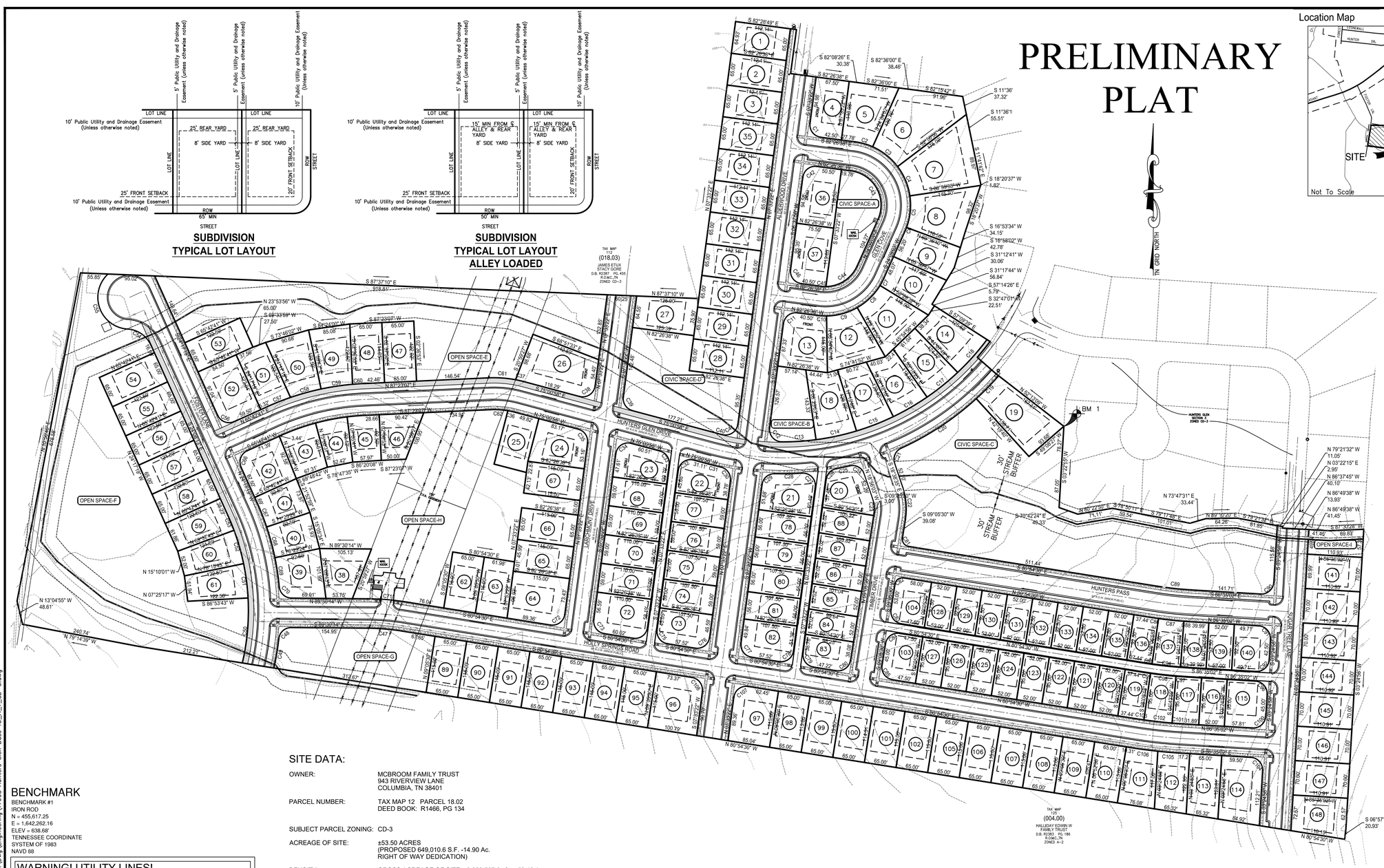
Fire Plan Reviewer: Brad Massey Date: 9/10/2024

PRELIMINARY PLAT

SUBDIVISION TYPICAL LOT LAYOUT

SUBDIVISION TYPICAL LOT LAYOUT ALLEY LOADED





BENCHMARK

BENCHMARK #1
IRON ROD
N = 455,617.25
E = 1,642,262.16
ELEV = 638.68'
TENNESSEE COORDINATE
SYSTEM OF 1983
NAVD 88

WARNING! UTILITY LINES!

THE CONTRACTOR WILL EXERCISE EXTREME CAUTION IN THE USE OF EQUIPMENT IN AND AROUND OVERHEAD AND UNDERGROUND UTILITY WIRES AND SERVICES. IF AT ANY TIME IN THE PURSUIT OF THIS WORK THE CONTRACTOR MUST WORK IN CLOSE PROXIMITY OF OVERHEAD OR UNDERGROUND SERVICES, THE UTILITY COMPANY SHALL BE CONTACTED PRIOR TO SUCH WORK AND THE PROPER SAFETY MEASURES TAKEN. A THOROUGH EXAMINATION OF THE OVERHEAD WIRES IN THE PROJECT AREA SHOULD BE MADE BY THE CONTRACTOR PRIOR TO THE INITIATION OF CONSTRUCTION. THE UNDERGROUND UTILITY LINES HAVE BEEN SHOWN AS BEST AS CAN BE DETERMINED AT THIS TIME FROM THE INFORMATION OBTAINED FROM THE SURVEY. THE CONTRACTOR SHALL CONTACT EACH OF THESE COMPANIES PRIOR TO BEGINNING CONSTRUCTION AND HAVE THEM DETERMINE THE EXACT LOCATION AND TYPE OF THEIR SERVICES.

Tennessee811 Know what's **below** **Call** before you dig.

LEGEND

	EXISTING	PROPOSED
WATER MAIN		
SANITARY SEWER		
STORM SEWER		15"ST
OVERHEAD		
FENCE		
GAS		
DRAINAGE DITCH		
TREE PROTECTION FENCE		
SIGN		
UTILITY POLE		
IRON PIN SET		IPS
EXISTING IRON PIN		EIP
CONCRETE MONUMENT		
DECIDUOUS TREE		
GATE VALVE IN BOX		
LIGHT POLE		
BENCHMARK	BM 1	

TREE LINE
STORM STRUCTURE LABEL (ST)
ASPHALT
CONCRETE
PARKING SPACES (14)
P.U.D.E.

SITE DATA:

OWNER: MCBROOM FAMILY TRUST
943 RIVERVIEW LANE
COLUMBIA, TN 38401

PARCEL NUMBER: TAX MAP 12 PARCEL 18.02
DEED BOOK: R1466, PG 134

SUBJECT PARCEL ZONING: CD-3

ACREAGE OF SITE: ±53.50 ACRES
(PROPOSED 649,010.6 S.F. -14.90 Ac.
RIGHT OF WAY DEDICATION)

DENSITY: GROSS ACREAGE OF SITE 2,329,597.3 sf = ±53.48 Ac.
R.O.W. DEDICATION 571,484.6 sf = 13.12 Ac.
148 LOTS/40.36 Ac.=3.67/1

MINIMUM REQUIRED BUILDING SETBACKS:

25' FRONT
25' REAR - 15' FROM ℄ OF ALLEY
8' SIDE - 5 SIDE W / ALLEY
20' SIDE FOR CORNER LOTS

UTILITY SERVICES:

COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TENNESSEE 38401
(931) 388-4833

PURPOSE NOTE: REQUEST FOR CHANGE OF COMPREHENSIVE PLAN & AMEND THE EXISTING MASTER PLAN. CONSTRUCT 9,802.9 L.F. OF ROADWAY & PROVIDE 148 RESIDENTIAL LOTS & ±11.89 ACRES OF OPEN SPACE.

NOTES:

1. INSTALLATION OF HVAC EQUIPMENT IN P.U.D.E.'s WITH BURIED PIPES IS PROHIBITED.
2. MINIMUM LOT WIDTH IS 65' OR 40' W/ALLEY ACCESS
3. ALL DRAINAGE SWALES AND BERMS TO BE MAINTAINED BY INDIVIDUAL HOMEOWNERS.

PROPOSED CONSTRUCTION SCHEDULE FOR THE YEAR 2024/2025

ACTIVITY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY
TEMPORARY SEDIMENT STRUCTURES												
SEDIMENT BASINS												
DIVERSION DITCHES												
CLEARING & CHIPPING												
TOPSOIL STRIPPING AND STORAGE												
ROADWAY GRADING												
PERMANENT STORM SEWER												
UTILITIES												
TEMPORARY VEGETATION												
PAVING												
PERMANENT VEGETATION												
REMOVE TEMPORARY STRUCTURES												

SITE BENCHMARK NOTE:

CONTRACTOR SHALL ESTABLISH A BENCHMARK PRIOR TO CONSTRUCTION. EXISTING BENCHMARK MUST BE RE-VERIFIED AND APPROVED BY THE ENGINEER/SURVEYOR PRIOR TO USE.

BOUNDARY & TOPOGRAPHIC SURVEY PROVIDED BY:

W.E.S. ENGINEERS AND SURVEYORS
2486 NASHVILLE HWY
COLUMBIA, TENNESSEE 38401
(931) 388-2329

FLOOD STUDY NOTE:

THIS PROPERTY IS NOT LOCATED IN A FLOOD HAZARD AREA AS PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD BOUNDARY AND FLOODWAY MAP COMMUNITY PANEL NO. 47119C0280E DATED APRIL 16, 2007 (ZONE "X")

GRAPHIC SCALE

100 0 50 100 200 300
(IN FEET)
1 inch = 100 ft.

JACKIE W. LOVELL — 9/24/24 — LICENSED PROFESSIONAL ENGINEER — No. 107415 — STATE OF TENNESSEE — AGENCY NUMBER 5165

NOT FOR CONSTRUCTION

SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION

©2024

WES ENGINEERS & SURVEYORS
CIVIL ENGINEERS & LAND SURVEYORS
2486 NASHVILLE HIGHWAY
COLUMBIA, TN 38401
PHONE: (931) 388-2329
www.wesengineers.com
ENGINEERS & SURVEYORS

Client
MCBROOM FAMILY PTR
943 RIVERVIEW LANE
COLUMBIA, TN 38401

REVISIONS | DATE

HUNTERS GLEN SECTION 4, PHASE 1

HUNTERS GLEN DRIVE
COLUMBIA, TENNESSEE
PRELIMINARY PLAT

Drawn: RP | Checked: GV | Approved: GV | Date: 09/24/2024

Job no. 17608 | Scale: | Vertical: 1" = 100' | Horizontal:

FILE:J:\WES_Engineers_Surveyors 2017\17608 - Hunters Glen Sec 4 - McBroom\Dwg\Engineering\17608 Hunters Glen Base 13_A_1_CD-3.dwg

October 21, 2024

Kevin McCarthy, AICP, City Planner
Development Services – City of Columbia
700 North Garden Street
Columbia, Tennessee 38401

RE: Hunters Glen – Section 4 – Preliminary Plat / Site Development Plan

On behalf of the owner for the proposed development, WES Engineers & Surveyors would like to present the documents attached to the City of Columbia for the Preliminary Plat / Site Development Plan.

The development consists of 148 proposed single family residential lots. The configuration proposes extension of Hunters Glen Drive and Alderwood Drive as well as planning the extension / reconfiguration of Foster Lane. The original Master Plan of this development shows similar configuration with this proposed development planned to fit with the current Development Standards. Total acreage of the remaining parcel is 53.48 Acres with a proposed 14.90 acres as Right-of-Way dedication. Proposed density is 3.67 lots per acre with CD-3 allowing up to 4 lots per acre.

ATTACHMENTS: Preliminary Plat, Site Development Plan

I hope you find the attached information helpful in your review. If you have any questions or comments regarding this and the associated documentation, please do not hesitate to contact me directly.

Sincerely,
WES Engineers & Surveyors

Gerald W. Vick, PE
Principal

CITY OF COLUMBIA TENNESSEE

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

Preliminary Plat, Site Development Plan, and PUD Checklist

Development: HUNTERS GLEN SECTION 4, PHASE 1

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.

CITY OF COLUMBIA TENNESSEE

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

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.

CITY OF
COLUMBIA
TENNESSEE

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COLUMBIA, TN 38401
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PUD Specific Items

- ❑ Legal Description of Property
- ❑ Owner's Affidavit
- ❑ List of all variances 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

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:

Print Name	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 (onlama.com)

ADDRESS/LOCATION	Hunters Glen Section 4 - Hunters Glen Drive		
	TAX MAP: 12	GROUP:	PARCEL: 18.02
SUMMARY OF NATURE OF REQUEST AND WORK	Request Prliminary Plat Approval for Hunters Glen Section 4		

DATE OF PRE-APPLICATION CONFERENCE	7-10-2024	*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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	Plats/PUDs: ☑ Project Name (include Sections & Phases) Hunter's Glen Section 4 ☑ Total Number of Lots/Residential Units 148 ☐ Square Footage of Non-Residential Floor Space ☑ Total acreage 53.48 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	WES Engineers & Surveyors	PHONE	(931) 388-2329
ADDRESS	2486 Nashville Hwy, CLMA	EMAIL	gerald@wesengineers.com

PROPERTY OWNER NAME	McBroom Family Trust	PHONE	(931) 384-0092
ADDRESS	943 Riverview Lane, Columbia	EMAIL	mcbroom5@msn.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.

WES Eng & Srvs.		10/16/24
APPLICANT NAME	APPLICANT SIGNATURE	DATE
McBroom Family Trust		10/16/24
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

Rev. 2/7/2024

Northpointe Industrial

NORTHPOINTE ROAD, TRACT 14A
City of Columbia, Maury County, Tennessee

Tax Map 066, Parcel 020.22, 5.11 ac.

SITE DEVELOPMENT PLAN

PREMIER DESIGN · BUILD
BUILDING YOUR VISION

DEVELOPER: PREMIER DESIGN BUILD
DAVE CRAKER
1031 PARKWAY DR BLDG 25B
SPRING HILL, TN 37174
615-622-9333

ENGINEER: T-SQUARE ENGINEERING
111 SOUTHEAST PARKWAY CT
FRANKLIN, TN 37064

WATER: COLUMBIA POWER AND WATER SYSTEM
201 PICKENS LANE
COLUMBIA, TN 38401

SEWER: CITY OF COLUMBIA
1244 TREATMENT PLANT ROAD
COLUMBIA, TN 38401

POWER: COLUMBIA POWER AND WATER SYSTEM
201 PICKENS LANE
COLUMBIA, TN 38401

SURVEY: HOMELAND SURVEYING & MAPPING, LLC
4832 BETHESDA DUPLEX RD.
COLLEGE GROVE, TN 37046
TN R.L.S #2583

LOCATION MAP
N.T.S.

Sheet Schedule

C-0.0	Cover Sheet
C-1.0	Existing Conditions
C-2.0	Site Plan
C-2.1	Open Space Plan
C-3.0	Initial Erosion Control Plan
C-3.1	Temporary Erosion Control Plan
C-3.2	Permanent Erosion Control Plan
C-4.0	Predevelopment Stormwater Plan
C-4.1	Post Development Stormwater Plan
C-5.0	Grading Plan
C-5.1	Drainage Plan
C-5.2	Drainage Inlet Area Plan
C-6.0	Main Drive Plan and Profile
C-6.1	Main Drive Plan and Profile
C-7.0	Utility Plan
C-7.1	Utility Plan and Profile
C-7.2	Utility Plan and Profile
C-7.3	Utility Plan and Profile
C-8.0	Site Details
C-8.1	Site Details
C-8.2	Site Details
C-8.3	Site Details
L-1.1	Landscape Plan
L-1.2	Landscape Details

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS "ZONE X" AS EVIDENCED ON FEMA PANEL #47119C0170E OF THE CITY OF COLUMBIA, TN. DATED 04/16/2007.

OWNER OF RECORD
TRACT 14A NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
T-SQUARE ENGINEERING 111 SE PARKWAY CT FRANKLIN, TN 37064 615.678.8212

SUBMITTALS / REVISIONS

NO.	DATE

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

COVER SHEET
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

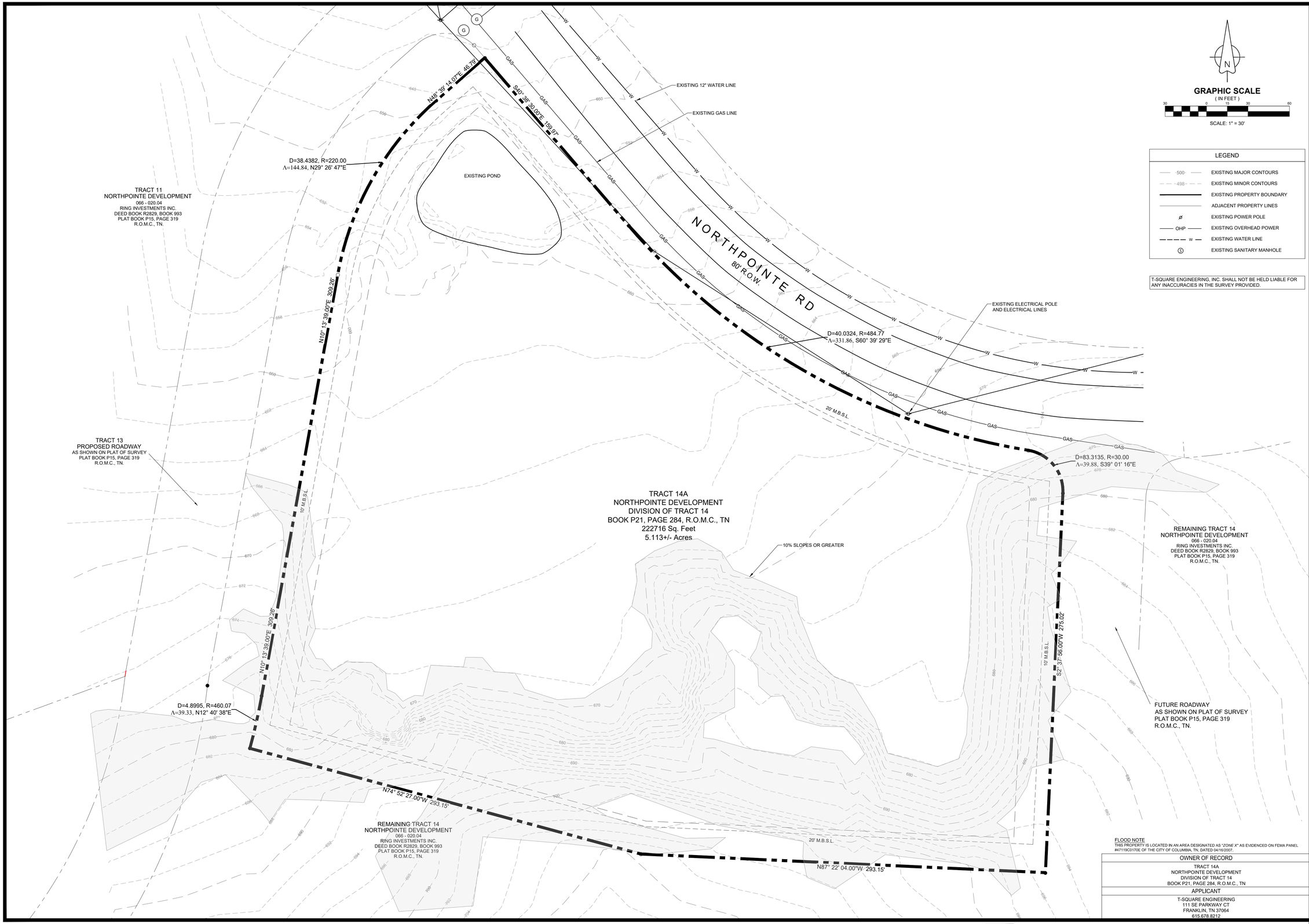
ZACHARY LEE MOORE
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 137078
STATE OF TENNESSEE
09/20/24

PROJECT
24-0516

SHEET
C-0.0

T-SQUARE ENGINEERING

P:\Projects\2024\24-0516 (Northpointe Industrial - Weston Eirlow)\Production\24-0516 1 Cover Sheet.dwg, 9/20/2024 3:12:41 PM



N

GRAPHIC SCALE
(IN FEET)
30 0 15 30 60
SCALE: 1" = 30'

LEGEND	
500	EXISTING MAJOR CONTOURS
498	EXISTING MINOR CONTOURS
	EXISTING PROPERTY BOUNDARY
	ADJACENT PROPERTY LINES
	EXISTING POWER POLE
OHP	EXISTING OVERHEAD POWER
W	EXISTING WATER LINE
S	EXISTING SANITARY MANHOLE

T-SQUARE ENGINEERING, INC. SHALL NOT BE HELD LIABLE FOR ANY INACCURACIES IN THE SURVEY PROVIDED.

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS "ZONE X" AS EVIDENCED ON FEMA PANEL #47119C0170E OF THE CITY OF COLUMBIA, TN, DATED 04/16/2007.

OWNER OF RECORD
TRACT 14A NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
T-SQUARE ENGINEERING 111 SE PARKWAY CT FRANKLIN, TN 37064 615.678.8212

NO.	DATE	SUBMITTALS / REVISIONS
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

EXISTING CONDITIONS
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-1.0

T-SQUARE ENGINEERING

TRACT 11
NORTHPOINTE DEVELOPMENT
066 - 020.04
RING INVESTMENTS INC.
DEED BOOK R2829, BOOK 993
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

TRACT 13
PROPOSED ROADWAY
AS SHOWN ON PLAT OF SURVEY
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

REMAINING TRACT 14
NORTHPOINTE DEVELOPMENT
066 - 020.04
RING INVESTMENTS INC.
DEED BOOK R2829, BOOK 993
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

REMAINING TRACT 14
NORTHPOINTE DEVELOPMENT
066 - 020.04
RING INVESTMENTS INC.
DEED BOOK R2829, BOOK 993
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

FUTURE ROADWAY
AS SHOWN ON PLAT OF SURVEY
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

GRAPHIC SCALE
(IN FEET)
30 0 15 30 60
SCALE: 1" = 30'

LEGEND	
	EXISTING PROPERTY BOUNDARY
00	PROPOSED UNIT NUMBER
	PROPOSED BUILDING SETBACK
	PROPOSED WATER LINE
	PROPOSED WATER SERVICE
	PROPOSED FIRE HYDRANT ASSEMBLY
	PROPOSED SANITARY MANHOLE
	PROPOSED SANITARY SERVICE
	PROPOSED STORM INLET
	PROPOSED HEADWALL
	PROPOSED PICNIC TABLE
	HEAVY DUTY CONCRETE
	CONCRETE SIDEWALK

SITE DATA		
PROJECT NAME	NORTHPOINTE INDUSTRIAL	
PROJECT NUMBER	24-0516	
ADDRESS	NORTHPOINTE ROAD	
PARCEL ID	MAP 66, P/O PARCEL 20.04	
	EXISTING	PROPOSED
TOTAL PROPERTY AREA	5.11 AC	5.11 AC
ZONING	SD-LI	SD-LI
TOTAL PARKING	-	98 SPACES
HANDICAP PARKING	5 REQD	5 SPACES
TOTAL OPEN SPACE	0	±73,825 SF (33.1%)
TOTAL BUILDING AREA	0	55,000 SF
ERROR OF CLOSURE	1/10,000	1/10,000

NOTES:
1) THE PURPOSE OF THIS PLAN IS TO CREATE 55,000 SF OF FLEX SPACE AND PARKING ON THE SITE ZONED SD-LI.
2) PARKING CALCULATION:
PROPOSED 55,000 SF OF 'OTHER LIGHT INDUSTRIAL USES'. REQUIRED 1 SPACE PER 2,000 SF OF SQUARE FOOTAGE
=28 SPACES REQUIRED
=28 SPACES PROVIDED
+71 PARKING SPACES FOR THE ALLOWED USE OF PARKING WITHIN SD-LI
=99 SPACES TOTAL PROVIDED
3) ALL COMMON WALLS ARE 1-HR FIRE RATED WALLS, UNLESS OTHERWISE NOTED.
4) ALL STREETS ARE PROPOSED AS PRIVATE.

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS "*ZONE X*" AS EVIDENCED ON FEMA PANEL #47119C0170E OF THE CITY OF COLUMBIA, TN, DATED 04/16/2007.

OWNER OF RECORD
TRACT 14A. NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
T-SQUARE ENGINEERING 111 SE PARKWAY CT FRANKLIN, TN 37064 615.678.8212

NO.	DATE

SUBMITTALS / REVISIONS

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

SITE PLAN
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

ZACHARY LEE MOORE
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 117072
STATE OF TENNESSEE
09/20/24

PROJECT
24-0516

SHEET
C-2.0

T-SQUARE ENGINEERING

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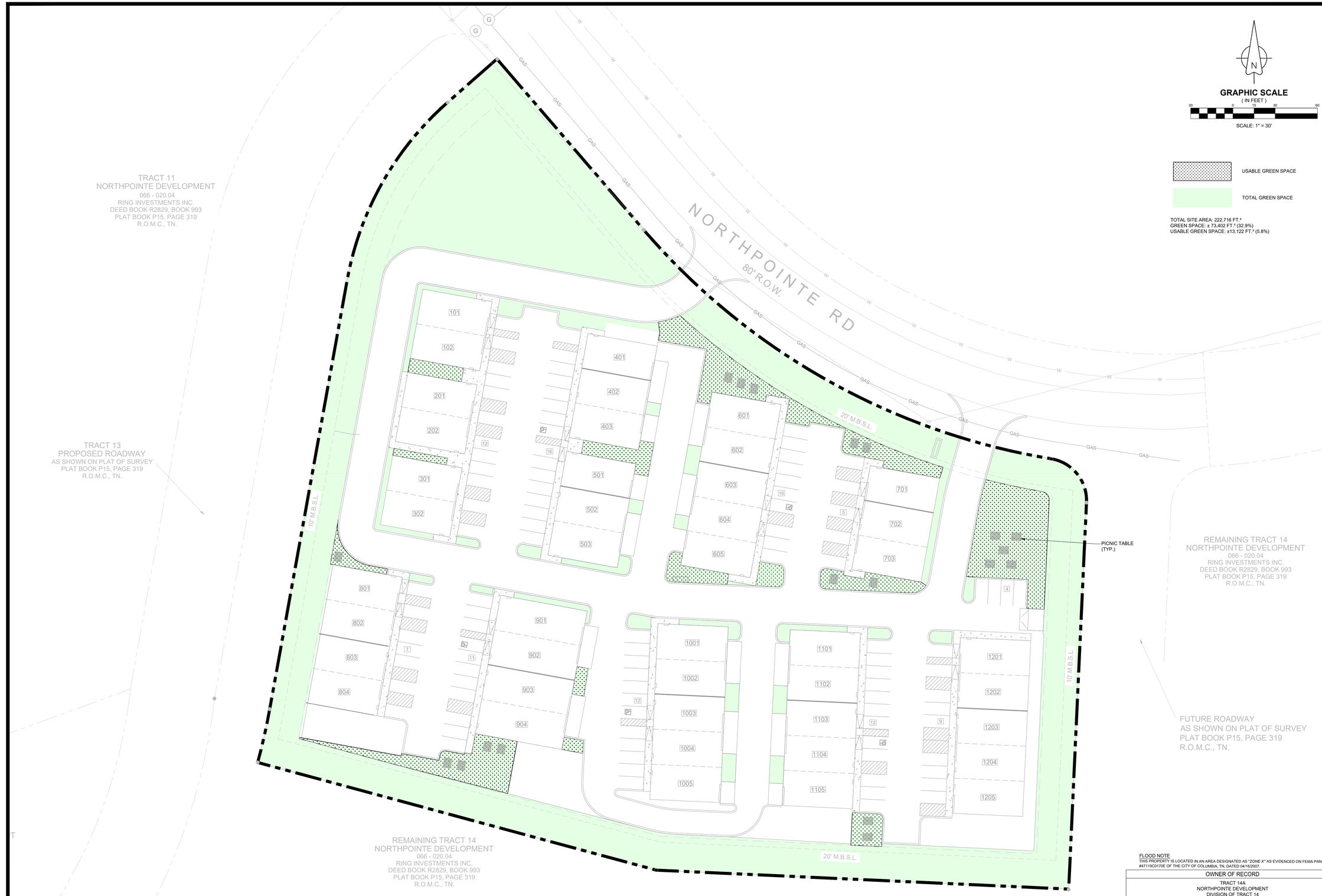

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GRAPHIC SCALE
(IN FEET)
30 0 15 30 60
SCALE: 1" = 30'

USABLE GREEN SPACE

TOTAL GREEN SPACE

TOTAL SITE AREA: 222,716 FT.²
GREEN SPACE: ± 73,402 FT.² (32.9%)
USABLE GREEN SPACE: ±13,122 FT.² (5.8%)

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS "ZONE X" AS EVIDENCED ON FEMA PANEL #47119C0170E OF THE CITY OF COLUMBIA, TN, DATED 04/16/2007.

OWNER OF RECORD
TRACT 14A NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
T-SQUARE ENGINEERING 111 SE PARKWAY CT FRANKLIN, TN 37064 615.678.8212

NO.	DATE	SUBMITTALS / REVISIONS
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

OPEN SPACE PLAN
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-2.1

T-SQUARE ENGINEERING

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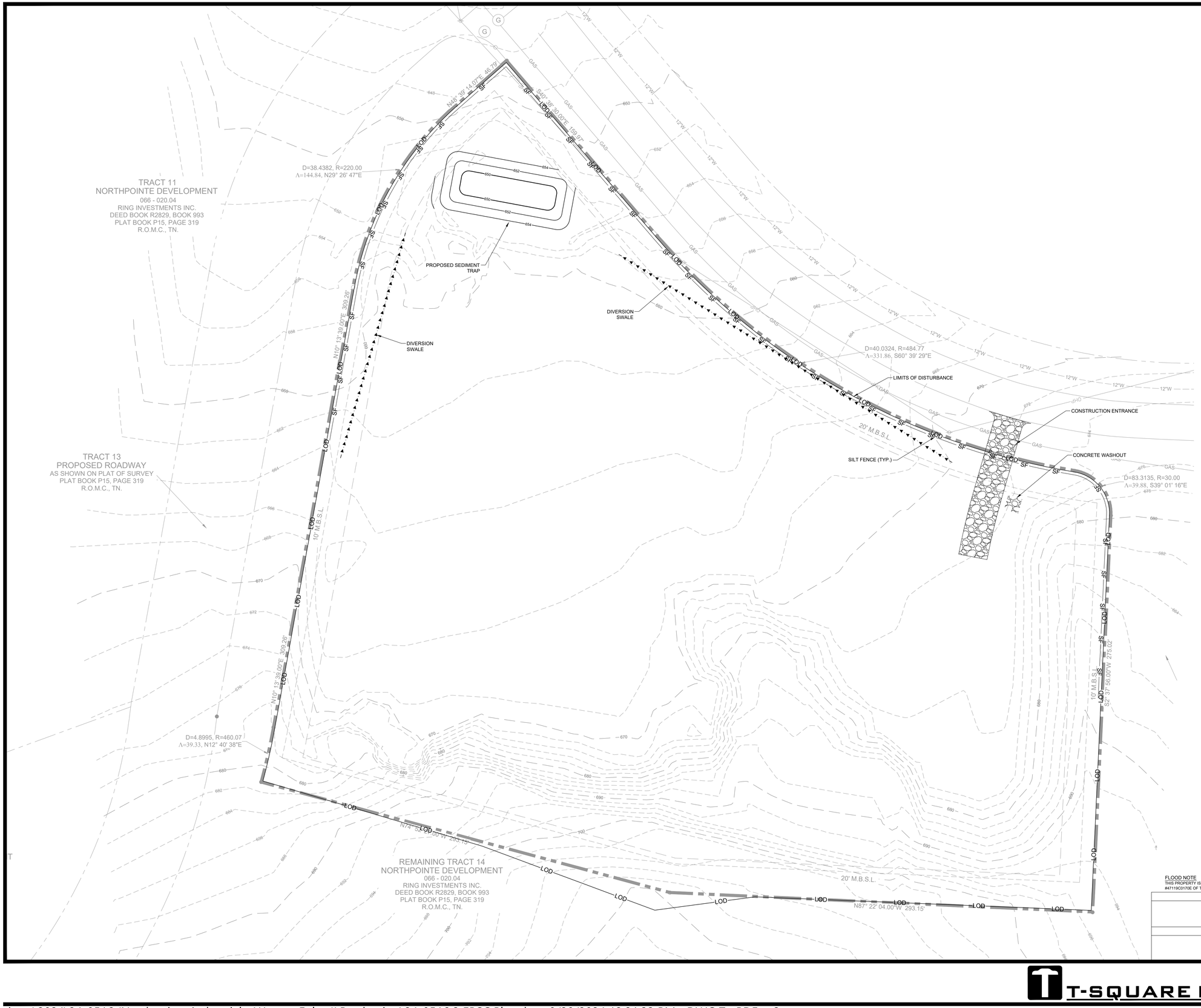


N

GRAPHIC SCALE

(IN FEET)

30 0 15 30 60

SCALE: 1" = 30'

LEGEND	
500	EXISTING MAJOR CONTOURS
498	EXISTING MINOR CONTOURS
LOD	PROPOSED LIMITS OF DISTURBANCE
SF	PROPOSED SILT FENCE
	PROPOSED CONSTRUCTION EXIT
	PROPOSED CONCRETE WASHOUT

GENERAL EROSION NOTES:

A. THIS SITE DISTURBANCE IS 5.07 ACRES AND DOES REQUIRE A SWPPP. THE STORMWATER CONTROLS SHOWN ON THIS PLAN AND IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE IMPLEMENTED PRIOR TO ANY LAND DISTURBANCE.

B. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DISPOSED OF IN A MANNER THAT PREVENTS CONTACT BETWEEN THESE MATERIALS AND STORM WATER THAT IS DISCHARGED FROM THE SITE.

C. THE SITE SHALL HAVE READILY AVAILABLE SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.

D. DUST CONTROL ON THE SITE SHALL BE MINIMIZED BY SPRAYING WATER ON DRY AREAS OF THE SITE. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.

E. NO RUBBISH, TRASH, GARBAGE, OR OTHER SUCH MATERIALS SHALL BE DISCHARGED INTO DRAINAGE DITCHES OR WATERS OF THE STATE.

F. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN SHALL BE INITIATED AS SOON AS PRACTICAL.

G. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 21 DAYS, SHALL BE TEMPORARILY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.

H. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.

I. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.

J. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

K. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.

L. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE DISPOSED OF WITHIN 30 DAYS AFTER FINAL STABILIZATION. FINAL STABILIZATION HAS OCCURRED WHEN ALL SOIL DISTURBING ACTIVITIES ARE COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% OF THE COVER FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES HAS BEEN EMPLOYED.

M. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) TO HELP PREVENT EROSION AND STORM WATER POLLUTION.

N. ALL DISTURB GRADING 3:1 OR LESS IS TO BE SEED AND STRAW. ALL DISTURB FILL GRADES GREATER THAN 3:1 MUST BE STABILIZED WITH EROSION CONTROL MATTING.

O. GEOTECH TO ASSESS THE STABILITY OF FILL GRADES STEEPER THAN 3:1

MAINTENANCE:

A. ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN AND SWPPP SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL FINAL STABILIZATION OF THE SITE. DURING CONSTRUCTION THE FOLLOWING ITEMS SHALL BE CHECKED TWICE WEEKLY.

A.A. INLET/OUTLET PROTECTION DEVICES AND BARRIERS SHALL BE FIXED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR SHALL BE REPLACED IF THEY SHOW SIGNS OF DETERIORATION. BASED ON INSPECTIONS, EPSC MUST BE REPAIRED, REPLACED, OR MODIFIED WITHIN 7 DAYS.

A.B. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEEDED AS NEEDED.

A.C. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE THIRD TO ONE HALF THE HEIGHT OF THE SILT FENCE.

A.D. THE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS "ZONE X" AS EVIDENCED ON FEMA PANEL #47119C0170E OF THE CITY OF COLUMBIA, TN, DATED 04/16/2007.

OWNER OF RECORD
TRACT 14A NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
T-SQUARE ENGINEERING 111 SE PARKWAY CT FRANKLIN, TN 37064 615.678.8212

SUBMITTALS / REVISIONS		
NO.	DATE	
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

INITIAL EROSION CONTROL PLAN
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

ZACHARY LEE MOORE
REGISTERED ENGINEER
STATE OF TENNESSEE
09/20/24

PROJECT
24-0516

SHEET
C-3.0

T-SQUARE ENGINEERING

N

GRAPHIC SCALE

(IN FEET)

30 0 15 30 60

SCALE: 1" = 30'

LEGEND

- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED SILT FENCE
- TREE PROTECTION FENCING
- PROPOSED CONSTRUCTION EXIT
- PROPOSED CONCRETE WASHOUT
- PROPOSED INLET PROTECTION

GENERAL EROSION NOTES:

A. THIS SITE DISTURBANCE IS 5.07 ACRES AND DOES REQUIRE A SWPPP. THE STORMWATER CONTROLS SHOWN ON THIS PLAN AND IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE IMPLEMENTED PRIOR TO ANY LAND DISTURBANCE.

B. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DISPOSED OF IN A MANNER THAT PREVENTS CONTACT BETWEEN THESE MATERIALS AND STORM WATER THAT IS DISCHARGED FROM THE SITE.

C. THE SITE SHALL HAVE READILY AVAILABLE SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.

D. DUST CONTROL ON THE SITE SHALL BE MINIMIZED BY SPRAYING WATER ON DRY AREAS OF THE SITE. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.

E. NO RUBBISH, TRASH, GARBAGE, OR OTHER SUCH MATERIALS SHALL BE DISCHARGED INTO DRAINAGE DITCHES OR WATERS OF THE STATE.

F. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN SHALL BE INITIATED AS SOON AS PRACTICAL.

G. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 21 DAYS, SHALL BE TEMPORARILY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.

H. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.

I. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.

J. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

K. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.

L. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE DISPOSED OF WITHIN 30 DAYS AFTER FINAL STABILIZATION. FINAL STABILIZATION HAS OCCURRED WHEN ALL SOIL DISTURBING ACTIVITIES ARE COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% OF THE COVER FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES HAS BEEN EMPLOYED.

M. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) TO HELP PREVENT EROSION AND STORM WATER POLLUTION.

N. ALL DISTURB GRADING 3:1 OR LESS IS TO BE SEED AND STRAW. ALL DISTURB FILL GRADES GREATER THAN 3:1 MUST BE STABILIZED WITH EROSION CONTROL MATTING.

O. GEOTECH TO ASSESS THE STABILITY OF FILL GRADES STEEPER THAN 3:1

MAINTENANCE:

A. ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN AND SWPPP SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL FINAL STABILIZATION OF THE SITE. DURING CONSTRUCTION THE FOLLOWING ITEMS SHALL BE CHECKED TWICE WEEKLY.

A.A. INLET/OUTLET PROTECTION DEVICES AND BARRIERS SHALL BE FIXED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR SHALL BE REPLACED IF THEY SHOW SIGNS OF DETERIORATION. BASED ON INSPECTIONS, EPSC MUST BE REPAIRED, REPLACED, OR MODIFIED WITHIN 7 DAYS.

A.B. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEEDED AS NEEDED.

A.C. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE THIRD TO ONE HALF THE HEIGHT OF THE SILT FENCE.

A.D. THE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS "ZONE X" AS EVIDENCED ON FEMA PANEL #47119C0170E OF THE CITY OF COLUMBIA, TN, DATED 04/16/2007.

OWNER OF RECORD
TRACT 14A NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
T-SQUARE ENGINEERING 111 SE PARKWAY CT FRANKLIN, TN 37064 615.678.8212

NO.	DATE	SUBMITTALS / REVISIONS
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

TEMPORARY EROSION CONTROL PLAN

NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

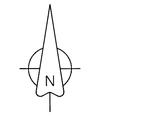
NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-3.1

T-SQUARE ENGINEERING



GRAPHIC SCALE
(IN FEET)
30 0 15 30 60
SCALE: 1" = 30'

LEGEND

500	EXISTING MAJOR CONTOURS
498	EXISTING MINOR CONTOURS
500	PROPOSED MAJOR CONTOURS
498	PROPOSED MINOR CONTOURS
	PROPOSED PERMANENT SEEDING

GENERAL EROSION NOTES:

A. THIS SITE DISTURBANCE IS 5.07 ACRES AND DOES REQUIRE A SWPPP. THE STORMWATER CONTROLS SHOWN ON THIS PLAN AND IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE IMPLEMENTED PRIOR TO ANY LAND DISTURBANCE.

B. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC.) SHALL BE DISPOSED OF IN A MANNER THAT PREVENTS CONTACT BETWEEN THESE MATERIALS AND STORM WATER THAT IS DISCHARGED FROM THE SITE.

C. THE SITE SHALL HAVE READILY AVAILABLE SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS TO CONTAIN AND CLEAN-UP FUEL OR CHEMICAL SPILLS AND LEAKS.

D. DUST CONTROL ON THE SITE SHALL BE MINIMIZED BY SPRAYING WATER ON DRY AREAS OF THE SITE. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.

E. NO RUBBISH, TRASH, GARBAGE, OR OTHER SUCH MATERIALS SHALL BE DISCHARGED INTO DRAINAGE DITCHES OR WATERS OF THE STATE.

F. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN SHALL BE INITIATED AS SOON AS PRACTICAL.

G. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS STOPPED FOR AT LEAST 21 DAYS, SHALL BE TEMPORARILY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.

H. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS.

I. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.

J. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

K. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.

L. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE DISPOSED OF WITHIN 30 DAYS AFTER FINAL STABILIZATION. FINAL STABILIZATION HAS OCCURRED WHEN ALL SOIL DISTURBING ACTIVITIES ARE COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% OF THE COVER FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES HAS BEEN EMPLOYED.

M. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) TO HELP PREVENT EROSION AND STORM WATER POLLUTION.

N. ALL DISTURB GRADING 3:1 OR LESS IS TO BE SEED AND STRAW. ALL DISTURB FILL GRADES GREATER THAN 3:1 MUST BE STABILIZED WITH EROSION CONTROL MATTING.

O. GEOTECH TO ASSESS THE STABILITY OF FILL GRADES STEEPER THAN 3:1

MAINTENANCE:

A. ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN AND SWPPP SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL FINAL STABILIZATION OF THE SITE. DURING CONSTRUCTION THE FOLLOWING ITEMS SHALL BE CHECKED TWICE WEEKLY.

A.A. INLET/OUTLET PROTECTION DEVICES AND BARRIERS SHALL BE FIXED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR SHALL BE REPLACED IF THEY SHOW SIGNS OF DETERIORATION. BASED ON INSPECTIONS, EPSC MUST BE REPAIRED, REPLACED, OR MODIFIED WITHIN 7 DAYS.

A.B. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEEDED AS NEEDED.

A.C. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE THIRD TO ONE HALF THE HEIGHT OF THE SILT FENCE.

A.D. THE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AN AREA DESIGNATED AS "ZONE X" AS EVIDENCED ON FEMA PANEL #47119C0170E OF THE CITY OF COLUMBIA, TN, DATED 04/16/2007.

OWNER OF RECORD
TRACT 14A NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
T-SQUARE ENGINEERING 111 SE PARKWAY CT FRANKLIN, TN 37064 615.678.8212

NO.	DATE	SUBMITTALS / REVISIONS
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

FINAL EROSION CONTROL PLAN
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

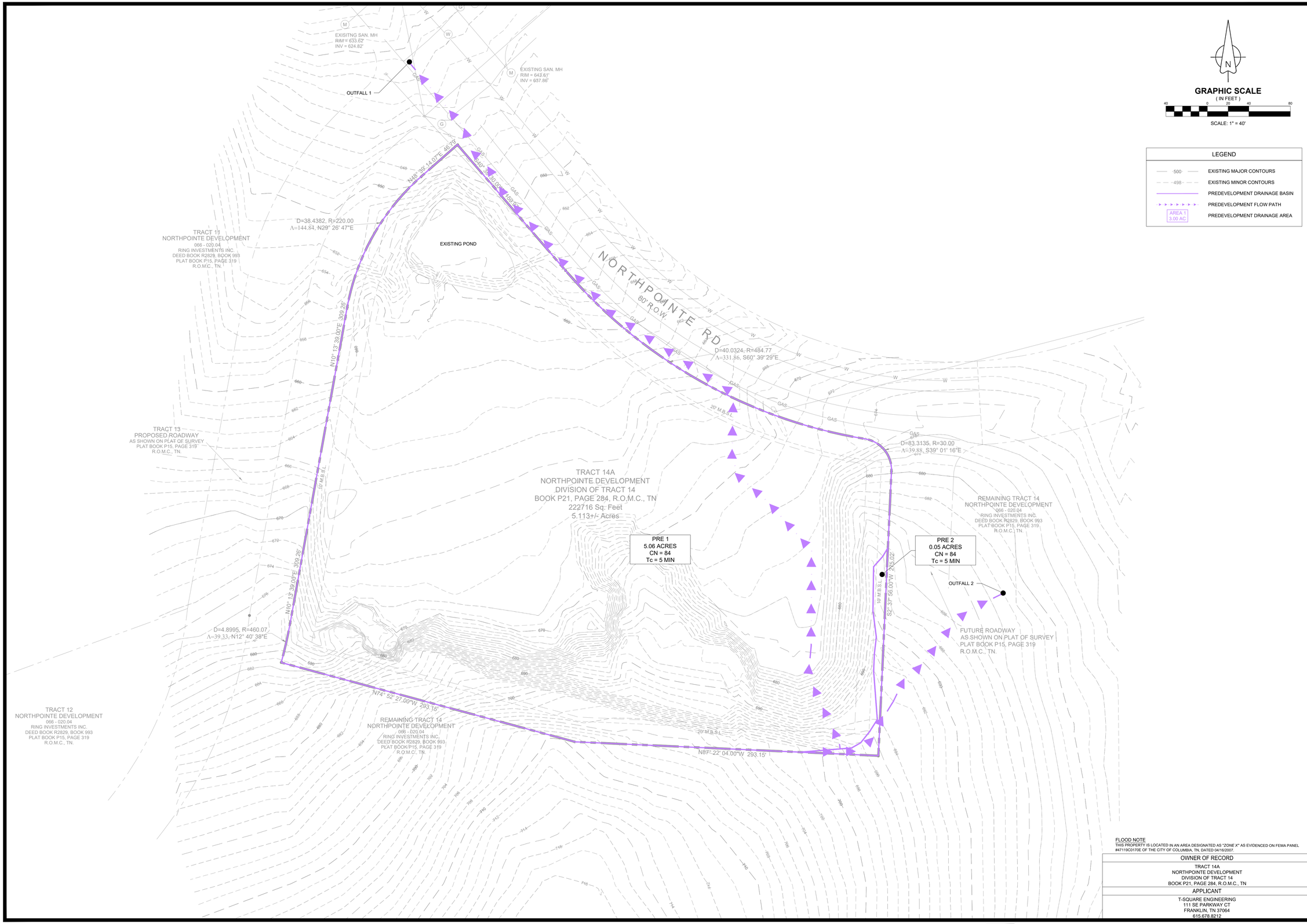
NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-3.1

T-SQUARE ENGINEERING



N

GRAPHIC SCALE
(IN FEET)
40 0 20 40 80
SCALE: 1" = 40'

LEGEND	
500	EXISTING MAJOR CONTOURS
498	EXISTING MINOR CONTOURS
	PREDEVELOPMENT DRAINAGE BASIN
	PREDEVELOPMENT FLOW PATH
AREA 1 3.00 AC	PREDEVELOPMENT DRAINAGE AREA

FLOOD NOTE
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OWNER OF RECORD
TRACT 14A. NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
T-SQUARE ENGINEERING 111 SE PARKWAY CT FRANKLIN, TN 37064 615.678.8212

SUBMITTALS / REVISIONS	NO.	DATE
INITIAL SUBMITTAL	1	9/20/24

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

PRE STORMWATER PLAN
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-4.0

T-SQUARE ENGINEERING

P:\Projects\2024\24-0516 (Northpointe Industrial - Weston Enlow)\Production\24-0516 4 Stormwater Pre Post.dwg, 9/20/2024 12:21:57 PM, _DWG To PDF.pc3

FLOOD NOTE
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OWNER OF RECORD
TRACT 14A NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
T-SQUARE ENGINEERING 111 SE PARKWAY CT FRANKLIN, TN 37064 615.678.8212

SUBMITTALS / REVISIONS		
NO.	DATE	
1	9/20/24	INITIAL SUBMITTAL

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SCALE: AS SHOWN
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REVIEWER: ZLM

POST STORMWATER PLAN
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-4.1

T-SQUARE ENGINEERING

NO.	DATE	SUBMITTALS / REVISIONS
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

GRADING PLAN
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

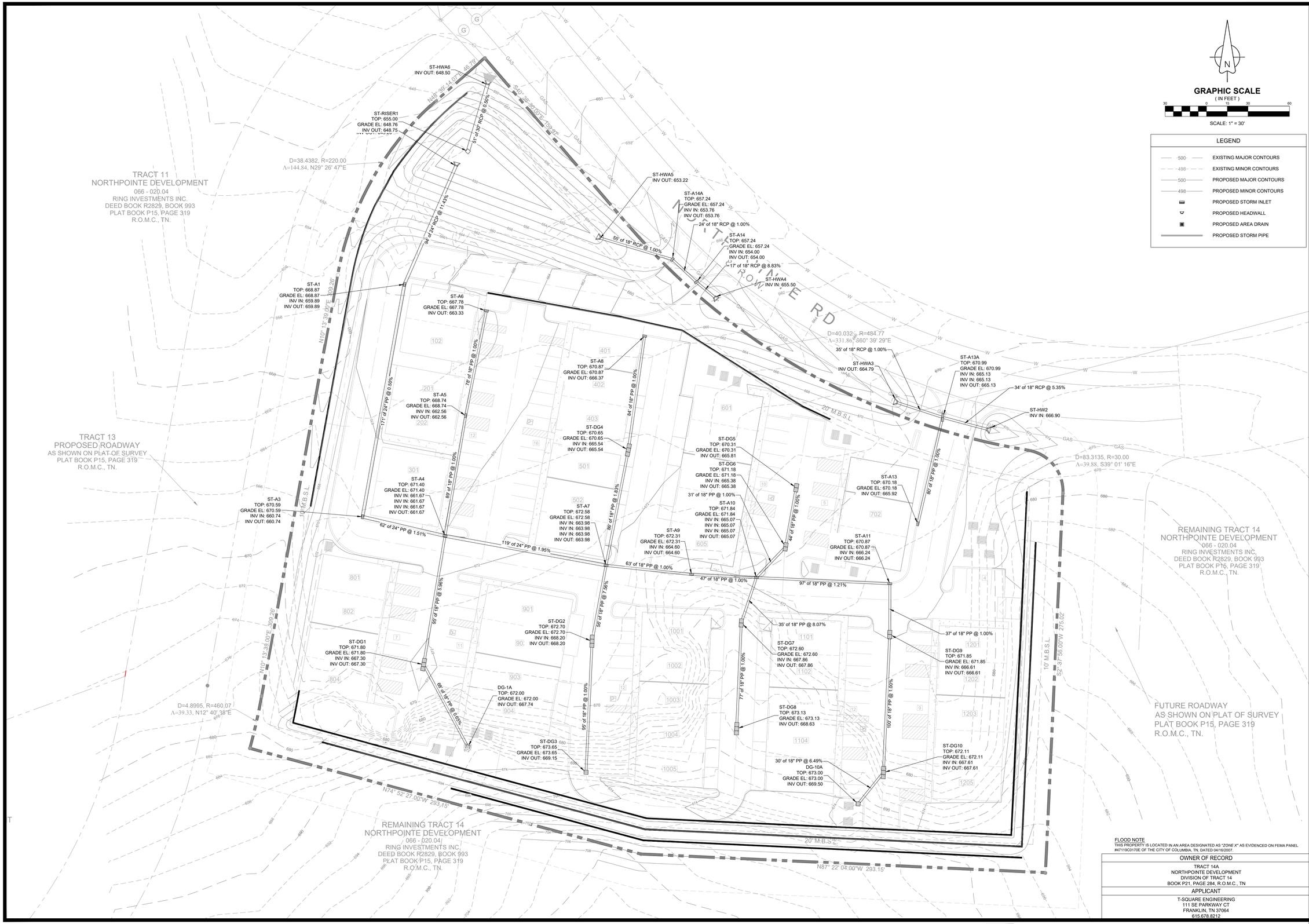
NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-5.0

T-SQUARE ENGINEERING



NO.	DATE	SUBMITTALS / REVISIONS
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

DRAINAGE PLAN
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

FLOOD NOTE
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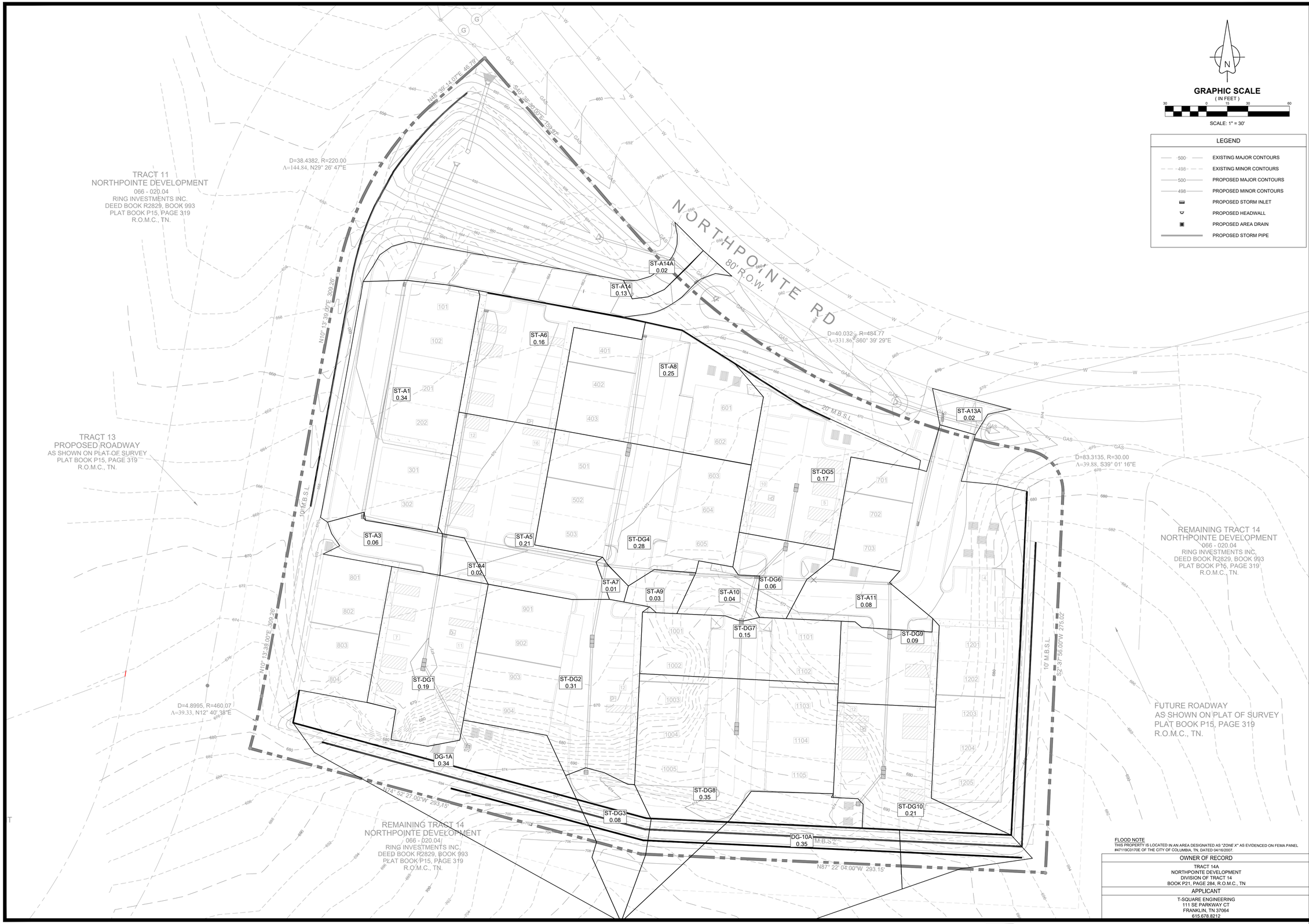
OWNER OF RECORD
TRACT 14A NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
T-SQUARE ENGINEERING 111 SE PARKWAY CT FRANKLIN, TN 37064 615.678.8212

09/20/24

PROJECT
24-0516

SHEET
C-5.1

T-SQUARE ENGINEERING



FLOOD NOTE
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OWNER OF RECORD
TRACT 14A NORTHPOINTE DEVELOPMENT DIVISION OF TRACT 14 BOOK P21, PAGE 284, R.O.M.C., TN
APPLICANT
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NO.	DATE	SUBMITTALS / REVISIONS
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REVIEWER: ZLM

DRAINAGE INLET AREA PLAN

NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-5.2

T-SQUARE ENGINEERING

TRACT 11
NORTHPOINTE DEVELOPMENT
066 - 020.04
RING INVESTMENTS INC.
DEED BOOK R2829, BOOK 993
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

TRACT 13
PROPOSED ROADWAY
AS SHOWN ON PLAT OF SURVEY
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

REMAINING TRACT 14
NORTHPOINTE DEVELOPMENT
066 - 020.04
RING INVESTMENTS INC.
DEED BOOK R2829, BOOK 993
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

EXISTING POND

NORTHPOINTE RD
80' R.O.W.

Δ=144.84, N29° 26' 47"E

N10° 13' 39.00"E 309.26'

D=40.032, R=484.77
Δ=331.86, 360° 39' 29"E

D=83.3135, R=30.00
Δ=39.88, S39° 01' 16"E

S2° 47' 56.00"W 275.02'

10' M.B.S.L.

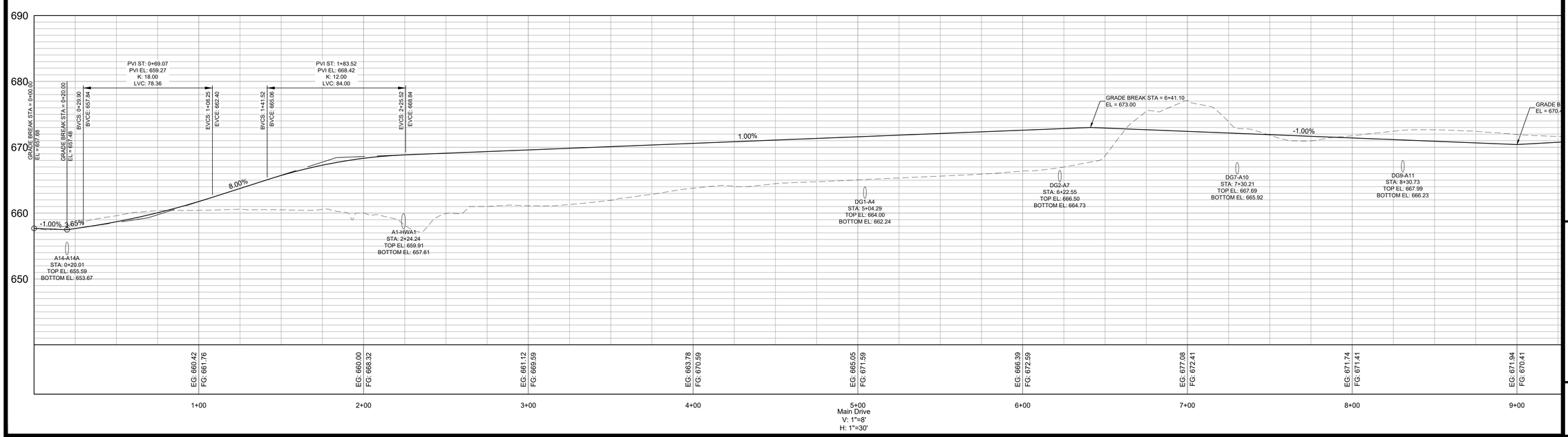
20' M.B.S.L.

N

GRAPHIC SCALE
(IN FEET)
30 0 15 30 60
SCALE: 1" = 30'

LEGEND

- EXISTING PROPERTY BOUNDARY
- 00 PROPOSED UNIT NUMBER
- PROPOSED BUILDING SETBACK
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE
- PROPOSED FIRE HYDRANT ASSEMBLY
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY SERVICE
- PROPOSED STORM INLET
- PROPOSED HEADWALL
- PROPOSED PICNIC TABLE
- HEAVY DUTY CONCRETE
- CONCRETE SIDEWALK



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DATE: 9/20/2024
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DRAWN BY: T-SQUARE
REVIEWER: ZLM

MAIN DRIVE PLAN AND PROFILE

NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-6.0

T-SQUARE ENGINEERING

P:\Projects\2024\24-0516 (Northpointe Industrial - Weston Enlow)\Production\24-0516 6 Roadway Plan.dwg, 9/20/2024 12:22:41 PM, _DWG To PDF.pc3

TRACT 11
NORTHPOINTE DEVELOPMENT
066 - 020.04
RING INVESTMENTS INC.
DEED BOOK R2829, BOOK 993
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

TRACT 13
PROPOSED ROADWAY
AS SHOWN ON PLAT OF SURVEY
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

REMAINING TRACT 14
NORTHPOINTE DEVELOPMENT
066 - 020.04
RING INVESTMENTS INC.
DEED BOOK R2829, BOOK 993
PLAT BOOK P15, PAGE 319
R.O.M.C., TN.

EXISTING POND

NORTHPOINTE RD
80' R.O.W.

D=40.032, R=484.77
Λ=331.86, S60° 39' 29"E

D=83.3135, R=30.00
Λ=39.88, S39° 01' 16"E

Λ=144.84, N29° 26' 47"E

N10° 13' 39.00"E 309.26'

S2° 47' 56.00"W 275.02'

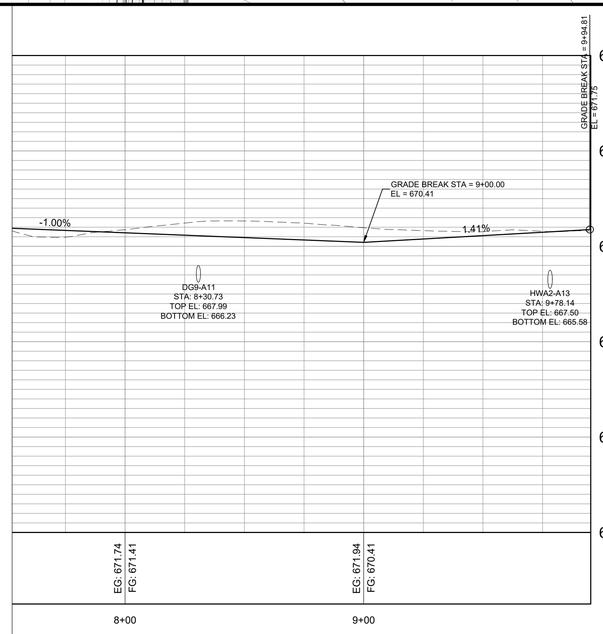
10' M.B.S.L.

20' M.B.S.L.

GRAPHIC SCALE
(IN FEET)
30 0 15 30 60
SCALE: 1" = 30'

LEGEND

- EXISTING PROPERTY BOUNDARY
- 00 PROPOSED UNIT NUMBER
- PROPOSED BUILDING SETBACK
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE
- PROPOSED FIRE HYDRANT ASSEMBLY
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY SERVICE
- PROPOSED STORM INLET
- PROPOSED HEADWALL
- PROPOSED PICNIC TABLE
- HEAVY DUTY CONCRETE
- CONCRETE SIDEWALK



NO.	DATE	SUBMITTALS / REVISIONS
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DRAWN BY: T-SQUARE
REVIEWER: ZLM

MAIN DRIVE PLAN AND PROFILE

NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-6.1

T-SQUARE ENGINEERING

P:\Projects\2024\24-0516 (Northpointe Industrial - Weston Enlow)\Production\24-0516 6 Roadway Plan.dwg, 9/20/2024 12:22:51 PM, _DWG To PDF.pc3

SEE INSET

EXISTING 12" WATER MAIN ALONG NORTHPOINTE ROAD.

12" X 6" TAPPING SLEEVE AND VALVE CONNECTION TO WATER MAIN ON NORTHPOINTE ROAD.

NORTHPOINTE RD
80' R.O.W.

SAN-1
RIM:648.35
INV IN: 644.12
INV OUT: 643.92

SAN-2
RIM:655.00
INV IN: 650.20
INV OUT: 650.00

SAN-3
RIM:658.55
INV IN: 652.17
INV OUT: 651.97

SAN-4
RIM:669.08
INV IN: 656.20
INV OUT: 656.00

SAN-5
RIM:671.00
INV IN: 659.66
INV OUT: 659.46

SAN-6
RIM:671.64
INV IN: 660.26
INV IN: 660.26
INV OUT: 660.06

SAN-7
RIM:672.17
INV OUT: 666.90

SAN-8
RIM:671.93
INV IN: 660.50
INV IN: 660.50
INV OUT: 660.40

SAN-9
RIM:669.23
INV OUT: 663.42

SAN-10
RIM:672.84
INV IN: 662.47
INV OUT: 662.33

SAN-11
RIM:671.97
INV IN: 663.10
INV IN: 663.10
INV IN: 663.10
INV OUT: 662.90

SAN-12
RIM:670.86
INV OUT: 665.84

SAN-13
RIM:673.42
INV OUT: 668.41

SAN-14
RIM:671.10
INV IN: 666.15
INV OUT: 665.95

SAN-15
RIM:672.27
INV OUT: 667.26

MH-EXISTING
RIM:643.61
INV IN: 638.06

98' of 6" SDR-26 PVC @ 4.47%

S40° 39' 30"W 159.47'

108' of 6" SDR-26 PVC @ 4.47%

D=38.4382, R=220.00
Δ=144.84, N29° 26' 47"E

41' of 6" SDR-26 PVC @ 4.36%

172' of 6" SDR-26 PVC @ 2.24%

N10° 13' 39.00"E 309.26'

201' of 6" SDR-26 PVC @ 1.68%

174' of 6" SDR-26 PVC @ 1.68%

80' of 6" SDR-26 PVC @ 0.50%

112' of 6" SDR-26 PVC @ 1.64%

29' of 6" SDR-26 PVC @ 0.50%

113' of 6" SDR-26 PVC @ 5.61%

86' of 6" SDR-26 PVC @ 0.50%

88' of 6" SDR-26 PVC @ 3.26%

118' of 6" SDR-26 PVC @ 4.53%

126' of 6" SDR-26 PVC @ 0.89%

119' of 6" SDR-26 PVC @ 2.31%

30' PUDE

FIRE HYDRANT

¾" WATER SERVICE TO EACH UNIT, TYP.

4" SANITARY SEWER SERVICE LATERAL TO EACH UNIT, TYP.

D=40.0324, R=484.77
Δ=331.86, S60° 39' 29"E

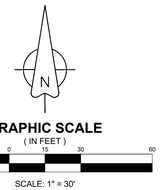
D=83.3135, R=30.00
Δ=39.88, S39° 01' 16"E

S2° 31' 56.00"W 275.02'

D=4.8995, R=460.07
Δ=39.33, N12° 40' 38"E

N74° 52' 27.00"W 283.15'

N87° 22' 04.00"W 293.15'



LEGEND

- PROPOSED UTILITY EASEMENT
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE
- PROPOSED HYDRANT ASSEMBLY
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY SERVICE

NOTES:
1. SEE APPROVED POWER PLANS FROM COLUMBIA POWER & WATER SYSTEMS FOR CONSTRUCTION.
2. ALL WATER INFRASTRUCTURE TO BE PER COLUMBIA POWER & WATER SYSTEMS SPECIFICATIONS.
3. ALL SANITARY SEWER TO BE PER COLUMBIA WASTEWATER SPECIFICATIONS.

SUBMITTALS / REVISIONS

NO.	DATE	
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

UTILITY PLAN
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

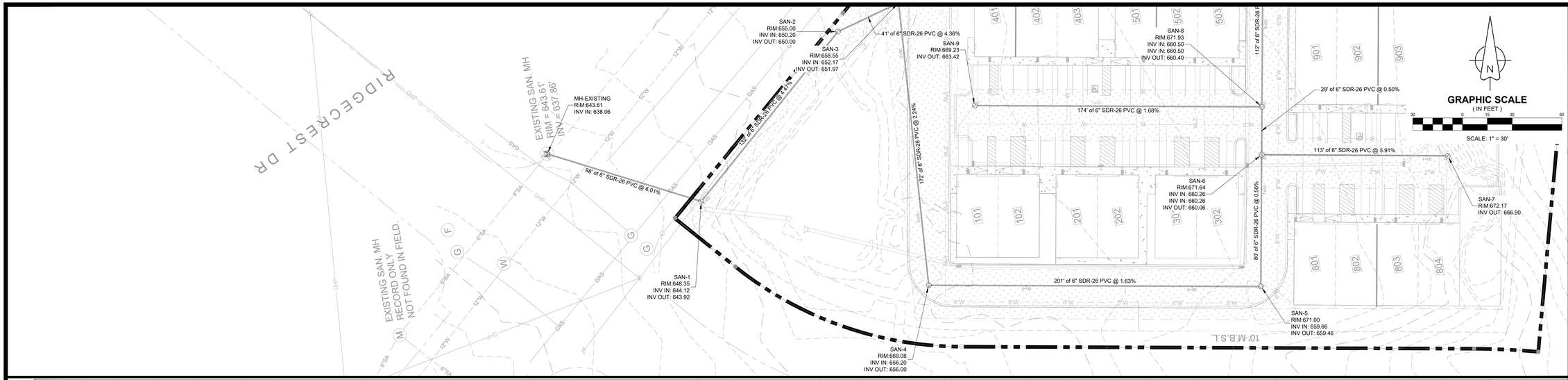
NORTHPOINTE INDUSTRIAL

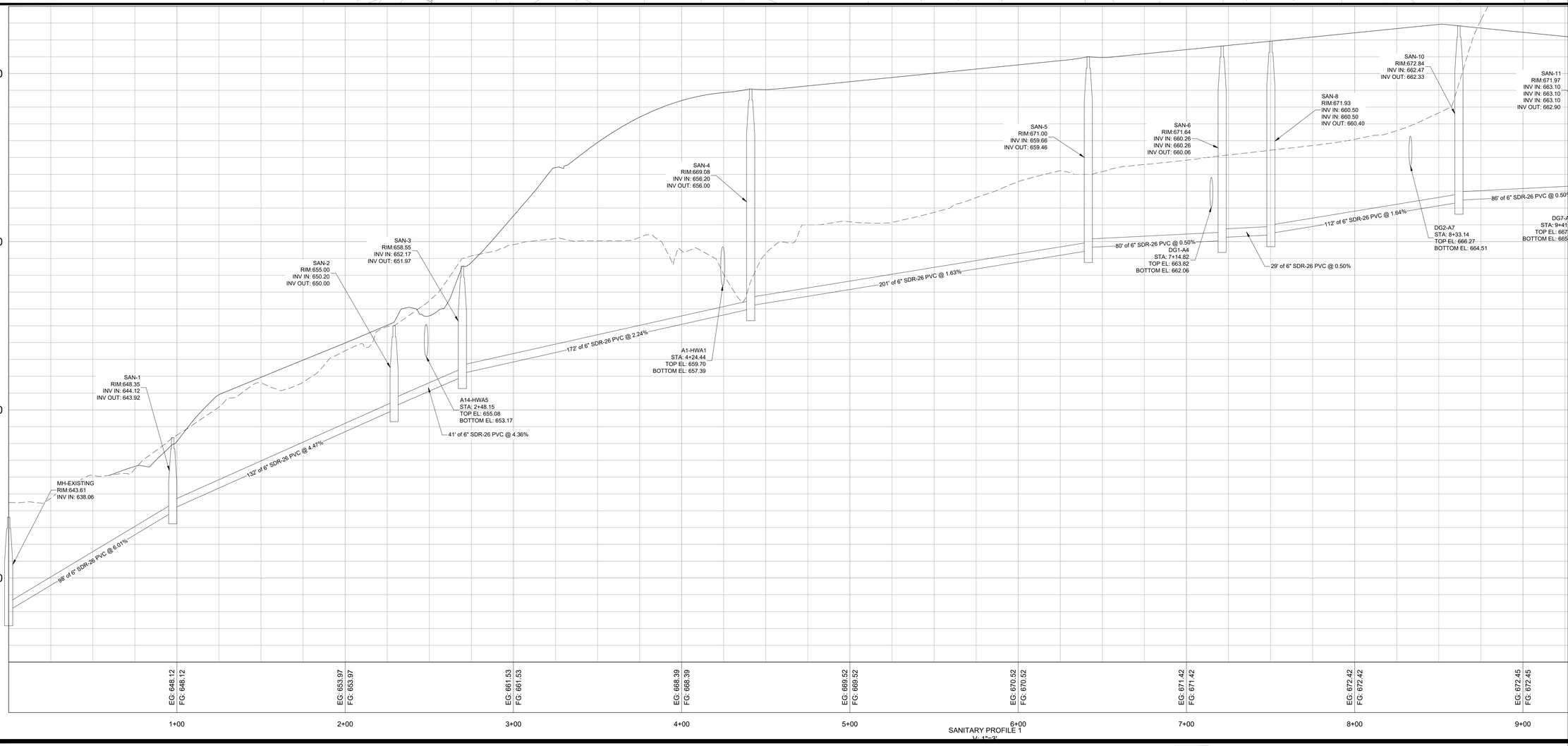
09/20/24

PROJECT
24-0516

SHEET
C-7.0

T-SQUARE ENGINEERING





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DATE: 9/20/2024
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REVIEWER: ZLM

SEWER PLAN & PROFILE

NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

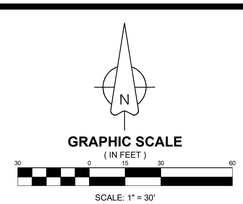
NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-7.1

T-SQUARE ENGINEERING



GRAPHIC SCALE
(IN FEET)

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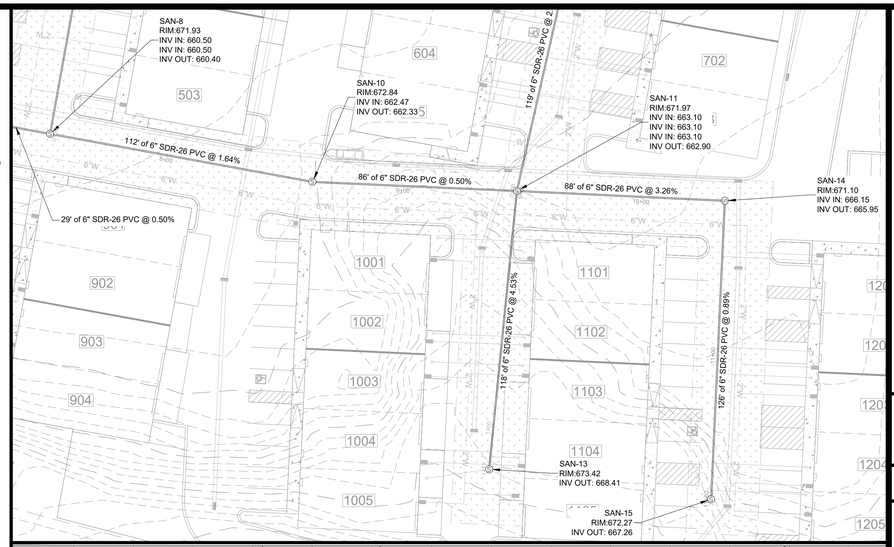
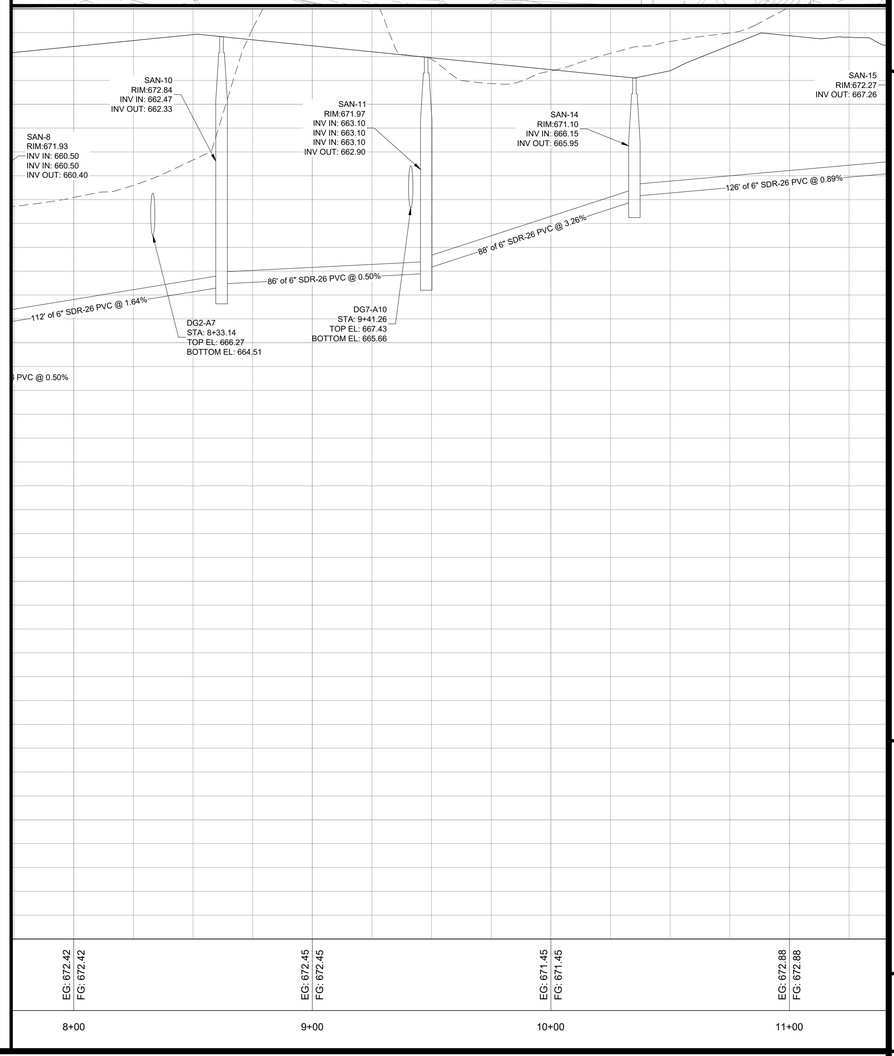
SCALE: 1" = 30'





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SEWER PLAN & PROFILE

NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-7.2

T-SQUARE ENGINEERING

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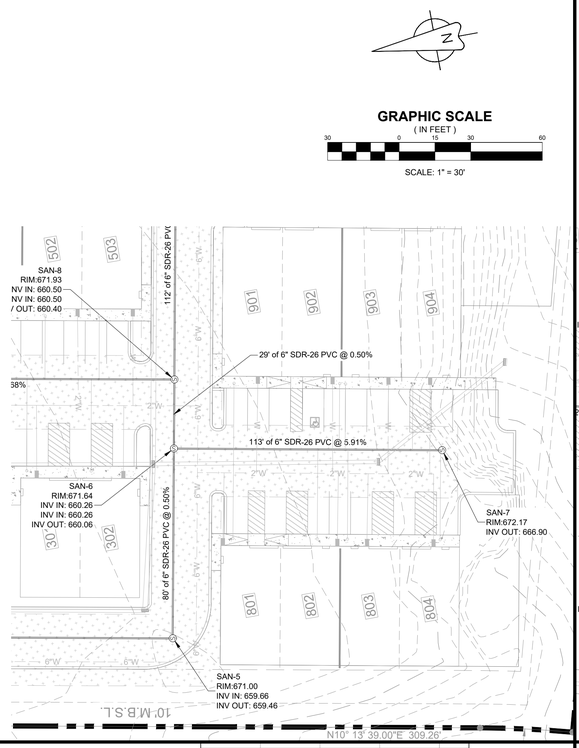
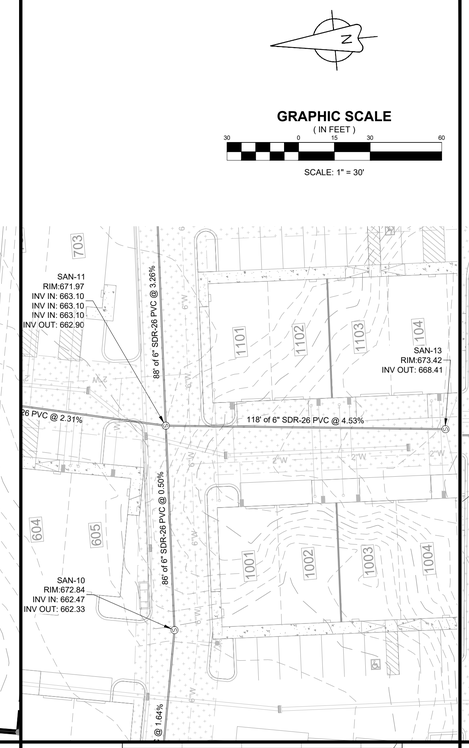
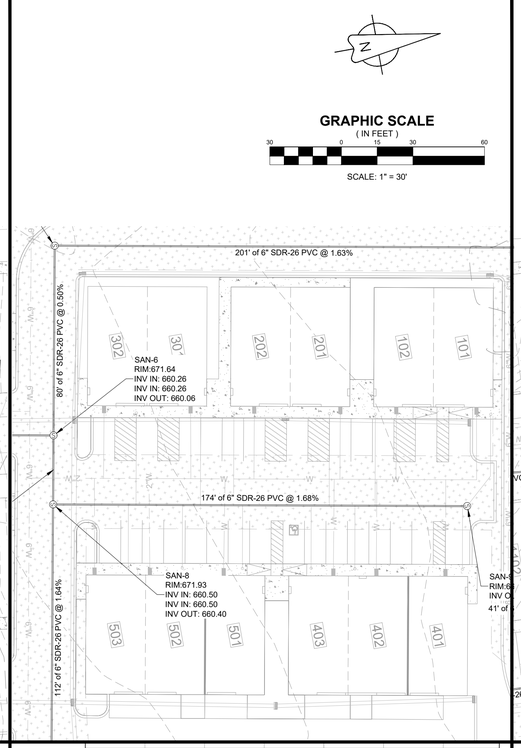
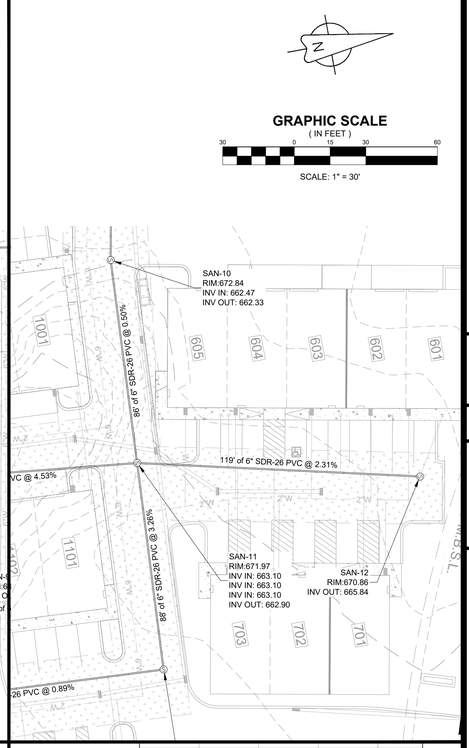
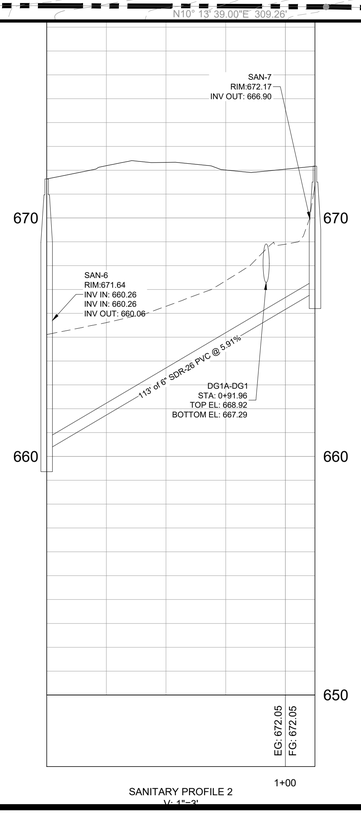


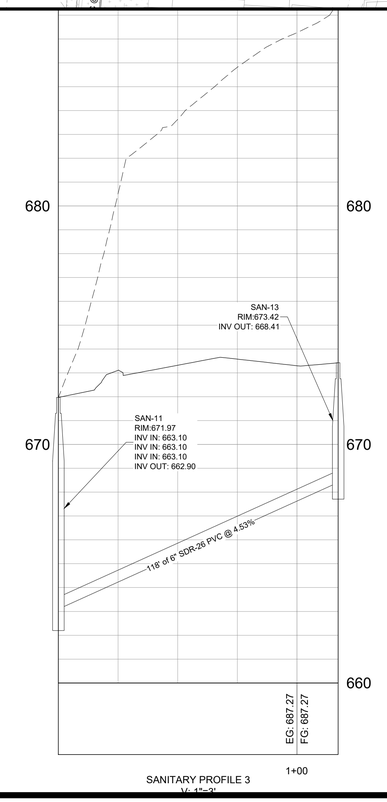




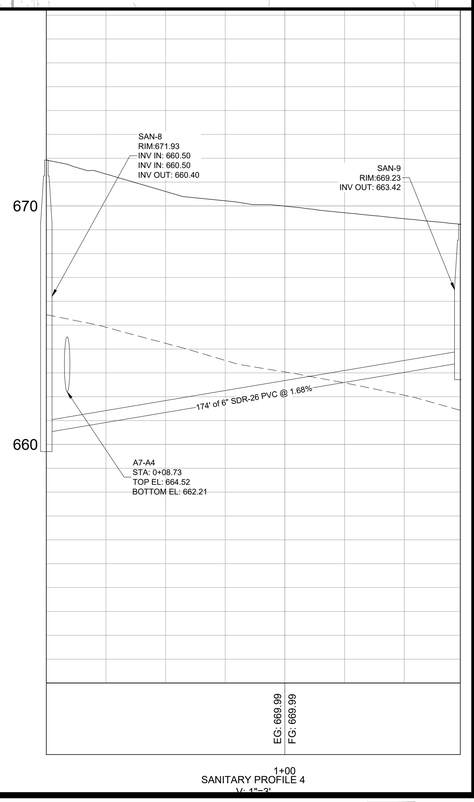




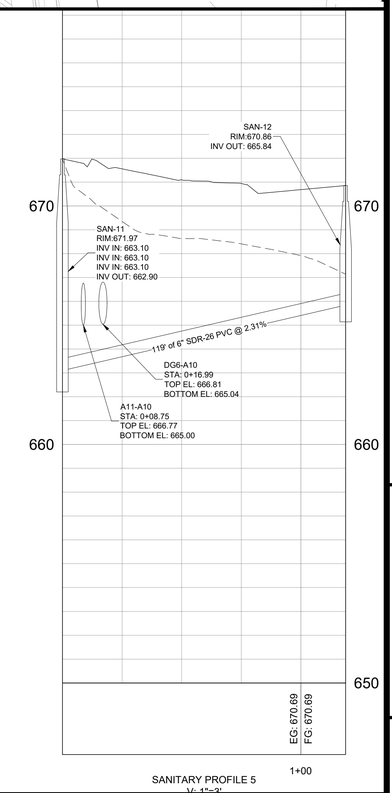
SANITARY PROFILE 2
V: 1"=3'



SANITARY PROFILE 3
V: 1"=3'



SANITARY PROFILE 4
V: 1"=3'



SANITARY PROFILE 5
V: 1"=3'

NO.	DATE	SUBMITTALS / REVISIONS
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

SEWER PLAN & PROFILE

NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

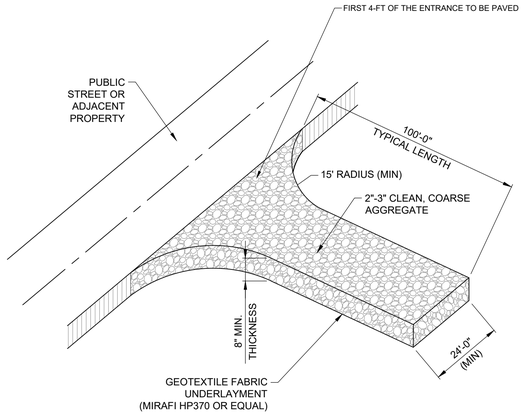
09/20/24

PROJECT
24-0516

SHEET
C-7.3

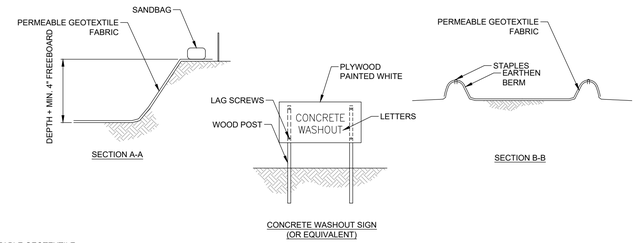
T-SQUARE ENGINEERING

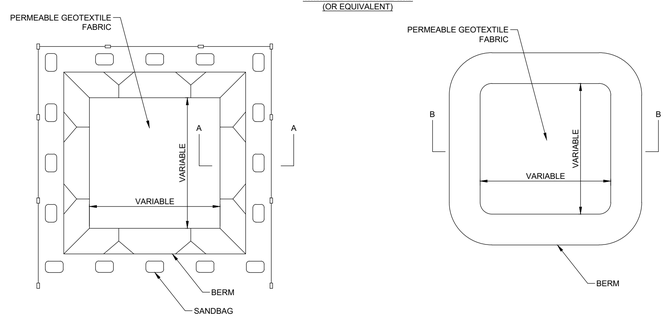
P:\Projects\2024\24-0516 (Northpointe Industrial - Weston Enlow)\Production\24-0516 7 Utility Plan.dwg, 9/20/2024 12:23:19 PM, _DWG To PDF.pc3



ISOMETRIC VIEW

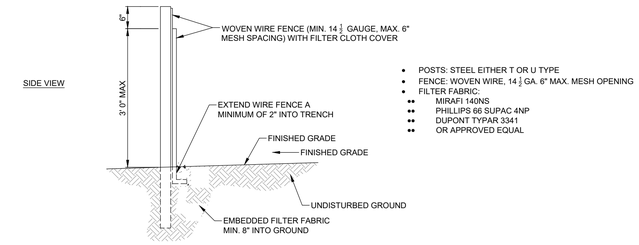
CONSTRUCTION ENTRANCE
N.T.S.





NOTES:
1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
2. SIGNAGE IDENTIFYING THE CONCRETE WASHOUT AREA SHALL BE INSTALLED WITHIN 5FT.OF THE WASHOUT FACILITY.

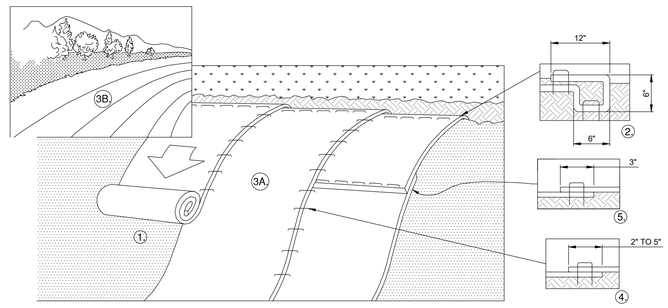
CONCRETE WASHOUT
N.T.S



- POSTS: STEEL EITHER T OR U TYPE
- FENCE: WOVEN WIRE, 14 ½ GA. 6" MAX. MESH OPENING
- FILTER FABRIC:
  - MIRAFI 140NS
  - PHILLIPS 66 SUPAC 4NP
  - DUPONT TYPAR 3341
  - OR APPROVED EQUAL

1. WOVEN WIRE CE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE EROSION CONTROL PLAN. COLLECTED MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE OR WHEN TOP LINE IS NOT VISIBLE.
5. J-HOOK METHOD IS REQUIRED WHEN CROSSING CONTOURS PERPENDICULARLY.

TYPE "C" SEDIMENT/SILT FENCE
N.T.S



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
   1.1. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5 CM-12.5 CM) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BEE NECESSARY TO PROPERLY SECURE THE BLANKETS.

Manufactured by:
Agri Drain CORPORATION

PO Box 458 · 1462 340th Street · Adair, Iowa 50002
Phone: 1-800-232-4742 · Fax: 1-800-282-3353
www.agridrain.com · email: info@agridrain.com

Anti-Seep Collars

Keep your pipe from being washed out.

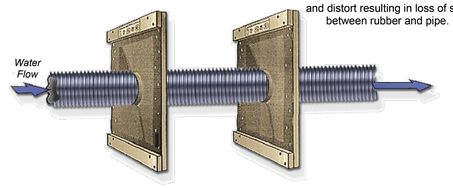
- The Anti-Seep Collar works with any smoothwall pipe or corrugated plastic tubing.
- 1/16" gum rubber.
- Easy to install.
- Tan floating stock has superior resilience, elongation, and tear strength.
- Resistant to water, most salts, mild acids, and many other chemicals.
- Wood frame.
- Economical to buy.

Anti-Seep Flanges—
1/16" Gum Rubber
with Wood Frame

ASC02 .....2' x 2'
ASC03 .....3' x 3'
ASC04 .....4' x 4'
ASC05 .....5' x 5'
ASC06 .....6' x 6'

Recommended Anti-Seep Collar

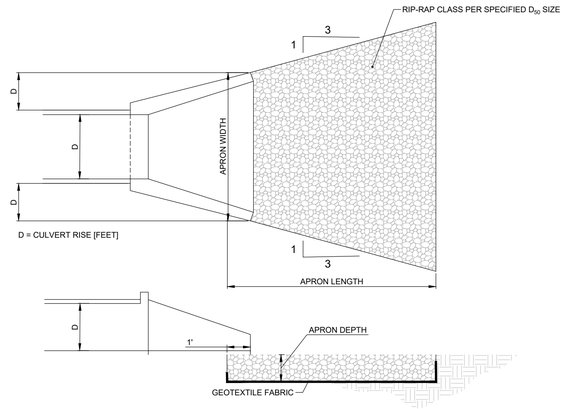
Pipe Size	Item#
3"	ASC02
4", 5", 6", 8", 10", 12"	ASC03
15", 18", 24"	ASC04
30", 36"	ASC05
42", 48", 60"	ASC06



Directions for Using The Anti-Seep Collar

1. Unroll the Anti-Seep Collar and align the boards to form a square. Attach metal brackets to the corner of the boards with the screws provided. Attach the rubber to the frame with the nails provided.
2. ***IMPORTANT—Cut a round hole** in the center of the rubber that is smaller than the pipe size (approx. 33% smaller). This will allow the rubber to stretch over the pipe when the Anti-Seep Collar is installed on the pipe. This will provide a tight seal between the pipe and the Anti-Seep Collar.
   ***Cutting an "X" or slit will cause the rubber to tear.**
3. Slip the pipe through the Anti-Seep Collar, inspect the seal between the pipe and the Anti-Seep Collar, carefully backfill, and compact with suitable soil.

CAUTION: Excessive compaction or downward pressure on wooden frame will cause rubber to stretch and distort resulting in loss of seal between rubber and pipe.



