



The Columbia Planning Commission Development Review Committee will meet on Tuesday, January 10, 2023 at 10:00 AM in Conference Room A, basement level, City Hall,, to consider the following:

I. Items For Review

1. Request from Jason Dye for Preliminary Plat approval of McClure Farms Phases 1-4 for 431 lots at [2504 Nashville Highway](#).

Documents:

1. PH1- COVER
2. PH1- ECND
3. PH1- SLOPES
4. PH1-PLAT
5. PH1-UTIL
6. PH2- COVER
7. PH2- ECND
8. PH2- PLAT
9. PH2- SLOPES
10. PH2- UTIL
11. PH3- PLAT
12. PH3- SLOPES
13. PH3- UTIL
14. PH3-
15. PH3-ECND
16. PH4- COVER
17. PH4-ECND
18. PH4-PLAT 2
19. PH4-PLAT
20. PH4-SLOPES
21. PH4-UTIL
22. Traffic Improvement Recommendations Letter
23. Traffic Study

24. Revised Minor Plat Survey
 25. Electric Availability Letter
 26. Sewer Availability Letter
 27. Water Availability Letter
 28. Checklist
 29. Application
2. Request from Allen O'Leary for preliminary and final plat approvals at [4015 Trotwood Avenue](#).

Documents:

1. Final Plat
 2. Preliminary Plat
 3. Submittal Letter for Final Plat
 4. Submittal Letter for Preliminary Plat
 5. Final Plat Application
 6. Prelim Plat Application
3. Request from Civil Design Consultants for Final Plat approval of Vesper Court consisting of 17 lots off Sunset Avenue.

Documents:

1. Final Plat
 2. Application
4. Request from Adam Crunk for Exception to Access Management at Tax Map 75 Parcels 11.04 and 31.01 off [Nashville Highway and Baker Road](#).

Documents:

1. Site Plan
 2. Exemption Request
 3. Application
5. Request from Adam Crunk for Preliminary Master Plan revision for 205 townhome units on 25.87 acres of the Honey Farm PUD off Honey Farm Way and being a portion of [Tax Map 51 Parcel 58](#).

Documents:

1. Preliminary PUD
2. Architectural Plans
3. Elevation Color Schemes
4. TIS Letter of Commitment
5. Specifications Sheet
6. Water Availability Letter

7. Sewer Capacity
 8. Legal Description
 9. Owner Permission
 10. PUD Checklist
 11. Application
6. Request from Crunk Engineering for Preliminary Plat approval of 127 lots at [Trotwood Avenue and Foster Lane](#), being portions of Tax Map 112 Parcels 18, 18.03, and 18.04.

Documents:

1. Preliminary Plat
 2. Traffic Study
 3. Traffic Study MOU
 4. Water Availability Letter
 5. Preliminary Plat Checklist
 6. Application w/ Gore owner
 7. Application w/ Rogers owner
7. Request from Wade Kincaid to rezone 30.76 acres at [6218 Cayce Lane](#) from CD-2 (Rural Character District) to CD-3 (Neighborhood Character District).