RIP-RAP APRON DIMENSIONS (per HEC-14, SECTION 10)

STRUCTURE	D_{50} [inches]	APRON LENGTH [feet]	APRON DEPTH [inches]	APRON WIDTH [feet]
ST-HWP1	5	10	17.5	7.50
ST-HWP2	5	10	17.5	7.50

OUTLET PROTECTION
DESIGNED TO THE 100-YR STORM PER HEC-11 STANDARDS
N.T.S

SUBMITTALS / REVISIONS

NO.	DATE	
	9/20/24	INITIAL SUBMITTAL
1		

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

DETAILS
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

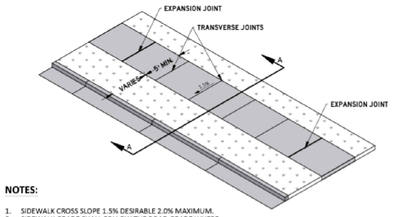
NORTHPOINTE INDUSTRIAL

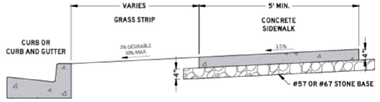
09/20/24

PROJECT
24-0516

SHEET
C-8.0

T-SQUARE ENGINEERING



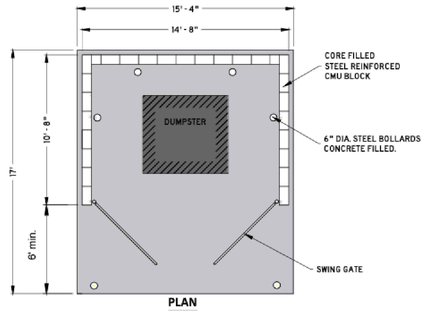


SECTION AA

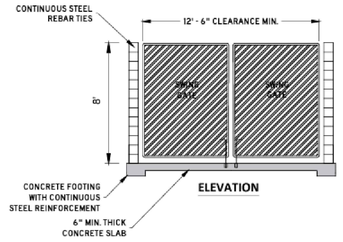
NOTES:

1. SIDEWALK CROSS SLOPE 1.5% DESIRABLE 2.0% MAXIMUM.
2. SIDEWALK GRADE SHALL FOLLOW THE ROAD GRADE WHERE POSSIBLE.
3. 4" MIN. THICK #57 OR # 67 STONE BASE
4. 4" MIN. THICKNESS CLASS A 3000 PSI CONCRETE WITH FIBER REINFORCEMENT, BROOM FINISHED.
5. EXPANSION JOINTS SHALL BE AS FOLLOWS:
   - 5.1. 1/2 INCH THICK
   - 5.2. A MAXIMUM SPACING OF 25 FEET
   - 5.3. AT TANGENTS OF ALL RADII OF CURVES
   - 5.4. BETWEEN CURBS AND ANY RIGID OBJECTS
   - 5.5. ALIGNED WITH ADJACENT EXPANSION JOINTS
   - 5.6. RUBBERIZED EXPANSION JOINT FILLER (AASHTO M153, TYPE 1)
   - 5.7. POLYPROPYLENE FOAM JOINT FILLER (ASTM D8139)
6. PROVIDE TRANSVERSE JOINTS AS NEARLY AS SQUARE AS PRACTICABLE. ON SIDEWALKS GREATER THAN 8 FEET IN WIDTH, PROVIDE A LONGITUDINAL JOINT ALONG THE CENTERLINE OF THE SIDEWALK.
7. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER

CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION	CONCRETE SIDEWALK	DATE 6/9/2022
STANDARD DETAILS	(NTS)	SD-10



PLAN

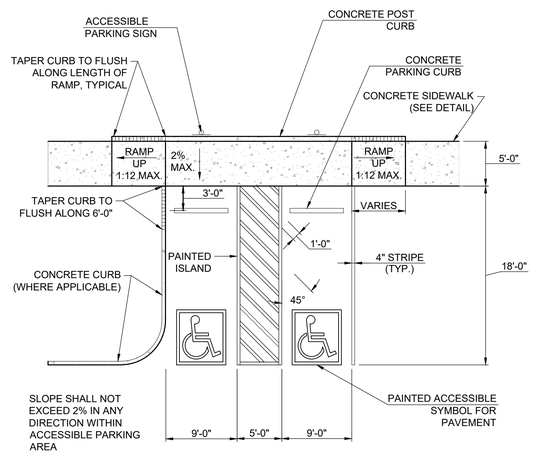


ELEVATION

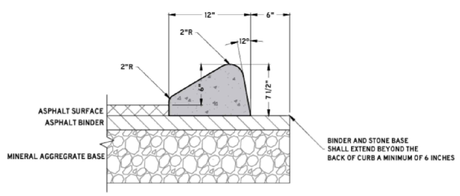
NOTES:

1. MATERIALS, CONSTRUCTION AND QUANTITY CONTROL OF MASONRY SHALL BE IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE (IBC).
2. MATERIALS USED SHOULD BE CONSISTENT WITH THOSE USED IN THE CONSTRUCTION OF AND ARCHITECTURAL STYLE OF THE PRINCIPAL BUILDING. SHALL BE COMPLIANT WITH THE ZONING ORDINANCE AND ALL OTHER APPLICABLE REGULATIONS
3. CONCRETE SLAB: MONOLITHIC, MIN. 6" THICKNESS W/IMBEDDED 6"X6"/ 10X10 WELDED WIRE FABRIC (W.W.F.), CLASS A 3000 P.S.I. CONCRETE FILLED CELLS: WITH 1-#5 VERTICAL REBAR TIED TO FOOTER STEEL AT EACH CORNER AND EVERY 4' O.C.
4. BOLLARD: 3'-6" HIGH, 6" DIAMETER STEEL PIPE BOLLARD FILLED WITH CONCRETE, PAINTED TRAFFIC YELLOW
5. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER

CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION	DUMPSTER PAD AND ENCLOSURE	DATE 6/9/2022
STANDARD DETAILS	(NTS)	MD-01



TYPICAL ACCESSIBLE PARKING SPACE
N.T.S.



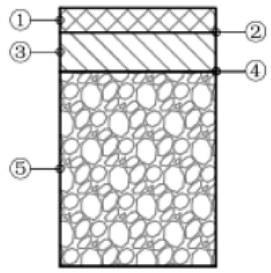
NOTES:

1. BASED ON TDOT STANDARD DRAWING RP-SC-1
2. ONLY PERMITTED IN APPLICABLE ROADWAY SECTIONS
3. CLASS A 3000 PSI CONCRETE
4. CONTRACTION JOINTS SHALL BE AS FOLLOWS:
   - 4.1. A MAXIMUM SPACING OF 10 FEET
   - 4.2. A MINIMUM SPACING OF 6 FEET
   - 4.3. 1/4 INCH DEPTH, EITHER SAWCUT OR HAND GROOVED.
5. ELEMENTS OF THIS DETAIL MAY BE ALTERED AND APPROVED BY THE CITY ENGINEER

CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION	EXTRUDED MOUNTABLE CURB	DATE 6/9/2022
STANDARD DETAILS	(NTS)	SD-02

PAVEMENT SCHEDULE

①	SURFACE @ 1.5" THICK 411-0110 ASPHALT CONCRETE MIX (PG64-22) (ACS) GRADING D (SURFACE), OR 307-0110 ASPHALT CONCRETE MIX (PG64-22) (ACS) GRADING C-W (SURFACE)
②	TACK COAT (GENERAL USE) 403-01 BITUMINOUS MATERIAL FOR TACK COAT (TC) (0.05 - 0.10 GAL/SY)
③	BIT. BINDER @ 2" THICK 307-0108 ASPHALT CONCRETE MIX (PG64-22) (BPMB-HM) GRADING B-M2
④	PRIME COAT 402-01 BITUMINOUS MATERIAL FOR PRIME COAT (PC) (0.30-0.35 GAL/SY) 402-02 AGGREGATE FOR COVER MATERIAL (PC) (8-12 LB/SY)
⑤	MINERAL AGGREGATE BASE @ 6" THICK 303-01 MINERAL AGGREGATE, TYPE A BASE, GRADING D



CITY OF COLUMBIA DEVELOPMENT SERVICES DEPARTMENT ENGINEERING DIVISION	PARKING LOT PAVEMENT SECTION	DATE 6/9/2022
STANDARD DETAILS	(NTS)	MD-02

NO.	DATE	SUBMITTALS / REVISIONS
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

NORTHPOINTE INDUSTRIAL

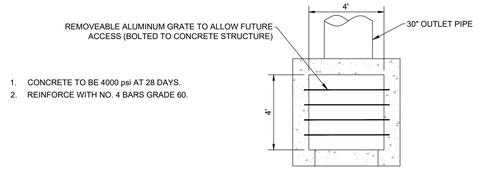
DETAILS
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

09/20/24

PROJECT
24-0516

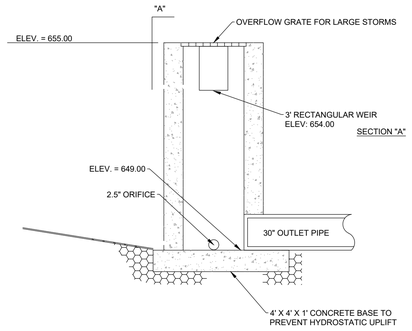
SHEET
C-8.0

T-SQUARE ENGINEERING

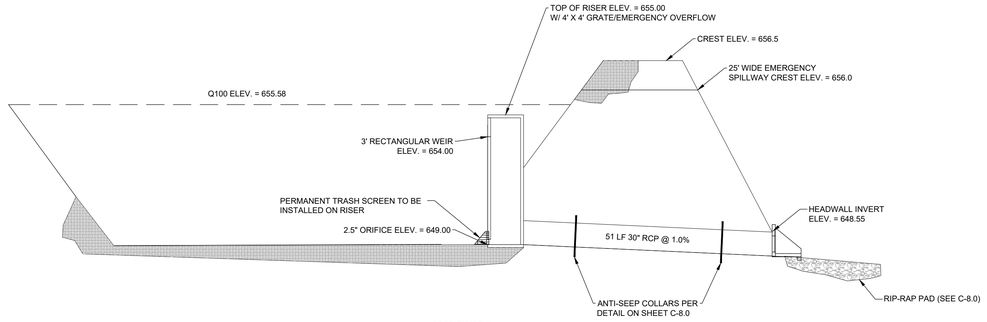


1. CONCRETE TO BE 4000 psi AT 28 DAYS.
2. REINFORCE WITH NO. 4 BARS GRADE 60.

OUTLET CONTROL STRUCTURE



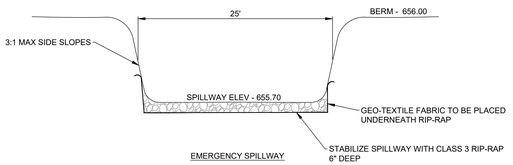
DETENTION POND
N.T.S



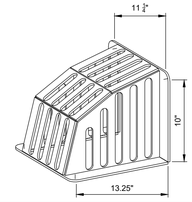
SECTION VIEW

Notes:

1. POND TO BE INSTALLED AFTER CONSTRUCTION SITE DEVELOPMENT IS COMPLETE.
2. SEDIMENT TRAP TO BE DE-WATERED AND DE-MUCKED, AND SEDIMENT IS TO BE REMOVED BEFORE CONVERTING TO PERMANENT POND



EMERGENCY SPILLWAY



MADE IN THE U.S.A.

AVAILABLE MATERIALS:
MILD STEEL (NO FINISH) - WGT: 24.9 lbs.
MILD STEEL (GALVANIZED) - WGT: 24.9 lbs.
STAINLESS STEEL - WGT: 24.9 lbs.
ALUMINUM - WGT: 8.41 lbs.

CUSTOM SIZES AVAILABLE

101 IRONWOOD ROAD
MIDDLESBORO, KY 40965
PH: (606) 248-5560
FAX: (606) 248-6308
JRHOE.COM

TITLE:
LPG-10
10" PIPE GUARD GRATE

SIZE DWG. NO.
A 268511

REV.

SHEET /

TRASH RACK
N.T.S

SUBMITTALS / REVISIONS

NO.	DATE	
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

NORTHPOINTE INDUSTRIAL

DETAILS
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

09/20/24

PROJECT
24-0516

SHEET
C-8.2

T-SQUARE ENGINEERING

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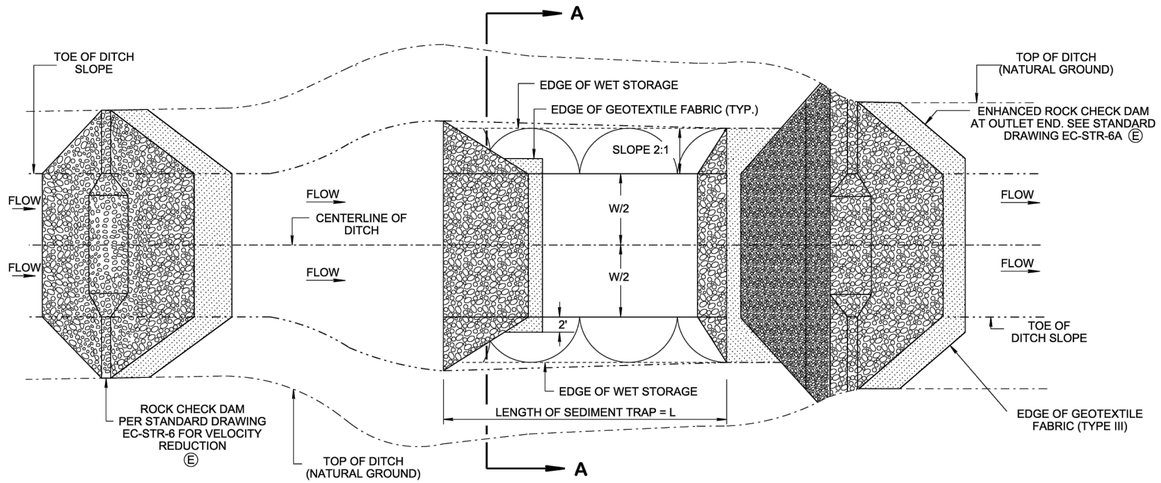
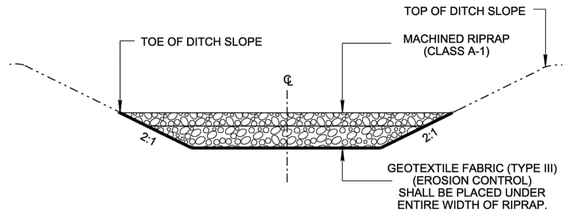
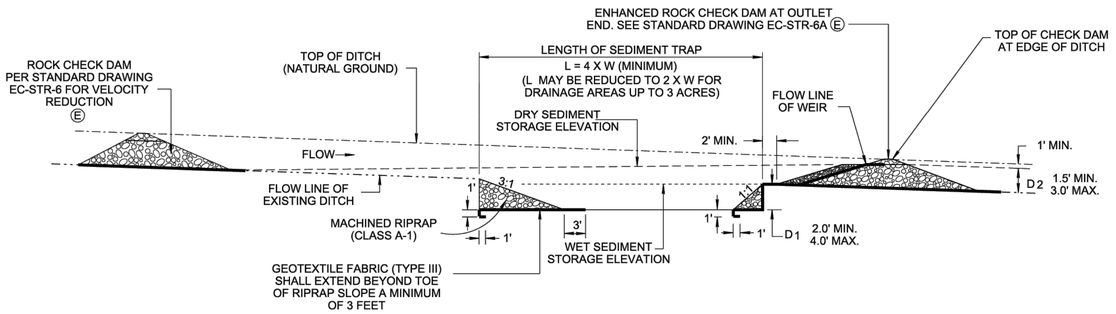


PLAN VIEW



SECTION A - A



PROFILE VIEW

EROSION CONTROL PLAN LEGEND: SEDIMENT TRAP WITH ENHANCED ROCK CHECK DAM, SEDIMENT TRAP WITH GABION CHECK DAM

NOT TO SCALE

SEDIMENT TRAP WITH CHECK DAM GENERAL NOTES

(A) SEDIMENT TRAPS WITH CHECK DAMS DETAIN SEDIMENT LADEN STORMWATER RUNOFF FROM SMALL DISTURBED AREAS SO THE MAJORITY OF THE SEDIMENT CAN SETTLE OUT. SEDIMENT TRAPS WITH CHECK DAMS SHALL NOT BE USED IN STREAMS OR WETLANDS UNLESS PROVIDED FOR IN THE PERMITS.

(B) THE DRAINAGE AREA FOR THE SEDIMENT TRAP SHALL BE 5 ACRES OR LESS.

(C) THE BELOW GROUND SEDIMENT TRAP IS LOCATED IN A DITCH LINE AND WILL REQUIRE GEOTEXTILE FABRIC (TYPE III) AND RIP-RAP AT BOTH ENDS.

(D) ONLY GEOTEXTILE FABRIC (TYPE III) LISTED ON THE QUALIFIED PRODUCTS LIST SHALL BE USED.

(E) FOR INSTALLATION DETAILS AND ITEM NUMBERS FOR ROCK CHECK DAMS (EC-STR-6) AND ENHANCED ROCK CHECK DAMS (EC-STR-6A) REFER TO THEIR RESPECTIVE STANDARD DRAWING.

(F) SEDIMENT TRAP WITH CHECK DAM SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:

209-10.20, TEMPORARY SEDIMENT TRAP, C.Y.

ROCK CHECK DAMS AND ENHANCED ROCK CHECK DAMS SHALL BE PAID FOR ACCORDING TO THEIR RESPECTIVE STANDARD DRAWING.

PAYMENT SHALL INCLUDE ALL MATERIALS, EXCAVATION, AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF THE SEDIMENT TRAP WITH CHECK DAM.

(G) SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT TRAP WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NUMBER:

209-05, SEDIMENT REMOVAL, C.Y.

(H) GABION CHECK DAM MAY BE SUBSTITUTED WHERE REQUIRED.

☐ APPROVED BY FHWA
(ALL OTHERS APPROVED BY TDOT)

STATE OF TENNESSEE
STANDARD DRAWING
DEPARTMENT OF TRANSPORTATION

SEDIMENT TRAP WITH CHECK DAM

10-26-1992 | EC-STR-7

☐ REV. 12-18-95: CHANGED DRAWING NO. FROM ESC-STR-7 TO EC-STR-7.

REV. 5-27-01: CHANGED ITEM NOS. 209-10.01 THROUGH 209-10.19 TO 209-10.20.

REV. 9-5-01: CORRECTED NOTE REGARDING GEOTEXTILE FABRIC IN SECTION A-A AND SECTION B-B.

REV. 12-18-02: CHANGED GENERAL NOTE (D).

REV. 1-22-03: CORRECTED GENERAL NOTE B . ADDED ADDITIONAL GEOTEXTILE FABRIC TO PROFILE VIEW.

REV. 7-29-04: ADDED ROCK CHECK DAM TO PLAN AND PROFILE VIEWS .CHANGED GENERAL NOTE (B).

REV. 4-15-06: REFORMATTED SHEET, REVISED NOTES, MISC. EDITS TO DRAWING.

REV. 4-1-08: REMOVED TEMPORARY REFERENCE, CHANGED SILT SCREEN TO ENHANCED CHECK DAM, ADDED GABION ALTERNATE, REVISED NOTES, MISC. DRAWING EDITS.

REV. 8-1-12: MINOR EDITS TO GENERAL NOTES.

REV. 05-04-22: REVISED GENERAL NOTE (B) AND LENGTH OF SEDIMENT TRAP ON PROFILE VIEW. REMOVED EC-STR-55 REFERENCE FROM GENERAL NOTES (E) AND (H). REDREW SHEET.

NO.	DATE	SUBMITTALS / REVISIONS
1	9/20/24	INITIAL SUBMITTAL

DATE: 9/20/2024
SCALE: AS SHOWN
DRAWN BY: T-SQUARE
REVIEWER: ZLM

DETAILS
NORTHPOINTE ROAD
MAURY COUNTY TAX MAP 066, PARCEL 020.22
COLUMBIA, TENNESSEE

NORTHPOINTE INDUSTRIAL

09/20/24

PROJECT
24-0516

SHEET
C-8.2

T-SQUARE ENGINEERING

7/26/2022 1:32:45 PM P:\StandDraw\DESIGN STANDARDS\Standards Drawings Library\Standard Roadway Drawings - CURRENT\In Progress\10-108.00 Erosion Prevention and Sediment Control IP\180.03 Ditch Devices IP\ECSTR7-2022

PLANT SCHEDULE

QTY.	COMMON NAME	BOTANICAL NAME	HEIGHT	TRUNK	COMMENTS
CANOPY TREES					
83	Eastern Red Cedar	Juniperus virginiana	8' Min.	2.5" Cal.	B&B
55	'Little Gem' Magnolia	Magnolia grandiflora 'Little Gem'	8' Min.	2.5" Cal.	B&B
7	Nuttall Oak	Quercus texana	10' - 12'	2.5" Cal.	B&B
16	Red Maple	Acer rubrum	10' - 12'	2.5" Cal.	B&B
2	River Birch	Betula nigra	10' - 12'	2.5" Cal.	B&B
4	Shumard Oak	Quercus shumardii	10' - 12'	2.5" Cal.	B&B
84	TOTAL - CANOPY TREES				
UNDERSTORY/COLUMNAR TREES					
6	'Muskogee' Crapemyrtle	Lagerstroemia indica x fauriei 'Muskogee'	8' Min.		Multi-trunk, (3) 2" canes min.
1	Redbud	Cercis canadensis	8' - 10'	2.5" Cal.	B&B
7	TOTAL - UNDERSTORY TREES				
91	TOTAL - ALL TREES				
SHRUBS					
39	'Autumn Carnival' Encore Azalea	Rhododendron 'Conlet'	18" Min.	3 Gal.	Container (Hot Pink)
31	'Bobo' Hydrangea	Hydrangea paniculata 'ILVOBO'	12" - 18"	3 Gal.	Container
4	Carissa Holly	Ilex cornuta 'Carissa'	18" Min.	3 Gal.	Container
28	'China Girl' Holly	Ilex x meserveae 'Mesog'	24" Min.	5 Gal.	Container
4	Double Knockout Rose	Rosa x 'Radtko'	18" Min.	3 Gal.	Container
1	'Emerald Green' Arborvitae	Thuja occidentalis 'Smaragd'	6' - 7'	2" Cal.	Container
13	Glossy Abelia	Abelia grandiflora	18" Min.	3 Gal.	Container
32	'Green Velvet' Boxwood	Buxus 'Green Velvet'	24" Min.	5 Gal.	Container
24	'Little Henry' Virginia Sweetspire	Itea virginica 'Little Henry'	18" Min.	3 Gal.	Container
4	Knockout Rose	Rosa RADTKO	18" Min.	3 Gal.	Container
12	'Obsession' Nandina	Nandina domestica 'Seika'	18" Min.	3 Gal.	Container
25	Otto Luyken	Prunus laurocerasus 'Otto Luyken'	24" Min.	5 Gal.	Container
178	TOTAL - SHRUBS				
GRASSES, PERENNIALS AND GROUND COVER					
3	'Adagio' Maiden Grass	Miscanthus sinensis 'Adagio'	24"	3 Gal.	
	Seasonal Color	Various Annual flowers		Flats	Change plants 3X per year
TURF					
-	Hybrid Fescue Seed	Drought tolerant fescue blend			

LANDSCAPE CALCULATIONS

SITE AREA:	222,714 SF	(5.11 AC)
ZONING:		SD-LI
	REQUIRED	PROVIDED
USEABLE OPEN SPACE:	7%	7.1 %
	15,590 SF	15,709 SF
GREENSPACE:	15%	61.6 %
	33,407 SF	137,180 SF
STREET TREES: 1/35' OF FRONTAGE		
STREET FRONTAGE: PARKFIELD LOOP N. (320')	9.1	9
STREET FRONTAGE: PARKWAY DR. (250')	7.1	7
ON-SITE TREES: 2/ACRE	10	10+
VEHICULAR USAGE AREA:		72,968 SF
LANDSCAPE AREA:	10%	20.6%
	7,297 SF	14,995 SF
PARKING LOT PERIMETER FRONTAGE:		N/A
1 TREE/30'		
1 SHRUB/3'		

N

30 15 30 60

GRAPHIC SCALE - 1 inch = 30 ft.

811 Know what's below. Call before you dig.

KENTUCKY REGISTERED LANDSCAPE ARCHITECT TENNESSEE 9-17-24

NORTHPOINTE INDUSTRIAL

WASHINGTON AVE.
COLUMBIA, TN

Kevin Reff, PLA
3369 Reids Chapel Road
Campbellsville, KY 42718
(615) 469 - 1222 Ofc.
(615) 594 - 7333 Cell.
kreff@kitadesign.biz

KITA designs
Beauty | Economy | Sustainability

REV.	DATE	COMMENT
-	-	-

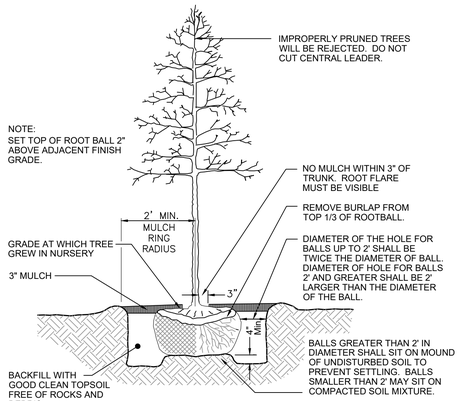
LANDSCAPE PLAN

L-1.1

1080-06

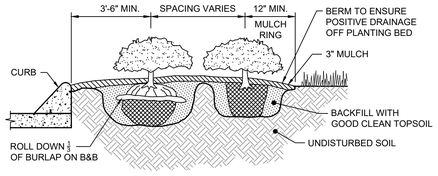
LANDSCAPE NOTES:

1. WHEN APPLICABLE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT EXISTING TREES TO REMAIN. NO HEAVY EQUIPMENT SHOULD BE PERMITTED TO OPERATE OR BE STORED, NOR ANY MATERIALS TO BE HANDLED OR STORED, WITHIN THE DRIPLINES OF TREES OUTSIDE THE LIMIT OF GRADING.
2. THE QUANTITIES INDICATED ON THE PLANT LIST AND PLAN ARE PROVIDED FOR THE BENEFIT OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN QUANTITY CALCULATIONS AND THE LIABILITY WHICH PERTAINS TO THOSE QUANTITIES AND TO ANY RELATED CONTRACT DOCUMENTS AND/OR PRICE QUOTATIONS. QUESTIONS SHOULD BE DIRECTED TO THE LANDSCAPE ARCHITECT.
3. ALL PLANT MATERIALS SHALL BE NURSERY GROWN, GRADE "A" QUALITY, UNLESS OTHERWISE NOTED AND SHALL COMPLY WITH THE AMERICAN STANDARD FOR NURSERY STOCK: ANSI Z-60.1; LATEST EDITION, FOR SIZE AND QUALITY.
4. NO SUBSTITUTIONS AS TO TYPE, SIZE, OR SPACING OF PLANT MATERIALS SPECIFIED ON THIS PLAN MAY BE MADE WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT. KITA LANDSCAPE DESIGN (615) 469-1222.
5. THE CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES AND TO PROTECT UTILITIES THAT ARE TO REMAIN. THE CONTRACTOR SHALL REPAIR ANY DAMAGE ACCORDING TO LOCAL STANDARDS AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY.
6. EROSION CONTROL MATTING ON ALL SLOPES 3:1 OR GREATER. ALL OTHER AREAS TO BE SEEDED.
7. SOIL USED FOR PLANTING SHALL CONSIST OF (5) PARTS TOPSOIL, (1) PART SAND AND (2) PARTS ORGANIC MATTER, MIXED WITH I POUND OF FERTILIZER PER CUBIC YARD.
   A. SAND SHALL BE CLEAN MASONRY SAND.
   B. ORGANIC MATTER SHALL BE PEAT MOSS, OR WELL COMPOSTED PINE BARK, OR APPROVED EQUAL AND SHALL BE FINELY GROUND AND FREE OF WEEDS.
   C. ALL FERTILIZER SHALL BE 10-10-10 WITH MINOR ELEMENTS. FERTILIZER SHALL HAVE 40-50% OF ITS TOTAL NITROGEN IN A WATER INSOLUBLE FORM.
8. PRE-EMERGENT HERBICIDE SHALL BE APPLIED TO ALL PLANT BEDS AND SOD AREAS PRIOR TO INSTALLATION. TREFLAN OR AN APPROVED EQUAL SHALL BE USED.
9. ALL PLANT BEDS SHALL HAVE A MINIMUM OF 3" DEEP MULCH. MULCH SHALL BE SHREDDED HARDWOOD.
10. IT IS THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO CONFIRM MATERIAL QUANTITIES. IN THE EVENT OF A DISCREPANCY, THE QUANTITIES SHOWN ON THE PLAN SHALL TAKE PRECEDENCE OVER QUANTITIES SHOWN ON THE PLANT LIST.
11. PRIOR TO FINAL PAYMENT, THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE OWNER WITH COMPLETE WRITTEN INSTRUCTIONS ON PROPER CARE OF ALL SPECIFIED PLANT MATERIALS.
12. THE LANDSCAPE INSTALLATION SHALL BE COORDINATED WITH THE IRRIGATION INSTALLATION WHEN APPLICABLE.
13. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM STRUCTURES AND TAKE SPECIAL CARE TO INSURE THAT BED PREPARATION DOES NOT INHIBIT DRAINAGE.
14. ALL LAWN AREAS SHALL BE CULTIVATED TO A DEPTH OF 4" PRIOR TO SEEDING. PREPARED TURF BEDS SHALL BE FREE FROM STONES OVER 2" DIAMETER, WEEDS AND OTHER DEBRIS.
15. THE LANDSCAPE CONTRACTOR SHALL RAKE SMOOTH ALL TURF AREAS PRIOR TO INSTALLATION.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BACKFILLING BEHIND THE CURB SO GRADE IS LEVEL WITH TOP OF CURB.
17. SEEDED AREAS SHALL BE CONSIDERED ACCEPTABLE WHEN FULL COVERAGE OF THE PERMANENT TURF GRASS SPECIES IS ESTABLISHED.
18. CUT AWAY ROPES OR WIRES FROM B&B PLANTS. PULL BACK BURLAP FROM TOP OF ROOT BALL. DO NOT ALLOW BURLAP TO BE EXPOSED AT SURFACE. TOTALLY REMOVE BURLAP IF IT IS SYNTHETIC.
19. IF CONTAINER GROWN PLANTS SHOW SIGNS OF BEING ROOT BOUND, SCORE ROOTS VERTICALLY.
20. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
21. ALL REPLACEMENTS SHALL BE OF THE SAME TYPE, SIZE, AND QUALITY AS SPECIFIED ON THE PLANT LIST, UNLESS APPROVED OTHERWISE IN WRITING BY THE LANDSCAPE ARCHITECT.
22. ANY MATERIAL THAT IS DEEMED TO BE 25% DEAD OR MORE SHALL BE CONSIDERED DEAD, AND MUST BE REPLACED AT NO CHARGE. A TREE IS CONSIDERED DEAD WHEN THE MAIN LEADER HAS DIED BACK, OR MORE THAN 25% OF THE CROWN IS DEAD.
23. REPLACEMENTS SHALL BE MADE DURING THE NEXT PLANTING SEASON UNLESS THE LANDSCAPE CONTRACTOR AGREES TO AN EARLIER DATE.
   PLANTING DATES
   SPRING: MARCH 15 - APRIL 15
   FALL: OCTOBER 1 - NOVEMBER 30
24. THE LANDSCAPE CONTRACTOR WILL NOT BE RESPONSIBLE FOR PLANT MATERIAL THAT HAS BEEN DAMAGED BY VANDALISM, FIRE, RELOCATION, WILDLIFE, THEFT, OR OTHER ACTIVITIES BEYOND THE LANDSCAPE CONTRACTOR'S CONTROL.
25. CONTRACTOR TO IRRIGATE ALL NEW LANDSCAPE PLANTINGS AND LAWN AREAS WITH AN AUTOMATED UNDERGROUND IRRIGATION SYSTEM. CONTRACTOR TO PROVIDE A COMPLETE IRRIGATION SYSTEM ON A DESIGN/BUILD BASIS. SYSTEM SHALL PROVIDE 100% COVERAGE IN ALL AREAS.
26. AN IRRIGATION PLAN MUST BE PROVIDED TO THE OWNER FOR APPROVAL.
27. IRRIGATION TO HAVE A SEPARATE METER.
28. GENERAL CONTRACTOR TO COORDINATE AND BE RESPONSIBLE FOR WATERING ALL PLANTS AND SEEDED AREAS AFTER PLANTING UNTIL IRRIGATION SYSTEM IS OPERABLE.



DECIDUOUS TREE PLANTING

NOT TO SCALE



SHRUB / GROUND COVER PLANTING

NOT TO SCALE

Kevin Reff, PLA
3369 Reids Chapel Road
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(615) 469 - 1222 Ofc.
(615) 594 - 7333 Cell.
kreff@ktadesign.biz

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Beauty | Economy | Sustainability

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WASHINGTON AVE.
COLUMBIA, TN

REV.	DATE	COMMENT
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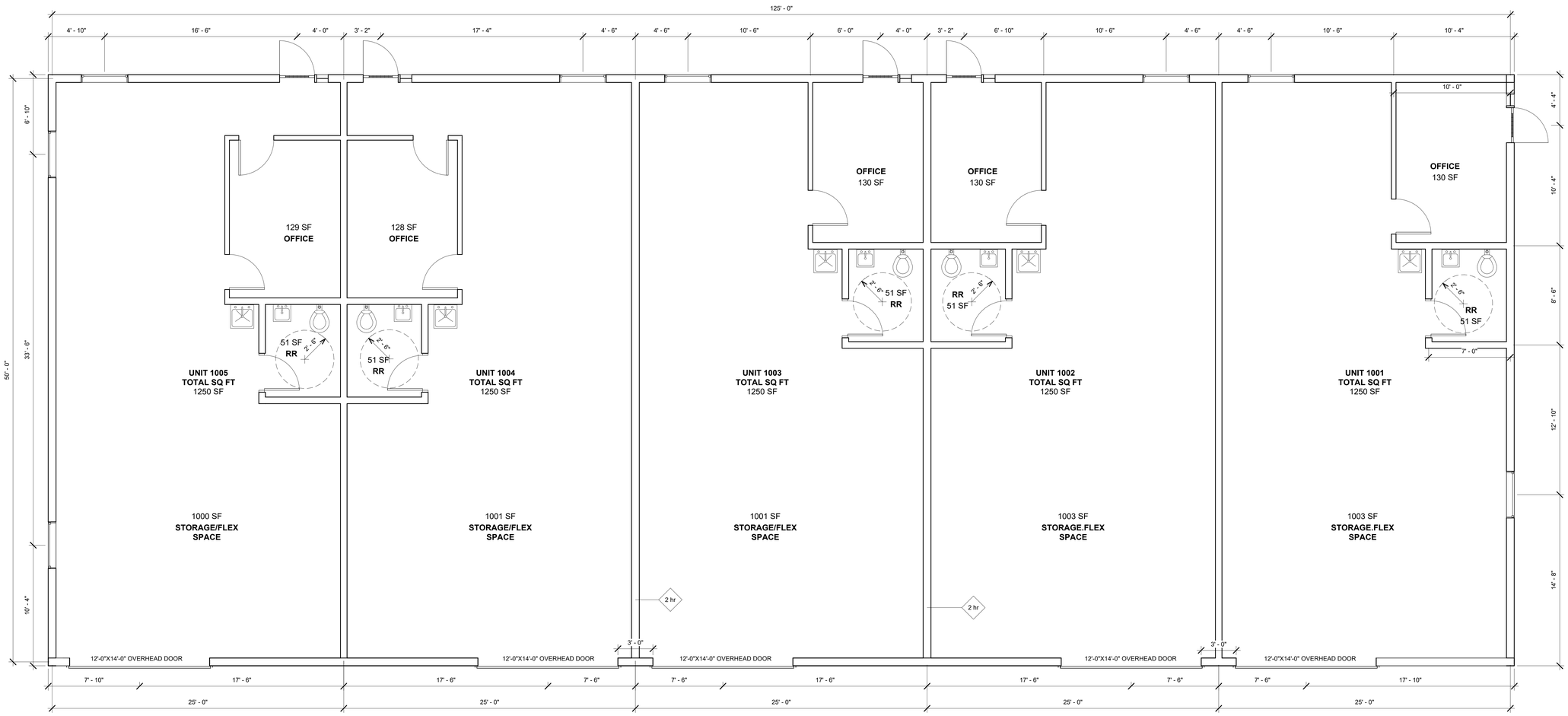
LANDSCAPE DETAILS

L-1.2

1080-06



1 Level 1
1/4" = 1'-0"

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Bethlehem, PA 18018
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www.r4architect.com

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Columbia, TN XXXXX
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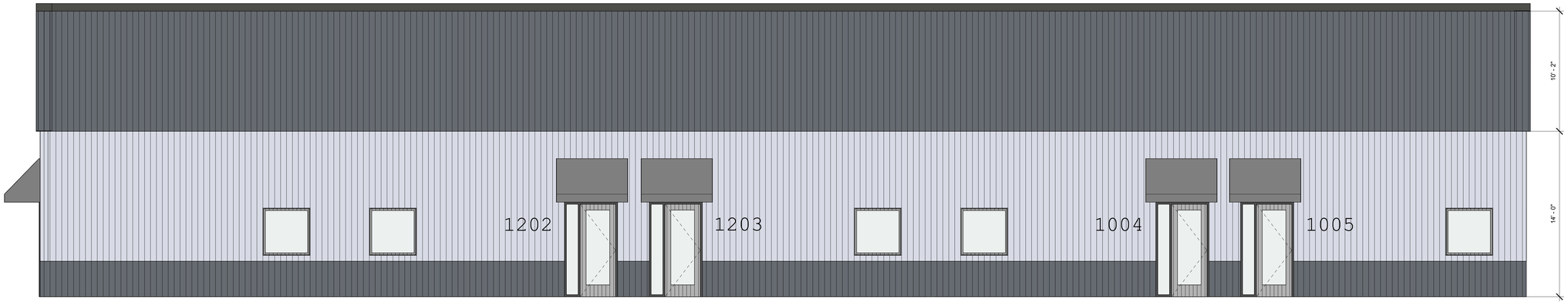
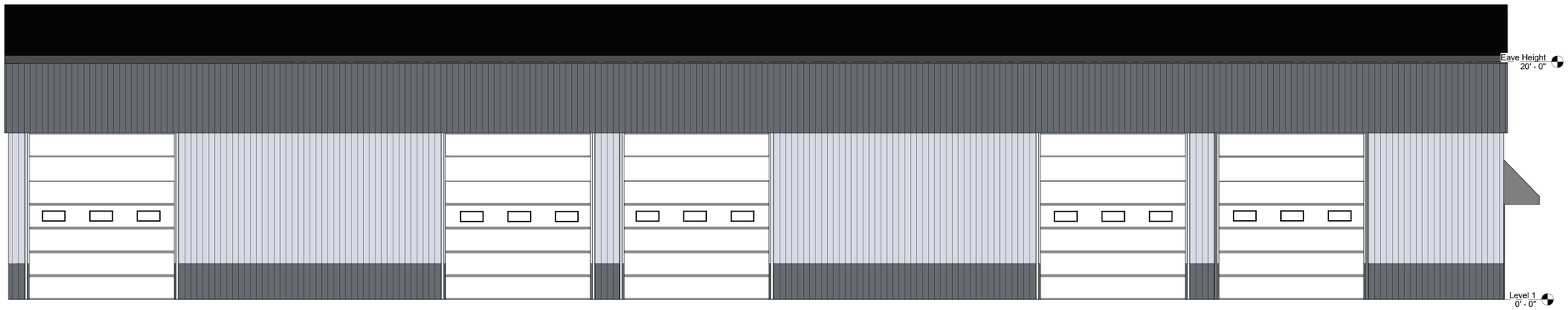
Proj. No.:	
Dwg. Set No.:	-

Floor Plan
Building 1000

A1



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



1 East
1/4" = 1'-0"

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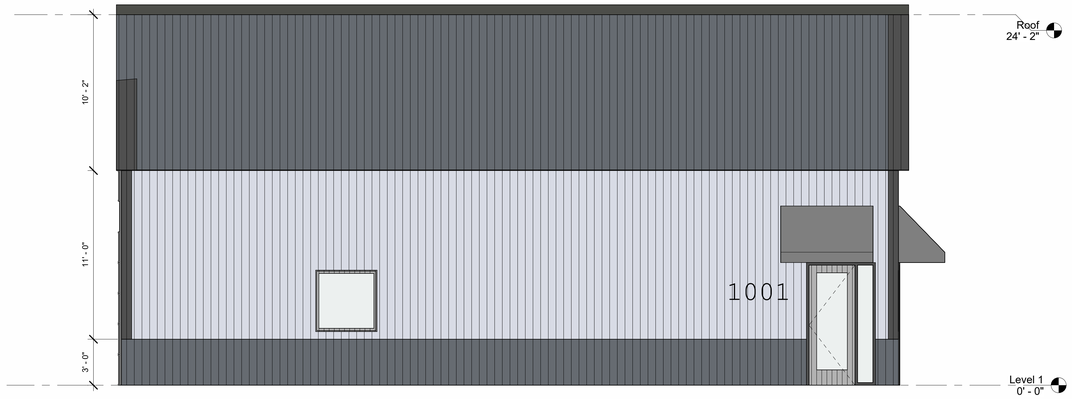
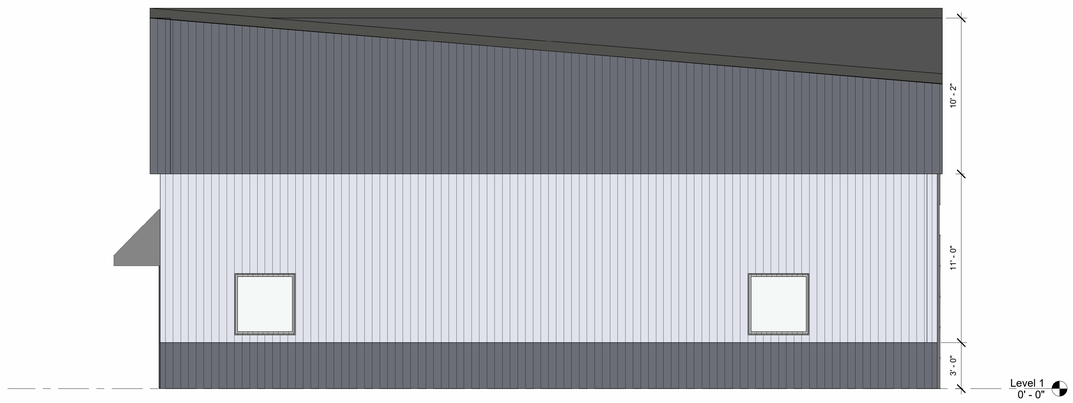
Elevations

Building 1000

A4



1 North
1/4" = 1'-0"



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

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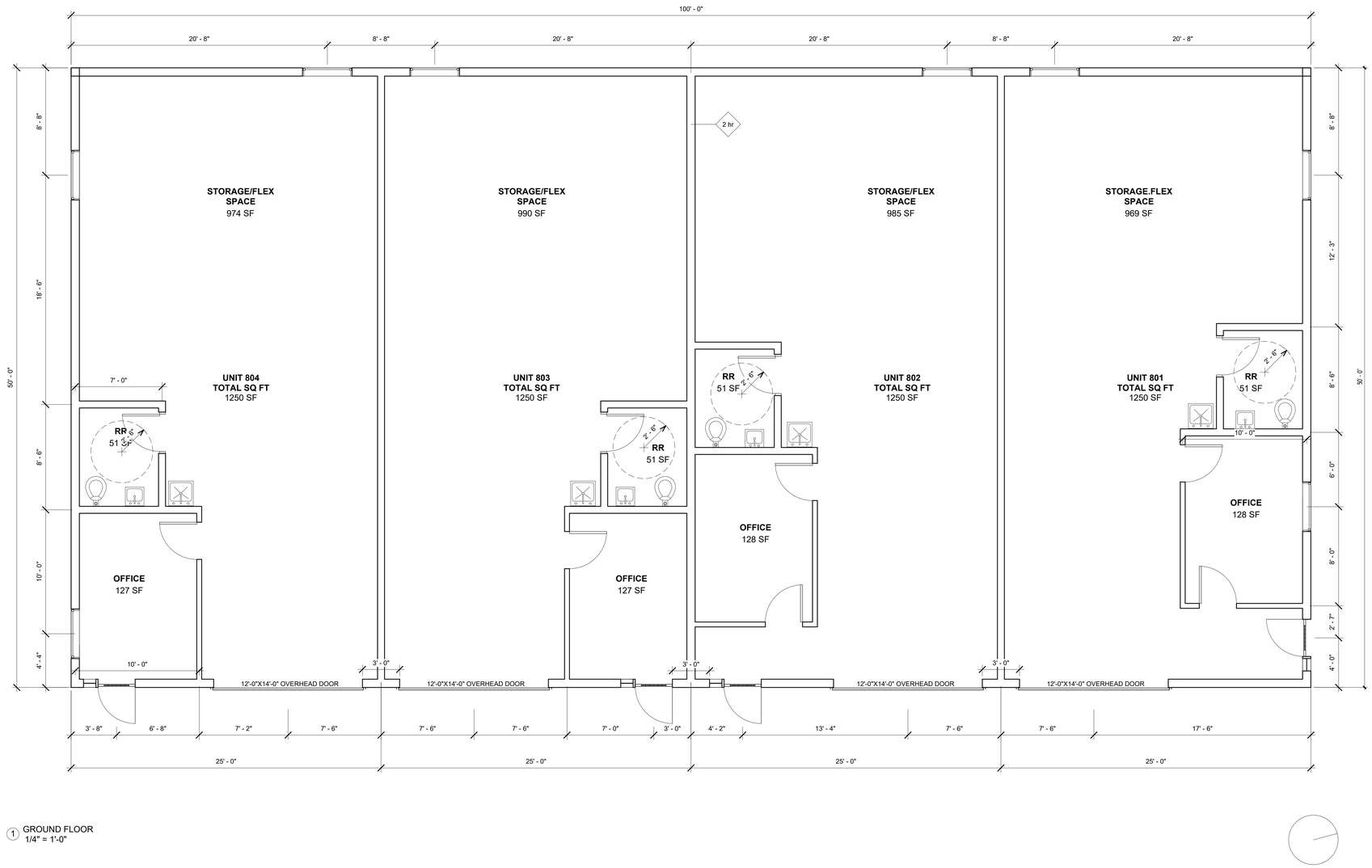
Elevations

Building 1000

A5



1 GROUND FLOOR
1/4" = 1'-0"

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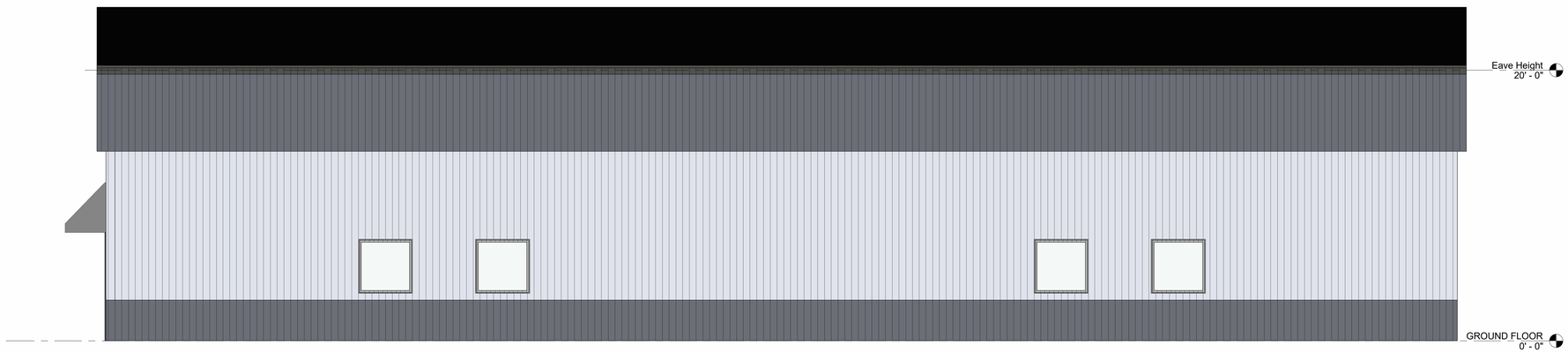
Dwg. Set No.:	-

Floor Plan

Building 800

A1

1 BUILDING 08 EAST ELEVATION
1/4" = 1'-0"



2 BUILDING 08 WEST ELEVATION
1/4" = 1'-0"

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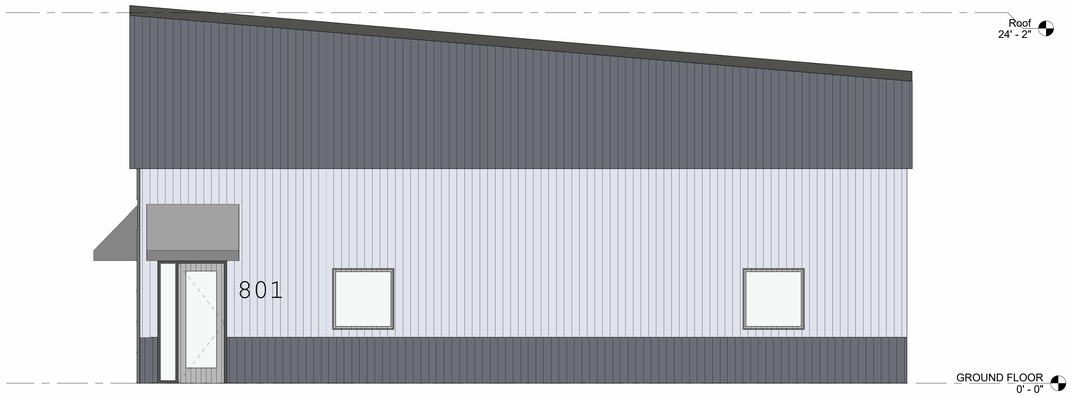
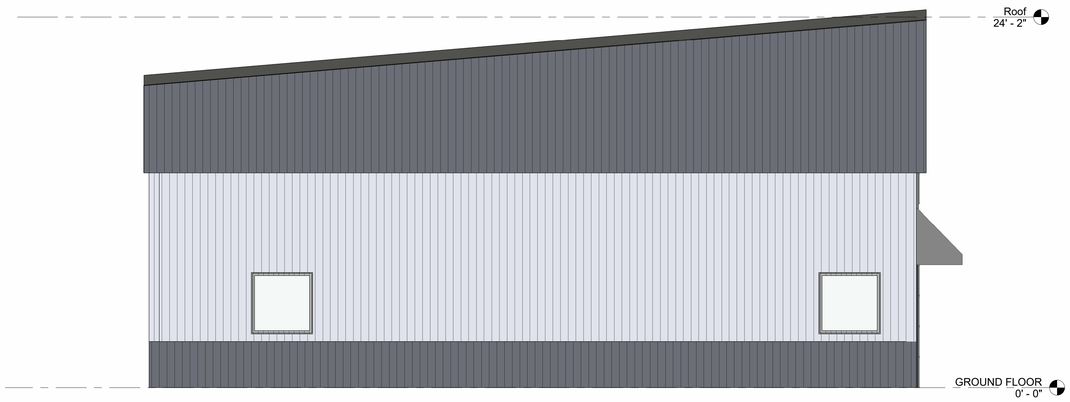
Elevations

Building 800

A4



1 BUILDING 08 NORTH ELEVATION
1/4" = 1'-0"



2 BUILDING 08 SOUTH ELEVATION
1/4" = 1'-0"

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Date:	07.09.2024
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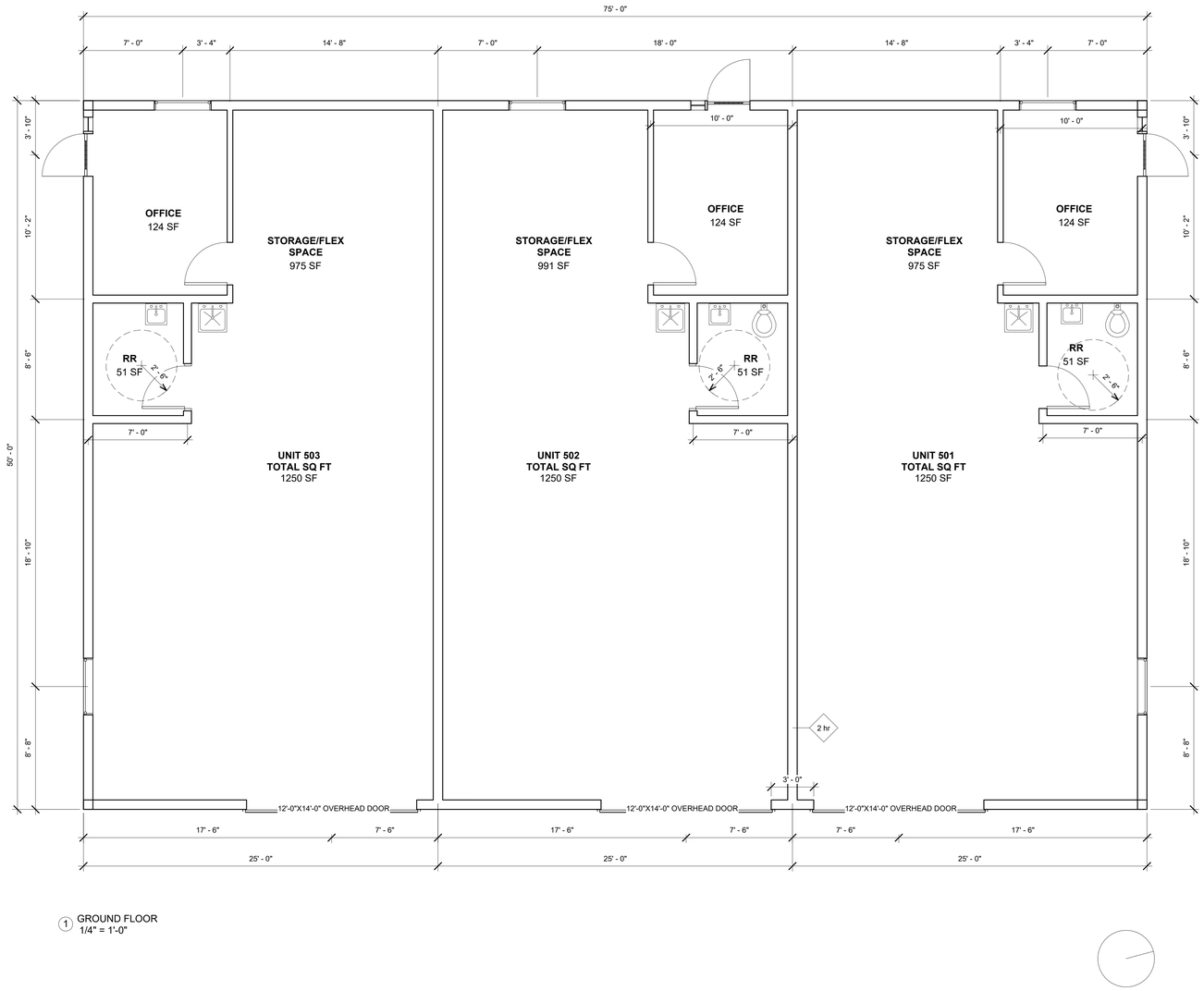
Elevations

Building 800

A5



1 GROUND FLOOR
1/4" = 1'-0"

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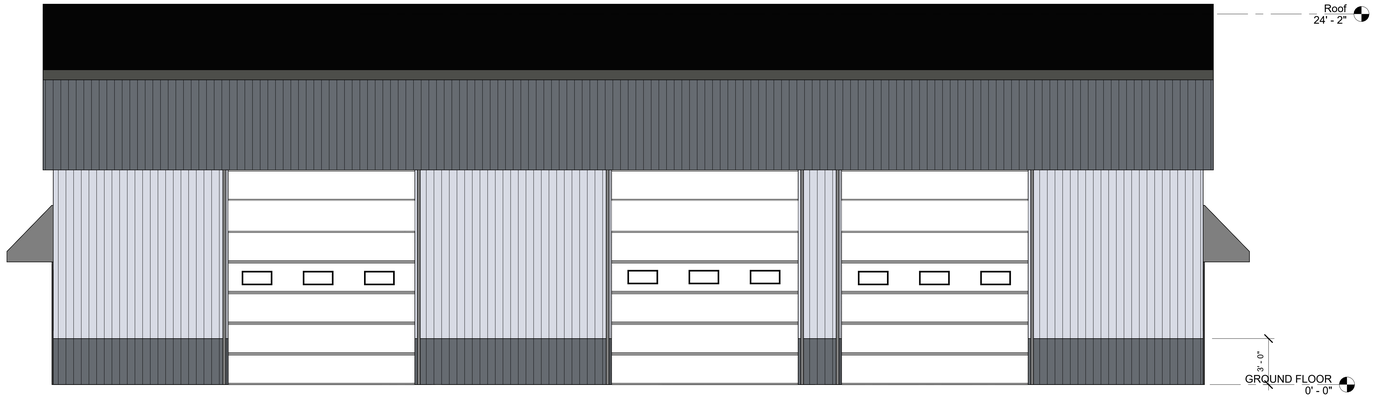
ISSUED FOR OWNER USE
XX.XX.202X

Date:	06.19.2024
PA DOH Ref No.:	
Proj. No.:	
Dwg. Set No.:	-

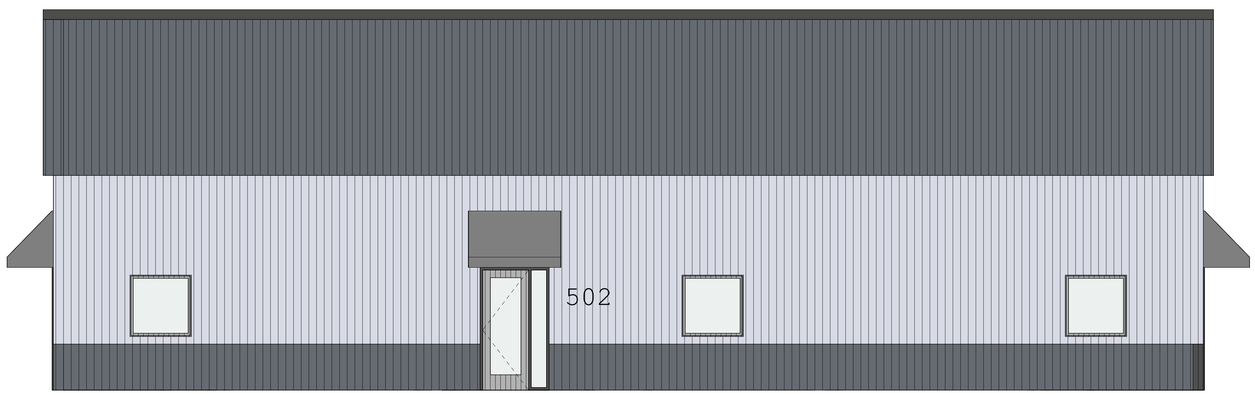
Floor Plan

Building 500

A1



1 BUILDING 05 EAST ELEVATION
1/4" = 1'-0"



2 BUILDING 05 WEST ELEVATION
1/4" = 1'-0"

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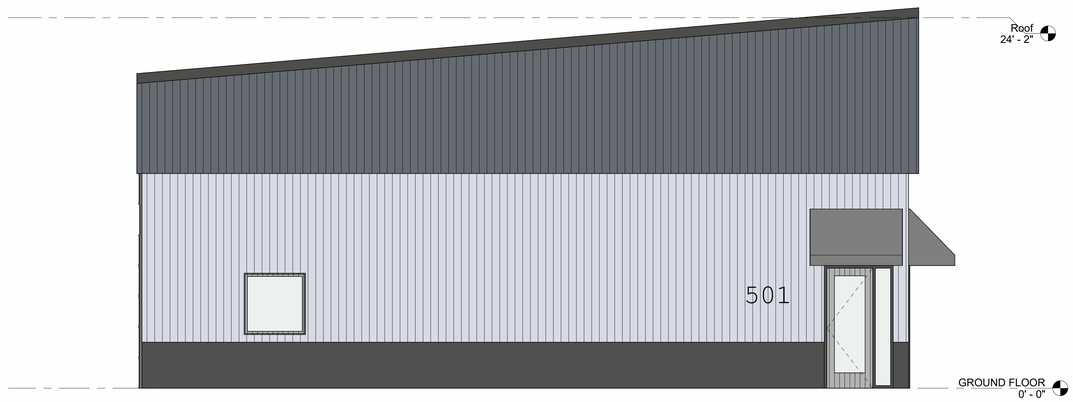
PA DOH Ref No.:	
Proj. No.:	
Dwg. Set No.:	-

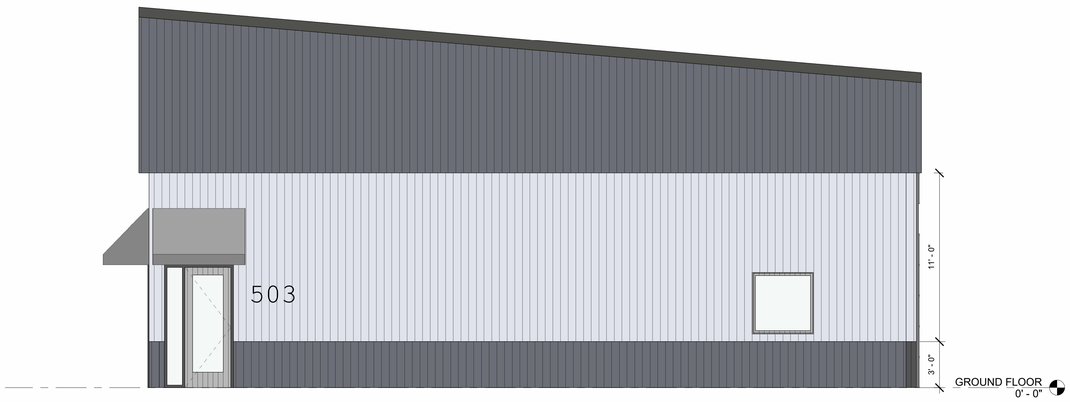
Elevations

Building 500

A4



1 BUILDING 05 NORTH ELEVATION
1/4" = 1'-0"



2 BUILDING 05 SOUTH ELEVATION
1/4" = 1'-0"

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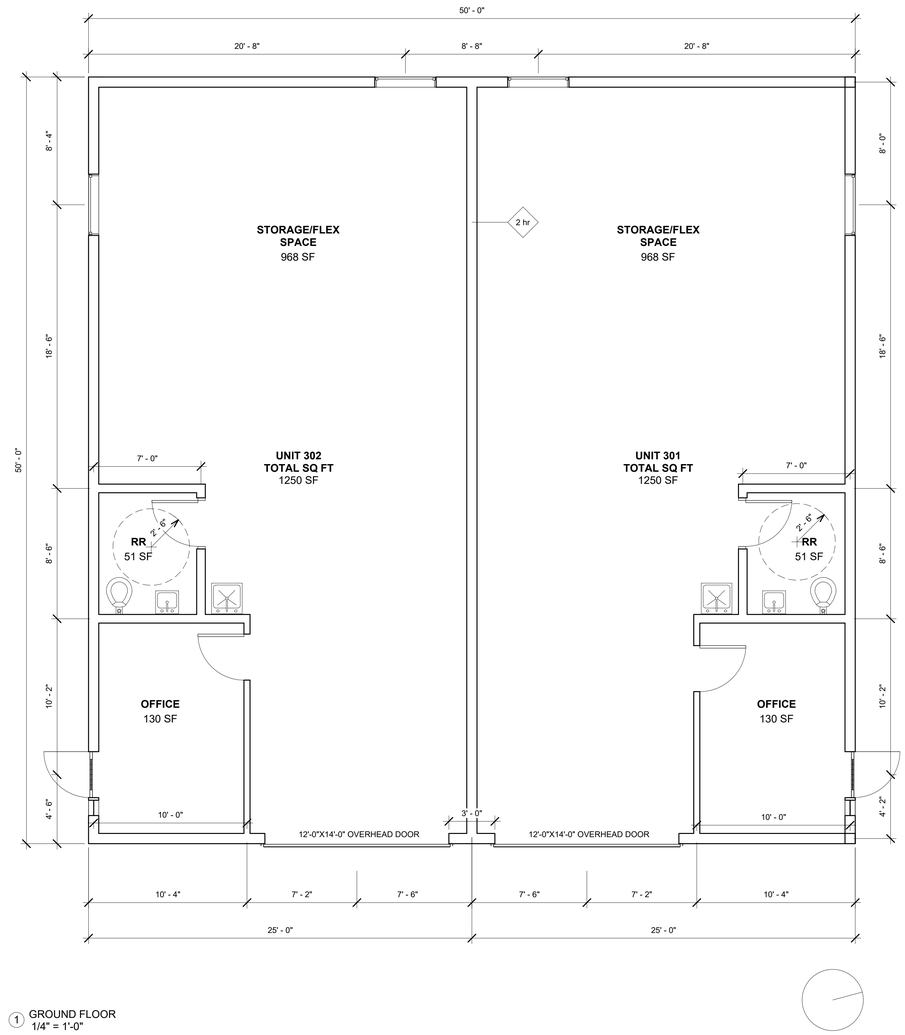
Proj. No.:	
Dwg. Set No.:	-

Elevations

Building 500

A5



1 GROUND FLOOR
1/4" = 1'-0"

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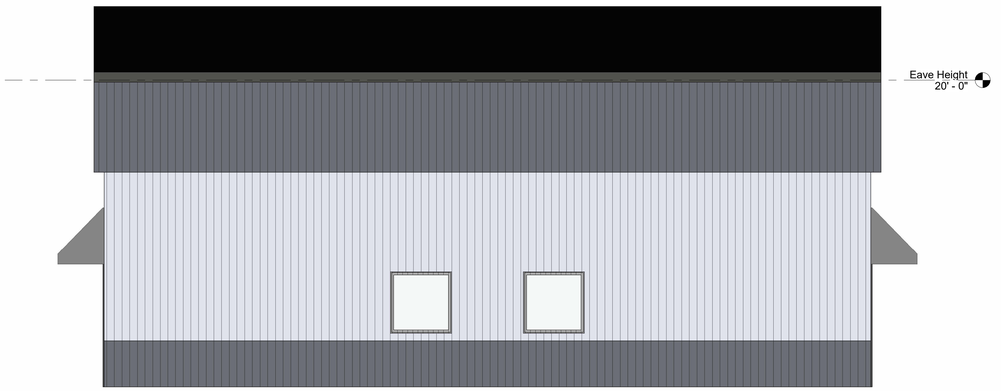
Date:	
PA DOH Ref No.:	
Proj. No.:	
Dwg. Set No.:	-

Floor Plan

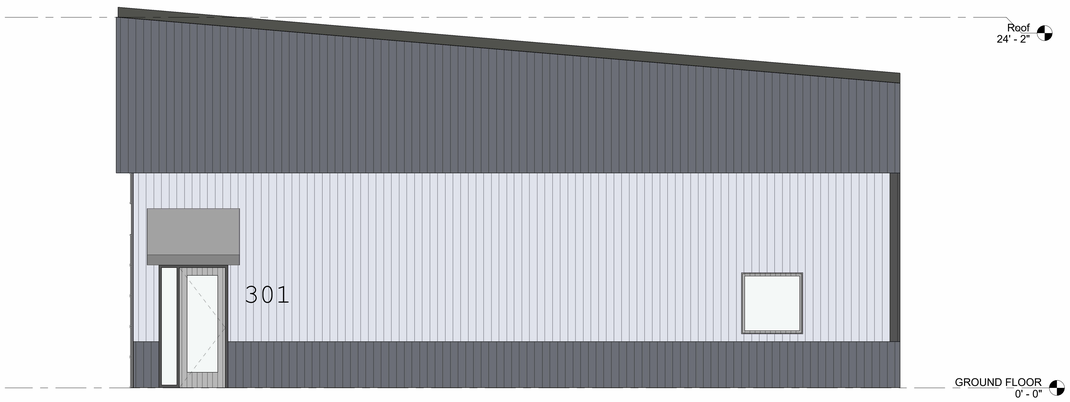
Building 300

A1

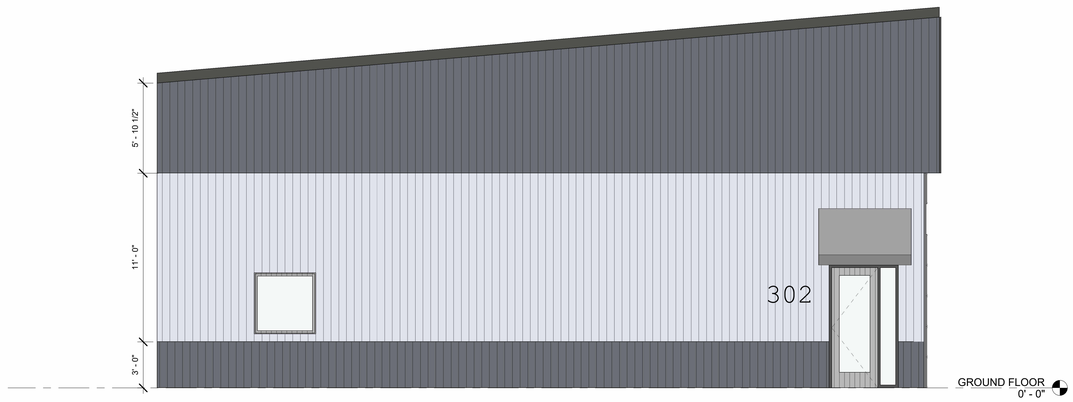
1 BUILDING 03 EAST ELEVATION
1/4" = 1'-0"



2 BUILDING 03 WEST ELEVATION
1/4" = 1'-0"



3 BUILDING 03 NORTH ELEVATION
1/4" = 1'-0"



4 BUILDING 03 SOUTH ELEVATION
1/4" = 1'-0"

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PROJECT NO.: 2334.00
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Date:	
PA DOH Ref No.:	
Proj. No.:	
Dwg. Set No.:	-

Elevations

Building 300

A4

DRAINAGE REPORT

NORTHPOINTE INDUSTRIAL
COLUMBIA, TN

09/20/2024

INCLUDED:
PRE & POST STORMWATER QUANTITY ANALYSIS
POST STORMWATER QUALITY
GEOTECH REPORT
SOIL REPORT

T-SQUARE ENGINEERING

T-SQUARE ENGINEERING
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STORMWATER NARRATIVE

The Northpointe Industrial project is located at the southwest corner of Northpointe Road and Ridgecrest Dr. in Columbia, TN. The proposed development will contain a business industrial park with associated site parking and infrastructure on +/- 5.11 acres. The overall topography of the site directs the stormwater to the NW corner of the property into the existing pond. Preliminary stormwater quantity calculations have been completed to provide a model and calculations of proposed stormwater detention. See sheet C-4.0 for the pre-development drainage areas and C-4.1 for the preliminary post-development drainage areas.

Stormwater Quantity

The pre and post conditions were analyzed at the existing point where runoff leaves the site at one existing outfall. Peak flow rates are estimated by using the SCS Unit Hydrograph method with a NRCS Type II 24 hour design storm, and curve numbers and times of concentration calculated according to procedures set forth in SCS NRCS TR-55. The computer program Hydraflow Hydrographs Extension for Autodesk was used to estimate peak flow runoff rates.

Post development peak runoff rates are proposed to be detained for the 2-yr, 5-yr, 10-yr, 25 -yr ,50-yr and 100-yr storms are routed to not overtop the proposed ponds top of bank. To reduce the applicable post-developed runoff to pre-developed levels, detention ponds are proposed for basin. The estimated detention storage is proposed to detain the 2-yr, 5-yr, 10-yr, and 25-yr design storms, and pass the 50-yr and 100-yr storm without overtopping pond the pond bank.

Stormwater Flow

The plan will utilize ditches and storm pipe networks to direct water toward the detention basin.

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	A1-HWA1	16.85	24	Cir	93.538	649.20	659.89	11.429	650.68	661.37	n/a	661.37 j	End	Combination
2	A3-A1	15.55	24	Cir	170.921	659.89	660.74	0.497	661.37	662.22	0.90	663.13	1	Combination
3	A4-A3	15.36	24	Cir	61.331	660.74	661.67	1.516	663.13	663.21	0.81	664.03	2	Combination
4	A7-A4	11.33	24	Cir	118.470	661.67	663.98	1.950	664.03	665.19	n/a	665.19 j	3	Combination
5	DG2-A7	1.84	18	Cir	55.790	663.98	668.20	7.564	665.19	668.71	n/a	668.71 j	4	DropGrate
6	DG3-DG2	0.46	18	Cir	94.981	668.20	669.15	1.000	668.71	669.40	n/a	669.40 j	5	DropGrate
7	A9-A7	8.07	18	Cir	62.290	663.98	664.60	0.995	665.19	665.70	n/a	665.70 j	4	Combination
8	A10-A9	7.96	18	Cir	46.934	664.60	665.07	1.001	665.70	666.16	n/a	666.16 j	7	Combination
9	DG7-A10	2.77	18	Cir	34.614	665.07	667.86	8.060	666.16	668.49	n/a	668.49 j	8	DropGrate
10	DG8-DG7	2.02	18	Cir	76.627	667.86	668.63	1.005	668.49	669.17	n/a	669.17 j	9	DropGrate
11	A11-A10	3.97	18	Cir	96.688	665.07	666.24	1.210	666.16	667.00	n/a	667.00 j	8	Combination
12	DG9-A11	3.57	18	Cir	36.762	666.24	666.61	1.006	667.00	667.33	n/a	667.33 j	11	DropGrate
13	DG10-DG9	3.18	18	Cir	100.000	666.61	667.61	1.000	667.33	668.29	n/a	668.29 j	12	DropGrate
14	DG10A-DG10	2.02	18	Cir	29.140	667.61	669.50	6.486	668.29	670.04	n/a	670.04 j	13	Grate
15	DG1-A4	2.95	18	Cir	94.391	661.67	667.30	5.965	664.03	667.95	n/a	667.95 j	3	DropGrate
16	DG1A-DG1	1.96	18	Cir	67.635	667.30	667.74	0.651	667.95	668.27	n/a	668.27 j	15	Grate
17	A8-A7	2.87	18	Cir	85.067	663.98	665.54	1.834	665.19	666.18	n/a	666.18 j	4	DropGrate
18	A8-DG4	1.44	18	Cir	83.264	665.54	666.37	0.997	666.18	666.82	n/a	666.82 j	17	Combination
19	DG6-A10	1.27	18	Cir	30.690	665.07	665.38	1.010	666.16	665.80	n/a	665.80	8	DropGrate
20	DG5-DG6	0.98	18	Cir	43.477	665.38	665.81	0.989	665.80	666.18	n/a	666.18 j	19	DropGrate
21	A5-A4	1.95	18	Cir	88.422	661.67	662.56	1.007	664.03	664.06	0.01	664.07	3	Combination
22	A6-A5	0.92	18	Cir	77.227	662.56	663.33	0.997	664.07	664.07	0.02	664.09	21	Combination
23	A13A-HWA3	3.65	18	Cir	34.477	664.79	665.13	0.986	665.52	665.86	n/a	665.86 j	End	Combination
24	HWA2-A13	1.11	18	Cir	33.110	665.13	666.90	5.346	665.86	667.29	n/a	667.29 j	23	OpenHeadwall

Project File: Storm A.stm | Number of lines: 28 | Run Date: 9/20/2024

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

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
25	A13-A13A	2.83	18	Cir	79.093	665.13	665.92	0.999	665.86	666.56	n/a	666.56 j	23	Combination
26	A14-HWA5	2.67	18	Cir	54.345	653.22	653.76	0.994	653.84	654.38	n/a	654.38 j	End	Combination
27	A14-A14A	2.58	18	Cir	23.825	653.76	654.00	1.007	654.38	654.61	n/a	654.61 j	26	Combination
28	HWA4-A14	1.86	18	Cir	16.992	654.00	655.50	8.828	654.61	656.01	n/a	656.01 j	27	OpenHeadwall

Project File: Storm A.stm | Number of lines: 28 | Run Date: 9/20/2024

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

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)	Depr (in)	
1	ST-A1	1.96	0.00	1.55	0.42	Comb	4.0	1.00	0.00	3.00	2.00	0.010	2.00	0.083	0.020	0.013	0.27	7.19	0.16	1.97	0.0	24
2	ST-A3	0.35	0.00	0.35	0.00	Comb	4.0	1.00	0.00	3.00	2.00	0.010	2.00	0.083	0.020	0.013	0.15	1.84	0.00	0.00	0.0	1
3	ST-A4	0.12	0.13	0.25	0.00	Comb	4.0	1.00	0.00	3.00	2.00	0.010	2.00	0.083	0.020	0.013	0.14	1.63	0.00	0.00	0.0	2
4	ST-A7	0.06	0.00	0.06	0.00	Comb	4.0	1.00	0.00	3.00	2.00	0.010	2.00	0.083	0.020	0.013	0.08	0.94	0.00	0.00	0.0	3
5	ST-DG2	1.79	0.00	1.79	0.00	DrGrt	0.0	0.00	18.00	9.00	2.00	Sag	2.00	0.020	0.020	0.000	0.09	11.01	0.09	11.01	0.0	Off
6	ST-DG3	0.46	0.00	0.46	0.00	DrGrt	0.0	0.00	6.00	3.00	2.00	Sag	2.00	0.020	0.020	0.000	0.06	8.18	0.06	8.18	0.0	Off
7	ST-A9	0.17	0.00	0.17	0.00	Comb	6.0	1.00	0.00	3.00	2.00	0.010	2.00	0.083	0.020	0.013	0.12	1.42	0.00	0.00	0.0	4
8	ST-A10	0.23	0.00	0.23	0.00	Comb	6.0	1.00	0.00	3.00	2.00	0.010	2.00	0.083	0.020	0.013	0.13	1.58	0.00	0.00	0.0	15
9	ST-DG7	0.87	0.00	0.87	0.00	DrGrt	0.0	0.00	18.00	9.00	2.00	Sag	2.00	0.020	0.020	0.000	0.06	7.55	0.06	7.55	0.0	Off
10	ST-DG8	2.02	0.00	2.02	0.00	DrGrt	0.0	0.00	18.00	9.00	2.00	Sag	2.00	0.020	0.020	0.000	0.10	11.78	0.10	11.78	0.0	Off
11	ST-A11	0.46	0.00	0.46	0.00	Comb	6.0	1.00	0.00	3.00	2.00	0.010	2.00	0.083	0.020	0.013	0.17	2.22	0.00	0.00	0.0	Off
12	ST-DG9	0.52	0.00	0.52	0.00	DrGrt	0.0	0.00	18.00	9.00	2.00	Sag	2.00	0.020	0.020	0.000	0.04	5.95	0.04	5.95	0.0	Off
13	ST-DG10	1.21	0.00	1.21	0.00	DrGrt	0.0	0.00	18.00	9.00	2.00	Sag	2.00	0.020	0.020	0.000	0.07	8.95	0.07	8.95	0.0	Off
14	DG-10A	2.02	0.00	2.02	0.00	Grate	0.0	0.00	18.00	9.00	2.00	Sag	2.00	0.050	0.020	0.000	0.19	6.44	0.19	6.44	0.0	Off
15	ST-DG1	1.10	0.00	1.10	0.00	DrGrt	0.0	0.00	6.00	3.00	2.00	Sag	2.00	0.020	0.020	0.000	0.11	13.00	0.11	13.00	0.0	Off
16	DG-1A	1.96	0.00	1.96	0.00	Grate	0.0	0.00	2.00	9.00	3.00	Sag	2.00	0.050	0.020	0.000	0.20	6.94	0.20	6.94	0.0	Off
17	ST-DG4	1.62	0.00	1.62	0.00	DrGrt	0.0	0.00	18.00	9.00	2.00	Sag	2.00	0.020	0.020	0.000	0.08	10.42	0.08	10.42	0.0	Off
18	ST-A8	1.44	0.00	1.38	0.07	Comb	6.0	1.00	0.00	9.00	2.00	0.010	2.00	0.083	0.020	0.013	0.25	6.04	0.08	0.99	0.0	Off
19	ST-DG6	0.35	0.00	0.35	0.00	DrGrt	0.0	0.00	6.00	3.00	2.00	Sag	2.00	0.020	0.020	0.000	0.05	7.10	0.05	7.10	0.0	Off
20	ST-DG5	0.98	0.00	0.98	0.00	DrGrt	0.0	0.00	6.00	3.00	2.00	Sag	2.00	0.020	0.020	0.000	0.10	12.22	0.10	12.22	0.0	Off
21	ST-A5	1.21	0.00	1.08	0.13	Comb	6.0	1.00	0.00	3.00	2.00	0.010	2.00	0.083	0.020	0.013	0.23	5.43	0.11	1.29	0.0	3
22	ST-A6	0.92	0.00	0.92	0.00	Comb	6.0	9.00	18.00	9.00	2.00	Sag	2.00	0.083	0.020	0.000	0.17	2.00	0.17	2.00	0.0	Off
23	ST-A13A	0.12	0.00	0.12	0.00	Comb	6.0	1.00	0.00	3.00	2.00	0.010	2.00	0.083	0.020	0.013	0.10	1.22	0.00	0.00	0.0	Off

Project File: Storm A.stm | Number of lines: 28 | Run Date: 9/20/2024

NOTES: Inlet N-Values = 0.016; Intensity = 102.61 / (Inlet time + 16.50) ^ 0.82; Return period = 25 Yrs. ; * Indicates Known Q added. All curb inlets are throat.

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)	Depr (in)	
24	ST-HW2	1.11	0.42	1.53	0.00	Hdwl	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
25	ST-A13	2.83	0.00	2.83	0.00	Comb	6.0	3.00	6.00	3.00	2.00	Sag	2.00	0.083	0.020	0.000	0.35	10.99	0.35	10.99	0.0	Off
26	ST-A14A	0.12	0.00	0.12	0.00	Comb	6.0	3.00	6.00	3.00	2.00	Sag	2.00	0.083	0.020	0.000	0.09	1.08	0.09	1.08	0.0	Off
27	ST-A14	0.75	0.00	0.75	0.00	Comb	6.0	3.00	6.00	3.00	2.00	Sag	2.00	0.083	0.020	0.000	0.19	3.28	0.19	3.28	0.0	Off
28	ST-HWA4	1.86	0.00	1.86	0.00	Hdwl	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off

Project File: Storm A.stm | Number of lines: 28 | Run Date: 9/20/2024

NOTES: Inlet N-Values = 0.016; Intensity = 102.61 / (Inlet time + 16.50) ^ 0.82; Return period = 25 Yrs. ; * Indicates Known Q added. All curb inlets are throat.

MyReport

Line No.	Area Dn (sqft)	Area Up (sqft)	Byp Ln No	Coeff C1 (C)	Coeff C2 (C)	Coeff C3 (C)	Capac Full (cfs)	Crit Depth (ft)	Cross Sl, Sw (ft/ft)	Cross Sl, Sx (ft/ft)	Curb Len (ft)	Defl Ang (Deg)	Depth Dn (ft)	Depth Up (ft)	DnStm Ln No	Drng Area (ac)	Easting X (ft)	EGL Dn (ft)	EGL Up (ft)	
1	2.49	2.49	24	0.20	0.50	0.90	82.83	1.48	0.083	0.020	1.00	113.566	1.48	1.48**	Outfall	0.34	1668203.71	651.39	662.08	
2	2.50	2.50	1	0.20	0.50	0.90	17.28	1.42	0.083	0.020	1.00	-13.347	1.48	1.48	1	0.06	1668173.39	661.98	662.83	
3	3.14	2.60	2	0.20	0.50	0.90	30.17	1.41	0.083	0.020	1.00	-87.119	2.00	1.54	2	0.02	1668233.13	663.50	663.76	
4	1.98	1.98	3	0.20	0.50	0.90	34.21	1.21	0.083	0.020	1.00	-2.737	2.00	1.21**	3	0.01	1668349.66	664.23	665.70	
5	0.53	0.53	Sag	0.20	0.50	0.90	31.29	0.51	0.020	0.020	....	90.062	1.21	0.51**	4	0.31	1668339.57	665.37	668.90	
6	0.19	0.19	Sag	0.20	0.50	0.90	11.38	0.25	0.020	0.020	....	-7.793	0.51	0.25**	5	0.08	1668335.21	668.80	669.49	
7	1.39	1.39	4	0.20	0.50	0.90	11.35	1.10	0.083	0.020	1.00	-4.306	1.21	1.10**	4	0.03	1668411.61	665.71	666.22	
8	1.38	1.38	15	0.20	0.50	0.90	10.51	1.09	0.083	0.020	1.00	-3.324	1.10	1.09**	7	0.04	1668458.49	666.22	666.68	
9	0.71	0.71	Sag	0.20	0.50	0.90	32.30	0.63	0.020	0.020	....	105.663	1.09	0.63**	8	0.15	1668447.56	666.40	668.73	
10	0.57	0.57	Sag	0.20	0.50	0.90	11.40	0.54	0.020	0.020	....	-15.871	0.63	0.54**	9	0.35	1668444.19	668.69	669.36	
11	0.90	0.90	Offsite	0.20	0.50	0.90	12.51	0.76	0.083	0.020	1.00	-0.110	1.09	0.76**	8	0.08	1668555.07	666.46	667.30	
12	0.84	0.84	Sag	0.20	0.50	0.90	11.41	0.72	0.020	0.020	....	87.462	0.76	0.72**	11	0.09	1668555.02	667.28	667.61	
13	0.78	0.78	Sag	0.20	0.50	0.90	11.38	0.68	0.020	0.020	....	2.548	0.72	0.68**	12	0.21	1668550.43	667.59	668.55	
14	0.57	0.57	Sag	0.20	0.50	0.90	28.97	0.54	0.050	0.020	....	36.206	0.68	0.54**	13	0.35	1668532.15	668.49	670.23	
15	0.74	0.74	Sag	0.20	0.50	0.90	27.78	0.65	0.020	0.020	....	86.319	1.50	0.65**	3	0.19	1668217.68	664.07	668.20	
16	0.56	0.56	Sag	0.20	0.50	0.90	9.18	0.53	0.050	0.020	....	-37.633	0.65	0.53**	15	0.34	1668249.65	668.15	668.46	
17	0.72	0.72	Sag	0.20	0.50	0.90	15.41	0.64	0.020	0.020	....	-89.404	1.21	0.64**	4	0.28	1668365.84	665.43	666.43	
18	0.45	0.45	Offsite	0.20	0.50	0.90	11.36	0.45	0.083	0.020	1.00	-2.838	0.64	0.45**	17	0.25	1668377.60	666.35	666.98	
19	0.41	0.41	Sag	0.20	0.50	0.90	11.43	0.42	0.020	0.020	....	-49.162	1.09	0.42**	8	0.06	1668479.64	666.31	665.95	
20	0.34	0.34	Sag	0.20	0.50	0.90	11.31	0.37	0.020	0.020	....	-33.364	0.42	0.37**	19	0.17	1668487.34	665.93	666.31	
21	1.77	1.77	3	0.20	0.50	0.90	10.54	0.53	0.083	0.020	1.00	-93.362	1.50	1.50	3	0.21	1668248.08	664.05	664.08	
22	1.77	0.87	Sag	0.20	0.50	0.90	10.49	0.36	0.083	0.020	9.00	1.427	1.50	0.74	21	0.16	1668263.04	664.07	664.09	
23	0.85	0.85	Offsite	0.20	0.50	0.90	10.43	0.73	0.083	0.020	1.00	18.000	0.73	0.73**	Outfall	0.02	1668593.33	665.81	666.14	

Project File: Storm A.stm | Number of lines: 28 | Date: 9/20/2024

NOTES: ** Critical depth

MyReport

Line No.	Area Dn (sqft)	Area Up (sqft)	Byp Ln No	Coeff C1 (C)	Coeff C2 (C)	Coeff C3 (C)	Capac Full (cfs)	Crit Depth (ft)	Cross Sl, Sw (ft/ft)	Cross Sl, Sx (ft/ft)	Curb Len (ft)	Defl Ang (Deg)	Depth Dn (ft)	Depth Up (ft)	DnStm Ln No	Drng Area (ac)	Easting X (ft)	EGL Dn (ft)	EGL Up (ft)	
24	0.37	0.37	n/a	0.20	0.50	0.90	24.28	0.39	....	....	....	-3.024	0.73	0.39**	23	0.25	1668625.31	666.00	667.43	
25	0.72	0.72	Sag	0.20	0.50	0.90	10.49	0.64	0.083	0.020	3.00	85.135	0.73	0.64**	23	0.49	1668575.35	666.10	666.80	
26	0.69	0.69	Sag	0.20	0.50	0.90	10.47	0.62	0.083	0.020	3.00	16.533	0.62	0.62**	Outfall	0.02	1668397.65	654.07	654.61	
27	0.67	0.67	Sag	0.20	0.50	0.90	10.54	0.61	0.083	0.020	3.00	26.603	0.62	0.61**	26	0.13	1668415.03	654.61	654.84	
28	0.53	0.53	n/a	0.20	0.50	0.90	31.20	0.51	....	....	....	-3.366	0.61	0.51**	27	0.30	1668428.09	654.80	656.20	

Project File: Storm A.stm | Number of lines: 28 | Date: 9/20/2024

NOTES: ** Critical depth

MyReport

Energy Loss (ft)	Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)
0.000	16.85	0.000	0.000	....	3.00	2.00	656.65	668.87	0.27	0.010	7.19	2.00	650.68	661.37 j	661.37	651.75	652.04	0.24	1.96
0.850	15.55	0.497	0.497	....	3.00	2.00	668.87	670.59	0.15	0.010	1.84	2.00	661.37	662.22	663.13	....	....	0.04	0.35
0.256	15.36	0.418	0.393	....	3.00	2.00	670.59	671.40	0.14	0.010	1.63	2.00	663.13	663.21	664.03	....	....	0.01	0.12
0.403	11.33	0.340	0.214	....	3.00	2.00	671.40	672.58	0.08	0.010	0.94	2.00	664.03	665.19 j	665.19	664.07	663.13	0.01	0.06
0.000	1.84	0.000	0.000	18.00	9.00	2.00	672.58	672.70	0.09	Sag	11.01	2.00	665.19	668.71 j	668.71	665.33	665.30	0.22	1.79
0.000	0.46	0.000	0.000	6.00	3.00	2.00	672.70	673.65	0.06	Sag	8.18	2.00	668.71	669.40 j	669.40	668.70	668.52	0.06	0.46
0.000	8.07	0.000	0.000	....	3.00	2.00	672.58	672.31	0.12	0.010	1.42	2.00	665.19	665.70 j	665.70	665.14	665.11	0.02	0.17
0.000	7.96	0.000	0.000	....	3.00	2.00	672.31	671.84	0.13	0.010	1.58	2.00	665.70	666.16 j	666.16	665.74	665.73	0.03	0.23
0.000	2.77	0.000	0.000	18.00	9.00	2.00	671.84	672.60	0.06	Sag	7.55	2.00	666.16	668.49 j	668.49	666.26	666.27	0.11	0.87
0.000	2.02	0.000	0.000	18.00	9.00	2.00	672.60	673.13	0.10	Sag	11.78	2.00	668.49	669.17 j	669.17	668.48	668.42	0.25	2.02
0.000	3.97	0.000	0.000	....	3.00	2.00	671.84	670.87	0.17	0.010	2.22	2.00	666.16	667.00 j	667.00	666.07	665.96	0.06	0.46
0.000	3.57	0.000	0.000	18.00	9.00	2.00	670.87	671.85	0.04	Sag	5.95	2.00	667.00	667.33 j	667.33	667.00	666.96	0.06	0.52
0.000	3.18	0.000	0.000	18.00	9.00	2.00	671.85	672.11	0.07	Sag	8.95	2.00	667.33	668.29 j	668.29	667.39	667.32	0.15	1.21
0.000	2.02	0.000	0.000	18.00	9.00	2.00	672.11	673.00	0.19	Sag	6.44	2.00	668.29	670.04 j	670.04	668.33	668.35	0.25	2.02
0.238	2.95	0.252	0.067	6.00	3.00	2.00	671.40	671.80	0.11	Sag	13.00	2.00	664.03	667.95 j	667.95	664.03	663.49	0.13	1.10
0.000	1.96	0.000	0.000	2.00	9.00	3.00	671.80	672.00	0.20	Sag	6.94	2.00	667.95	668.27 j	668.27	667.93	667.83	0.24	1.96
0.000	2.87	0.000	0.000	18.00	9.00	2.00	672.58	670.65	0.08	Sag	10.42	2.00	665.19	666.18 j	666.18	665.17	664.67	0.20	1.62
0.000	1.44	0.000	0.000	....	9.00	2.00	670.65	670.87	0.25	0.010	6.04	2.00	666.18	666.82 j	666.82	666.16	666.10	0.18	1.44
0.000	1.27	0.000	0.000	6.00	3.00	2.00	671.84	671.18	0.05	Sag	7.10	2.00	666.16	665.80	665.80	....	....	0.04	0.35
0.000	0.98	0.000	0.000	6.00	3.00	2.00	671.18	670.31	0.10	Sag	12.22	2.00	665.80	666.18 j	666.18	665.80	665.76	0.12	0.98
0.030	1.95	0.034	0.035	....	3.00	2.00	671.40	668.74	0.23	0.010	5.43	2.00	664.03	664.06	664.07	....	....	0.15	1.21
0.016	0.92	0.020	0.008	18.00	9.00	2.00	668.74	667.78	0.17	Sag	2.00	2.00	664.07	664.07	664.09	....	....	0.11	0.92
0.000	3.65	0.000	0.000	....	3.00	2.00	667.49	670.99	0.10	0.010	1.22	2.00	665.52	665.86 j	665.86	665.56	665.53	0.01	0.12

Project File: Storm A.stm | Number of lines: 28 | Date: 9/20/2024

NOTES: ** Critical depth

MyReport

Energy Loss (ft)	Flow Rate (cfs)	Sf Ave (ft/ft)	Sf Dn (ft/ft)	Grate Area (sqft)	Grate Len (ft)	Grate Width (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)	Gutter Depth (ft)	Gutter Slope (ft/ft)	Gutter Spread (ft)	Gutter Width (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	HGL Jmp Dn (ft)	HGL Jmp Up (ft)	Incr CxA	Incr Q (cfs)
0.000	1.11	0.000	0.000	....	....	....	670.99	669.61	....	....	....	....	665.86	667.29 j	667.29	665.88	665.84	0.15	1.11
0.000	2.83	0.000	0.000	6.00	3.00	2.00	670.99	670.18	0.35	Sag	10.99	2.00	665.86	666.56 j	666.56	665.85	665.80	0.34	2.83
0.000	2.67	0.000	0.000	6.00	3.00	2.00	655.93	657.24	0.09	Sag	1.08	2.00	653.84	654.38 j	654.38	653.90	653.85	0.01	0.12
0.000	2.58	0.000	0.000	6.00	3.00	2.00	657.24	657.24	0.19	Sag	3.28	2.00	654.38	654.61 j	654.61	654.40	654.37	0.09	0.75
0.000	1.86	0.000	0.000	....	....	....	657.24	656.81	....	....	....	....	654.61	656.01 j	656.01	654.66	654.75	0.23	1.86

Project File: Storm A.stm | Number of lines: 28 | Date: 9/20/2024

NOTES: ** Critical depth

MyReport

Inlet Depth (ft)	Inlet Eff (%)	Inlet ID	Inlet Loc	(ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP	Cost CMP	Cost PVC	
0.27	79	ST-A1	On Grade		5.0	6.37	8.25	649.20	659.89	9.35	7.39	0.71	2.19	0.50 z	Comb.	0.00	5,482	4,934	4,660	
0.15	100	ST-A3	On Grade		5.0	6.46	8.25	659.89	660.74	....	....	0.00	0.00	1.50	Comb.	0.00	10,370	9,333	8,815	
0.14	100	ST-A4	On Grade		5.0	6.49	8.25	660.74	661.67	....	....	0.00	0.00	1.50	Comb.	0.00	3,800	3,420	3,230	
0.08	100	ST-A7	On Grade		5.0	6.58	8.25	661.67	663.98	23.69	9.70	0.21	1.40	2.25 z	Comb.	0.00	7,220	6,498	6,137	
0.09	100	ST-DG2	Sag		5.0	6.73	8.25	663.98	668.20	11.16	2.55	0.19	0.97	0.50 z	Dp-Grate	0.00	2,555	2,300	2,172	
0.06	100	ST-DG3	Sag		5.0	8.25	8.25	668.20	669.15	9.50	2.04	0.02	0.15	1.00 z	Dp-Grate	0.00	3,900	3,510	3,315	
0.12	100	ST-A9	On Grade		5.0	7.53	8.25	663.98	664.60	6.23	5.51	0.52	0.63	0.50 z	Comb.	0.00	3,128	2,815	2,658	
0.13	100	ST-A10	On Grade		5.0	7.58	8.25	664.60	665.07	4.69	5.48	0.51	0.60	1.79 z	Comb.	0.00	2,223	2,000	1,889	
0.06	100	ST-DG7	Sag		5.0	7.91	8.25	665.07	667.86	6.92	3.16	0.24	0.92	0.50 z	Dp-Grate	0.00	1,565	1,409	1,330	
0.10	100	ST-DG8	Sag		5.0	8.25	8.25	667.86	668.63	7.66	2.70	0.19	0.31	1.00 z	Dp-Grate	0.00	3,180	2,862	2,703	
0.17	100	ST-A11	On Grade		5.0	7.76	8.25	665.07	666.24	19.34	3.83	0.30	0.53	1.50 z	Comb.	0.00	4,153	3,737	3,530	
0.04	100	ST-DG9	Sag		5.0	7.85	8.25	666.24	666.61	3.68	3.62	0.28	0.37	0.50 z	Dp-Grate	0.00	1,580	1,422	1,343	
0.07	100	ST-DG10	Sag		5.0	8.12	8.25	666.61	667.61	10.00	3.39	0.26	0.40	0.96 z	Dp-Grate	0.00	4,120	3,708	3,502	
0.19	100	DG-10A	Sag		5.0	8.25	8.25	667.61	669.50	2.91	2.68	0.20	0.51	1.00 z	Grate	0.00	1,144	1,030	972	
0.11	100	ST-DG1	Sag		5.0	7.94	8.25	661.67	667.30	18.88	6.15	0.06	1.59	0.99 z	Dp-Grate	0.00	4,370	3,933	3,715	
0.20	100	DG-1A	Sag		5.0	8.25	8.25	667.30	667.74	6.76	2.95	0.14	0.27	1.00 z	Grate	0.00	2,820	2,538	2,397	
0.08	100	ST-DG4	Sag		5.0	7.75	8.25	663.98	665.54	8.51	5.18	0.08	0.67	0.50 z	Dp-Grate	0.00	3,908	3,517	3,321	
0.25	95	ST-A8	On Grade		5.0	8.25	8.25	665.54	666.37	16.65	2.27	0.16	0.29	1.00 z	Comb.	0.00	3,440	3,096	2,924	
0.05	100	ST-DG6	Sag		5.0	7.86	8.25	665.07	665.38	....	....	0.00	0.00	0.91 z	Dp-Grate	0.00	1,460	1,314	1,241	
0.10	100	ST-DG5	Sag		5.0	8.25	8.25	665.38	665.81	4.35	1.86	0.13	0.20	1.00 z	Dp-Grate	0.00	1,840	1,656	1,564	
0.23	89	ST-A5	On Grade		5.0	7.54	8.25	661.67	662.56	....	....	0.00	0.00	0.50	Comb.	0.00	4,305	3,875	3,659	
0.17	100	ST-A6	Sag		5.0	8.25	8.25	662.56	663.33	....	....	0.00	0.00	1.00	Comb.	0.00	3,240	2,916	2,754	
0.10	100	ST-A13A	On Grade		5.0	7.20	8.25	664.79	665.13	3.45	3.66	0.28	0.36	1.50 z	Comb.	0.00	1,368	1,231	1,163	

Project File: Storm A.stm | Number of lines: 28 | Date: 9/20/2024

NOTES: Intensity = 102.61 / (Inlet time + 16.50) ^ 0.82 -- Return period = 25 Yrs. ; ** Critical depth

MyReport

Inlet Depth (ft)	Inlet Eff (%)	Inlet ID	Inlet Loc	(ft)	Inlet Time (min)	i Sys (in/hr)	i Inlet (in/hr)	Invert Dn (ft)	Invert Up (ft)	Jump Loc (ft)	Jump Len (ft)	Vel Hd Jmp Dn (ft)	Vel Hd Jmp Up (ft)	J-Loss Coeff	Junct Type	Known Q (cfs)	Cost RCP	Cost CMP	Cost PVC	
....	100	ST-HW2	Sag		8.0	7.41	7.41	665.13	666.90	6.62	1.97	0.14	0.50	1.00 z	Hdwall	0.00	1,212	1,091	1,030	
0.35	100	ST-A13	Sag		5.0	8.25	8.25	665.13	665.92	7.91	3.21	0.24	0.35	1.00 z	Comb.	0.00	3,280	2,952	2,788	
0.09	100	ST-A14A	Sag		5.0	8.08	8.25	653.22	653.76	5.43	3.11	0.23	0.32	0.76 z	Comb.	0.00	1,828	1,645	1,554	
0.19	100	ST-A14	Sag		5.0	8.16	8.25	653.76	654.00	2.38	3.06	0.23	0.29	0.50 z	Comb.	0.00	852	767	724	
....	100	ST-HWA4	Sag		5.0	8.25	8.25	654.00	655.50	1.70	2.56	0.19	0.46	1.00 z	Hdwall	0.00	528	475	449	

Project File: Storm A.stm | Number of lines: 28 | Date: 9/20/2024

NOTES: Intensity = 102.61 / (Inlet time + 16.50) ^ 0.82 -- Return period = 25 Yrs. ; ** Critical depth

MyReport

Line ID	Line Length (ft)	Line Size (in)	Line Slope (%)	Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	
A1-HWA1	93.538	24	11.43	Cir	0.0	0.013	0.012	n/a	487250.27	0.26	0.42	1.55	0.00	24	0.70	24	0.00	0.00	
A3-A1	170.921	24	0.50	Cir	0.0	0.013	0.012	0.90	487082.07	0.50	0.00	0.35	0.00	24	0.70	24	0.00	0.00	
A4-A3	61.331	24	1.52	Cir	0.0	0.013	0.012	0.81	487068.16	0.18	0.00	0.25	0.13	24	0.70	24	0.00	0.00	
A7-A4	118.470	24	1.95	Cir	0.0	0.013	0.012	n/a	487046.85	0.47	0.00	0.06	0.00	24	0.70	24	0.00	0.00	
DG2-A7	55.790	18	7.56	Cir	....	....	0.012	n/a	486991.98	0.74	0.00	1.79	0.00	18	0.70	18	0.00	0.00	
DG3-DG2	94.981	18	1.00	Cir	....	....	0.012	n/a	486897.10	6.06	0.00	0.46	0.00	18	0.70	18	0.00	0.00	
A9-A7	62.290	18	1.00	Cir	0.0	0.013	0.012	n/a	487040.28	0.22	0.00	0.17	0.00	18	0.70	18	0.00	0.00	
A10-A9	46.934	18	1.00	Cir	0.0	0.013	0.013	n/a	487038.04	0.17	0.00	0.23	0.00	18	0.70	18	0.00	0.00	
DG7-A10	34.614	18	8.06	Cir	....	....	0.012	n/a	487005.20	0.36	0.00	0.87	0.00	18	0.70	18	0.00	0.00	
DG8-DG7	76.627	18	1.00	Cir	....	....	0.012	n/a	486928.64	1.12	0.00	2.02	0.00	18	0.70	18	0.00	0.00	
A11-A10	96.688	18	1.21	Cir	0.0	0.013	0.012	n/a	487033.62	0.70	0.00	0.46	0.00	18	0.70	18	0.00	0.00	
DG9-A11	36.762	18	1.01	Cir	....	....	0.012	n/a	486996.86	0.30	0.00	0.52	0.00	18	0.70	18	0.00	0.00	
DG10-DG9	100.000	18	1.00	Cir	....	....	0.012	n/a	486896.96	0.92	0.00	1.21	0.00	18	0.70	18	0.00	0.00	
DG10A-DG10	29.140	18	6.49	Cir	0.0	....	0.012	n/a	486874.26	0.42	0.00	2.02	0.00	18	0.70	18	0.00	0.00	
DG1-A4	94.391	18	5.96	Cir	....	....	0.012	n/a	486975.05	0.92	0.00	1.10	0.00	18	0.70	18	0.00	0.00	
DG1A-DG1	67.635	18	0.65	Cir	0.0	....	0.012	n/a	486915.45	1.01	0.00	1.96	0.00	18	0.70	18	0.00	0.00	
A8-A7	85.067	18	1.83	Cir	....	....	0.012	n/a	487130.37	0.83	0.00	1.62	0.00	18	0.70	18	0.00	0.00	
A8-DG4	83.264	18	1.00	Cir	0.0	0.013	0.012	n/a	487212.80	1.70	0.07	1.38	0.00	18	0.70	18	0.00	0.00	
DG6-A10	30.690	18	1.01	Cir	....	....	0.012	n/a	487060.28	0.69	0.00	0.35	0.00	18	0.70	18	0.00	0.00	
DG5-DG6	43.477	18	0.99	Cir	....	....	0.012	n/a	487103.07	1.30	0.00	0.98	0.00	18	0.70	18	0.00	0.00	
A5-A4	88.422	18	1.01	Cir	0.0	0.013	0.013	0.01	487155.31	1.24	0.13	1.08	0.00	18	0.70	18	0.00	0.00	
A6-A5	77.227	18	1.00	Cir	0.0	....	0.013	0.02	487231.08	2.46	0.00	0.92	0.00	18	0.70	18	0.00	0.00	
A13A-HWA3	34.477	18	0.99	Cir	0.0	0.013	0.013	n/a	487154.00	0.27	0.00	0.12	0.00	18	0.70	18	0.00	0.00	

Project File: Storm A.stm | Number of lines: 28 | Date: 9/20/2024

NOTES: ** Critical depth

MyReport

Line ID	Line Length (ft)	Line Size (in)	Line Slope (%)	Line Type	Local Depr (in)	n-val Gutter	n-val Pipe	Minor Loss (ft)	Northing Y (ft)	Pipe Travel (min)	Q Byp (cfs)	Q Capt (cfs)	Q Carry (cfs)	Line Rise (in)	Runoff Coeff (C)	Line Span (in)	Area A1 (ac)	Area A2 (ac)	
HWA2-A13	33.110	18	5.35	Cir	....	....	0.013	n/a	487145.44	0.88	0.00	1.53	0.42	18	0.60	18	0.00	0.00	
A13-A13A	79.093	18	1.00	Cir	0.0	....	0.013	n/a	487076.98	0.82	0.00	2.83	0.00	18	0.70	18	0.00	0.00	
A14-HWA5	54.345	18	0.99	Cir	0.0	....	0.013	n/a	487268.28	0.59	0.00	0.12	0.00	18	0.70	18	0.00	0.00	
A14-A14A	23.825	18	1.01	Cir	0.0	....	0.013	n/a	487251.99	0.27	0.00	0.75	0.00	18	0.70	18	0.00	0.00	
HWA4-A14	16.992	18	8.83	Cir	....	....	0.013	n/a	487241.12	0.27	0.00	1.86	0.00	18	0.75	18	0.00	0.00	

Project File: Storm A.stm | Number of lines: 28 | Date: 9/20/2024

NOTES: ** Critical depth

MyReport

Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA	Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)	Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
0.00	13.0	4.0	3.78	2.65	16.85	6.76	6.76	0.71	0.71	6.77	5.45	6.98	232.99
0.00	12.5	4.0	3.44	2.41	15.55	6.23	6.22	0.60	0.60	6.23	6.98	7.85	426.93
0.00	12.3	4.0	3.38	2.37	15.36	5.40	4.89	0.37	0.54	5.90	7.85	7.73	186.64
0.00	11.8	4.0	2.46	1.72	11.33	4.66	3.61	0.20	0.51	5.72	7.73	6.60	334.54
0.00	11.1	....	0.39	0.27	1.84	2.34	1.21	0.19	0.19	3.47	7.10	3.00	57.96
0.00	5.0	....	0.08	0.06	0.46	1.62	0.87	0.09	0.09	2.37	3.00	3.00	33.77
0.00	7.5	6.0	1.53	1.07	8.07	5.55	5.30	0.53	0.53	5.81	7.10	6.21	90.75
0.00	7.3	6.0	1.50	1.05	7.96	5.75	5.73	0.52	0.52	5.77	6.21	5.27	64.91
0.00	6.1	....	0.50	0.35	2.77	2.97	2.01	0.24	0.24	3.92	5.27	3.24	36.25
0.00	5.0	....	0.35	0.25	2.02	3.21	2.86	0.20	0.20	3.57	3.24	3.00	48.72
0.00	6.6	6.0	0.73	0.51	3.97	3.64	2.88	0.30	0.30	4.41	5.27	3.13	110.58
0.00	6.3	....	0.65	0.46	3.57	4.11	3.96	0.28	0.28	4.25	3.13	3.74	31.98
0.00	5.4	....	0.56	0.39	3.18	3.94	3.79	0.26	0.26	4.10	3.74	3.00	80.80
0.00	5.0	....	0.35	0.25	2.02	3.08	2.60	0.20	0.20	3.57	3.00	2.00	19.55
0.00	6.0	....	0.53	0.37	2.95	2.83	1.67	0.04	0.25	4.00	8.23	3.00	150.56
0.00	5.0	....	0.34	0.24	1.96	3.10	2.66	0.19	0.19	3.54	3.00	2.76	43.64
0.00	6.7	....	0.53	0.37	2.87	2.93	1.89	0.24	0.24	3.97	7.10	3.61	96.74
0.00	5.0	6.0	0.25	0.18	1.44	2.61	1.99	0.16	0.16	3.24	3.61	3.00	48.59
0.00	6.3	....	0.23	0.16	1.27	2.02	0.92	0.15	0.15	3.12	5.27	4.30	27.39
0.00	5.0	....	0.17	0.12	0.98	2.66	2.42	0.13	0.13	2.91	4.30	3.00	16.15
0.00	7.5	6.0	0.37	0.26	1.95	1.11	1.11	0.02	0.02	1.11	8.23	4.68	156.22
0.00	5.0	6.0	0.16	0.11	0.92	0.79	0.52	0.00	0.02	1.07	4.68	2.95	106.89
0.00	8.9	6.0	0.76	0.51	3.65	4.28	4.27	0.29	0.29	4.28	1.20	4.36	29.40

Project File: Storm A.stm | Number of lines: 28 | Date: 9/20/2024

NOTES: ** Critical depth

MyReport

Area A3 (ac)	Tc (min)	Throat Ht (in)	Total Area (ac)	Total CxA	Total Runoff (cfs)	Vel Ave (ft/s)	Vel Dn (ft/s)	Vel Hd Dn (ft)	Vel Hd Up (ft)	Vel Up (ft/s)	Cover Dn (ft)	Cover Up (ft)	Storage (cft)
0.00	8.0	....	0.25	0.15	1.11	2.15	1.30	0.14	0.14	3.01	4.36	1.21	20.06
0.00	5.0	6.0	0.49	0.34	2.83	3.64	3.32	0.24	0.24	3.95	4.36	2.76	61.99
0.00	5.5	6.0	0.45	0.33	2.67	3.87	3.87	0.23	0.23	3.88	1.21	1.98	37.43
0.00	5.3	6.0	0.43	0.32	2.58	3.79	3.75	0.23	0.23	3.84	1.98	1.74	16.20
0.00	5.0	....	0.30	0.23	1.86	3.12	2.76	0.19	0.19	3.48	1.74	-0.19	10.23

Project File: Storm A.stm | Number of lines: 28 | Date: 9/20/2024

NOTES: ** Critical depth

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	24	16.85	649.20	650.68	1.48	2.49	6.76	0.71	651.39	0.000	93.538	659.89	661.37 j	1.48**	2.49	6.77	0.71	662.08	0.000	0.000	n/a	0.50	n/a
2	24	15.55	659.89	661.37	1.48*	2.50	6.22	0.60	661.98	0.497	170.921	660.74	662.22	1.48	2.50	6.23	0.60	662.83	0.498	0.497	0.850	1.50	0.90
3	24	15.36	660.74	663.13	2.00	3.14	4.89	0.37	663.50	0.393	61.331	661.67	663.21	1.54	2.60	5.90	0.54	663.76	0.443	0.418	0.256	1.50	0.81
4	24	11.33	661.67	664.03	2.00	1.98	3.61	0.20	664.23	0.214	118.470	663.98	665.19 j	1.21**	1.98	5.72	0.51	665.70	0.466	0.340	n/a	2.25	n/a
5	18	1.84	663.98	665.19	1.21	0.53	1.21	0.19	665.37	0.000	55.790	668.20	668.71 j	0.51**	0.53	3.47	0.19	668.90	0.000	0.000	n/a	0.50	n/a
6	18	0.46	668.20	668.71	0.51	0.19	0.87	0.09	668.80	0.000	94.981	669.15	669.40 j	0.25**	0.19	2.37	0.09	669.49	0.000	0.000	n/a	1.00	0.09
7	18	8.07	663.98	665.19	1.21	1.39	5.30	0.53	665.71	0.000	62.290	664.60	665.70 j	1.10**	1.39	5.81	0.53	666.22	0.000	0.000	n/a	0.50	0.26
8	18	7.96	664.60	665.70	1.10	1.38	5.73	0.52	666.22	0.000	46.934	665.07	666.16 j	1.09**	1.38	5.77	0.52	666.68	0.000	0.000	n/a	1.79	0.93
9	18	2.77	665.07	666.16	1.09	0.71	2.01	0.24	666.40	0.000	34.614	667.86	668.49 j	0.63**	0.71	3.92	0.24	668.73	0.000	0.000	n/a	0.50	0.12
10	18	2.02	667.86	668.49	0.63	0.57	2.86	0.20	668.69	0.000	76.627	668.63	669.17 j	0.54**	0.57	3.57	0.20	669.36	0.000	0.000	n/a	1.00	0.20
11	18	3.97	665.07	666.16	1.09	0.90	2.88	0.30	666.46	0.000	96.688	666.24	667.00 j	0.76**	0.90	4.41	0.30	667.30	0.000	0.000	n/a	1.50	0.45
12	18	3.57	666.24	667.00	0.76	0.84	3.96	0.28	667.28	0.000	36.762	666.61	667.33 j	0.72**	0.84	4.25	0.28	667.61	0.000	0.000	n/a	0.50	n/a
13	18	3.18	666.61	667.33	0.72	0.78	3.79	0.26	667.59	0.000	100.000	667.61	668.29 j	0.68**	0.78	4.10	0.26	668.55	0.000	0.000	n/a	0.96	0.25
14	18	2.02	667.61	668.29	0.68	0.57	2.60	0.20	668.49	0.000	29.140	669.50	670.04 j	0.54**	0.57	3.57	0.20	670.23	0.000	0.000	n/a	1.00	0.20
15	18	2.95	661.67	664.03	1.50	0.74	1.67	0.04	664.07	0.067	94.391	667.30	667.95 j	0.65**	0.74	4.00	0.25	668.20	0.438	0.252	n/a	0.99	n/a
16	18	1.96	667.30	667.95	0.65	0.56	2.66	0.19	668.15	0.000	67.635	667.74	668.27 j	0.53**	0.56	3.54	0.19	668.46	0.000	0.000	n/a	1.00	n/a
17	18	2.87	663.98	665.19	1.21	0.72	1.89	0.24	665.43	0.000	85.067	665.54	666.18 j	0.64**	0.72	3.97	0.24	666.43	0.000	0.000	n/a	0.50	n/a
18	18	1.44	665.54	666.18	0.64	0.45	1.99	0.16	666.35	0.000	83.264	666.37	666.82 j	0.45**	0.45	3.24	0.16	666.98	0.000	0.000	n/a	1.00	n/a
19	18	1.27	665.07	666.16	1.09	0.41	0.92	0.15	666.31	0.000	30.690	665.38	665.80	0.42**	0.41	3.12	0.15	665.95	0.000	0.000	n/a	0.91	n/a
20	18	0.98	665.38	665.80	0.42	0.34	2.42	0.13	665.93	0.000	43.477	665.81	666.18 j	0.37**	0.34	2.91	0.13	666.31	0.000	0.000	n/a	1.00	0.13
21	18	1.95	661.67	664.03	1.50	1.77	1.11	0.02	664.05	0.035	88.422	662.56	664.06	1.50	1.77	1.11	0.02	664.08	0.033	0.034	0.030	0.50	0.01
22	18	0.92	662.56	664.07	1.50	1.77	0.52	0.00	664.07	0.008	77.227	663.33	664.07	0.74	0.87	1.07	0.02	664.09	0.033	0.020	0.016	1.00	0.02

Project File: Storm A.stm | Number of lines: 28 | Run Date: 9/20/2024

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
23	18	3.65	664.79	665.52	0.73	0.85	4.27	0.29	665.81	0.000	34.477	665.13	665.86 j	0.73**	0.85	4.28	0.29	666.14	0.000	0.000	n/a	1.50	n/a
24	18	1.11	665.13	665.86	0.73	0.37	1.30	0.14	666.00	0.000	33.110	666.90	667.29 j	0.39**	0.37	3.01	0.14	667.43	0.000	0.000	n/a	1.00	0.14
25	18	2.83	665.13	665.86	0.73	0.72	3.32	0.24	666.10	0.000	79.093	665.92	666.56 j	0.64**	0.72	3.95	0.24	666.80	0.000	0.000	n/a	1.00	n/a
26	18	2.67	653.22	653.84	0.62	0.69	3.87	0.23	654.07	0.000	54.345	653.76	654.38 j	0.62**	0.69	3.88	0.23	654.61	0.000	0.000	n/a	0.76	0.18
27	18	2.58	653.76	654.38	0.62	0.67	3.75	0.23	654.61	0.000	23.825	654.00	654.61 j	0.61**	0.67	3.84	0.23	654.84	0.000	0.000	n/a	0.50	0.11
28	18	1.86	654.00	654.61	0.61	0.53	2.76	0.19	654.80	0.000	16.992	655.50	656.01 j	0.51**	0.53	3.48	0.19	656.20	0.000	0.000	n/a	1.00	0.19

Project File: Storm A.stm | Number of lines: 28 | Run Date: 9/20/2024

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

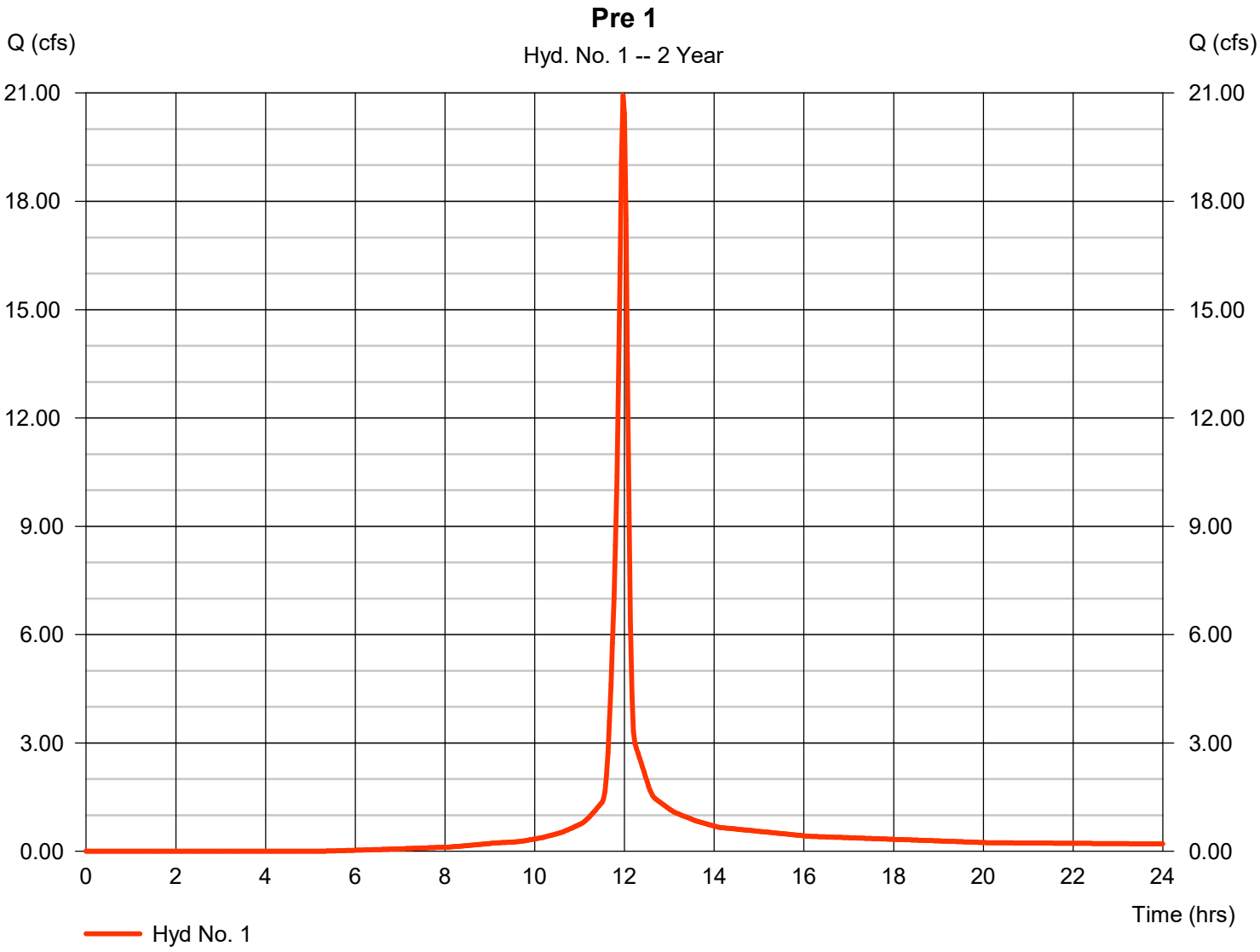
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	20.94	2	718	49,101	------	------	------	Pre 1
2	SCS Runoff	0.207	2	718	485	------	------	------	Pre 2
3	SCS Runoff	20.81	2	718	50,500	------	------	------	Post 1A
4	SCS Runoff	0.778	2	718	1,586	------	------	------	Post 1B
5	SCS Runoff	0.327	2	718	655	------	------	------	POST 2
6	Reservoir	14.86	2	724	50,496	3	655.11	19,094	POND 1
7	Combine	15.11	2	724	52,082	4, 6	------	------	OUTFALL 1
8	Combine	21.14	2	718	49,586	1, 2,	------	------	PRE
9	Combine	15.20	2	724	52,737	5, 7,	------	------	POST

Hydrograph Report

Hyd. No. 1

Pre 1

Hydrograph type	= SCS Runoff	Peak discharge	= 20.94 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 49,101 cuft
Drainage area	= 5.060 ac	Curve number	= 89
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 8.30 min
Total precip.	= 3.84 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

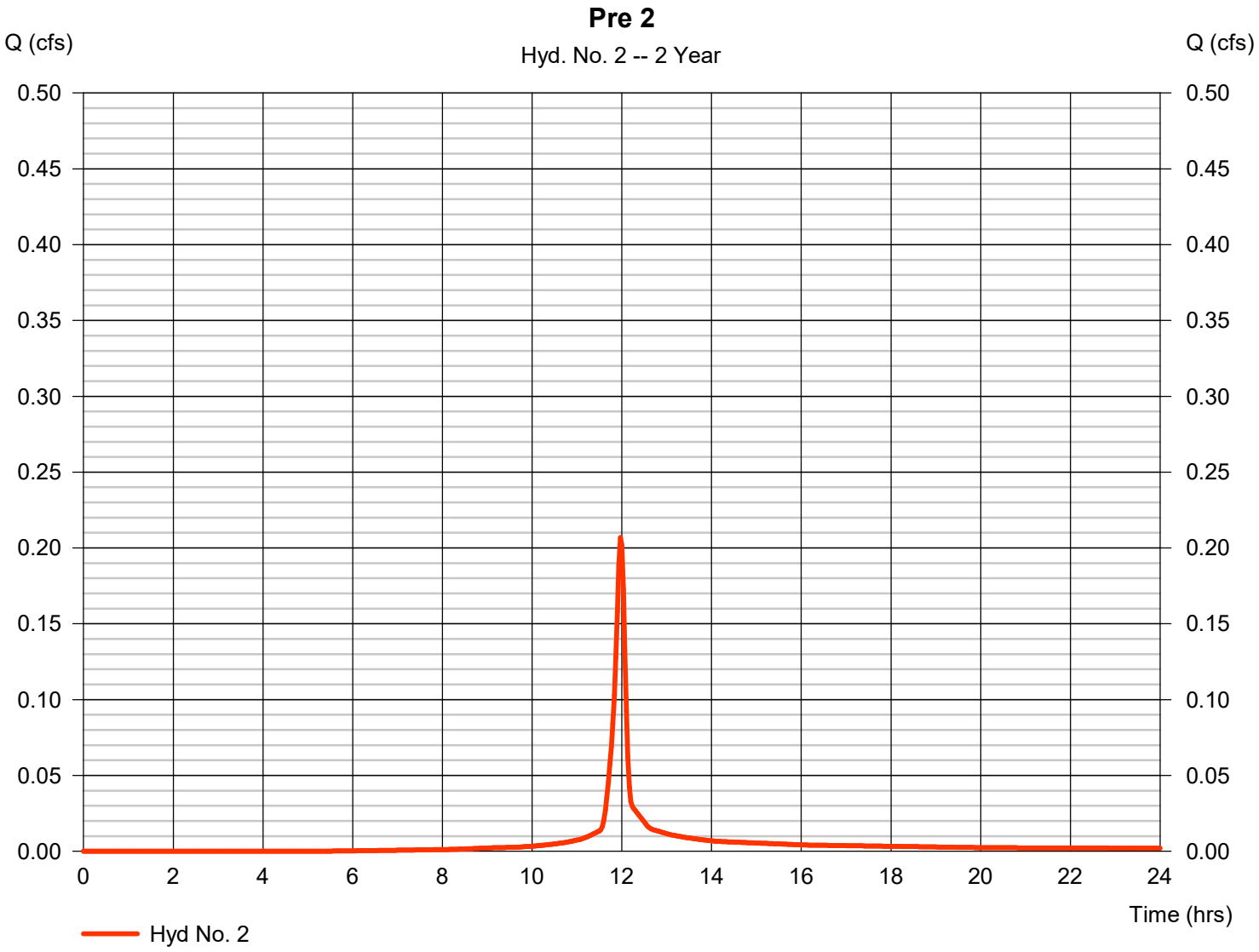


Hydrograph Report

Hyd. No. 2

Pre 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.207 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	485 cuft
Drainage area	=	0.050 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.50 min
Total precip.	=	3.84 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



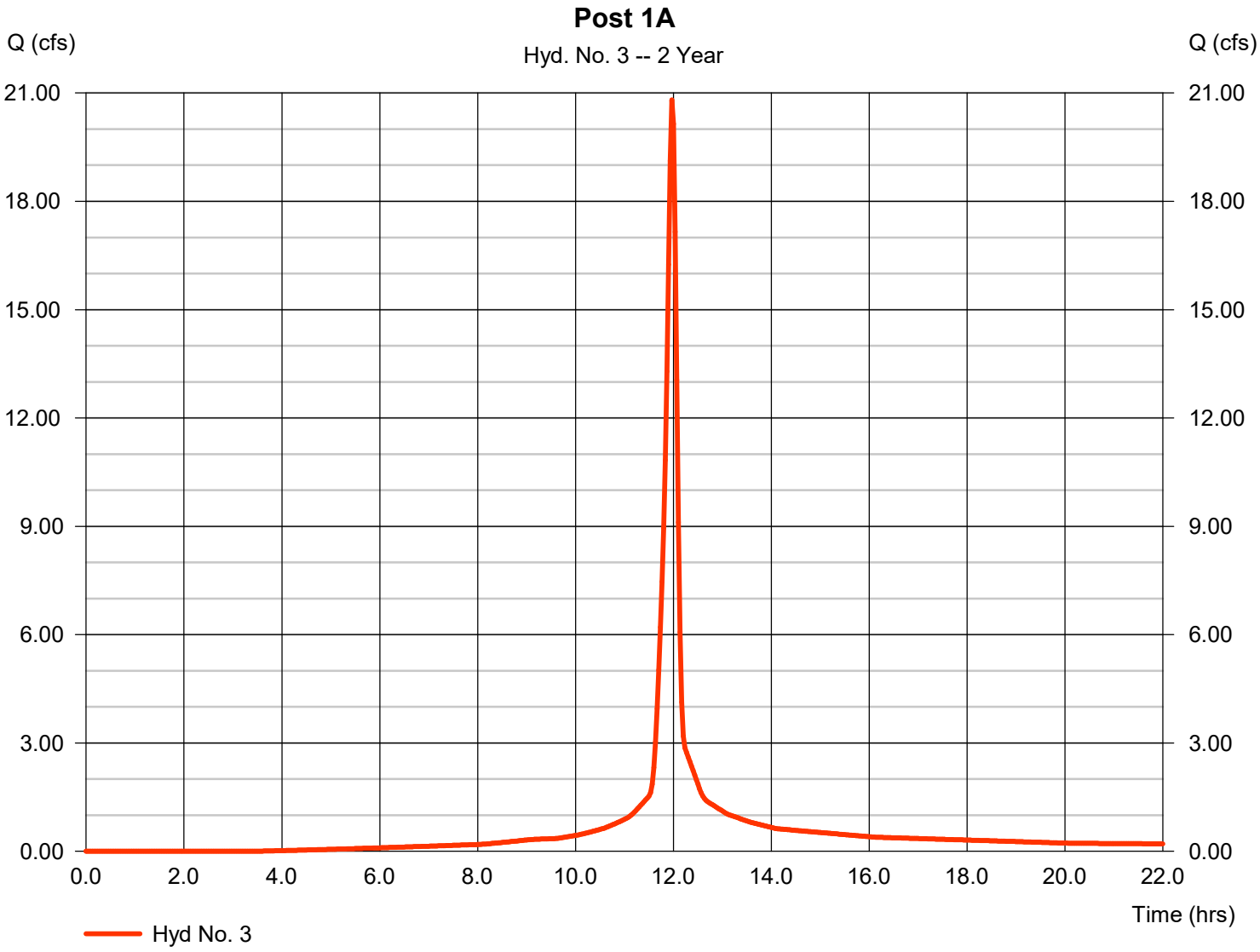
Hydrograph Report

Hyd. No. 3

Post 1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	20.81 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	50,500 cuft
Drainage area	=	4.540 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.60 min
Total precip.	=	3.84 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.300 x 98) + (0.970 x 74) + (0.270 x 61)] / 4.540



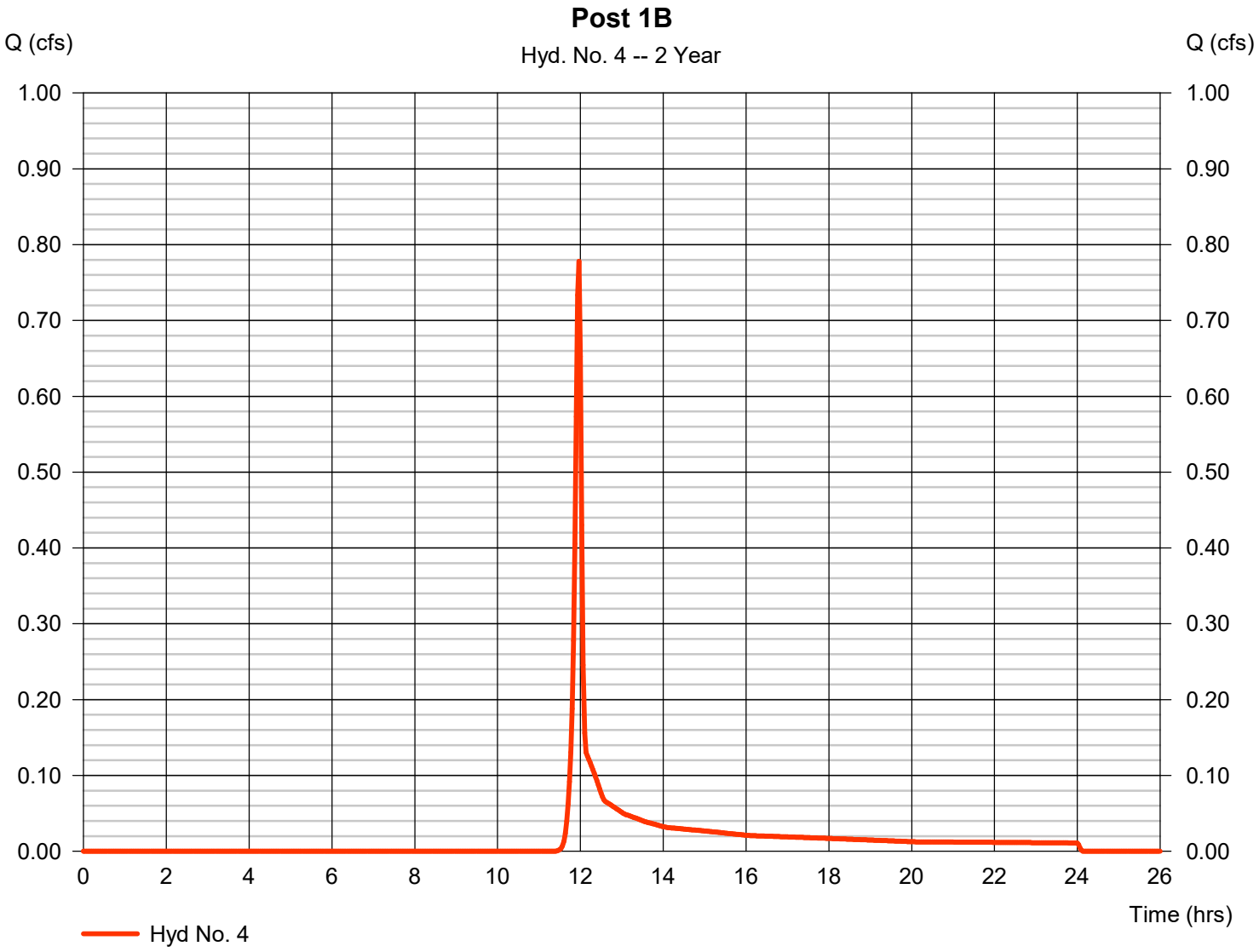
Hydrograph Report

Hyd. No. 4

Post 1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.778 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	1,586 cuft
Drainage area	=	0.470 ac	Curve number	=	66*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.84 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.140 x 74) + (0.300 x 61) + (0.030 x 80)] / 0.470



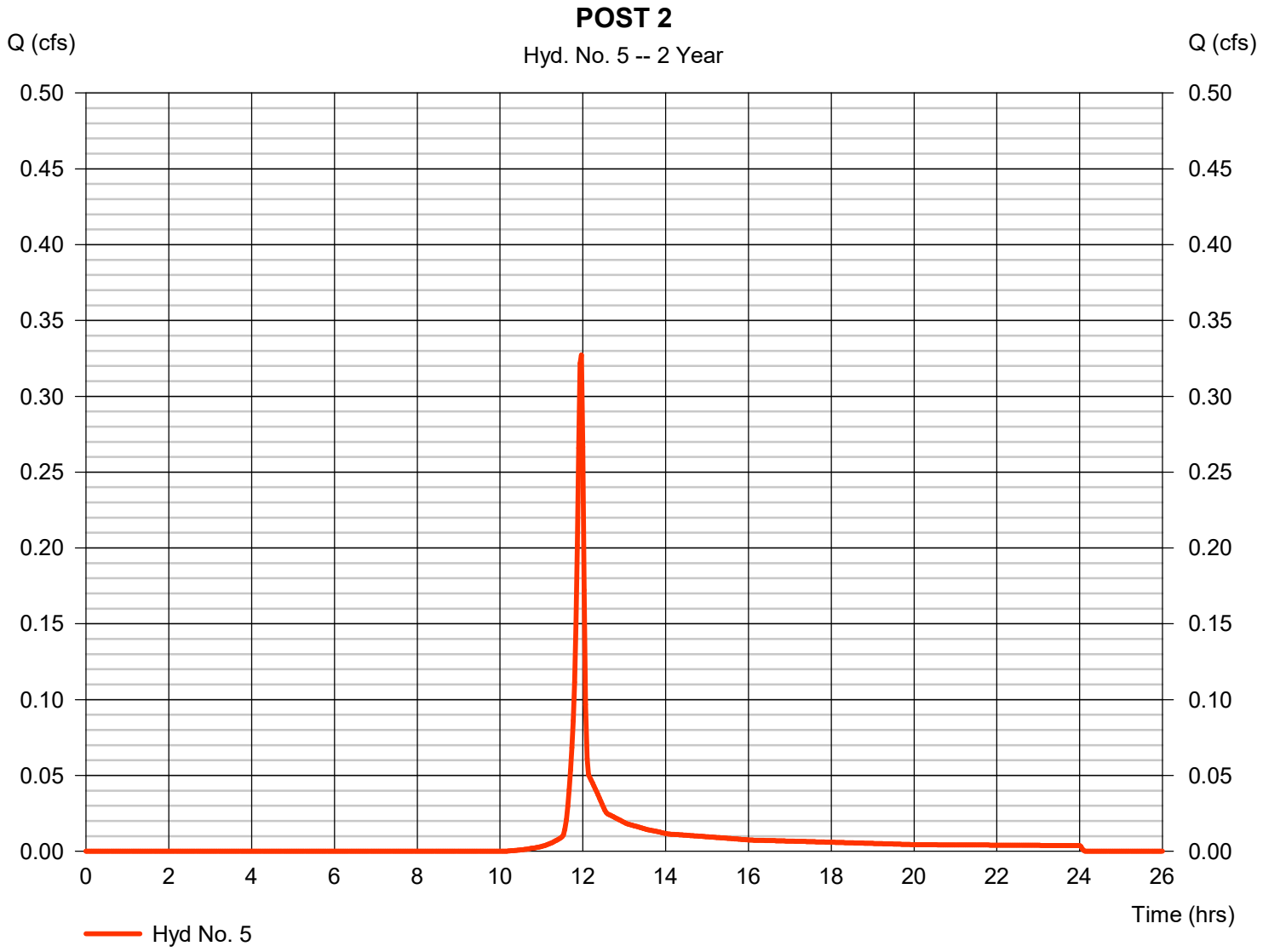
Hydrograph Report

Hyd. No. 5

POST 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.327 cfs
Storm frequency	=	2 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	655 cuft
Drainage area	=	0.130 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.84 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 74)] / 0.130



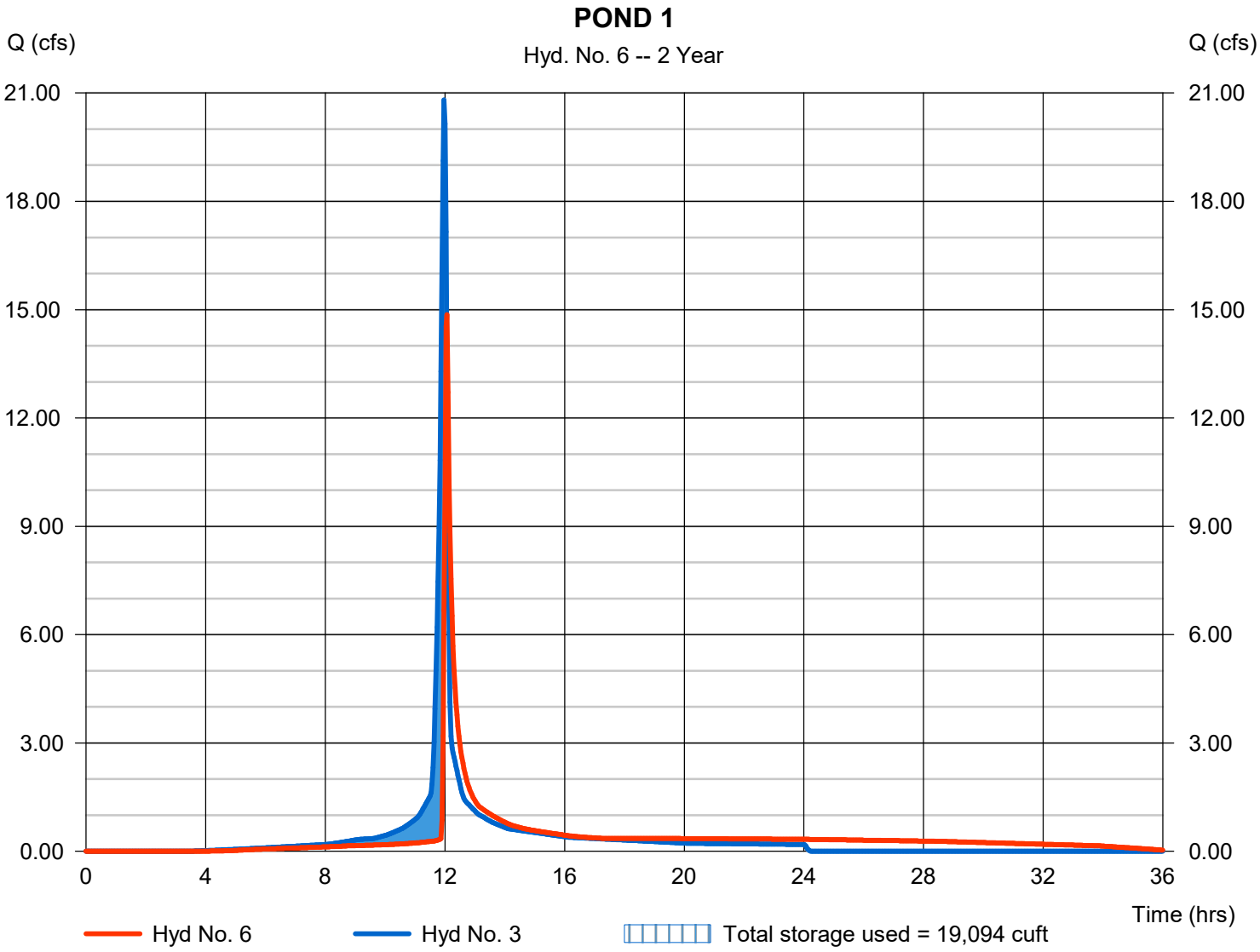
Hydrograph Report

Hyd. No. 6

POND 1

Hydrograph type	=	Reservoir	Peak discharge	=	14.86 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	50,496 cuft
Inflow hyd. No.	=	3 - Post 1A	Max. Elevation	=	655.11 ft
Reservoir name	=	Pond 1	Max. Storage	=	19,094 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. Begining Elevation = 649.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	649.00	402	0	0
1.00	650.00	1,343	827	827
3.00	652.00	2,828	4,079	4,906
5.00	654.00	4,830	7,568	12,474
7.00	656.00	7,124	11,879	24,353

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 30.00	2.50	Inactive	0.00
Span (in)	= 30.00	2.50	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 649.00	649.00	0.00	0.00
Length (ft)	= 45.00	1.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

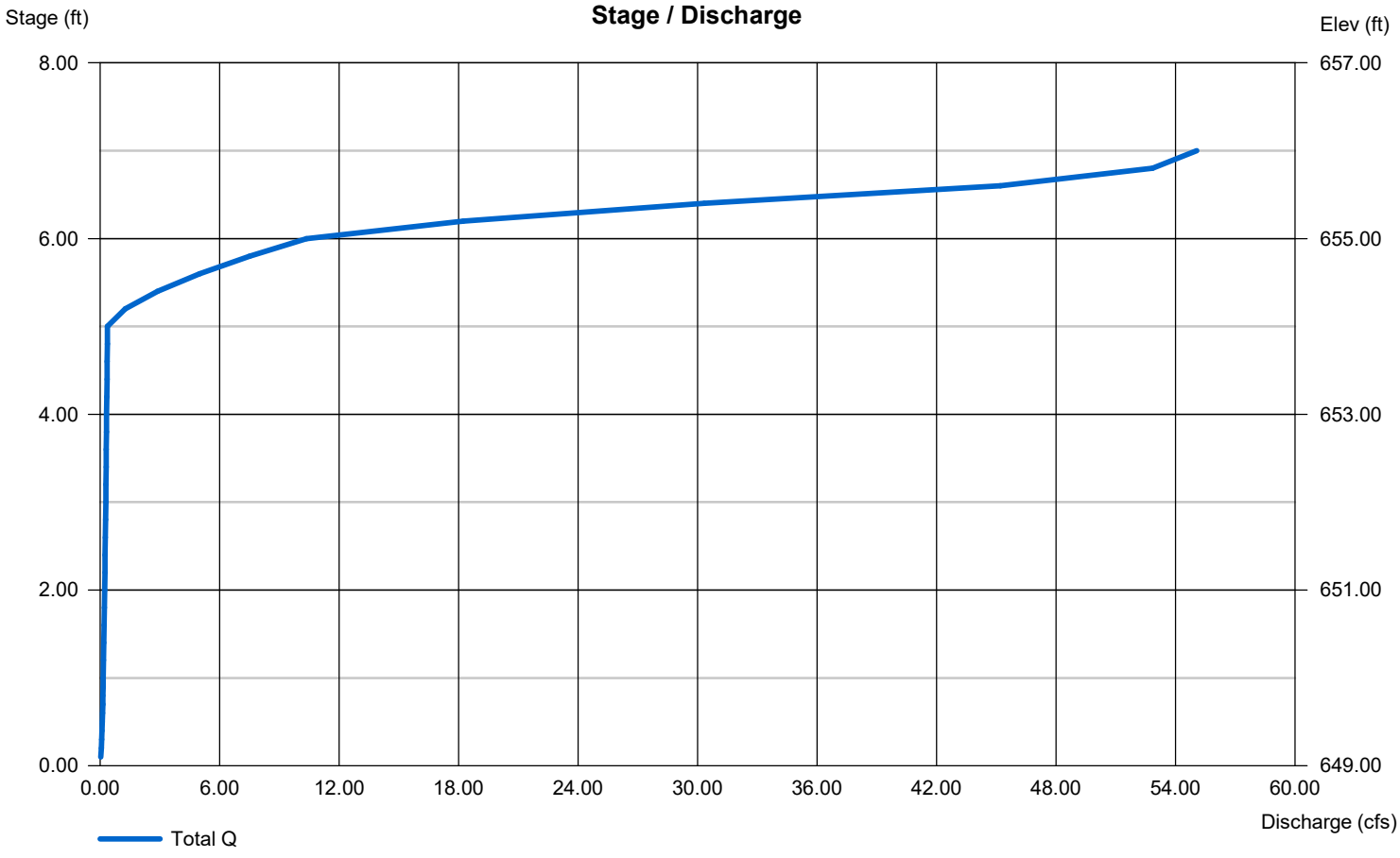
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 16.00	3.00	25.00	Inactive
Crest El. (ft)	= 655.00	654.00	656.00	655.80
Weir Coeff.	= 3.33	3.33	2.60	2.60
Weir Type	= 1	Rect	Broad	Broad
Multi-Stage	= Yes	Yes	No	No

Exfil.(in/hr) = 0.000 (by Contour)

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).

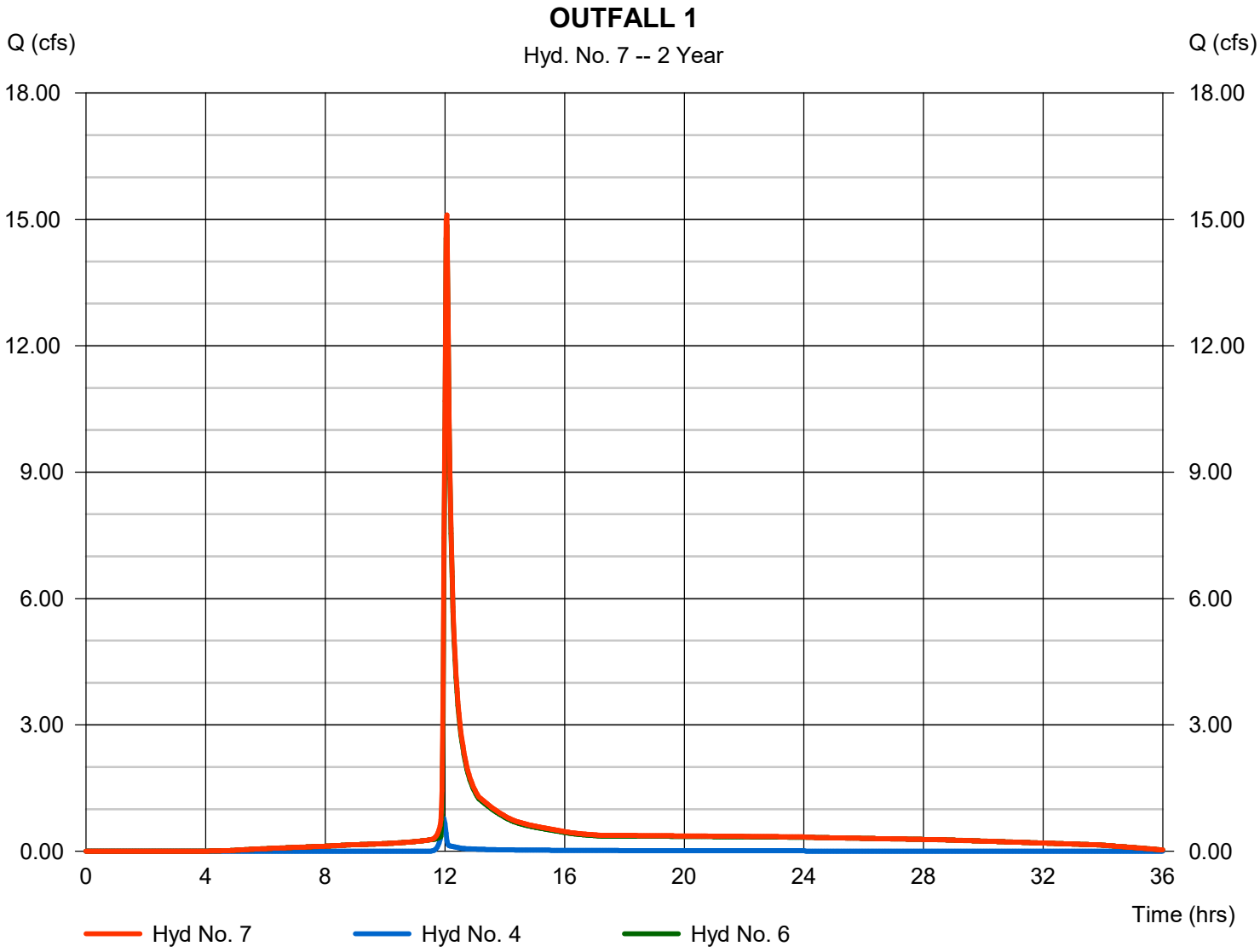


Hydrograph Report

Hyd. No. 7

OUTFALL 1

Hydrograph type	= Combine	Peak discharge	= 15.11 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 52,082 cuft
Inflow hyds.	= 4, 6	Contrib. drain. area	= 0.470 ac

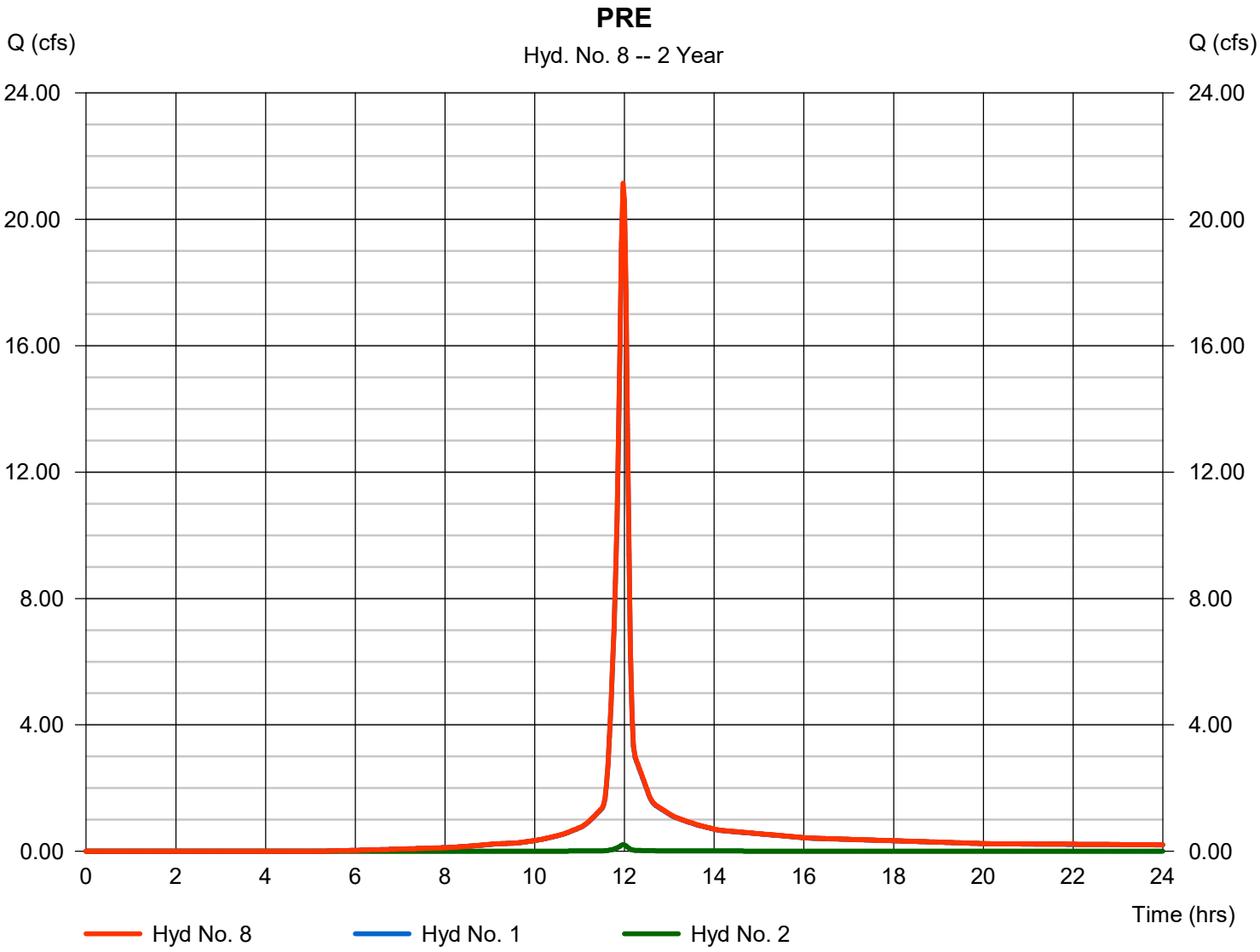


Hydrograph Report

Hyd. No. 8

PRE

Hydrograph type	= Combine	Peak discharge	= 21.14 cfs
Storm frequency	= 2 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 49,586 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 5.110 ac

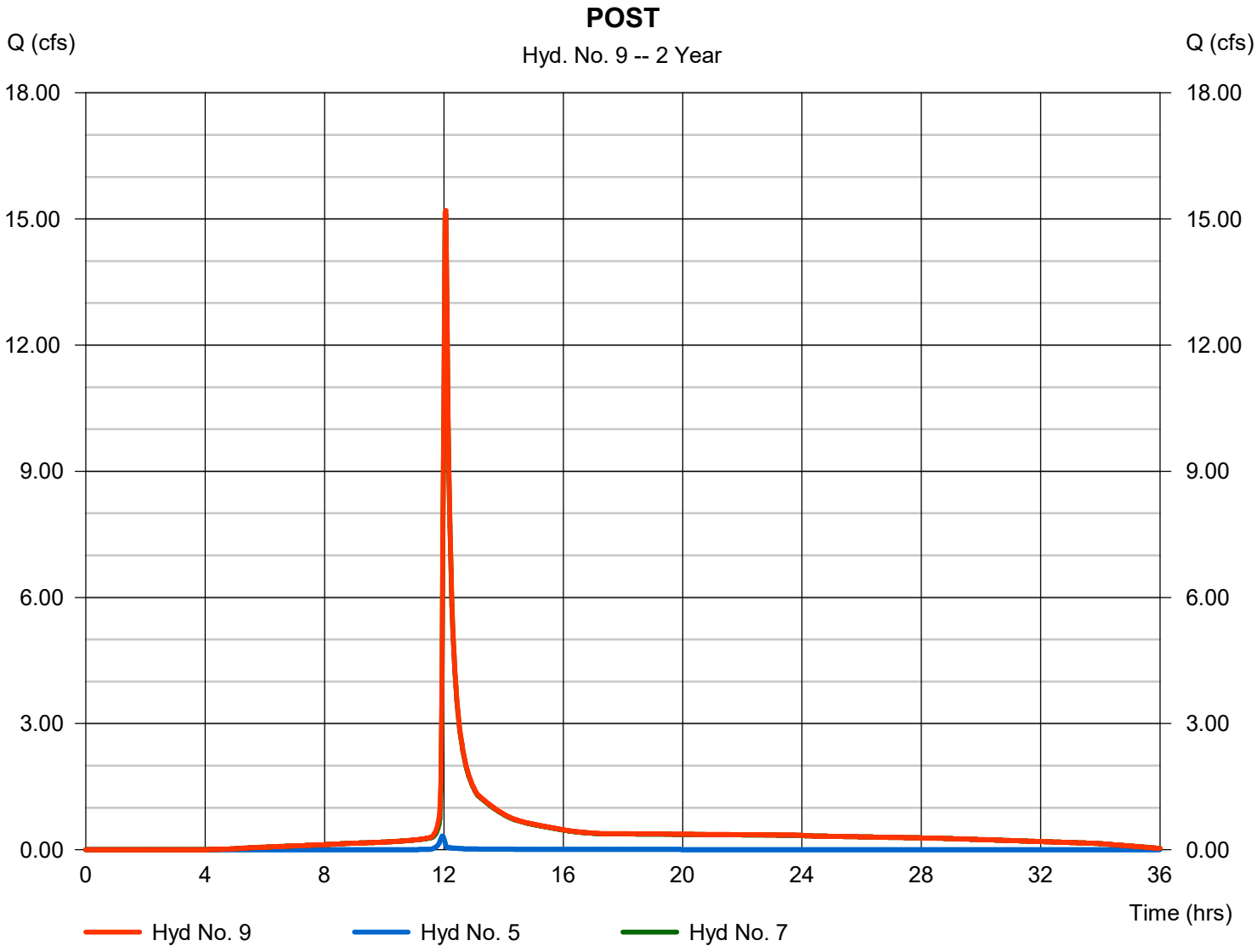


Hydrograph Report

Hyd. No. 9

POST

Hydrograph type	=	Combine	Peak discharge	=	15.20 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.07 hrs
Time interval	=	2 min	Hyd. volume	=	52,737 cuft
Inflow hyds.	=	5, 7	Contrib. drain. area	=	0.130 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

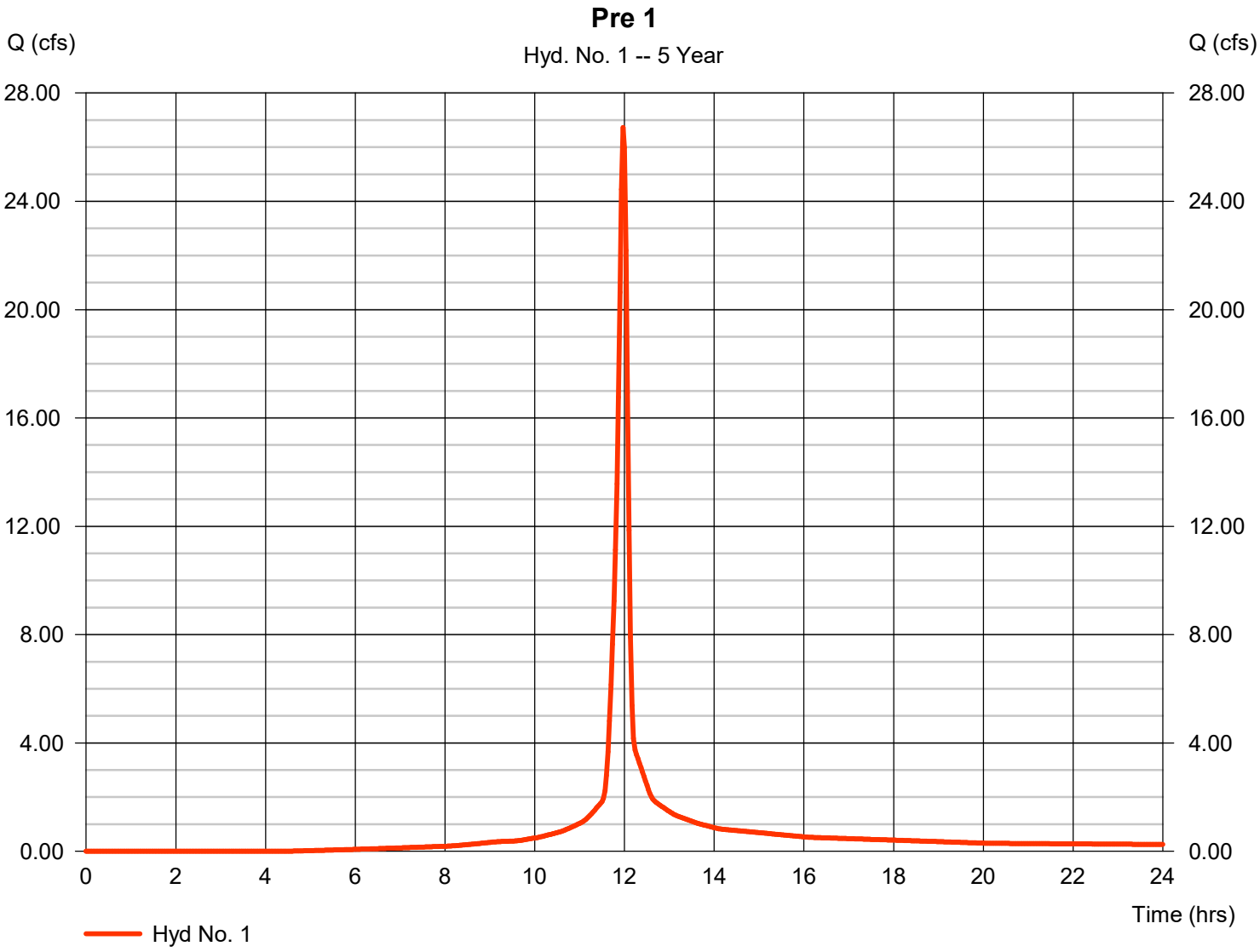
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	26.73	2	718	63,494	------	------	------	Pre 1
2	SCS Runoff	0.264	2	718	627	------	------	------	Pre 2
3	SCS Runoff	25.93	2	718	63,848	------	------	------	Post 1A
4	SCS Runoff	1.202	2	718	2,410	------	------	------	Post 1B
5	SCS Runoff	0.463	2	718	931	------	------	------	POST 2
6	Reservoir	23.89	2	720	63,843	3	655.29	20,157	POND 1
7	Combine	24.88	2	720	66,254	4, 6	------	------	OUTFALL 1
8	Combine	26.99	2	718	64,121	1, 2,	------	------	PRE
9	Combine	25.25	2	720	67,185	5, 7,	------	------	POST

Hydrograph Report

Hyd. No. 1

Pre 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	26.73 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	63,494 cuft
Drainage area	=	5.060 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.30 min
Total precip.	=	4.67 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

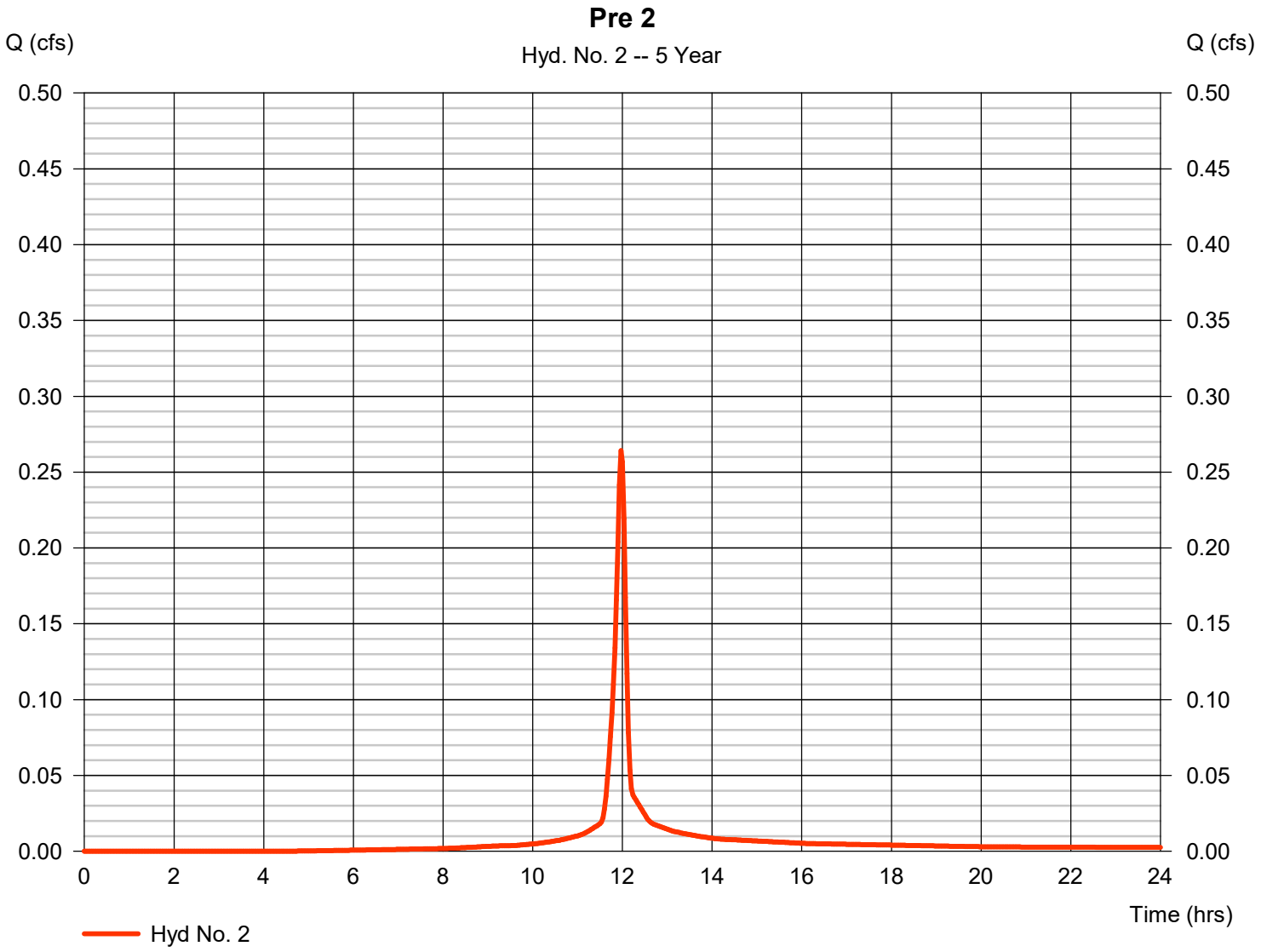


Hydrograph Report

Hyd. No. 2

Pre 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.264 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	627 cuft
Drainage area	=	0.050 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.50 min
Total precip.	=	4.67 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



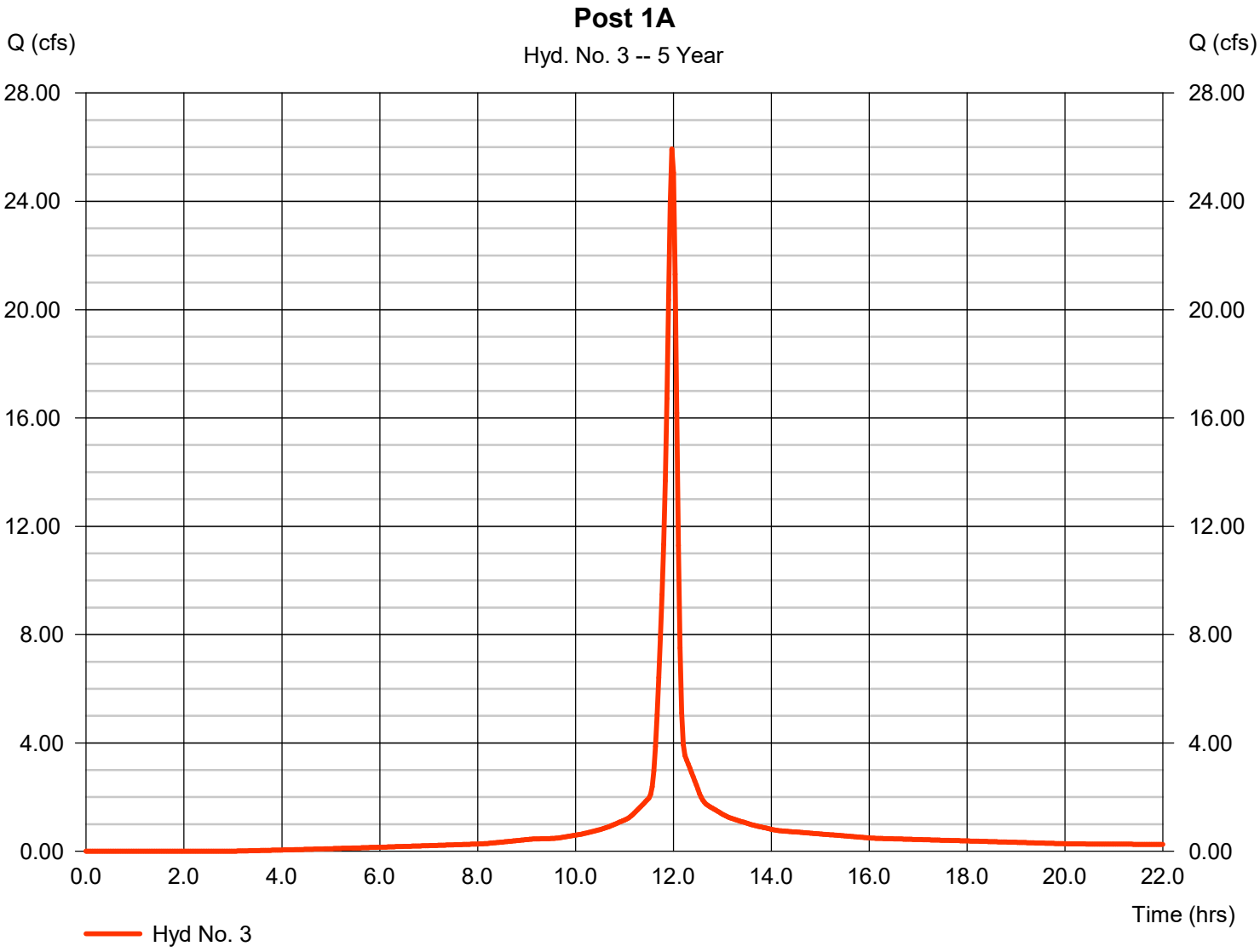
Hydrograph Report

Hyd. No. 3

Post 1A

Hydrograph type	= SCS Runoff	Peak discharge	= 25.93 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 63,848 cuft
Drainage area	= 4.540 ac	Curve number	= 93*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.60 min
Total precip.	= 4.67 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.300 x 98) + (0.970 x 74) + (0.270 x 61)] / 4.540



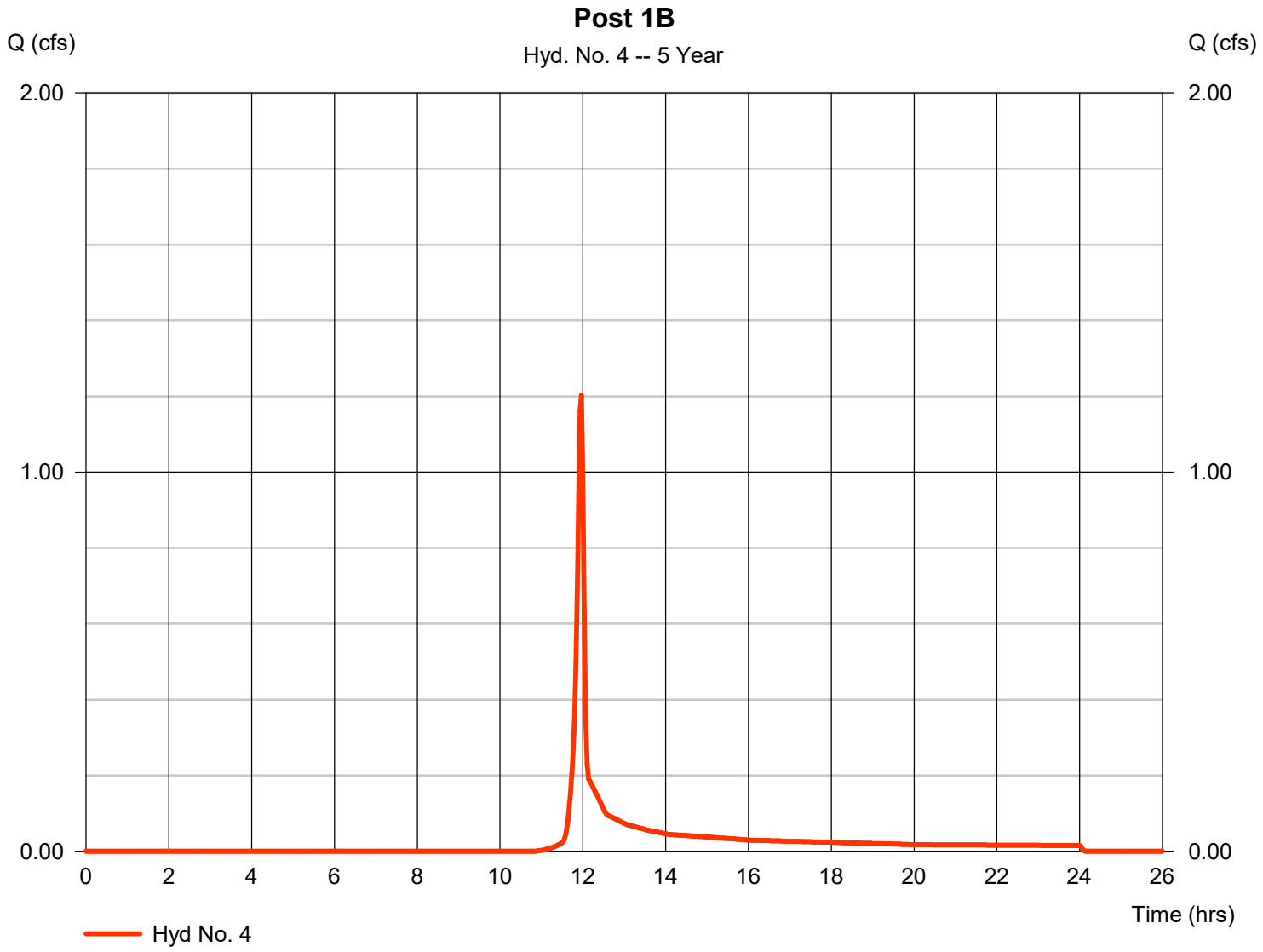
Hydrograph Report

Hyd. No. 4

Post 1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.202 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	2,410 cuft
Drainage area	=	0.470 ac	Curve number	=	66*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.67 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.140 x 74) + (0.300 x 61) + (0.030 x 80)] / 0.470



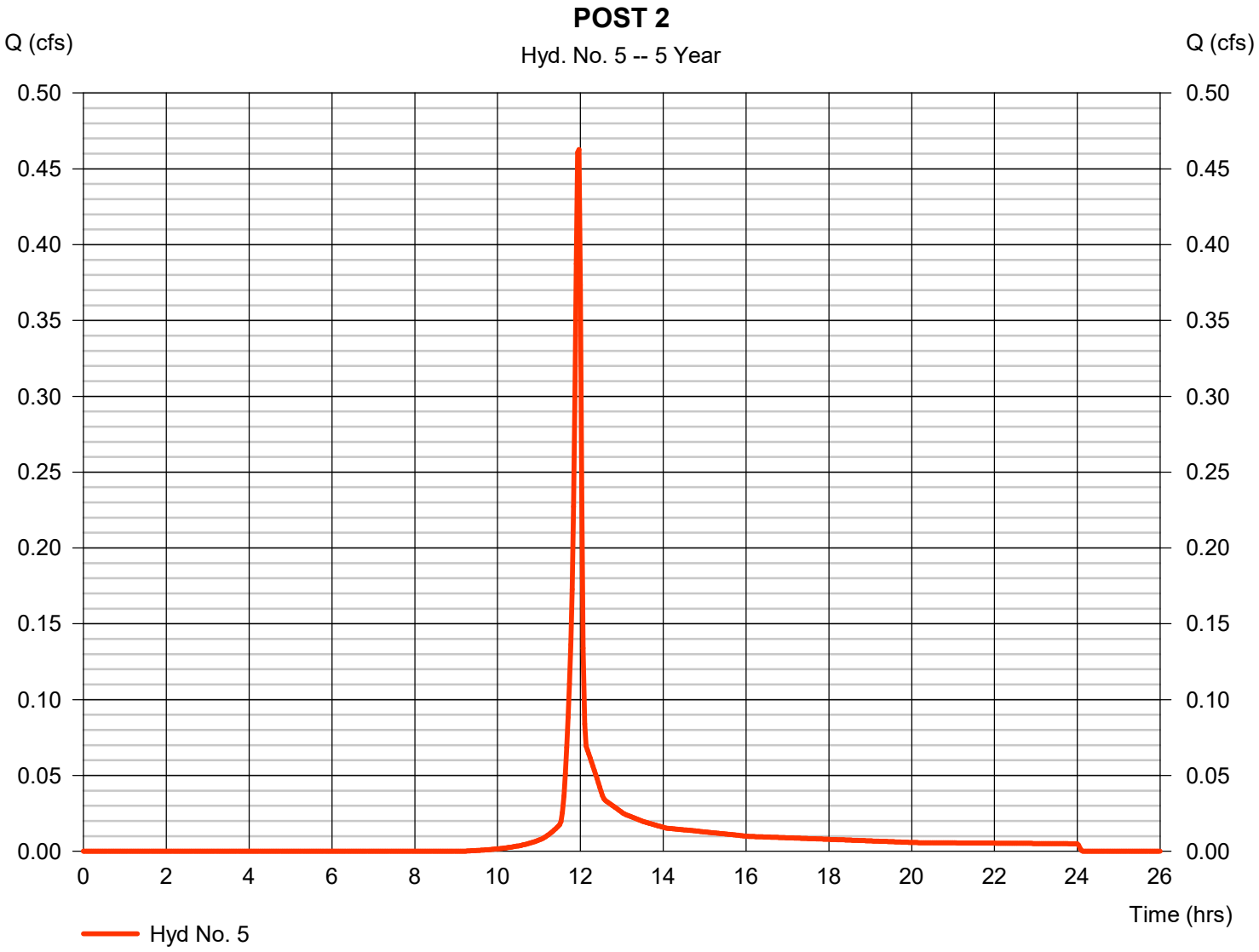
Hydrograph Report

Hyd. No. 5

POST 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.463 cfs
Storm frequency	=	5 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	931 cuft
Drainage area	=	0.130 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.67 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 74)] / 0.130



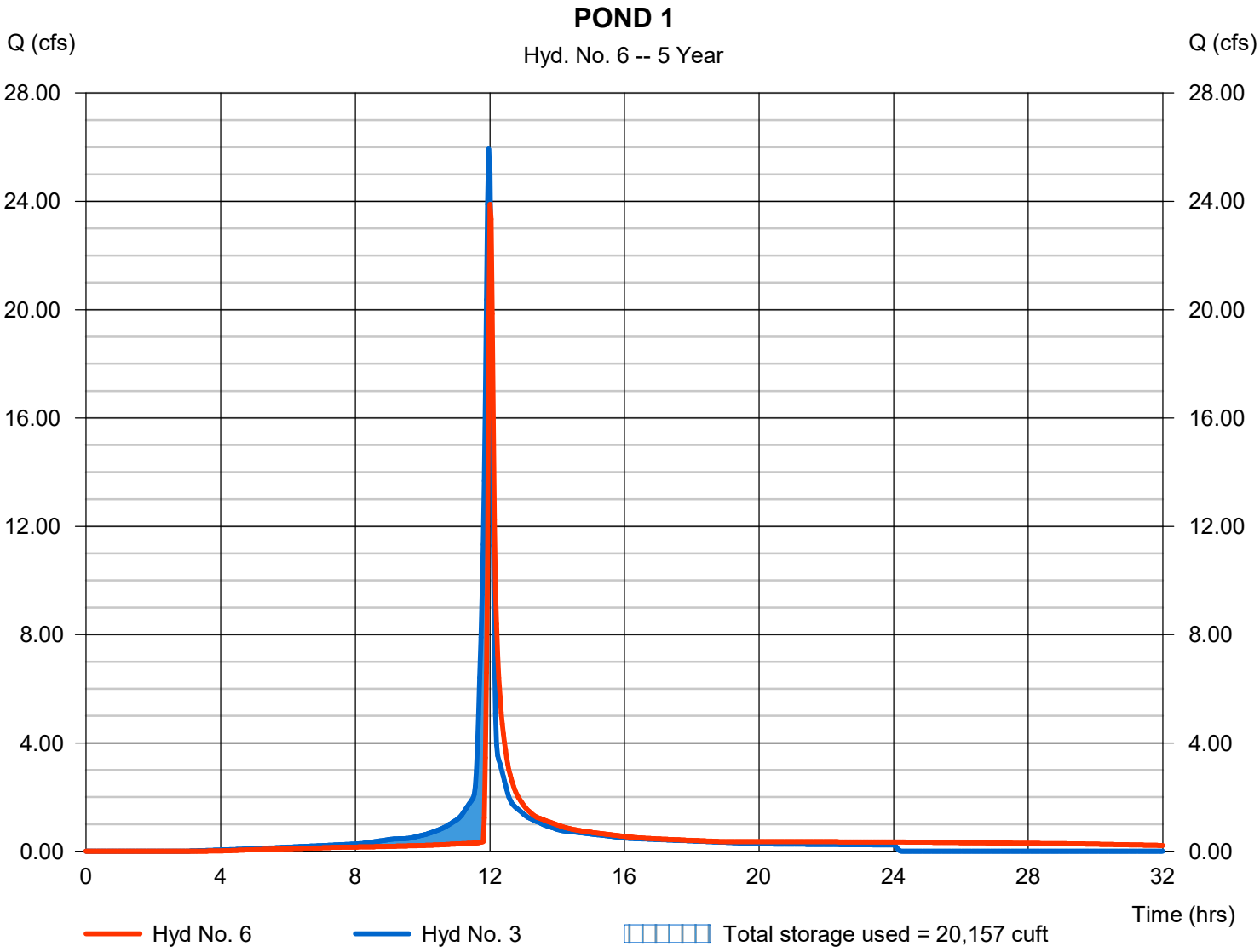
Hydrograph Report

Hyd. No. 6

POND 1

Hydrograph type	=	Reservoir	Peak discharge	=	23.89 cfs
Storm frequency	=	5 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	63,843 cuft
Inflow hyd. No.	=	3 - Post 1A	Max. Elevation	=	655.29 ft
Reservoir name	=	Pond 1	Max. Storage	=	20,157 cuft

Storage Indication method used.