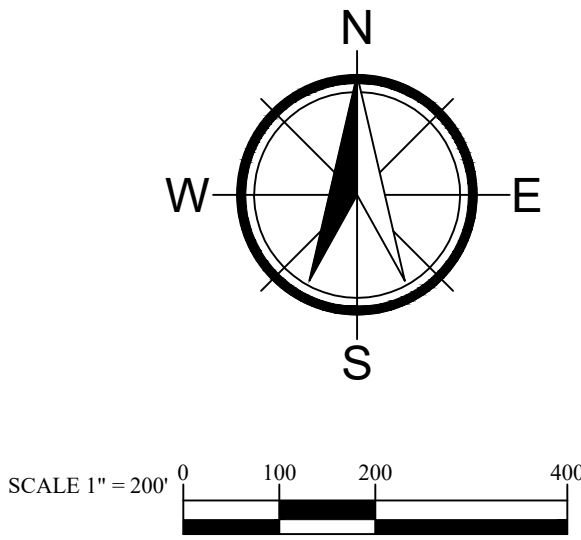
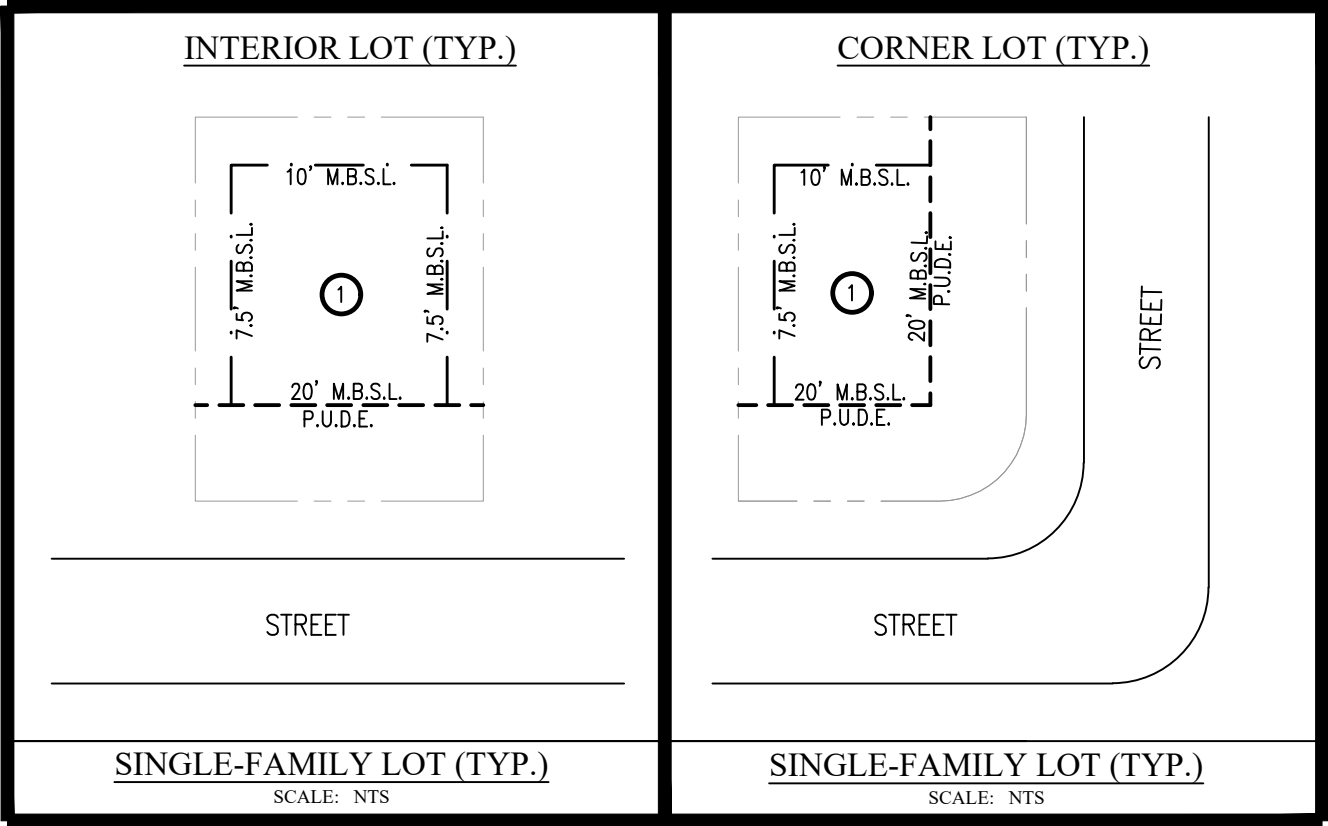
Documents:

1. Concept_1118
 2. Concept_1117
 3. Concept_1019
 4. CPWS Availability Letter
 5. Fire Flow Requirements
 6. Hydrant Analysis Report
 7. Zoning Map
 8. Land Use Map
 9. Legal
 10. Checklist
 11. Application
8. Request from Cole Gaumnitz for Site Development Plan approval of a new industrial park consisting of 46.89 acres at Tax Map 89 Parcel 46 off [Industrial Park Road](#).