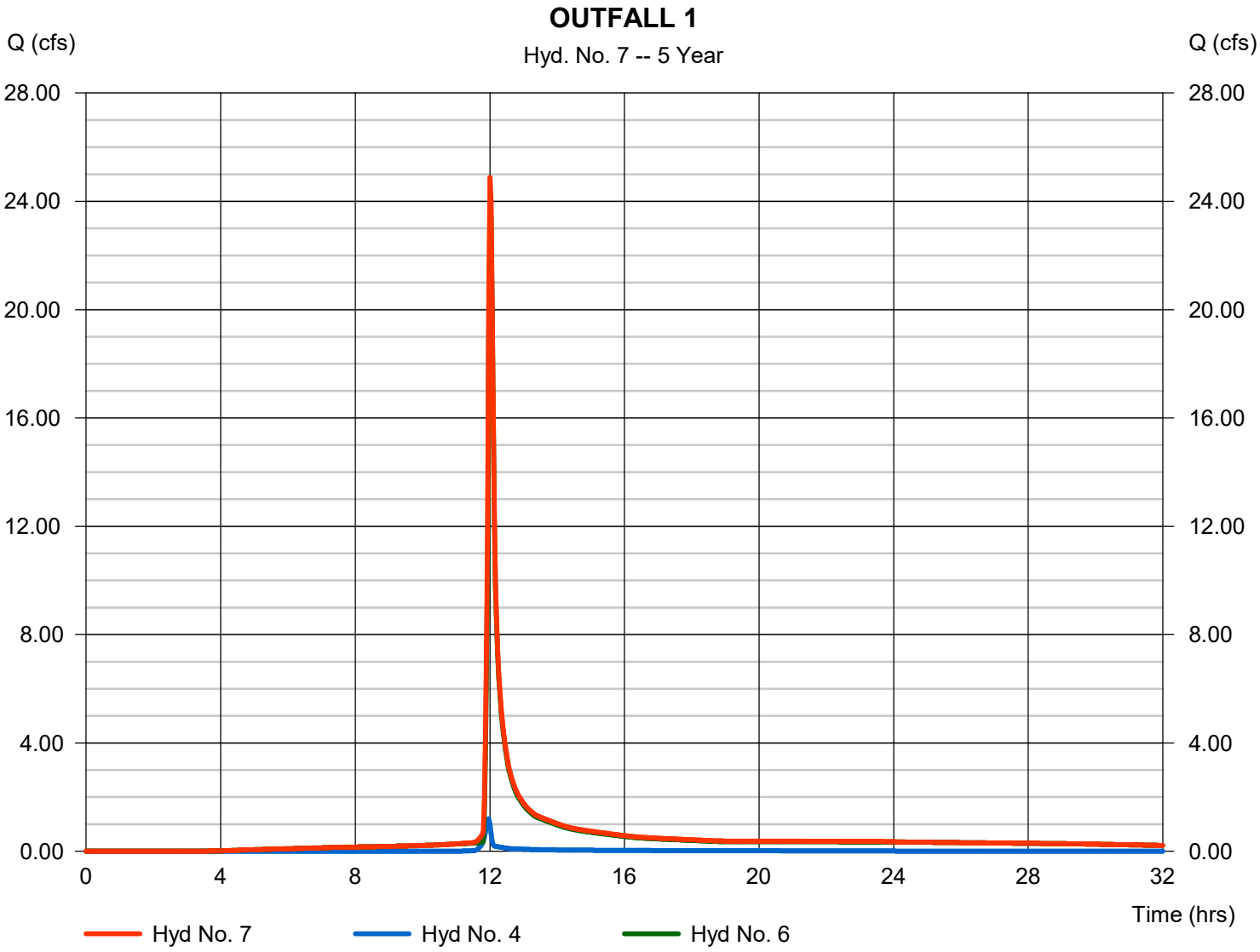


Hydrograph Report

Hyd. No. 7

OUTFALL 1

Hydrograph type	= Combine	Peak discharge	= 24.88 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 66,254 cuft
Inflow hyds.	= 4, 6	Contrib. drain. area	= 0.470 ac

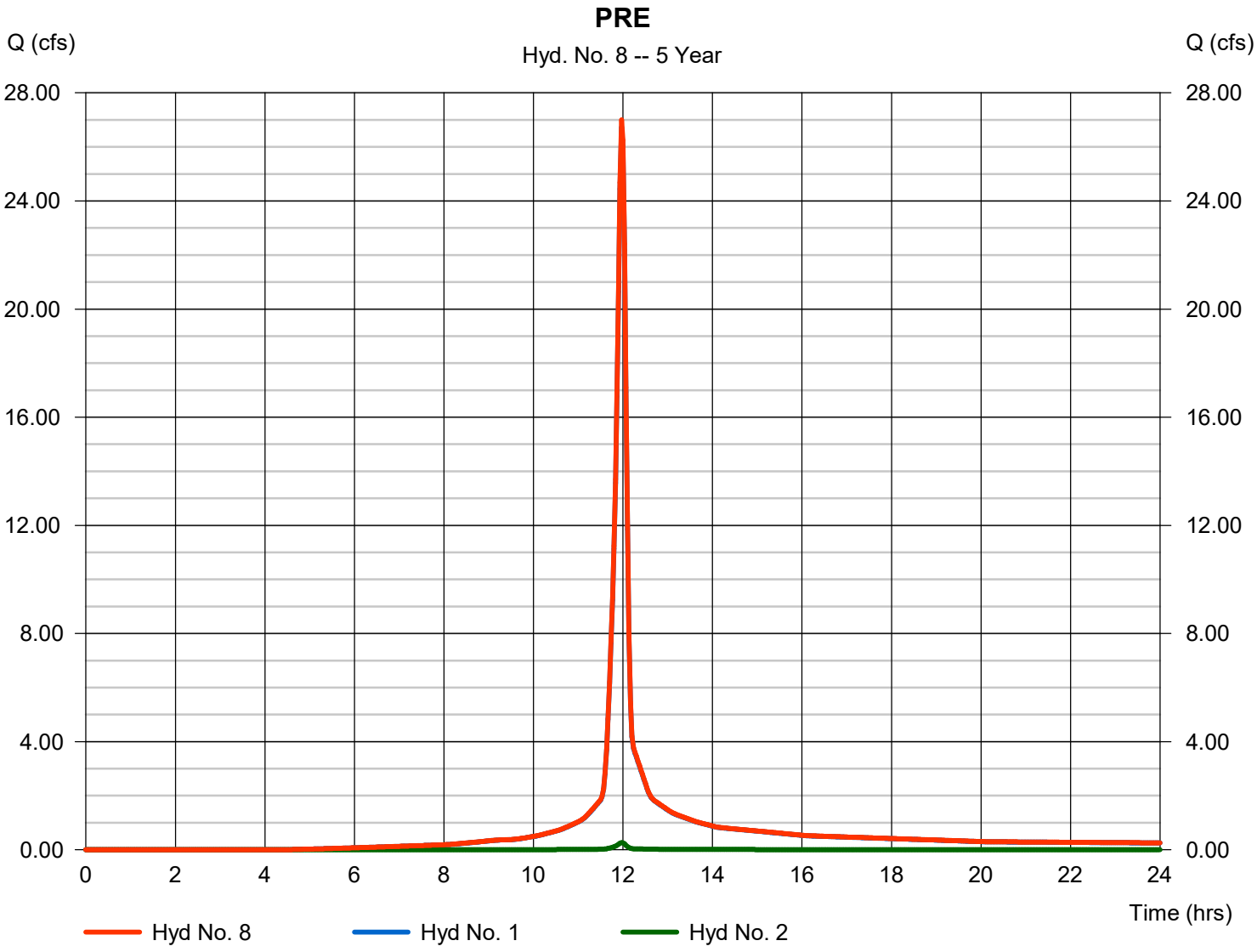


Hydrograph Report

Hyd. No. 8

PRE

Hydrograph type	= Combine	Peak discharge	= 26.99 cfs
Storm frequency	= 5 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 64,121 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 5.110 ac

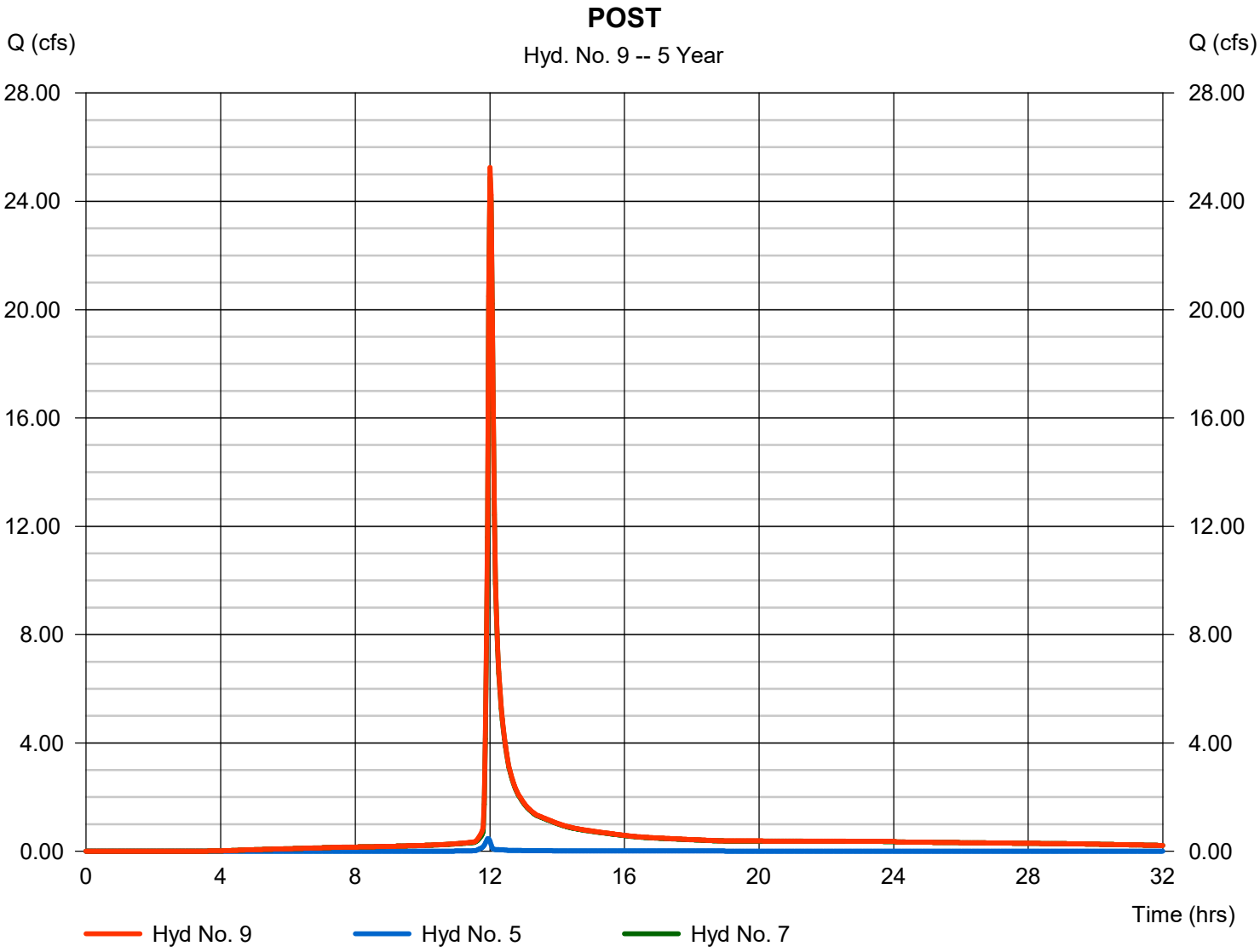


Hydrograph Report

Hyd. No. 9

POST

Hydrograph type	= Combine	Peak discharge	= 25.25 cfs
Storm frequency	= 5 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 67,185 cuft
Inflow hyds.	= 5, 7	Contrib. drain. area	= 0.130 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

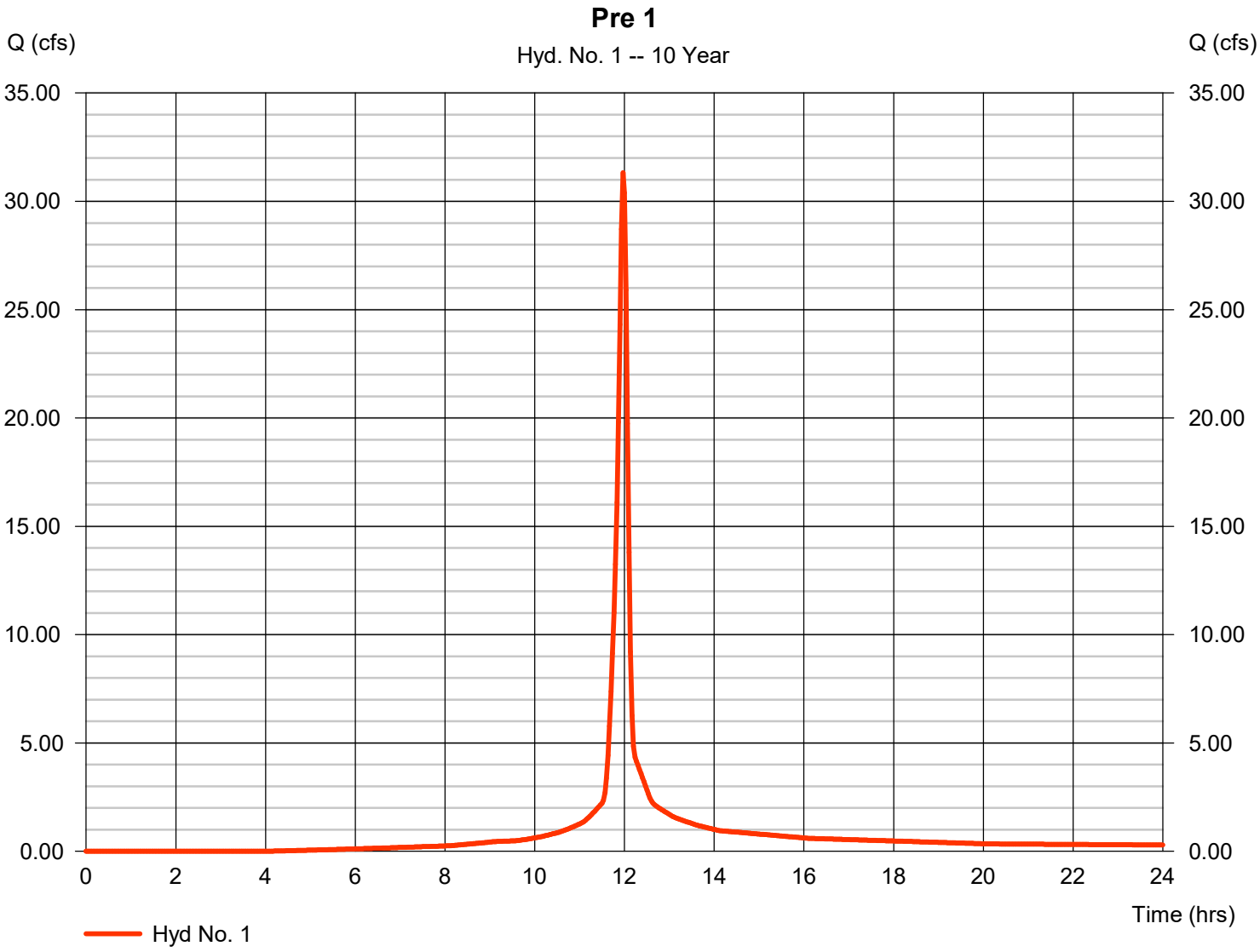
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	31.32	2	718	75,099	------	------	------	Pre 1
2	SCS Runoff	0.310	2	718	742	------	------	------	Pre 2
3	SCS Runoff	29.98	2	718	74,528	------	------	------	Post 1A
4	SCS Runoff	1.565	2	718	3,129	------	------	------	Post 1B
5	SCS Runoff	0.576	2	716	1,164	------	------	------	POST 2
6	Reservoir	28.83	2	720	74,523	3	655.38	20,643	POND 1
7	Combine	30.11	2	720	77,652	4, 6	------	------	OUTFALL 1
8	Combine	31.63	2	718	75,841	1, 2,	------	------	PRE
9	Combine	30.57	2	720	78,816	5, 7,	------	------	POST

Hydrograph Report

Hyd. No. 1

Pre 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	31.32 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	75,099 cuft
Drainage area	=	5.060 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.30 min
Total precip.	=	5.33 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

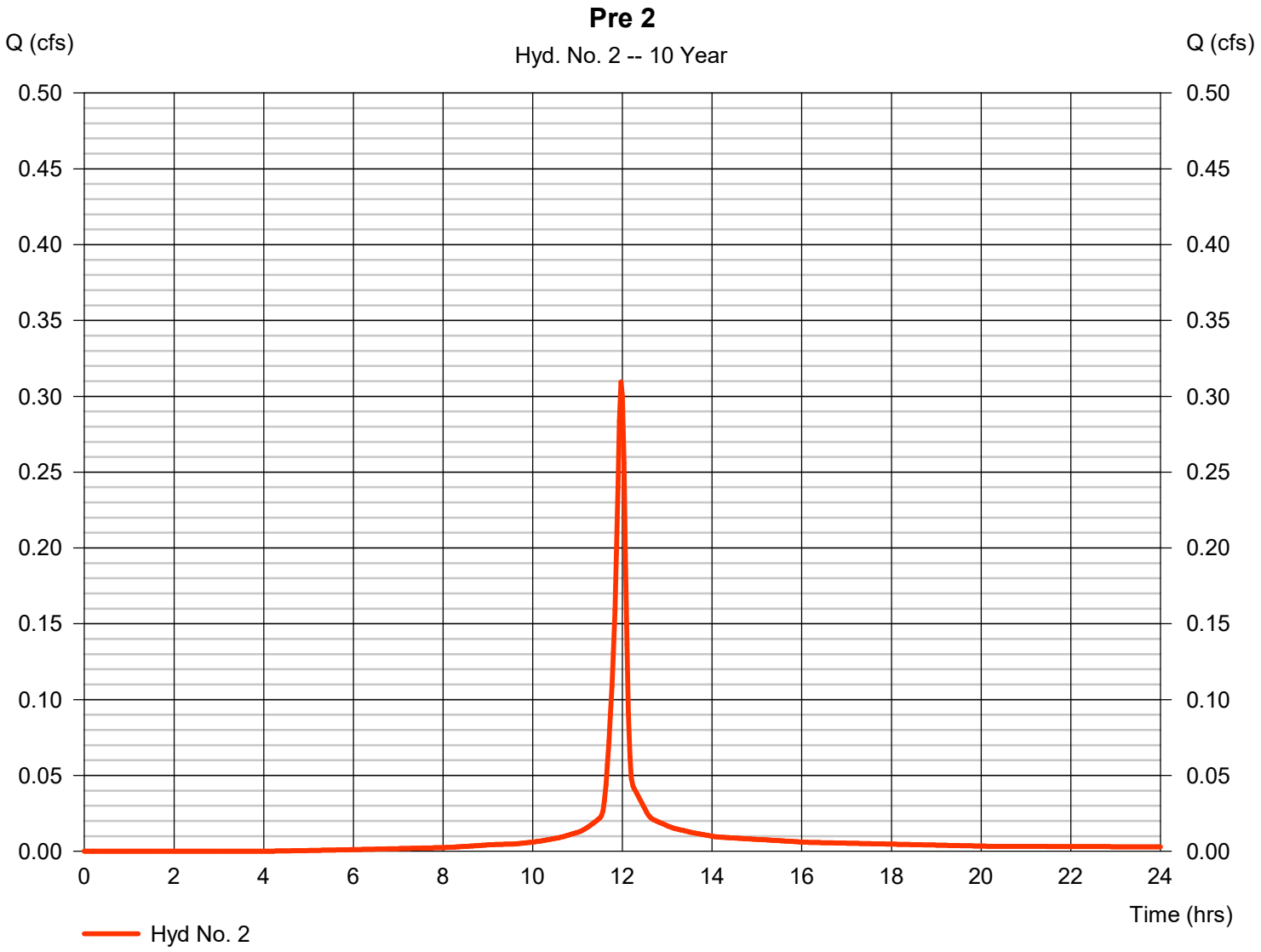


Hydrograph Report

Hyd. No. 2

Pre 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.310 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	742 cuft
Drainage area	=	0.050 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.50 min
Total precip.	=	5.33 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



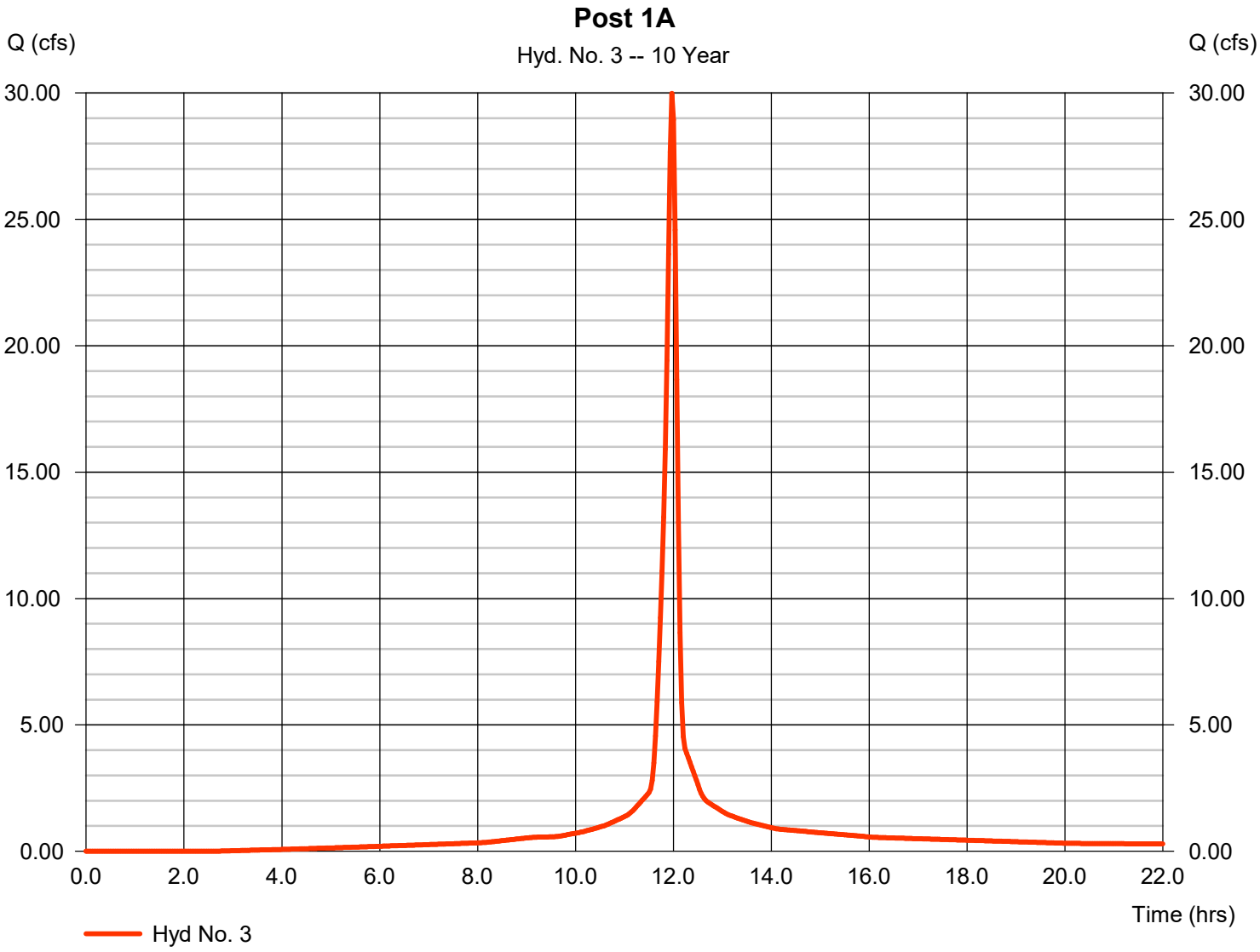
Hydrograph Report

Hyd. No. 3

Post 1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	29.98 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	74,528 cuft
Drainage area	=	4.540 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.60 min
Total precip.	=	5.33 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.300 x 98) + (0.970 x 74) + (0.270 x 61)] / 4.540



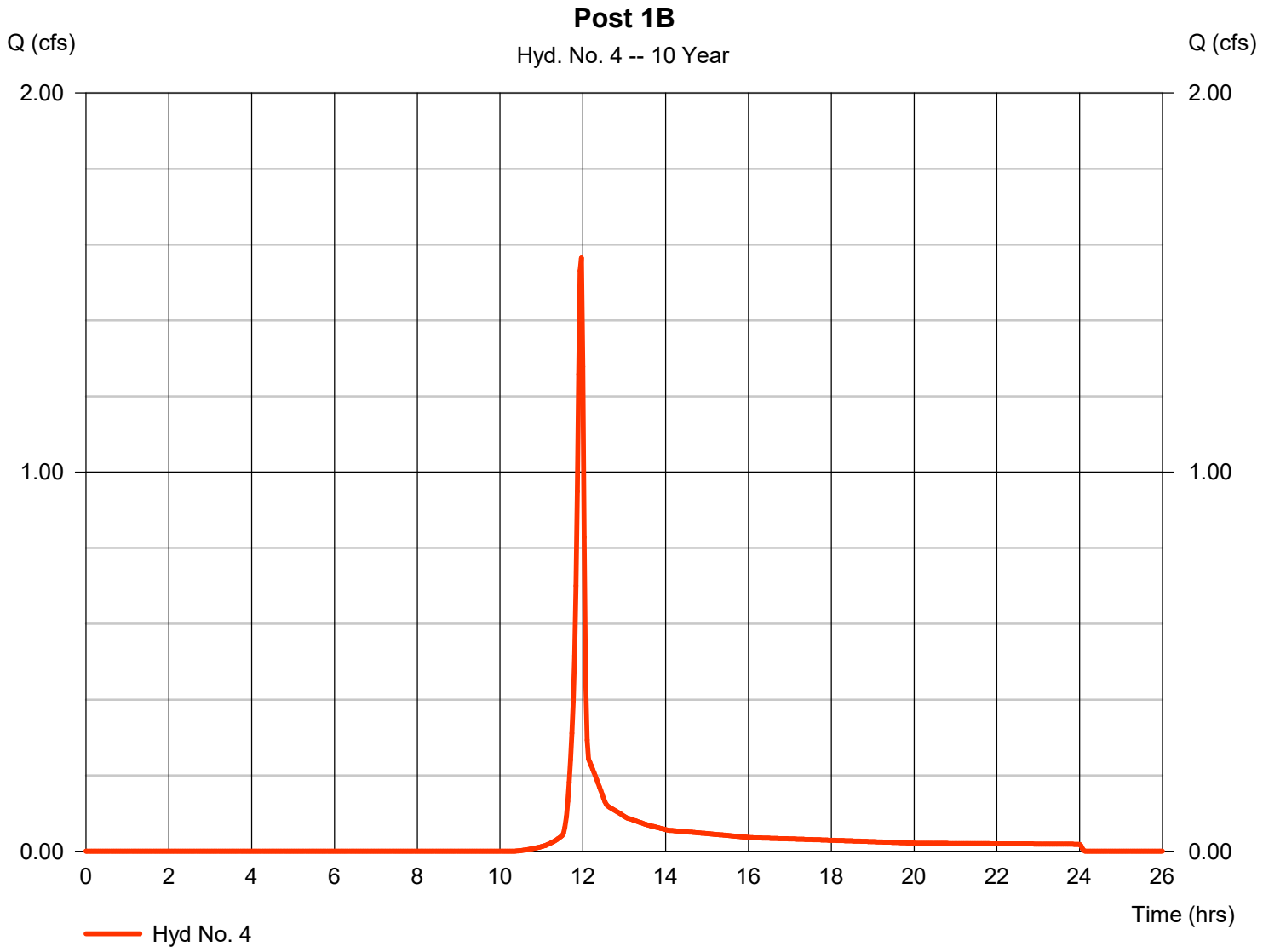
Hydrograph Report

Hyd. No. 4

Post 1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.565 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	3,129 cuft
Drainage area	=	0.470 ac	Curve number	=	66*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.33 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.140 x 74) + (0.300 x 61) + (0.030 x 80)] / 0.470



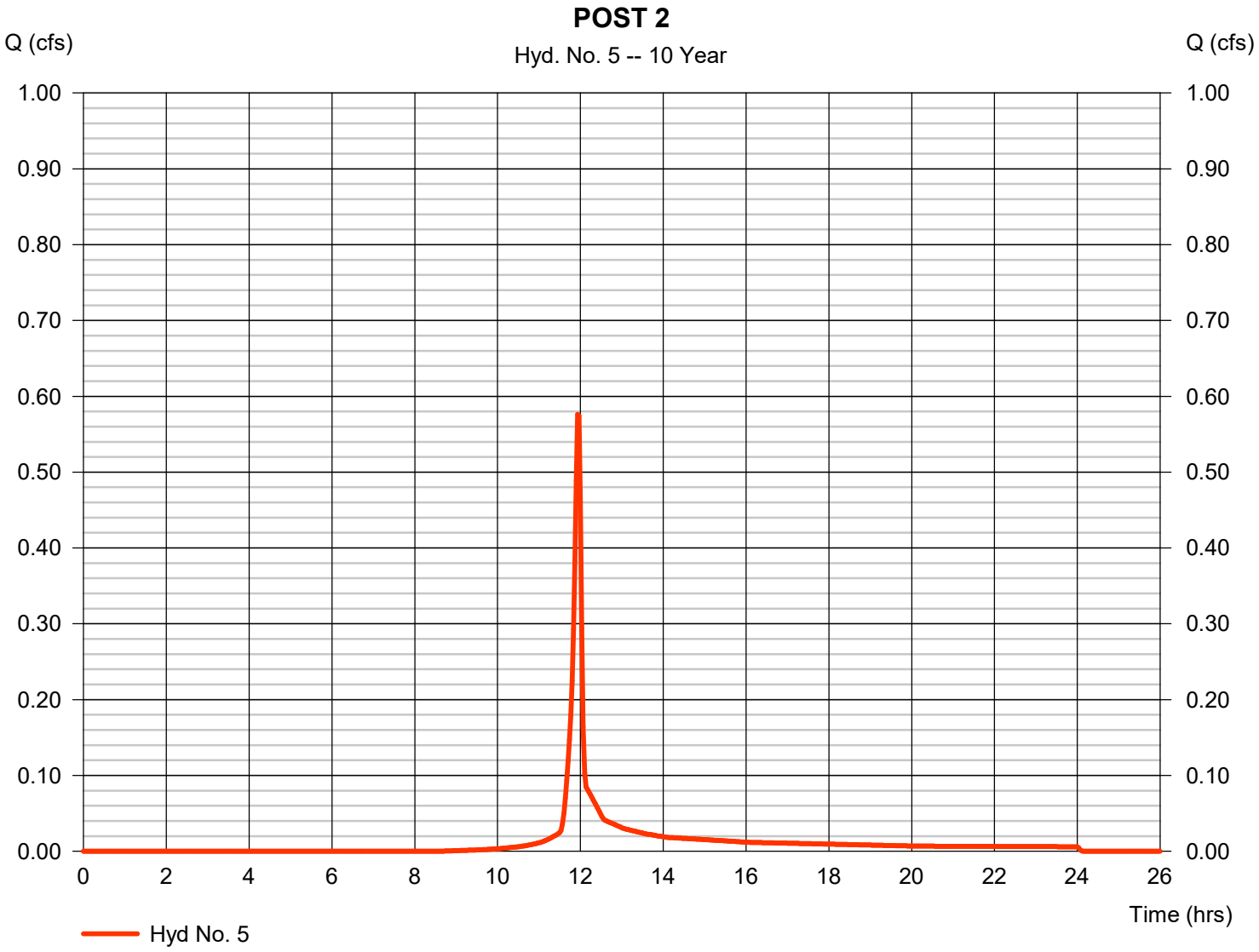
Hydrograph Report

Hyd. No. 5

POST 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.576 cfs
Storm frequency	=	10 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,164 cuft
Drainage area	=	0.130 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.33 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 74)] / 0.130



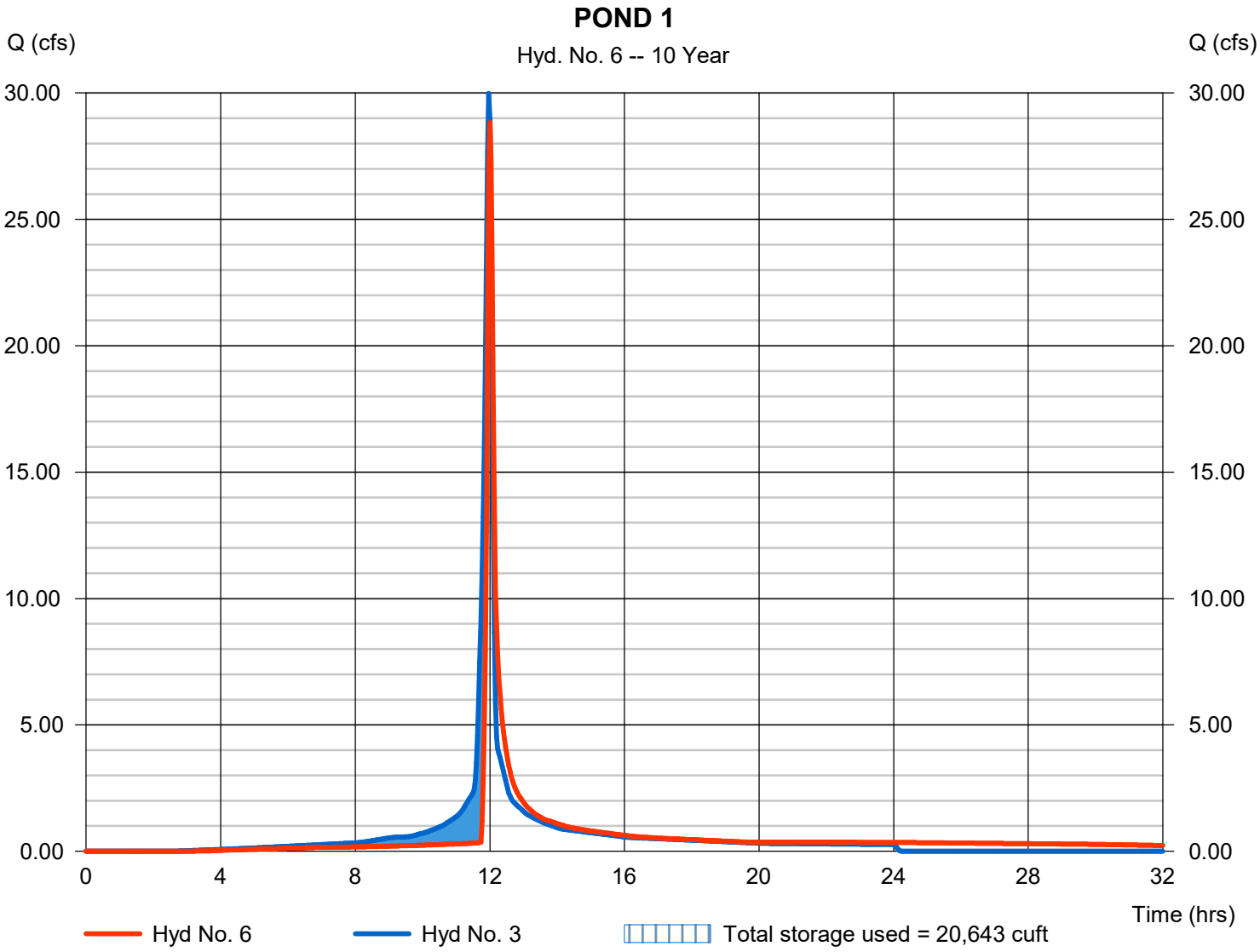
Hydrograph Report

Hyd. No. 6

POND 1

Hydrograph type	=	Reservoir	Peak discharge	=	28.83 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	74,523 cuft
Inflow hyd. No.	=	3 - Post 1A	Max. Elevation	=	655.38 ft
Reservoir name	=	Pond 1	Max. Storage	=	20,643 cuft

Storage Indication method used.

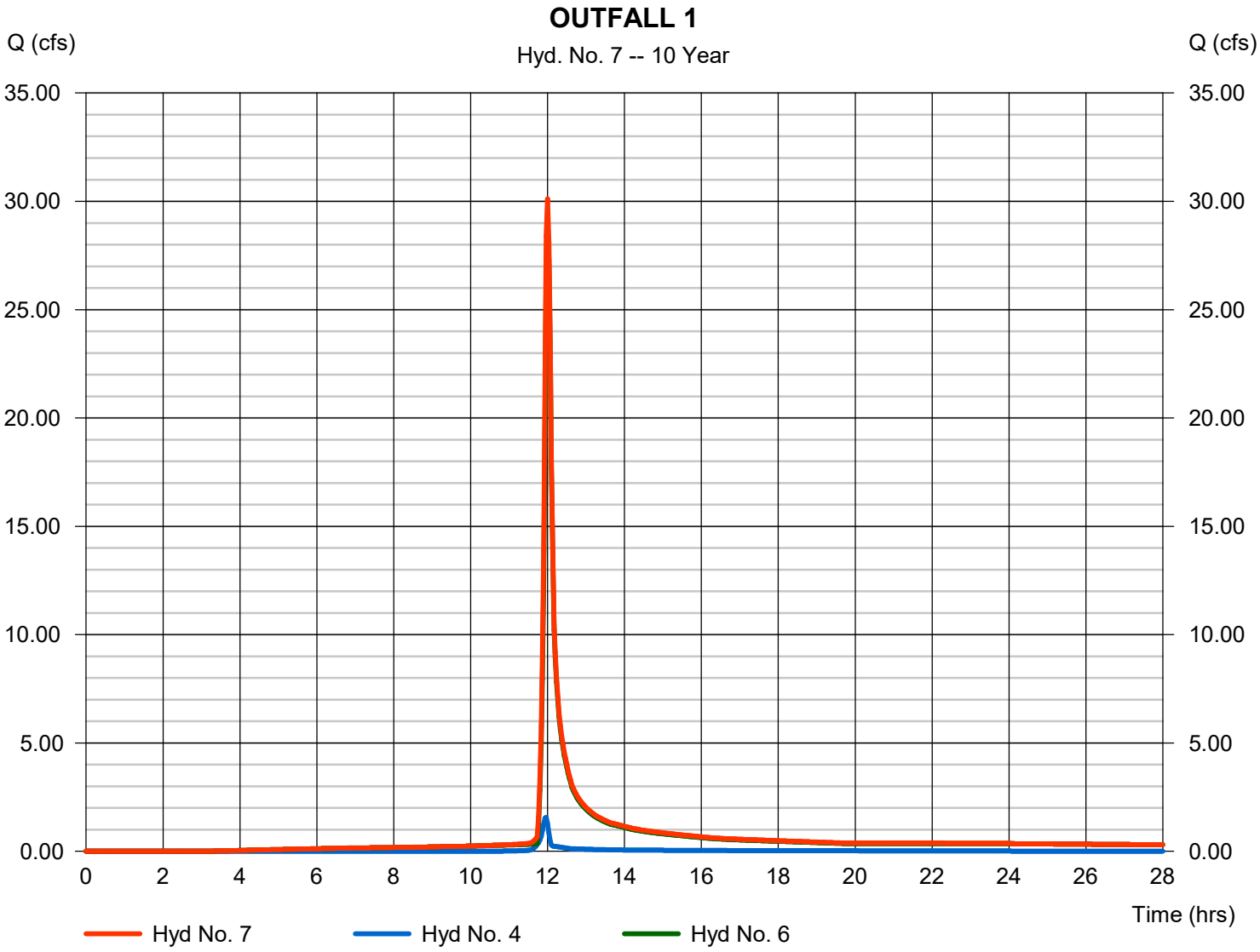


Hydrograph Report

Hyd. No. 7

OUTFALL 1

Hydrograph type	= Combine	Peak discharge	= 30.11 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 77,652 cuft
Inflow hyds.	= 4, 6	Contrib. drain. area	= 0.470 ac

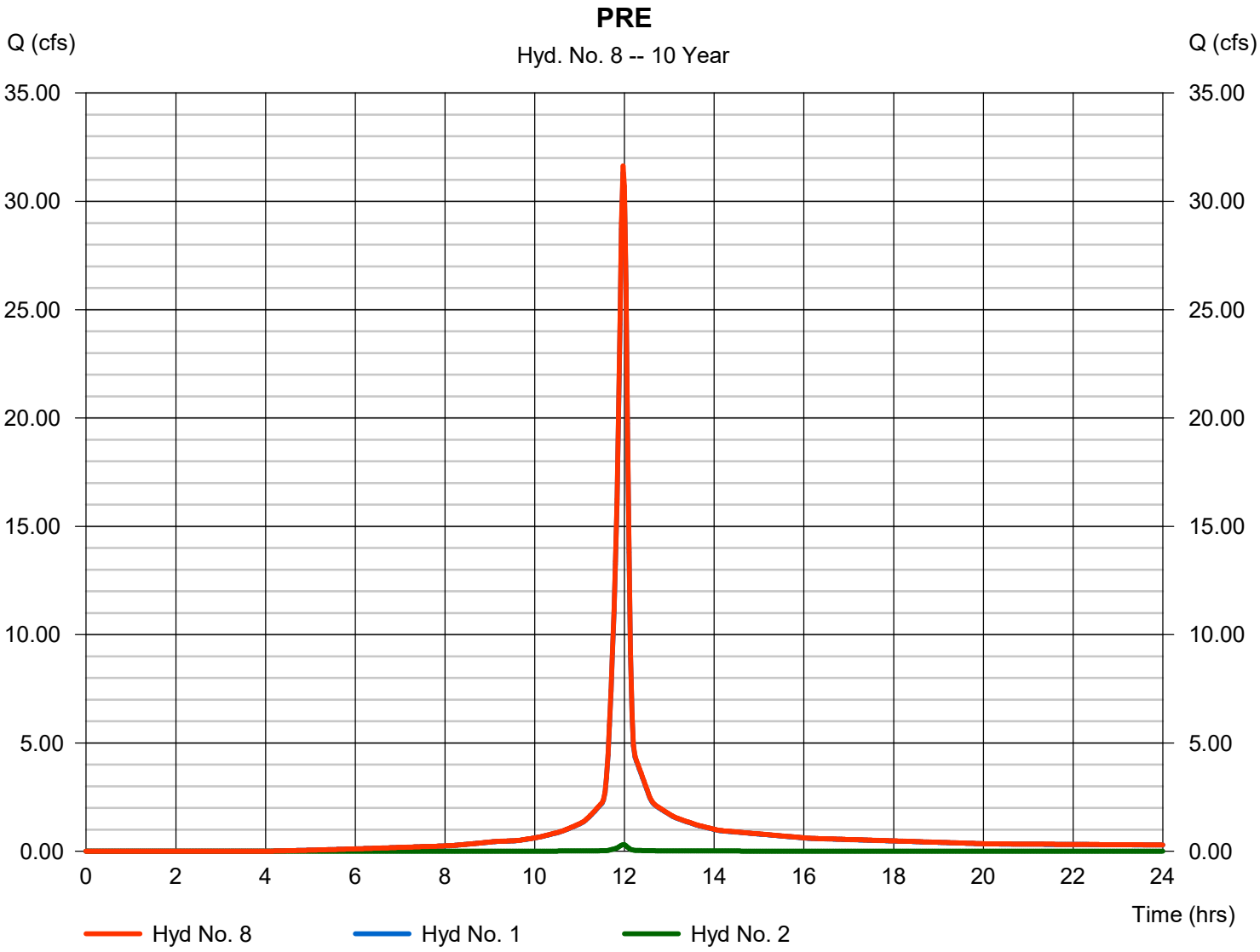


Hydrograph Report

Hyd. No. 8

PRE

Hydrograph type	= Combine	Peak discharge	= 31.63 cfs
Storm frequency	= 10 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 75,841 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 5.110 ac

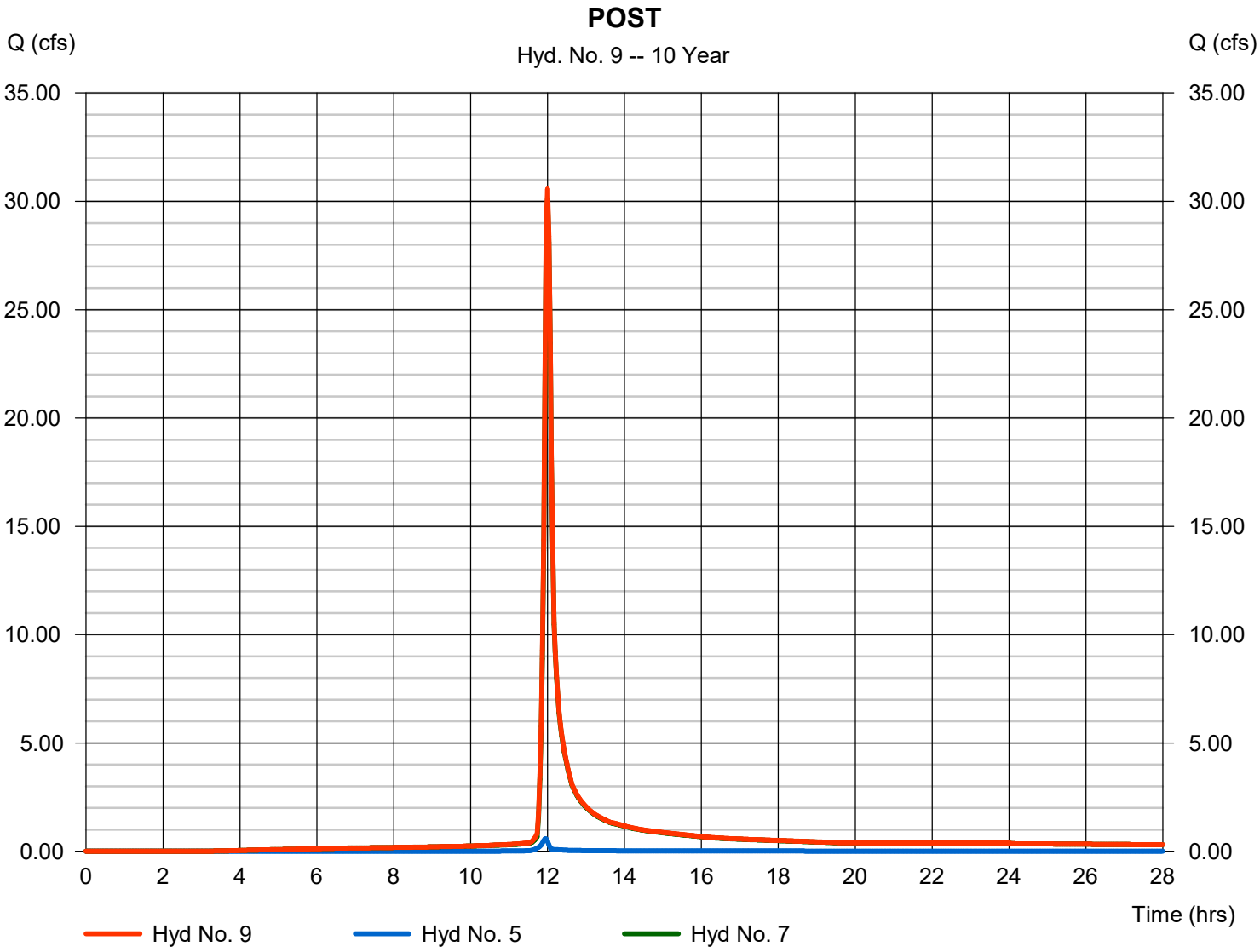


Hydrograph Report

Hyd. No. 9

POST

Hydrograph type	=	Combine	Peak discharge	=	30.57 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	78,816 cuft
Inflow hyds.	=	5, 7	Contrib. drain. area	=	0.130 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

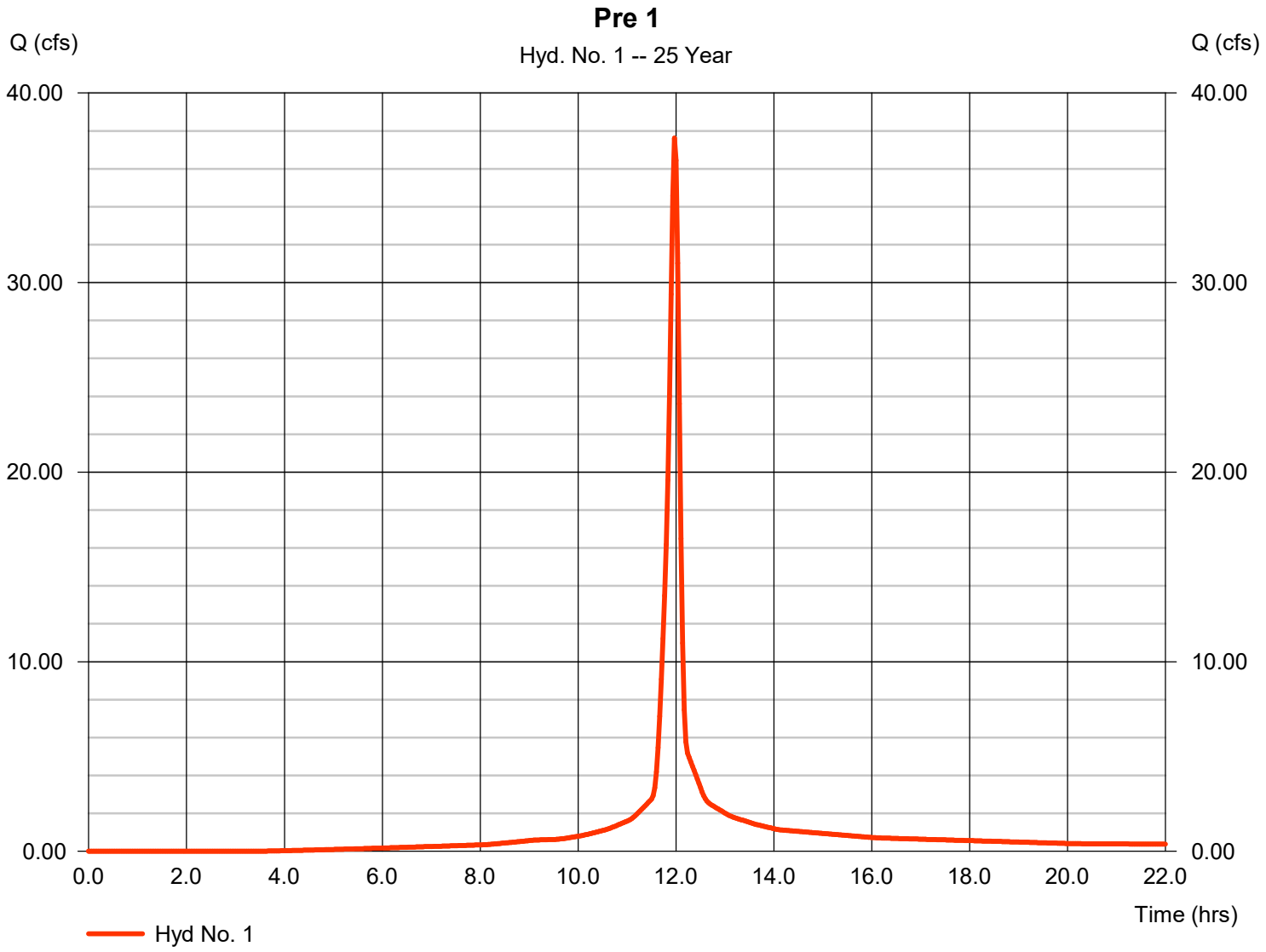
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	37.63	2	718	91,254	------	------	------	Pre 1
2	SCS Runoff	0.372	2	718	902	------	------	------	Pre 2
3	SCS Runoff	35.53	2	718	89,316	------	------	------	Post 1A
4	SCS Runoff	2.090	2	718	4,190	------	------	------	Post 1B
5	SCS Runoff	0.740	2	716	1,499	------	------	------	POST 2
6	Reservoir	34.65	2	720	89,311	3	655.46	21,135	POND 1
7	Combine	36.35	2	720	93,501	4, 6	------	------	OUTFALL 1
8	Combine	38.00	2	718	92,156	1, 2,	------	------	PRE
9	Combine	36.93	2	720	94,999	5, 7,	------	------	POST

Hydrograph Report

Hyd. No. 1

Pre 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	37.63 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	91,254 cuft
Drainage area	=	5.060 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.30 min
Total precip.	=	6.24 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

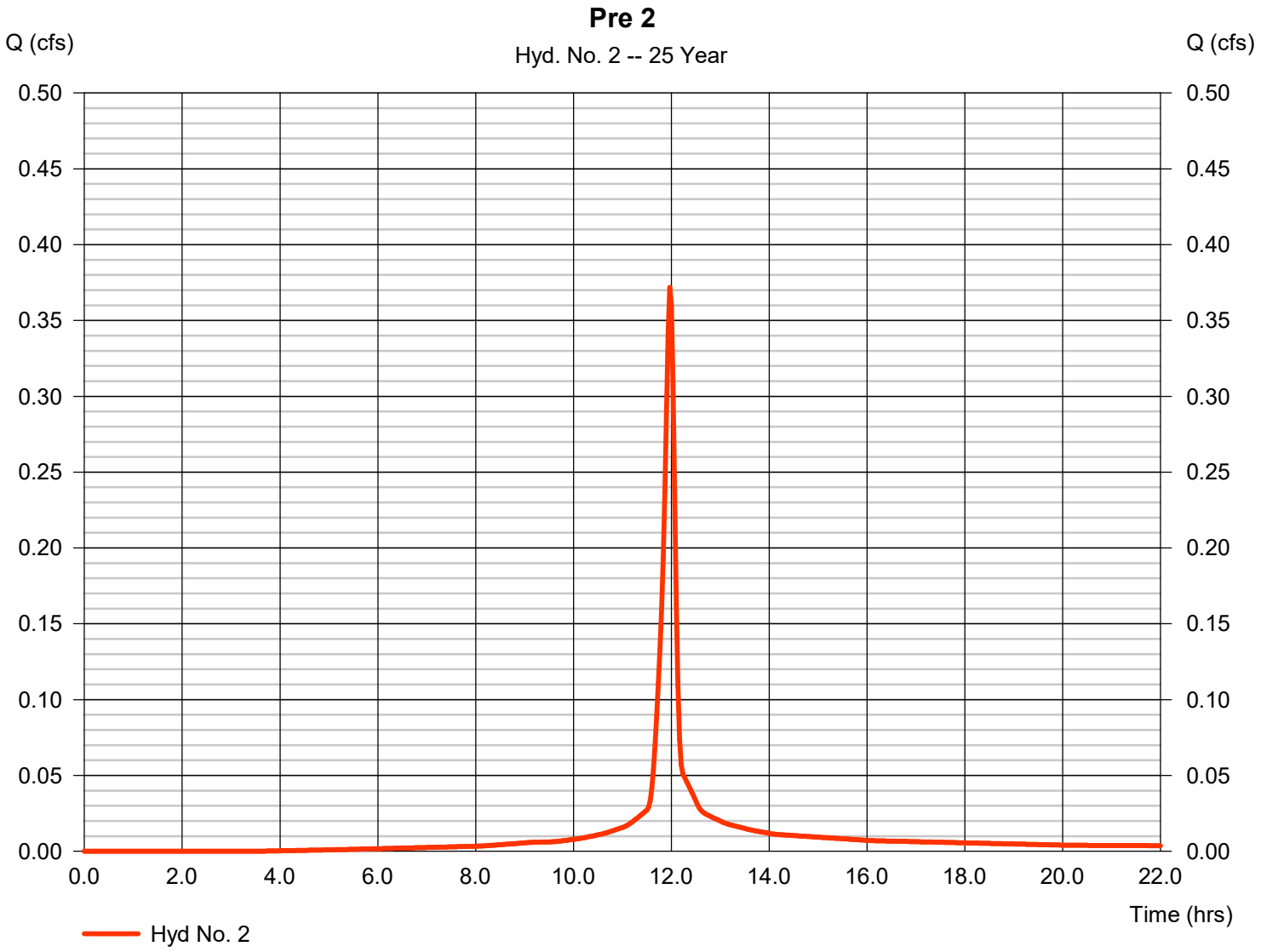


Hydrograph Report

Hyd. No. 2

Pre 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.372 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	902 cuft
Drainage area	=	0.050 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.50 min
Total precip.	=	6.24 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



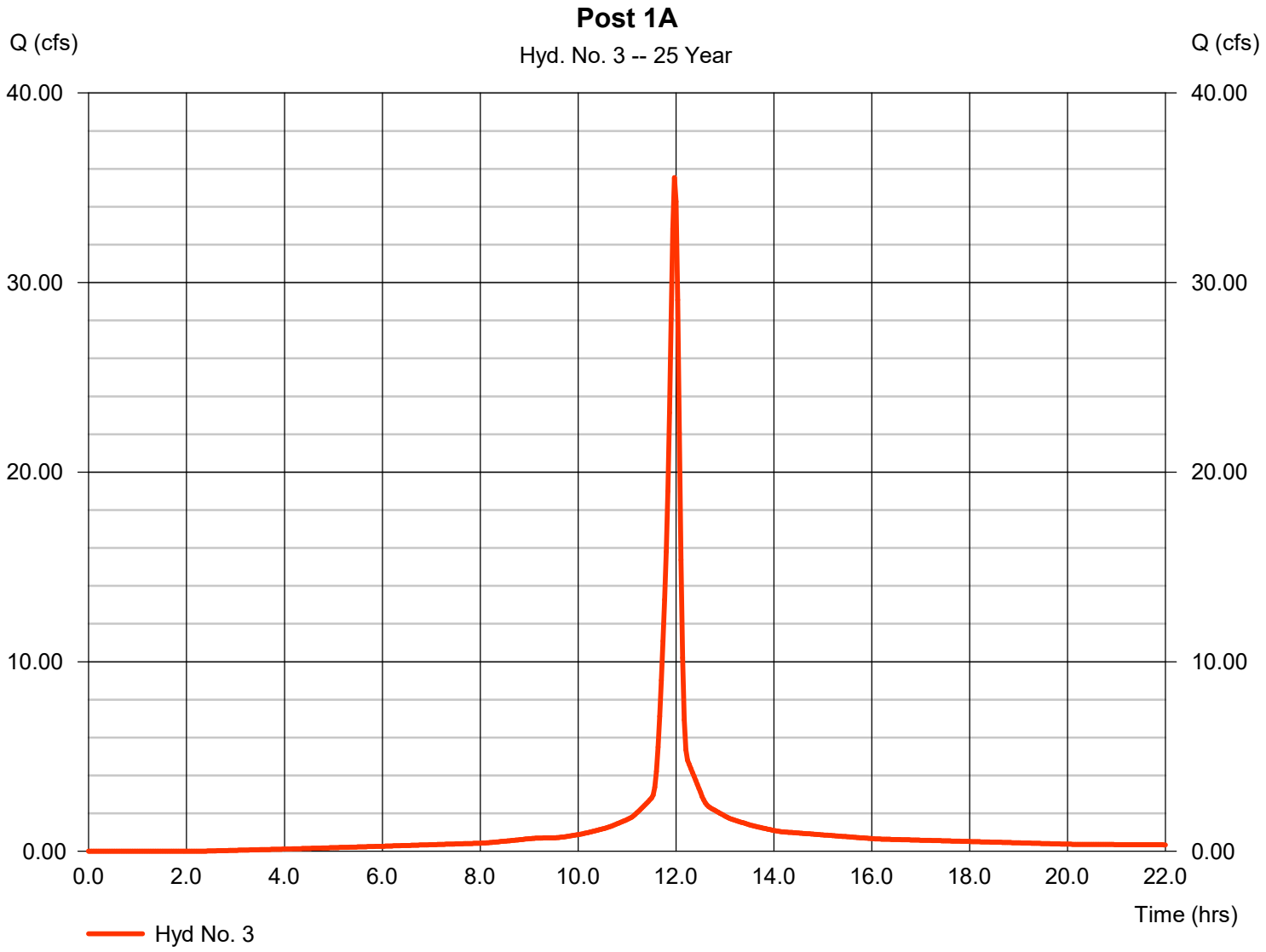
Hydrograph Report

Hyd. No. 3

Post 1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	35.53 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	89,316 cuft
Drainage area	=	4.540 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.60 min
Total precip.	=	6.24 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.300 x 98) + (0.970 x 74) + (0.270 x 61)] / 4.540



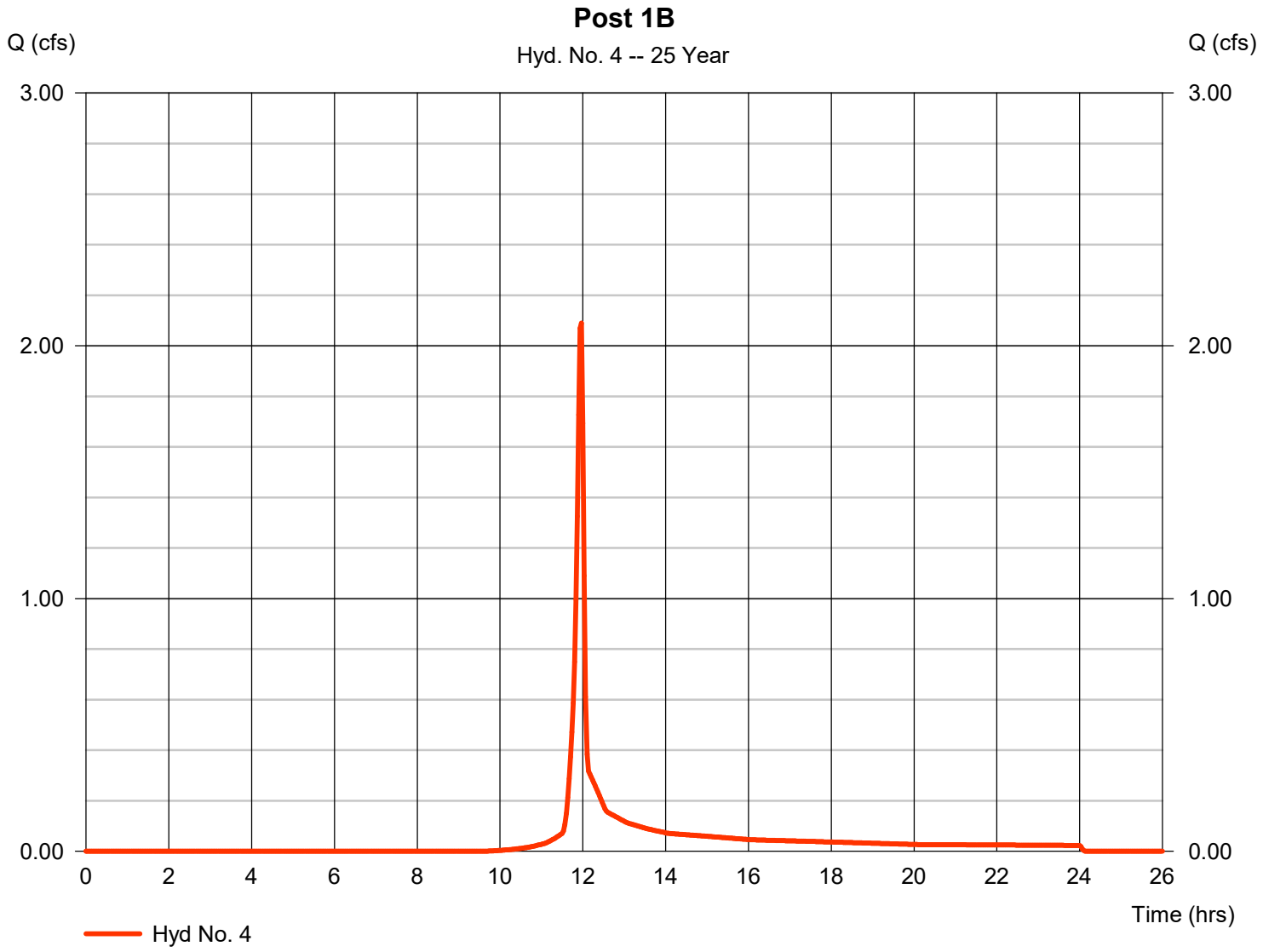
Hydrograph Report

Hyd. No. 4

Post 1B

Hydrograph type	= SCS Runoff	Peak discharge	= 2.090 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 4,190 cuft
Drainage area	= 0.470 ac	Curve number	= 66*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 5.00 min
Total precip.	= 6.24 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.140 x 74) + (0.300 x 61) + (0.030 x 80)] / 0.470



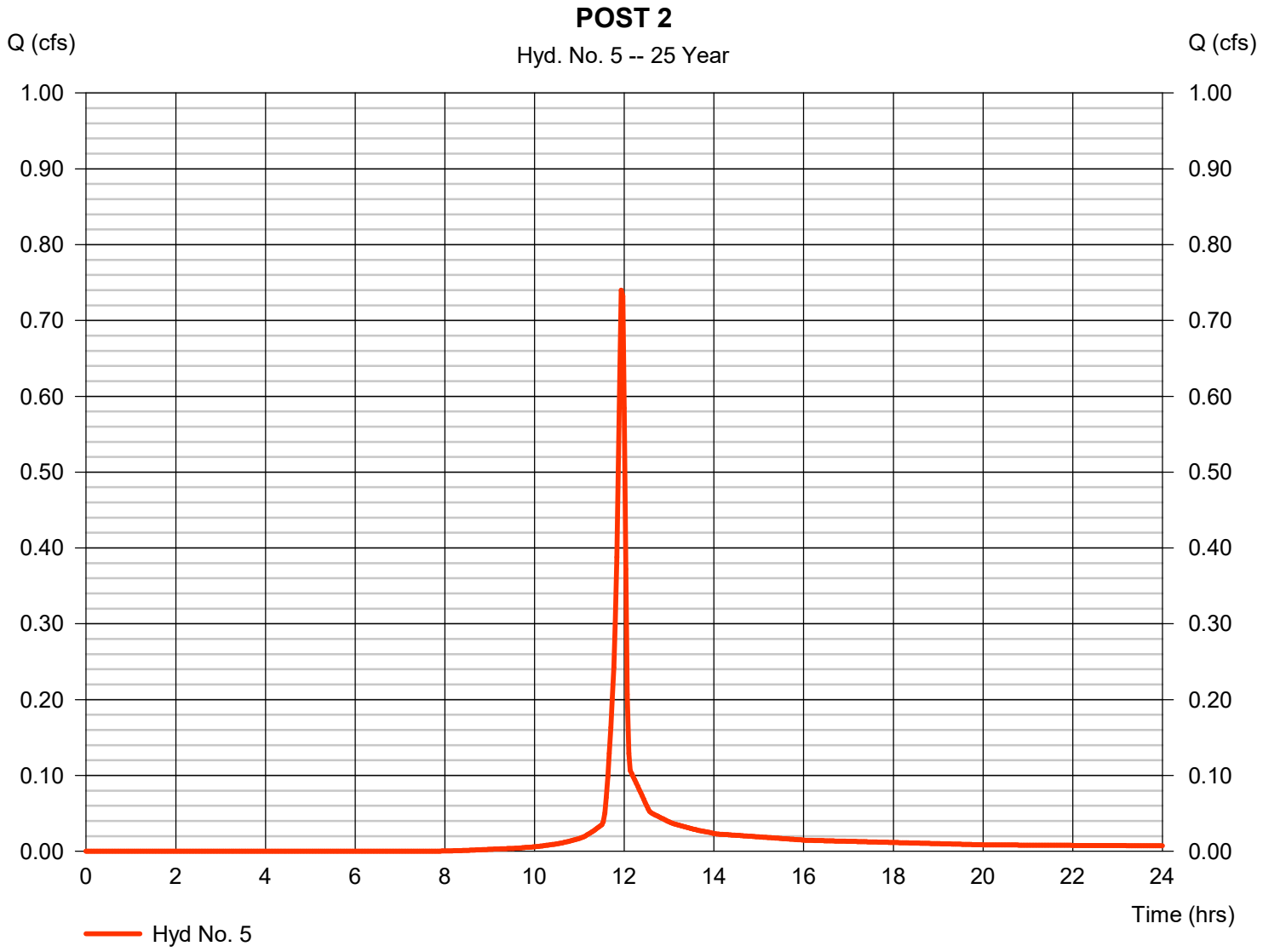
Hydrograph Report

Hyd. No. 5

POST 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.740 cfs
Storm frequency	=	25 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,499 cuft
Drainage area	=	0.130 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.24 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 74)] / 0.130



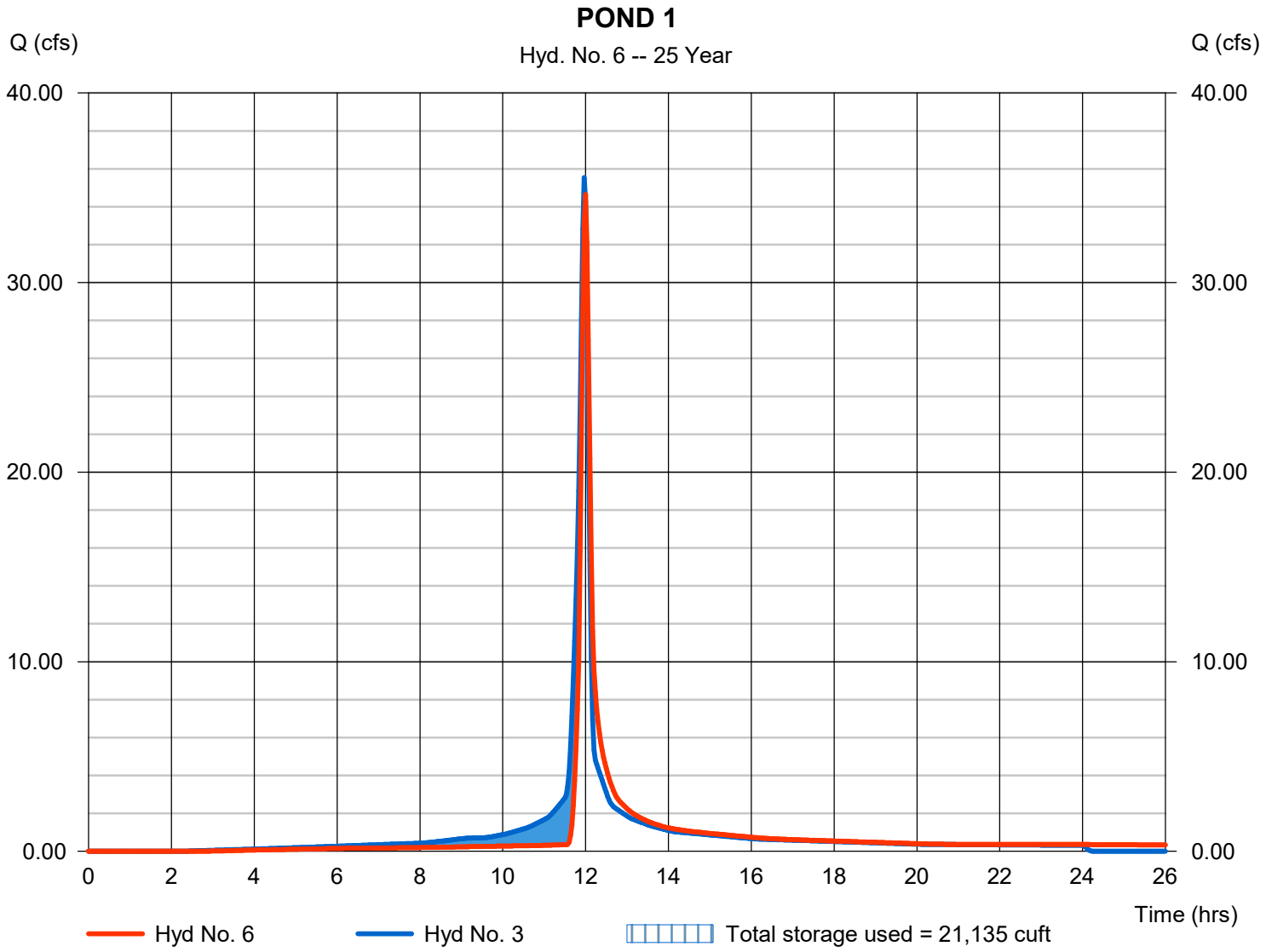
Hydrograph Report

Hyd. No. 6

POND 1

Hydrograph type	=	Reservoir	Peak discharge	=	34.65 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	89,311 cuft
Inflow hyd. No.	=	3 - Post 1A	Max. Elevation	=	655.46 ft
Reservoir name	=	Pond 1	Max. Storage	=	21,135 cuft

Storage Indication method used.

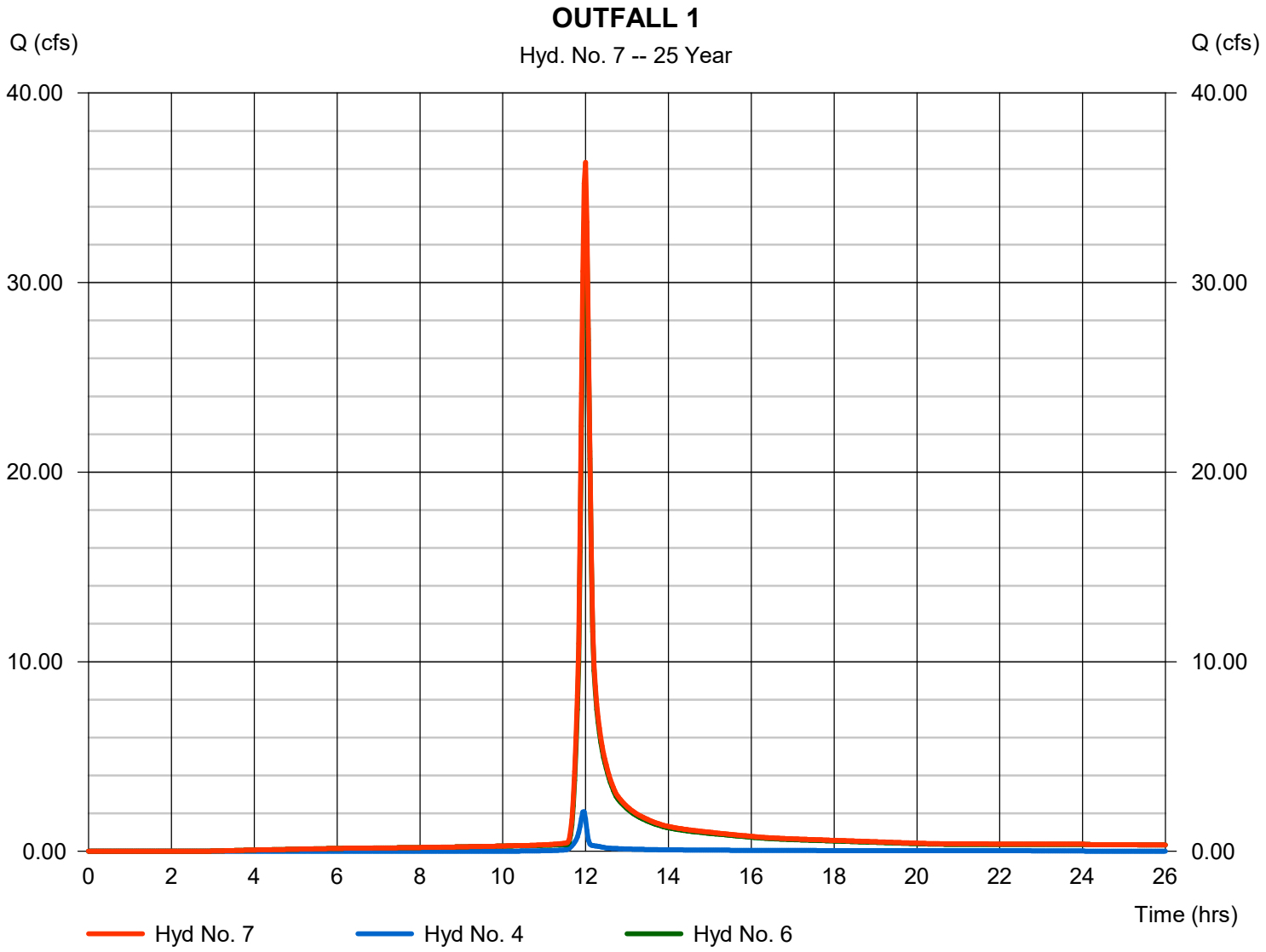


Hydrograph Report

Hyd. No. 7

OUTFALL 1

Hydrograph type	= Combine	Peak discharge	= 36.35 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 93,501 cuft
Inflow hyds.	= 4, 6	Contrib. drain. area	= 0.470 ac

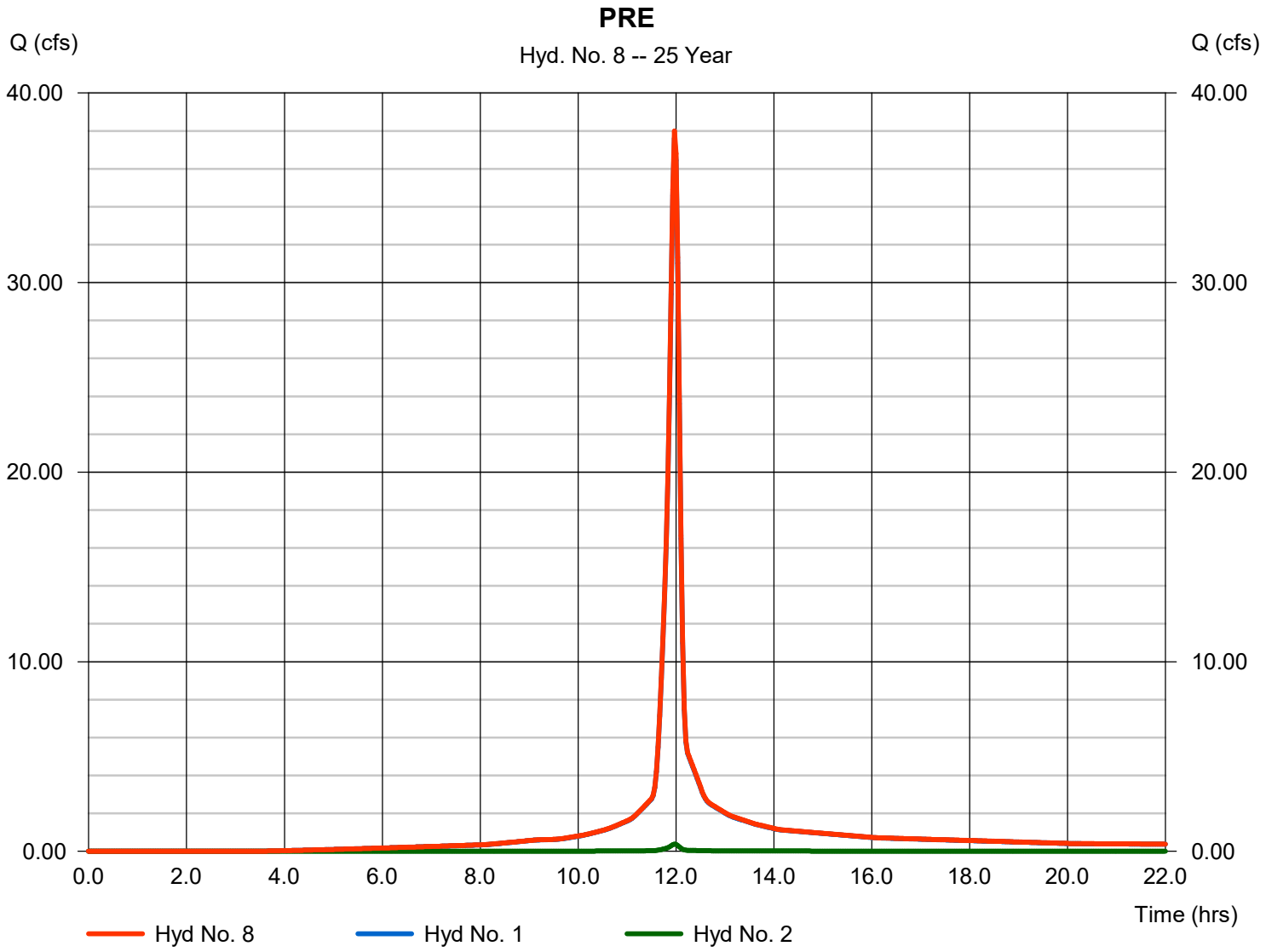


Hydrograph Report

Hyd. No. 8

PRE

Hydrograph type	= Combine	Peak discharge	= 38.00 cfs
Storm frequency	= 25 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 92,156 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 5.110 ac

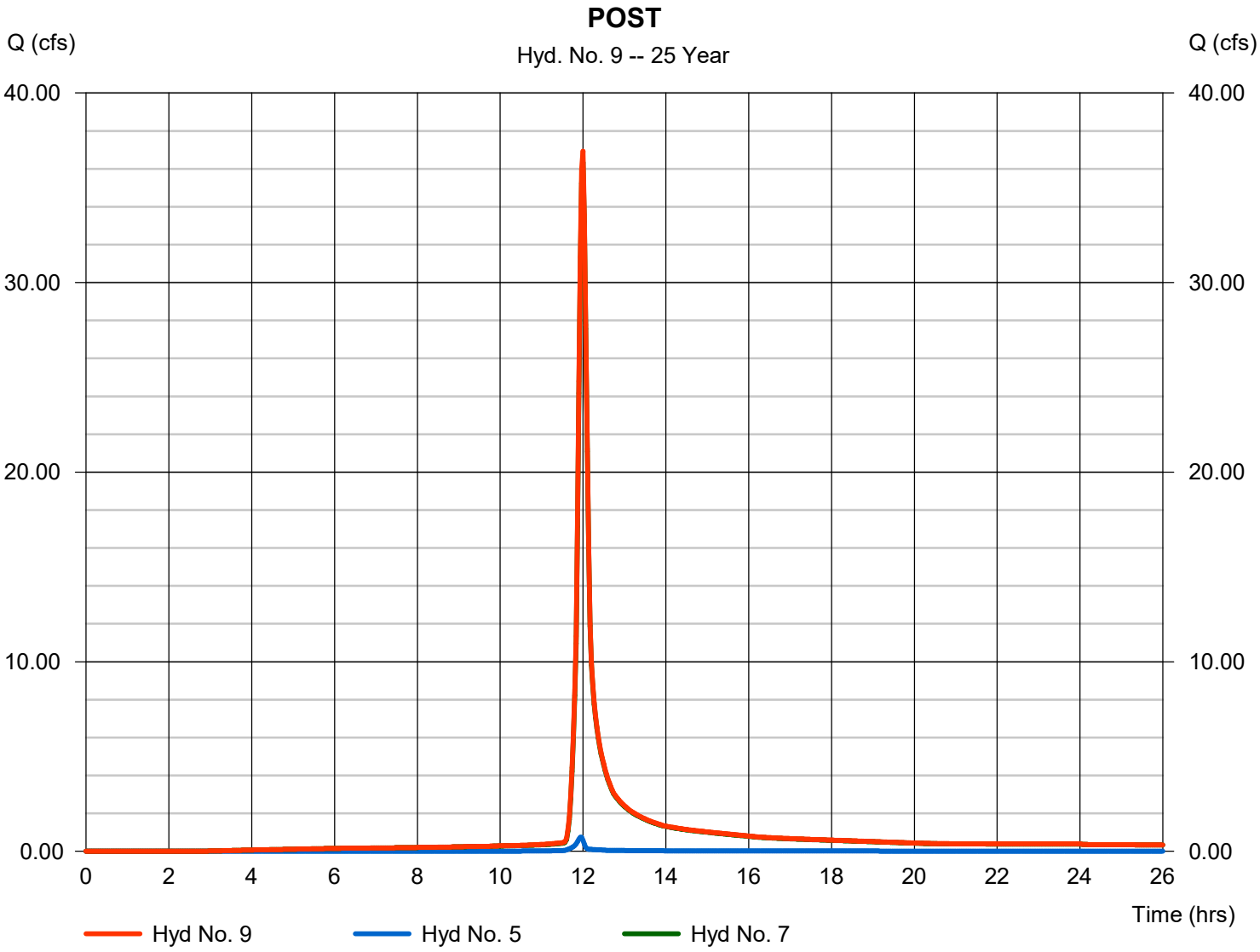


Hydrograph Report

Hyd. No. 9

POST

Hydrograph type	= Combine	Peak discharge	= 36.93 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 94,999 cuft
Inflow hyds.	= 5, 7	Contrib. drain. area	= 0.130 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

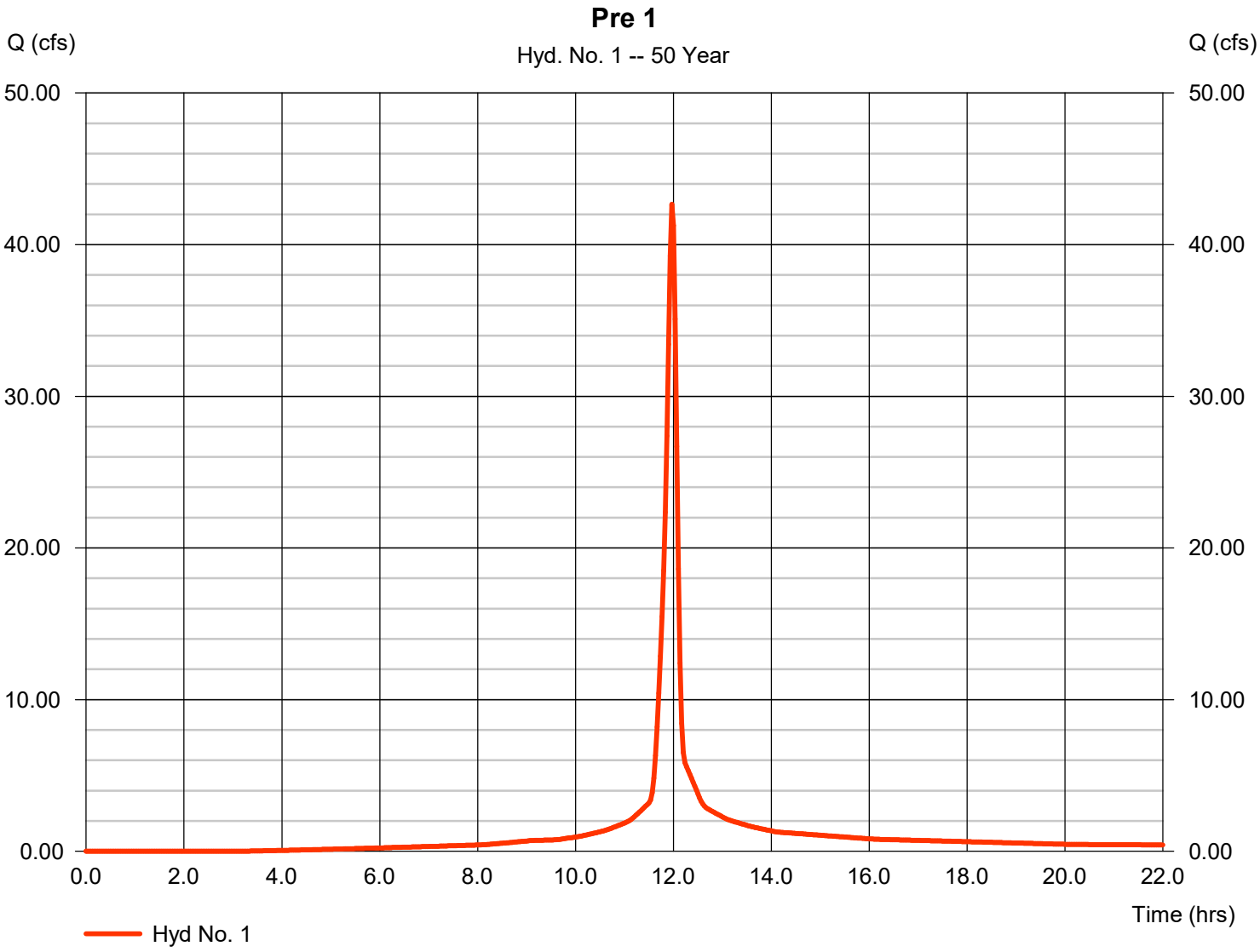
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	42.66	2	718	104,307	------	------	------	Pre 1
2	SCS Runoff	0.422	2	718	1,031	------	------	------	Pre 2
3	SCS Runoff	39.97	2	718	101,215	------	------	------	Post 1A
4	SCS Runoff	2.527	2	718	5,088	------	------	------	Post 1B
5	SCS Runoff	0.874	2	716	1,777	------	------	------	POST 2
6	Reservoir	39.02	2	720	101,210	3	655.52	21,484	POND 1
7	Combine	41.06	2	720	106,298	4, 6	------	------	OUTFALL 1
8	Combine	43.08	2	718	105,338	1, 2,	------	------	PRE
9	Combine	41.74	2	720	108,074	5, 7,	------	------	POST

Hydrograph Report

Hyd. No. 1

Pre 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	42.66 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	104,307 cuft
Drainage area	=	5.060 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.30 min
Total precip.	=	6.97 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

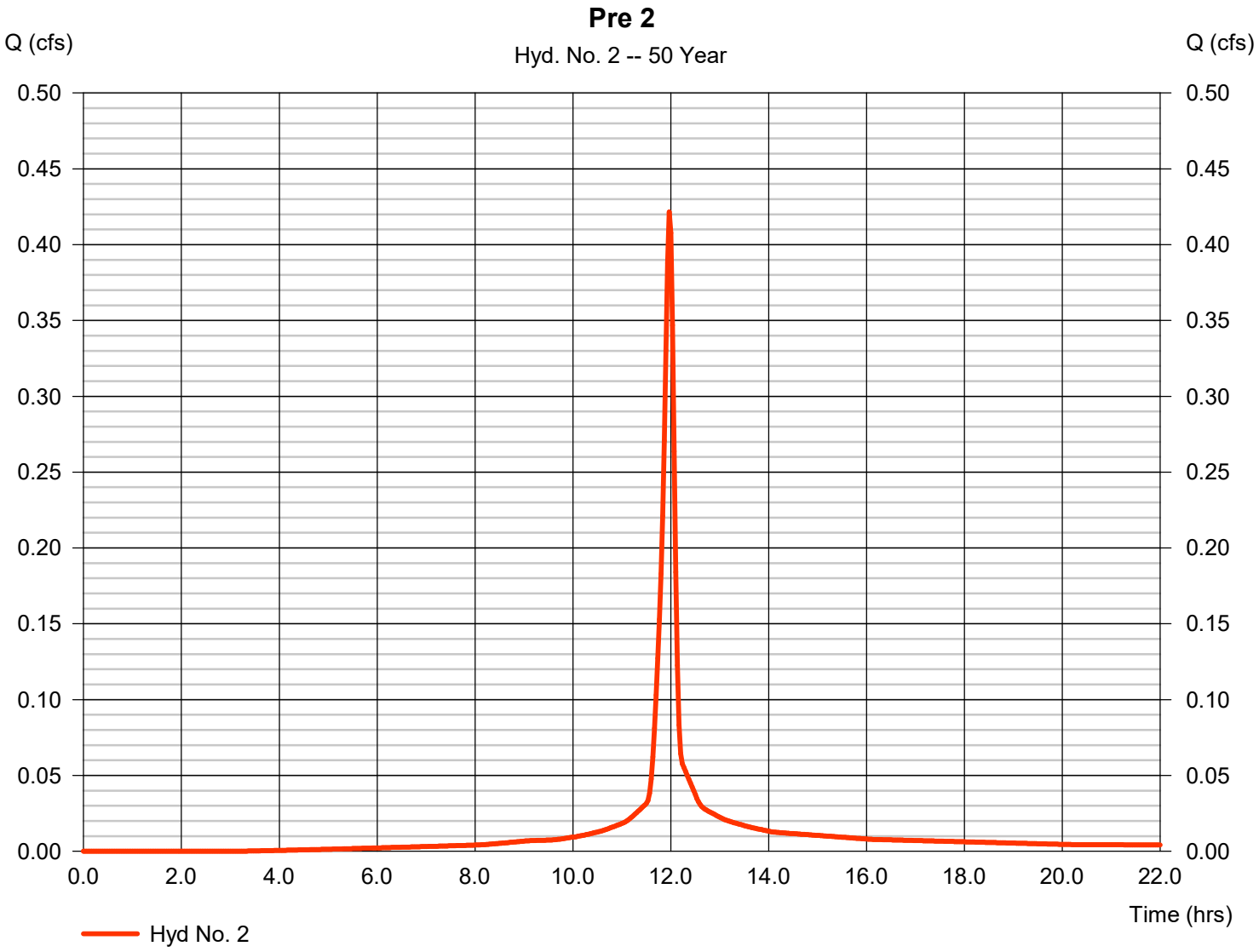


Hydrograph Report

Hyd. No. 2

Pre 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.422 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	1,031 cuft
Drainage area	=	0.050 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.50 min
Total precip.	=	6.97 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



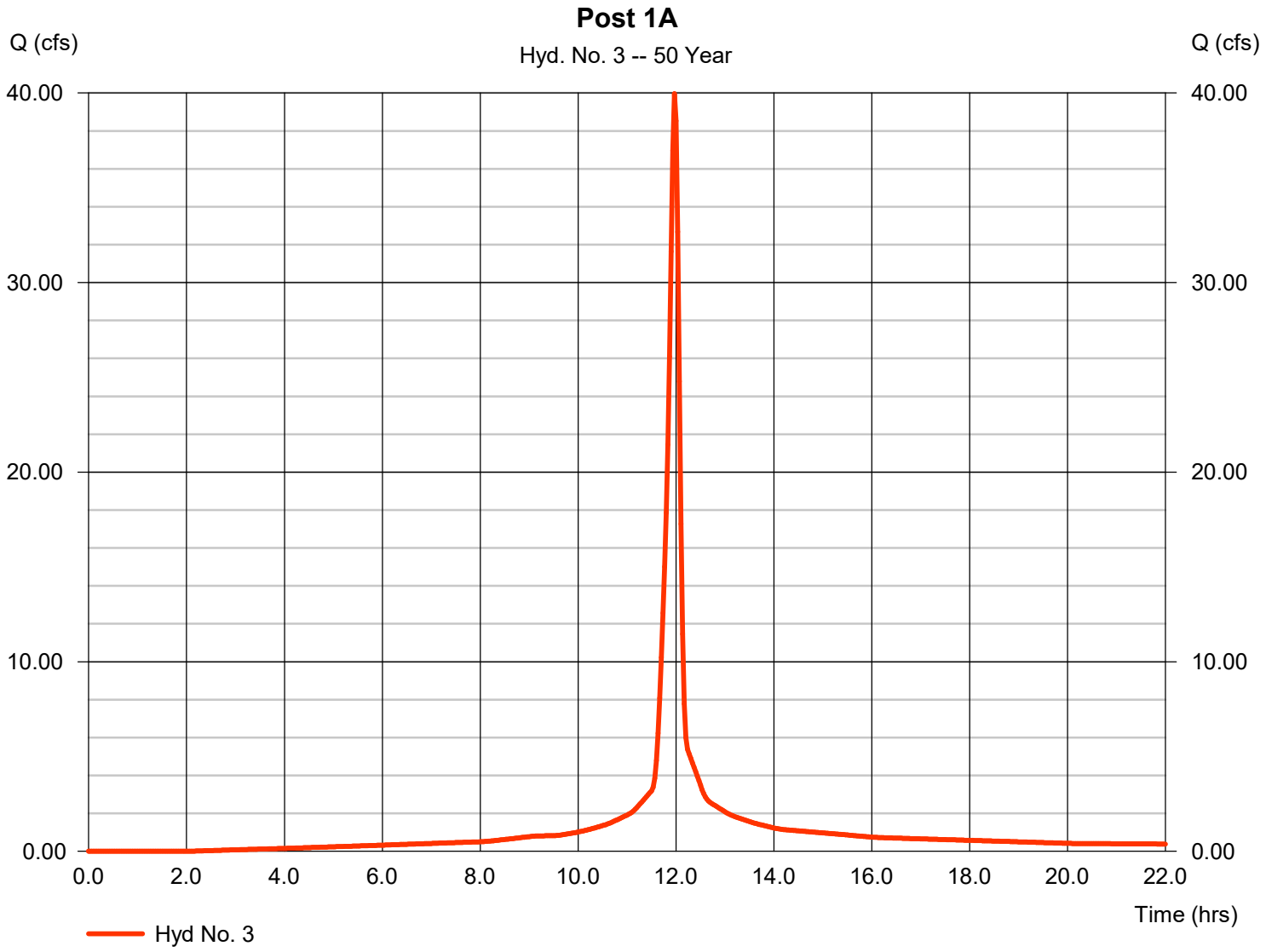
Hydrograph Report

Hyd. No. 3

Post 1A

Hydrograph type	=	SCS Runoff	Peak discharge	=	39.97 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	101,215 cuft
Drainage area	=	4.540 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	6.60 min
Total precip.	=	6.97 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.300 x 98) + (0.970 x 74) + (0.270 x 61)] / 4.540



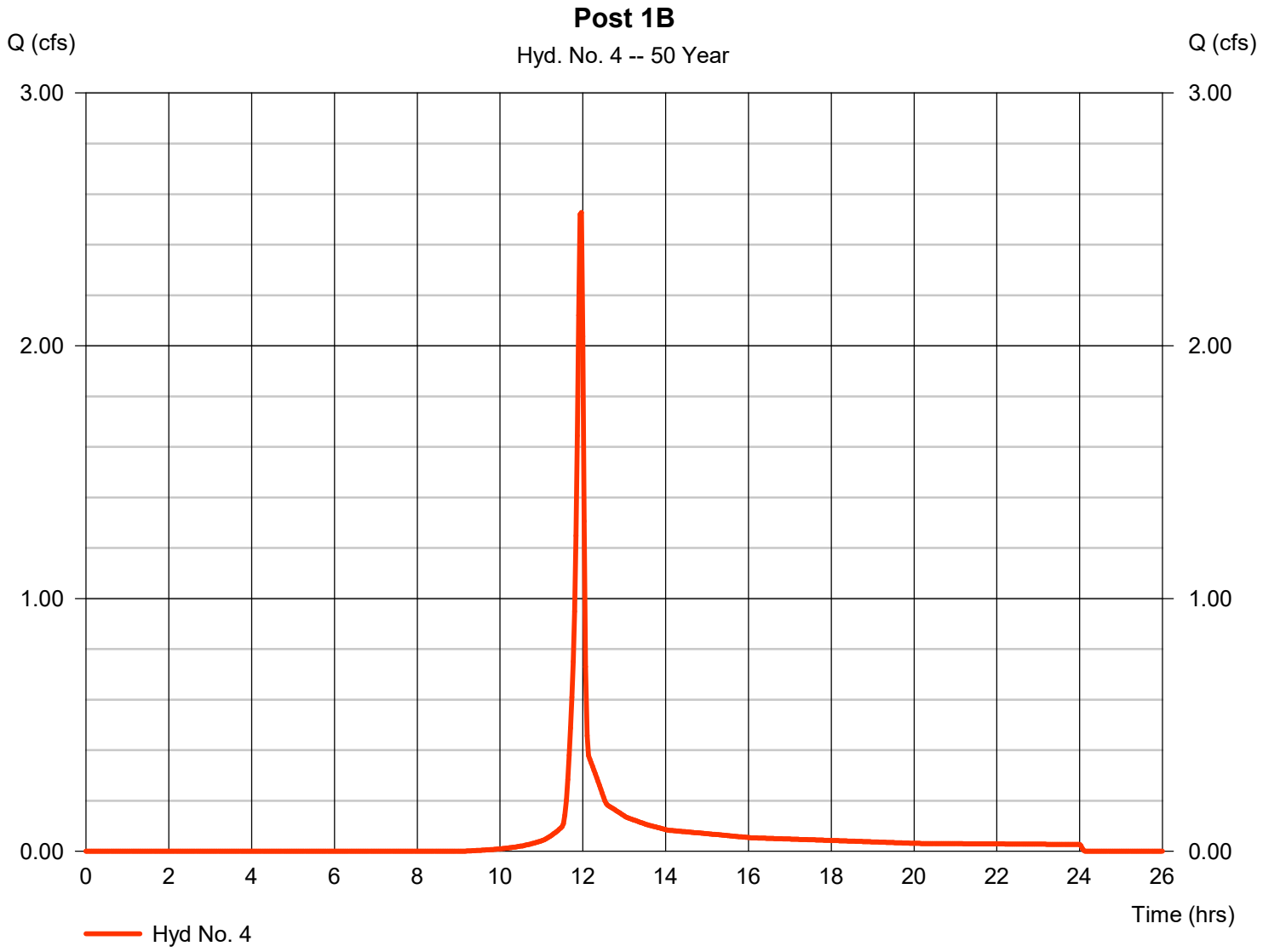
Hydrograph Report

Hyd. No. 4

Post 1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.527 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	5,088 cuft
Drainage area	=	0.470 ac	Curve number	=	66*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.97 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.140 x 74) + (0.300 x 61) + (0.030 x 80)] / 0.470



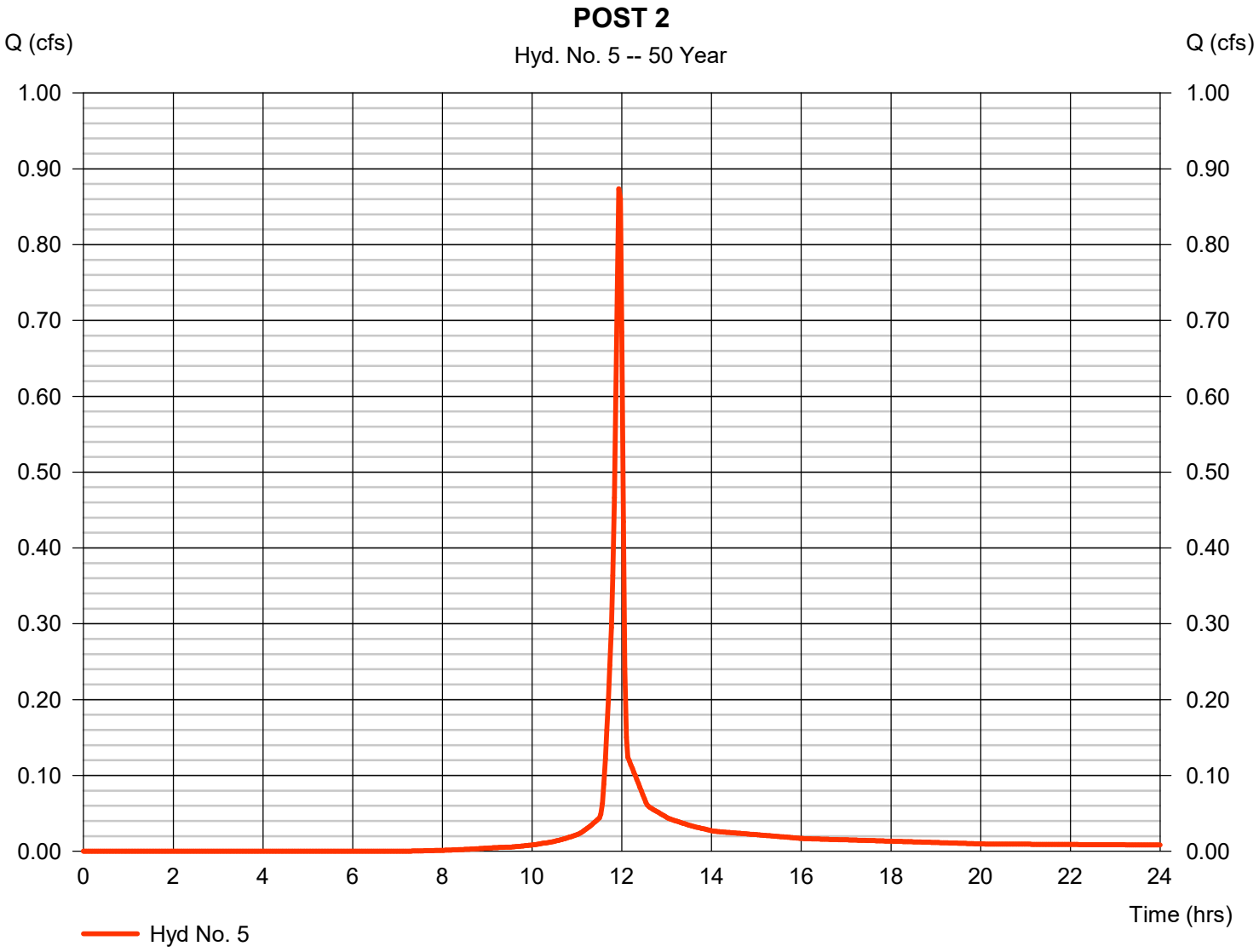
Hydrograph Report

Hyd. No. 5

POST 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.874 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	1,777 cuft
Drainage area	=	0.130 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.97 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 74)] / 0.130



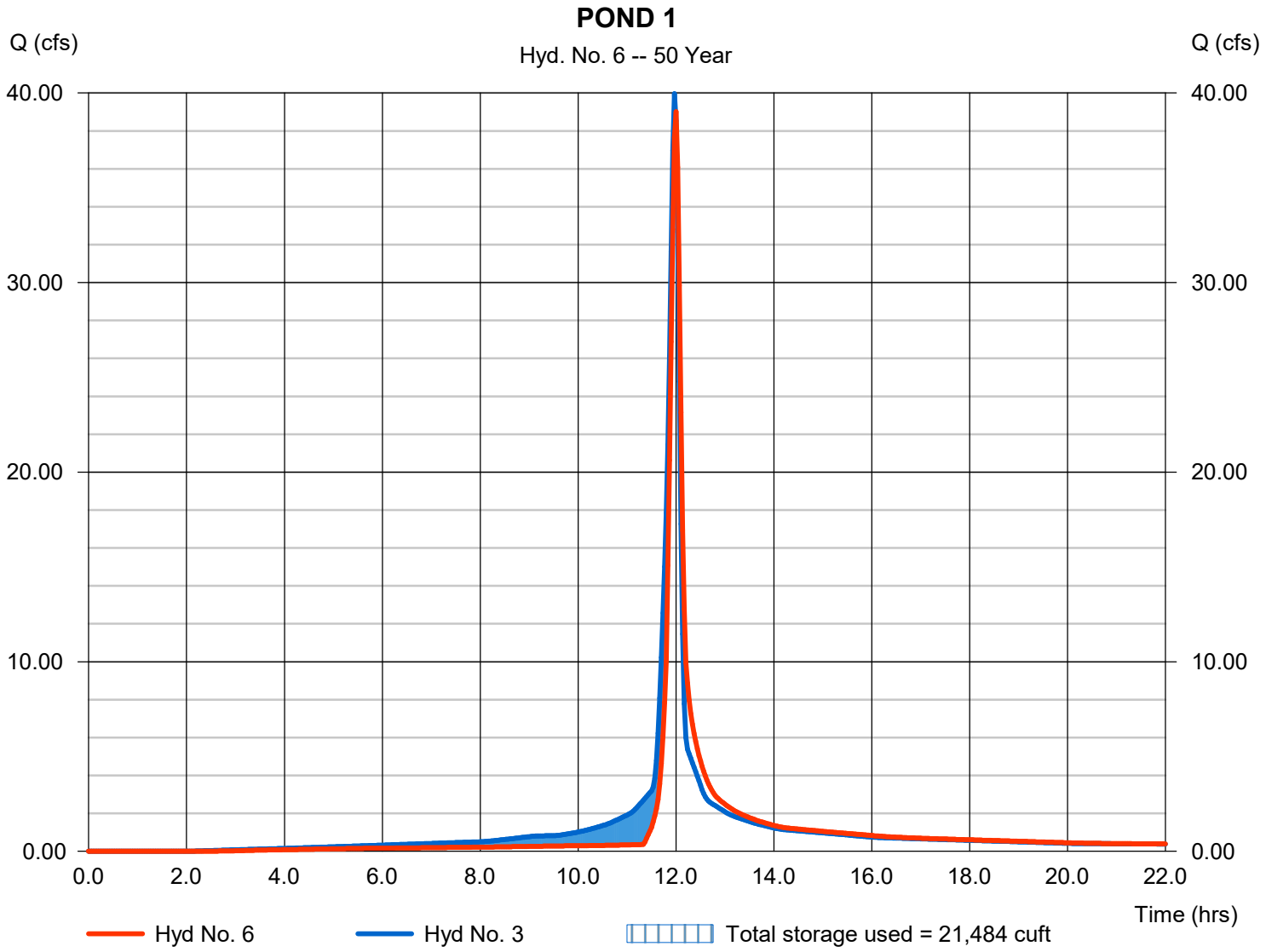
Hydrograph Report

Hyd. No. 6

POND 1

Hydrograph type	=	Reservoir	Peak discharge	=	39.02 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	101,210 cuft
Inflow hyd. No.	=	3 - Post 1A	Max. Elevation	=	655.52 ft
Reservoir name	=	Pond 1	Max. Storage	=	21,484 cuft

Storage Indication method used.