Documents:

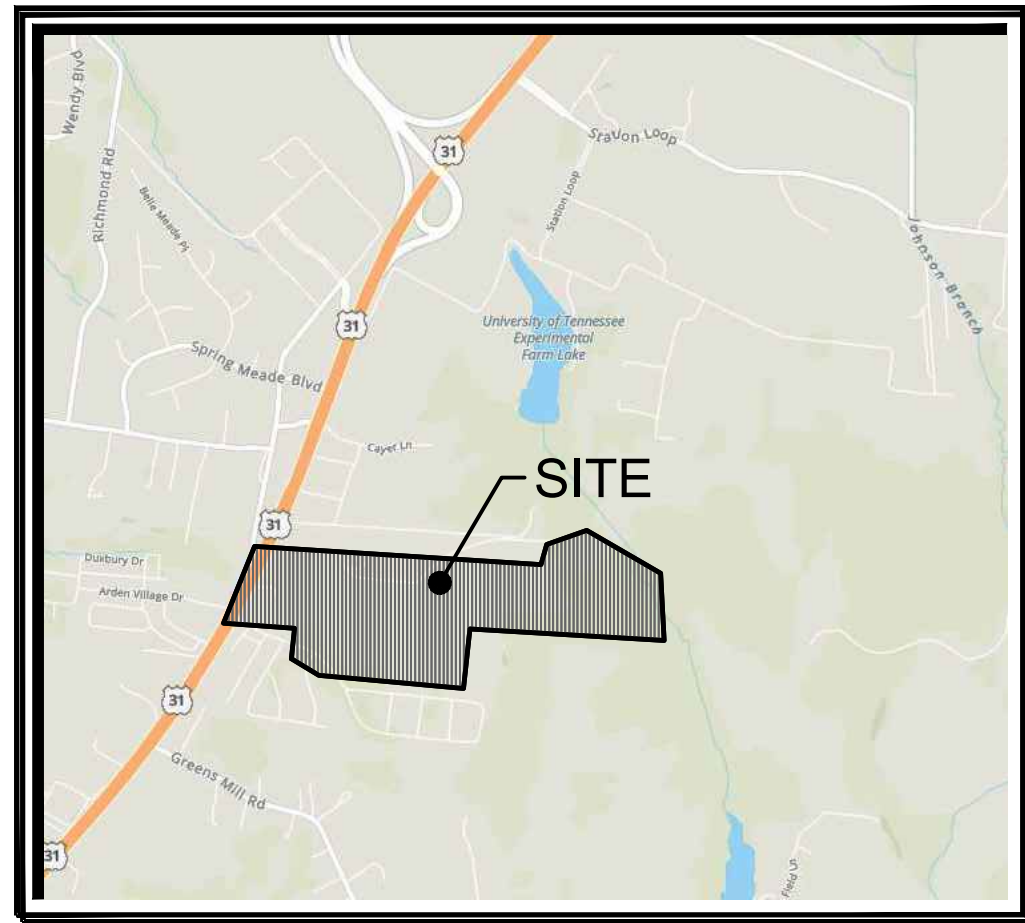
1. Site Development Plan
2. CulDeSac Justfication
3. Application

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PRELIMINARY PLAT - PHASE 1
FOR
McCLURE FARMS
2504 NASHVILLE HWY
COLUMBIA, MAURY COUNTY, #38401