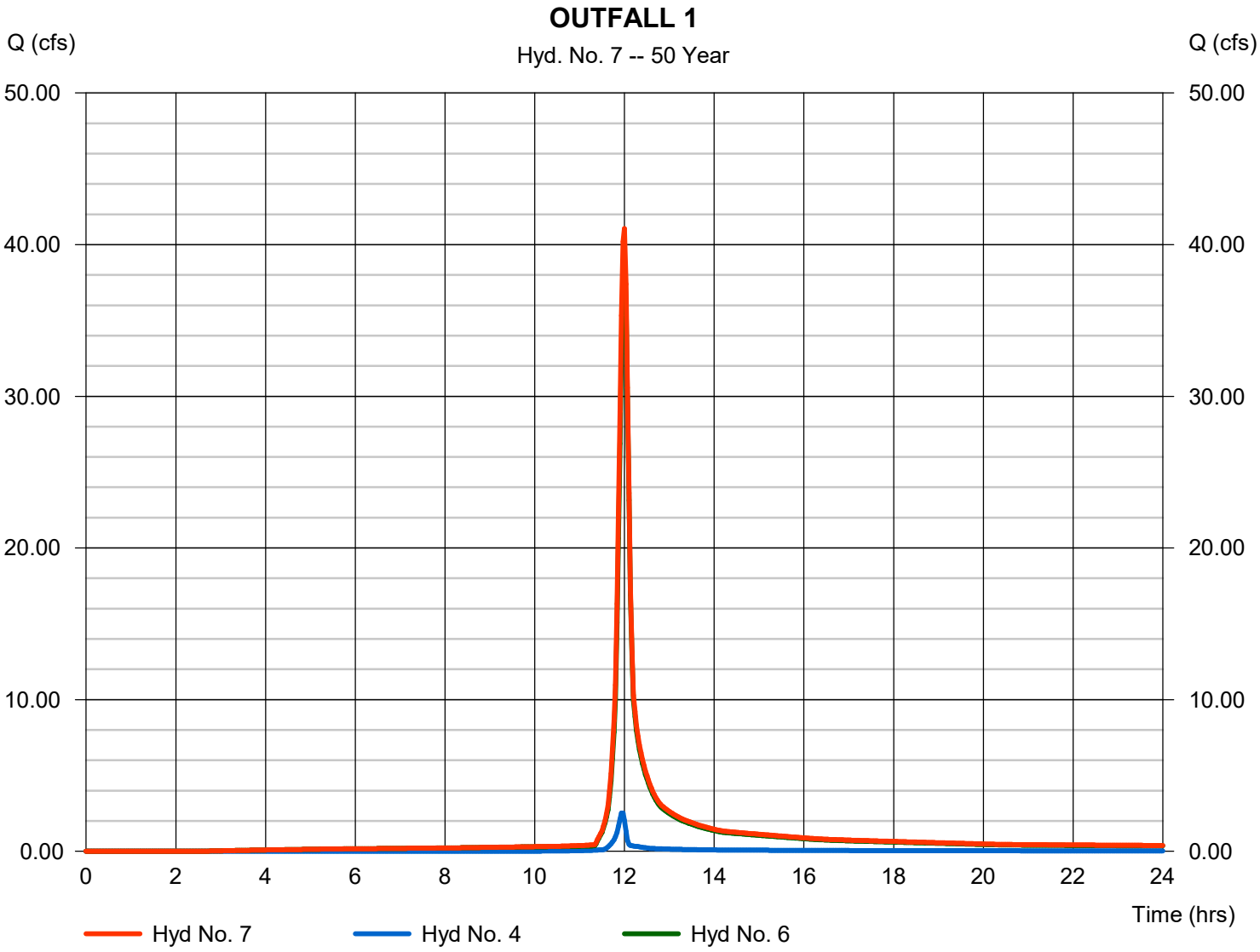


Hydrograph Report

Hyd. No. 7

OUTFALL 1

Hydrograph type	=	Combine	Peak discharge	=	41.06 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	106,298 cuft
Inflow hyds.	=	4, 6	Contrib. drain. area	=	0.470 ac

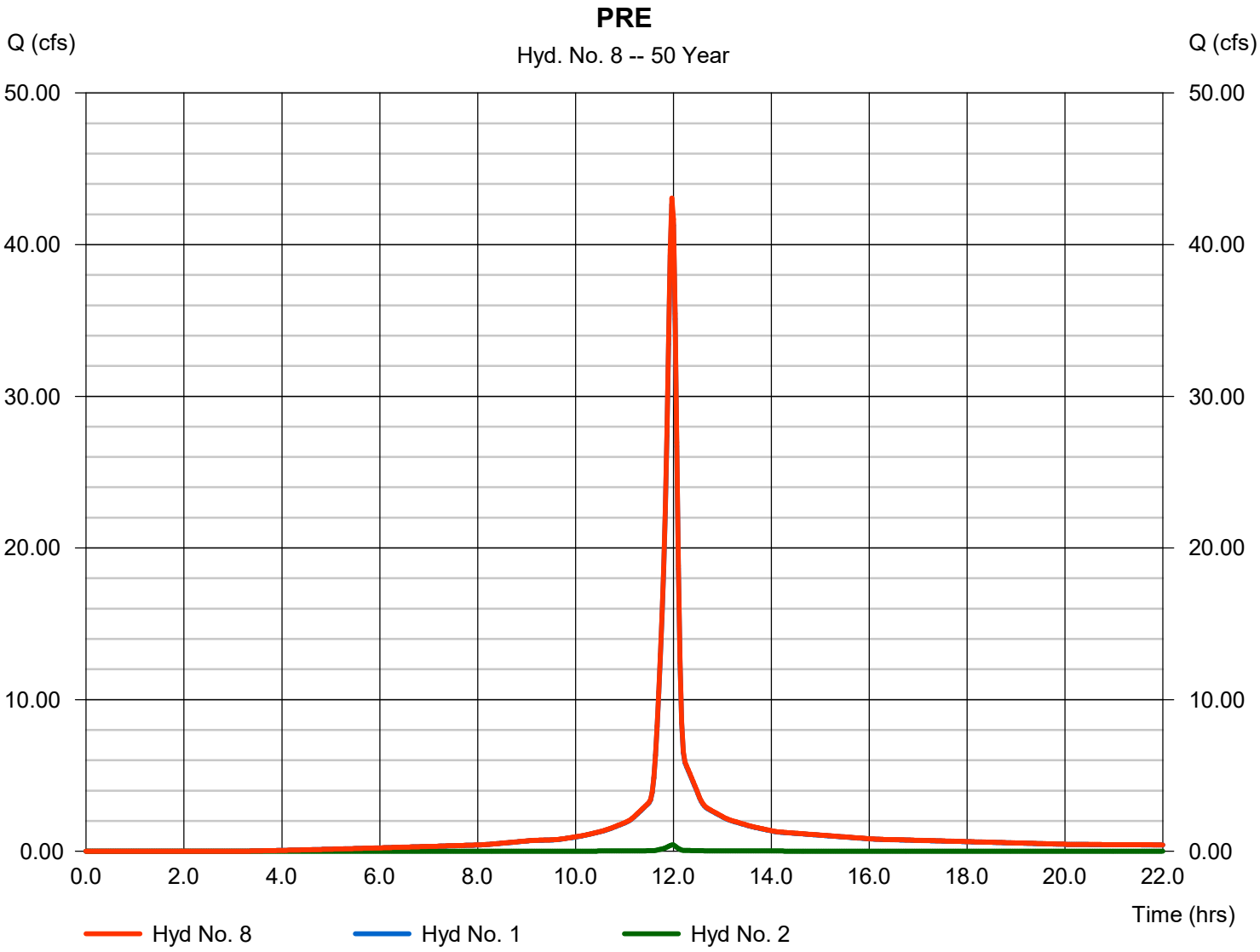


Hydrograph Report

Hyd. No. 8

PRE

Hydrograph type	=	Combine	Peak discharge	=	43.08 cfs
Storm frequency	=	50 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	105,338 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	5.110 ac

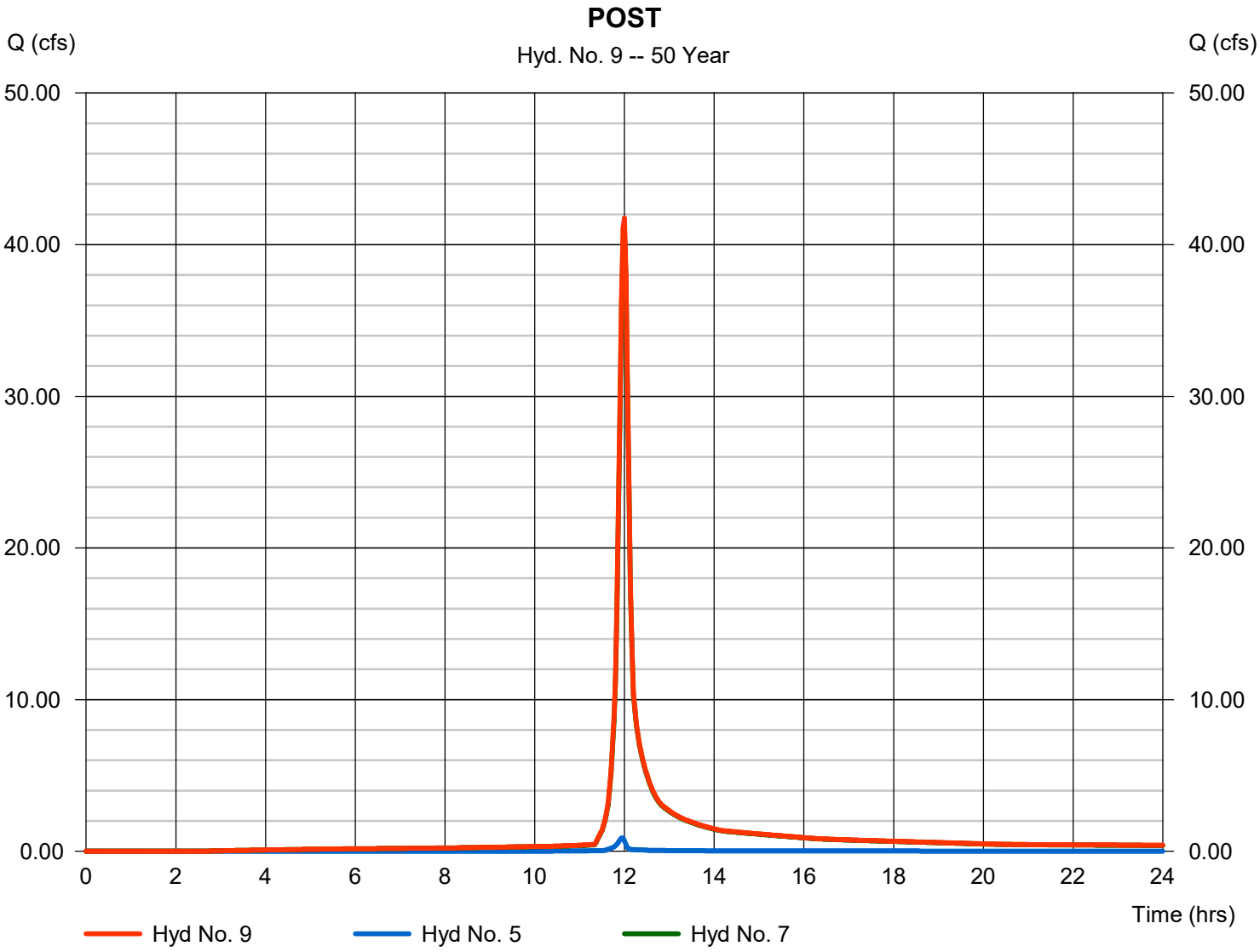


Hydrograph Report

Hyd. No. 9

POST

Hydrograph type	=	Combine	Peak discharge	=	41.74 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	108,074 cuft
Inflow hyds.	=	5, 7	Contrib. drain. area	=	0.130 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

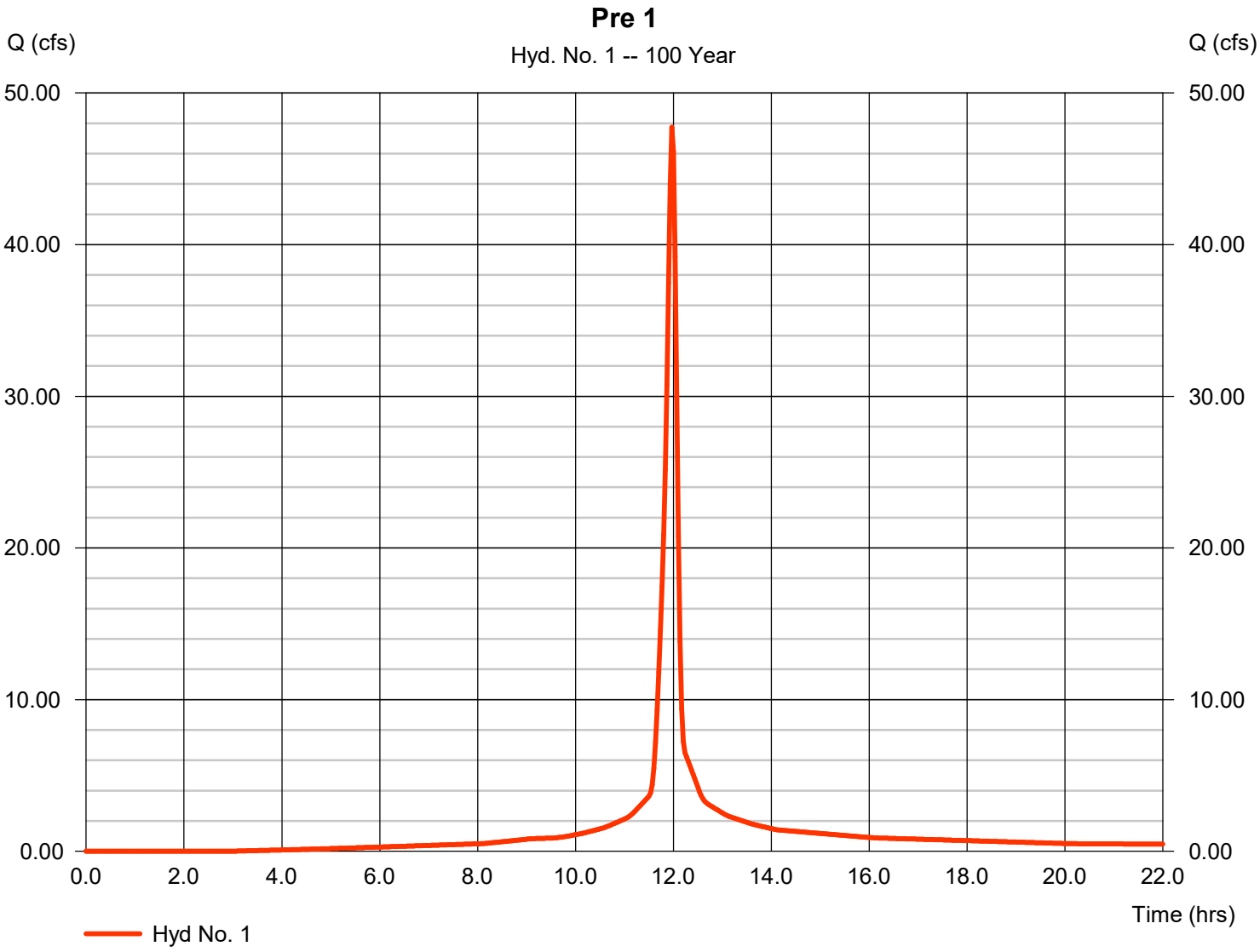
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	47.74	2	718	117,599	------	------	------	Pre 1
2	SCS Runoff	0.472	2	718	1,162	------	------	------	Pre 2
3	SCS Runoff	44.45	2	718	113,300	------	------	------	Post 1A
4	SCS Runoff	2.987	2	716	6,032	------	------	------	Post 1B
5	SCS Runoff	1.011	2	716	2,065	------	------	------	POST 2
6	Reservoir	43.40	2	720	113,296	3	655.58	21,834	POND 1
7	Combine	45.80	2	720	119,328	4, 6	------	------	OUTFALL 1
8	Combine	48.21	2	718	118,761	1, 2,	------	------	PRE
9	Combine	46.58	2	720	121,392	5, 7,	------	------	POST

Hydrograph Report

Hyd. No. 1

Pre 1

Hydrograph type	=	SCS Runoff	Peak discharge	=	47.74 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	117,599 cuft
Drainage area	=	5.060 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.30 min
Total precip.	=	7.71 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

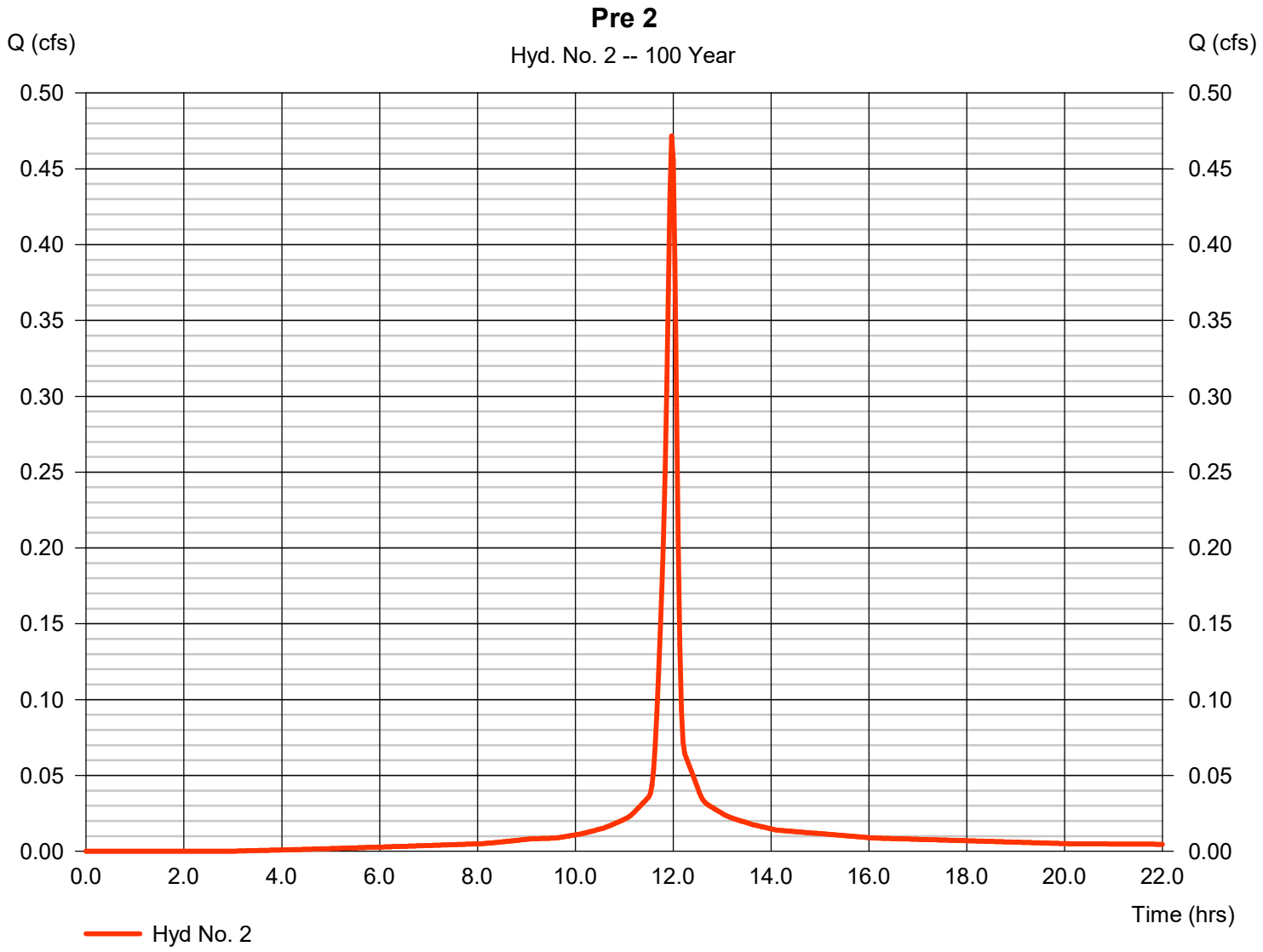


Hydrograph Report

Hyd. No. 2

Pre 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.472 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.97 hrs
Time interval	=	2 min	Hyd. volume	=	1,162 cuft
Drainage area	=	0.050 ac	Curve number	=	89
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	8.50 min
Total precip.	=	7.71 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



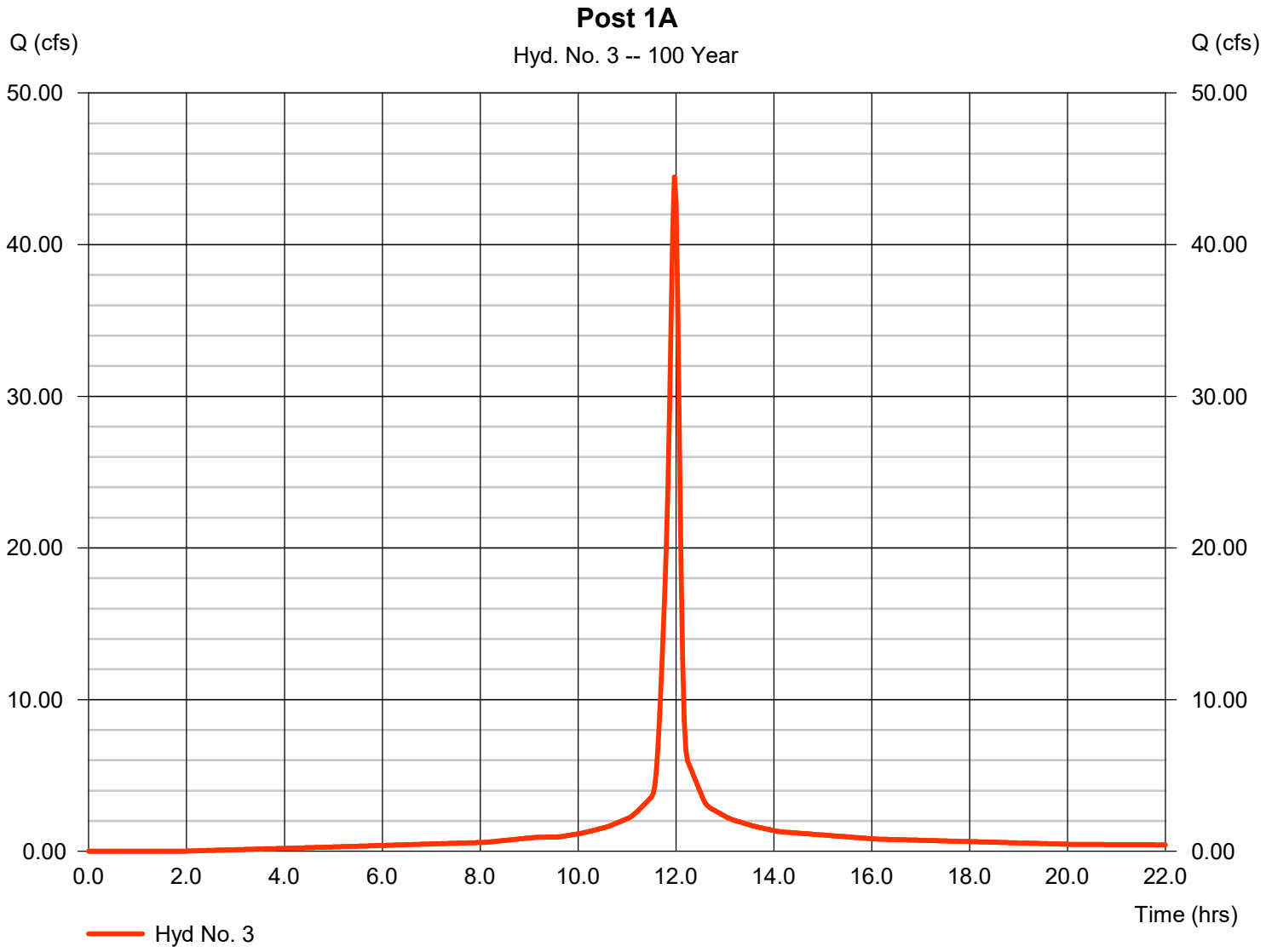
Hydrograph Report

Hyd. No. 3

Post 1A

Hydrograph type	= SCS Runoff	Peak discharge	= 44.45 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 113,300 cuft
Drainage area	= 4.540 ac	Curve number	= 93*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 6.60 min
Total precip.	= 7.71 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(3.300 x 98) + (0.970 x 74) + (0.270 x 61)] / 4.540



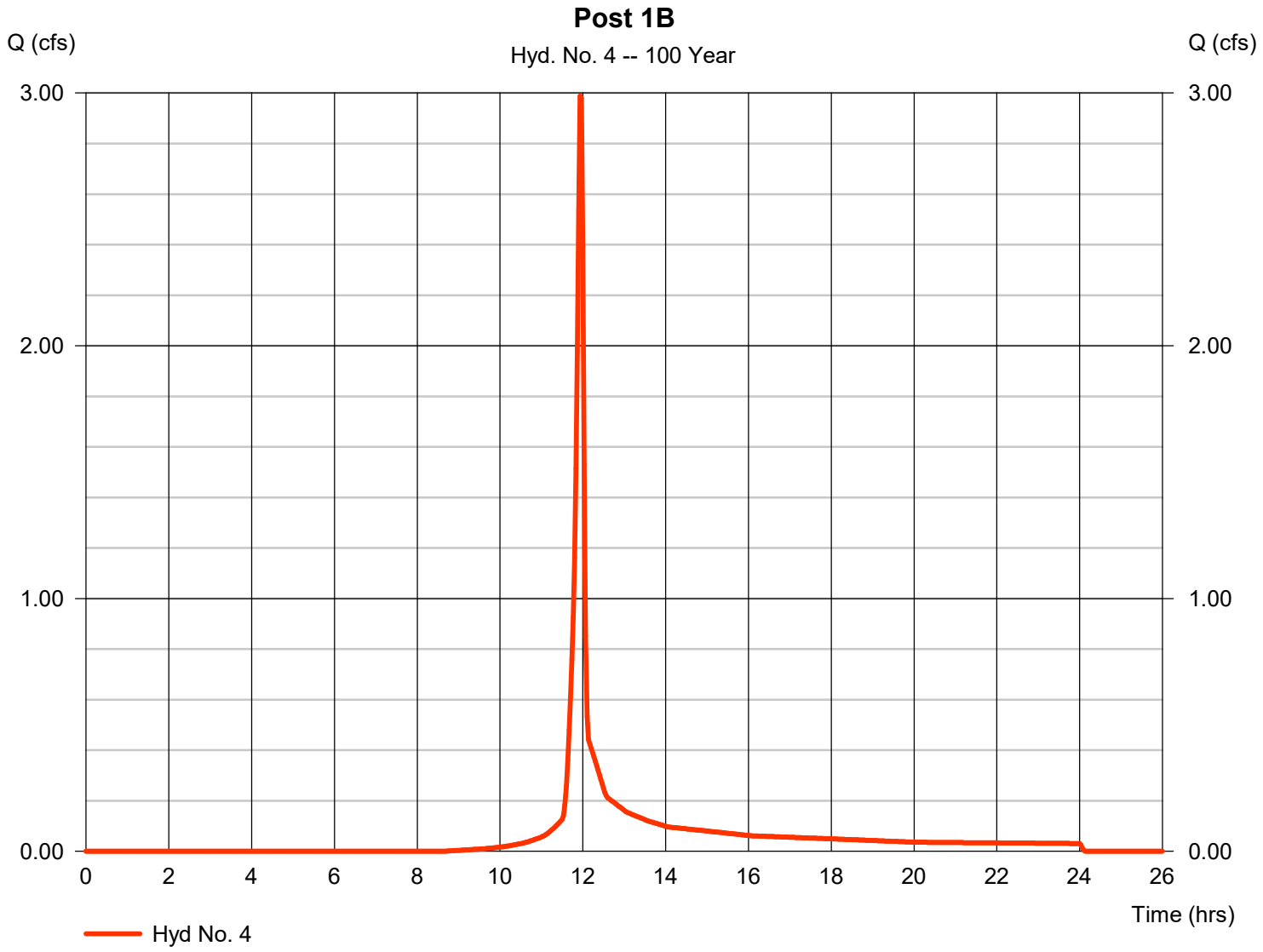
Hydrograph Report

Hyd. No. 4

Post 1B

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.987 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	6,032 cuft
Drainage area	=	0.470 ac	Curve number	=	66*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.71 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.140 x 74) + (0.300 x 61) + (0.030 x 80)] / 0.470



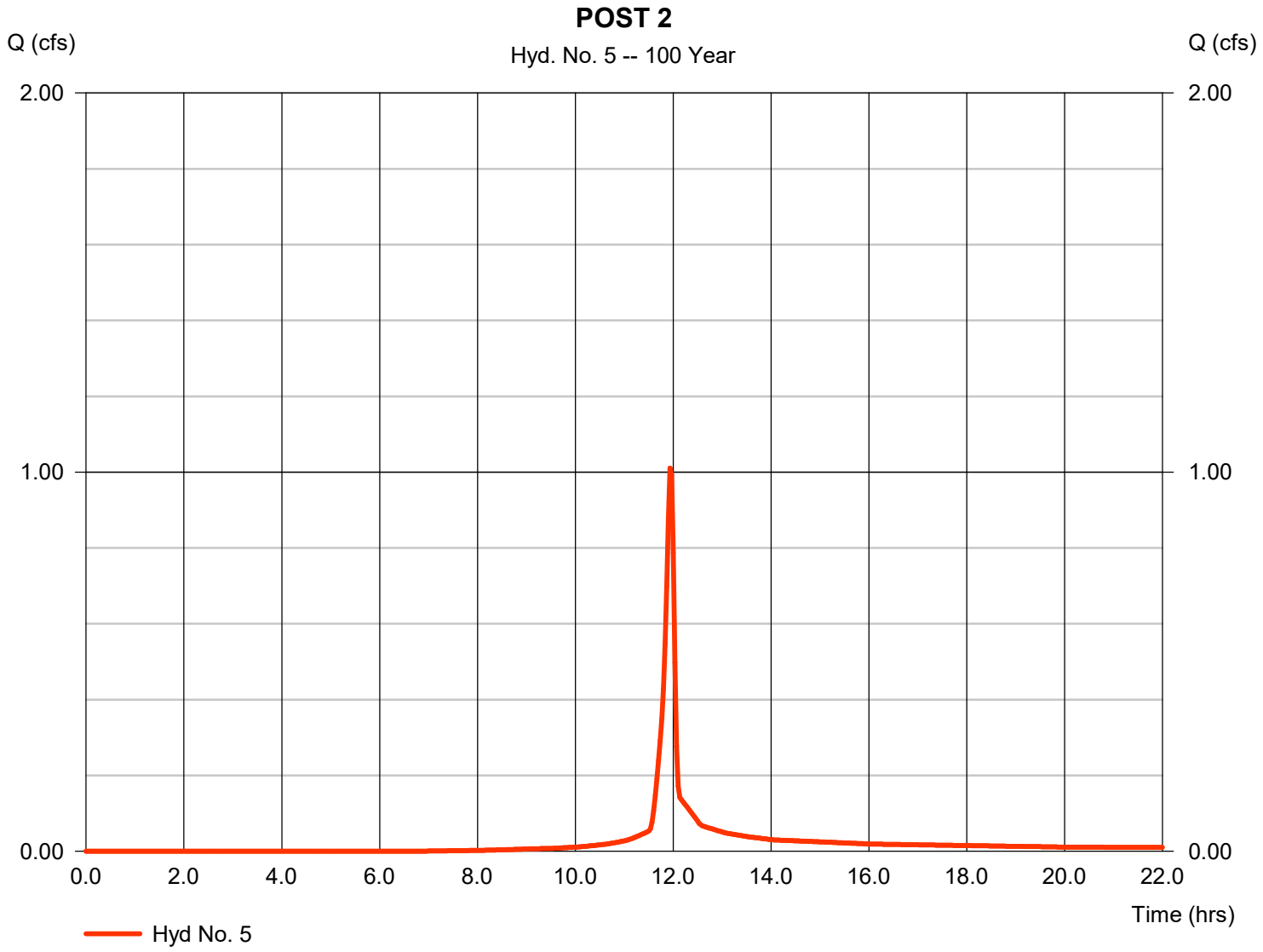
Hydrograph Report

Hyd. No. 5

POST 2

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.011 cfs
Storm frequency	=	100 yrs	Time to peak	=	11.93 hrs
Time interval	=	2 min	Hyd. volume	=	2,065 cuft
Drainage area	=	0.130 ac	Curve number	=	74*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.71 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.130 x 74)] / 0.130



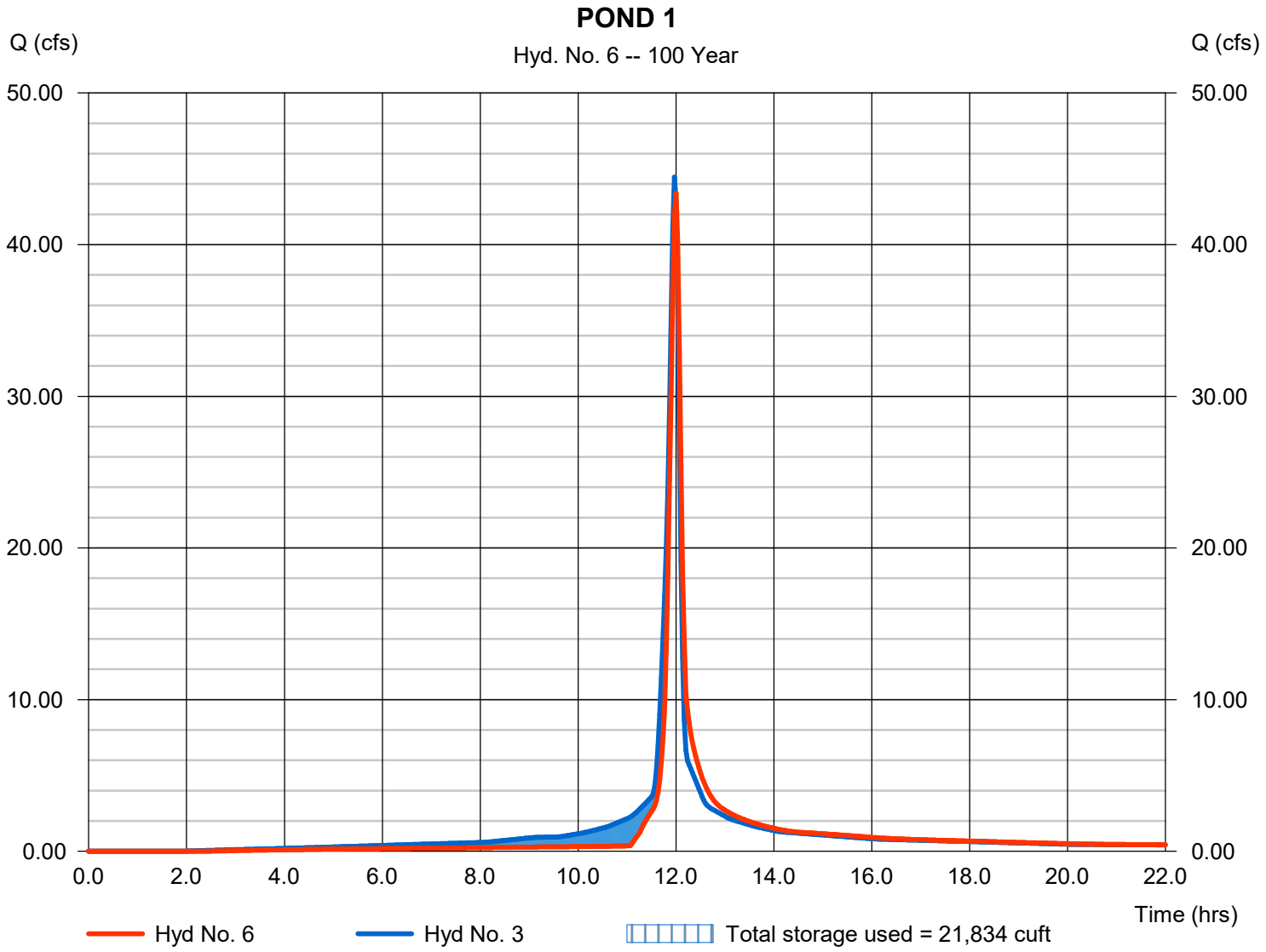
Hydrograph Report

Hyd. No. 6

POND 1

Hydrograph type	=	Reservoir	Peak discharge	=	43.40 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.00 hrs
Time interval	=	2 min	Hyd. volume	=	113,296 cuft
Inflow hyd. No.	=	3 - Post 1A	Max. Elevation	=	655.58 ft
Reservoir name	=	Pond 1	Max. Storage	=	21,834 cuft

Storage Indication method used.

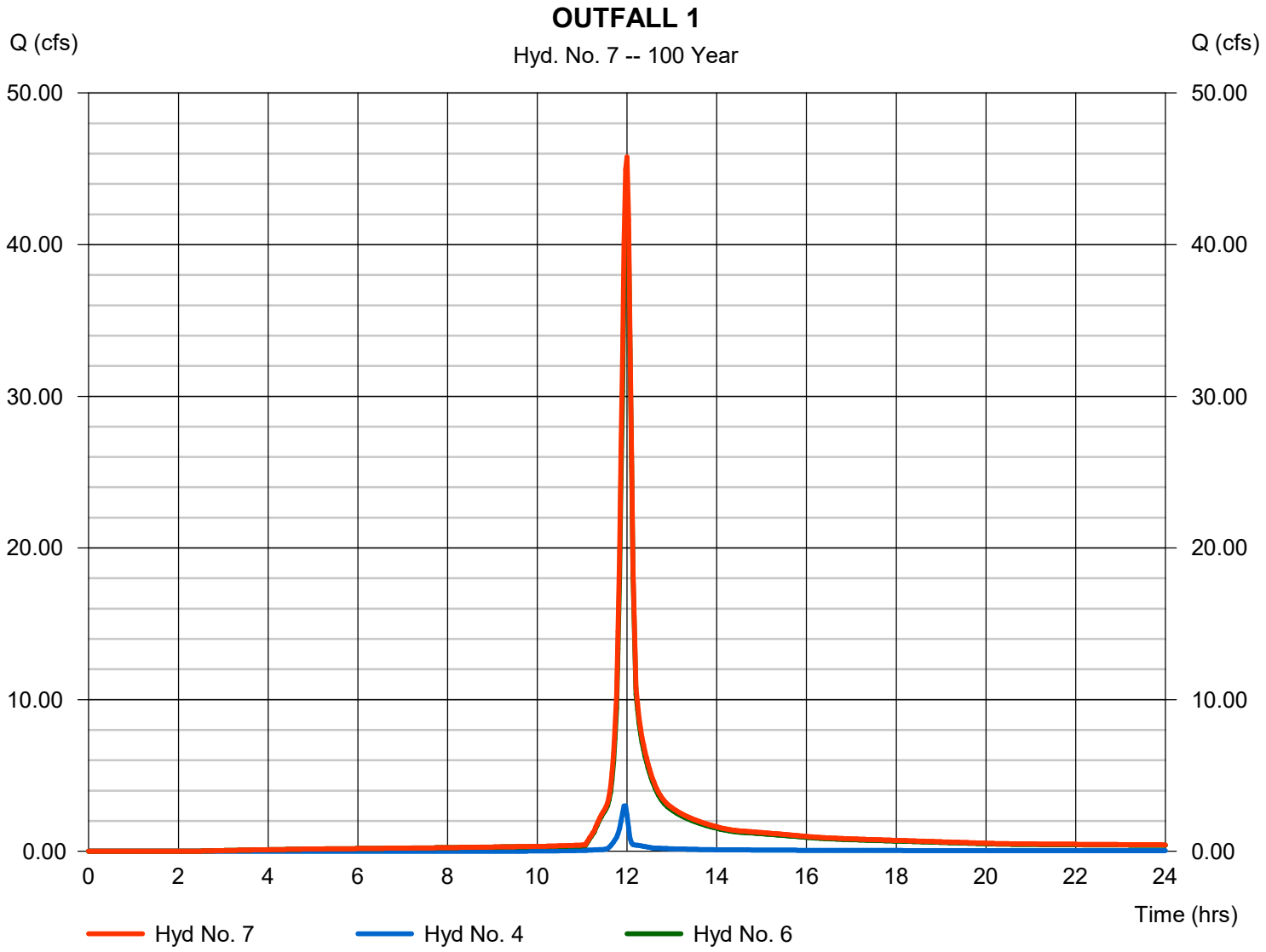


Hydrograph Report

Hyd. No. 7

OUTFALL 1

Hydrograph type	= Combine	Peak discharge	= 45.80 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 119,328 cuft
Inflow hyds.	= 4, 6	Contrib. drain. area	= 0.470 ac

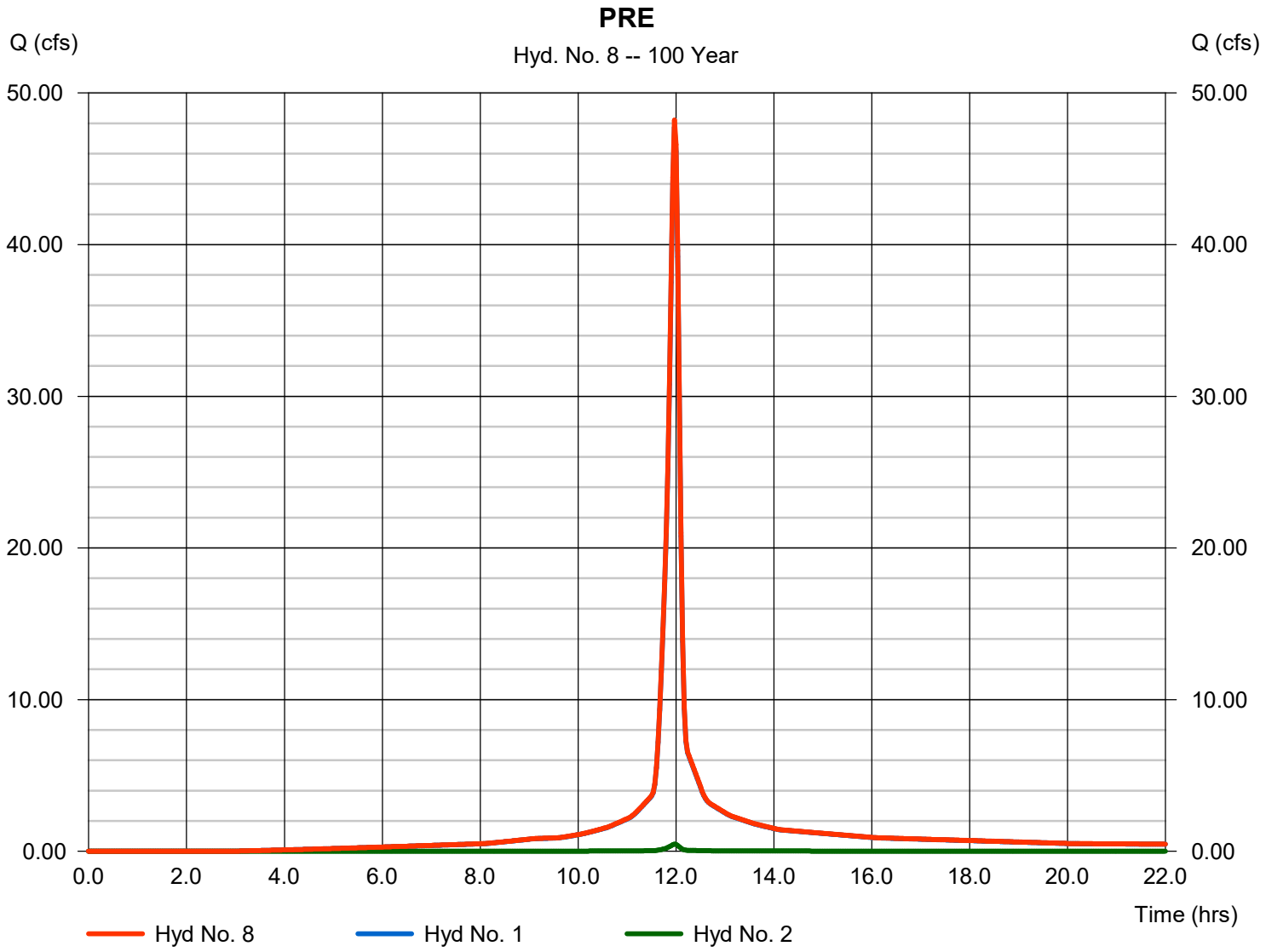


Hydrograph Report

Hyd. No. 8

PRE

Hydrograph type	= Combine	Peak discharge	= 48.21 cfs
Storm frequency	= 100 yrs	Time to peak	= 11.97 hrs
Time interval	= 2 min	Hyd. volume	= 118,761 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 5.110 ac

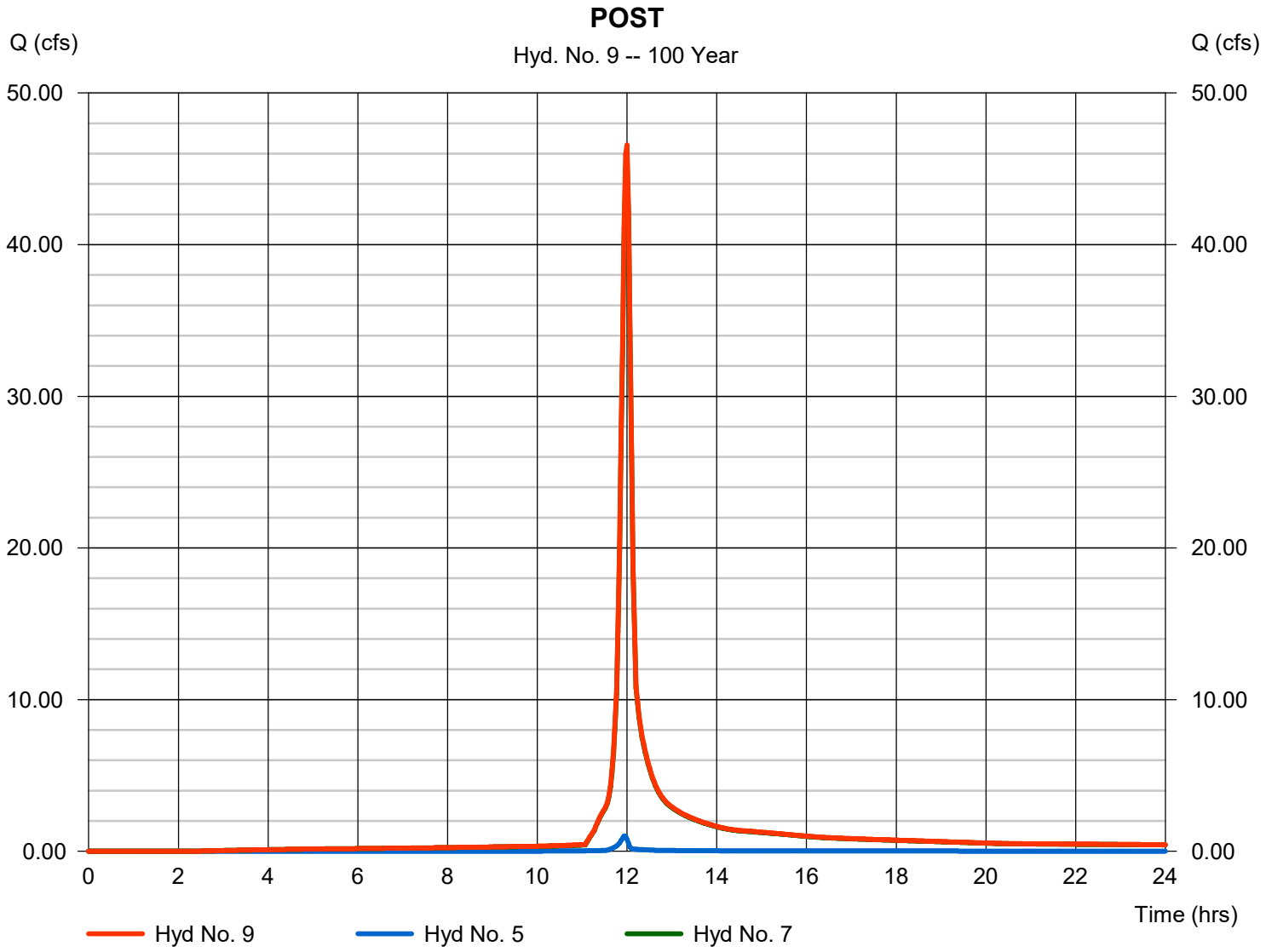


Hydrograph Report

Hyd. No. 9

POST

Hydrograph type	= Combine	Peak discharge	= 46.58 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.00 hrs
Time interval	= 2 min	Hyd. volume	= 121,392 cuft
Inflow hyds.	= 5, 7	Contrib. drain. area	= 0.130 ac



T-SQUARE ENGINEERING
CIVIL-SITE | TRAFFIC | WASTEWATER

701 West Main Street
Franklin, TN 37064
615.678.8212
www.T2-eng.com

Dry Detention Pond - Water Quality Calculations

Project:	24-0516 Northpointe Industrial
Pond:	Pond 1 (Outlet 1)
Date:	9/20/2024

1. Compute water quality volume (WQv) to receive 80% TSS credit.

$$WQv = P\ x\ R_V\ x\ \frac{A}{12}$$

P = rainfall for 85% storm event = 3.14 inches

R_v = runoff coefficient

$$R_V = 0.015 + 0.0092\ x\ I$$

I = site impervious cover (% as whole number)

85

R_V= 0.797

A = site area (acres) = 5.11 ac

WQ_V = 0.373 AC-FT = 16262 CF

2. Size the low flow outlet for the water quality volume.

$$a = \frac{2A * (H - H_o)^{0.5}}{3600CT * 2g^{0.5}}$$

$a = area\ of\ orifice\ [sf]$

A = average surface area of pond, SF

3510 SF

C = orifice coefficient [0.66 for thin, 0.80 for thickness greater than o

0.8

T=drawdown time of pond (hrs), must be greater than 24 hrs.

24 hrs

g=gravity, 32.2 ft/sec^2

H = elevation when pond in full, ft

655.7 ft

H_o = final elevation when pond is empty, ft

648 ft

a =	0.04 SF	=	5.06 in^2
	Orifice diameter	=	2.54 in

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Northpointe Industrial

Sediment Trap Calculations
Per Metro Volume 4, Stormwater Best Management Practices

Assume:

Disturbed Area	<5.00 ac
Length to Width Ratio	3:1
Settling Zone Storage	134 yd^3/ac
Sediment Storage	45 yd^3/ac
Side Slopes	4:1

Given:

Site Area	4.93 ac
Trap Bottom Width	50 ft
Trap Depth	4 ft
Surface Area Provided	300.00 ft^2

Sediment Trap Design

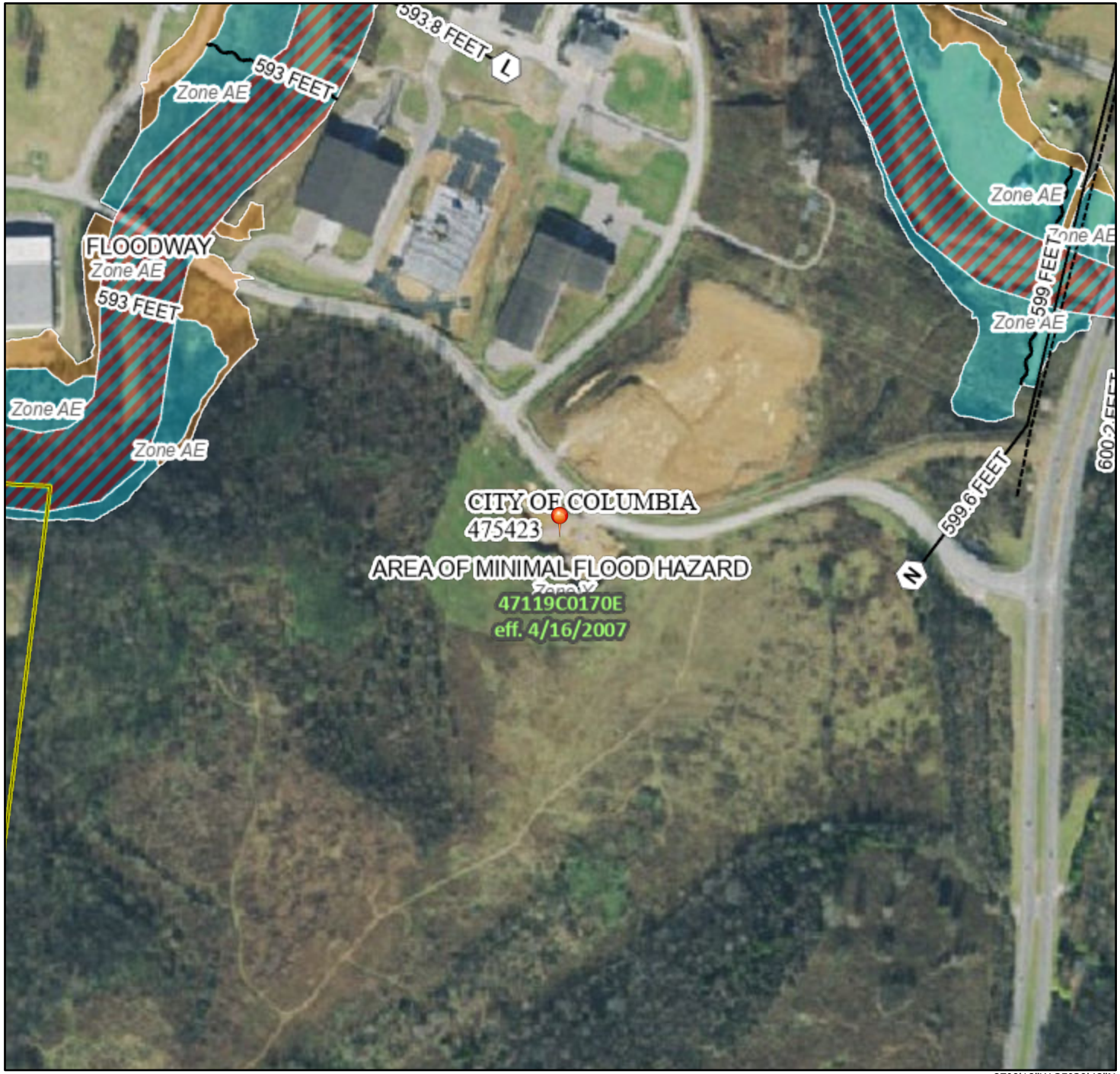
Trap Bottom Length	150 ft
Trap Top Width	82 ft
Trap Bottom Width	182 ft
Trap Storage	44005 ft^3
Trap Storage	1630 yd^3
Settling Zone Storage	660.62 yd^3
Sediment Storage	330.31 yd^3
Required Storage Total	990.93 yd^3

Check

Storage Provided > Storage Required	Good

National Flood Hazard Layer FIRMette

87°0'56"W 35°40'17"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

87°0'18"W 35°39'48"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/21/2024 at 11:51 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Maury County, Tennessee

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Map Scale: 1:1,380 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

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 18, Sep 12, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 20, 2021—Apr 20, 2021

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
Af	Armour silt loam, eroded gently sloping terrace phase	0.8	16.4%
Bf	Braxton cherty silty clay, severely eroded moderately steep phase	1.0	18.7%
Bk	Braxton silty clay loam, eroded sloping phase	0.6	10.9%
Da	Dellrose gravelly silt loam, 5 to 12 percent slopes, eroded	0.4	8.6%
Dc	Dellrose cherty silt loam, severely eroded moderately steep phase	1.3	24.7%
Gd	Gullied land, phosphatic	0.0	0.6%
Mg	Mimosa gravelly silt loam, 5 to 12 percent slopes, eroded	1.0	20.2%
Totals for Area of Interest		**5.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit

descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Maury County, Tennessee

Af—Armour silt loam, eroded gently sloping terrace phase

Map Unit Setting

National map unit symbol: kq4j
Elevation: 450 to 700 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: All areas are prime farmland

Map Unit Composition

Armour and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Armour

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Parent material: Silty alluvium and/or loamy alluvium over clayey residuum weathered from phosphatic limestone

Typical profile

H1 - 0 to 12 inches: silt loam
H2 - 12 to 24 inches: silty clay loam
H3 - 24 to 60 inches: silty clay loam

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 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 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F123XY004TN - Deep Loamy Terraces And Depressions
Hydric soil rating: No

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

Bk—Braxton silty clay loam, eroded sloping phase

Map Unit Setting
National map unit symbol: kq4z
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: silty clay loam
H2 - 10 to 30 inches: clay
H3 - 30 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 (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 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F123XY001TN - Limestone Uplands
Hydric soil rating: No

Da—Dellrose gravelly silt loam, 5 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2td3c
Elevation: 500 to 850 feet
Mean annual precipitation: 48 to 58 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Dellrose and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dellrose

Setting

Landform: Hillsides
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope

Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy colluvium derived from siltstone over residuum weathered from phosphatic limestone

Typical profile

Ap - 0 to 8 inches: gravelly silt loam
BA - 8 to 16 inches: gravelly silt loam
Bt1 - 16 to 54 inches: gravelly silty clay loam
2Bt2 - 54 to 79 inches: clay

Properties and qualities

Slope: 5 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F123XY001TN - Limestone Uplands
Hydric soil rating: No

Minor Components

Mimosa

Percent of map unit: 8 percent
Landform: Escarpments
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Armour

Percent of map unit: 6 percent
Landform: Stream terraces
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Gladdice

Percent of map unit: 4 percent
Landform: Escarpments
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, convex

Across-slope shape: Linear, convex
Hydric soil rating: No

Dc—Dellrose cherty silt loam, severely eroded moderately steep phase

Map Unit Setting

National map unit symbol: kq5h
Elevation: 560 to 1,070 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

Dellrose and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dellrose

Setting

Landform: Hillslopes
Landform position (three-dimensional): Base slope
Parent material: Loamy colluvium derived from limestone

Typical profile

H1 - 0 to 10 inches: gravelly silt loam
H2 - 10 to 50 inches: gravelly silty clay loam
H3 - 50 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 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: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F123XY001TN - Limestone Uplands
Hydric soil rating: No

Gd—Gullied land, phosphatic

Map Unit Composition

Gullied land: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gullied Land

Typical profile

H1 - 0 to 30 inches: variable
R - 30 to 34 inches: bedrock

Properties and qualities

Slope: 12 to 25 percent
Depth to restrictive feature: 9 to 79 inches to lithic bedrock

Mg—Mimosa gravelly silt loam, 5 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2v63r
Elevation: 510 to 1,270 feet
Mean annual precipitation: 48 to 58 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 190 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Mimosa and similar soils: 78 percent
Minor components: 22 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mimosa

Setting

Landform: Escarpments
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey residuum weathered from limestone

Typical profile

Ap - 0 to 6 inches: gravelly silt loam
Bt - 6 to 50 inches: clay
C - 50 to 55 inches: clay
R - 55 to 65 inches: bedrock

Properties and qualities

Slope: 5 to 12 percent

Depth to restrictive feature: 39 to 59 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F123XY001TN - Limestone Uplands
Hydric soil rating: No

Minor Components

Dellrose

Percent of map unit: 8 percent
Landform: Hillsides
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Armour

Percent of map unit: 7 percent
Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Gladdice

Percent of map unit: 4 percent
Landform: Escarpments
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ashwood

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Erosion Factors

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

K Factor, Whole Soil

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Factor K does not apply to organic horizons and is not reported for those layers.

Map Scale: 1:1,380 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Lines
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

Soil Rating Points
- .02
- .05
- .10
- .15
- .17
- .20
- .24
- .28
- .32
- .37
- .43
- .49
- .55
- .64
- Not rated or not available

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 18, Sep 12, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 20, 2021—Apr 20, 2021

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.

Table—K Factor, Whole Soil

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Af	Armour silt loam, eroded gently sloping terrace phase	.37	0.8	16.4%
Bf	Braxton cherty silty clay, severely eroded moderately steep phase	.15	1.0	18.7%
Bk	Braxton silty clay loam, eroded sloping phase	.32	0.6	10.9%
Da	Dellrose gravelly silt loam, 5 to 12 percent slopes, eroded	.24	0.4	8.6%
Dc	Dellrose cherty silt loam, severely eroded moderately steep phase	.17	1.3	24.7%
Gd	Gullied land, phosphatic		0.0	0.6%
Mg	Mimosa gravelly silt loam, 5 to 12 percent slopes, eroded	.24	1.0	20.2%
Totals for Area of Interest			**5.1**	**100.0%**

Rating Options—K Factor, Whole Soil

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the

soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

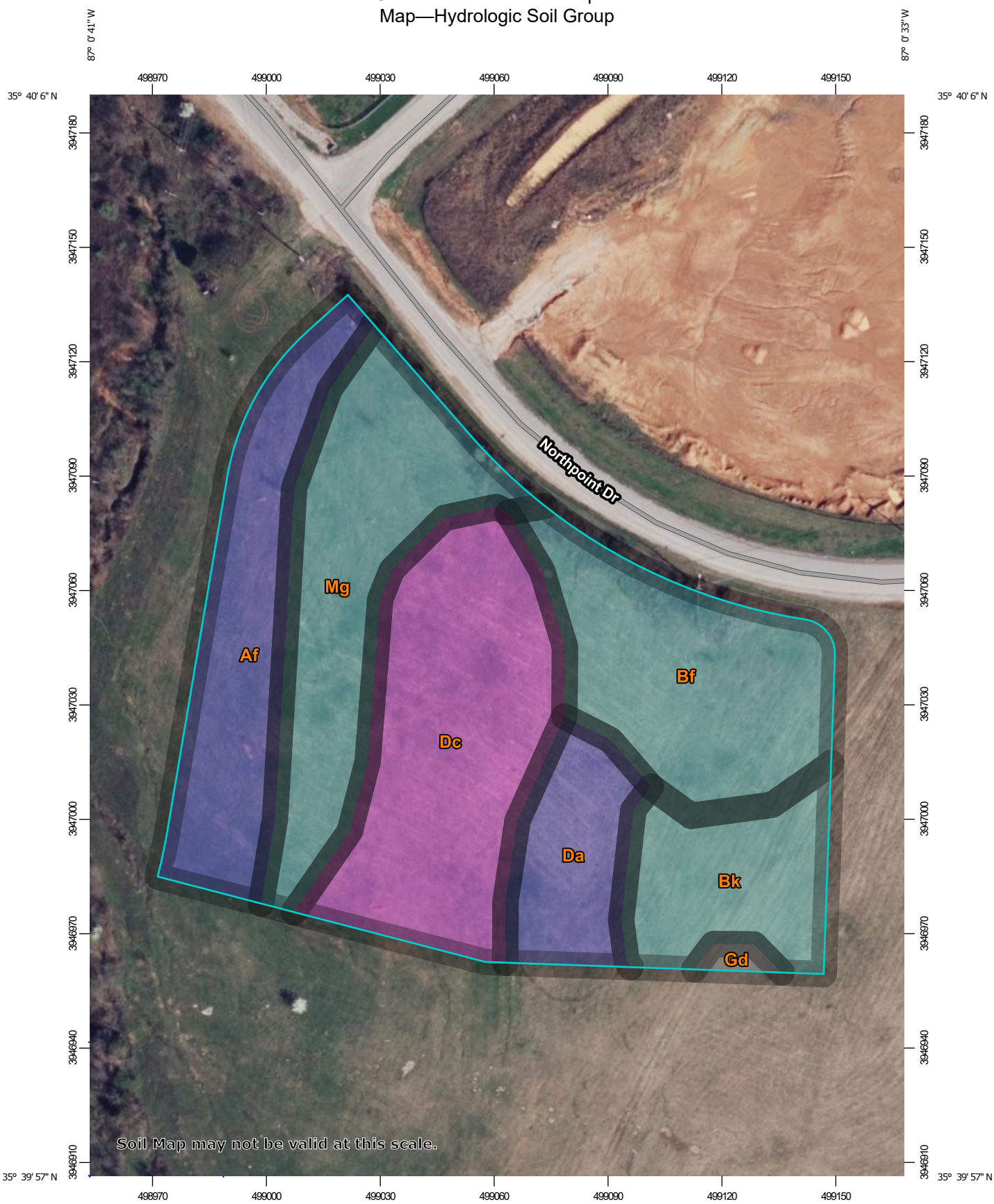
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.



Map Scale: 1:1,380 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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.

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Please rely on the bar scale on each map sheet for map measurements.

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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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 18, Sep 12, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 20, 2021—Apr 20, 2021

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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Af	Armour silt loam, eroded gently sloping terrace phase	B	0.8	16.4%
Bf	Braxton cherty silty clay, severely eroded moderately steep phase	C	1.0	18.7%
Bk	Braxton silty clay loam, eroded sloping phase	C	0.6	10.9%
Da	Dellrose gravelly silt loam, 5 to 12 percent slopes, eroded	B	0.4	8.6%
Dc	Dellrose cherty silt loam, severely eroded moderately steep phase	A	1.3	24.7%
Gd	Gullied land, phosphatic		0.0	0.6%
Mg	Mimosa gravelly silt loam, 5 to 12 percent slopes, eroded	C	1.0	20.2%
Totals for Area of Interest			**5.1**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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REPORT OF GEOTECHNICAL EXPLORATION
FREEDOM MULTISTORAGE
COLUMBIA, TENNESSEE
TEC PROJECT NO. 18-E053

NOVMBER 30, 2018

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RE: Report of Geotechnical Exploration
Freedom Multistorage
Columbia, Tennessee
TEC Project No. 18-E053

TEC has completed the requested Geotechnical Exploration for the above referenced project. This report details TEC's recommendations for the referenced project.

This report contains our understanding of the planned construction, the results of our geotechnical exploration, and recommendations regarding project foundations, earthwork, pavements, and retaining walls.

TEC appreciates the opportunity to be of service to you, and looks forward to working with you towards a successful completion of this project. If you have any questions regarding the contents of this report, or if we can be of further assistance, please contact this office.

Sincerely,

John A. Karp, P.E.

11/30/18

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INTRODUCTION

Scope of Services

The purpose of this exploration was to obtain site-specific data pursuant to developing foundation, earthwork, and pavement recommendations for the proposed construction. Briefly, our services for this project included the following:

- Conduct an engineering reconnaissance of the project site.
- Advance 10 test pits at the project site.
- Provide recommendations for foundation types, as well as design parameters based on the subsurface conditions encountered.
- Provide recommendations for the design on site slopes and retaining walls.
- Provide recommendations regarding pavements.
- Provide recommendations regarding site preparation and the construction of engineered fills.

Project Information

Project information was provided by the client Mr. Gerald Vick with WES Engineers & Surveyors during a telephone conversation and an email containing the proposed site layout.

The proposed project is located south of Northpoint Road in the Northpoint Industrial Park located in Columbia, TN. The planned construction will consist of a 10 prefabricated metal building storage units and office, retaining wall and associated asphalt drives. Foundation loads were not provided, but are anticipated to be light to moderate. The site was observed to gently slope downward to the west.

EXPLORATION FINDINGS

Site Observations

The proposed project is located south of Northpoint Road in the Northpoint Industrial Park located in Columbia, TN. The planned construction will consist of a 10 prefabricated metal building storage units and office, retaining wall and associated asphalt drives. Foundation loads were not provided, but are anticipated to be light to moderate. The site was observed to gently slope downward to the west. The site was observed to slope downward to the north with an elevation change of approximately 60 feet across the site. The site is currently a grass and brush covered field.

Site Geology

The subject site is located in the Central Basin Physiographic Province. The Central Basin is a nearly elliptical-shaped area that is characterized by gently rolling to hilly terrain, with some nearly level areas, and by meandering, low-gradient streams. The average elevation of the Central Basin is about 600 feet above Mean Sea Level (MSL). The Central Basin is underlain by sedimentary rocks (primarily limestones) of the Ordovician Geologic Age, which is generally dated at about 480 million years before the present.

The USGS Geologic Map of Middle Tennessee indicates this particular site is underlain by the Carters Limestone Formation. This formation is typically a hard, light gray to brown, cryptocrystalline (i.e., microscopically crystalline), medium- to thick-bedded, brittle limestone with occasional thin chert lenses. The limestone weathers to produce a 5- to 10-foot thick layer of native soil (residuum) which is typically an orange to brown lean clay of low to moderate plasticity with occasional zones of high plasticity. The soil/rock interface may be irregular due to a layer of rounded boulders at the base of the soil zone.

Subsurface Profile

The test pits initially encountered 8 to 12 inches of topsoil that was underlain by lean clays. High plasticity clays were encountered in TP-6 at a depth of 4 feet. The lean clays were generally yellowish to reddish brown and were stiff in relative consistency. Refusal was only encountered in TP-7 at a depth of 9.5’. All of the the other test its were terminated at depths rangining from 9’ to 11.5’ below the ground surface. All of the test pits were dry upon completion and backfilled prior to departure from the site.

GEOTECHNICAL RECOMMENDATIONS

Based on the available data, TEC believes the site is generally suitable for the planned construction. The foundations are recommended to bear on the lean clays on site or on properly placed and compacted fill material as discussed in the Earthwork Section of this report. Individual column and continuous wall spread type foundations bearing on the stiff lean clays or properly compacted fill, may be sized for a maximum allowable bearing capacity of 3,000 pounds per square foot (psf). TEC recommends a minimum foundation bearing depth of 1.5 feet below finish exterior grade. Additionally, TEC recommends minimum footing widths of 2.0 feet for continuous wall footings, and 2.5 feet for square column footings to reduce the potential for local shear failure.

Foundation Recommendations

The foundation design and construction recommendations contained in this report section were developed in consideration of information detailed in the Project Information section of this report. If the information has been revised, TEC recommends to be contacted to confirm that the foundation design and construction recommendations contained herein are appropriate considering the new available information.

For Seismic Design of the foundation a Site Class of "C" is recommended.

Proper foundation construction consideration procedures may enhance long-term foundation performance. TEC recommends the following foundation construction procedures:

- Exposed bearing materials should be protected from freezing weather, severe drying, and water accumulation. A concrete “mud-mat” may be constructed over the bearing materials if the excavation must remain open for an extended time.

- Foundation bearing materials which degrade as a result of exposure should be removed from the foundation bearing area prior to concrete placement or re-compacted to the fill criteria indicated in the Earthwork Recommendations portion of this report.

- The foundation bearing area should be level or suitably benched.

- Any loosened bedrock, soil, debris, and excess surface water should be removed from the excavation prior to concrete placement.

- Individual column foundations should be supported by only one material type (i.e., lean concrete fill or bedrock materials, not both).

- Foundation excavations should be excavated to the plan dimensions where possible and foundation concrete placed flush with excavation side walls without the use of forms. This is recommended to help reduce surface water from infiltrating the bearing materials.

TEC recommends the geotechnical engineer or his representative observe foundation excavations prior to reinforcing steel and concrete placement to evaluate whether the bearing materials and conditions are consistent with those recommended in this report.

Grade Supported Floor Slab Recommendations

A grade supported floor slab may be used in the construction. TEC recommends the exposed subgrade be proofrolled by a representative of the geotechnical engineer prior to slab construction. Particular attention should be directed to any area, which is in a cut area or near original grade. Any soft, unsuitable, or unstable materials identified during the evaluation should be repaired under the direction of the geotechnical engineer.

The grade supported floor slabs should be appropriately reinforced to support the proposed loadings. The amount of steel reinforcement required, if any, will be dependent on the structural engineer's evaluation of the final grade slab thickness, concrete compressive strength, and slab loadings. Additional design and construction recommendations for the project grade slabs are provided below:

- The slab on grade should be preliminary designed based on a maximum recommended subgrade modulus "k" of 100 pci.

- The grade slabs should be fully ground supported and structurally independent of any walls.

- Joints between slab sections should contain dowels or keyways to permit slab rotation and to reduce sharp vertical displacements.

- The floor slabs should be supported on a minimum of four-inches of compacted layer of free draining, granular subbase material to distribute concentrated loads, enhance drainage, and reduce degradation of the prepared subgrade during construction.

- The geotechnical engineer should review subgrade conditions prior to grade slab construction and provide recommendations for any unsuitable or unstable conditions identified.

- A polyethylene sheeting vapor barrier may be used to prevent migration of moisture through the slab. The vapor barrier should be placed beneath the granular subbase. However, proper concrete mix designs, placement methods, and curing practices must be used to reduce the potential for concrete shrinkage problems associated with the use of a vapor barrier.

Pavement Recommendations

Asphalt Pavements

If the site is to be paved at a later date the following asphaltic pavement recommendations are provided. For the purpose of our evaluations, a California Bearing Ratio (CBR) value for the subgrade materials was estimated using empirical correlations between material types and laboratory tested CBR values. The recommendations are based on the assumption that the soil subgrade will be prepared and compacted according to the recommendations contained in the earthwork section of this report. Also, in non-fill areas, the upper 12 inches of subgrade materials will be scarified and re-compacted.

For the purposes of our analyses and recommendations, TEC has used the following parameters:

- A CBR value of 3.0.
- A regional factor of 1.1.
- A design life of 20 years with routine maintenance.

Based on the assumed parameters, the recommended minimum pavements sections are provided in the following table:

RECOMMENDED ASPHALT PAVEMENT SECTIONS

Material	Light Duty (inches)	Heavy Duty (inches)	TDOT Material Type
Asphaltic Concrete Wearing Surface	**2.0**	**1.5**	**Section 411, Grading E**
Asphaltic Concrete Binder	**0**	**2.0**	**Section 307, Grading B or B-M**
Crushed Stone Base	**8**	**8**	**Section 903, Class A, Grading D**

Asphalt Pavement Design and Construction Considerations

The asphaltic concrete should conform and be installed in accordance with applicable sections of the Tennessee Department of Transportation, Standard Specifications for Road and Bridge Construction, Latest Edition. Section 411, Grading D or E should be used for the surface course; Section 307, Grading B or B-M should be used for the binder course; and Section 903, Class A, Grading D should be used for the crushed stone base. The pavement should be constructed in accordance with Sections 407 and 303 of the same specifications.

TEC recommends the mineral aggregate base course be compacted to 98 percent of its maximum dry density as determined by ASTM Method D698, (Standard Proctor). TEC also recommends that an engineering technician be present during placement of the base to verify the compaction criteria is met and to aid in the evaluation of the placement and compaction techniques.

Rigid Concrete Pavements

For the purpose of our evaluations a subgrade modulus (k) value for the subgrade materials was estimated using empirical correlations between material types and laboratory tested values. For the purposes of our analyses and recommendations, we have used the following parameters:

- A "k" value of 100 pci
- A design life of 20 years with routine maintenance.

Based on the provided and assumed information TEC recommends that a minimum of 8 inches of air entrained 4000psi concrete be placed for the rigid pavement section. Below the concrete 4 inches of limestone gravel should be placed and compacted (TDOT #57 or #67 stone, or basestone) to provide drainage and to reduce point loads. The concrete paving should also be appropriately reinforced for temperature and shrinkage, and to resist the applied traffic loads. Additionally, it is recommended that joints between slab sections should contain dowels or keyways to permit slab rotation and to reduce sharp vertical displacements. The geotechnical engineer should review subgrade conditions prior to rigid pavement construction and provide recommendations for any unsuitable or unstable conditions identified.

Retaining Wall Design Recommendations

The construction will include several retaining walls. Our recommendations for retaining wall design and construction are detailed in the following report sections.

Lateral Earth Pressures

Earth pressures exerted on retaining walls are influenced by the structural design on the walls, conditions of wall restraint, methods of construction, and the strength characteristics of the materials being restrained. If the retaining walls are relatively rigid and resist movement required to mobilize the soil shear strength, a lower active stress condition will result. The retaining walls should be capable of withstanding the at-rest earth pressure condition as a self-supporting cantilever wall.

The passive soil state represents the maximum possible earth pressure condition. This condition occurs when a structure is pushed against the soil. This type condition is typically used in foundation design to resist movement as a result of active or at-rest pressures exerted by retaining or below grade walls. Significant wall movements are typically required to mobilize the calculated passive pressures. Therefore, TEC recommends that the calculated pressure be reduced by one-half to two-thirds for design purposes.

Given the compaction and backfill recommendations contained in this report, TEC recommends the following earth pressure coefficients be used in the design of the retaining walls:

BACKFILL TYPE	AT-REST (Ko) COEFFICIENT	ACTIVE (Ka) COEFFICIENT	PASSIVE (K_p) COEFFICIENT
Open-graded Limestone Gravel (i.e., TDOT # 57's or 67's)	0.43	0.27	3.7

The recommended parameters assume a properly functioning drainage system is installed between the walls and backfill to prevent build-up of hydrostatic forces. For design of the retaining walls below permanent ground water levels or during flooding conditions, the lateral earth pressure should be determined using the buoyant weight of the soil, which is 68.0 pcf. Hydrostatic pressures developed by groundwater should also be added to these earth pressures to determine total design stresses. Furthermore, any surcharge loads associated with equipment, stockpiled material on the ground surface, shallow foundations, or non-level ground surface conditions will result in increased and non-linear lateral loads. These loadings may be neglected if an imaginary line projected downward at a 26 degree angle from the bottom edge of the surcharge load nearest the retaining wall does not intersect the wall. The walls should be designed specifically to withstand surcharge loads in addition to the loading previously detailed.

Backfill and Dewatering Recommendations

TEC recommends that open-graded limestone gravel (e.g., TDOT # 57's or 67's) or crushed stone (crusher-run) be used to backfill the retaining walls. The backfill zone should extend upward and outward from the base of the wall foundation at an angle of 45 degrees to the ground surface. The backfill should be placed in 8-inch thick loose layers and compacted. Over compaction is not recommended to avoid creating excessive lateral pressure on the wall during compaction operations. Only small hand operated compaction equipment should be used within five feet of the walls.

Additionally, TEC recommends a sub-drainage system be placed along the back and heel of the retaining walls to collect water seepage that enters the backfill. The sub-drainage system should consist of a two-foot wide vertical zone of clean crushed stone, such as Tennessee Department of Transportation (TDOT) Stone Gradation Nos. 57 or 67. This zone will act as a vertical drain, and should prevent the build-up of hydrostatic pressures. A suitable graded filter or geotextile fabric should be placed between the gravel and any adjacent soil to prevent soil migration and plugging the "filter". A perforated pipe should extend along the base of the wall at a continuous slope to collect water for disposal away from foundation support and backfill materials. For the conditions expected for this project, TEC anticipates the most economical design will be to extend the piping to "daylight" outside of the building area. For exterior retaining walls if sufficient fall is not available, the water should allowed to seep through weep holes placed in the face of the wall.

CONSTRUCTION CONSIDERATIONS

Site Preparation

TEC recommends the following site preparation procedures:

- Surficial vegetation, topsoil, deleterious materials, and any unstable or unsuitable materials should be removed from the construction areas.

- The exposed subgrade should be proofrolled to delineate unstable areas. Proofrolling should be performed after a suitable period of dry weather to avoid degrading the subgrade. Proofrolling should be accomplished by making several passes over each area with a fully loaded dump-truck, or other equipment deemed suitable by the geotechnical engineer.

- Soft or unstable zones delineated during proofrolling should be stabilized as recommended by the geotechnical engineer. Stabilization may include full depth removal, scarifying and recompacting, or limited removal and the use of shot-rock fill to "bridge" unstable zones.

- Positive site drainage should be maintained throughout construction to minimize ponding of water.

Earthwork Recommendations

The following criteria are recommended for construction of structural fill:

<u>Soil Fill Materials</u>

- The fill materials should have a Liquid Limit less than 50, a Plasticity Index of less than 30, and contain less than 5 percent (by weight) of organic material. A maximum particle size of 4 inches is recommended for structural fill.

- Fill materials should be placed in lifts not to exceed 8 inches (loose-measured), and compacted to 95 percent of the Standard Proctor (ASTM D-698) maximum dry density. The moisture content of the fill soils as-

placed should be within plus or minus 3 percent of the optimum moisture content as determined by the Standard Proctor.

- One in-place density test should be performed for each lift, per every 2,500 square feet of soil fill placed within planned building and pavement areas.

- In building pad areas, the compacted structural fill should extend a minimum of 10 linear feet beyond the perimeter footings before sloping. Compacted structural fill should extend a minimum of 5 linear feet beyond the planned pavement edge before sloping.

- To provide for uniform subgrade conditions, the upper 12 inches of at-grade material within cut areas should be scarified and re-compacted to above recommended criteria.

- Earthen cut and fill slopes should be constructed at a slope of 2 Horizontal to 1 Vertical (2H to 1V) or flatter. Fill slopes of 3H to 1V are recommended for ease of maintenance. Fill slopes constructed on existing slopes are to have the subgrade benched prior to the placement and compaction of the fill materials.

Shot-Rock Fill Materials

- Shot-rock fill lift thickness should be limited to a maximum of 18 inches.

- Adequate compaction of shot-rock fill normally requires 8 to 10 passes of heavy construction equipment (i.e., Caterpillar D-8 or other larger or similar equipment) in two directions on the fill surface (half the passes in each perpendicular direction). Our experience indicates that heavy self-propelled sheepsfoot rollers (similar to a Caterpillar 815), in addition to normally used spreading and hauling equipment, may enhance fill performance. The roller can better compact fine portions of the fill and tends to breakup some rock pieces.

- Surface water should not be allowed to pond on the fill surface.

- Maximum shot-rock particle size should be limited to 18 inches (with occasional 24 inch pieces allowed) up to a level of 2 feet below planned finished grades. Above this level, we suggest the maximum particle size be limited to 8 inches.

- All shot-rock fill should have adequate fines to effectively "choke" the larger rock pieces by filling all voids or open spaces. The larger rock pieces should lie flat and not overlap each other. The estimated percentage of soil in the fill should be limited to a maximum of 10 percent by volume.

- Shot-rock fill placement and compaction techniques should be closely monitored by a trained engineering technician, under the direction of the geotechnical engineer. The technical level personnel should document fill constituents, lift thickness, and compaction techniques.

- In building pad areas, the compacted structural fill should extend a minimum of 10 linear feet beyond the perimeter footings before sloping. Compacted structural fill should extend a minimum of 5 linear feet beyond the planned pavement edge before sloping.

- Earthen cut and fill slopes should be constructed at a slope of 2 Horizontal to 1 Vertical (2H to 1V) or flatter. Fill slopes of 3H to 1V are recommended for ease of maintenance.

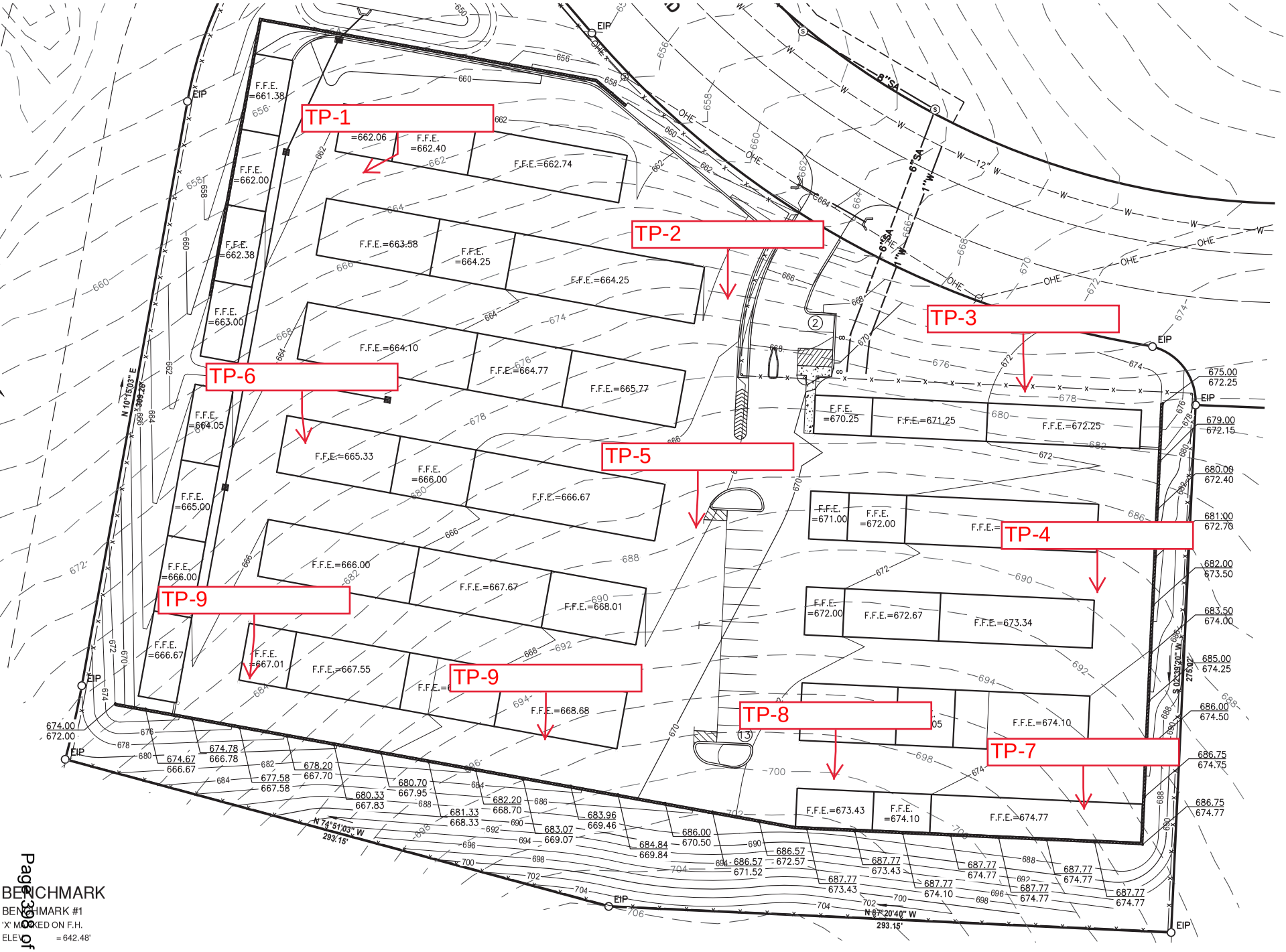
GENERAL QUALIFICATIONS

The recommendations contained in this report are based on an engineering evaluation of the subsurface conditions encountered during our exploration. It is possible the conditions may vary at locations remote from our test pits. If conditions are encountered during construction, which are different from those reported, TEC recommends the geotechnical engineer be notified so modifications of our recommendations can be made, if necessary. Additionally, if our understanding of the planned project information contained in this report differs from the planned construction, TEC recommends that the geotechnical engineer be notified in order that our recommendations can be re-evaluated.

Our services for this project were accomplished in general accordance with accepted geotechnical engineering practice and principles. Our services did not include any environmental assessment of the site (i.e., investigation for the purposes of locating wetlands on or near the site, testing for the presence of hazardous or toxic contaminants in the soil, surface water, groundwater, or air, etc.).

We recommend that TEC be given the opportunity to review final plans and specifications for this project in order to confirm that the recommendations contained in this report have been utilized in accordance with our intent. We also recommend that TEC be retained during construction to perform foundation excavation evaluations, and compacted fill monitoring to confirm that the recommendations contained in this report are being interpreted correctly.

APPENDIX



BENCHMARK

BENCHMARK #1

'X' MARKED ON F.H.

ELEV. = 642.48'

GENER

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

TEST PIT RECORD

Project Name: Freedom Multistorage
Project Location: Columbia, Tennessee
Client: WES Engineers & Surveyors

Test Pit No.: TP - 1
TEC Project No.: 18-E053
Prepared By: J. Karp

Page: 1 of 1

Date Started: 8/22/2018
Date Completed: 8/22/2018
Field Crew: J. Karp

Soil Description	Stratum Depth (ft)	Depth (ft)	Sample Type - No.	N- Values (Blows/Ft)	Pocket Penetrometer (tsf)	Recovery (%)	RQD (%)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	USCS Classification
Surface Elevation											
Topsoil	1.0										
Lean Clay Reddish Brown, CL, Stiff		5									
	9.0	10									
No Refusal @ 9.0'		15									
		20									

Soil Graphics Legend
- TOPSOIL
- FILL MATERIALS
- LEAN CLAY
- HIGH PLASTICITY CLAY
- SILT
- ELASTIC SILT
- LIMESTONE
- SAND

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
RC - Rock Core
G - Grab

Water Level at Completion: Dry

TEST PIT RECORD

Project Name: Freedom Multistorage
Project Location: Columbia, Tennessee
Client: WES Engineers & Surveyors

Test Pit No.: TP - 2
TEC Project No.: 18-E053
Prepared By: J. Karp

Date Started: 8/22/2018
Date Completed: 8/22/2018
Field Crew: J. Karp

Soil Description	Stratum Depth (ft)	Depth (ft)	Sample Type - No.	N- Values (Blows/Ft)	Pocket Penetrometer (tsf)	Recovery (%)	RQD (%)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	USCS Classification
Surface Elevation											
Topsoil	0.8										
Lean Clay Reddish Brown, CL, Stiff		5									
	9.0										
No Refusal @ 9.0'		10									
		15									
		20									

Soil Graphics Legend
- TOPSOIL
- FILL MATERIALS
- LEAN CLAY
- HIGH PLASTICITY CLAY
- SILT
- ELASTIC SILT
- LIMESTONE
- SAND

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
RC - Rock Core
G - Grab

Water Level at Completion: Dry

TEST PIT RECORD

Project Name: Freedom Multistorage
Project Location: Columbia, Tennessee
Client: WES Engineers & Surveyors

Test Pit No.: TP - 3
TEC Project No.: 18-E053
Prepared By: J. Karp

Date Started: 8/22/2018
Date Completed: 8/22/2018
Field Crew: J. Karp

Soil Description	Stratum Depth (ft)	Depth (ft)	Sample Type - No.	N- Values (Blows/Ft)	Pocket Penetrometer (tsf)	Recovery (%)	RQD (%)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	USCS Classification
Surface Elevation											
Topsoil	0.8										
Lean Clay Reddish Brown, CL, Stiff		5									
	10.0	10									
No Refusal @ 10.0'		15									
		20									

Soil Graphics Legend
- TOPSOIL
- FILL MATERIALS
- LEAN CLAY
- HIGH PLASTICITY CLAY
- SILT
- ELASTIC SILT
- LIMESTONE
- SAND

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
RC - Rock Core
G - Grab

Water Level at Completion: Dry

TEST PIT RECORD

Project Name: Freedom Multistorage
Project Location: Columbia, Tennessee
Client: WES Engineers & Surveyors

Test Pit No.: TP - 4
TEC Project No.: 18-E053
Prepared By: J. Karp

Page: 1 of 1

Date Started: 8/22/2018
Date Completed: 8/22/2018
Field Crew: J. Karp

Soil Description	Stratum Depth (ft)	Depth (ft)	Sample Type - No.	N- Values (Blows/Ft)	Pocket Penetrometer (tsf)	Recovery (%)	RQD (%)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	USCS Classification
Surface Elevation											
Topsoil	0.8										
Lean Clay Reddish Brown, CL, Stiff Medium		5									
	9.0	10									
No Refusal @ 9.0'		15									
		20									

Soil Graphics Legend
- TOPSOIL
- FILL MATERIALS
- LEAN CLAY
- HIGH PLASTICITY CLAY
- SILT
- ELASTIC SILT
- LIMESTONE
- SAND

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
RC - Rock Core
G - Grab

Water Level at Completion: Dry

TEST PIT RECORD

Project Name: Freedom Multistorage
Project Location: Columbia, Tennessee
Client: WES Engineers & Surveyors

Test Pit No.: TP - 5
TEC Project No.: 18-E053
Prepared By: J. Karp

Page: 1 of 1

Date Started: 8/22/2018
Date Completed: 8/22/2018
Field Crew: J. Karp

Soil Description Surface Elevation	Stratum Depth (ft)	Depth (ft)	Sample Type - No.	N- Values (Blows/Ft)	Pocket Penetrometer (tsf)	Recovery (%)	RQD (%)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	USCS Classification
Topsoil	1.0										
Lean Clay Yellowish Brown, CL, Stiff	4.0	5									
High Plasticity Clay Yellowish Brown, CH, Stiff	9.0	10									
No Refusal @ 9.0'		15									
		20									

Soil Graphics Legend
- TOPSOIL
- FILL MATERIALS
- LEAN CLAY
- HIGH PLASTICITY CLAY
- SILT
- ELASTIC SILT
- LIMESTONE
- SAND

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
RC - Rock Core
G - Grab

Water Level at Completion: Dry

TEST PIT RECORD

Project Name: Freedom Multistorage
Project Location: Columbia, Tennessee
Client: WES Engineers & Surveyors

Test Pit No.: TP - 6
TEC Project No.: 18-E053
Prepared By: J. Karp

Page: 1 of 1

Date Started: 8/22/2018
Date Completed: 8/22/2018
Field Crew: J. Karp

Soil Description Surface Elevation	Stratum Depth (ft)	Depth (ft)	Sample Type - No.	N- Values (Blows/Ft)	Pocket Penetrometer (tsf)	Recovery (%)	RQD (%)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	USCS Classification
Topsoil	1.0										
Lean Clay Yellowish Red, CL, Stiff	4.0	5									
High Plasticity Clay Yellowish Red, CH, Stiff	9.0	10									
No Refusal @ 9.0'		15									
		20									

Soil Graphics Legend
- TOPSOIL
- FILL MATERIALS
- LEAN CLAY
- HIGH PLASTICITY CLAY
- SILT
- ELASTIC SILT
- LIMESTONE
- SAND

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
RC - Rock Core
G - Grab

Water Level at Completion: Dry

TEST PIT RECORD

Project Name: Freedom Multistorage
Project Location: Columbia, Tennessee
Client: WES Engineers & Surveyors

Test Pit No.: TP - 7
TEC Project No.: 18-E053
Prepared By: J. Karp

Page: 1 of 1

Date Started: 8/22/2018
Date Completed: 8/22/2018
Field Crew: J. Karp

Soil Description	Stratum Depth (ft)	Depth (ft)	Sample Type - No.	N- Values (Blows/Ft)	Pocket Penetrometer (tsf)	Recovery (%)	RQD (%)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	USCS Classification
Surface Elevation											
Topsoil	1.0										
Lean Clay Yellowish Brown, CL, Stiff		5									
	9.5	10									
Refusal @ 9.5' Weathered Bedrock		15									
		20									

Soil Graphics Legend
- TOPSOIL
- FILL MATERIALS
- LEAN CLAY
- HIGH PLASTICITY CLAY
- SILT
- ELASTIC SILT
- LIMESTONE
- SAND

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
RC - Rock Core
G - Grab

Water Level at Completion: Dry

TEST PIT RECORD

Project Name: Freedom Multistorage
Project Location: Columbia, Tennessee
Client: WES Engineers & Surveyors

Test Pit No.: TP - 8
TEC Project No.: 18-E053
Prepared By: J. Karp

Date Started: 8/22/2018
Date Completed: 8/22/2018
Field Crew: J. Karp

Surface Elevation

Soil Description	Stratum Depth (ft)	Depth (ft)	Sample Type - No.	N- Values (Blows/Ft)	Pocket Penetrometer (tsf)	Recovery (%)	RQD (%)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	USCS Classification
Topsoil	0.8										
Lean Clay Yellowish Brown, CL, Stiff		5									
	9.0	10									
No Refusal @ 9.0'		15									
		20									

Soil Graphics Legend
- TOPSOIL
- FILL MATERIALS
- LEAN CLAY
- HIGH PLASTICITY CLAY
- SILT
- ELASTIC SILT
- LIMESTONE
- SAND

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
RC - Rock Core
G - Grab

Water Level at Completion: Dry

TEST PIT RECORD

Project Name: Freedom Multistorage
Project Location: Columbia, Tennessee
Client: WES Engineers & Surveyors

Test Pit No.: TP - 9
TEC Project No.: 18-E053
Prepared By: J. Karp

Date Started: 8/22/2018
Date Completed: 8/22/2018
Field Crew: J. Karp

Surface Elevation

Soil Description	Stratum Depth (ft)	Depth (ft)	Sample Type - No.	N- Values (Blows/Ft)	Pocket Penetrometer (tsf)	Recovery (%)	RQD (%)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	USCS Classification
Topsoil	0.8										
Lean Clay Yellowish Brown, CL, Stiff		5									
	10.5	10									
No Refusal @ 10.5'		15									
		20									

Soil Graphics Legend
- TOPSOIL
- FILL MATERIALS
- LEAN CLAY
- HIGH PLASTICITY CLAY
- SILT
- ELASTIC SILT
- LIMESTONE
- SAND

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
RC - Rock Core
G - Grab

Water Level at Completion: Dry

TEST PIT RECORD

Project Name: Freedom Multistorage
Project Location: Columbia, Tennessee
Client: WES Engineers & Surveyors

Test Pit No.: TP - 10
TEC Project No.: 18-E053
Prepared By: J. Karp

Date Started: 8/22/2018
Date Completed: 8/22/2018
Field Crew: J. Karp

Soil Description	Stratum Depth (ft)	Depth (ft)	Sample Type - No.	N- Values (Blows/Ft)	Pocket Penetrometer (tsf)	Recovery (%)	RQD (%)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plasticity Index	USCS Classification
Surface Elevation											
Topsoil	0.8										
Lean Clay Yellowish Brown, CL, Stiff		5 10									
No Refusal @ 11.0'	11.0	15 20									

Soil Graphics Legend
- TOPSOIL
- FILL MATERIALS
- LEAN CLAY
- HIGH PLASTICITY CLAY
- SILT
- ELASTIC SILT
- LIMESTONE
- SAND

Sample Type
SS - Driven Split Spoon
ST - Pressed Shelby Tube
RC - Rock Core
G - Grab

Water Level at Completion: Dry

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Franklin, TN 37064
615-678-8212
www.T2-Eng.com

June 26, 2024

Glenn Harper, P.E.
City Engineer
700 North Garden St.
Columbia, TN 38401
gharper@columbiatn.com

Project: Northpointe Industrial Park – Columbia, TN

Subject: Traffic Impact Letter

Dear Glenn,

This letter outlines the traffic impact of the proposed Northpointe Industrial Park in Columbia, TN. The proposed development will consist of an industrial park of approximately 55,000 SF. As shown on the Site Plan on Figure 1 (attached), the proposed development is located along Northpointe Road, west of Nashville Highway (US31). The development is proposing two (2) site access points on the south side of Northpointe Road. The area is predominantly industrial. To evaluate the projected traffic operations, existing traffic volumes were grown to a 2025 design year based on average traffic growth rates with estimated trips generated from the proposed development added. Improvement recommendations were presented to alleviate the expected traffic volumes' effect on the existing roadway network (if any).