95.29-ACRE SITE
ISSUED 11-16-2022
W&A PROJECT # 220047

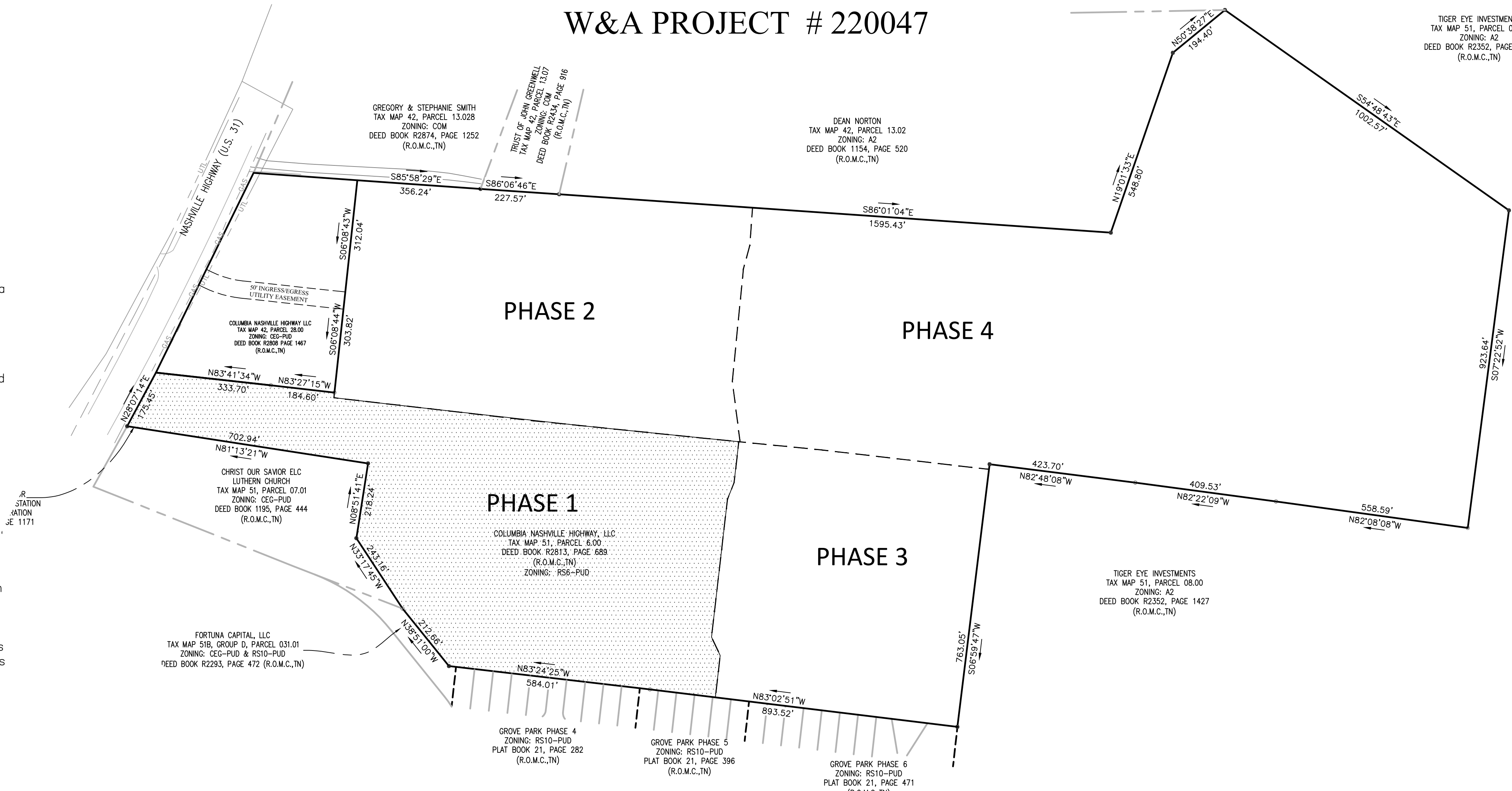


VICINITY MAP
SCALE: NTS

TIGER EYE INVESTMENTS
TAX MAP 51, PARCEL 08.00
ZONING: A2
DEED BOOK R2352, PAGE 1427
(R.O.M.C.,TN)

Sheet List Table	
Sheet Number	Sheet Title
1	COVER
2	EXISTING CONDITIONS
3	PRELIMINARY PLAT
4	SLOPE ANALYSIS

- NOTES:**
- The purpose of this plat is to create 70 lots in Phase 1 of the McClure Farms.
 - Property is identified as a portion of parcel 6.00 on Maury County, Tennessee Property Map: 51 in the civil district. Property is located in the city of Columbia and accessed from Nashville Highway.
 - Subject properties are currently zoned RS6-PUD per the City of Columbia GIS Mapping.
 - Total Area in Phase 1: 19.35 acres±
Total Right of Way Dedication: 4.80 acres±
Total Open Space: 1.91 acres±
Total Number of Lots: 70 lots Phase 1.
 - Minimum Building Setbacks
Front: 20' (facing street)
Side: 7.5'
Rear: 10'
 - All distances shown are in feet and decimals thereof.
 - This property is NOT located in an area designated as a "Special Flood Hazard Area" as per the Federal Emergency Management Agency "National Flood Insurance Program" Rate Map No. 47119C0180E. (Zone X), (Map Revised APRIL 16, 2007).
 - 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. Special attention has been taken to indicate the approximate nature of the utilities, shown hereon. 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 are in the exact location indicated. Therefore, reliance upon the type, size, and location of utilities shown must 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 three (3), nor no more than ten (10) working days prior to the date of their intent to excavate and to avoid any possible hazard or conflict.
 - All property corners that were set are marked by a 1/2" Rebar with a yellow cap that reads "W&A Eng.", unless otherwise noted.



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
City of Columbia Planning Commission

CERTIFICATE OF COMMON AREAS DEDICATION
certain areas of land shown hereon as common areas intended for use by the homeowners within McClure Farms Subdivision 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 City of Columbia 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 WATER SYSTEM
I hereby certify that the water system(s) outlined or indicated on the final subdivision plat entitled McClure Farms Subdivision 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, & Agency or
Authorized Approving Agent _____

CERTIFICATE OF APPROVAL OF PUBLIC SEWER SYSTEM
I hereby certify that the sewer system(s) outlined or indicated on the final subdivision plat entitled McClure Farms Subdivision 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, & Agency or
Authorized Approving Agent _____

SURVEYOR'S CERTIFICATE
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 ratio 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.

11-16-2022
Date _____ Adam C. Bledsoe
Tennessee Registered Land
Surveyor #3099

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 2808, Page 1461, of the Maury County Register's Office, and that I (we) hereby adopt this plan of subdivision with my (our) free consent, establish the minimum building restriction lines, and that offers of irrevocable dedication for all public ways, public easements, utilities, and other facilities have been filed.

Date _____ By: _____

OWNER:
GH TENNESSEE, LLC
BARTON CREEK PLAZA III
3185 SOUTH CAPITAL OF TEXAS HIGHWAY,
SUITE 275
AUSTIN, TEXAS. 78704
ATTN CHRIS LYNCH
512-583-9810

DEVELOPER:
GH TENNESSEE, LLC
BARTON CREEK PLAZA III
3185 SOUTH CAPITAL OF TEXAS HIGHWAY,
SUITE 275
AUSTIN, TEXAS. 78704
ATTN CHRIS LYNCH
512-583-9810

ENGINEER:
W & A ENGINEERING
4101 CHARLOTTE AVE. E215
NASHVILLE, TN. 37209
ATTN: TRAVIS BONAR, PE
615-610-1023

SURVEYOR:
W & A ENGINEERING
4101 CHARLOTTE AVE. E215
NASHVILLE, TN. 37209
ATTN: ADAM BLEDSOE, PLS
615-610-1023



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Engineering**

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TRAFFIC ENGINEERING - SURVEYING
ECONOMIC DEVELOPMENT

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Nashville, TN 37209
P: (615) 610-1023
waengineering.com

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MCCLURE FARMS - PHASE 1
PRELIMINARY PLAT
2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