Existing Traffic Counts

To establish the average daily traffic volumes along Northpointe Road near the project site, T-Square Engineering conducted weekday Average Daily Traffic (ADT) counts. The counts were conducted over a 24-hour period from June 10, 2024, to June 11, 2024. From the tube counts, the AM and PM peak hours were established and determined to occur between 6:30 AM – 7:30 AM and 3:00 PM – 4:00 PM, respectively. The table below contains a summary of the existing 2024 ADT volumes along Northpointe Road.

Existing 2024 – Northpointe Road Average Daily Traffic Volumes

Roadway	Approach	AM Peak	PM Peak	Daily
Northpointe Road	EB	43	208	1,016
	WB	221	43	1,130
	TOTAL	**264**	**251**	**2,146**

Background Traffic Volumes

To account for traffic growth within the vicinity of the project site prior to the completion of the proposed Northpointe Industrial Park, background traffic volumes were established. Average annual daily traffic (AADT) volumes were obtained from Tennessee Department of Transportation (TDOT) count stations, and an average growth trend per year was established. This growth trend was used as a multiplication factor to grow the existing traffic volumes to the 2025 design year (development completion). As shown in Figure 2 (attached), the average yearly percent change in traffic over a six (6) year period from 2018 - 2023 was 3.55%. Therefore, the existing traffic volumes were grown by +3.55% per year for one (1) year. The table below contains a summary of the background 2025 ADT volumes along Northpointe Road.

Background 2025 – Northpointe Road Average Daily Traffic Volumes

Roadway	Approach	AM Peak	PM Peak	Daily
Northpointe Road	EB	45	215	1,052
	WB	229	45	1,170
	TOTAL	**274**	**260**	**2,482**

Impacts

Trips were generated to establish projected traffic volumes for the proposed Northpointe Industrial Park. Daily and peak hour trips were generated by formulas presented in the *Trip Generation Manual*[1] based on the characteristics on the size of the land uses proposed by the development. The development will consist of an industrial park of 55,000 SF. The Industrial Park (130) ITE Land Use was used to estimate the generated traffic volumes. The table below provides the new trips generated for the proposed development.

Northpointe Industrial Park Trip Generation Summary

Land Use (ITE Code)	Size	Generated Traffic Volumes				
		Daily	AM Peak		PM Peak	
			Enter	Exit	Enter	Exit
Industrial Park (130)	55,000 SF	688	15	4	4	15

For the purposes of this study, the estimated directional distributions shown on Figures 3 (attached) were made for the proposed development's generated traffic volumes. These directional distributions were established based on the following:

- Existing land use characteristics.
- Existing roadway network.
- The developments proposed access locations.

[1] Institute of Transportation Engineers (ITE). Trip Generation Manual, 11th Edition. Washington, DC: ITE, 2024

— Locations of populations centers within the surrounding area.

Figure 4 (attached) shows the primary generated trips which were assigned to the existing roadway network per the distributions shown on Figure 3. The generated peak hour trips were added to the background traffic volumes, resulting in the projected peak hour traffic volumes as shown on Figure 5 (attached).

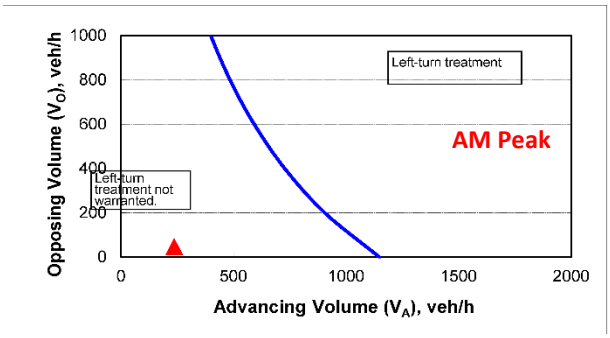
Intersection Assessments (Projected Conditions)

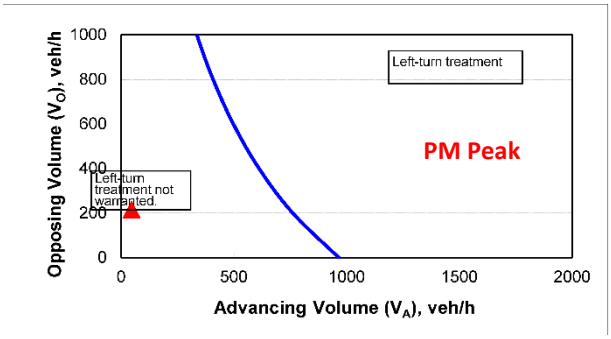
Engineering assessments were performed on the intersections within the study area to identify underlying inefficiencies and solutions to alleviate any concerns associated with proposed intersection geometries and projected traffic volumes along the roadway network. Major-road approach left-turn lane warrants were performed based on Figures 2-5 in the *NCHRP Report 457 – Evaluating Intersection Improvements: An Engineering Study Guide*[2] and projected traffic volumes. The results of the warrants are shown below.

Northpointe Road and Site Access 1

Major-Road Approach Geometry, WBL Northpointe Road at Site Access 1

Variable	AM Peak	PM Peak
85th percentile speed, mph:	30	30
Percent of left-turns in advancing volume (V_A), %:	3%	4%
Advancing volume (V_A), veh/h:	236	47
Opposing volume (V_O), veh/h:	45	215
Limiting advancing volume (V_A), veh/h:	1,085	748
Left-turn bay warranted:	**NO**	**NO**
Source: *NCHRP Report 457: Evaluating Intersection Improvements: An Engineering Study Guide*		





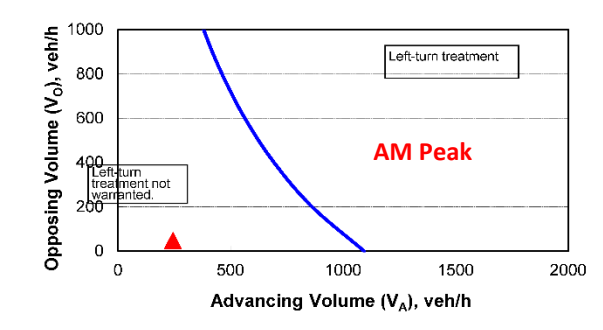
As shown in the table above and the corresponding graphs, it was determined that a westbound left-turn lane is not warranted along Northpointe Road at its intersection with the proposed Site Access 1 during either peak hour period with projected traffic volumes.

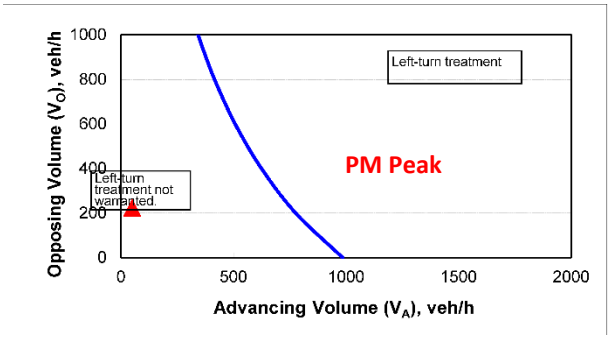
[2] Transportation Research Board (TRB). Evaluating Intersection Improvements: An Engineering Study Guide. Washington, DC: 2001

Northpointe Road and Site Access 2

Major-Road Approach Geometry, WBL Northpointe Road at Site Access 2

Variable	AM Peak	PM Peak
85th percentile speed, mph:	30	30
Percent of left-turns in advancing volume (V_A), %:	3%	4%
Advancing volume (V_A), veh/h:	244	49
Opposing volume (V_O), veh/h:	47	222
Limiting advancing volume (V_A), veh/h:	1,031	757
Left-turn bay warranted:	**NO**	**NO**
Source: *NCHRP Report 457: Evaluating Intersection Improvements: An Engineering Study Guide*		





As shown in the table above and the corresponding graphs, it was determined that a westbound left-turn lane is not warranted along Northpointe Road at its intersection with the proposed Site Access 2 during either peak hour period with projected traffic volumes.

Recommendations

Based on the analyses within this study, and a review of the proposed development's access plan, the recommendations below are presented to be implemented as part of the proposed Northpointe Industrial Park in Columbia, TN:

Northpointe Road and Site Access 1

- Construct the proposed Site Access along Northpointe Road one (1) inbound lane and one (1) outbound lane operating under a stop condition for Northpointe Road according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- All radii for the proposed access shall be designed to accommodate the largest turning requirements of either an SU-30 truck (garbage) or an emergency vehicle (fire apparatus) that will service the development according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- Ensure the departure sight distance triangles for all driveways, internal intersections, and site access intersections are designed to be clear of all sight obstructions (including grade) as specified by AASHTO. The design of the proposed internal roadway system should be completed according to the MUTCD, AASHTO, TDOT, and City of Columbia standards.

Northpointe Road and Site Access 2

- Construct the proposed Site Access along Northpointe Road one (1) inbound lane and one (1) outbound lane operating under a stop condition for Northpointe Road according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- All radii for the proposed access shall be designed to accommodate the largest turning requirements of either an SU-30 truck (garbage) or an emergency vehicle (fire apparatus) that will service the development according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- Ensure the departure sight distance triangles for all driveways, internal intersections, and site access intersections are designed to be clear of all sight obstructions (including grade) as specified by AASHTO. The design of the proposed internal roadway system should be completed according to the MUTCD, AASHTO, TDOT, and City of Columbia standards.

Please let me know if you have any questions, comments, or concerns.

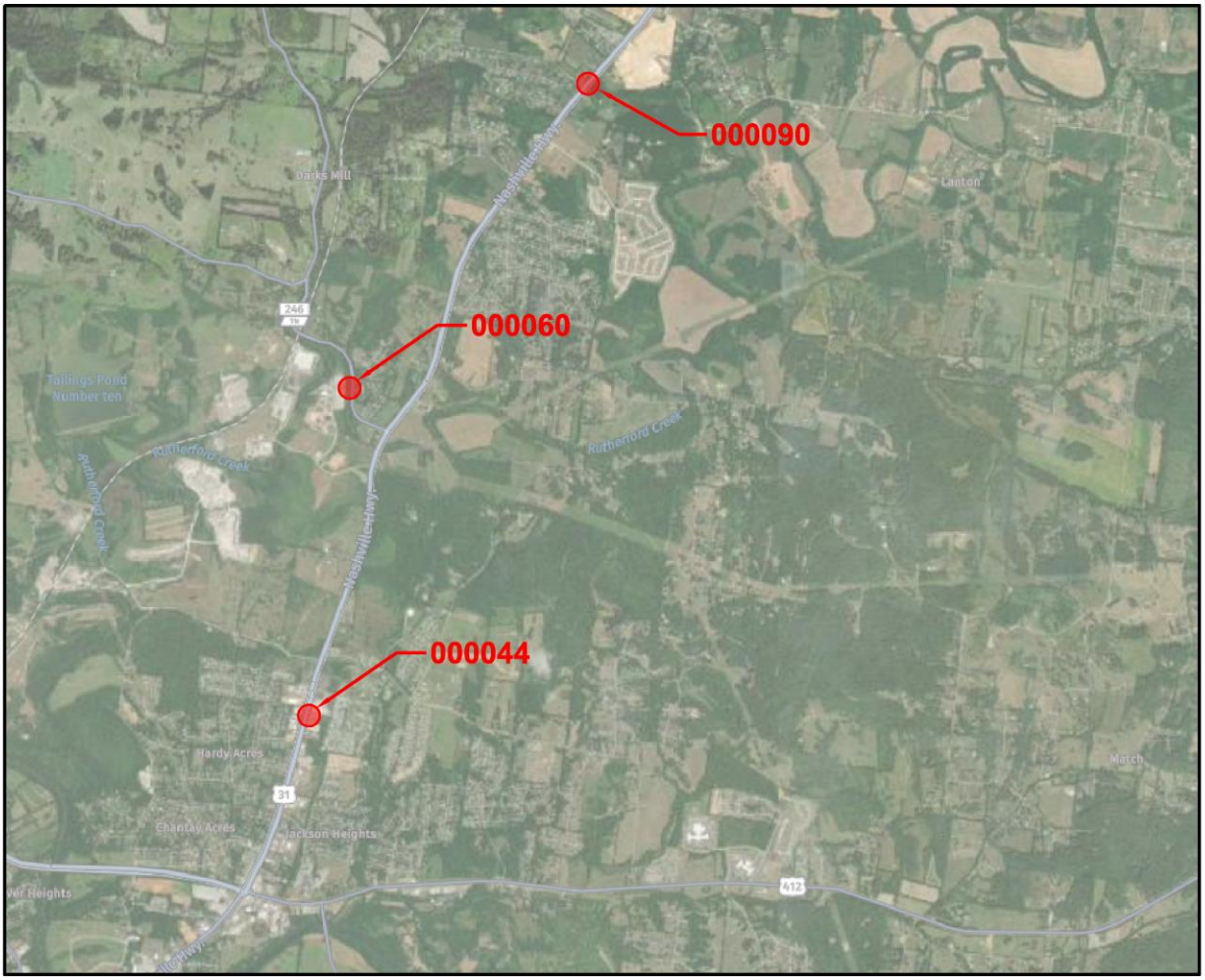
Sincerely,

Date: June 26, 2024

James O. Ensley, III, P.E., PTOE
Project Manager – Traffic Division
T-Square Engineering, Inc.

N.T.S.

Figure 1
Preliminary Site Plan



TDOT Count Station:	Maury 000060		Maury 000044		Maury 000091		Average % Growth
Year	AADT	% Change	AADT	% Change	AADT	% Change	
2023	6,796	--	45,858	--	39,227	--	--
2022	5,866	15.85%	45,166	1.53%	36,227	8.28%	8.55%
2021	6,591	1.56%	40,382	6.78%	35,920	4.60%	4.31%
2020	6,897	-0.49%	37,972	6.92%	35,050	3.97%	3.46%
2019	6,500	1.14%	43,329	1.46%	41,975	-1.64%	0.32%
2018	6,942	-0.42%	40,922	2.41%	36,823	1.10%	4.93%
Average % Change	**3.53%**		**3.82%**		**3.31%**		**3.55%**

N.T.S.

Figure 2
TDOT Count Locations & Background Traffic Growth Trends

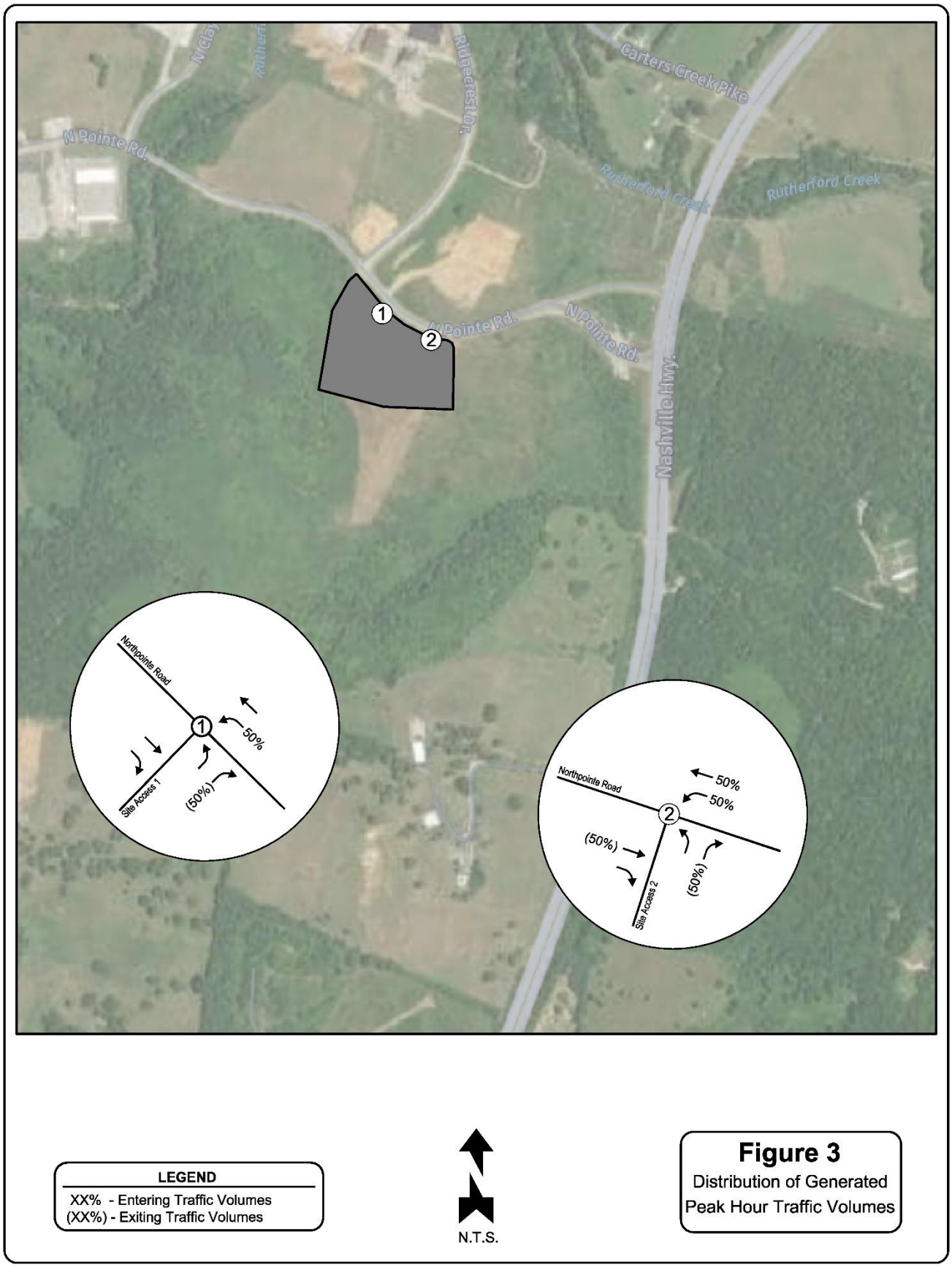
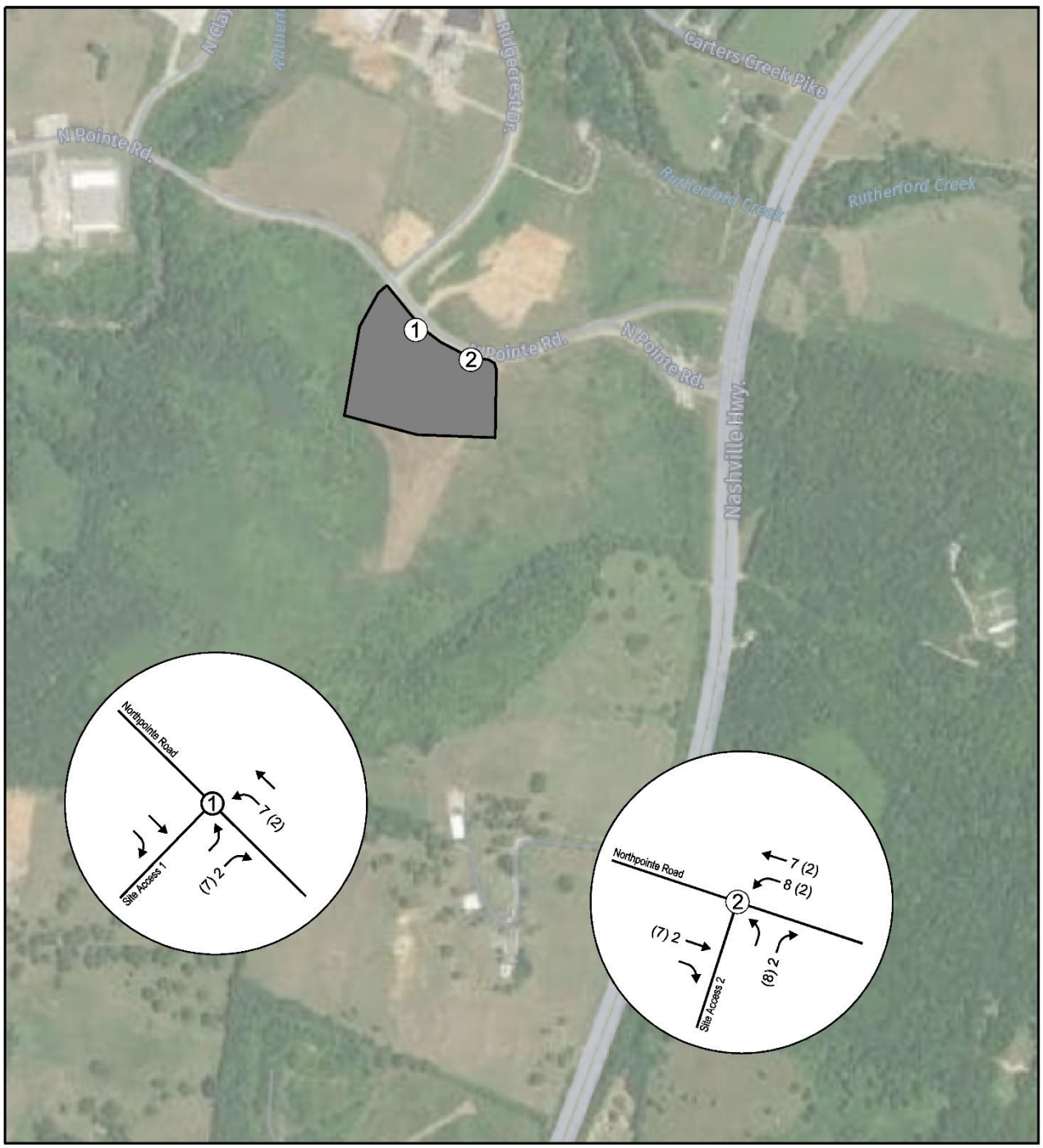


Figure 3
Distribution of Generated
Peak Hour Traffic Volumes

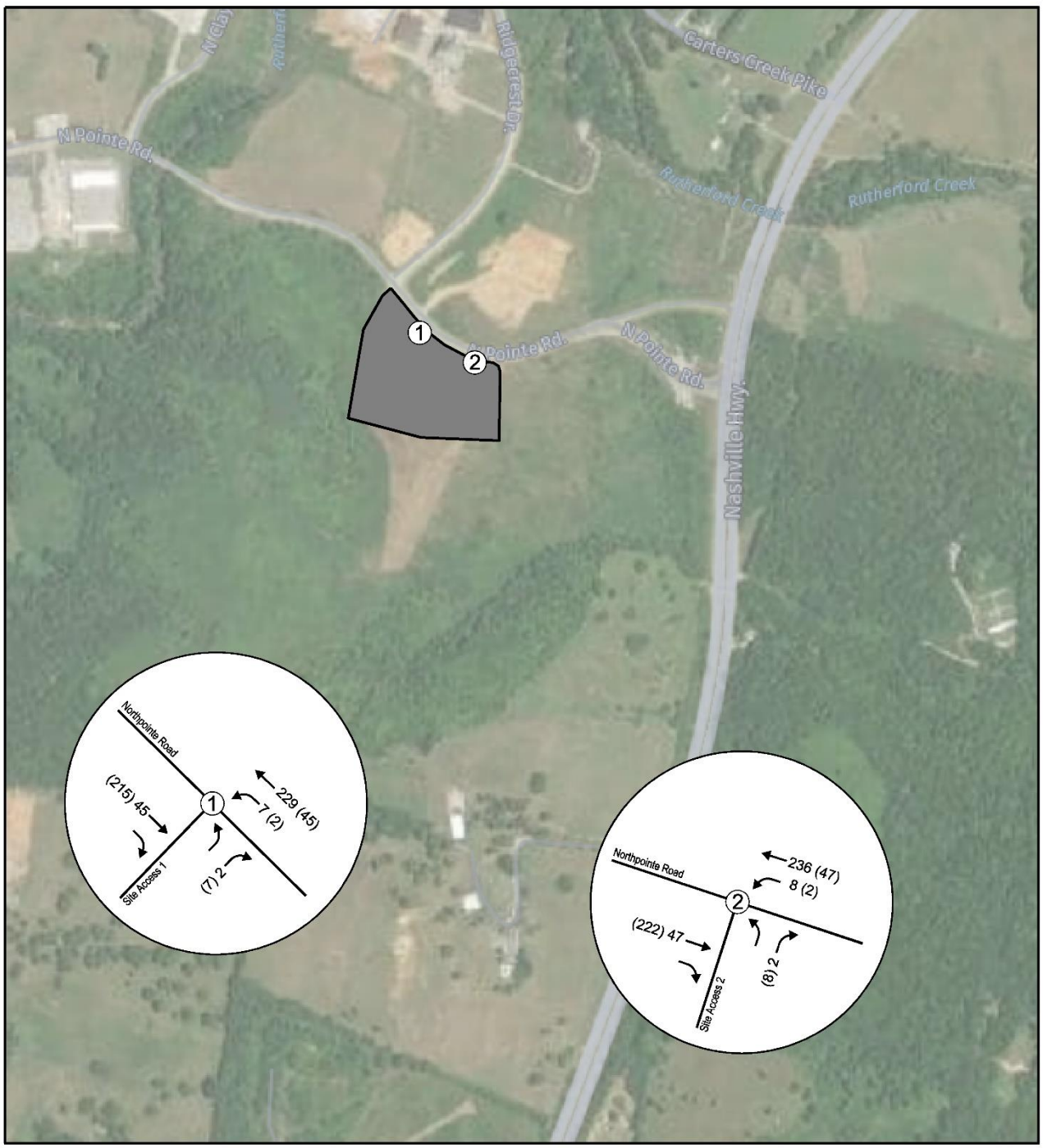


LEGEND

XXX - AM Peak Hour Traffic Volumes
(XXX) - PM Peak Hour Traffic Volumes

N.T.S.

Figure 4
Assignment of Generated Peak Hour Traffic Volumes



LEGEND

XXX - AM Peak Hour Traffic Volumes
(XXX) - PM Peak Hour Traffic Volumes

N.T.S.

Figure 5
Projected Traffic Volumes (2025)

August 29, 2024
Mr. Dave Craker
BDI Properties
4715 Rita's Way
Franklin, TN 37064
Sent via email: davec@pdbtn.com
RE: Water Availability Letter
North Pointe Business Condos
North Pointe Road
Columbia, Maury County, TN

Dear Mr. Craker:

Columbia Power and 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, various Planning Commissions and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies, water service will be made available on a first-come, first-served basis, 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.

As submitted by the applicant, the proposed development includes single-story office units totaling 60,000 square feet. 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 capacity of 1,500 gpm at 20 psi while maintaining the existing level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following requirements:

- Domestic waterline connection will be made to the existing 8-inch stubout located on North Pointe Road.
- The development will be served by a master domestic meter, currently estimated at 2" diameter. Any submetering of individual units will be the responsibility of the applicant.
- If the fire marshal requires new hydrants on the property, they will be private hydrants located on the customer side of a fire meter and may require a new tap on the existing 12-inch main in order to meet 1,500 gpm flow requirements.

All of the above requirements are to be constructed and paid for by the Applicant and dedicated to CPWS once complete up to and including the meter. No construction of CPWS infrastructure shall be initiated until final construction plans have been approved by TDEC and all parties have fully executed a water service agreement.

Once you have received this Water Availability Letter, next steps in the process to obtain water service from CPWS are as follows:

- Within 120 days of the date on this letter, remit to CPWS new water service fees:

New Water Service Fee: $1,500 + $370 per SFU (45.3 SFUs)	$18,261.00

- Provide site utility drawings for review and comment indicating the proposed locations of all taps, meters, backflow devices, and, if required, new hydrants.
- Upon resolution of all comments and payment of meter and impact fees by the applicant, applicant may then schedule a pre-construction meeting with CPWS. Pre-construction meeting will not be scheduled until fees are paid in full or surety is provided in lieu of full payment. Final meter and impact 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 extended lead-times.

Meter Fee: TBD per 6" fire meter (1 meter)	TBD
Meter Fee: TBD per 2" meter (1 meter)	TBD
Impact Fee: $25,000 per 2" meter (1 meter)	$25,000.00
Total Meter and Impact Fees Due =	**$25,000.00**

- After the pre-construction meeting, CPWS will then issue a formal notice to proceed. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then 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.

If you have any questions, please feel free to contact me at 423-774-0349 or eric.king@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,

Eric King, P.E.
Inflo Design Group, LLC
on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 24-040

CITY OF COLUMBIA
TENNESSEE

WASTEWATER DEPARTMENT

23 May 2024

Nathan McVey
111 Southeast Parkway Ct
Franklin, TN 37064

RE: 0 Northpointe Road, Columbia, TN 38401; Map 66, Parcel 20.22

Nathan,

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.

Any light industry will require an Application for Permit related to Pretreatment to ensure what is produced and discharged to sewer cannot adversely affect the lines or the plant, or to see if the industry should be permitted because of flow.

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department

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CIVIL-SITE | TRAFFIC | WASTEWATER

111 Southeast PWY Ct.
Franklin, TN 37064
615.678.8212

www.T2-eng.com

Introduction

The Northpointe Industrial project is located at the southwest corner of Northpointe Road and Ridgecrest Dr. in Columbia, TN. The proposed development will contain a business industrial park with associated site parking and infrastructure on +/- 5.11 acres.

Zach Moore, PE, LEED AP Project Manager
T-Square Engineering, Inc.

www.**T2-ENG**.com | Zach.Moore@t2-eng.com | 615.678.8212, ext. 105

CITY OF
COLUMBIA
TENNESSEE

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

Preliminary Plat, Site Development Plan, and PUD Checklist

Development: Northpointe Industrial

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.

CITY OF
COLUMBIA
TENNESSEE

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

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.

CITY OF
COLUMBIA
TENNESSEE

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

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:

Zach Moore, P.E.		**9/20/24**
Print Name	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 (onlama.com)

ADDRESS/LOCATION	0 Northpointe Road, Columbia, TN 38401		
	TAX MAP: 66	GROUP:	PARCEL: 020.22
SUMMARY OF NATURE OF REQUEST AND WORK	Submission of a Site Development Plan proposing 55,000 s.f. of flex space, and associated parking on the site zoned SD-LI.		

DATE OF PRE-APPLICATION CONFERENCE	7/3/2024	*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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	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	Zach Moore, P.E.	PHONE	615-678-8212
ADDRESS	111 Southeast Pwy. Ct., Franklin, TN 37064	EMAIL	Zach.moore@T2-eng.com

PROPERTY OWNER NAME	Dave Craker	PHONE	615-945-0745
ADDRESS	4715 Rita's Way, Franklin, TN 37064	EMAIL	Davec@pdbtn.com

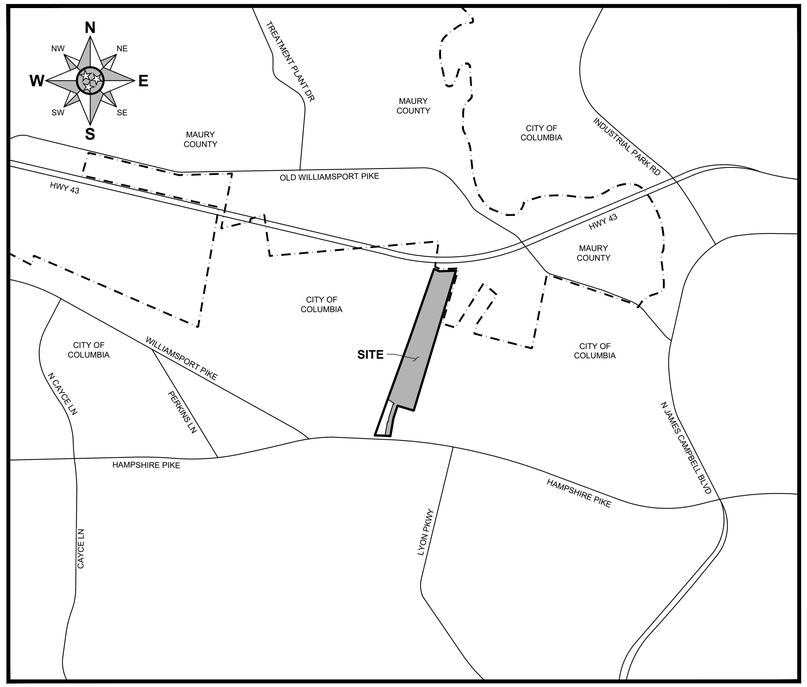
If owner is not a natural person, documentation must be provided showing signing authority on behalf of the entity. If multiple persons are listed as owners in the records of the Maury County Assessor, all owners must sign or the signatory must provide documentation of authority to apply on behalf of 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.

Zach Moore, P.E. APPLICANT NAME	 APPLICANT SIGNATURE	10/21/24 DATE
Dave Craker PROPERTY OWNER NAME	David A Craker David A Craker (Oct 21, 2024 14:28 CDT) PROPERTY OWNER SIGNATURE	10/21/24 DATE

Rev. 2/7/2024

FINAL PLAT FOR:
HAMPSHIRE HILLS

1316 HAMPSHIRE PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE
P/O TAX MAP 89P, GROUP A, PARCEL 15.00
OCTOBER 21, 2024



VICINITY MAP
SCALE: 1"=1000'

FINAL SUBDIVISION PLAT MAURY COUNTY, TENNESSEE	
TOTAL ACRES: 16.42	TOTAL LOTS: 43
ACRES NEW STREETS: 3.50	FEET NEW STREETS: 2,975
CIVIL DISTRICT: 9TH	CLOSURE ERROR: 1:10,000±
MILES OF NEW ROADS: 0.56	DATE: OCTOBER 21, 2024

SUBJECT PROPERTY INFORMATION:

- OWNER: CYPRESS HOMES, LLC
- PARCEL ID: TAX MAP 89P, GROUP A, PARCEL 15.00
- INSTRUMENT: RB 2957, PG 1146
- TOTAL AREA = 17.62 AC. (15,988 S.F.)±
- ZONING: RS-10 (PER PREVIOUS ZONING ORDINANCE, DATED JULY 14, 2022)

CONTACT LIST

OWNER/DEVELOPER

CYPRESS HOMES, LLC
P.O. BOX 682447
FRANKLIN, TN 37068
CONTACT: BEN BEASLEY
PHONE: 615-497-1511
E-MAIL: ben@cypresshomestn.com

SURVEYOR

M2 GROUP, LLC
P.O. BOX 2543
BRENTWOOD, TN 37024
PHONE: 615-656-0257 (EXT. 2000)
CONTACT: STEPHEN VANDER HORST, RLS, CFS
E-MAIL: stephen@m2grouplc.com

GENERAL NOTES:

1. THE PURPOSE OF THIS PLAT IS TO CREATE 43 LOTS AND 4 OPEN SPACES.
2. BEARINGS ARE BASED ON THE TENNESSEE STATE PLANE COORDINATE SYSTEM (NAD83).
3. SURVEY FIELD WORK WAS COMPLETED ON AUGUST 29, 2024.
4. THIS SURVEY WAS PREPARED USING THE CURRENT DEEDS AND PLATS OF RECORD FOR THE SUBJECT PROPERTY.
5. ALL DEED BOOK AND PLAT REFERENCES PERTAIN TO THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
6. ADJOINING PROPERTY LINES SHOWN WERE PLOTTED FROM INFORMATION TAKEN FROM EITHER DEED DESCRIPTION, RECORD PLATS, OR TAX MAPS.
7. PROPERTY CORNERS SET THIS SURVEY ARE 18" #4 REBAR WITH ORANGE PLASTIC CAP STAMPED "M2 GROUP", 18" #5 REBAR WITH YELLOW PLASTIC CAP STAMPED "M2 GROUP, LLC", OR PK NAIL WITH STAINLESS STEEL WASHER STAMPED "M2 GROUP, LLC", UNLESS NOTED OTHERWISE.
8. UNDERGROUND UTILITIES, IF SHOWN, HAVE BEEN PLOTTED FROM PLANS AND MARKINGS COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES (CI/ASCE 38-2, QUALITY LEVEL C). OTHER UNDERGROUND UTILITIES MAY EXIST WHICH ARE NOT SHOWN AS A RESULT OF INFORMATION NOT BEING PROVIDED BY THE UTILITY OWNER. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT OR CONTRACTOR IS ADVISED THAT EXCAVATION MAY BE NECESSARY. CALL 811 BEFORE YOU DIG.
9. THE PROPERTY SHOWN HEREON IS LOCATED IN A FLOOD HAZARD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN) ACCORDING TO F.I.R.M. MAP "MAURY COUNTY, TENNESSEE" PANELS 165 & 280 OF 440, MAP NUMBER 47119C0165E & 47119C0280E, EFFECTIVE APRIL 16, 2007.
10. THE SUBJECT PROPERTY SHOWN HEREON HAS A ZONING DESIGNATION OF "RS-10", RESIDENTIAL DISTRICT ACCORDING TO THE PREVIOUS CITY OF COLUMBIA OFFICIAL ZONING MAP, DATED JULY 14, 2022. SETBACK REQUIREMENTS ARE AS FOLLOWS:
    FRONT = 30 FEET
    SIDE = 10 FEET
    REAR = 30 FEET
11. ALL OPEN SPACE IS TO SERVE AS A PUBLIC UTILITY, DRAINAGE, AND ACCESS EASEMENT (PUDAE).

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 R2069, PAGE 668, MAURY COUNTY REGISTERS OFFICE, AND ADOPT THIS FINAL SUBDIVISION PLAT OF 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 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 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 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.

REGISTERED LAND SURVEYOR _____ NUMBER _____ DATE _____

CERTIFICATE OF SANITARY SEWER SYSTEM

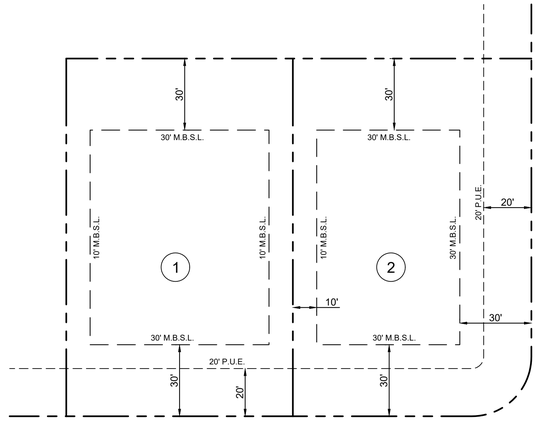
I HEREBY CERTIFY THAT THE SANITARY SEWER SYSTEM OUTLINED OR INDICATED ON THIS FINAL SUBDIVISION PLAT HAS BEEN INSTALLED IN ACCORDANCE WITH THE CURRENT LOCAL AND STATE GOVERNMENT REQUIREMENTS, OR A SUFFICIENT BOND OR OTHER SURETY HAS BEEN FILED TO GUARANTEE SAID INSTALLATION.

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



TYPICAL LOT LAYOUT
SCALE: 1"=30'
(TYPICAL UNLESS NOTED OTHERWISE)

REVISION #	DATE	DESCRIPTION

FINAL PLAT
HAMPSHIRE HILLS
1316 HAMPSHIRE PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

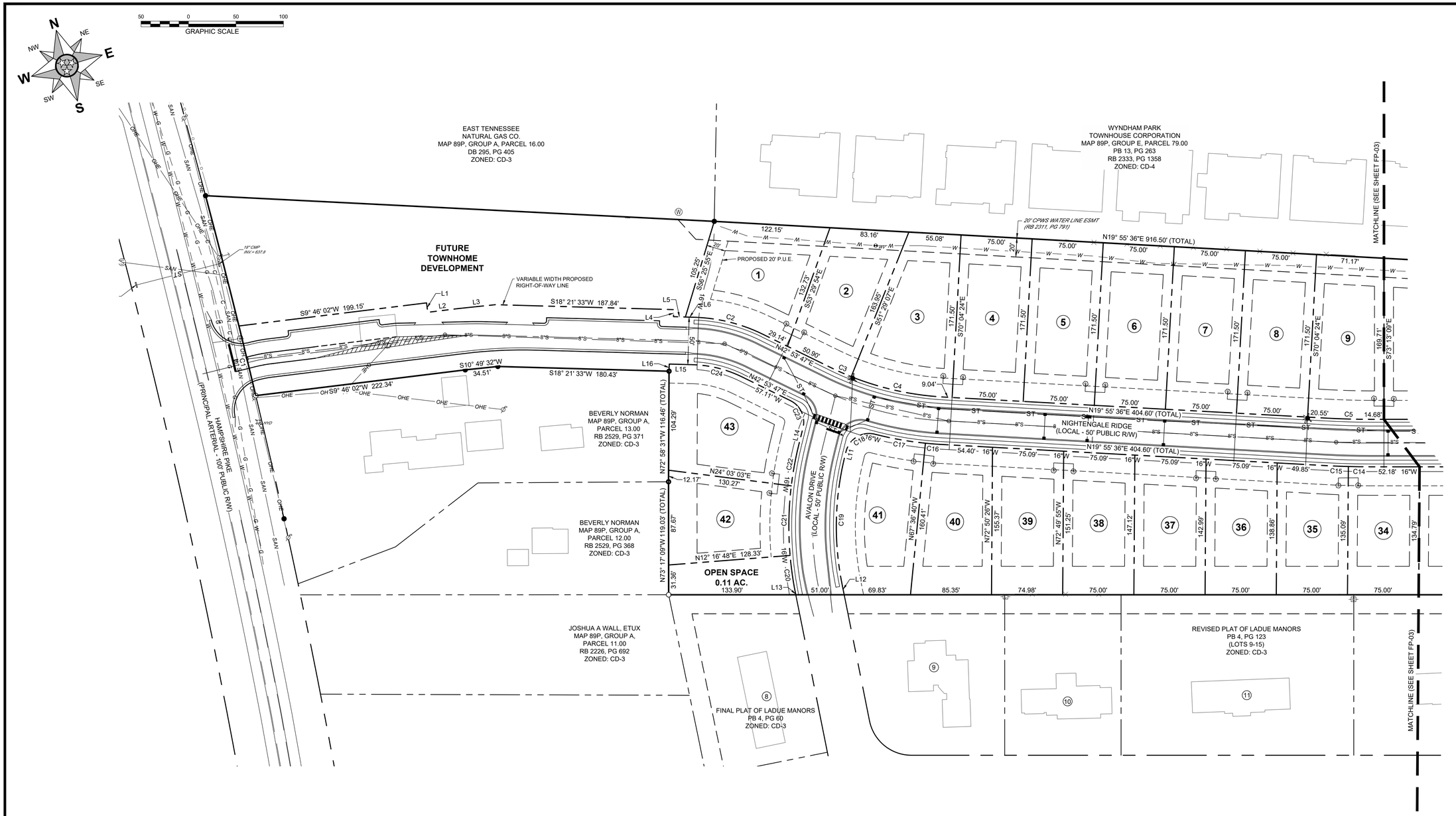
M2 GROUP
P.O. BOX 2543
BRENTWOOD, TN 37024-2543
WWW.M2GROUPLLC.COM

COVER SHEET

DRAWN BY: ERG
CHECKED BY: SVH
DATE: OCTOBER 21, 2024
PROJECT NO. : 23-081

SHEET NUMBER:
FP-01

23-081 - FP - COVER SHEET.DWG | Monday, October 21, 2024 2:43:10 PM



LOT AREA TABLE		
LOT #	AREA (S.F.)	AREA (AC.)
1	13,102	0.30
2	11,395	0.26
3	13,827	0.32
4	12,862	0.30
5	12,862	0.30
6	12,862	0.30
7	12,862	0.30
8	12,862	0.30
9	12,972	0.30
10	12,573	0.29
11	12,264	0.28
12	11,954	0.27
13	11,623	0.27
14	11,281	0.26
15	10,246	0.24

LOT AREA TABLE		
LOT #	AREA (S.F.)	AREA (AC.)
16	10,041	0.23
17	10,095	0.23
18	10,133	0.23
19	10,153	0.23
20	10,034	0.23
21	12,601	0.29
22	10,101	0.23
23	10,102	0.23
24	10,103	0.23
25	10,103	0.23
26	10,104	0.23
27	10,104	0.23
28	10,105	0.23
29	13,120	0.30
30	10,243	0.24

LOT AREA TABLE		
LOT #	AREA (S.F.)	AREA (AC.)
31	10,108	0.23
32	10,108	0.23
33	10,109	0.23
34	10,112	0.23
35	10,263	0.24
36	10,569	0.24
37	10,879	0.25
38	11,189	0.26
39	11,496	0.26
40	12,296	0.28
41	13,573	0.31
42	11,043	0.25
43	14,471	0.33

LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	10.00	N80° 13' 58"W
L2	32.41	S09° 46' 02"W
L3	39.39	S10° 49' 32"W
L4	7.46	N71° 38' 27"W
L5	12.52	S18° 21' 33"W
L6	9.21	S18° 21' 33"W
L7	32.17	N67° 26' 13"W
L8	19.91	N73° 13' 31"W
L9	19.91	S73° 13' 31"E
L10	32.17	S67° 26' 13"E
L11	4.93	N59° 17' 53"W
L12	11.60	N84° 34' 31"W
L13	1.57	S84° 34' 31"E
L14	18.40	S59° 17' 53"E
L15	24.85	N18° 21' 33"E
L16	7.54	N71° 38' 27"W

CURVE TABLE				
CURVE #	LENGTH	RADIUS	CHORD BRNG	CHORD LENGTH
C1	75.49	7690.00	N86° 47' 04"W	75.49
C2	74.95	175.00	S30° 37' 40"W	74.37
C3	23.43	308.00	S40° 43' 02"W	23.42
C4	100.05	308.00	S29° 13' 56"W	99.61
C5	45.30	825.00	S18° 21' 14"W	45.29
C6	47.12	30.00	N28° 13' 09"W	42.43
C7	47.12	30.00	N61° 46' 52"E	42.43
C8	38.66	25.00	N27° 31' 23"W	34.92
C9	27.43	358.00	N69° 37' 56"W	27.43
C10	31.12	308.00	N70° 19' 52"W	31.10
C11	36.17	358.00	S70° 19' 52"E	36.15
C12	20.96	308.00	S69° 23' 10"E	20.95

CURVE TABLE				
CURVE #	LENGTH	RADIUS	CHORD BRNG	CHORD LENGTH
C13	40.09	25.00	N62° 43' 22"E	35.93
C14	22.82	875.00	N17° 31' 41"E	22.82
C15	25.22	875.00	N19° 06' 04"E	25.22
C16	16.44	358.00	N21° 14' 32"E	16.44
C17	53.99	358.00	N26° 52' 41"E	53.94
C18	39.49	25.00	N14° 02' 59"W	35.51
C19	135.88	308.00	N71° 56' 12"W	134.78
C20	40.30	358.00	S81° 21' 02"E	40.28
C21	73.43	358.00	S72° 14' 58"E	73.30
C22	44.21	358.00	S62° 50' 09"E	44.18
C23	33.95	25.00	N81° 47' 57"E	31.40
C24	53.53	125.00	N30° 37' 40"E	53.12

LEGEND:

- EXISTING PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING ADJACENT PROPERTY LINE
- MUNICIPLE / TOWNSHIP / DISTRICT LINE
- EXISTING EASEMENT
- MBSL — MINIMUM BUILDING SETBACK LINE
- W — EXISTING WATER LINE
- IRON REBAR FOUND (IRF)
- IRON PIPE FOUND (IPF)
- WV — WATER VALVE
- FIRE HYDRANT

REVISION #	DATE	DESCRIPTION

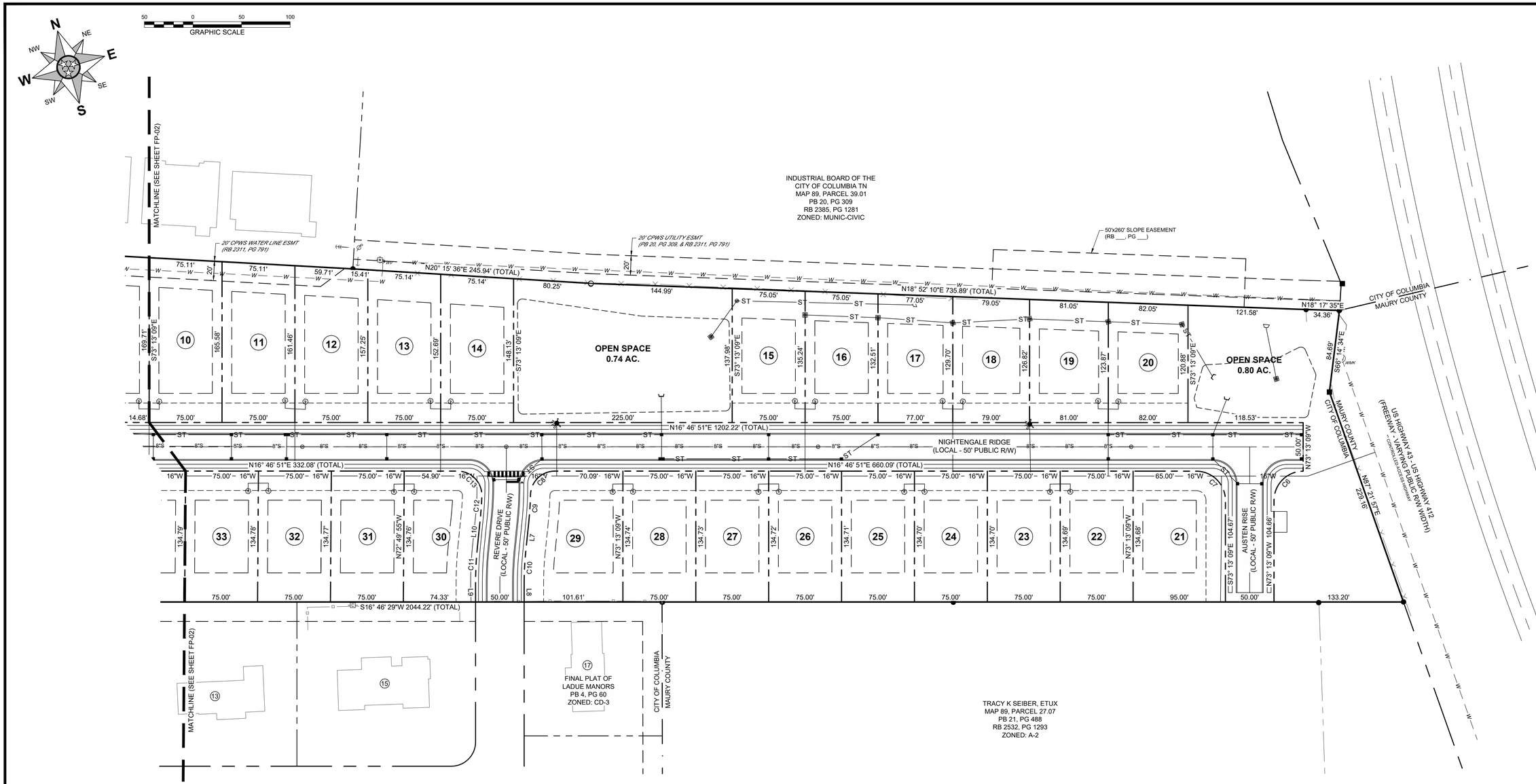
FINAL PLAT
HAMPSHIRE HILLS
1316 HAMPSHIRE PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

MJ2 GROUP
P.O. BOX 2543
BRENTWOOD, TN 37024-2543
WWW.MJ2GROUPLLC.COM

FINAL PLAT

DATE: OCTOBER 21, 2024 | DRAWN BY: ERG
PROJECT NO.: 23-081 | CHECKED BY: SVH

SHEET NUMBER:
FP-02



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REVISION #	DATE	DESCRIPTION

FINAL PLAT
HAMPSHIRE HILLS
1316 HAMPSHIRE PIKE
CITY OF COLUMBIA
MAURY COUNTY, TENNESSEE

M2 GROUP
P.O. BOX 2543
BRENTWOOD, TN 37024-2543
WWW.M2GROUPLLC.COM

FINAL PLAT

DATE : OCTOBER 21, 2024
PROJECT NO. : 23-081
DRAWN BY : ERG
CHECKED BY : SVH

SHEET NUMBER:
FP-03

23-081 - FP - FINAL PLAT.DWG | Monday, October 21, 2024 2:43:15 PM

CITY OF COLUMBIA
TENNESSEE

WASTEWATER DEPARTMENT

20 June 2024

Benjamin Beasley, Member
Cypress Homes LLC
1805 Gunnerson Ln
Franklin, TN 37064

RE: Project Name: Hampshire Hills
TDEC Project Number (Project ID): 23-0381

This letter serves as your notification to proceed with the construction of the sewer extension referenced above. Start of construction is expected in the obligated time schedule specified in the extension agreement and installation is expected as designed in the approved plans. (Start date, per agreement, is to be on or before 9/20/2024.)

This notice to proceed shall be in addition to, and shall not replace, any responsibility to obtain required permits that may be related to the commencement of construction or to the connection of sanitary sewer lines. This notice to proceed is issued solely for the Sanitary Sewer of the above referenced project.

The City of Columbia is authorized to inspect the construction work to verify compliance with the approved plans and specifications which are on the site. The engineer shall notify the City of Columbia Wastewater Department before the start of construction.

If you have any questions, contact our office at (931) 560-1001 between the hours of 7:30am and 4:00pm, Monday - Friday.

Sincerely,

Donald J. Boshers, Director
Columbia Wastewater System
DB/mds

CITY OF COLUMBIA
TENNESSEE

WASTEWATER DEPARTMENT

6 May 2024

Benjamin Beasley
Cypress Homes LLC
1805 Gunnerson Ln
Franklin, TN 37064

RE: Project Name: Hampshire Hills (2340 linear feet)
TDEC Project Number (Project ID): 23-0381

Dear Benjamin Beasley:

Columbia Wastewater System has received notification from the Tennessee Department of Environment and Conservation of the design approval for the sewer line extension subject project. **Please submit, no later than 6/30/2024, the following items:**

- Surety for Sewer Improvements ($ 226,980.00)
- Inspection Fees ($ 4,680.00 - Payable to City of Columbia)
- Contractor Information
- Executed Agreement for Sewer Line Extension (Two-Paged Attachment to this letter) (9/20/2023- 9/20/2024)
- Confirmation & Status of Any Related Permits (See Notes)

The approved plans and the Notice to Proceed will be issued upon the successful completion of the items stated.

Notes
Approval of these construction documents should not be construed as a permit for any activities related to this project. Activities which may require a permit under the WQC Act and Regulations include, but are not limited to, the following: stream bank vegetation removal; creek crossing(s) for equipment or utility lines; construction within twenty (20) feet of a stream bank; construction in or near a marshy area or wetland, and/or land disturbance greater than one acre. The Water Pollution Control Office should be contacted for determination regarding whether an Aquatic Resource Alteration Permit (ARAP) and/or a National Pollutant Discharge Elimination System (NPDES) Construction Storm water permit will need to be obtained prior to the beginning of construction of this project.

Sincerely,

Donnie Boshers, Director

Columbia Wastewater System

AGREEMENT FOR SEWER LINE EXTENSION

WHEREAS, the undersigned, _____, hereinafter referred to as the Owner of property mentioned below herein; and

WHEREAS, the undersigned Owner plans to make sanitary sewer improvements to the development property known as __Hampshire Hills__ located in the City of Columbia, Tennessee, and which shall be served by the public sewer system of the City of Columbia, Tennessee.

NOW, THEREFORE, for and in consideration of the unilateral covenants herein made, the Owner agrees as follows:

1) The Owner shall install sewer facility improvements in accordance with the specific plans and specifications that have received approval of the City of Columbia Wastewater System and the Tennessee Department of Environment and Conservation. The Owner understands the construction of sewer facilities is subject to provisions of the Tennessee Code Annotated regarding contractor's license and penalties for non-compliance.

2) The Owner shall install the sewer taps during construction of the sewer lines, bringing the service line to the property line. Therefore, there will be no tap installation charge upon the builder's connection of sewer service, however, notwithstanding the provision, if for any reason, the Columbia Wastewater System should be requested or required to install a sewer tap, the Person requesting the tap installation shall pay in accordance with the rules and regulations in force at the time of installation.

3) The sewer improvements installed by the Owner shall connect to the Columbia Wastewater System's existing sewer infrastructure however no physical connection shall be made to the existing City wastewater infrastructure until the additional line extension improvements have passed all inspections and surety has been established. It shall be the Owner's responsibility and expense to make such connections in a manner acceptable to the Columbia Wastewater System. In the event that the Columbia Wastewater System should perform any part of making said connections, the Owner shall pay to the Columbia Wastewater System for its labor, materials, and equipment costs, complete with appropriate overhead costs. Owner understands all workmanship, materials, labor, etc., related to the construction of sewer facilities is warranted against defect for one year from date of acceptance by the City Council of the City of Columbia.

4) Owner agrees to construct acceptable sewer system improvements within said development in accordance with applicable Columbia Wastewater System and State of Tennessee guidelines within a 12 month period beginning on 9/20/2023 and ending on 9/20/2024. Surety shall be pledged to secure the improvements before the wastewater utility signs the final subdivision plat. The amount of surety required for wastewater improvements and maintenance shall be in addition to any other surety requirements required by the City of Columbia.

5) Upon Owner's completion of the installation of the sewer lines, and completion of connections to the existing sewer infrastructure, all in a manner acceptable to the Columbia Wastewater System and the Tennessee Department of Environment and Conservation, the Owner shall submit to the Columbia Wastewater System the following:

a) Testing of the sewer as specified in the City of Columbia Standard Sewer Specifications

b) As-built drawings of the system as installed, drawn as specified by the Standard Sewer Specifications or the Wastewater Civil Engineer, including the recording of any public easements to any property on which said sewer improvements are located. Said easement shall be no less than 20 feet in width

c) CCTV video of the sanitary sewer system installed as according to the Standard Sewer Specifications

d) An adequate surety instrument to warrant the improvements against defect for one year from date of acceptance by the City Council of the City of Columbia

e) An affidavit documenting no liens against the sewer improvements and an agreement to indemnify and hold harmless from any liens which may be asserted against same

f) An offer of dedication of the sewer improvements, including a request to the Director of Wastewater to be put on the next Council Agenda, subject to City Council acceptance

g) This agreement shall be binding upon the heirs and assigns of Owner

This the _____ day of _____, _____.

_____ _____
Signature Date

_____
Print Name

STATE OF _____ COUNTY OF _____

Personally appeared before me, the undersigned authority, a Notary Public in and for said County and State, the within named _____, the Owner with whom I am personally acquainted or proved to me on the basis of satisfactory evidence and who acknowledged that _____ signed the foregoing (Agreement for Sewer Line Extension) instrument for the purposes therein contained.

WITNESS OUR HANDS AND OFFICIAL SEAL AT _____, this the _____ day of _____, _____.

_____
Notary Public

My Commission Expires:

_____ SEAL

AGREEMENT

This Agreement between Cypress Homes, hereinafter referred to as "Developer", and Columbia Power System, hereinafter referred to as "CPS", is in words and figures as follows:

WITNESSETH

WHEREAS, Developer desires CPS to extend or expand its existing electric power distribution facilities so as to serve the proposed project of Developer which is described as follows: Hampshire Hills (43 meters)

WHEREAS, Developer agrees to provide certain financial commitments to CPS to induce CPS to extend its electric power distribution facilities to said project, and

WHEREAS, CPS agrees to extend or expand its electric power distribution facilities to serve said proposed project.

NOW, therefore for and in consideration of CPS's promise to extend and expand its electric power distribution facilities to serve the proposed project and Developers promise to provide to CPS certain financial commitments, the parties agree as follows:

1. This agreement is drawn according to a policy adopted by the Board of Public Utilities on September 29, 1986, as amended June 25, 2014, which policy governs the extension or expansion of CPS electric power distribution facilities. Developer acknowledges that he has examined said policy or has been provided the opportunity to examine said policy and said policy is incorporated into this Agreement and made a part hereof by reference.

2. Developer shall pay that portion of the total expenditures by CPS for materials, supplies, labor, engineering, and overhead incurred in providing electrical service to the project that will not be recovered through the revenue generated by the sale of electricity generated by the project. The parties agree that said contribution will be determined based on the estimated electric sales revenues projected and the estimated cost of the project. Attached hereto are calculations of the preliminary estimate in the amount of $ *$ 79,865.00 to be paid upon execution of this Agreement by Developer. The final contribution in aid of construction shall be determined after completion of all work by CPS to provide electrical power distribution facilities to the project.

*Street light installation not included in the above amount: $34,832.00

3. In the event that Developer's plans are delayed, cancelled or changed in any way, Developer further agrees that execution of this Agreement constitutes a commitment to reimburse CPS for all non-recoverable expenses incurred in connection with this project.

Agreed this the 27th day of June, 2024.

COLUMBIA POWER SYSTEM

Jonathan Hardin, President/CEO

SIGN HERE

Cypress Homes

1805 Gunnerson Ln

P.O. Box 682447

Franklin, TN 37064

EXTENSIONS TO SUBDIVISIONS, MULTI-FAMILY DEVELOPMENTS OR MOBILE HOME PARKS

CPWS investments in labor, overhead, materials, equipment, or other facilities to service new residential developements must be amortized within a period of ten (10) years based upon expected revenue, wholesale power cost, and operating expenses as calculated by the CPWS Engineering Department.

The developer (customer) will be required to make a cash contricbution in aid of construction to offset any CPWS investment, which will not be amortized through electric revenues as outlined above.

CPWS

Remit To Columbia Power & Water Systems P.O. Box 379 Columbia, TN 38402-0379 Attn: Kathy Walker Phone: (931) 375-7748	Page: Type: Invoice: 111921 Date: 06/11/2024

Sold To: Cypress Homes
P.O Box 682447
1805 Gunnerson Ln
Franklin, TN 37064

Customer No.	Contract No.	Customer No.	Terms	Ship Date

Item No.	Qty	Description	Unit Price	Total Price
		Hampshire Hills Subdivision (43 lots)		$79,865.00
		Street lights (11 lights)		$34,832.00
			Invoice Total:	**$114,697.00**

CPWS

January 23, 2024

Mr. Ben Beasley
Cypress Homes LLC
1805 Gunnerson Lane
Franklin, TN 37064
Sent via email: ben@cypresshomestn.com

RE: Water Availability Letter
Hampshire Hills – 43 Units
Hampshire Pike
Tax Map 89P, Parcel 15
Columbia, Maury County, TN

Dear Mr. Beasley:

Columbia Power and 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, various Planning Commissions and other authorities in Cities and Counties. These Cities and Counties have also adopted rules and regulations. Subject to the payment of all charges and fees imposed by CPWS and the approval of any and all required governmental agencies, water service will be made available on a first-come, first-served basis, 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 consists of 43 single-family lots. CPWS has evaluated the projected water demands for the proposed residential development in the water system hydraulic model and is able to meet a fire-flow capacity of 1,000 gpm at 20 psi while maintaining the existing level of service and pressures in this portion of the distribution system. CPWS can provide water for the proposed development according to the following requirements:

- Domestic waterline connections will be made to: the existing 12-inch water main located along U.S. Highway 43; the existing 16-main water main located along the West property boundary; the existing 6-inch water mains on Avalon Drive and Rever Drive.
- An 18-inch diameter CL 51 ductile iron water main will be installed through the property along "Nightingale Ridge", with connections to the existing 12- and 16- mains adjacent to the property.
- A 30-ft permanent utility easement with 10-ft temporary construction easement is required at the North boundary of the property.
- A 20-ft permanent utility easement is required at the south boundary of the property, centered on the property line and running from East to West, to accommodate connection of the new 18-inch main to the existing 16-inch main.

- CPWS will pay to the developer a betterment fee for the difference in cost of materials between 8-inch C900 DR14 and 18-inch CL51 DIP water mains, including valves and fittings.

All of the above requirements are to be constructed and paid for by the Applicant and dedicated to CPWS once complete up to and including the meter. No construction of CPWS infrastructure shall be initiated until final construction plans have been approved by TDEC and all parties have fully executed a water service agreement.

Once you have received this Water Availability Letter, next steps in the process to obtain water service from CPWS are as follows:

- Finalize previously transmitted comments for the water infrastructure construction drawings.
- Upon resolution of all comments, CPWS will provide hydraulic calculations and an approval letter to support submittal of the drawings to TDEC by the applicant for construction approval.
- Upon approval by TDEC, applicant may then schedule a pre-construction meeting with CPWS. Meter and capacity fees will be due 48 hours prior to the pre-construction meeting. Meter fees are subject to change based on market costs at time of purchase.

Meter Fee: $540 per 3/4" meter (43 meters)	$23,220.00
Impact Fee: $875 per 3/4" meter (43 meters)	$37,625.00
Total Meter and Impact Fees Due =	**$60,845.00**

- After the pre-construction meeting, CPWS will then issue a formal notice to proceed. No construction of CPWS infrastructure may take place prior to the pre-construction meeting.
- Applicant is then 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.

If you have any questions, please feel free to contact me at 423-774-0349 or eric.king@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,

Eric King, P.E.
Inflo Design Group, LLC
on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 22-001

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 (onlama.com)

ADDRESS/LOCATION	1316 Hampshire Pike		
	TAX MAP: 89P	GROUP: A	PARCEL: p/o 15.00
SUMMARY OF NATURE OF REQUEST AND WORK	Plat will create 43 single-family lots and 4 open space lots. Also, plat will dedicate public right-of-way and utility/drainage easements		

DATE OF PRE-APPLICATION CONFERENCE	9/25/2024	*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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	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	M2 Group, LLC	PHONE	615-656-0257
ADDRESS	PO Box 2543 Brentwood, TN 37025	EMAIL	stephen@m2groupllc.com

PROPERTY OWNER NAME	Cypress Homes LLC	PHONE	615-497-1511
ADDRESS	PO Box 682447 Franklin, TN 37068	EMAIL	ben@cypresshomestn.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.

M2 Group, LLC Stephen Vander Horst, RLS, CFS		10/21/2024
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Cypress Homes LLC Benjamin Beasley, Member		10/9/2024
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

12" CMP

12" CMP

12" CMP
INV START: 637.52'
INV END: 636.81'

12" CMP
INV START: 634.28'
INV END: 633.35'

CLYDE & SHERYL HOWELL
051G-A-002.00
DEED BK R2147 PG. 670
PLAT BK. 7 PG. 12
R.O.M.C., TN.

GENE ISOM
051G-A-003.00
DEED BK R2387 PG. 1257
PLAT BK. 7 PG. 12
R.O.M.C., TN.

R.O.M.C., TN.

APPROXIMATE AREA = 0.07 ACRES

LENNAR HOMES OF TN
051-034.00
DEED BK. R2871 PG. 1405
R.O.M.C., TN.

RCP

12" CMP

N 07°14'16" W
24.38'

S 47°56'39" E
18.35'

N 29°02'01" W

S 83°10'19" E
92.13'

N 66°58'45" E
87.33'

N 57°18'58" E
240.63'

GREENS MILL

(50' R.O.W.)

UTHERFORD CREEK

T BK. 11 PGS. 26-27
R.O.M.C., TN.
BOOK 11 PGS. 26-27

DEE

24" SS

12" CMP

12" CMP

12" CMP
INV START: 637.52'
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APPROXIMATE AREA = 0.63 ACRES

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051-034.00
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R.O.M.C., TN.

T BK. 11 PGS. 26-27
R.O.M.C., TN.
BOOK 11 PGS. 26-27

S 47°56'39" E
18.35'

N 07°14'16" W
24.38'

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S 83°10'19" E
92.13'

N 66°58'45" E
87.33'

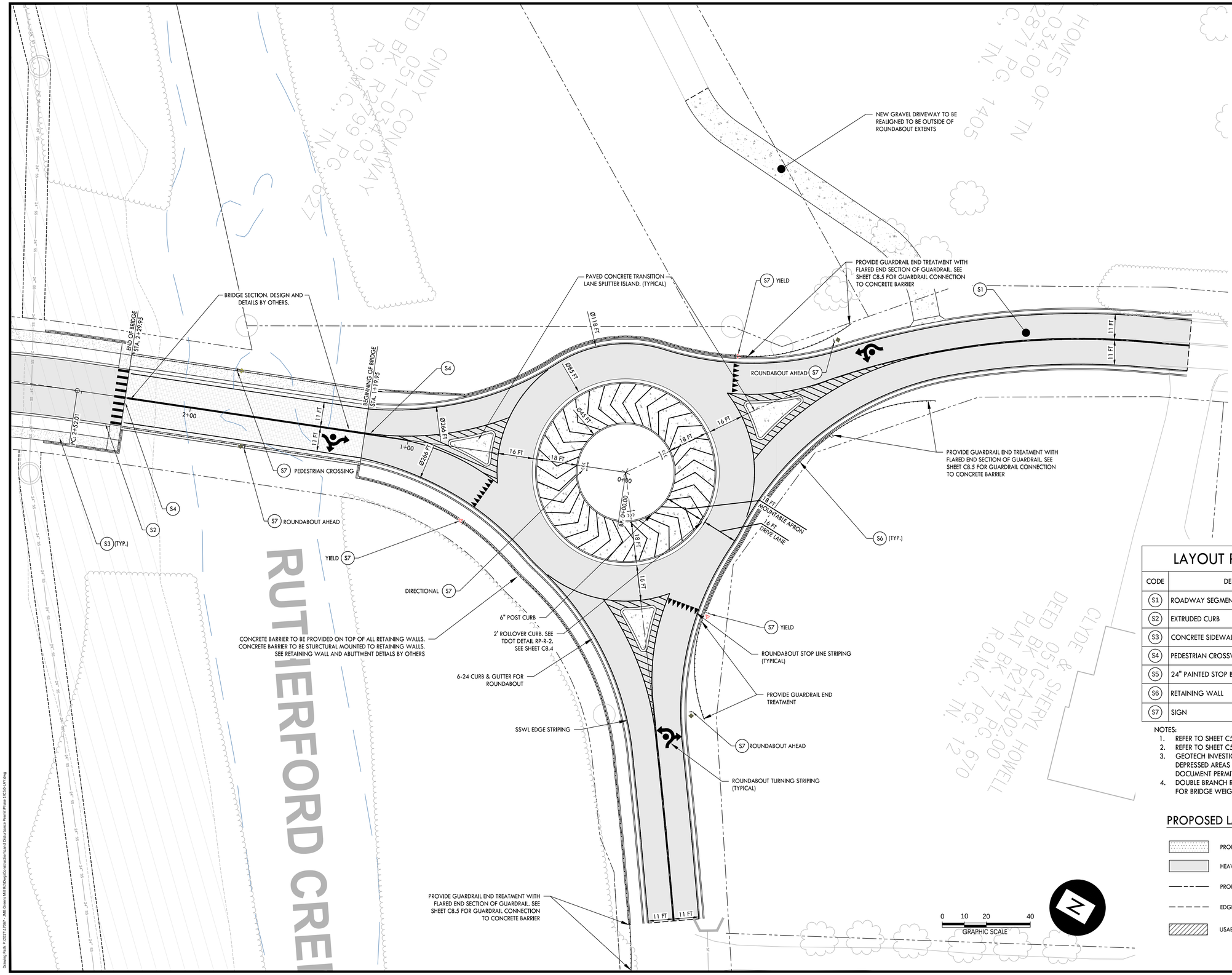
N 57°18'58" E
240.63'

GREENS MI
(50' R.O.

UTHERFORD CREEK

DEE

24" SS



LAYOUT PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
S1	ROADWAY SEGMENT	C8.0 - 1
S2	EXTRUDED CURB	C8.0 - 2
S3	CONCRETE SIDEWALK	C8.0 - 3
S4	PEDESTRIAN CROSSWALK	C8.0 - 7
S5	24" PAINTED STOP BAR	C8.0 - 8
S6	RETAINING WALL	SEE DESIGN BY OTHERS
S7	SIGN	-

NOTES:
1. REFER TO SHEET C5.0 FOR PARCEL AREA TABLES.
2. REFER TO SHEET C5.6 FOR TYPICAL LOT LAYOUT.
3. GEOTECH INVESTIGATION TO BE PERFORMED ON ALL DEPRESSED AREAS DURING CONSTRUCTION DOCUMENT PERMITTING.
4. DOUBLE BRANCH ROAD BRIDGE TO INCLUDE SIGNAGE FOR BRIDGE WEIGHT MAXIMUM.

PROPOSED LAYOUT LEGEND

- PROPOSED BUILDING
- HEAVY DUTY ASPHALT PAVEMENT
- PROPERTY LINE
- EDGE OF NEW PAVEMENT
- USABLE OPEN SPACE

CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
FRANKLIN, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM

ENGINEERING CRUNK

ADAM WILSON CRUNK
REGISTERED ENGINEER
AGRICULTURE
2/29/24
COMMERCE
STATE OF TENNESSEE

GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

02/29/24 17067

C5.1
ROUNDABOUT LAYOUT PLAN

Drawing Path: P:\2021\21067 - Mill Greens Mill Rd\Dwg\Construction\Land Disturbance Permit\Phase 1\C5.0-LAY.dwg

Metes and Bounds Description – Greens Mill Road Annexation

BEGINNING at a rebar rod in the southeast corner of Parcel Number: 051G A 002.00;

THENCE S32° 41’ 02”E a distance of 50.53 feet;

THENCE S57° 18’ 58”W a distance of 102.66 feet;

THENCE S66° 58’ 45”W a distance of 87.33 feet;

THENCE N83° 10’ 19”W a distance of 92.13 feet;

THENCE N48° 19’ 25”W a distance of 41.59 feet;

THENCE S32° 00’ 07”W a distance of 12.55 feet;

THENCE N47° 58’ 00”W a distance of 48.94 feet;

THENCE N28° 39’ 46”W a distance of 50.82 feet;

THENCE N24° 17’ 36”W a distance of 106.22 feet;

THENCE N49° 09’ 17”E a distance of 9.57 feet;

THENCE N65° 39’ 17”E a distance of 48.95 feet;

THENCE S24° 20’ 43”E a distance of 29.33 feet;

THENCE S29° 16’ 54”E a distance of 82.12 feet;

THENCE S47° 54’ 38”E a distance of 78.57 feet;

THENCE S83° 00’ 39”E a distance of 63.00 feet;

THENCE N67° 08’ 25”E a distance of 69.78 feet;

THENCE N48° 19’ 25”W a distance of 41.59 feet;

THENCE N57° 28’ 38”E a distance of 98.34 feet TO THE POINT OF BEGINNING

The total area of said portion of R.O.W. will be 27,508 square feet or 0.61 acres.

Metes and Bounds Description

BEGINNING at a rebar rod in the northeast corner of Parcel Number: 051 03403;

THENCE S32° 00’ 07”W a distance of 29.52 feet;

THENCE N47° 56’ 39”W a distance of 38.15 feet;

THENCE N48° 19’ 25”W a distance of 32.91 feet;

THENCE N32° 00’ 07”E a distance of 50.72 feet;

THENCE N48° 19’ 25”W a distance of 41.59 feet;

THENCE S48° 19’ 25”W a distance of 41.59 feet;

THENCE S07° 14’ 16”E a distance of 24.38 feet;

THENCE S29° 02’ 01”E a distance of 15.52 feet TO THE POINT OF BEGINNING

The total area of said parcel will be 3,174 square feet or 0.07 acres.

CITY OF COLUMBIA
TENNESSEE

DEVELOPMENT SERVICES

I, CINDY CONAWAY being the sole owner of the property more particularly described as Lot 1 on Plat of Record in Plat Book 11 Page 27 in the Maury County Register of Deeds office, do hereby, formally, request that the City of Columbia, Tennessee annex a portion of such property into such City as described in the attached legal description.

CINDY CONAWAY
Print Name

10/18/2024
Date

Signature

STAFF USE ONLY	
Docket Number:	Requested Agenda:

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 (onlama.com)

ADDRESS/LOCATION	2558 Greens Mill Rd., Columbia, TN 38401		
	TAX MAP: 51	GROUP:	PARCEL: 55.00
SUMMARY OF NATURE OF REQUEST AND WORK	This application is for the annexation of a portion of Greens Mill Rd. and a portion of the parcel 051 03403 for the development of The Landings at Greens Mill Road Subdivision.		

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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	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	Crunk Engineering, LLC	PHONE	615-873-1795
ADDRESS	7112 Crossroads Blvd., #201, Brentwood, TN 37027	EMAIL	patrick@crunkeng.com

PROPERTY OWNER NAME	Safe Harbor Residential	PHONE	865-622-1774
ADDRESS	105 Westpark Dr., #365, Brentwood, TN 37027	EMAIL	taylor@safeharborresidential.com

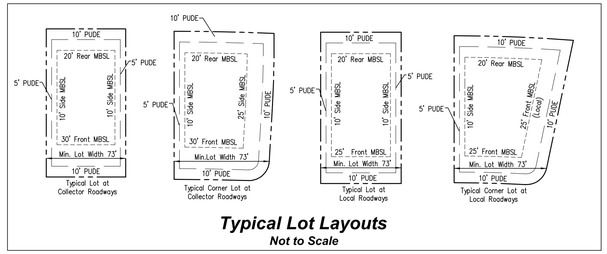
If owner is not a natural person, documentation must be provided showing signing authority on behalf of the entity. If multiple persons are listed as owners in the records of the Maury County Assessor, all owners must sign or the signatory must provide documentation of authority to apply on behalf of 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.

Crunk Engineering LLC		10/18/2024
APPLICANT NAME	APPLICANT SIGNATURE	DATE
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

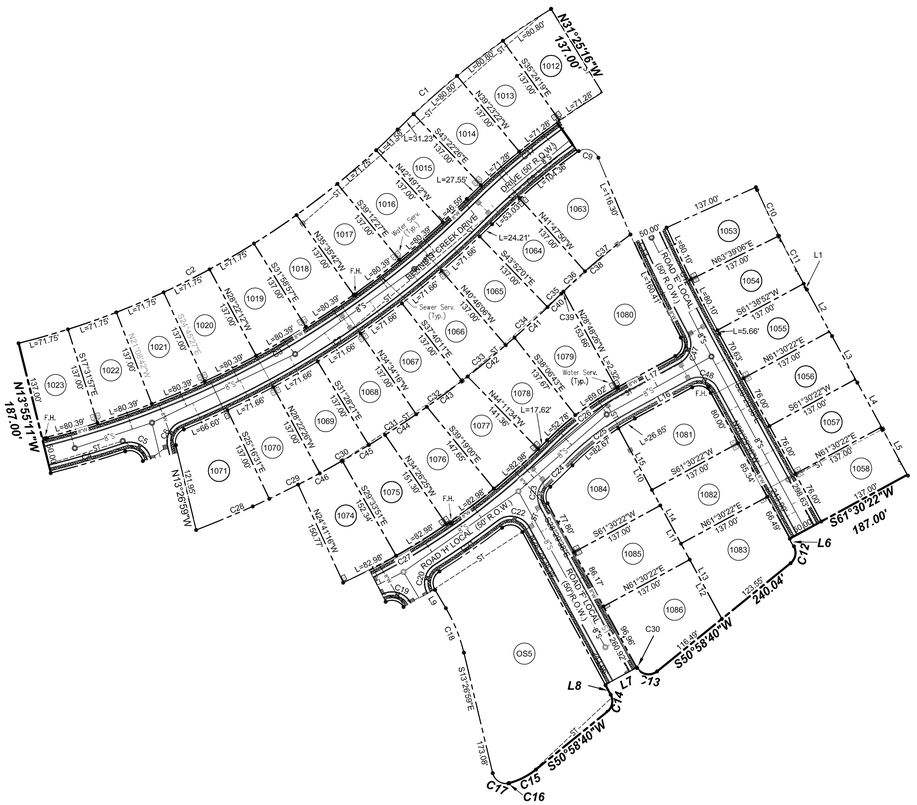
TOTAL AREA THIS RECORDING = 457,380 S.F. or 10.50 Acres ±

Curve Table						
Curve #	DELTA	RADIUS	TANGENT	LENGTH	CDH BEARING	CHORD
C1	022°08'22"	1162.00'	227.34	449.006	S56°09'23"W	446.218
C2	030°59'37"	1138.00'	315.53	615.591	N60°35'00"E	608.113
C3	030°59'37"	1275.00'	353.51	689.700	S60°35'00"W	681.322
C4	004°41'40"	1325.00'	54.31	108.563	S73°43'58"W	108.533
C5	095°09'53"	19.00'	20.79	31.558	N61°01'55"W	28.053
C6	081°03'16"	19.00'	16.24	26.879	S27°04'39"W	24.693
C7	022°31'06"	1325.00'	263.78	520.750	S56°20'44"W	517.405
C8	009°14'57"	975.00'	78.87	157.392	S49°42'40"W	157.221
C9	104°27'39"	19.00'	24.52	34.641	N73°26'02"W	30.038
C10	002°00'14"	2153.00'	37.66	75.304	S25°20'46"E	75.301
C11	002°00'14"	2153.00'	37.66	75.304	S27°21'01"E	75.301
C12	079°28'18"	19.00'	15.79	26.354	S11°14'31"W	24.291
C13	096°53'54"	19.00'	21.44	32.133	N80°34'23"W	28.438
C14	079°28'18"	19.00'	15.79	26.354	S11°14'31"W	24.291
C15	024°03'37"	100.00'	21.31	41.993	S63°00'28"W	41.685
C16	004°43'34"	19.00'	0.78	1.567	S77°24'03"W	1.570
C17	086°47'11"	19.00'	17.96	28.779	N56°50'34"W	26.106
C18	017°09'58"	225.00'	33.96	67.411	N22°01'58"W	67.159
C19	086°27'42"	19.00'	17.86	28.672	N73°50'48"W	26.028
C20	088°42'23"	19.00'	18.58	29.416	N13°44'15"E	26.565
C21	005°58'17"	1025.00'	53.46	106.827	N55°06'18"E	106.779
C22	099°23'13"	19.00'	22.40	32.958	S78°11'14"E	28.979
C23	075°40'37"	19.00'	14.76	25.095	N09°20'40"E	23.311
C24	002°24'40"	1025.00'	21.57	43.134	N45°58'39"E	43.131
C25	016°44'03"	375.00'	55.16	109.526	N53°08'20"E	109.137
C26	016°44'03"	424.00'	62.36	123.837	N53°08'20"E	123.397
C27	030°16'04"	976.00'	263.97	515.595	N59°54'21"E	509.621
C28	004°21'32"	1462.00'	55.64	111.226	N66°54'15"E	111.199
C29	003°05'55"	1462.00'	39.54	79.066	N63°10'32"E	79.056
C30	003°05'55"	1462.00'	39.54	79.066	N60°04'37"E	79.056
C31	003°05'55"	1462.00'	39.54	79.066	N56°58'42"E	79.056
C32	003°04'57"	1469.81'	39.55	79.072	N53°53'01"E	79.063
C33	003°04'55"	1469.81'	39.54	79.060	N50°46'37"E	79.050
C34	003°05'55"	1462.00'	39.54	79.066	N47°40'57"E	79.056
C35	001°02'48"	1462.00'	13.35	26.708	N45°36'35"E	26.708
C36	003°06'59"	838.00'	22.79	45.578	N46°38'41"E	45.572
C37	005°35'50"	838.00'	40.96	81.864	N51°00'05"E	81.831
C38	008°25'06"	838.00'	61.67	123.126	S49°35'27"W	123.015
C39	000°17'42"	838.00'	2.16	4.316	S45°14'02"W	4.316
C40	001°02'48"	1462.00'	13.35	26.708	S45°36'35"W	26.708
C41	002°27'58"	1462.00'	31.47	62.929	S47°21'59"W	62.924
C42	003°20'16"	1462.00'	42.60	85.169	S50°16'06"W	85.157
C43	002°46'49"	1462.00'	35.48	70.946	S53°19'38"W	70.939
C44	002°45'24"	1462.00'	35.18	70.339	S56°05'45"W	70.332
C45	002°44'43"	1461.98'	35.03	70.052	S58°50'48"W	70.045
C46	002°44'48"	1461.98'	35.05	70.084	S61°35'34"W	70.078
C47	089°29'06"	19.00'	18.83	29.674	N16°45'49"E	26.749
C48	090°00'00"	19.00'	19.00	29.845	S73°29'38"E	26.870

LINE TABLE		
LINE	BEARING	LENGTH
L1	S28° 29' 37.87"E	3.96
L2	S28° 29' 37.87"E	74.00
L3	S28° 29' 37.87"E	74.00
L4	S28° 29' 37.87"E	74.08
L5	S28° 29' 37.87"E	73.92
L6	S28° 29' 37.87"E	12.06
L7	N61° 30' 22.13"E	50.04
L8	S28° 29' 37.87"E	15.15
L9	N30° 36' 56.66"W	29.79
L10	S28° 29' 37.87"E	122.67
L11	S28° 29' 37.87"E	86.17
L12	S28° 29' 37.87"E	94.35
L15	N28° 29' 37.87"W	119.82
L16	N28° 29' 37.87"W	85.34
L17	N28° 29' 37.87"W	98.04
L18	N61° 30' 22.13"E	91.17
L19	N61° 30' 22.13"E	91.26

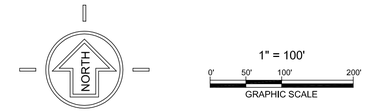


Typical Lot Layouts
Not to Scale



ZONING: RS10

AREA SUMMARY		
LOT	SQ. FT.	ACREAGE
1012	10,417	0.24
1013	10,417	0.24
1014	10,417	0.24
1015	10,066	0.23
1016	10,422	0.24
1017	10,422	0.24
1018	10,422	0.24
1019	10,422	0.24
1020	10,422	0.24
1021	10,422	0.24
1022	10,422	0.24
1023	10,422	0.24
1053	10,645	0.24
1054	10,645	0.24
1055	10,428	0.24
1056	10,412	0.24
1057	10,412	0.24
1058	10,412	0.24
1063	14,209	0.33
1064	10,242	0.24
1065	10,325	0.24
1066	10,325	0.24
1067	10,325	0.24
1068	10,325	0.24
1069	10,325	0.24
1070	10,325	0.24
1071	13,240	0.30
1074	11,614	0.27
1075	11,632	0.27
1076	11,468	0.26
1077	11,118	0.26
1078	10,741	0.25
1079	11,609	0.27
1080	19,233	0.44
1081	13,477	0.31
1082	11,692	0.27
1083	14,621	0.34
1084	14,553	0.33
1085	11,805	0.27
1086	15,013	0.34



LEGEND:

IP(0)○	Existing Iron Pipe – IP(0)
IR(0)○	Existing Iron Rod – IR(0)
IR(N)●	Iron Rod (New) – IR(N)
	Sanitary Manhole
	Fire Hydrant (F.H.)
	Catch Basin
	Storm Manhole
	Concrete Headwall
PUDE	Public Utility & Drainage Easement
MBSL	Minimum Building Setback Line
R.O.M.C.	Registers' Office Maury County

GENERAL NOTES:

1. THE PURPOSE OF THIS PLAT IS TO CREATE 40 BUILDABLE LOTS, 1 OPEN SPACE LOT, DEDICATION OF RIGHT OF WAY AND EASEMENTS.
2. PROPERTY SHOWN HEREON IS PART OF PARCEL (55.00) ON MAURY COUNTY PROPERTY MAP 51.
3. BEARINGS SHOWN HEREON ARE BASED ON TENNESSEE STATE PLANE COORDINATE SYSTEM, ZONE 5301, FIPZONE 4100, NAD 83 DATUM.
4. BEING PART OF THE SAME PROPERTY CONVEYED TO 2558 GREENS MILL, LLC AS OF RECORD IN BOOK R2799, PAGE 298 REGISTERS' OFFICE, MAURY COUNTY, TENNESSEE.
5. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY MAP, A PORTION OF THIS PROPERTY IS LOCATED WITHIN AN AREA OF FLOOD INUNDATION AS SHOWN ON FEMA MAP NUMBER: 47119C0180E, DATED: 4/16/2007, CITY OF COLUMBIA NUMBER 475423 - PANEL 0180 - SUFFIX E FLOOD ZONES "AE" AND "X"
6. THIS PROPERTY IS CURRENTLY ZONED: RS 10.
7. WATER AND SANITARY SEWER SERVICES TO BE PROVIDED BY COLUMBIA PUBLIC UTILITIES.
8. THERE IS A 10' PUBLIC UTILITY & DRAINAGE EASEMENT RUNNING PARALLEL TO THE REAR PROPERTY LINE AND ALL STREET R.O.W. UNLESS SHOWN OTHERWISE. THERE IS A 5' PUBLIC UTILITY & DRAINAGE EASEMENT RUNNING PARALLEL TO THE SIDE PROPERTY LINE UNLESS SHOWN OTHERWISE.
9. XXX INDICATES STREET ADDRESS.
10. ALL UTILITIES ARE TO BE UNDERGROUND.
11. NO MOBILE HOMES SHALL BE PERMITTED.
12. NO DRIVEWAY TO BE CONSTRUCTED OVER SANITARY SEWER SERVICE LINE.
13. FOR MINIMUM YARD LINES SEE THE TYPICAL LOT DETAILS.
14. ALL NOTES AND CERTIFICATES APPLY TO ALL SHEETS.
15. SIDEWALKS ARE 5' WIDE, UNLESS OTHERWISE NOTED.
16. EXISTING USE: VACANT, PROPOSED USE : ONE-FAMILY, DETACHED DWELLINGS
17. ALL OPEN SPACE TRACTS SHALL BE OWNED AND MAINTAINED BY THE LANDING AT GREENS MILL ROAD HOMEOWNERS ASSOCIATION.
18. ROADS, UTILITIES, AND OTHER FACILITIES HAVE BEEN FILED AS REQUIRED BY THE CITY OF COLUMBIA SUBDIVISION REGULATIONS.
19. THIS SUBDIVISION IS SUBJECT TO THE TERMS AND CONDITIONS OF THE RECORDED STORMWATER INSPECTION AND MAINTENANCE AGREEMENT FOR THESE FACILITIES AS RECORDED IN BOOK _____ PAGE _____ R.O.M.C., TN.
20. SEE DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR THE LANDING AT GREENS MILL ROAD, AS RECORDED IN BOOK _____, PAGE _____, REGISTERS' OFFICE FOR MAURY COUNTY, TENNESSEE.
21. A STREAM BUFFER AS SHOWN ON THIS PLAN IS TO BE A PERMANENT WATER QUALITY BUFFER IN ACCORDANCE WITH ARTICLE 6 SECTION 9 OF THE CITY OF COLUMBIA STORMWATER ORDINANCE. THIS STREAM BUFFER IS TO REMAIN IN A NATURAL VEGETATED STATE FREE OF OBSTRUCTIONS, STRUCTURES, AND INTRUSIONS. BUFFER IS TO BE A NO MOW BUFFER AREA, AND THE MAINTENANCE WITHIN STREAM BUFFERS TO BE LIMITED TO HAND OPERATED TOOLS AND BE PERFORMED IN ACCORDANCE WITH CURRENT CITY OF COLUMBIA STORMWATER ORDINANCE AND OR AT THE DIRECTION OF THE CITY OF COLUMBIA ENGINEERING DIVISION.
22. NO OBSTRUCTIONS OR ENCROACHMENTS WHICH IMPEDE THE FLOW OF STORMWATER SHALL BE PERMITTED WITHIN PUBLIC DRAINAGE EASEMENTS. THE CITY OF COLUMBIA IS NOT RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY ENCROACHMENTS THAT ARE DAMAGED OR REMOVED IN THE COURSE OF MAINTENANCE ACTIVITY WITHIN EASEMENTS AS REFERENCED IN THE COLUMBIA GENERAL MANAGEMENT CODE, CHAPTER 15, ARTICLE 1, SECTION 15-8.
23. THE FINAL PLAT SHOWN HEREON IS VESTED UNDER THE PREVIOUS ZONING CODE WITHIN ZONING ORDINANCE 3638 AS AN RS-10 PLANNED UNIT DEVELOPMENT.
23. THE FINAL PLAT SHOWN HEREON IS VESTED UNDER THE PREVIOUS ZONING CODE WITHIN ZONING ORDINANCE 3638 AS AN RS-10 PLANNED UNIT DEVELOPMENT.
24. THE AMENITY CENTER AND ASSOCIATED PARKING WILL REQUIRE SEPERATE PERMIT AND SITE PLAN REVIEW.

E-911 PROGRAM CERTIFICATION OF APPROVAL

This is to certify that this plat has been reviewed and is in compliance with the Maury County E-911 Program.

_____ (Date)

_____ E-911 Director

CERTIFICATE OF COMMON AREAS DEDICATION

2558 Greens Mill, LLC, in recording this plat has designated certain areas of land shown hereon as common areas intended for use by the homeowners within The Landing At Green Mills Road - Phase 1, for recreation and related activities. The above-described areas are not dedicated for use by the general public, but are dedicated to the common use of the homeowners within the named subdivision.

"Declaration of Covenants and Restrictions", applicable to the above named subdivision, is hereby incorporated and made part of this plat.

_____ Date

_____ Owner

CERTIFICATE OF APPROVAL OF PUBLIC WAYS OR BOND POSTING

I hereby certify; (1) that all designated public ways on this final subdivision plat have been installed in an acceptable manner and according to the specifications of the Maury County Subdivision Regulations, or (2) that a performance bond or other surety has been posted with the Planning Commission to guarantee completion of all required improvements in case of default.

_____ (Date)

_____ Appropriate Governmental Representative

CERTIFICATE OF APPROVAL OF PUBLIC SEWER SYSTEM

I hereby certify that the sewer system(s) outlined or indicated on the final subdivision plat entitled The Landing at Greens Mill 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)

_____ Name, Title, and Agency or Authorized Approving Agent

CERTIFICATE FOR APPROVAL FOR RECORDING

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

_____ Date

_____ Secretary Maury County Regional Planning Commission

CERTIFICATE OF SURVEY ACCURACY

I hereby certify that to the best of my knowledge and belief the hereon shown subdivision plat represents a Category "1" Survey having an unadjusted ration of precision of 1:10,000 and is true and correct. Approved monuments have been placed as indicated. All side lot lines are at right angles or radial to a street unless otherwise noted.

9-13-2024 (Date)

James G. Terry, R.L.S. # 2287

CERTIFICATE OF OWNERSHIP AND DEDICATION

I (we) hereby certify that I am (we are) the owners of the property shown and described hereon as evidenced in Book R2799, Page 298, Maury County Register's Office and I (we) 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, public easements, utilities, and other facilities have been filed.

_____ (Date)

_____ (Owner)

_____ Title (If Acting for Partnership or Corporation)

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I hereby certify that the water system(s) outlined or indicated on the final subdivision plat entitled The Landing at Greens Mill Road - Phase 1 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)

_____ Name, Title, and Agency or Authorized Approving Agent

REVISIONS:

1.
2.
3.
4.
5.
6.
7.

FINAL PLAT
THE LANDING AT GREENS MILL ROAD
PHASE 1B
GREEN MILLS ROAD
Property Map # 51 - Parcel (55.00)
CITY OF COLUMBIA, MAURY COUNTY, TENNESSEE
Scale : 1" = 100'

Prepared By:
JTA LAND SURVEYING, INC.
2403 Elm Hill Pike, Suite K · Nashville, TN. 37214
Phone: 615-490-6920

(See Revisions)
DATE: SEPTEMBER 16, 2024 Job No. 2023-507

DRAWN BY: MTG, TMF, RR

SHEET 1 OF 1

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

16th day of September, 20 24,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Safe Harbor Residential, 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 DEVELEPOR'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.

The Landings at Greens Mill Road

PROJECT

Completed by the Developer	*Completed by the City*
SH Residential DEVELOPER NAME	
Koby DuMont AUTHORIZED AGENT NAME	 CITY ENGINEER
 SIGNATURE	 SIGNATURE
9-16-2024 DATE	 DATE
105 westpark drive ste. 305 STREET	
Brentwood, TN 37027 CITY, STATE, ZIP	
865-507-0220 PHONE	
Koby@SaltharborResidential.com EMAIL	
Attest	*Attest*
Lisa Drzezgowski ATTEST NAME	 ATTEST NAME
Lisa Drzezgowski ATTEST SIGNATURE	 ATTEST SIGNATURE
9-16-2024 DATE	 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 (onlama.com)

ADDRESS/LOCATION	2558 Greens Mill Rd., Columbia, TN 38401		
	TAX MAP: 51	GROUP:	PARCEL: 55.00
SUMMARY OF NATURE OF REQUEST AND WORK	The purpose of this plat is to create 40 build-able lots, 1 open space lots, dedication of Right of Way, and Easements.		

DATE OF PRE-APPLICATION CONFERENCE	08/28/2024	*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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	Plats/PUDs: ❑ Project Name (include Sections & Phases) The Landing at Greens Mill Rd. - Phase 1B ❑ Total Number of Lots/Residential Units 40 ❑ Square Footage of Non-Residential Floor Space ❑ Total acreage 10.50 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	Crunk Engineering, LLC	PHONE	615-873-1795
ADDRESS	7112 Crossroads Blvd., #201, Brentwood, TN 37027	EMAIL	adam@crunkeng.com

PROPERTY OWNER NAME	Safe Harbor Residential	PHONE	865-622-1774
ADDRESS	105 Westpark Dr., #365, Brentwood, TN 37027	EMAIL	taylor@safeharborresidential.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.

Adam Crunk, PE		09/16/2024
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Koby DuMont		9-16-2024
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	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 051, Parcel 55.00
Project Name: Landing at Greens Mill - Phase 1B

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

THIS AGREEMENT, made this 16 day of September, 20 24, by and between Safe Harbor Residential 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 ONWER(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 Koby DuMont

Title Division President

Signature _____

Owner Greens Mill, LLC

Address 308 Letterman Drive
Knoxville, TN 37919

City, State ZIP _____

STATE OF Tennessee
COUNTY OF Robertson

Before me, Lisa Dziezgowski of the state and county mentioned, personally appeared Koby DuMont, 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 16th day of September, 2024.

Lisa Dziezgowski
Notary Public

My Commission Expires: August 18 2026

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:_____

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

16th day of September, 20 24,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Safe Harbor Residential, 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 DEVELEPOR'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.

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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.

The Landings at Greens Mill Road

PROJECT

Completed by the Developer	*Completed by the City*
SH Residential DEVELOPER NAME	
Koby DuMont AUTHORIZED AGENT NAME	 CITY ENGINEER
 SIGNATURE	 SIGNATURE
9-16-2024 DATE	 DATE
105 westpark drive ste. 305 STREET	
Brentwood, TN 37027 CITY, STATE, ZIP	
865-507-0220 PHONE	
Koby@saltharborresidential.com EMAIL	
Attest	*Attest*
Lisa Drzezgowski ATTEST NAME	 ATTEST NAME
Lisa Drzezgowski ATTEST SIGNATURE	 ATTEST SIGNATURE
9-16-2024 DATE	 DATE

Post Construction Long Term Maintenance Plan

Project Name: Landing at Greens Mill – Phase 1B

Columbia, TN

September 16, 2024

Table of Contents

Section Name

System Description
Maintenance Procedures

System Description

The site consists of a series of stormwater conveyances both open channel and piped, detention / retention and water quality ponds. The previous Stormwater Detention Ponds Maintenance Plans were recorded during the platting of Phase 1A.

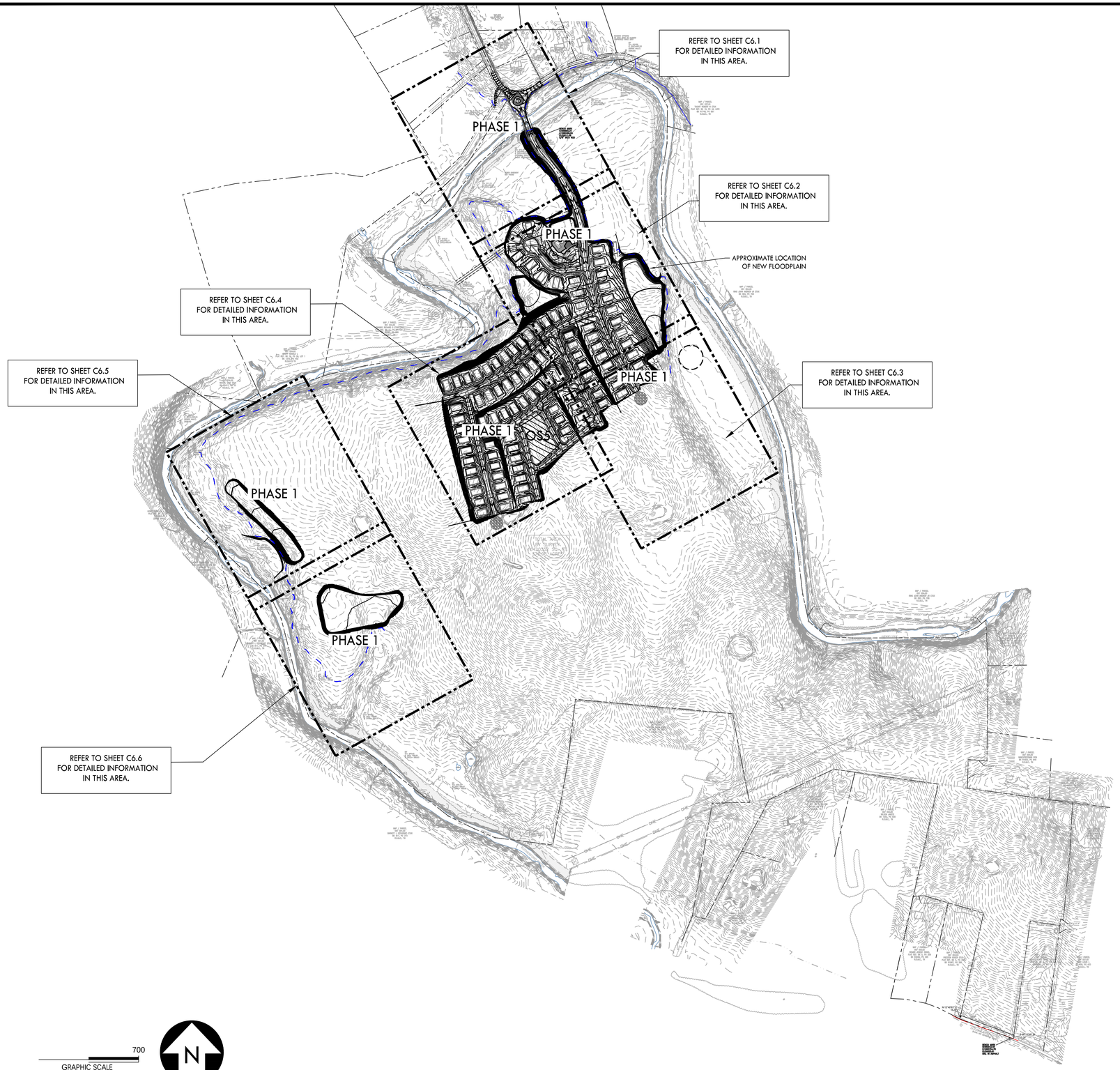
- There are 5 stormwater detention ponds sized to detain through the 100 year peak event. The orifice is designed to contain the first flush, 1 inch, for 24 hour.
- 2,282 feet of grass lined open channel.
- 2,752 feet of 18 in ADS pipe and 36 storm inlets.

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. **STORMWATER DETENTION PONDS**
    - **a.** The outlet structures shall be checked regularly for clogging and shall be cleaned and repaired as necessary---monthly after it is first built then a regular sequence should be established or at least quarterly or after a large rain event.
    - **b.** Check banks and bottom surface of basins for erosion and correct as necessary.
    - **c.** Check at least quarterly and after each extreme storm event, the facility should be cleaned of accumulated debris. The banks of surface ponds should be checked and areas of erosion repaired. Remove nuisance wetland species and take appropriate measures to control mosquitos.
    - **d.** This maintenance typically includes sediment, floatable, and debris removal from inlets, outlets and skimmers.
    - **e.** Pond vegetation to be trimmed or harvested as appropriate, grassy areas, frequently mowed. Grass should be mowed so that it does not get over 12.
    - **f.** Remove sediment when accumulation reached 6 inches, or if re-suspension is observed or probable.
    - **g.** Some sediment may contain contaminants which the Tennessee Department of Environment and Conservation (TDEC) requires special disposal procedure. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then TDEC should be consulted and their disposal recommendations followed. The TDEC Division of Water Pollution Control should be contacted at (931) 380-3371. Generally, special attention or sampling should be given to sediment accumulated in facilities serving industrial, manufacturing or heavy commercial sites, Page 2 of 4 Rev. 9/26/2016 fueling centers or automotive maintenance areas, large parking areas, or other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.
    - **h.** Some sediment collected may be innocuous (free of pollutants) and can be used as fill material, cover or land spreading. It is important that this material not be placed in any way that will promote or allow re-suspension in storm runoff.
2. **2,752 feet of 18 in ADS pipe and 36 storm inlets.**
    a. These structures will be inspected and cleaned quarterly to ensure pipes and drain inlets do not fill with sediment or trash.



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ENGINEERING CRUNK

ANDREW L. WILSON 134180 REGISTERED ENGINEER AGRICULTURE COMMERCE STATE OF TENNESSEE 9/21/23

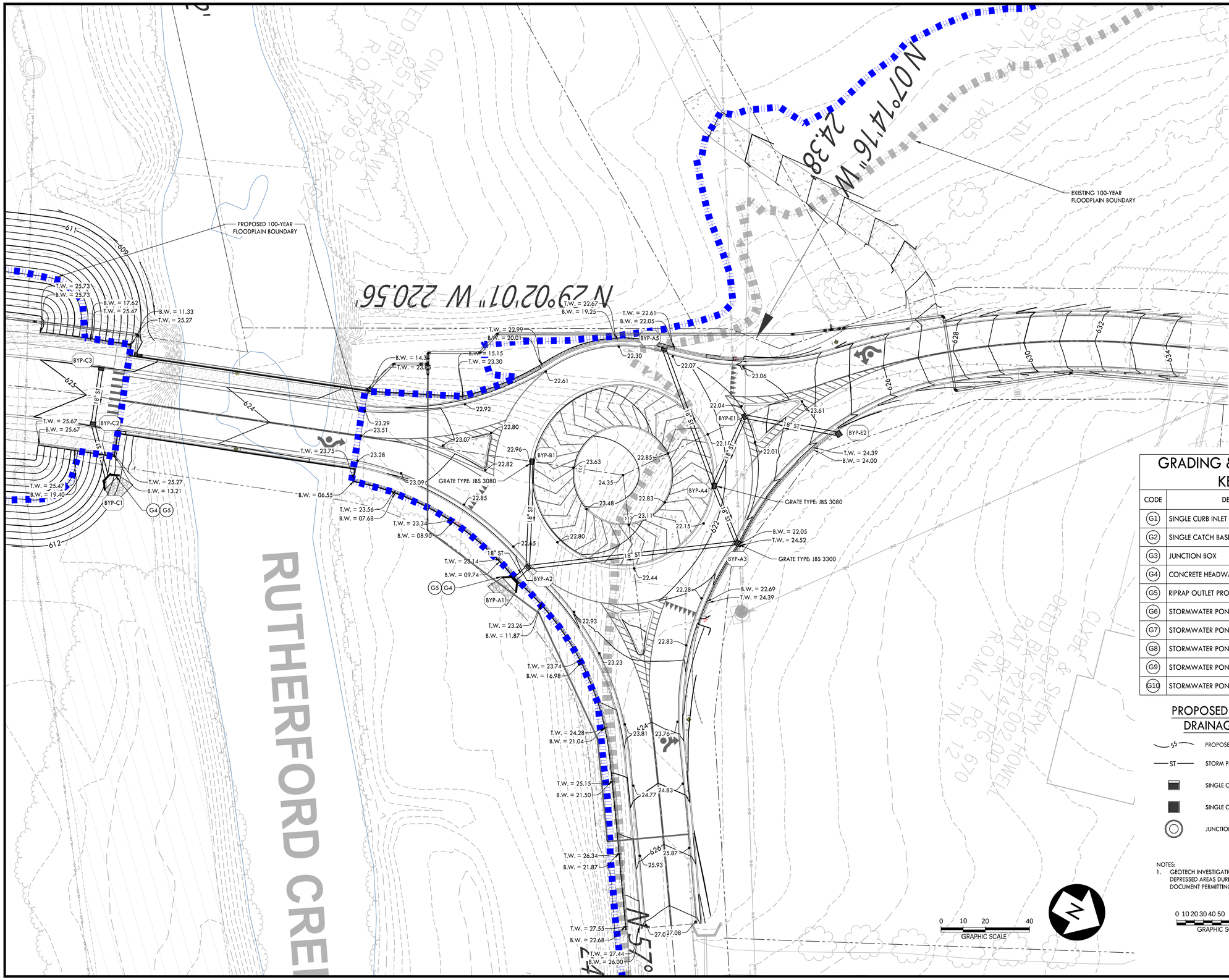
GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

09/21/23 17067

C6.0
OVERALL GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
G3	JUNCTION BOX	C6.9 - 6
G4	CONCRETE HEADWALL	-
G5	RIPRAP OUTLET PROTECTION	C6.9 - 5
G6	STORMWATER POND 1 OUTLET STRUCTURE	C6.8 - 1
G7	STORMWATER POND 2 OUTLET STRUCTURE	C6.8 - 3
G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- PROPOSED CONTOUR
- STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

NOTES:
1. GEOTECH INVESTIGATION TO BE PERFORMED ON ALL DEPRESSED AREAS DURING CONSTRUCTION DOCUMENT PERMITTING.

0 10 20 30 40 50 100
GRAPHIC SCALE

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ENGINEERING CRUNK

ANDREW L. SCHNEIDER
REGISTERED LANDSCAPE ARCHITECT
AGRICULTURE
COMMERCE
HOMES
LIVABILITY
STATE OF TENNESSEE
9/21/23

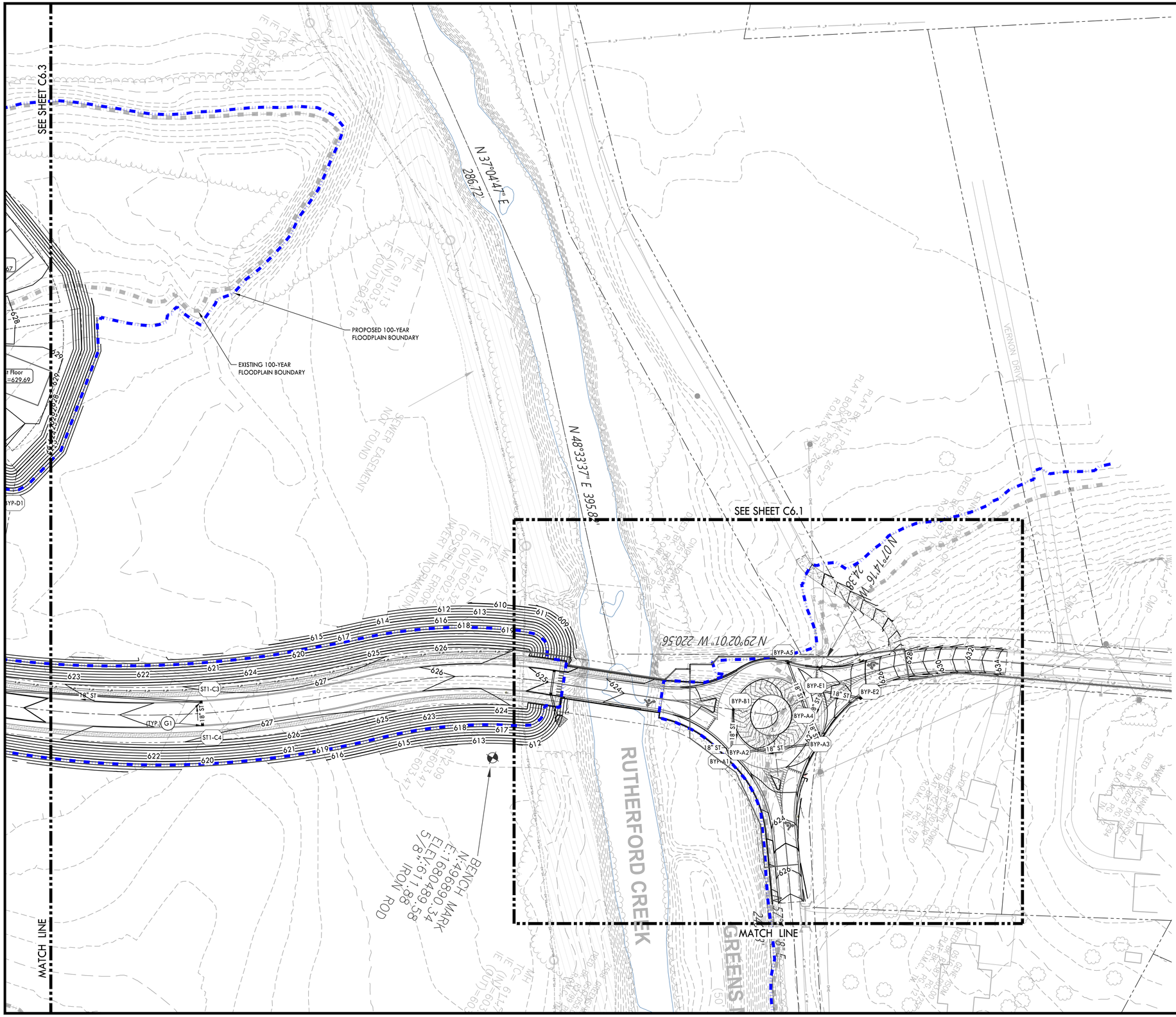
GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

09/21/23 17067

C6.1
ROUNDABOUT GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
G3	JUNCTION BOX	C6.9 - 6
G4	CONCRETE HEADWALL	-
G5	RIPRAP OUTLET PROTECTION	C6.9 - 5
G6	STORMWATER POND 1 OUTLET STRUCTURE	C6.8 - 1
G7	STORMWATER POND 2 OUTLET STRUCTURE	C6.8 - 3
G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

NOTES:
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GRAPHIC SCALE

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ENGINEERING CRUNK

ANNA WILSON CAMPBELL REGISTERED LANDSCAPE ARCHITECT AGRICULTURE 334180 COLUMBIA, TENNESSEE STATE OF TENNESSEE 9/21/23

GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

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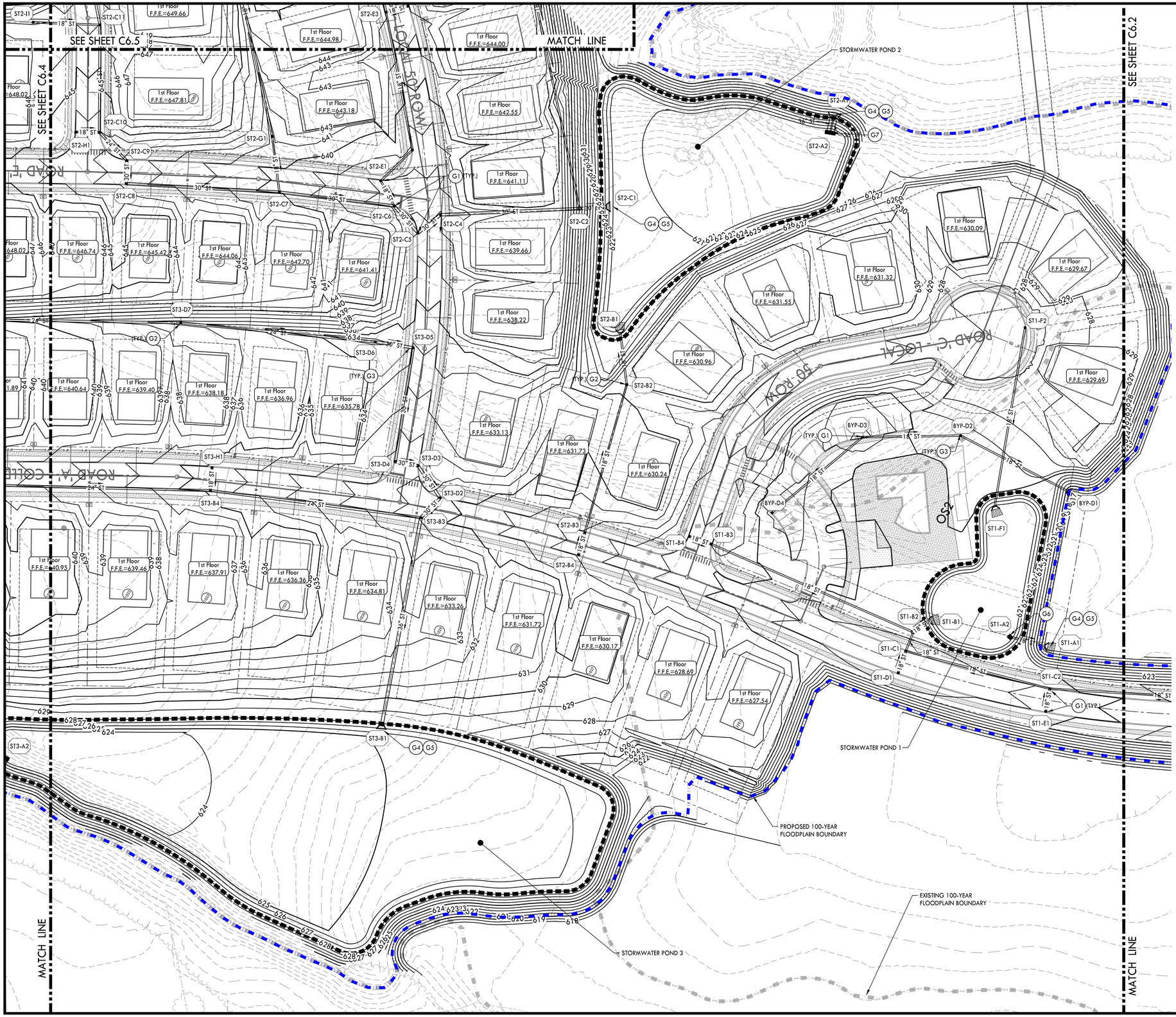
09/21/23 17067

C6.2
GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
G3	JUNCTION BOX	C6.9 - 6
G4	CONCRETE HEADWALL	-
G5	RIPRAP OUTLET PROTECTION	C6.9 - 5
G6	STORMWATER POND 1 OUTLET STRUCTURE	C6.8 - 1
G7	STORMWATER POND 2 OUTLET STRUCTURE	C6.8 - 3
G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

NOTES:
1. GEOTECH INVESTIGATION TO BE PERFORMED ON ALL DEPRESSED AREAS DURING CONSTRUCTION DOCUMENT PERMITTING.

0 10 20 30 40 50 100
GRAPHIC SCALE

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LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS	
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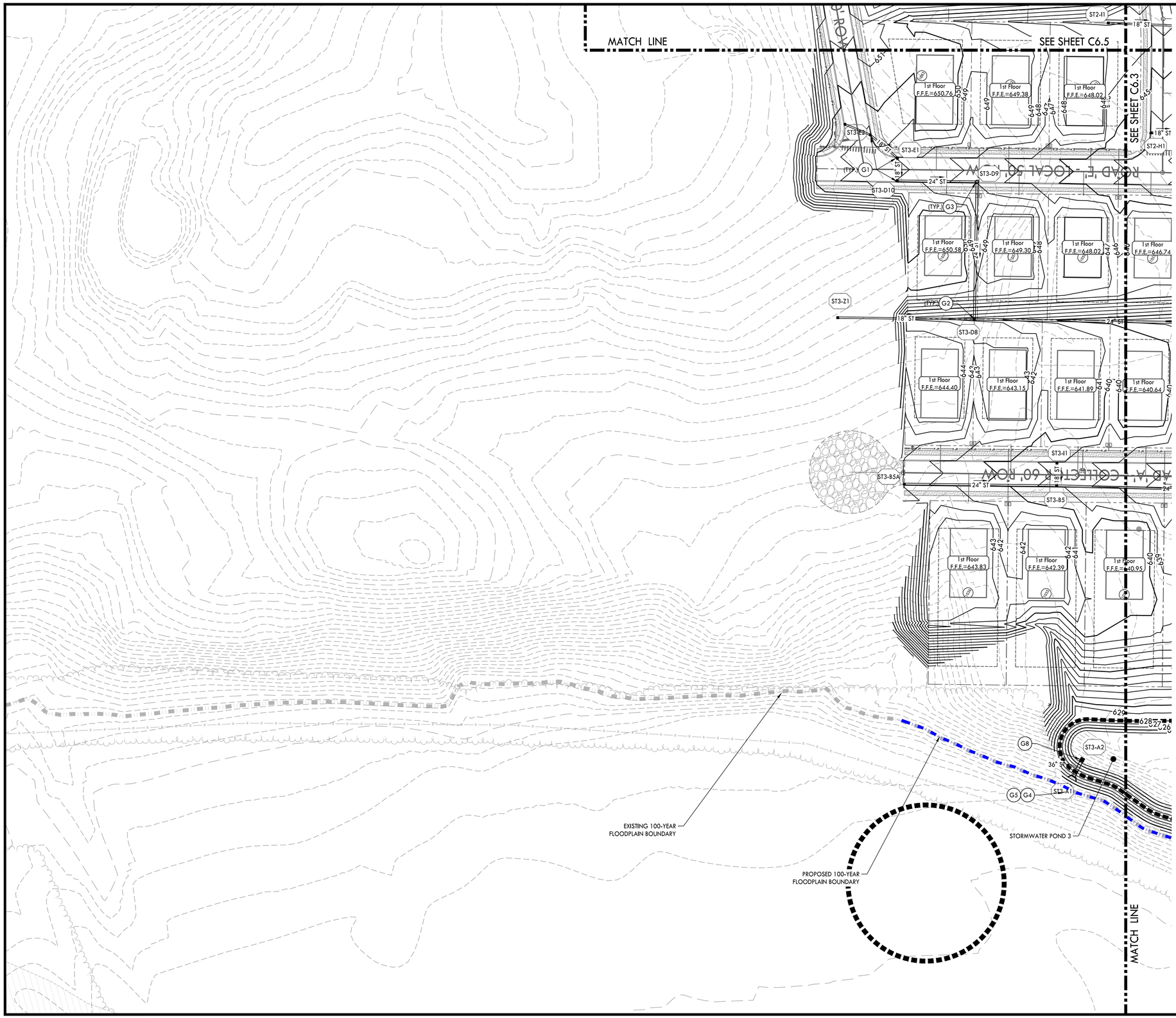
C6.3
GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
G3	JUNCTION BOX	C6.9 - 6
G4	CONCRETE HEADWALL	-
G5	RIPRAP OUTLET PROTECTION	C6.9 - 5
G6	STORMWATER POND 1 OUTLET STRUCTURE	C6.8 - 1
G7	STORMWATER POND 2 OUTLET STRUCTURE	C6.8 - 3
G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- PROPOSED CONTOUR
- STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

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WILSON COUNTY TENNESSEE DEPARTMENT OF AGRICULTURE 9/21/23 COMMERCE NO. 114180 STATE OF TENNESSEE

GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

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C6.4
GRADING & DRAINAGE PLAN

GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
G3	JUNCTION BOX	C6.9 - 6
G4	CONCRETE HEADWALL	-
G5	RIPRAP OUTLET PROTECTION	C6.9 - 5
G6	STORMWATER POND 1 OUTLET STRUCTURE	C6.8 - 1
G7	STORMWATER POND 2 OUTLET STRUCTURE	C6.8 - 3
G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

NOTES:
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GRAPHIC SCALE

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COLUMBIA, TENNESSEE

REVISIONS

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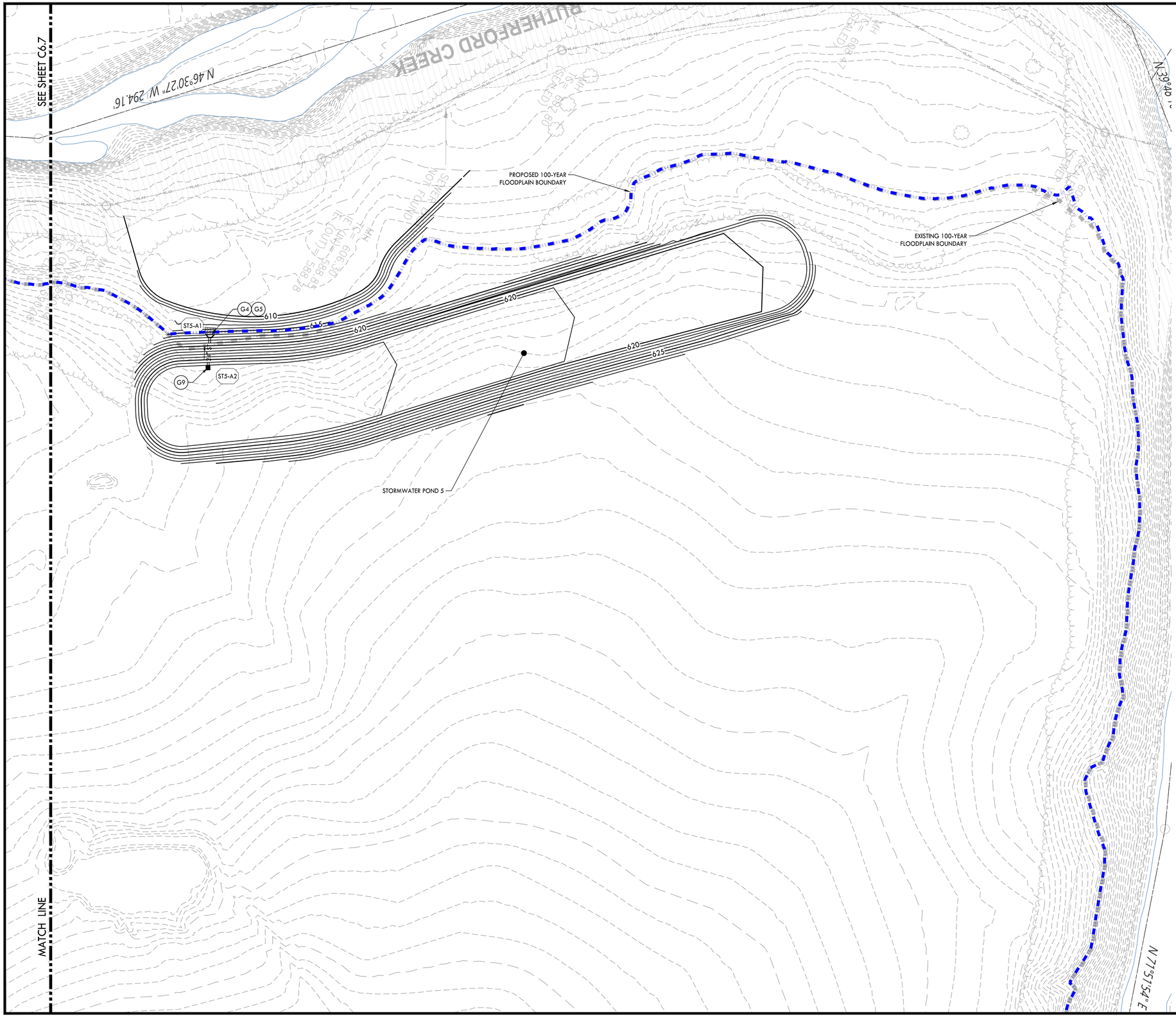
C6.5
GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
G3	JUNCTION BOX	C6.9 - 6
G4	CONCRETE HEADWALL	-
G5	RIPRAP OUTLET PROTECTION	C6.9 - 5
G6	STORMWATER POND 1 OUTLET STRUCTURE	C6.8 - 1
G7	STORMWATER POND 2 OUTLET STRUCTURE	C6.8 - 3
G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

NOTES:
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GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

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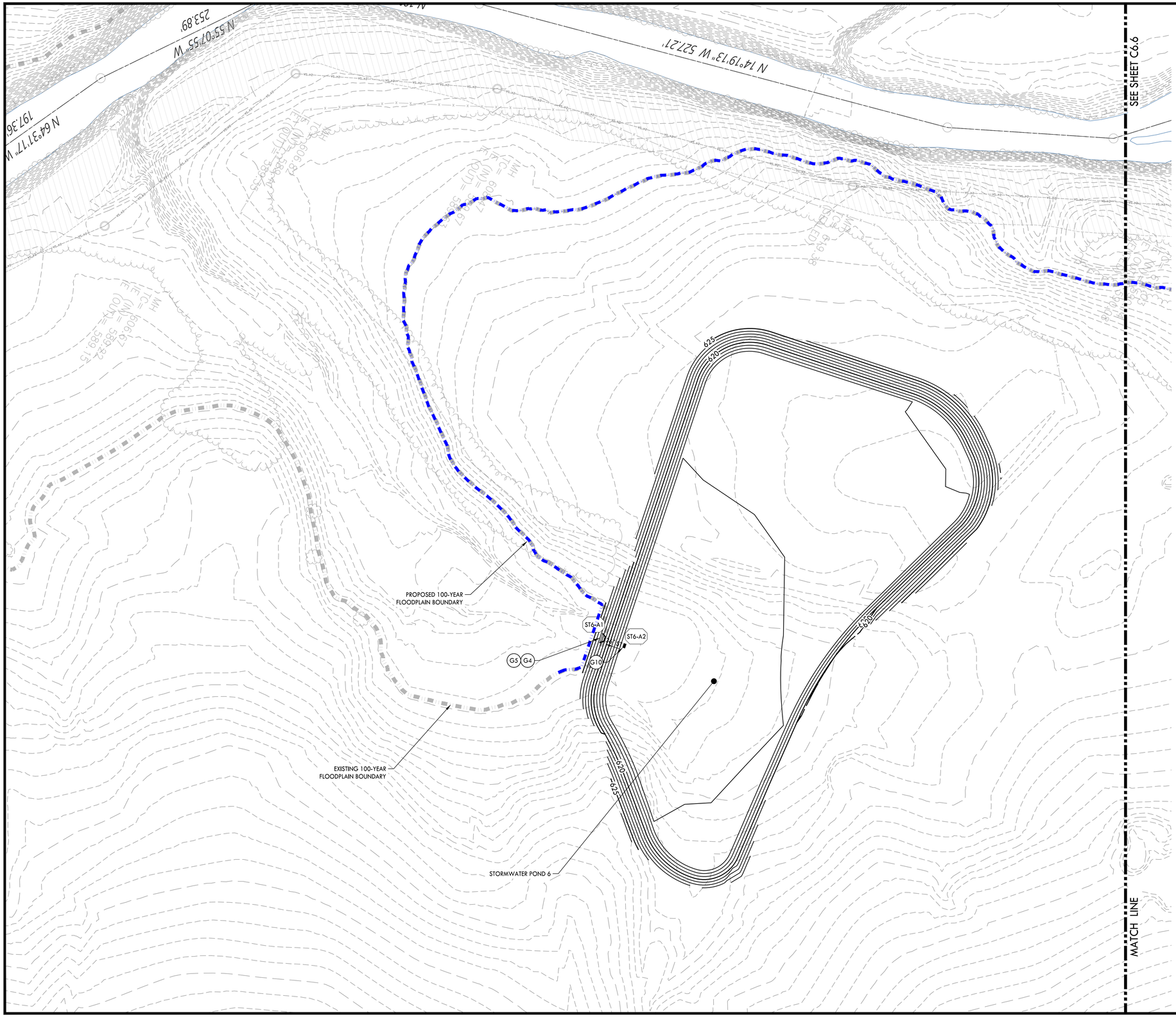
09/21/23 17067

C6.6
GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
G3	JUNCTION BOX	C6.9 - 6
G4	CONCRETE HEADWALL	-
G5	RIPRAP OUTLET PROTECTION	C6.9 - 5
G6	STORMWATER POND 1 OUTLET STRUCTURE	C6.8 - 1
G7	STORMWATER POND 2 OUTLET STRUCTURE	C6.8 - 3
G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

NOTES:
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GRAPHIC SCALE

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9/21/23
COMMERCE
134180
STATE OF TENNESSEE

GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

09/21/23 17067

C6.7
GRADING & DRAINAGE PLAN

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
BYP-A1	611.93	18" ADS (IN): 610.30	18" - 24" CONCRETE HEADWALL
BYP-A2	622.50	18" ADS (IN): 618.00 18" ADS (IN): 614.00 18" ADS (OUT): 611.00	SINGLE CURB INLET
BYP-A3	621.59	18" ADS (IN): 616.00 18" ADS (OUT): 615.90	SINGLE CURB INLET
BYP-A4	622.10	18" ADS (IN): 617.45 18" ADS (IN): 617.45 18" ADS (OUT): 617.45	ROLL OVER INLET
BYP-A5	622.02	18" ADS (OUT): 618.80	SINGLE CURB INLET
BYP-B1	622.94	18" ADS (OUT): 618.50	ROLL OVER INLET
BYP-C1	613.63	18" ADS (IN): 612.00	18" - 24" CONCRETE HEADWALL
BYP-C2	624.69	18" ADS (IN): 621.00 18" ADS (OUT): 621.00	SINGLE CURB INLET
BYP-C3	624.68	18" ADS (OUT): 621.25	SINGLE CURB INLET
BYP-D1	618.46	18" ADS (IN): 616.82	18" - 24" CONCRETE HEADWALL
BYP-D2	625.71	18" ADS (IN): 618.10 18" ADS (OUT): 618.00	SINGLE CATCH BASIN
BYP-D3	622.69	18" ADS (IN): 619.35 18" ADS (OUT): 619.25	SINGLE CURB INLET
BYP-D4	623.20	18" ADS (OUT): 620.00	SINGLE CURB INLET
BYP-E1	621.63	18" ADS (IN): 618.50 18" ADS (OUT): 618.40	SINGLE CURB INLET
BYP-E2	624.30	18" ADS (OUT): 621.00	SINGLE CATCH BASIN
ST1-A1	618.08	18" ADS (IN): 616.44	18" - 24" CONCRETE HEADWALL
ST1-A2	623.85	18" ADS (OUT): 620.00	POND 1 OUTLET STRUCTURE
ST1-B1	621.63	18" ADS (IN): 620.00	18" - 24" CONCRETE HEADWALL
ST1-B2	624.05	18" ADS (IN): 620.15 18" ADS (IN): 620.20 18" ADS (OUT): 620.15	JUNCTION MANHOLE
ST1-B3	625.54	18" ADS (IN): 622.10 18" ADS (OUT): 622.00	SINGLE CURB INLET
ST1-B4	625.54	18" ADS (OUT): 622.40	SINGLE CURB INLET
ST1-C1	623.26	18" ADS (IN): 620.20 18" ADS (IN): 620.30 18" ADS (OUT): 620.20	SINGLE CURB INLET
ST1-C2	624.17	18" ADS (IN): 620.90 18" ADS (IN): 620.90 18" ADS (OUT): 620.90	SINGLE CURB INLET
ST1-C3	626.27	18" ADS (IN): 622.73 18" ADS (OUT): 622.79	SINGLE CURB INLET
ST1-C4	626.27	18" ADS (OUT): 622.98	SINGLE CURB INLET
ST1-D1	623.26	18" ADS (OUT): 620.26	SINGLE CURB INLET
ST1-E1	624.17	18" ADS (OUT): 621.20	SINGLE CURB INLET
ST1-F1	622.29	18" ADS (IN): 620.66	18" - 24" CONCRETE HEADWALL
ST1-F2	626.10	18" ADS (OUT): 622.90	SINGLE CURB INLET
ST2-A1	623.00	36" ADS (IN): 619.79 36" ADS (IN): 619.79	60" - 72" CONCRETE HEADWALL
ST2-A2	623.76	36" ADS (OUT): 620.00 36" ADS (OUT): 620.00	OUTLET STRUCTURE
ST2-B1	623.22	18" ADS (IN): 621.59	18" - 24" CONCRETE HEADWALL
ST2-B2	629.60	18" ADS (IN): 622.10 18" ADS (OUT): 622.00	SINGLE CATCH BASIN
ST2-B3	627.47	18" ADS (IN): 623.30 18" ADS (OUT): 623.20	SINGLE CURB INLET
ST2-B4	627.47	18" ADS (OUT): 623.60	SINGLE CURB INLET
ST2-C1	624.23	30" ADS (IN): 621.52	30" - 36" CONCRETE HEADWALL
ST2-C2	632.91	18" ADS (IN): 628.00 30" ADS (IN): 628.00 30" ADS (OUT): 625.00	JUNCTION MANHOLE
ST2-C4	636.93	30" ADS (IN): 630.50 30" ADS (OUT): 630.40	SINGLE CURB INLET
ST2-C5	636.53	30" ADS (IN): 631.10 30" ADS (OUT): 631.10	SINGLE CURB INLET
ST2-C6	637.46	18" ADS (IN): 631.80 30" ADS (IN): 631.80 30" ADS (OUT): 631.70	SINGLE CURB INLET
ST2-C7	639.58	30" ADS (IN): 634.00 18" ADS (IN): 634.00 30" ADS (OUT): 633.87	SINGLE CURB INLET
ST2-C8	642.40	30" ADS (IN): 635.60 30" ADS (OUT): 635.60	SINGLE CURB INLET
ST2-C9	642.40	24" ADS (IN): 636.00 30" ADS (OUT): 635.90	SINGLE CURB INLET
ST2-C10	643.49	18" ADS (IN): 639.60 24" ADS (IN): 636.50 24" ADS (OUT): 636.40	SINGLE CURB INLET

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
ST2-C11	645.97	24" ADS (IN): 642.00 18" ADS (IN): 640.70 24" ADS (OUT): 637.70	SINGLE CURB INLET
ST2-C12	648.86	24" ADS (IN): 644.60 24" ADS (OUT): 644.50	SINGLE CURB INLET
ST2-C13	648.86	24" ADS (IN): 645.10 24" ADS (OUT): 645.00	SINGLE CURB INLET
ST2-C14	649.70	18" ADS (IN): 645.50 24" ADS (IN): 645.50 24" ADS (OUT): 645.40	SINGLE CURB INLET
ST2-C15	653.84	18" ADS (IN): 650.00 18" ADS (OUT): 649.90	SINGLE CURB INLET
ST2-C16	654.10	18" ADS (IN): 650.40 18" ADS (OUT): 650.30	SINGLE CURB INLET
ST2-C17	659.20	18" ADS (IN): 655.50 18" ADS (IN): 654.80 18" ADS (OUT): 654.70	SINGLE CURB INLET
ST2-C18	659.25	18" ADS (IN): 655.30 18" ADS (OUT): 655.20	SINGLE CURB INLET
ST2-C19	659.25	18" ADS (OUT): 655.70	SINGLE CURB INLET
ST2-D1	647.65	18" ADS (OUT): 644.50	SINGLE CATCH BASIN
ST2-E1	637.76	18" ADS (IN): 632.40 18" ADS (OUT): 632.30	SINGLE CURB INLET
ST2-E2	638.44	18" ADS (IN): 633.10 18" ADS (OUT): 633.00	SINGLE CURB INLET
ST2-E3	641.66	18" ADS (IN): 636.10 18" ADS (IN): 636.10 18" ADS (OUT): 636.00	SINGLE CURB INLET
ST2-E4	646.85	18" ADS (IN): 642.60 18" ADS (OUT): 642.50	SINGLE CURB INLET
ST2-E5	646.85	18" ADS (OUT): 643.00	SINGLE CURB INLET
ST2-G1	640.27	18" ADS (IN): 635.30 18" ADS (OUT): 635.20	SINGLE CATCH BASIN
ST2-G2	646.26	18" ADS (IN): 640.80 18" ADS (OUT): 640.70	SINGLE CATCH BASIN
ST2-G3	649.71	18" ADS (OUT): 645.00	SINGLE CATCH BASIN
ST2-H1	643.50	18" ADS (OUT): 640.00	SINGLE CURB INLET
ST2-I1	645.17	18" ADS (OUT): 642.00	SINGLE CATCH BASIN
ST2-J1	649.99	24" ADS (IN): 646.00 24" ADS (OUT): 645.90	SINGLE CURB INLET
ST2-J2	654.14	24" ADS (IN): 649.50 24" ADS (OUT): 649.40	SINGLE CURB INLET
ST2-J3	654.10	24" ADS (IN): 649.80 24" ADS (OUT): 649.70	SINGLE CURB INLET
ST2-J4	654.68	18" ADS (IN): 650.50 24" ADS (IN): 650.10 24" ADS (OUT): 650.00	SINGLE CURB INLET
ST2-J5	656.82	24" ADS (IN): 651.50 18" ADS (IN): 653.30 24" ADS (OUT): 651.40	SINGLE CURB INLET
ST2-J6	659.34	18" ADS (IN): 655.30 18" ADS (OUT): 655.20	SINGLE CURB INLET
ST2-J7	659.21	18" ADS (OUT): 655.70	SINGLE CURB INLET
ST2-K1	654.68	18" ADS (OUT): 651.00	SINGLE CURB INLET
ST2-L1	655.39	18" ADS (IN): 652.20 24" ADS (OUT): 652.10	SINGLE CATCH BASIN
ST2-L2	661.32	18" ADS (OUT): 658.00	SINGLE CATCH BASIN
ST2-M1	659.22	18" ADS (OUT): 656.20	SINGLE CURB INLET
ST2-N1	641.66	18" ADS (OUT): 637.00	SINGLE CURB INLET
ST3-A1	626.09	36" ADS (IN): 622.87	30" - 36" CONCRETE HEADWALL
ST3-A2	627.75	36" ADS (OUT): 623.00	POND 3 OUTLET STRUCTURE
ST3-B1	626.21	36" ADS (IN): 623.00	30" - 36" CONCRETE HEADWALL
ST3-B3	630.48	24" ADS (IN): 625.40 30" ADS (IN): 625.70 36" ADS (OUT): 625.30	SINGLE CURB INLET
ST3-B4	634.42	24" ADS (IN): 630.60 18" ADS (IN): 630.60 24" ADS (OUT): 630.50	SINGLE CURB INLET
ST3-B5	638.66	24" ADS (IN): 634.50 18" ADS (IN): 635.20 24" ADS (OUT): 634.40	SINGLE CURB INLET
ST3-B5A	641.47	24" ADS (OUT): 637.42	SINGLE CURB INLET
ST3-D2	630.20	30" ADS (IN): 626.00 30" ADS (OUT): 625.90	SINGLE CURB INLET
ST3-D3	631.27	30" ADS (IN): 626.40 30" ADS (OUT): 626.30	SINGLE CURB INLET
ST3-D4	631.27	30" ADS (IN): 626.70 30" ADS (OUT): 626.60	SINGLE CURB INLET
ST3-D5	633.90	30" ADS (IN): 627.60 30" ADS (OUT): 627.50	SINGLE CURB INLET
ST3-D6	633.12	24" ADS (IN): 628.10 30" ADS (OUT): 628.00	SINGLE CATCH BASIN

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
ST3-D7	636.44	24" ADS (IN): 631.00 24" ADS (OUT): 630.90	SINGLE CATCH BASIN
ST3-D8	641.53	24" ADS (IN): 636.50 18" ADS (IN): 636.50 24" ADS (OUT): 636.40	SINGLE CATCH BASIN
ST3-D9	646.51	24" ADS (IN): 641.70 24" ADS (OUT): 641.60	JUNCTION MANHOLE
ST3-D10	647.97	18" ADS (IN): 644.30 24" ADS (OUT): 643.50	SINGLE CURB INLET
ST3-E1	647.97	18" ADS (IN): 644.70 18" ADS (OUT): 644.60	SINGLE CURB INLET
ST3-E2	648.81	18" ADS (IN): 645.60 18" ADS (OUT): 645.50	SINGLE CURB INLET
ST3-F1	649.13	18" ADS (OUT): 645.90	SINGLE CURB INLET
ST3-H1	634.42	18" ADS (OUT): 631.00	SINGLE CURB INLET
ST3-I1	638.66	18" ADS (OUT): 635.45	SINGLE CURB INLET
ST3-Z1	644.05	18" ADS (OUT): 640.00	SINGLE CATCH BASIN
ST5-A1	617.80	24" ADS (IN): 613.64	18" - 24" CONCRETE HEADWALL
ST5-A2	621.88	24" ADS (OUT): 617.00	POND 5 OUTLET STRUCTURE
ST5-C12	648.95	18" ADS (IN): 644.60 18" ADS (IN): 644.10 24" ADS (IN): 644.60 24" ADS (OUT): 644.00	SINGLE CURB INLET
ST5-C13	650.05	18" ADS (IN): 645.10 18" ADS (OUT): 645.00	JUNCTION MANHOLE
ST5-C14	651.04	18" ADS (IN): 645.80 18" ADS (IN): 645.80 18" ADS (OUT): 645.70	SINGLE CURB INLET
ST5-C15	658.77	18" ADS (IN): 653.80 18" ADS (IN): 653.80 18" ADS (OUT): 653.70	SINGLE CURB INLET
ST5-C16	664.61	18" ADS (IN): 661.10 18" ADS (OUT): 661.00	SINGLE CURB INLET
ST5-C17	664.61	18" ADS (OUT): 662.00	SINGLE CURB INLET
ST5-Q1	648.95	18" ADS (OUT): 645.00	SINGLE CURB INLET
ST5-R1	648.48	24" ADS (IN): 645.00 24" ADS (OUT): 644.90	SINGLE CATCH BASIN
ST5-R2	658.98	24" ADS (OUT): 656.20	SINGLE CATCH BASIN
ST5-S1	650.68	18" ADS (OUT): 646.20	SINGLE CURB INLET
ST5-T1	658.77	18" ADS (OUT): 654.50	SINGLE CURB INLET
ST6-A1	619.64	36" ADS (IN): 614.43	30" - 36" CONCRETE HEADWALL
ST6-A2	618.30	36" ADS (OUT): 615.00	POND 6 OUTLET STRUCTURE
ST6-L1	658.80	18" ADS (OUT): 652.60	SINGLE CATCH BASIN
ST6-M3	664.10	18" ADS (IN): 659.10	JUNCTION MANHOLE
ST6-M4	665.26	18" ADS (IN): 660.50 18" ADS (OUT): 660.40	SINGLE CURB INLET
ST6-M5	665.26	18" ADS (OUT): 660.80	SINGLE CURB INLET

STORM PIPE TABLE								
INLET	INVERT	OUTLET	INVERT	LENGTH (FT)	SLOPE (%)	SHAPE	DIAMETER (IN)	MATERIAL
BYP-A2	611.00	BYP-A1	610.30	8	8.39%	CIRCULAR	18	ADS
BYP-A3	615.90	BYP-A2	614.00	95	1.99%	CIRCULAR	18	ADS
BYP-A4	617.45	BYP-A3	616.00	28	5.20%	CIRCULAR	18	ADS
BYP-A5	618.80	BYP-A4	617.45	66	2.05%	CIRCULAR	18	ADS
BYP-B1	618.50	BYP-A2	618.00	48	1.04%	CIRCULAR	18	ADS
BYP-C2	621.00	BYP-C1	612.00	25	35.97%	CIRCULAR	18	ADS
BYP-C3	621.25	BYP-C2	621.00	26	0.98%	CIRCULAR	18	ADS
BYP-D2	618.00	BYP-D1	616.82	131	0.90%	CIRCULAR	18	ADS
BYP-D3	619.25	BYP-D2	618.10	107	1.08%	CIRCULAR	18	ADS
BYP-D4	620.00	BYP-D3	619.35	128	0.51%	CIRCULAR	18	ADS
BYP-E1	618.40	BYP-A4	617.45	34	2.77%	CIRCULAR	18	ADS
BYP-E2	621.00	BYP-E1	618.50	43	5.77%	CIRCULAR	18	ADS
ST1-A2	620.00	ST1-A1	616.44	39	9.01%	CIRCULAR	18	ADS
ST1-B2	620.20	ST1-B3	622.00	240	0.75%	CIRCULAR	18	ADS
ST1-B2	620.15	ST1-B1	620.00	21	0.71%	CIRCULAR	18	ADS
ST1-B3	622.10	ST1-B4	622.40	25	1.20%	CIRCULAR	18	ADS
ST1-C1	620.20	ST1-B2	620.15	22	0.22%	CIRCULAR	18	ADS
ST1-C2	620.90	ST1-C1	620.30	162	0.37%	CIRCULAR	18	ADS
ST1-C3	622.79	ST1-C2	620.90	246	0.77%	CIRCULAR	18	ADS
ST1-C4	622.98	ST1-C3	622.73	25	1.00%	CIRCULAR	18	ADS
ST1-D1	620.26	ST1-C1	620.20	25	0.22%	CIRCULAR	18	ADS
ST1-E1	621.20	ST1-C2	620.90	25	1.20%	CIRCULAR	18	ADS
ST1-F2	622.90	ST1-F1	620.66	198	1.13%	CIRCULAR	18	ADS
ST2-A2	620.00	ST2-A1	619.79	14	1.47%	CIRCULAR	36	ADS
ST2-A2	620.00	ST2-A1	619.79	14	1.44%	CIRCULAR	36	ADS
ST2-B2	622.00	ST2-B1	621.59	57	0.72%	CIRCULAR	18	ADS
ST2-B3	623.20	ST2-B2	622.10	167	0.66%	CIRCULAR	18	ADS
ST2-B4	623.60	ST2-B3	623.30	25	1.20%	CIRCULAR	18	ADS
ST2-C2	625.00	ST2-C1	621.52	30	11.77%	CIRCULAR	30	ADS
ST2-C4	630.50	ST2-C5	631.10	32	1.90%	CIRCULAR	30	ADS
ST2-C4	630.40	ST2-C2	628.00	152	1.58%	CIRCULAR	30	ADS
ST2-C6	631.70	ST2-C5	631.10	39	1.52%	CIRCULAR	30	ADS
ST2-C7	633.87	ST2-C6	631.80	126	1.65%	CIRCULAR	30	ADS
ST2-C8	635.60	ST2-C7	634.00	167	0.96%	CIRCULAR	30	ADS
ST2-C9	635.90	ST2-C8	635.60	25	1.20%	CIRCULAR	30	ADS
ST2-C10	636.40	ST2-C9	636.00	43	0.93%	CIRCULAR	24	ADS
ST2-C11	637.70	ST2-C10	636.50	117	1.03%	CIRCULAR	24	ADS
ST2-C12	644.50	ST2-C11	642.00	138	1.82%	CIRCULAR	24	ADS
ST2-C13	645.00	ST2-C12	644.60	25	1.60%	CIRCULAR	24	ADS
ST2-C14	645.40	ST2-C13	645.10	37	0.80%	CIRCULAR	24	ADS
ST2-C15	649.90	ST2-C14	645.50	263	1.67%	CIRCULAR	18	ADS
ST2-C16	650.30	ST2-C15	650.00	30	1.01%	CIRCULAR	18	ADS
ST2-C17	654.70	ST2-C16	650.40	207	2.08%	CIRCULAR	18	ADS
ST2-C18	655.20	ST2-C17	654.80	43	0.92%	CIRCULAR	18	ADS
ST2-C19	655.70	ST2-C18	655.30	25	1.60%	CIRCULAR	18	ADS
ST2-D1	644.50	ST2-C2	628.00	459	3.60%	CIRCULAR	18	ADS
ST2-E1	632.30	ST2-C6	631.80	31	1.61%	CIRCULAR	18	ADS
ST2-E2	633.00	ST2-E1	632.40	48	1.24%	CIRCULAR	18	ADS
ST2-E3	636.00	ST2-E2	633.10	153	1.90%	CIRCULAR	18	ADS
ST2-E4	642.50	ST2-E3	636.10	252	2.54%	CIRCULAR	18	ADS
ST2-E5	643.00	ST2-E4	642.60	25	1.60%	CIRCULAR	18	ADS
ST2-G1	635.20	ST2-C7	634.00	61	1.96%	CIRCULAR	18	ADS
ST2-G2	640.70	ST2-G1	635.30	289	1.87%	CIRCULAR	18	ADS
ST2-G3	645.00	ST2-G2	640.80	201	2.09%	CIRCULAR	18	ADS
ST2-H1	640.00	ST2-C10	639.60	25	1.60%	CIRCULAR	18	ADS
ST2-I1	642.00	ST2-C11	640.70	73	1.79%	CIRCULAR	18	ADS
ST2-J1	645.90	ST2-C14	645.50	31	1.30%	CIRCULAR	24	ADS
ST2-J2	649.40	ST2-J1	646.00	172	1.98%	CIRCULAR	24	ADS
ST2-J3	649.70	ST2-J2	649.50	25	0.80%	CIRCULAR	24	ADS
ST2-J4	650.00	ST2-J3	649.80	42	0.48%	CIRCULAR	24	ADS
ST2-J5	651.40	ST2-J4	650.10	101	1.28%	CIRCULAR	24	ADS
ST2-J6	655.20	ST2-J5	653.30	116	1.64%	CIRCULAR	18	ADS
ST2-J7	655.70	ST2-J6	655.30	25	1.59%	CIRCULAR	18	ADS
ST2-K1	651.00	ST2-J4	650.50	25	2.00%	CIRCULAR	18	ADS
ST2-L1	652.10	ST2-J5	651.50	55	1.08%	CIRCULAR	24	ADS

STORM PIPE TABLE								
INLET	INVERT	OUTLET	INVERT	LENGTH (FT)	SLOPE (%)	SHAPE	DIAMETER (IN)	MATERIAL
ST2-L2	658.00	ST2-L1	652.20	260	2.23%	CIRCULAR	18	ADS
ST2-M1	656.20	ST2-C17	655.50	25	2.80%	CIRCULAR	18	ADS
ST2-N1	637.00	ST2-E3	636.10	25	3.60%	CIRCULAR	18	ADS
ST3-A2	623.00	ST3-A1	622.87	20	0.62%	CIRCULAR	36	ADS
ST3-B3	625.30	ST3-B1	623.00	231	1.00%	CIRCULAR	36	ADS
ST3-B4	630.50	ST3-B3	625.40	231	2.21%	CIRCULAR	24	ADS
ST3-B5	634.40	ST3-B4	630.60	249	1.52%	CIRCULAR	24	ADS
ST3-B5A	637.42	ST3-B5	634.50	166	1.76%	CIRCULAR	24	ADS
ST3-D2	625.90	ST3-B3	625.70	30	0.67%	CIRCULAR	30	ADS
ST3-D3	626.30	ST3-D2	626.00	43	0.70%	CIRCULAR	30	ADS
ST3-D4	626.60	ST3-D3	626.40	25	0.80%	CIRCULAR	30	ADS
ST3-D5	627.50	ST3-D4	626.70	126	0.64%	CIRCULAR	30	ADS
ST3-D6	628.00	ST3-D5	627.60	42	0.96%	CIRCULAR	30	ADS
ST3-D7	630.90	ST3-D6	628.10	213	1.32%	CIRCULAR	24	ADS
ST3-D8	636.40	ST3-D7	631.00	307	1.76%	CIRCULAR	24	ADS
ST3-D9	641.60	ST3-D8	636.50	149	3.41%	CIRCULAR	24	ADS
ST3-D10	643.50	ST3-D9	641.70	87	2.07%	CIRCULAR	24	ADS
ST3-E1	644.60	ST3-D10	644.30	25	1.20%	CIRCULAR	18	ADS
ST3-E2	645.50	ST3-E1	644.70	39	2.05%	CIRCULAR	18	ADS
ST3-F1	645.90	ST3-E2	645.60	30	1.01%	CIRCULAR	18	ADS
ST3-H1	631.00	ST3-B4	630.60	25	1.60%	CIRCULAR	18	ADS
ST3-I1	635.45	ST3-B5	635.20	25	1.00%	CIRCULAR	18	ADS
ST3-Z1	640.00	ST3-D8	636.50	149	2.35%	CIRCULAR	18	ADS
ST5-A2	617.00	ST5-A1	613.64	33	10.09%	CIRCULAR	24	ADS
ST5-C12	644.00		640.50	204	1.71%	CIRCULAR	24	ADS
ST5-C13	645.00	ST5-C12	644.10	117	0.77%	CIRCULAR	18	ADS
ST5-C14	645.70	ST5-C13	645.10	47	1.29%	CIRCULAR	18	ADS
ST5-C15	653.70	ST5-C14	645.80	232	3.41%	CIRCULAR	18	ADS
ST5-C16	661.00	ST5-C15	653.80	257	2.80%	CIRCULAR	18	ADS
ST5-C17	662.00	ST5-C16	661.10	25	3.60%	CIRCULAR	18	ADS
ST5-Q1	645.00	ST5-C12	644.60	25	1.60%	CIRCULAR	18	ADS
ST5-R1	644.90	ST5-C12	644.60	33	0.90%	CIRCULAR	24	ADS
ST5-R2	656.20	ST5-R1	645.00	304	3.68%	CIRCULAR	24	ADS
ST5-S1	646.20	ST5-C14	645.80	27	1.47%	CIRCULAR	18	ADS
ST5-T1	654.50	ST5-C15	653.80	25	2.80%	CIRCULAR	18	ADS
ST6-A2	615.00	ST6-A1	614.43	22	2.61%	CIRCULAR	36	ADS
ST6-L1	652.60		650.80	171	1.05%	CIRCULAR	18	ADS
ST6-M4	660.40	ST6-M3	659.10	126	1.03%	CIRCULAR	18	ADS
ST6-M5	660.80	ST6-M4	660.50	25	1.20%	CIRCULAR	18	ADS

CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
FRANKLIN, TN 37027
(615) 873-1795
WWW.CRUNKENG.COM

ENGINEERING CRUNK

AGRICULTURE — REGISTERED LANDSCAPE ARCHITECT — 9/21/23 — 1134189 — TENNESSEE — STATE OF TENNESSEE

GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

09/21/23 17067

C6.8
STORM PIPE & STRUCTURE TABLES

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 051, Parcel 55.00
Project Name: Landing at Greens Mill - Phase 1B

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

THIS AGREEMENT, made this 16 day of September, 20 24, by and between Safe Harbor Residential 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 ONWER(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 Koby DuMont

Title Division President

Signature _____

Owner Greens Mill, LLC

Address 308 Letterman Drive

Knoxville, TN 37919

City, State ZIP _____

STATE OF Tennessee
COUNTY OF Robertson

Before me, Lisa Dziezgowski of the state and county mentioned, personally appeared Koby Dumont, 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 16th day of September, 2024.

Lisa Dziezgowski
Notary Public

My Commission Expires: August 18 2026

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: _____

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 (onlama.com)

ADDRESS/LOCATION	2558 Greens Mill Rd., Columbia, TN 38401		
	TAX MAP: 51	GROUP:	PARCEL: 55.00
SUMMARY OF NATURE OF REQUEST AND WORK	The purpose of this plat is to create 40 build-able lots, 1 open space lots, dedication of Right of Way, and Easements.		

DATE OF PRE-APPLICATION CONFERENCE	08/28/2024	*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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	Plats/PUDs: ☐ Project Name (include Sections & Phases) The Landing at Greens Mill Rd. - Phase 1B ☐ Total Number of Lots/Residential Units 40 ☐ Square Footage of Non-Residential Floor Space ☐ Total acreage 10.50 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	Crunk Engineering, LLC	PHONE	615-873-1795
ADDRESS	7112 Crossroads Blvd., #201, Brentwood, TN 37027	EMAIL	adam@crunkeng.com

PROPERTY OWNER NAME	Safe Harbor Residential	PHONE	865-622-1774
ADDRESS	105 Westpark Dr., #365, Brentwood, TN 37027	EMAIL	taylor@safeharborresidential.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.

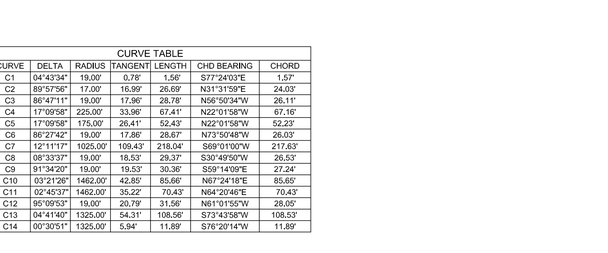
Adam Crunk, PE		09/16/2024
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Kirby DuMont		9-16-2024
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

TOTAL AREA THIS RECORDING = 290,545 S.F. or 6.67 Acres ±

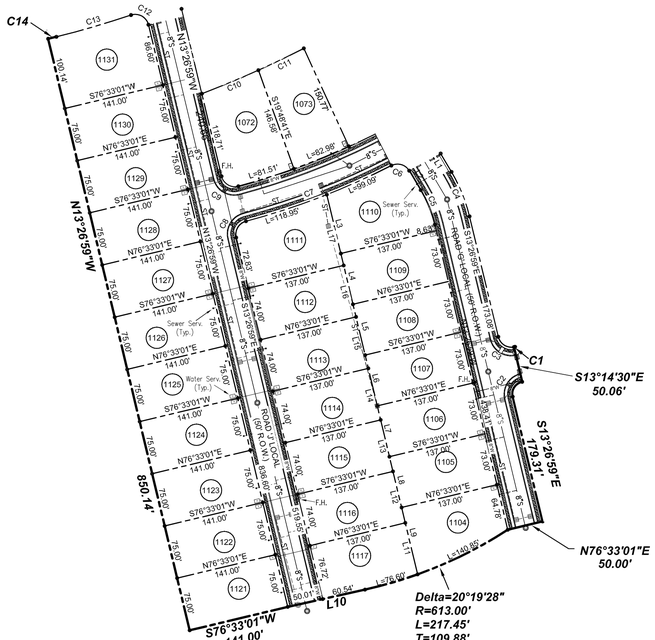
CURVE TABLE						
CURVE	DELTA	RADIUS	TANGENT	LENGTH	CHD BEARING	CHORD
C1	04°43'34"	19.00'	0.78'	1.56'	S77°24'03"E	1.57'
C2	89°57'56"	17.00'	16.99'	26.69'	N31°31'59"E	24.03'
C3	86°47'11"	19.00'	17.86'	28.78'	N56°50'34"W	26.11'
C4	17°09'58"	225.00'	33.96'	67.41'	N22°01'58"W	67.16'
C5	17°09'58"	175.00'	26.41'	52.43'	N22°01'58"W	52.23'
C6	86°27'42"	19.00'	17.86'	28.67'	N73°50'48"W	26.03'
C7	12°11'17"	1025.00'	109.43'	218.04'	S69°01'00"W	217.63'
C8	08°33'37"	19.00'	18.53'	29.37'	S30°49'50"W	26.53'
C9	91°34'20"	19.00'	19.53'	30.36'	S59°14'09"E	27.24'
C10	03°21'26"	1462.00'	42.85'	85.66'	N67°24'18"E	85.65'
C11	02°45'37"	1462.00'	35.22'	70.43'	N64°20'46"E	70.43'
C12	95°09'53"	19.00'	20.79'	31.56'	N61°01'55"W	28.05'
C13	04°41'40"	1325.00'	54.31'	108.56'	S73°43'58"W	108.53'
C14	00°30'51"	1325.00'	5.94'	11.89'	S76°20'14"W	11.89'

LINE TABLE		
LINE	BEARING	LENGTH
L1	S28°29'38"E	28.04'
L2	S13°26'58"E	56.88'
L3	S13°26'58"E	54.88'
L4	S13°26'58"W	53.88'
L5	S13°26'58"E	52.88'
L6	S13°26'58"E	51.88'
L7	S13°26'58"E	74.00'
L8	S13°26'58"E	101.70'
L9	S13°26'58"E	74.00'
L10	S13°26'58"E	74.00'
L11	S13°26'58"E	74.00'
L12	S13°26'58"E	74.00'
L13	S13°26'58"E	74.00'
L14	S13°26'58"E	74.00'
L15	S13°26'58"E	101.69
L16	S13°26'58"E	74.00'
L17	S13°26'58"E	74.00'

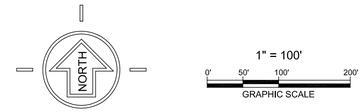
AREA SUMMARY		
LOT	SQ. FT.	ACREAGE
1072	13,199	0.30
1073	11,412	0.26
1101	12,377	0.28
1102	10,001	0.23
1103	10,001	0.23
1104	10,001	0.23
1105	10,001	0.23
1106	10,001	0.23
1107	11,400	0.26
1111	10,530	0.24
1112	10,138	0.23
1113	10,138	0.23
1114	10,138	0.23
1115	10,138	0.23
1116	10,138	0.23
1117	12,950	0.29
1118	14,369	0.32
1119	10,575	0.24
1120	10,575	0.24
1121	10,575	0.24
1122	10,575	0.24
1123	10,575	0.24
1124	10,575	0.24
1125	10,575	0.24
1126	10,575	0.24
1127	10,575	0.24
1128	10,575	0.24



Typical Lot Layouts
Not to Scale



ZONING: RS10



LEGEND:

- IP(0)○ Existing Iron Pipe – IP(0)
- IR(0)○ Existing Iron Rod – IR(0)
- IR(N)● Iron Rod (New) – IR(N)
- Sanitary Manhole
- Fire Hydrant (F.H.)
- Catch Basin
- Storm Manhole
- Concrete Headwall
- PUDE Public Utility & Drainage Easement
- MBSL Minimum Building Setback Line
- R.O.M.C. Registers' Office Maury County

GENERAL NOTES:

1. THE PURPOSE OF THIS PLAT IS TO CREATE 27 BUILDABLE LOTS, DEDICATION OF RIGHT OF WAY, AND EASEMENTS.
2. PROPERTY SHOWN HEREON IS PART OF PARCEL (55.00) ON MAURY COUNTY PROPERTY MAP 51.
3. BEARINGS SHOWN HEREON ARE BASED ON TENNESSEE STATE PLANE COORDINATE SYSTEM, ZONE 5301, FIPZONE 4100, NAD 83 DATUM.
4. BEING PART OF THE SAME PROPERTY CONVEYED TO 2558 GREENS MILL, LLC AS OF RECORD IN BOOK R2799, PAGE 298 REGISTERS' OFFICE, MAURY COUNTY, TENNESSEE.
5. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY MAP, A PORTION OF THIS PROPERTY IS LOCATED WITHIN AN AREA OF FLOOD INUNDATION AS SHOWN ON FEMA MAP NUMBER: 47119C0180E, DATED: 4/16/2007, CITY OF COLUMBIA NUMBER 475423 - PANEL 0180 - SUFFIX E FLOOD ZONES "AE" AND "X"
6. THIS PROPERTY IS CURRENTLY ZONED: RS 10.
7. WATER AND SANITARY SEWER SERVICES TO BE PROVIDED BY COLUMBIA PUBLIC UTILITIES.
8. THERE IS A 10' PUBLIC UTILITY & DRAINAGE EASEMENT RUNNING PARALLEL TO THE REAR PROPERTY LINE AND ALL STREET R.O.W. UNLESS SHOWN OTHERWISE. THERE IS A 5' PUBLIC UTILITY & DRAINAGE EASEMENT RUNNING PARALLEL TO THE SIDE PROPERTY LINE UNLESS SHOWN OTHERWISE.
9. XXX INDICATES STREET ADDRESS.
10. ALL UTILITIES ARE TO BE UNDERGROUND.
11. NO MOBILE HOMES SHALL BE PERMITTED.
12. NO DRIVEWAY TO BE CONSTRUCTED OVER SANITARY SEWER SERVICE LINE.
13. FOR MINIMUM YARD LINES SEE THE TYPICAL LOT DETAILS.
14. ALL NOTES AND CERTIFICATES APPLY TO ALL SHEETS.
15. SIDEWALKS ARE 5' WIDE, UNLESS OTHERWISE NOTED.
16. EXISTING USE: VACANT, PROPOSED USE : ONE-FAMILY, DETACHED DWELLINGS
17. ALL OPEN SPACE TRACTS SHALL BE OWNED AND MAINTAINED BY THE LANDING AT GREENS MILL ROAD HOMEOWNERS ASSOCIATION.
18. ROADS, UTILITIES, AND OTHER FACILITIES HAVE BEEN FILED AS REQUIRED BY THE CITY OF COLUMBIA SUBDIVISION REGULATIONS.
19. THIS SUBDIVISION IS SUBJECT TO THE TERMS AND CONDITIONS OF THE RECORDED STORMWATER INSPECTION AND MAINTENANCE AGREEMENT FOR THESE FACILITIES AS RECORDED IN BOOK _____, PAGE _____, R.O.M.C., TN.
20. SEE DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR THE LANDING AT GREENS MILL ROAD, AS RECORDED IN BOOK _____, PAGE _____, REGISTERS' OFFICE FOR MAURY COUNTY, TENNESSEE.
21. A STREAM BUFFER AS SHOWN ON THIS PLAN IS TO BE A PERMANENT WATER QUALITY BUFFER IN ACCORDANCE WITH ARTICLE 6 SECTION 9 OF THE CITY OF COLUMBIA STORMWATER ORDINANCE. THIS STREAM BUFFER IS TO REMAIN IN A NATURAL VEGETATED STATE FREE OF OBSTRUCTIONS, STRUCTURES, AND INTRUSIONS. BUFFER IS TO BE A NO MOW BUFFER AREA, AND THE MAINTENANCE WITHIN STREAM BUFFERS TO BE LIMITED TO HAND OPERATED TOOLS AND BE PERFORMED IN ACCORDANCE WITH CURRENT CITY OF COLUMBIA STORMWATER ORDINANCE AND OR AT THE DIRECTION OF THE CITY OF COLUMBIA ENGINEERING DIVISION.
22. NO OBSTRUCTIONS OR ENCROACHMENTS WHICH IMPEDE THE FLOW OF STORMWATER SHALL BE PERMITTED WITHIN PUBLIC DRAINAGE EASEMENTS. THE CITY OF COLUMBIA IS NOT RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY ENCROACHMENTS THAT ARE DAMAGED OR REMOVED IN THE COURSE OF MAINTENANCE ACTIVITY WITHIN EASEMENTS AS REFERENCED IN THE COLUMBIA GENERAL MANAGEMENT CODE, CHAPTER 15, ARTICLE 1, SECTION 15-8.
23. THE FINAL PLAT SHOWN HEREON IS VESTED UNDER THE PREVIOUS ZONING CODE WITHIN ZONING ORDINANCE 3638 AS AN RS-10 PLANNED UNIT DEVELOPMENT.

23. THE FINAL PLAT SHOWN HEREON IS VESTED UNDER THE PREVIOUS ZONING CODE WITHIN ZONING ORDINANCE 3638 AS AN RS-10 PLANNED UNIT DEVELOPMENT.
24. THE AMENTITY CENTER AND ASSOCIATED PARKING WILL REQUIRE SEPERATE PERMIT AND SITE PLAN REVIEW.

E-911 PROGRAM CERTIFICATION OF APPROVAL

This is to certify that this plat has been reviewed and is in compliance with the Maury County E-911 Program.

_____ _____
(Date) E-911 Director

CERTIFICATE OF COMMON AREAS DEDICATION

2558 Greens Mill, LLC, in recording this plat has designated certain areas of land shown hereon as common areas intended for use by the homeowners within The Landing At Green Mills Road - Phase 1, for recreation and related activities. The above-described areas are not dedicated for use by the general public, but are dedicated to the common use of the homeowners within the named subdivision.

"Declaration of Covenants and Restrictions", applicable to the above named subdivision, is hereby incorporated and made part of this plat.

_____, _____, _____
Date Owner

CERTIFICATE OF APPROVAL OF PUBLIC WAYS OR BOND POSTING

I hereby certify; (1) that all designated public ways on this final subdivision plat have been installed in an acceptable manner and according to the specifications of the Maury County Subdivision Regulations, or (2) that a performance bond or other surety has been posted with the Planning Commission to guarantee completion of all required improvements in case of default.

_____ _____
(Date) Appropriate Governmental Representative

CERTIFICATE OF APPROVAL OF PUBLIC SEWER SYSTEM

I hereby certify that the sewer system(s) outlined or indicated on the final subdivision plat entitled The Landing at Greens Mill 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) Name, Title, and Agency or Authorized Approving Agent

CERTIFICATE FOR APPROVAL FOR RECORDING

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

_____, _____, _____
Date Secretary Maury County Regional Planning Commission

CERTIFICATE OF SURVEY ACCURACY

I hereby certify that to the best of my knowledge and belief the hereon shown subdivision plat represents a Category "1" Survey having an unadjusted ration of precision of 1:10,000 and is true and correct. Approved monuments have been placed as indicated. All side lot lines are at right angles or radial to a street unless otherwise noted.

9-13-2024 _____
(Date) James G. Terry, R.L.S. # 2287

CERTIFICATE OF OWNERSHIP AND DEDICATION

I (we) hereby certify that I am (we are) the owners of the property shown and described hereon as evidenced in Book R2799, Page 298, Maury County Register's Office and I (we) 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, public easements, utilities, and other facilities have been filed.

_____ _____
(Date) (Owner)

_____
Title (If Acting for Partnership or Corporation)

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I hereby certify that the water system(s) outlined or indicated on the final subdivision plat entitled The Landing at Greens Mill Road - Phase 1 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) Name, Title, and Agency or Authorized Approving Agent

REVISIONS:

1.
2.
3.
4.
5.
6.
7.

FINAL PLAT
THE LANDING AT GREENS MILL ROAD
PHASE 1C
GREEN MILLS ROAD
Property Map # 51 - Parcel (55.00)
CITY OF COLUMBIA, MAURY COUNTY, TENNESSEE
Scale : 1" = 100'

Prepared By:
JTA LAND SURVEYING, INC.
2403 Bee Hill Pike, Suite K · Nashville, TN. 37214
Phone: 615-490-0920

DRAWN BY: MTG, TMF, RR (See Revisions)
DATE: SEPTEMBER 16, 2024 Job No. 2023-507

SHEET 1 OF 1

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

16th day of September, 20 24,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Safe Harbor Residential, 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 DEVELEPOR'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.

The Landings at Greens Mill Road

PROJECT

Completed by the Developer	*Completed by the City*
SH Residential DEVELOPER NAME	
Koby DuMont AUTHORIZED AGENT NAME	 CITY ENGINEER
 SIGNATURE	 SIGNATURE
9-16-2024 DATE	 DATE
105 Westpark Drive Ste. 305 STREET	
Brentwood, TN, 37027 CITY, STATE, ZIP	
865-507-0220 PHONE	
koby@sacherborresidential.com EMAIL	
Attest	*Attest*
Lisa Dzierzgowski ATTEST NAME	 ATTEST NAME
Lisa Dzierzgowski ATTEST SIGNATURE	 ATTEST SIGNATURE
9-16-2024 DATE	 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 (onlama.com)

ADDRESS/LOCATION	2558 Greens Mill Rd., Columbia, TN 38401		
	TAX MAP: 51	GROUP:	PARCEL: 55.00
SUMMARY OF NATURE OF REQUEST AND WORK	The purpose of this plat is to create 27 build-able lots, dedication of Right of Way, and Easements.		

DATE OF PRE-APPLICATION CONFERENCE	08/28/2024	*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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	Plats/PUDs: ❑ Project Name (include Sections & Phases) The Landing at Greens Mill Rd. - Phase 1C ❑ Total Number of Lots/Residential Units 27 ❑ Square Footage of Non-Residential Floor Space ❑ Total acreage 6.67 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	Crunk Engineering, LLC	PHONE	615-873-1795
ADDRESS	7112 Crossroads Blvd., #201, Brentwood, TN 37027	EMAIL	adam@crunkeng.com

PROPERTY OWNER NAME	Safe Harbor Residential	PHONE	865-622-1774
ADDRESS	105 Westpark Dr., #365, Brentwood, TN 37027	EMAIL	taylor@safeharborresidential.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.

Adam Crunk, PE		09/16/2024
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Thomas D Mont		9-16-2024
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	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 051, Parcel 55.00
Project Name: Landing at Greens Mill - Phase 1C

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

THIS AGREEMENT, made this 16 day of September, 20 24 , by and between Safe Harbor Residential 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 ONWER(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 Koby DuMont

Title Division President

Signature

Owner Greens Mill, LLC

Address 308 Letterman Drive

City, State ZIP Knoxville, TN 37919

STATE OF Tennessee
COUNTY OF Robertson

Before me, Lisa Dziezgowski of the state and county mentioned, personally appeared Koby DuMont, 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 16th day of September 2024.

Lisa Dziezgowski
Notary Public

My Commission Expires: August 18 2026

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: _____

PER ITEM 1 OF THIS AGREEMENT:

A post construction long term maintenance plan shall be recorded with this agreement.

The plan shall include a reduced grading and drainage sheet, location map, and deed of easement drawing or plat.

REMOVE THIS SHEET

REPLACE WITH THE REQUIREMENTS LISTED ABOVE.

Appendix B: Subdivision Development Agreement

This DEVELOPMENT AGREEMENT is made and entered into on this

16th day of September, 20 24,
between THE CITY OF COLUMBIA, TENNESSEE, (hereinafter the "CITY"), and

Safe Harbor Residential, 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 DEVELEPOR'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.

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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.

The Landings at Greens Mill Road

PROJECT

Completed by the Developer	*Completed by the City*
SH Residential DEVELOPER NAME	
Koby DuMont AUTHORIZED AGENT NAME	 CITY ENGINEER
 SIGNATURE	 SIGNATURE
9-16-2024 DATE	 DATE
105 Westpark Drive Ste. 365 STREET	
Brentwood, TN, 37027 CITY, STATE, ZIP	
865-507-0220 PHONE	
koby@sacherborresidential.com EMAIL	
Attest	*Attest*
Lisa Dzierzgowski ATTEST NAME	 ATTEST NAME
Lisa Dzierzgowski ATTEST SIGNATURE	 ATTEST SIGNATURE
9-16-2024 DATE	 DATE

Post Construction Long Term Maintenance Plan

Project Name: Landing at Greens Mill – Phase 1C

Columbia, TN

September 16, 2024

Table of Contents

Section Name

System Description
Maintenance Procedures

System Description

The site consists of a series of stormwater conveyances both open channel and piped, detention / retention and water quality ponds. The previous Stormwater Detention Ponds Maintenance Plans were recorded during the platting of Phase 1A.

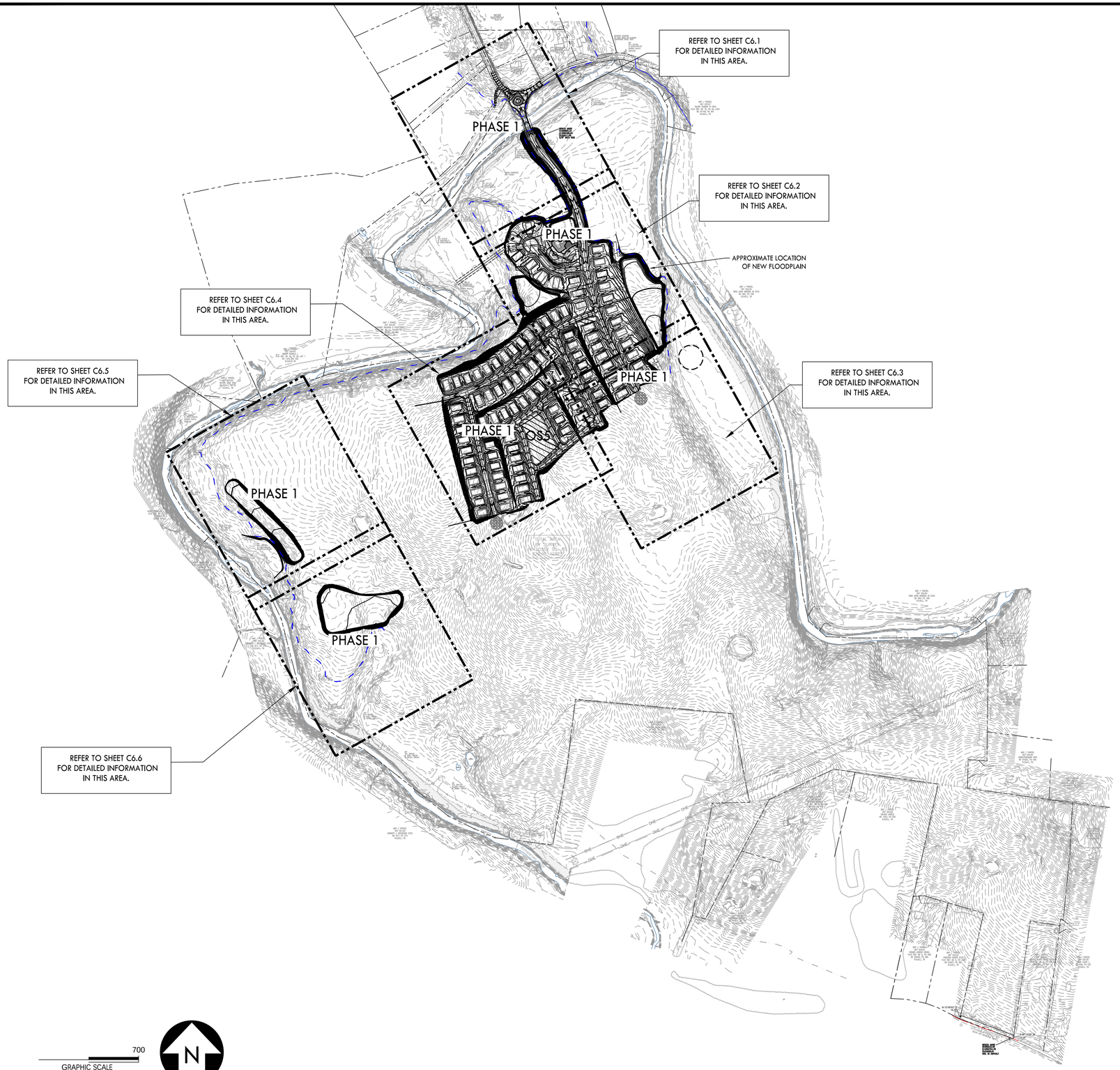
- There are 5 stormwater detention ponds sized to detain through the 100 year peak event. The orifice is designed to contain the first flush, 1 inch, for 24 hour.
- 1,332 feet of grass lined open channel.
- 1,386 feet of 18 in ADS pipe and 12 storm inlets.

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. **STORMWATER DETENTION PONDS**
    - **a.** The outlet structures shall be checked regularly for clogging and shall be cleaned and repaired as necessary---monthly after it is first built then a regular sequence should be established or at least quarterly or after a large rain event.
    - **b.** Check banks and bottom surface of basins for erosion and correct as necessary.
    - **c.** Check at least quarterly and after each extreme storm event, the facility should be cleaned of accumulated debris. The banks of surface ponds should be checked and areas of erosion repaired. Remove nuisance wetland species and take appropriate measures to control mosquitos.
    - **d.** This maintenance typically includes sediment, floatable, and debris removal from inlets, outlets and skimmers.
    - **e.** Pond vegetation to be trimmed or harvested as appropriate, grassy areas, frequently mowed. Grass should be mowed so that it does not get over 12.
    - **f.** Remove sediment when accumulation reached 6 inches, or if re-suspension is observed or probable.
    - **g.** Some sediment may contain contaminants which the Tennessee Department of Environment and Conservation (TDEC) requires special disposal procedure. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then TDEC should be consulted and their disposal recommendations followed. The TDEC Division of Water Pollution Control should be contacted at (931) 380-3371. Generally, special attention or sampling should be given to sediment accumulated in facilities serving industrial, manufacturing or heavy commercial sites, Page 2 of 4 Rev. 9/26/2016 fueling centers or automotive maintenance areas, large parking areas, or other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.
    - **h.** Some sediment collected may be innocuous (free of pollutants) and can be used as fill material, cover or land spreading. It is important that this material not be placed in any way that will promote or allow re-suspension in storm runoff.
2. **1,386 feet of 18 in ADS pipe and 12 storm inlets.**
    - a. These structures will be inspected and cleaned quarterly to ensure pipes and drain inlets do not fill with sediment or trash.



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ENGINEERING CRUNK

ANDREW L. WILSON 134180 REGISTERED ENGINEER AGRICULTURE COMMERCE STATE OF TENNESSEE 9/21/23

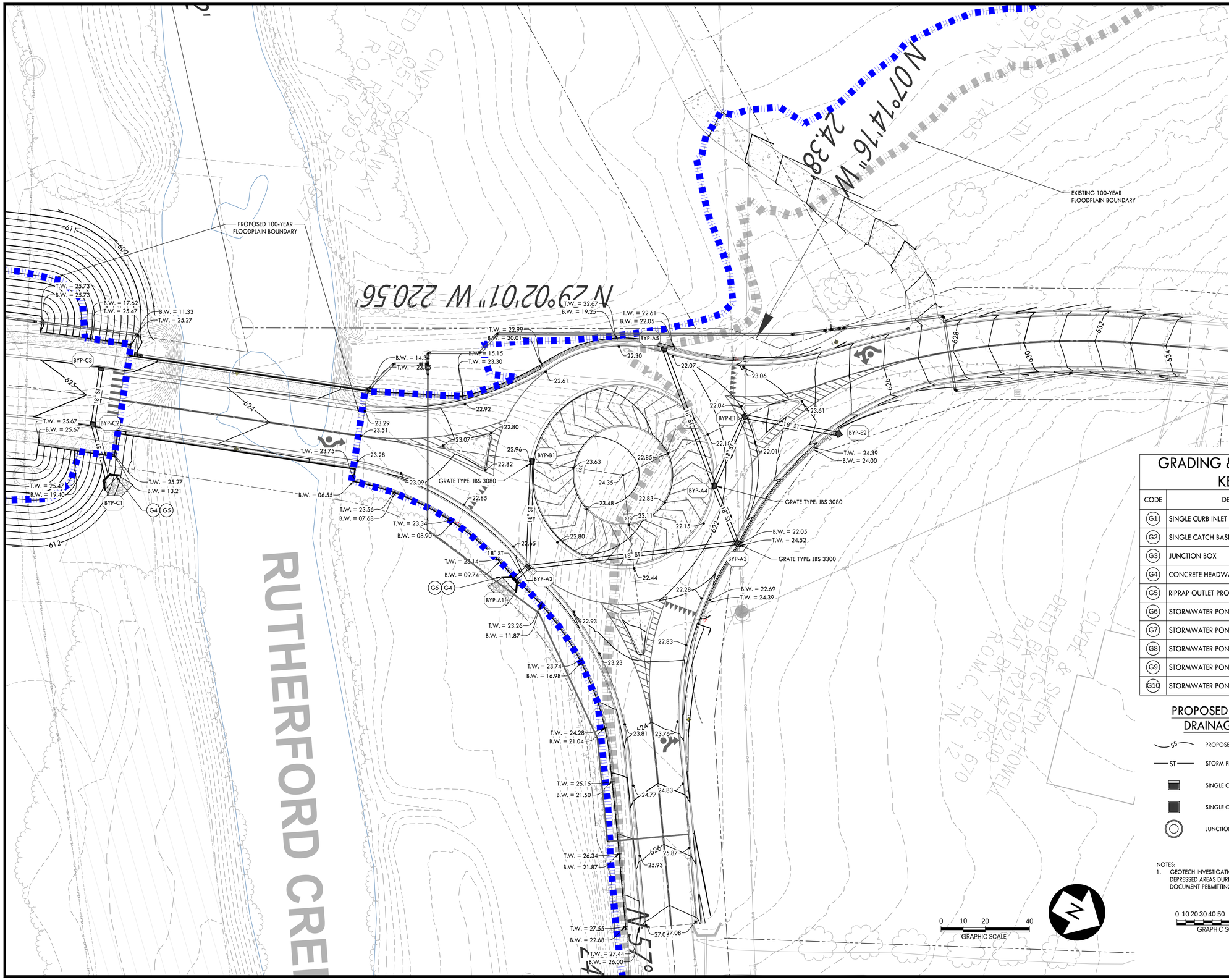
GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

09/21/23 17067

C6.0
OVERALL GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
G3	JUNCTION BOX	C6.9 - 6
G4	CONCRETE HEADWALL	-
G5	RIPRAP OUTLET PROTECTION	C6.9 - 5
G6	STORMWATER POND 1 OUTLET STRUCTURE	C6.8 - 1
G7	STORMWATER POND 2 OUTLET STRUCTURE	C6.8 - 3
G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- PROPOSED CONTOUR
- STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

NOTES:
1. GEOTECH INVESTIGATION TO BE PERFORMED ON ALL DEPRESSED AREAS DURING CONSTRUCTION DOCUMENT PERMITTING.

0 10 20 30 40 50 100
GRAPHIC SCALE

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ENGINEERING CRUNK

ANDREW L. SCHNEIDER
REGISTERED LANDSCAPE ARCHITECT
AGRICULTURE
9/21/23
STATE OF TENNESSEE

GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

09/21/23 17067

C6.1
ROUNDABOUT GRADING & DRAINAGE PLAN

GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
G3	JUNCTION BOX	C6.9 - 6
G4	CONCRETE HEADWALL	-
G5	RIPRAP OUTLET PROTECTION	C6.9 - 5
G6	STORMWATER POND 1 OUTLET STRUCTURE	C6.8 - 1
G7	STORMWATER POND 2 OUTLET STRUCTURE	C6.8 - 3
G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

NOTES:
1. GEOTECH INVESTIGATION TO BE PERFORMED ON ALL DEPRESSED AREAS DURING CONSTRUCTION DOCUMENT PERMITTING.