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

REVISIONS	
DATE	COMMENT
8/5/2022	-
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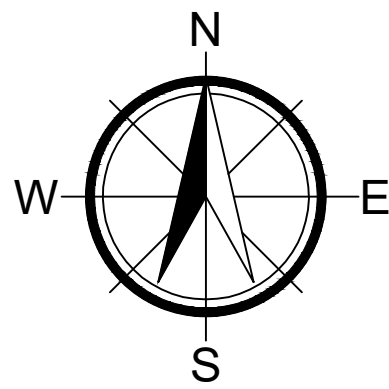
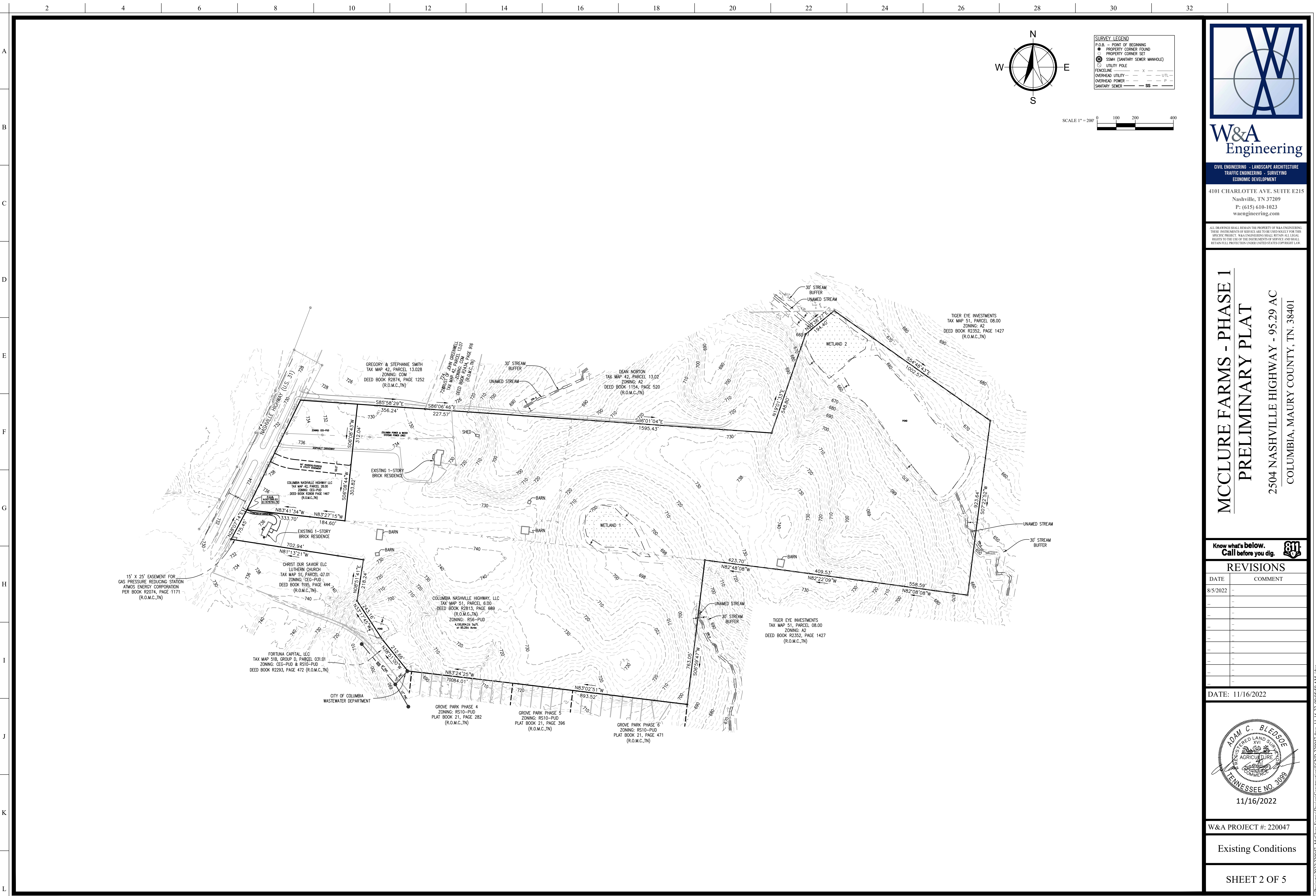
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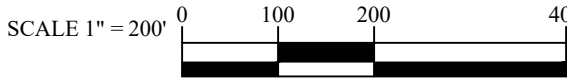
W&A PROJECT #: 220047

COVER SHEET

SHEET 1 OF 5



SURVEY LEGEND	
P.O.B. - POINT OF BEGINNING	
● PROPERTY CORNER FOUND	
○ PROPERTY CORNER SET	
SMH (SANITARY SEWER MANHOLE)	
○ UTILITY POLE	
FENCELINE	- - - X - - -
OVERHEAD UTILITY	- - - UTL - - -
OVERHEAD POWER	- - - P - - -
SANITARY SEWER	- - - SS - - -



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MCCLURE FARMS - PHASE 1
PRELIMINARY PLAT
2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

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REVISIONS

DATE	COMMENT
8/5/2022	-
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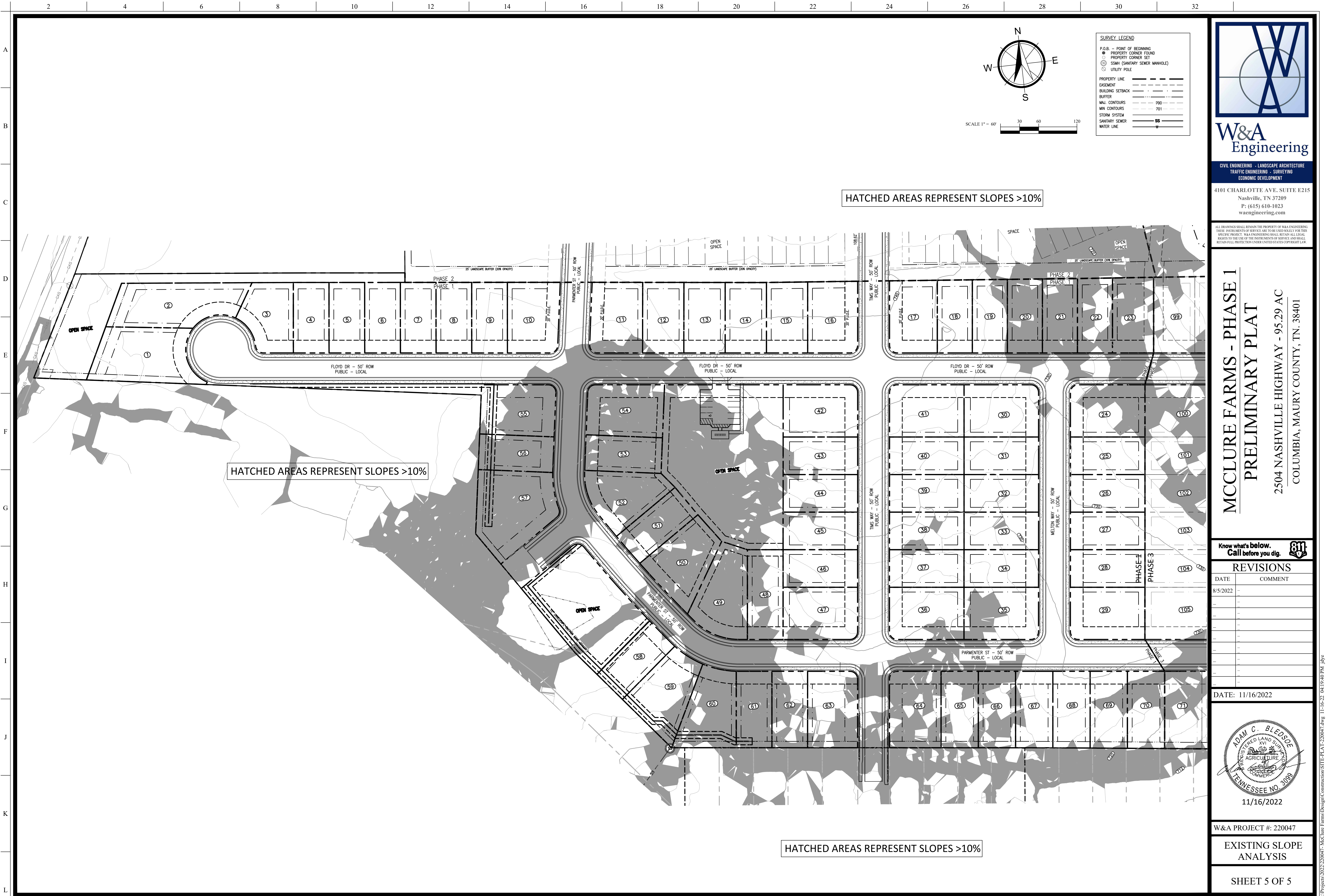
DATE: 11/16/2022



W&A PROJECT #: 220047

Existing Conditions

SHEET 2 OF 5



HATCHED AREAS REPRESENT SLOPES >10%

HATCHED AREAS REPRESENT SLOPES >10%

HATCHED AREAS REPRESENT SLOPES >10%



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MCCLURE FARMS - PHASE 1
PRELIMINARY PLAT
2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

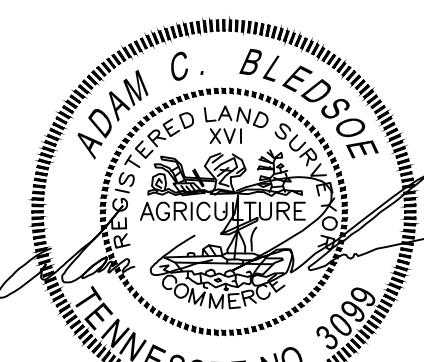
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REVISIONS

DATE	COMMENT
8/5/2022	

DATE: 11/16/2022



11/16/2022

W&A PROJECT #: 220047

EXISTING SLOPE
ANALYSIS

SHEET 5 OF 5



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MCCLURE FARMS - PHASE 1 PRELIMINARY PLAT

2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

COLUMBIA, MAURY COUNTY, TN. 38401

Know what's below.
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REVISIONS