SEE SHEET C6.3

SEE SHEET C6.1

MATCH LINE

MATCH LINE

PROPOSED 100-YEAR FLOODPLAIN BOUNDARY

EXISTING 100-YEAR FLOODPLAIN BOUNDARY

N 37°04'41" E 286.72'

N 48°33'37" E 395.82'

N 07°14'16" W 24.38'

N 29°02'01" W 220.56'

SEWER EASEMENT NOT FOUND

BENCH MARK N:1680489.56 E:1680490.34 ELEV.:611.88 5/8" IRON ROD

RUTHERFORD CREEK

VERNON DRIVE

GREENS MILL ROAD

BYP-A1 BYP-A2 BYP-A3 BYP-A4 BYP-A5 BYP-B1 BYP-E1 BYP-E2

ST1-C3 ST1-C4

(TYP.) G1

0 10 20 30 40 50 100
GRAPHIC SCALE

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ENGINEERING CRUNK

RACHAEL WILSON CRUNK
REGISTERED
AGRICULTURE
9/21/23
COMMERCE
134180
STATE OF TENNESSEE

GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS	
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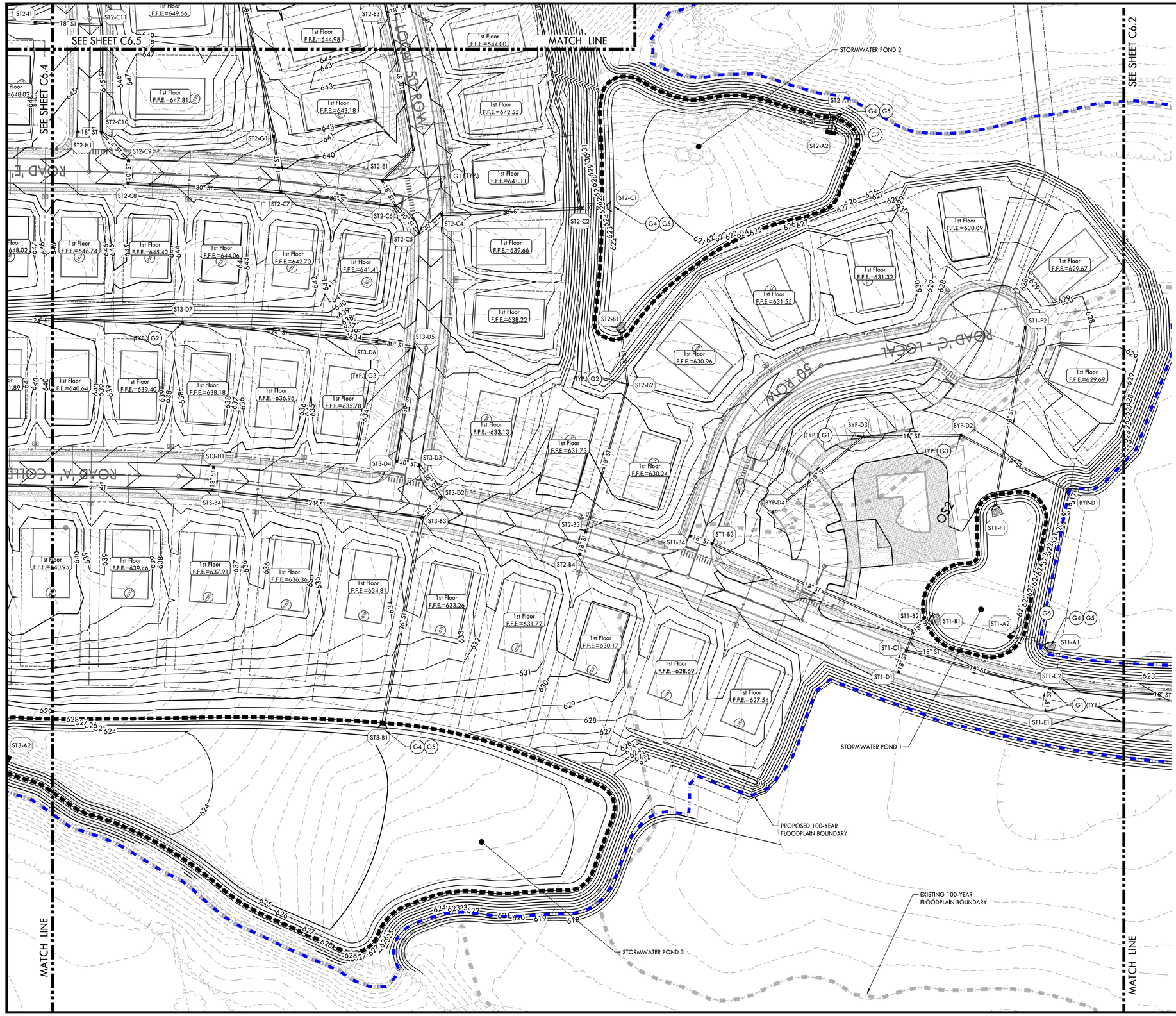
09/21/23 17067

C6.2
GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
G3	JUNCTION BOX	C6.9 - 6
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G5	RIPRAP OUTLET PROTECTION	C6.9 - 5
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G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- PROPOSED CONTOUR
- STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

NOTES:
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0 10 20 30 40 50 100
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GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

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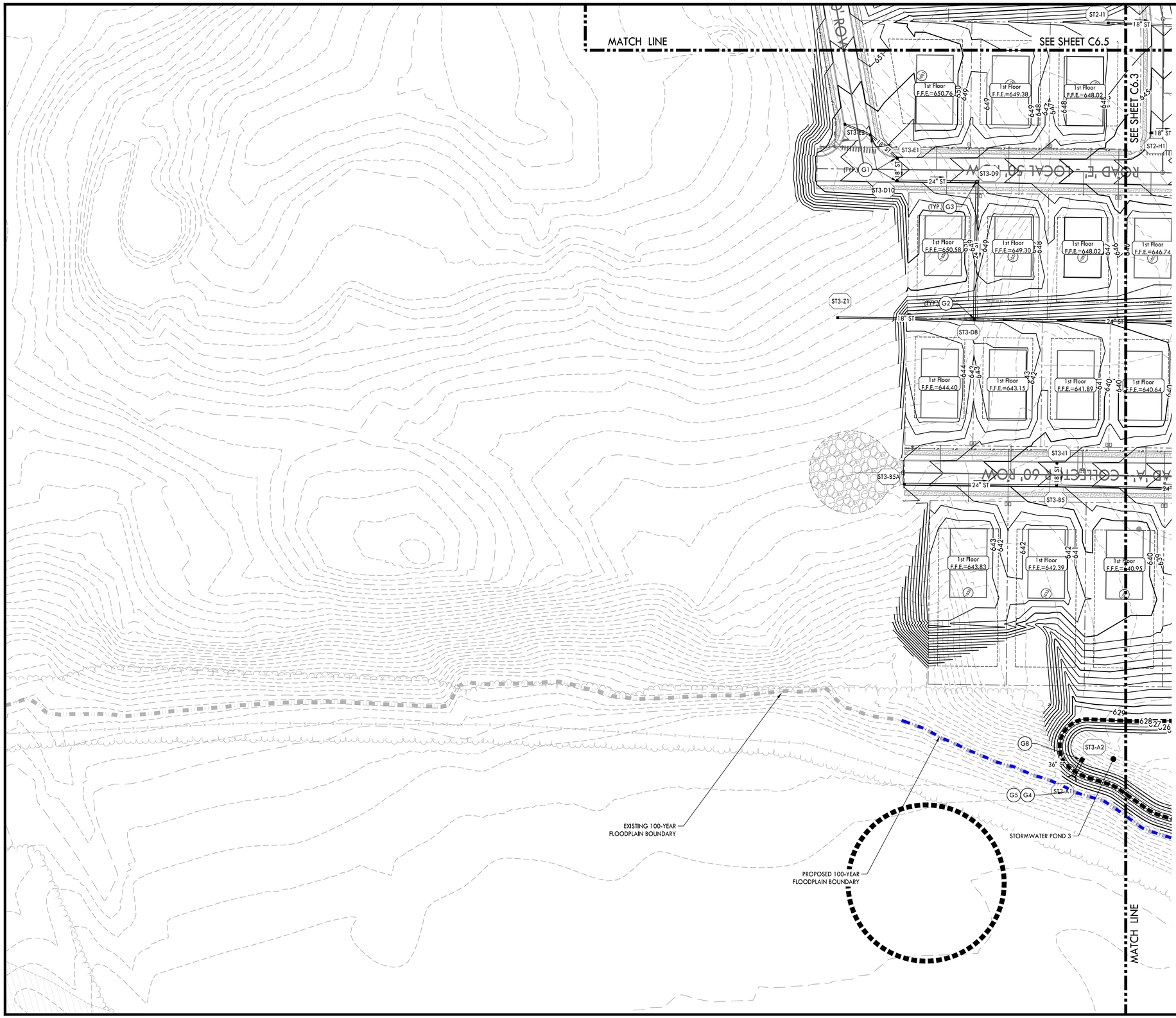
C6.3
GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
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G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- PROPOSED CONTOUR
- STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

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WILSON COUNTY TENNESSEE DEPARTMENT OF AGRICULTURE 9/21/23 COMMERCE NO. 114180 STATE OF TENNESSEE

GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

09/21/23 17067

C6.4
GRADING & DRAINAGE PLAN

GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C6.9 - 4
G2	SINGLE CATCH BASIN	C6.9 - 3
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G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
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COLUMBIA, TENNESSEE

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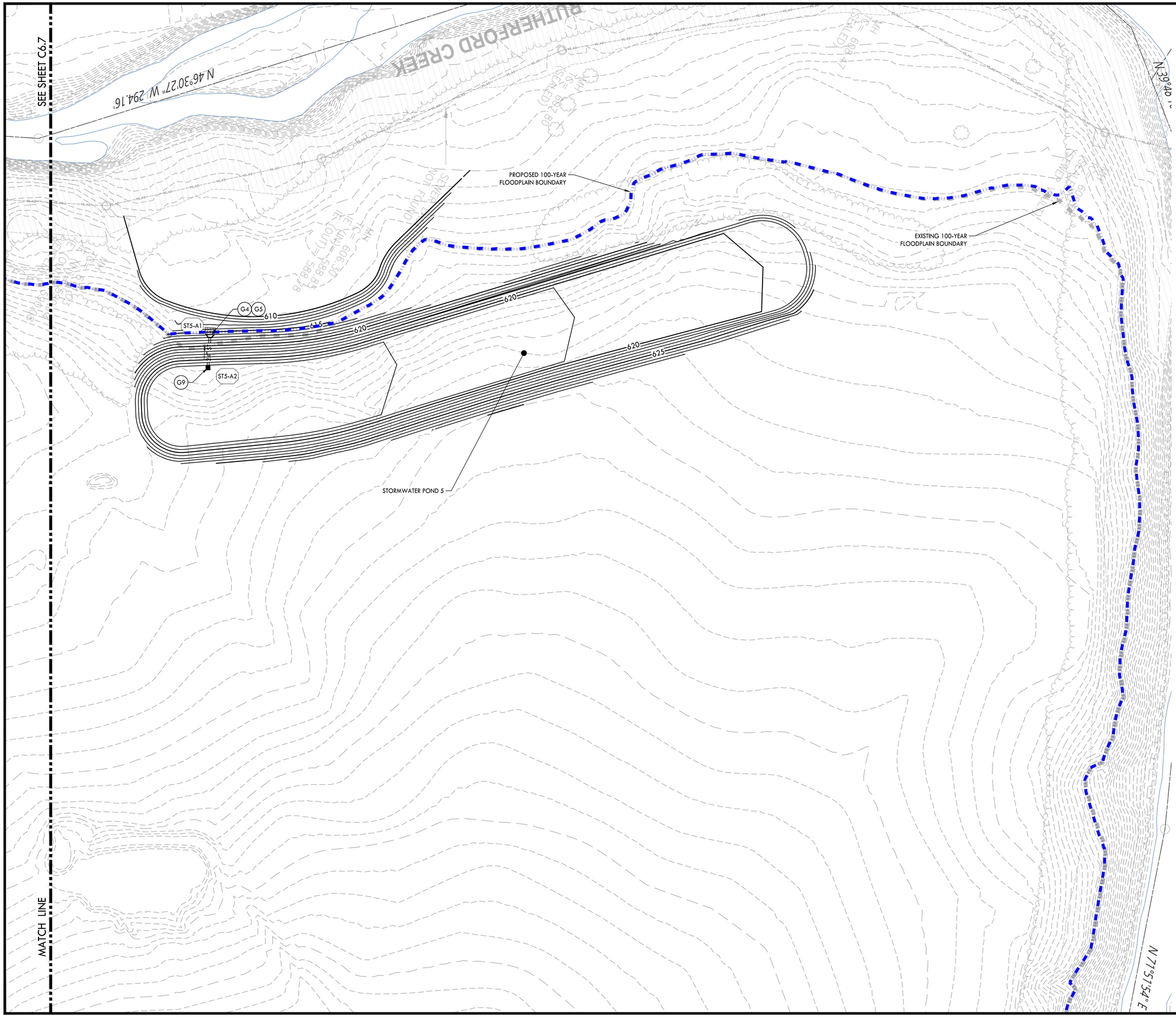
09/21/23 17067

C6.5
GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

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PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
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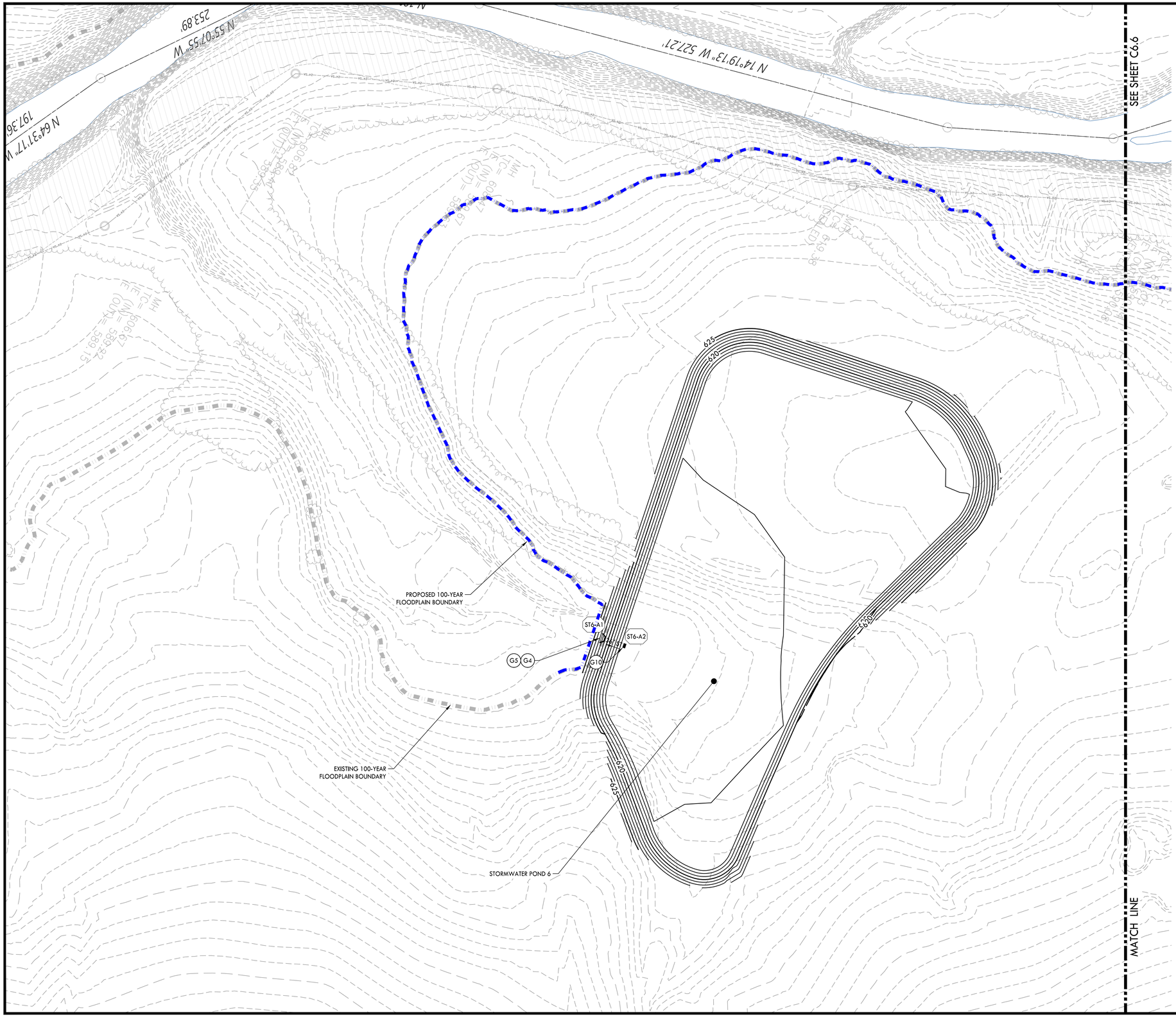
GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

09/21/23 17067

C6.6
GRADING & DRAINAGE PLAN



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
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G6	STORMWATER POND 1 OUTLET STRUCTURE	C6.8 - 1
G7	STORMWATER POND 2 OUTLET STRUCTURE	C6.8 - 3
G8	STORMWATER POND 3 OUTLET STRUCTURE	C6.8 - 2
G9	STORMWATER POND 5 OUTLET STRUCTURE	C6.9 - 1
G10	STORMWATER POND 6 OUTLET STRUCTURE	C6.9 - 2

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

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9/21/23
COMMERCE
134180
STATE OF TENNESSEE

GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

09/21/23 17067

C6.7
GRADING & DRAINAGE PLAN

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
BYP-A1	611.93	18" ADS (IN): 610.30	18" - 24" CONCRETE HEADWALL
BYP-A2	622.50	18" ADS (IN): 618.00 18" ADS (IN): 614.00 18" ADS (OUT): 611.00	SINGLE CURB INLET
BYP-A3	621.59	18" ADS (IN): 616.00 18" ADS (OUT): 615.90	SINGLE CURB INLET
BYP-A4	622.10	18" ADS (IN): 617.45 18" ADS (IN): 617.45 18" ADS (OUT): 617.45	ROLL OVER INLET
BYP-A5	622.02	18" ADS (OUT): 618.80	SINGLE CURB INLET
BYP-B1	622.94	18" ADS (OUT): 618.50	ROLL OVER INLET
BYP-C1	613.63	18" ADS (IN): 612.00	18" - 24" CONCRETE HEADWALL
BYP-C2	624.69	18" ADS (IN): 621.00 18" ADS (OUT): 621.00	SINGLE CURB INLET
BYP-C3	624.68	18" ADS (OUT): 621.25	SINGLE CURB INLET
BYP-D1	618.46	18" ADS (IN): 616.82	18" - 24" CONCRETE HEADWALL
BYP-D2	625.71	18" ADS (IN): 618.10 18" ADS (OUT): 618.00	SINGLE CATCH BASIN
BYP-D3	622.69	18" ADS (IN): 619.35 18" ADS (OUT): 619.25	SINGLE CURB INLET
BYP-D4	623.20	18" ADS (OUT): 620.00	SINGLE CURB INLET
BYP-E1	621.63	18" ADS (IN): 618.50 18" ADS (OUT): 618.40	SINGLE CURB INLET
BYP-E2	624.30	18" ADS (OUT): 621.00	SINGLE CATCH BASIN
ST1-A1	618.08	18" ADS (IN): 616.44	18" - 24" CONCRETE HEADWALL
ST1-A2	623.85	18" ADS (OUT): 620.00	POND 1 OUTLET STRUCTURE
ST1-B1	621.63	18" ADS (IN): 620.00	18" - 24" CONCRETE HEADWALL
ST1-B2	624.05	18" ADS (IN): 620.15 18" ADS (IN): 620.20 18" ADS (OUT): 620.15	JUNCTION MANHOLE
ST1-B3	625.54	18" ADS (IN): 622.10 18" ADS (OUT): 622.00	SINGLE CURB INLET
ST1-B4	625.54	18" ADS (OUT): 622.40	SINGLE CURB INLET
ST1-C1	623.26	18" ADS (IN): 620.20 18" ADS (IN): 620.30 18" ADS (OUT): 620.20	SINGLE CURB INLET
ST1-C2	624.17	18" ADS (IN): 620.90 18" ADS (IN): 620.90 18" ADS (OUT): 620.90	SINGLE CURB INLET
ST1-C3	626.27	18" ADS (IN): 622.73 18" ADS (OUT): 622.79	SINGLE CURB INLET
ST1-C4	626.27	18" ADS (OUT): 622.98	SINGLE CURB INLET
ST1-D1	623.26	18" ADS (OUT): 620.26	SINGLE CURB INLET
ST1-E1	624.17	18" ADS (OUT): 621.20	SINGLE CURB INLET
ST1-F1	622.29	18" ADS (IN): 620.66	18" - 24" CONCRETE HEADWALL
ST1-F2	626.10	18" ADS (OUT): 622.90	SINGLE CURB INLET
ST2-A1	623.00	36" ADS (IN): 619.79 36" ADS (IN): 619.79	60" - 72" CONCRETE HEADWALL
ST2-A2	623.76	36" ADS (OUT): 620.00 36" ADS (OUT): 620.00	OUTLET STRUCTURE
ST2-B1	623.22	18" ADS (IN): 621.59	18" - 24" CONCRETE HEADWALL
ST2-B2	629.60	18" ADS (IN): 622.10 18" ADS (OUT): 622.00	SINGLE CATCH BASIN
ST2-B3	627.47	18" ADS (IN): 623.30 18" ADS (OUT): 623.20	SINGLE CURB INLET
ST2-B4	627.47	18" ADS (OUT): 623.60	SINGLE CURB INLET
ST2-C1	624.23	30" ADS (IN): 621.52	30" - 36" CONCRETE HEADWALL
ST2-C2	632.91	18" ADS (IN): 628.00 30" ADS (IN): 628.00 30" ADS (OUT): 625.00	JUNCTION MANHOLE
ST2-C4	636.93	30" ADS (IN): 630.50 30" ADS (OUT): 630.40	SINGLE CURB INLET
ST2-C5	636.53	30" ADS (IN): 631.10 30" ADS (OUT): 631.10	SINGLE CURB INLET
ST2-C6	637.46	18" ADS (IN): 631.80 30" ADS (IN): 631.80 30" ADS (OUT): 631.70	SINGLE CURB INLET
ST2-C7	639.58	30" ADS (IN): 634.00 18" ADS (IN): 634.00 30" ADS (OUT): 633.87	SINGLE CURB INLET
ST2-C8	642.40	30" ADS (IN): 635.60 30" ADS (OUT): 635.60	SINGLE CURB INLET
ST2-C9	642.40	24" ADS (IN): 636.00 30" ADS (OUT): 635.90	SINGLE CURB INLET
ST2-C10	643.49	18" ADS (IN): 639.60 24" ADS (IN): 636.50 24" ADS (OUT): 636.40	SINGLE CURB INLET

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
ST2-C11	645.97	24" ADS (IN): 642.00 18" ADS (IN): 640.70 24" ADS (OUT): 637.70	SINGLE CURB INLET
ST2-C12	648.86	24" ADS (IN): 644.60 24" ADS (OUT): 644.50	SINGLE CURB INLET
ST2-C13	648.86	24" ADS (IN): 645.10 24" ADS (OUT): 645.00	SINGLE CURB INLET
ST2-C14	649.70	18" ADS (IN): 645.50 24" ADS (IN): 645.50 24" ADS (OUT): 645.40	SINGLE CURB INLET
ST2-C15	653.84	18" ADS (IN): 650.00 18" ADS (OUT): 649.90	SINGLE CURB INLET
ST2-C16	654.10	18" ADS (IN): 650.40 18" ADS (OUT): 650.30	SINGLE CURB INLET
ST2-C17	659.20	18" ADS (IN): 655.50 18" ADS (IN): 654.80 18" ADS (OUT): 654.70	SINGLE CURB INLET
ST2-C18	659.25	18" ADS (IN): 655.30 18" ADS (OUT): 655.20	SINGLE CURB INLET
ST2-C19	659.25	18" ADS (OUT): 655.70	SINGLE CURB INLET
ST2-D1	647.65	18" ADS (OUT): 644.50	SINGLE CATCH BASIN
ST2-E1	637.76	18" ADS (IN): 632.40 18" ADS (OUT): 632.30	SINGLE CURB INLET
ST2-E2	638.44	18" ADS (IN): 633.10 18" ADS (OUT): 633.00	SINGLE CURB INLET
ST2-E3	641.66	18" ADS (IN): 636.10 18" ADS (IN): 636.10 18" ADS (OUT): 636.00	SINGLE CURB INLET
ST2-E4	646.85	18" ADS (IN): 642.60 18" ADS (OUT): 642.50	SINGLE CURB INLET
ST2-E5	646.85	18" ADS (OUT): 643.00	SINGLE CURB INLET
ST2-G1	640.27	18" ADS (IN): 635.30 18" ADS (OUT): 635.20	SINGLE CATCH BASIN
ST2-G2	646.26	18" ADS (IN): 640.80 18" ADS (OUT): 640.70	SINGLE CATCH BASIN
ST2-G3	649.71	18" ADS (OUT): 645.00	SINGLE CATCH BASIN
ST2-H1	643.50	18" ADS (OUT): 640.00	SINGLE CURB INLET
ST2-I1	645.17	18" ADS (OUT): 642.00	SINGLE CATCH BASIN
ST2-J1	649.99	24" ADS (IN): 646.00 24" ADS (OUT): 645.90	SINGLE CURB INLET
ST2-J2	654.14	24" ADS (IN): 649.50 24" ADS (OUT): 649.40	SINGLE CURB INLET
ST2-J3	654.10	24" ADS (IN): 649.80 24" ADS (OUT): 649.70	SINGLE CURB INLET
ST2-J4	654.68	18" ADS (IN): 650.50 24" ADS (IN): 650.10 24" ADS (OUT): 650.00	SINGLE CURB INLET
ST2-J5	656.82	24" ADS (IN): 651.50 18" ADS (IN): 653.30 24" ADS (OUT): 651.40	SINGLE CURB INLET
ST2-J6	659.34	18" ADS (IN): 655.30 18" ADS (OUT): 655.20	SINGLE CURB INLET
ST2-J7	659.21	18" ADS (OUT): 655.70	SINGLE CURB INLET
ST2-K1	654.68	18" ADS (OUT): 651.00	SINGLE CURB INLET
ST2-L1	655.39	18" ADS (IN): 652.20 24" ADS (OUT): 652.10	SINGLE CATCH BASIN
ST2-L2	661.32	18" ADS (OUT): 658.00	SINGLE CATCH BASIN
ST2-M1	659.22	18" ADS (OUT): 656.20	SINGLE CURB INLET
ST2-N1	641.66	18" ADS (OUT): 637.00	SINGLE CURB INLET
ST3-A1	626.09	36" ADS (IN): 622.87	30" - 36" CONCRETE HEADWALL
ST3-A2	627.75	36" ADS (OUT): 623.00	POND 3 OUTLET STRUCTURE
ST3-B1	626.21	36" ADS (IN): 623.00	30" - 36" CONCRETE HEADWALL
ST3-B3	630.48	24" ADS (IN): 625.40 30" ADS (IN): 625.70 36" ADS (OUT): 625.30	SINGLE CURB INLET
ST3-B4	634.42	24" ADS (IN): 630.60 18" ADS (IN): 630.60 24" ADS (OUT): 630.50	SINGLE CURB INLET
ST3-B5	638.66	24" ADS (IN): 634.50 18" ADS (IN): 635.20 24" ADS (OUT): 634.40	SINGLE CURB INLET
ST3-B5A	641.47	24" ADS (OUT): 637.42	SINGLE CURB INLET
ST3-D2	630.20	30" ADS (IN): 626.00 30" ADS (OUT): 625.90	SINGLE CURB INLET
ST3-D3	631.27	30" ADS (IN): 626.40 30" ADS (OUT): 626.30	SINGLE CURB INLET
ST3-D4	631.27	30" ADS (IN): 626.70 30" ADS (OUT): 626.60	SINGLE CURB INLET
ST3-D5	633.90	30" ADS (IN): 627.60 30" ADS (OUT): 627.50	SINGLE CURB INLET
ST3-D6	633.12	24" ADS (IN): 628.10 30" ADS (OUT): 628.00	SINGLE CATCH BASIN

STORM STRUCTURE TABLE			
ID	RIM	INVERT	TYPE
ST3-D7	636.44	24" ADS (IN): 631.00 24" ADS (OUT): 630.90	SINGLE CATCH BASIN
ST3-D8	641.53	24" ADS (IN): 636.50 18" ADS (IN): 636.50 24" ADS (OUT): 636.40	SINGLE CATCH BASIN
ST3-D9	646.51	24" ADS (IN): 641.70 24" ADS (OUT): 641.60	JUNCTION MANHOLE
ST3-D10	647.97	18" ADS (IN): 644.30 24" ADS (OUT): 643.50	SINGLE CURB INLET
ST3-E1	647.97	18" ADS (IN): 644.70 18" ADS (OUT): 644.60	SINGLE CURB INLET
ST3-E2	648.81	18" ADS (IN): 645.60 18" ADS (OUT): 645.50	SINGLE CURB INLET
ST3-F1	649.13	18" ADS (OUT): 645.90	SINGLE CURB INLET
ST3-H1	634.42	18" ADS (OUT): 631.00	SINGLE CURB INLET
ST3-I1	638.66	18" ADS (OUT): 635.45	SINGLE CURB INLET
ST3-Z1	644.05	18" ADS (OUT): 640.00	SINGLE CATCH BASIN
ST5-A1	617.80	24" ADS (IN): 613.64	18" - 24" CONCRETE HEADWALL
ST5-A2	621.88	24" ADS (OUT): 617.00	POND 5 OUTLET STRUCTURE
ST5-C12	648.95	18" ADS (IN): 644.60 18" ADS (IN): 644.10 24" ADS (IN): 644.60 24" ADS (OUT): 644.00	SINGLE CURB INLET
ST5-C13	650.05	18" ADS (IN): 645.10 18" ADS (OUT): 645.00	JUNCTION MANHOLE
ST5-C14	651.04	18" ADS (IN): 645.80 18" ADS (IN): 645.80 18" ADS (OUT): 645.70	SINGLE CURB INLET
ST5-C15	658.77	18" ADS (IN): 653.80 18" ADS (IN): 653.80 18" ADS (OUT): 653.70	SINGLE CURB INLET
ST5-C16	664.61	18" ADS (IN): 661.10 18" ADS (OUT): 661.00	SINGLE CURB INLET
ST5-C17	664.61	18" ADS (OUT): 662.00	SINGLE CURB INLET
ST5-Q1	648.95	18" ADS (OUT): 645.00	SINGLE CURB INLET
ST5-R1	648.48	24" ADS (IN): 645.00 24" ADS (OUT): 644.90	SINGLE CATCH BASIN
ST5-R2	658.98	24" ADS (OUT): 656.20	SINGLE CATCH BASIN
ST5-S1	650.68	18" ADS (OUT): 646.20	SINGLE CURB INLET
ST5-T1	658.77	18" ADS (OUT): 654.50	SINGLE CURB INLET
ST6-A1	619.64	36" ADS (IN): 614.43	30" - 36" CONCRETE HEADWALL
ST6-A2	618.30	36" ADS (OUT): 615.00	POND 6 OUTLET STRUCTURE
ST6-L1	658.80	18" ADS (OUT): 652.60	SINGLE CATCH BASIN
ST6-M3	664.10	18" ADS (IN): 659.10	JUNCTION MANHOLE
ST6-M4	665.26	18" ADS (IN): 660.50 18" ADS (OUT): 660.40	SINGLE CURB INLET
ST6-M5	665.26	18" ADS (OUT): 660.80	SINGLE CURB INLET

STORM PIPE TABLE								
INLET	INVERT	OUTLET	INVERT	LENGTH (FT)	SLOPE (%)	SHAPE	DIAMETER (IN)	MATERIAL
BYP-A2	611.00	BYP-A1	610.30	8	8.39%	CIRCULAR	18	ADS
BYP-A3	615.90	BYP-A2	614.00	95	1.99%	CIRCULAR	18	ADS
BYP-A4	617.45	BYP-A3	616.00	28	5.20%	CIRCULAR	18	ADS
BYP-A5	618.80	BYP-A4	617.45	66	2.05%	CIRCULAR	18	ADS
BYP-B1	618.50	BYP-A2	618.00	48	1.04%	CIRCULAR	18	ADS
BYP-C2	621.00	BYP-C1	612.00	25	35.97%	CIRCULAR	18	ADS
BYP-C3	621.25	BYP-C2	621.00	26	0.98%	CIRCULAR	18	ADS
BYP-D2	618.00	BYP-D1	616.82	131	0.90%	CIRCULAR	18	ADS
BYP-D3	619.25	BYP-D2	618.10	107	1.08%	CIRCULAR	18	ADS
BYP-D4	620.00	BYP-D3	619.35	128	0.51%	CIRCULAR	18	ADS
BYP-E1	618.40	BYP-A4	617.45	34	2.77%	CIRCULAR	18	ADS
BYP-E2	621.00	BYP-E1	618.50	43	5.77%	CIRCULAR	18	ADS
ST1-A2	620.00	ST1-A1	616.44	39	9.01%	CIRCULAR	18	ADS
ST1-B2	620.20	ST1-B3	622.00	240	0.75%	CIRCULAR	18	ADS
ST1-B2	620.15	ST1-B1	620.00	21	0.71%	CIRCULAR	18	ADS
ST1-B3	622.10	ST1-B4	622.40	25	1.20%	CIRCULAR	18	ADS
ST1-C1	620.20	ST1-B2	620.15	22	0.22%	CIRCULAR	18	ADS
ST1-C2	620.90	ST1-C1	620.30	162	0.37%	CIRCULAR	18	ADS
ST1-C3	622.79	ST1-C2	620.90	246	0.77%	CIRCULAR	18	ADS
ST1-C4	622.98	ST1-C3	622.73	25	1.00%	CIRCULAR	18	ADS
ST1-D1	620.26	ST1-C1	620.20	25	0.22%	CIRCULAR	18	ADS
ST1-E1	621.20	ST1-C2	620.90	25	1.20%	CIRCULAR	18	ADS
ST1-F2	622.90	ST1-F1	620.66	198	1.13%	CIRCULAR	18	ADS
ST2-A2	620.00	ST2-A1	619.79	14	1.47%	CIRCULAR	36	ADS
ST2-A2	620.00	ST2-A1	619.79	14	1.44%	CIRCULAR	36	ADS
ST2-B2	622.00	ST2-B1	621.59	57	0.72%	CIRCULAR	18	ADS
ST2-B3	623.20	ST2-B2	622.10	167	0.66%	CIRCULAR	18	ADS
ST2-B4	623.60	ST2-B3	623.30	25	1.20%	CIRCULAR	18	ADS
ST2-C2	625.00	ST2-C1	621.52	30	11.77%	CIRCULAR	30	ADS
ST2-C4	630.50	ST2-C5	631.10	32	1.90%	CIRCULAR	30	ADS
ST2-C4	630.40	ST2-C2	628.00	152	1.58%	CIRCULAR	30	ADS
ST2-C6	631.70	ST2-C5	631.10	39	1.52%	CIRCULAR	30	ADS
ST2-C7	633.87	ST2-C6	631.80	126	1.65%	CIRCULAR	30	ADS
ST2-C8	635.60	ST2-C7	634.00	167	0.96%	CIRCULAR	30	ADS
ST2-C9	635.90	ST2-C8	635.60	25	1.20%	CIRCULAR	30	ADS
ST2-C10	636.40	ST2-C9	636.00	43	0.93%	CIRCULAR	24	ADS
ST2-C11	637.70	ST2-C10	636.50	117	1.03%	CIRCULAR	24	ADS
ST2-C12	644.50	ST2-C11	642.00	138	1.82%	CIRCULAR	24	ADS
ST2-C13	645.00	ST2-C12	644.60	25	1.60%	CIRCULAR	24	ADS
ST2-C14	645.40	ST2-C13	645.10	37	0.80%	CIRCULAR	24	ADS
ST2-C15	649.90	ST2-C14	645.50	263	1.67%	CIRCULAR	18	ADS
ST2-C16	650.30	ST2-C15	650.00	30	1.01%	CIRCULAR	18	ADS
ST2-C17	654.70	ST2-C16	650.40	207	2.08%	CIRCULAR	18	ADS
ST2-C18	655.20	ST2-C17	654.80	43	0.92%	CIRCULAR	18	ADS
ST2-C19	655.70	ST2-C18	655.30	25	1.60%	CIRCULAR	18	ADS
ST2-D1	644.50	ST2-C2	628.00	459	3.60%	CIRCULAR	18	ADS
ST2-E1	632.30	ST2-C6	631.80	31	1.61%	CIRCULAR	18	ADS
ST2-E2	633.00	ST2-E1	632.40	48	1.24%	CIRCULAR	18	ADS
ST2-E3	636.00	ST2-E2	633.10	153	1.90%	CIRCULAR	18	ADS
ST2-E4	642.50	ST2-E3	636.10	252	2.54%	CIRCULAR	18	ADS
ST2-E5	643.00	ST2-E4	642.60	25	1.60%	CIRCULAR	18	ADS
ST2-G1	635.20	ST2-C7	634.00	61	1.96%	CIRCULAR	18	ADS
ST2-G2	640.70	ST2-G1	635.30	289	1.87%	CIRCULAR	18	ADS
ST2-G3	645.00	ST2-G2	640.80	201	2.09%	CIRCULAR	18	ADS
ST2-H1	640.00	ST2-C10	639.60	25	1.60%	CIRCULAR	18	ADS
ST2-I1	642.00	ST2-C11	640.70	73	1.79%	CIRCULAR	18	ADS
ST2-J1	645.90	ST2-C14	645.50	31	1.30%	CIRCULAR	24	ADS
ST2-J2	649.40	ST2-J1	646.00	172	1.98%	CIRCULAR	24	ADS
ST2-J3	649.70	ST2-J2	649.50	25	0.80%	CIRCULAR	24	ADS
ST2-J4	650.00	ST2-J3	649.80	42	0.48%	CIRCULAR	24	ADS
ST2-J5	651.40	ST2-J4	650.10	101	1.28%	CIRCULAR	24	ADS
ST2-J6	655.20	ST2-J5	653.30	116	1.64%	CIRCULAR	18	ADS
ST2-J7	655.70	ST2-J6	655.30	25	1.59%	CIRCULAR	18	ADS
ST2-K1	651.00	ST2-J4	650.50	25	2.00%	CIRCULAR	18	ADS
ST2-L1	652.10	ST2-J5	651.50	55	1.08%	CIRCULAR	24	ADS

STORM PIPE TABLE								
INLET	INVERT	OUTLET	INVERT	LENGTH (FT)	SLOPE (%)	SHAPE	DIAMETER (IN)	MATERIAL
ST2-L2	658.00	ST2-L1	652.20	260	2.23%	CIRCULAR	18	ADS
ST2-M1	656.20	ST2-C17	655.50	25	2.80%	CIRCULAR	18	ADS
ST2-N1	637.00	ST2-E3	636.10	25	3.60%	CIRCULAR	18	ADS
ST3-A2	623.00	ST3-A1	622.87	20	0.62%	CIRCULAR	36	ADS
ST3-B3	625.30	ST3-B1	623.00	231	1.00%	CIRCULAR	36	ADS
ST3-B4	630.50	ST3-B3	625.40	231	2.21%	CIRCULAR	24	ADS
ST3-B5	634.40	ST3-B4	630.60	249	1.52%	CIRCULAR	24	ADS
ST3-B5A	637.42	ST3-B5	634.50	166	1.76%	CIRCULAR	24	ADS
ST3-D2	625.90	ST3-B3	625.70	30	0.67%	CIRCULAR	30	ADS
ST3-D3	626.30	ST3-D2	626.00	43	0.70%	CIRCULAR	30	ADS
ST3-D4	626.60	ST3-D3	626.40	25	0.80%	CIRCULAR	30	ADS
ST3-D5	627.50	ST3-D4	626.70	126	0.64%	CIRCULAR	30	ADS
ST3-D6	628.00	ST3-D5	627.60	42	0.96%	CIRCULAR	30	ADS
ST3-D7	630.90	ST3-D6	628.10	213	1.32%	CIRCULAR	24	ADS
ST3-D8	636.40	ST3-D7	631.00	307	1.76%	CIRCULAR	24	ADS
ST3-D9	641.60	ST3-D8	636.50	149	3.41%	CIRCULAR	24	ADS
ST3-D10	643.50	ST3-D9	641.70	87	2.07%	CIRCULAR	24	ADS
ST3-E1	644.60	ST3-D10	644.30	25	1.20%	CIRCULAR	18	ADS
ST3-E2	645.50	ST3-E1	644.70	39	2.05%	CIRCULAR	18	ADS
ST3-F1	645.90	ST3-E2	645.60	30	1.01%	CIRCULAR	18	ADS
ST3-H1	631.00	ST3-B4	630.60	25	1.60%	CIRCULAR	18	ADS
ST3-I1	635.45	ST3-B5	635.20	25	1.00%	CIRCULAR	18	ADS
ST3-Z1	640.00	ST3-D8	636.50	149	2.35%	CIRCULAR	18	ADS
ST5-A2	617.00	ST5-A1	613.64	33	10.09%	CIRCULAR	24	ADS
ST5-C12	644.00		640.50	204	1.71%	CIRCULAR	24	ADS
ST5-C13	645.00	ST5-C12	644.10	117	0.77%	CIRCULAR	18	ADS
ST5-C14	645.70	ST5-C13	645.10	47	1.29%	CIRCULAR	18	ADS
ST5-C15	653.70	ST5-C14	645.80	232	3.41%	CIRCULAR	18	ADS
ST5-C16	661.00	ST5-C15	653.80	257	2.80%	CIRCULAR	18	ADS
ST5-C17	662.00	ST5-C16	661.10	25	3.60%	CIRCULAR	18	ADS
ST5-Q1	645.00	ST5-C12	644.60	25	1.60%	CIRCULAR	18	ADS
ST5-R1	644.90	ST5-C12	644.60	33	0.90%	CIRCULAR	24	ADS
ST5-R2	656.20	ST5-R1	645.00	304	3.68%	CIRCULAR	24	ADS
ST5-S1	646.20	ST5-C14	645.80	27	1.47%	CIRCULAR	18	ADS
ST5-T1	654.50	ST5-C15	653.80	25	2.80%	CIRCULAR	18	ADS
ST6-A2	615.00	ST6-A1	614.43	22	2.61%	CIRCULAR	36	ADS
ST6-L1	652.60		650.80	171	1.05%	CIRCULAR	18	ADS
ST6-M4	660.40	ST6-M3	659.10	126	1.03%	CIRCULAR	18	ADS
ST6-M5	660.80	ST6-M4	660.50	25	1.20%	CIRCULAR	18	ADS

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ENGINEERING CRUNK

GREENS MILL ROAD - PHASE 1
LAND DISTURBANCE PLANS
COLUMBIA, TENNESSEE

REVISIONS

No.	DATE

09/21/23 17067

C6.8
STORM PIPE & STRUCTURE TABLES

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 051, Parcel 55.00
Project Name: Landing at Greens Mill - Phase 1C

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

THIS AGREEMENT, made this 16 day of September, 20 24, by and between Safe Harbor Residential 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 ONWER(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 Koby DuMont

Title Division President

Signature

Owner Greens Mill, LLC

Address 308 Letterman Drive

City, State ZIP Knoxville, TN 37919

STATE OF Tennessee
COUNTY OF Robertson

Before me, Lisa Drzezgowski of the state and county mentioned, personally appeared Koby DuMont, 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 16th day of September 2024.

Lisa Drzezgowski
Notary Public

My Commission Expires: August 18 2026

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: _____

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 (onlama.com)

ADDRESS/LOCATION	2558 Greens Mill Rd., Columbia, TN 38401		
	TAX MAP: 51	GROUP:	PARCEL: 55.00
SUMMARY OF NATURE OF REQUEST AND WORK	The purpose of this plat is to create 27 build-able lots, dedication of Right of Way, and Easements.		

DATE OF PRE-APPLICATION CONFERENCE	08/28/2024	*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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**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

	Plats/PUDs: ❑ Project Name (include Sections & Phases) The Landing at Greens Mill Rd. - Phase 1C ❑ Total Number of Lots/Residential Units 27 ❑ Square Footage of Non-Residential Floor Space ❑ Total acreage 6.67 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.

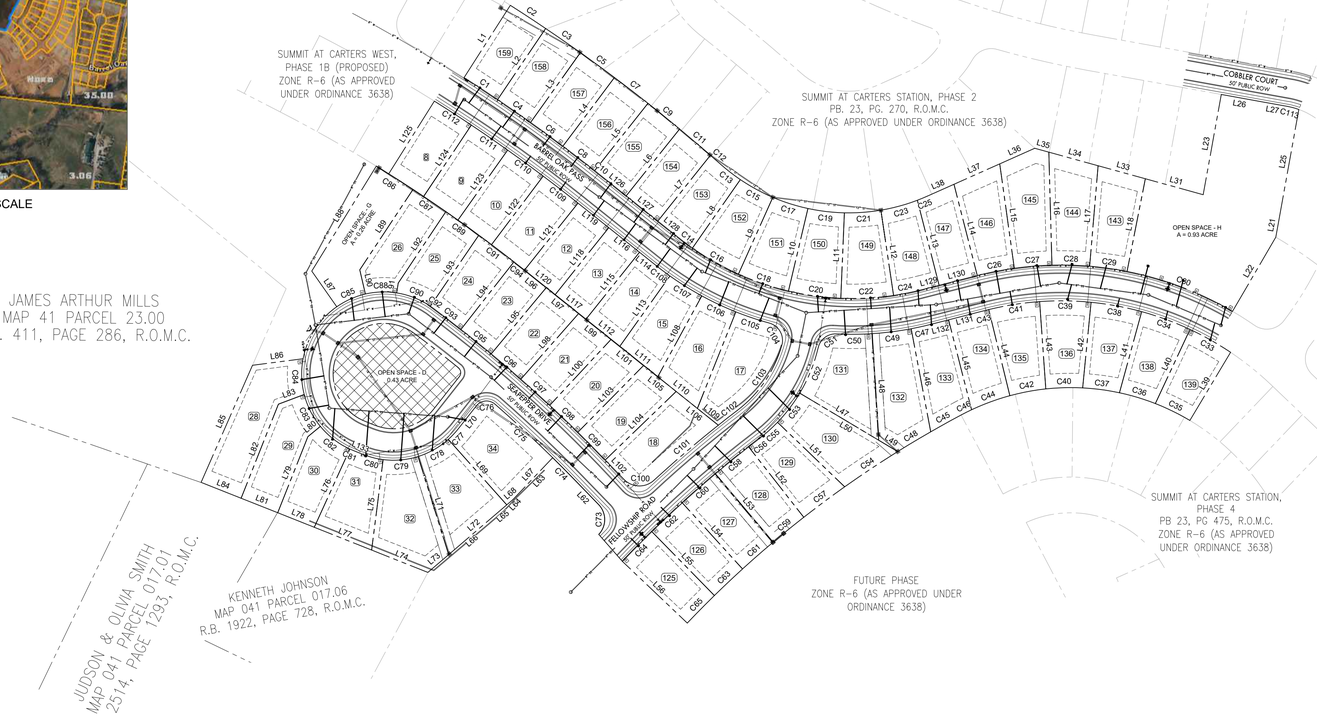
NAME	Crunk Engineering, LLC	PHONE	615-873-1795
ADDRESS	7112 Crossroads Blvd., #201, Brentwood, TN 37027	EMAIL	adam@crunkeng.com

PROPERTY OWNER NAME	Safe Harbor Residential	PHONE	865-622-1774
ADDRESS	105 Westpark Dr., #365, Brentwood, TN 37027	EMAIL	taylor@safeharborresidential.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.

Adam Crunk, PE		09/16/2024
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Thomas DeMont		9-16-2024
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE

VICINITY MAP - NOT TO SCALE



LEGEND

- FIRE HYDRANT
- WATER METER
- SEWER SERVICE
- SEWER MANHOLE
- CURB INLET
- AREA DRAIN
- 8" W — PROP. WATER LINE (TYP.)
- 8" SS — PROP. SEWER LINE (TYP.)
- 18" ST — PROP. STORMWATER LINE (TYP.)

TN SPCS NAD 83

SCALE 1" = 100'

100 0 50 100 200

LOT	SQ. FT.
8	7186.1
9	7186.1
10	7186.1
11	7186.1
12	6600.0
13	6600.0
14	6877.1
15	7450.4
16	8278.1
17	10230.9
18	9771.0
19	7544.1
20	7215.7
21	6962.1
22	6804.0
23	6739.9
24	6919.0
25	6967.4
26	8112.8
28	12071.3
29	8588.7
30	7250.1
31	8175.5
32	11640.1
33	9881.3
34	10781.4
125	7037.1
126	7037.1
127	7357.0
128	7228.4

LOT	SQ. FT.
129	7826.5
130	9617.4
131	10511.6
132	10189.4
133	7979.2
134	7225.1
135	7589.1
136	7495.1
137	7370.4
138	7217.2
139	6695.4
143	8197.5
144	9083.3
145	9655.4
146	8399.3
147	6990.7
148	7156.1
149	7511.4
150	7460.7
151	7411.6
152	7365.7
153	6736.2
154	6714.3
155	6799.5
156	6905.3
157	6905.3
158	6905.3
159	6905.3

LINE	BEARING	DISTANCE
L1	N 32°35'59" E	120.00'
L2	N 34°02'33" E	120.00'
L3	N 35°29'08" E	120.00'
L4	N 36°55'42" E	120.00'
L5	N 38°22'17" E	120.00'
L6	N 38°38'07" E	119.54'
L7	N 38°38'07" E	117.75'
L8	N 34°59'29" E	116.76'
L9	N 24°07'30" E	117.62'
L10	N 13°15'31" E	118.55'
L11	N 02°23'32" E	119.52'
L12	N 08°28'28" W	120.52'
L13	N 14°20'46" W	122.72'
L14	N 14°18'12" W	131.69'
L15	N 07°56'14" W	147.37'
L16	N 01°34'16" W	158.03'
L17	N 04°47'43" E	140.97'
L18	N 11°09'41" E	132.09'
L21	S 10°13'29" W	30.41'
L22	S 30°15'36" W	120.00'
L23	N 10°13'29" E	142.36'
L25	N 10°13'29" E	151.01'
L26	S 79°46'31" E	55.00'
L27	S 79°46'31" E	38.87'
L31	S 74°35'15" E	83.87'
L32	N 74°35'15" W	67.36'
L33	N 74°35'15" W	68.49'
L34	N 74°35'15" W	71.41'
L35	N 74°35'15" W	20.42'
L36	S 65°57'42" W	53.54'

LINE	BEARING	DISTANCE
L37	S 65°57'42" W	70.02'
L38	S 65°57'42" W	84.62'
L39	S 30°50'05" W	110.96'
L40	S 25°03'08" W	114.40'
L41	S 15°20'28" W	117.58'
L42	S 05°37'48" W	120.27'
L43	S 04°04'52" E	122.40'
L44	S 13°47'33" E	123.93'
L45	S 14°20'46" E	129.75'
L46	S 10°44'33" E	146.62'
L47	N 59°11'42" W	128.42'
L48	S 03°33'59" E	149.25'
L49	N 59°11'42" W	30.91'
L50	S 59°11'42" E	159.33'
L51	S 46°07'34" E	130.10'
L52	S 38°02'28" E	125.00'
L53	S 40°09'42" E	125.00'
L54	S 42°19'12" E	125.00'
L55	S 44°23'03" E	125.00'
L56	S 46°26'55" E	125.00'
L62	N 44°03'54" W	45.18'
L63	S 43°28'14" W	73.24'
L64	S 43°28'14" W	7.64'
L65	S 49°24'46" W	51.25'
L66	S 49°24'46" W	59.54'
L67	S 43°28'14" W	80.88'
L68	S 49°24'46" W	11.19'
L69	N 41°43'48" W	122.66'
L70	S 38°15'50" W	41.11'
L71	N 17°19'35" W	143.63'
L72	S 49°24'46" W	106.88'

LINE	BEARING	DISTANCE
L73	S 49°24'46" W	38.24'
L74	N 68°18'42" W	84.62'
L75	N 07°15'43" E	127.45'
L76	N 24°27'29" E	120.08'
L77	N 68°18'42" W	86.24'
L78	N 68°18'42" W	55.00'
L79	N 21°37'48" E	114.39'
L80	N 50°35'13" E	72.55'
L81	N 68°23'01" W	55.00'
L82	N 21°37'48" E	141.42'
L83	N 69°24'06" E	38.46'
L84	N 68°23'01" W	60.12'
L85	N 23°41'15" E	178.74'
L86	N 82°37'53" E	71.27'
L87	N 34°58'42" W	60.87'
L88	N 31°34'35" E	172.19'
L89	S 33°28'46" W	134.81'
L90	S 13°01'47" E	34.64'
L91	N 08°55'09" E	13.89'
L92	N 33°42'15" E	120.02'
L93	S 34°18'37" W	120.18'
L94	S 38°06'43" W	120.00'
L95	S 39°43'26" W	120.37'
L96	S 51°21'53" E	39.07'
L97	S 51°21'53" E	57.88'
L98	S 41°20'09" W	122.28'
L99	S 51°21'53" E	58.03'
L100	S 42°56'52" W	125.83'
L101	S 51°21'53" E	58.28'
L102	S 44°01'06" E	37.72'
L103	S 44°33'34" W	131.03'
L104	S 45°58'54" W	137.84'
L105	S 51°21'53" E	58.23'
L106	S 51°21'53" E	75.45'
L108	S 28°35'08" W	128.75'
L109	N 51°21'53" W	37.49'

LINE	BEARING	DISTANCE
L110	N 51°21'53" W	70.90'
L111	N 51°21'53" W	67.94'
L112	N 51°21'53" W	60.62'
L113	S 35°26'10" W	120.87'
L114	N 51°21'53" W	29.32'
L115	S 38°38'07" W	120.00'
L116	N 51°21'53" W	55.00'
L117	N 51°21'53" W	55.00'
L118	S 38°38'07" W	120.00'
L119	N 51°21'53" W	55.00'
L120	N 51°21'53" W	55.00'
L121	N 38°38'04" E	120.00'
L122	S 37°00'44" W	120.00'
L123	S 35°23'24" W	120.00'
L124	S 33°46'04" W	120.00'
L125	S 32°08'44" W	120.00'
L126	N 51°21'53" W	46.20'
L127	N 51°21'53" W	56.54'
L128	N 51°21'53" W	36.56'
L129	S 75°39'14" W	25.28'
L130	S 75°39'14" W	54.99'
L131	S 75°39'14" W	53.84'
L132	S 75°39'14" W	26.07'
L133	N 68°17'43" W	14.48'

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	2225.00'	56.03'	56.03'	N 56°40'44" W
C2	2345.00'	59.06'	59.05'	S 56°40'44" E
C3	2345.00'	59.06'	59.05'	S 55°14'09" E
C4	2225.00'	56.03'	56.03'	N 55°14'09" W
C5	2345.00'	59.06'	59.05'	S 53°47'35" E
C6	2225.00'	56.03'	56.03'	N 53°47'35" W
C7	2345.00'	59.06'	59.05'	S 52°21'00" E
C8	2225.00'	56.03'	56.03'	N 52°21'00" W
C9	2345.00'	57.00'	57.00'	S 50°55'56" E
C10	2225.00'	10.25'	10.25'	S 51°29'48" E
C11	2345.00'	56.57'	56.57'	S 49°32'42" E
C12	2345.00'	18.70'	18.70'	S 48°37'31" E
C13	270.00'	35.27'	35.24'	S 52°08'20" E
C14	390.00'	24.80'	24.80'	N 53°11'12" W
C15	270.00'	51.75'	51.67'	S 61°22'17" E
C16	390.00'	73.97'	73.85'	N 60°26'30" W
C17	270.00'	51.58'	51.50'	S 72°20'05" E
C18	390.00'	73.97'	73.85'	N 71°19'30" W
C19	270.00'	51.40'	51.32'	S 83°15'40" E
C20	390.00'	73.97'	73.85'	N 82°10'29" W
C21	270.00'	51.21'	51.14'	N 85°51'05" E
C22	390.00'	73.97'	73.85'	S 86°57'32" W
C23	270.00'	52.94'	52.85'	N 74°48'02" E
C24	390.00'	39.97'	39.95'	S 78°35'23" W
C25	270.00'	15.18'	15.18'	N 67°34'21" E
C26	475.00'	52.78'	52.75'	N 78°52'47" E
C27	475.00'	52.78'	52.75'	S 85°14'45" W
C28	475.00'	52.78'	52.75'	N 88°23'16" W
C29	475.00'	52.78'	52.75'	N 82°01'18" W
C30	475.00'	158.33'	157.60'	S 69°17'21" E
C33	425.00'	65.14'	65.07'	S 60°33'26" E
C34	425.00'	72.03'	71.95'	S 69°48'12" E
C35	325.00'	53.77'	53.71'	N 63°54'18" W
C36	325.00'	52.46'	52.41'	N 73°16'10" W

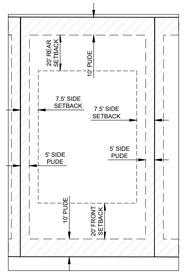
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C37	325.00'	51.94'	51.88'	N 82°28'20" W
C38	425.00'	72.03'	71.95'	S 79°30'52" E
C39	425.00'	72.03'	71.95'	S 89°13'32" E
C40	325.00'	51.50'	51.45'	S 88°24'34" W
C41	425.00'	72.03'	71.95'	N 81°03'47" E
C42	325.00'	51.17'	51.12'	S 79°21'31" W
C43	425.00'	4.11'	4.11'	N 75°50'51" E
C44	325.00'	57.12'	57.05'	S 69°48'46" W
C45	1500.00'	49.22'	49.22'	S 61°04'34" W
C46	325.00'	15.66'	15.66'	S 63°23'49" W
C47	440.00'	27.67'	27.67'	N 77°27'20" E
C48	1500.00'	53.75'	53.76'	S 69°06'34" W
C49	440.00'	55.11'	55.07'	N 82°50'44" E
C50	440.00'	49.69'	49.66'	N 89°40'07" E
C51	25.00'	34.76'	32.02'	N 53°04'31" E
C52	225.00'	68.95'	68.68'	N 22°01'33" E
C53	225.00'	51.32'	51.21'	N 37°20'22" E
C54	1500.00'	89.03'	89.02'	S 56°22'55" W
C55	225.00'	34.34'	34.31'	N 48°14'47" E
C56	1625.00'	18.72'	18.72'	N 52°17'20" E
C57	1500.00'	71.29'	71.28'	S 53°19'13" W
C58	1625.00'	60.14'	60.14'	N 50°53'55" E
C59	1500.00'	55.51'	55.51'	S 50°53'55" W
C60	1625.00'	61.21'	61.21'	N 48°45'33" E
C61	1500.00'	56.50'	56.50'	S 48°45'33" W
C62	1625.00'	58.55'	58.55'	N 46°38'52" E
C63	1500.00'	54.05'	54.04'	S 46°38'52" W
C64	1625.00'	58.55'	58.55'	N 44°35'01" E
C65	1500.00'	54.05'	54.04'	S 44°35'01" W

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C73	30.00'	45.77'	41.46'	S 00°00'05" W
C74	1885.00'	46.93'	46.92'	N 44°44'11" W
C75	1885.00'	109.99'	109.98'	N 47°06'52" W
C76	18.00'	29.20'	26.10'	S 84°44'17" W
C77	115.00'	20.08'	20.06'	S 43°16'01" W
C78	115.00'	48.98'	48.61'	S 60°28'19" W
C79	115.00'	49.35'	48.97'	S 84°58'04" W
C80	115.00'	28.99'	28.91'	N 75°31'00" W
C81	115.00'	5.53'	5.53'	N 66°55'07" W
C82	115.00'	52.44'	51.99'	N 52°28'39" W
C83	115.00'	50.40'	50.00'	N 26°51'26" W
C84	115.00'	50.40'	50.00'	N 01°44'43" W
C85	115.00'	44.05'	43.78'	S 65°59'46" W
C86	2055.00'	60.75'	60.75'	S 57°34'36" E
C87	2055.00'	55.46'	55.46'	S 55°57'24" E
C88	115.00'	44.05'	43.78'	S 87°56'41" W
C89	2055.00'	56.55'	56.55'	S 54°23'42" E
C90	115.00'	50.96'	50.55'	N 68°23'07" W
C91	2055.00'	61.64'	61.64'	S 52°44'50" E
C92	115.00'	4.72'	4.72'	N 54°30'49" W
C93	1935.00'	48.95'	48.95'	N 52°36'46" W
C94	2055.00'	18.74'	18.74'	S 51°37'36" E
C95	1935.00'	54.44'	54.44'	N 51°04'56" W
C96	1935.00'	54.44'	54.44'	N 49°28'13" W
C97	1935.00'	54.44'	54.44'	N 47°51'30" W
C98	1935.00'	54.44'	54.44'	N 46°14'47" W
C99	1935.00'	48.02'	48.02'	N 44°43'46" W
C100	30.00'	46.38'	41.90'	N 88°18'26" W
C101	1675.00'	118.48'	118.45'	S 49°25'49" W
C102	1675.00'	33.98'	33.98'	S 52°02'16" W
C103	175.00'	111.79'	109.90'	S 34°19'10" W
C104	25.00'	39.58'	35.58'	S 29°20'18" E
C105	440.00'	49.39'	49.36'	S 71°28'51" E
C106	440.00'	52.61'	52.58'	S 64°50'23" E
C107	440.00'	52.61'	52.58'	S 57°59'21" E
C108	440.00'	24.57'	24.56'	S 52°57'52" E
C109	2175.00'	61.58'	61.58'	S 52°10'36" E
C110	2175.00'	61.58'	61.58'	S 53°47'56" E
C111	2175.00'	61.58'	61.58'	S 55°25'16" E
C112	2175.00'	61.58'	61.58'	S 57°02'36" E
C113	100.00'	16.60'	16.58'	S 75°01'06" E

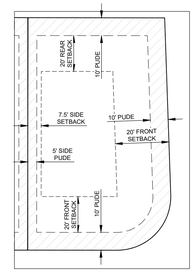
GENERAL NOTES

1. THE PURPOSE OF THIS PLAT IS TO CREATE 64 LOTS AND DEDICATE RIGHT-OF-WAY AND OPEN SPACES.
2. 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.
3. SUBJECT PROPERTY IS PARCEL 15.05 AS SHOWN ON MAURY COUNTY TAX MAP 41.
4. THE HORIZONTAL LOCATION DATA SHOWN ON THIS SURVEY WAS GATHERED USING STANDARD RADIAL SURVEYING TECHNIQUES WITH AN ELECTRONIC TOTAL STATION AND DATA COLLECTOR AND IS BASED UPON A POSITIONAL SOLUTION DERIVED FROM GLOBAL POSITIONING SYSTEM (GPS) OBSERVATIONS) USING THE TDOT NETWORK. TENNESSEE STATE PLANE COORDINATE SYSTEM ZONE 4100, NAD83. DRONE AERIAL PHOTOMETRY WAS ALSO USED TO SURVEY SOME ELEMENTS.
5. NO TITLE REPORT HAS BEEN FURNISHED, THEREFORE THIS SURVEY IS SUBJECT TO THE FINDINGS OF AN ACCURATE TITLE SEARCH
6. THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF A GENERAL PROPERTY SURVEY AND CONFORMS TO THE ACCURACY OF A CATEGORY 1 SURVEY AS CURRENTLY DEFINED AND ADOPTED BY THE TENNESSEE STATE BOARD OF EXAMINERS FOR LAND SURVEYORS, AND THE RATIO OF PRECISION IS LESS THAN 1:10,000.
7. ALL PLOT AND DEED RECORDATION REFERENCES SHOWN HEREON ARE AS RECORDED IN THE REGISTER'S OFFICE FOR MAURY COUNTY, TENNESSEE.
8. COLUMBIA POWER AND WATER SYSTEMS IS THE POWER PROVIDER.
9. STORMWATER MANAGEMENT OPERATION & MAINTENANCE WILL BE GOVERNED BY THE INSPECTION & MAINTENANCE AGREEMENT OF PRIVATE STORMWATER MANAGEMENT FACILITIES, DATED _____, RECORDED IN DEED BOOK _____, PAGE ___, REGISTER'S OFFICE OF MAURY COUNTY, TN.
10. 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. 47119C0180E WITH AN EFFECTIVE DATE OF 4/16/2007, WHICH MAKES UP A PART OF THE NATIONAL FLOOD INSURANCE ADMINISTRATION REPORT; COMMUNITY NO. 119C, PANEL NO. 0180 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 AREAS DETERMINED TO BE OUTSIDE THE 500-YEAR FLOOD PLAIN.
11. ACCORDING TO THE TYPICAL LOT DETAIL, ALL LOTS ARE TO HAVE A 10' PUDE IN THE FRONT AND REAR OF THE LOTS, AS WELL AS A 5' PUDE IN THE SIDE OF THE LOTS.
12. CURRENT ZONING OF THE SUBJECT PROPERTY IS CD-3, THE SUBJECT PROPERTY AS SHOWN IS BASED ON A PRELIMINARY PLAT APPROVED UNDER ZONING ORDINANCE 3638 AND IS SUBJECT TO ALL VESTING OF THAT APPROVAL UNDER THE PREVIOUS ZONING OF R-6.
13. PRIOR TO CERTIFICATE OF OCCUPANCY, ALL GRADING SHALL BE IN ACCORDANCE WITH THE CITY OF COLUMBIA CODES FOR SWALES AND SLOPES. THIS WILL BE UNDERTAKEN DURING VERTICAL CONSTRUCTION AFTER BUILDING PERMITS ARE RELEASED

SITE DATA	
CURRENT ZONING:	R6
MINIMUM BUILDING SETBACKS:	
FRONT:	20'
REAR:	20'
SIDE:	7.5'
TOTAL PHASE AREA:	14.88 ACRES
OPEN SPACE:	1.62 ACRES
NEW ROW:	2.80 ACRES



TYPICAL R-6 LOT
N.T.S.



TYPICAL R-6 CORNER LOT
N.T.S.

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 RECORD BOOK NUMBERS R2806, PAGE 535, 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 LINE, AND THAT OFFERS OF IRREVOCABLE DEDICATION FOR ALL PUBLIC WAYS, UTILITIES AND OTHER FACILITIES HAVE BEEN FILED.

_____, 20____
DATE OWNER

_____, 20____
DATE OWNER

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.

_____, 20____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL OF SUBDIVISION AND STREET NAMES

SUBDIVISION NAME AND STREET NAMES ARE APPROVED BY THE CITY ENGINEERING DEPARTMENT AND MAURY COUNTY E911.

_____, 20____
DATE MAURY E911

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 EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION AND THAT IT HAS BEEN APPROVED FOR RECORDING IN THE OFFICE OF THE COUNTY REGISTER.

_____, 20____
DATE NAME, TITLE, AGENCY OF AUTHORIZED AGENT

CERTIFICATE OF SURVEY 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 LESS THAN OR EQUAL TO 1:10,000.

_____, 20____
DATE MARK CANTRELL, R.L.S

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I HEREBY CERTIFY THAT THE WATER 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.

_____, 20____
DATE DIRECTOR OF COLUMBIA WATER DEPARTMENT

CERTIFICATE OF APPROVAL OF STREETS, DRAINAGE AND UTILITIES

I HEREBY CERTIFY THAT THE STREETS, DRAINAGE AND UTILITIES DESIGNATED IN SUMMIT AT CARTER'S WEST, PHASE 3 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 TO ASSURE COMPLETION OF SUCH IMPROVEMENTS.

_____, 20____
DATE CITY ENGINEER

CERTIFICATE OF APPROVAL OF SEWER SYSTEM

I HEREBY CERTIFY THAT THE 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.

_____, 20____
DATE DIRECTOR OF COLUMBIA WASTEWATER DEPARTMENT

J. MARK CANTRELL XVI PROFESSIONAL LAND SURVEYOR TENNESSEE NO. 1859

OWNER OF RECORD
PULTE HOMES TENNESSEE LIMITED PARTNERSHIP DEED BK. R2806 PG. 535, MAP 041 PARCEL 015.05
APPLICANT
T-SQUARE ENGINEERING 111 SOUTHEAST PKWY CT FRANKLIN, TN 37064 615.678.8212

NO.	DATE	REVISIONS

DATE: 9-16-2024
SCALE: 1" = 100'
DRAWN BY: DSW
REVIEWER:

SUMMIT AT CARTER'S WEST

PHASE 3 FINAL PLAT

MAP 041, P/O PARCEL 015.05
MAURY COUNTY, TENNESSEE

PROJECT
21-0515

SHEET
1 OF 1

T-SQUARE ENGINEERING
111 SOUTHEAST PKWY CT • FRANKLIN, TN • 615-678-8212 • www.T2-ENG.COM

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 041, Parcel 15.50
Project Name: Summit at Carter's West - Phase 3

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

THIS AGREEMENT, made this 12 day of September, 2024 , by and between Pulte Group 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 ONWER(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 Jason Demuth

Title Division President

Signature _____

Owner PulteGroup

Address 100 Westwood Place

City, State ZIP Brentwood, TN 37027

STATE OF Tennessee
COUNTY OF Williamson

Before me, Farrah Burgett of the state and county mentioned, personally appeared Jason Demuth, 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 12 day of September, 2024.

Farrah Burgett
Notary Public

My Commission Expires: 4/10/2027

FARRAH BURGETT STATE OF TENNESSEE NOTARY PUBLIC COUNTY OF WILLIAMSON

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

Project Name: Summit at Carter's Station North – Phase 3

Columbia, TN

September 12, 2024

Table of Contents

Section Name

System Description
Maintenance Procedures

System Description

The site consists of a series of stormwater conveyances both open channel and piped. There are no detention/retention ponds associated with this Phase.

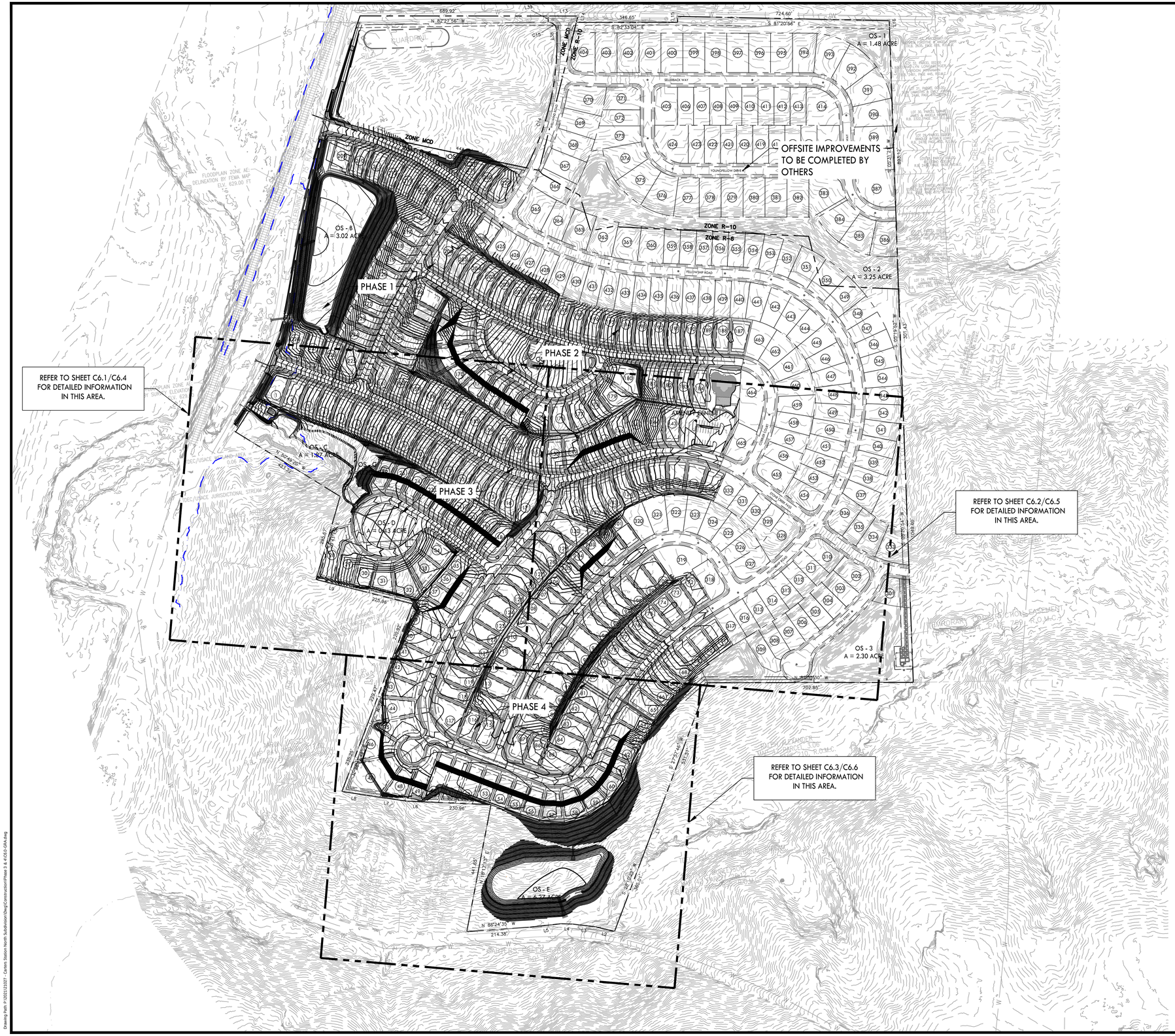
- 1,907 feet of grass lined open channel.
- 1,970 feet of 18 in ADS pipe, 89 feet of 15 in ADS pipe 1,526 feet of 12 in HDPE pipe and 45 storm inlets.

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. **STORMWATER DETENTION PONDS**
    - **a.** The outlet structures shall be checked regularly for clogging and shall be cleaned and repaired as necessary---monthly after it is first built then a regular sequence should be established or at least quarterly or after a large rain event.
    - **b.** Check banks and bottom surface of basins for erosion and correct as necessary.
    - **c.** Check at least quarterly and after each extreme storm event, the facility should be cleaned of accumulated debris. The banks of surface ponds should be checked and areas of erosion repaired. Remove nuisance wetland species and take appropriate measures to control mosquitos.
    - **d.** This maintenance typically includes sediment, floatable, and debris removal from inlets, outlets and skimmers.
    - **e.** Pond vegetation to be trimmed or harvested as appropriate, grassy areas, frequently mowed. Grass should be mowed so that it does not get over 12.
    - **f.** Remove sediment when accumulation reached 6 inches, or if re-suspension is observed or probable.
    - **g.** Some sediment may contain contaminants which the Tennessee Department of Environment and Conservation (TDEC) requires special disposal procedure. If there is any uncertainty about what the sediment contains or it is known to contain contaminants, then TDEC should be consulted and their disposal recommendations followed. The TDEC Division of Water Pollution Control should be contacted at (931) 380-3371. Generally, special attention or sampling should be given to sediment accumulated in facilities serving industrial, manufacturing or heavy commercial sites, Page 2 of 4 Rev. 9/26/2016 fueling centers or automotive maintenance areas, large parking areas, or other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.
    - **h.** Some sediment collected may be innocuous (free of pollutants) and can be used as fill material, cover or land spreading. It is important that this material not be placed in any way that will promote or allow re-suspension in storm runoff.
2. **1,970 feet of 18 in ADS pipe, 89 feet of 15 in ADS pipe 1,526 feet of 12 in HDPE pipe and 45 storm inlets.**
    a. These structures will be inspected and cleaned quarterly to ensure pipes and drain inlets do not fill with sediment or trash.



NOTES:

1. GRADING TO MATCH BUILDING TYPE AND ANY LOTS OVER 20% GRADE SHALL BE LABELED AS CRITICAL.
2. A GEOTECHNICAL INVESTIGATION WILL BE REQUIRED TO INVESTIGATE THE EXISTENCE OF SINKHOLES. ANY SINKHOLES DISCOVERED WILL BE REMEDIATED AS NECESSARY.

0 50 100 150 300
GRAPHIC SCALE

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

ENGINEERING CRUNK

WILSON COUNTY TENNESSEE AGRICULTURE COMMERCE 114-1091 STATE OF TENNESSEE 6/4/24

SUMMIT AT CARTERS STATION NORTH
PHASE 3 & 4

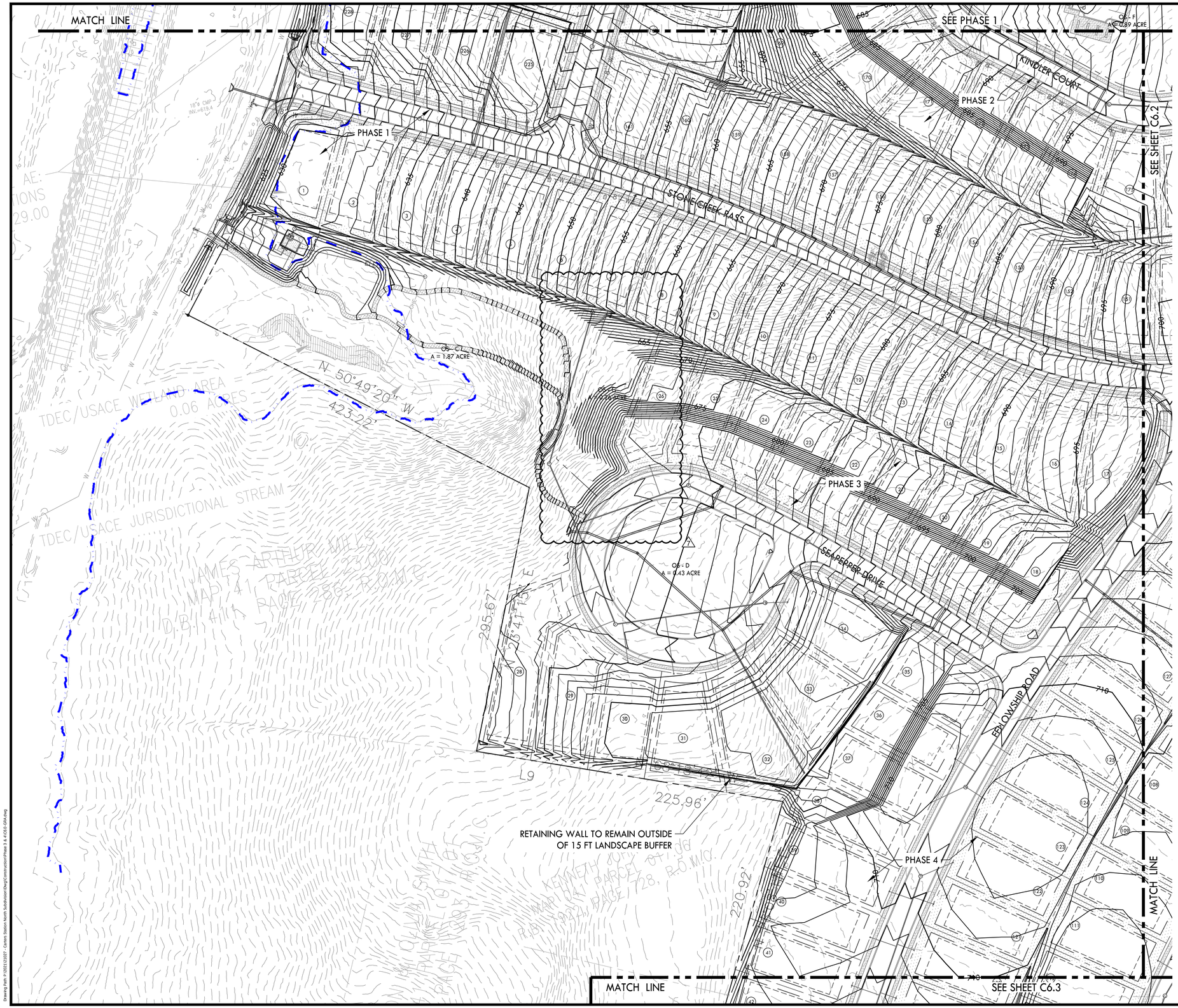
CARTERS CREEK STATION ROAD
MAURY COUNTY, TENNESSEE

REVISIONS	
No.	DATE
2	11/17/23
3	01/18/24
4	03/01/24
5	04/12/24
6	05/24/24
7	06/04/24

07/12/23 21027

C6.0
OVERALL GRADING & DRAINAGE PLAN

Drawing Path: P:\2021\21027 - Carters Station North Subdivision\Dwg\Construction\Phase 3 & 4\C6.0-GRA.dwg



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C8.1 - 3
G2	SINGLE CATCH BASIN	C8.1 - 4
G3	JUNCTION BOX	C8.1 - 2
G4	CONCRETE HEADWALL	C8.1 - 6
G5	RIPRAP OUTLET	C8.2 - 3
G6	SOUTH POND OUTLET STRUCTURE	C8.2 - 1
G7	12" NYOPLAST DRAIN	-
G8	PRECAST HEADWALL WITH ENERGY DISSIPATORS	C8.2 - 2

NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- +55.10 — PROPOSED SPOT ELEVATION
- A1 — STORM STRUCTURE LABEL
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

0 10 20 30 40 50 100
GRAPHIC SCALE

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

ENGINEERING CRUNK

WILSON, JAMES ARTHUR, 114189, AGRICULTURE, COMMERCE, STATE OF TENNESSEE, 6/4/24

SUMMIT AT CARTERS STATION NORTH
PHASE 3 & 4

CARTERS CREEK STATION ROAD
MAURY COUNTY, TENNESSEE

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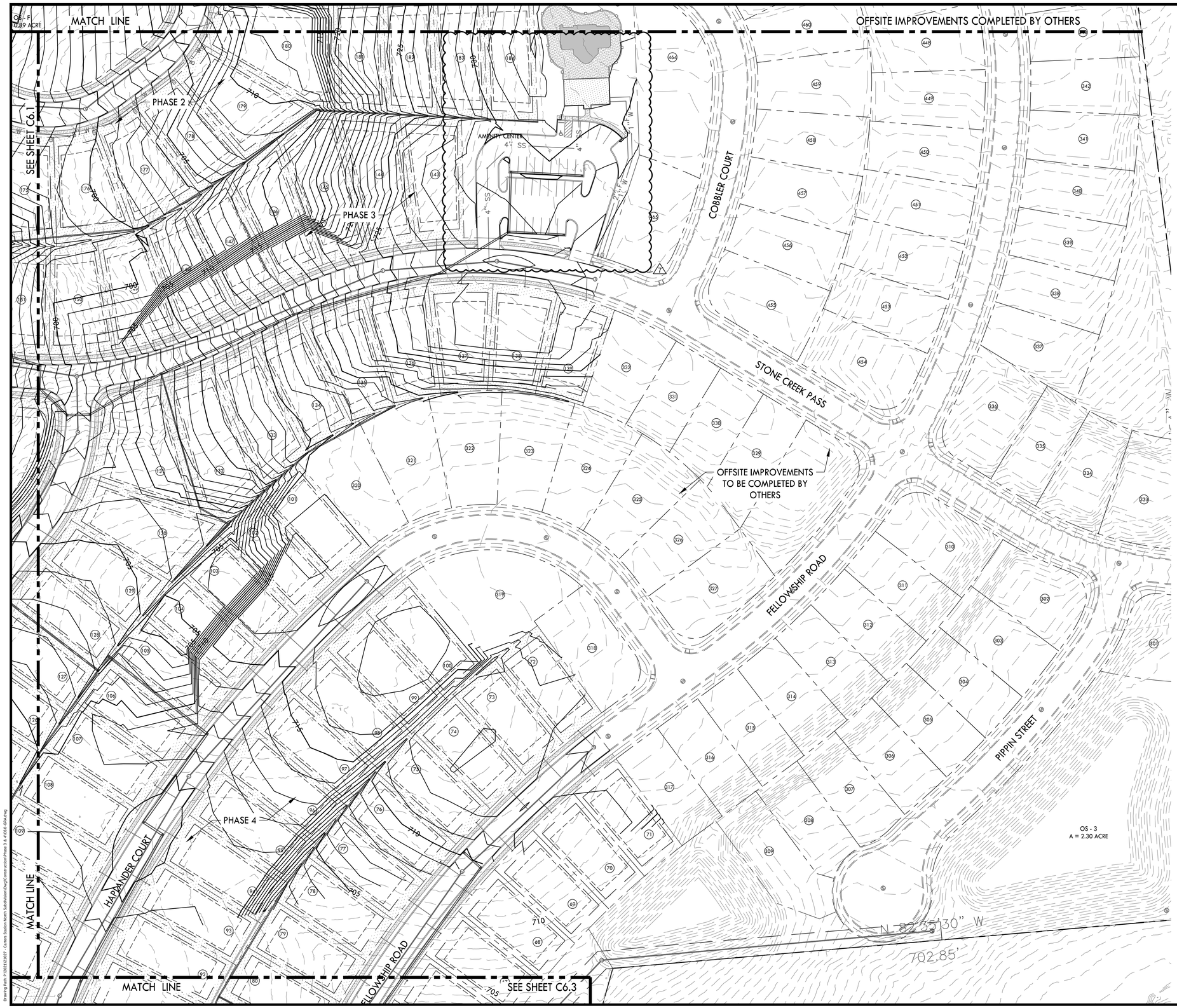
7	06/04/24

07/12/23 21027

C6.1
GRADING PLAN

Drawing Path: P:\2021\21027 - Carters Station North Subdivision\Civil\Construction\Phase 3 & 4\C6.0-GRA.dwg



GRADING & DRAINAGE PLAN KEYNOTES

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NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- +55.10 — PROPOSED SPOT ELEVATION
- A1 — STORM STRUCTURE LABEL
- ST — STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

0 10 20 30 40 50 100
GRAPHIC SCALE

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

ENGINEERING CRUNK

TENNESSEE LICENSED PROFESSIONAL ENGINEER ANDREW WILSON 6/4/24 STATE OF TENNESSEE

SUMMIT AT CARTERS STATION NORTH
PHASE 3 & 4

CARTERS CREEK STATION ROAD
MAURY COUNTY, TENNESSEE

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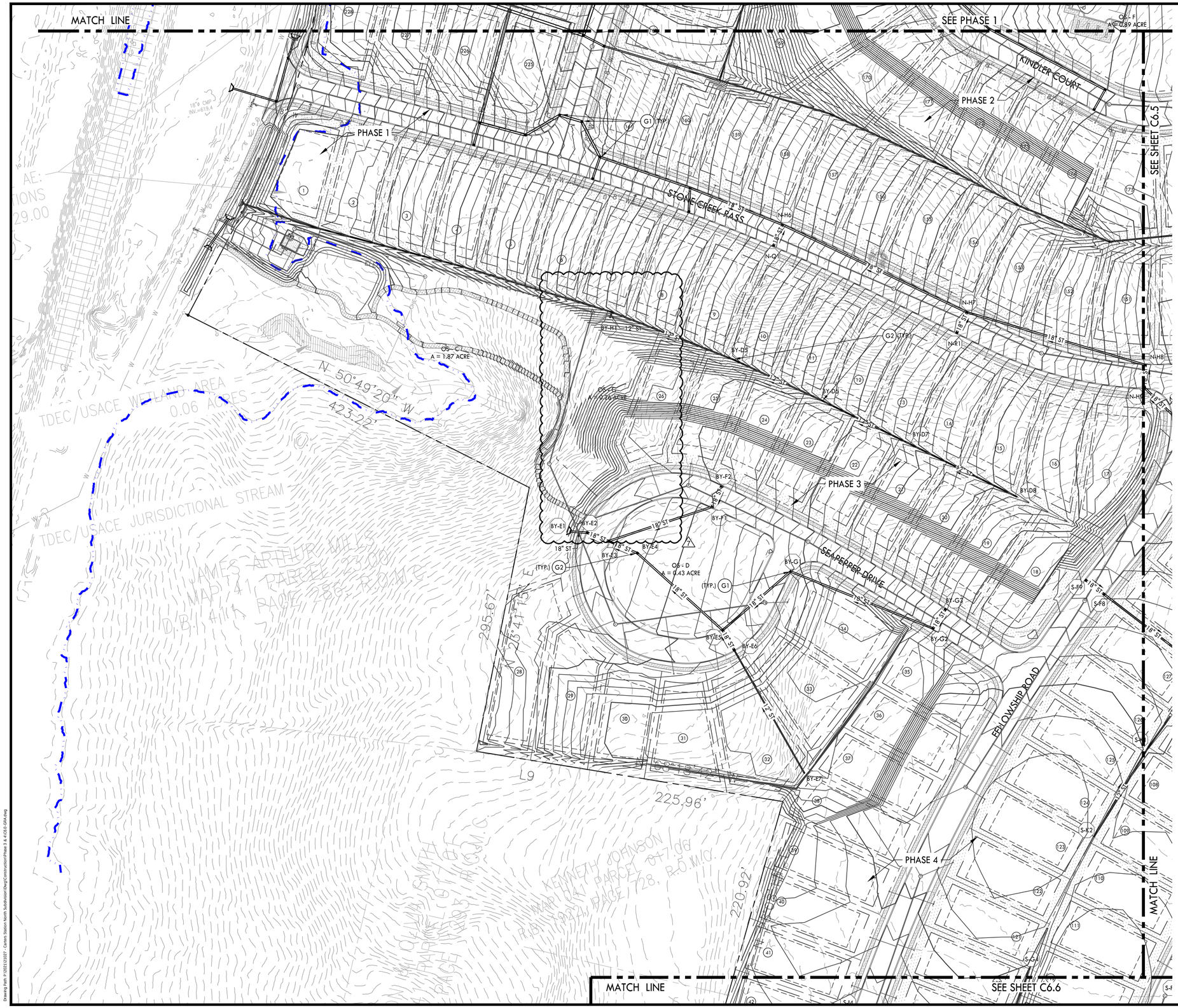
07/12/23 21027

C6.2
GRADING PLAN

Drawing Path: P:\2021\21027 - Carters Station North Subdivision\Dwg\Construction\Phase 3 & 4\C6.2-GRA.dwg



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
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G8	PRECAST HEADWALL WITH ENERGY DISSIPATORS	C8.2 - 2

NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED GRADING & DRAINAGE LEGEND

- 55 — PROPOSED CONTOUR
- +55.10 — PROPOSED SPOT ELEVATION
- A1 — STORM STRUCTURE LABEL
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- SINGLE CURB INLET
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- JUNCTION BOX

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SUMMIT AT CARTERS STATION NORTH
PHASE 3 & 4

CARTERS CREEK STATION ROAD
MAURY COUNTY, TENNESSEE

REVISIONS		
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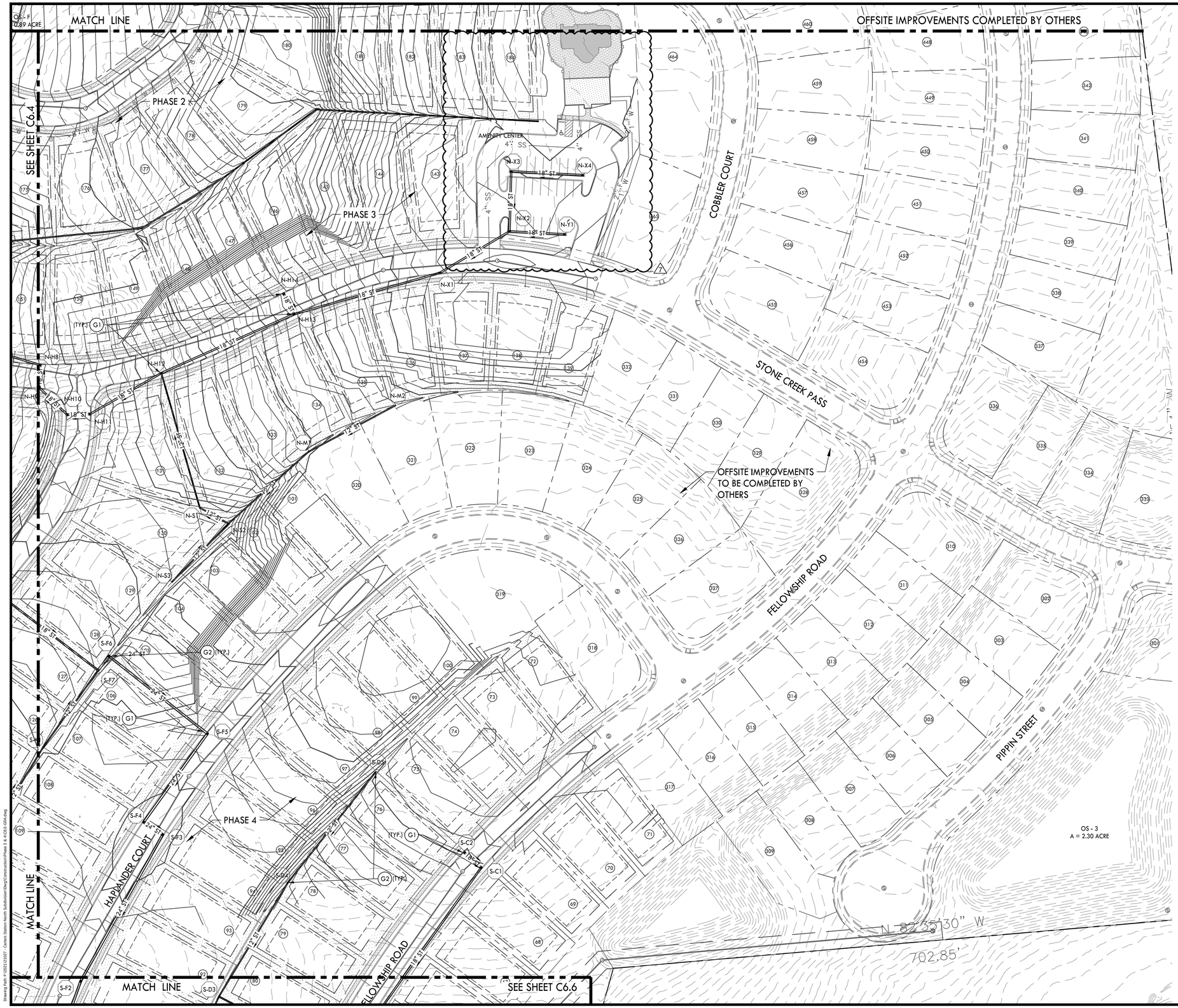
6	05/24/24	
7	06/04/24	

07/12/23 21027

C6.4
DRAINAGE PLAN

Drawing Path: P:\2021\21027 - Carters Station North Subdivision\Dwgs\Construction\Phase 3 & 4\C6.5-GRA.dwg



GRADING & DRAINAGE PLAN KEYNOTES

CODE	DESCRIPTION	DETAIL LOCATION
G1	SINGLE CURB INLET	C8.1 - 3
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NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED GRADING & DRAINAGE LEGEND

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- SINGLE CATCH BASIN
- JUNCTION BOX

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ENGINEERING CRUNK

SUMMIT AT CARTERS STATION NORTH
PHASE 3 & 4

CARTERS CREEK STATION ROAD
MAURY COUNTY, TENNESSEE

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7	06/04/24	

07/12/23 21027

C6.5
DRAINAGE PLAN

Drawing Path: P:\2021\21027 - Carters Station North Subdivision\Dwg\Construction\Phase 3 & 4\C6.5-DRA.dwg

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

Pulte Homes Tennessee Limited Partnership, 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 DEVELEPOR'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.

Summit at Carter's West, Phase 3
PROJECT

Completed by the Developer	*Completed by the City*
Pulte Homes Tennessee Limited Partnership DEVELOPER NAME	
BRAD GARETO AUTHORIZED AGENT NAME	_____ CITY ENGINEER
Brad Garreto SIGNATURE	_____ SIGNATURE
9/16/2024 DATE	_____ DATE
160 Westwood Place Suite 100 STREET	
Brentwood, TN 37027 CITY, STATE, ZIP	
615-435-2297 PHONE	
Kim.storch@pultegroup.com EMAIL	
Attest	*Attest*
Kimberly Storch ATTEST NAME	_____ ATTEST NAME
Kimberly Storch ATTEST SIGNATURE	_____ ATTEST SIGNATURE
9/16/2024 DATE	_____ 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

** 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	Carter's Creek Station Road, Columbia, TN		
	TAX MAP: 41	GROUP:	PARCEL: 15.05
SUMMARY OF NATURE OF REQUEST AND WORK	This application is to approve the final plat for phases of Summit at Carter's West, Phase 3.		

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

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: **File naming nomenclature examples:* *Freedom Point Site Plan* *Freedom Point Master Plan* *Freedom Point Final Plat*	**Annexations/Rezoning/PUD's:** ☐ 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 **Plats/PUDs:** ☒ Project Name (include Sections & Phases) Summit at Carter's West, Phase 3 ☒ Total Number of Lots 64 ☒ Total acreage 14.88

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	T-Square Engineering	PHONE	615.678.8212
ADDRESS	111 SE Pkwy. Ct., Franklin, TN 37064	EMAIL	daniel.wolterman@T2-Eng.com

PROPERTY OWNER NAME	Pulte Homes Tennessee Limited Partnership	PHONE	615.435.2297
ADDRESS	100 Westwood Place, Suite 100 Brentwood, TN 37027	EMAIL	Kim.Storch@PulteGroup.com

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.

Daniel Wolterman	Daniel Wolterman	9/16/2024
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Brad Garnto	Brad Garnto	9/16/2024
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	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	