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DATE: 11/16/2022

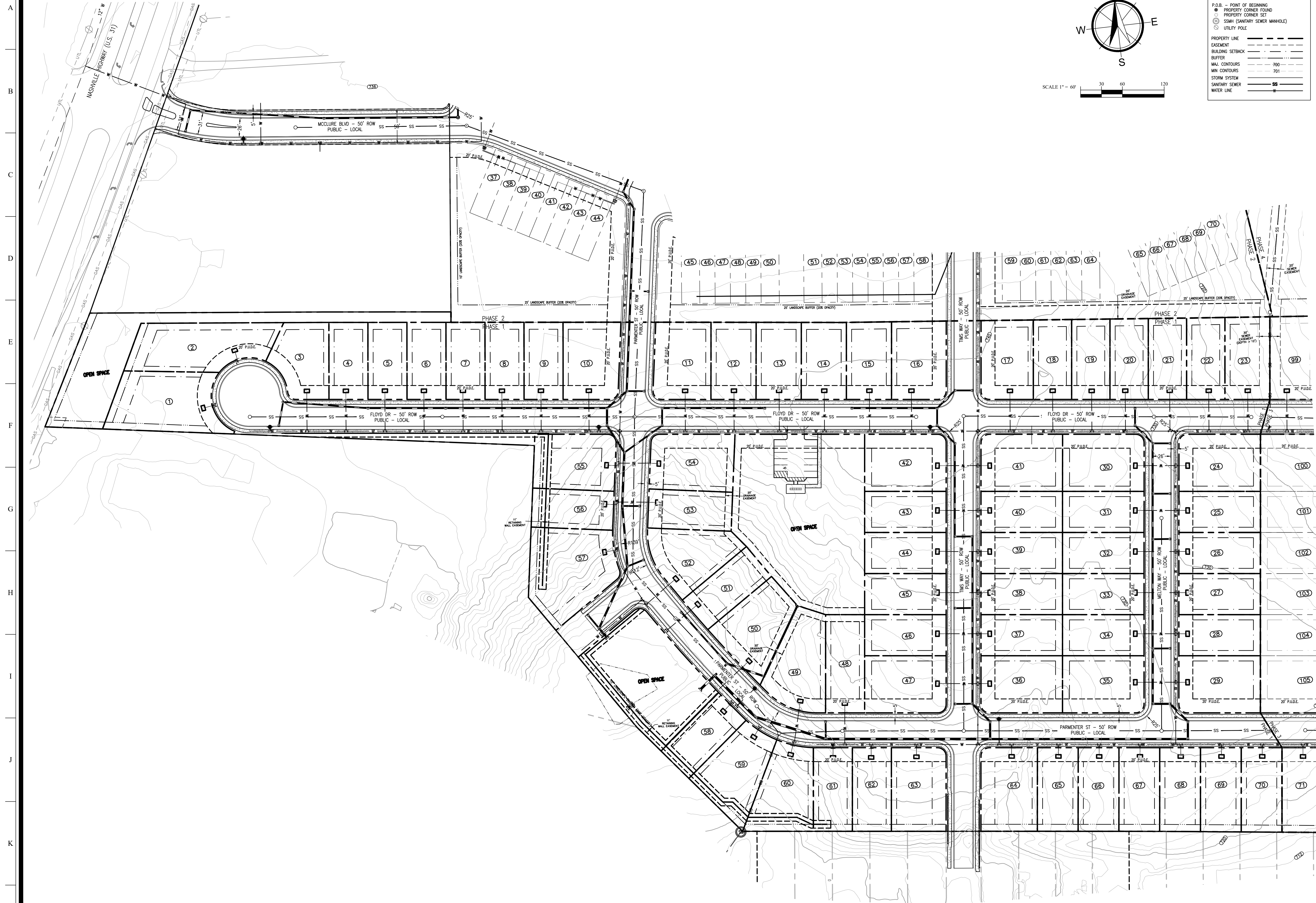


11/16/2022

W&A PROJECT #: 220047

PRELIMINARY
PLAT

SHEET 3 OF 5



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MCCLURE FARMS - PHASE 1 PRELIMINARY PLAT

2504 NASHVILLE HIGHWAY - 95.29 AC

COLUMBIA, MAURY COUNTY, TN. 38401

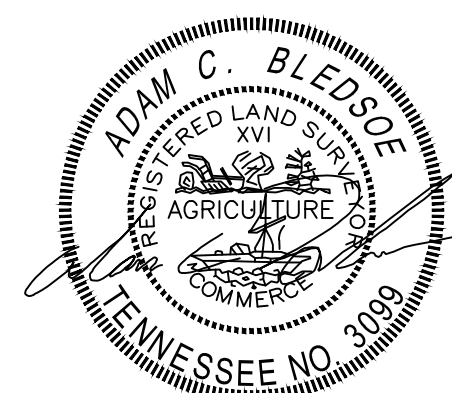
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Call before you dig.**



REVISIONS

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DATE: 11/16/2022

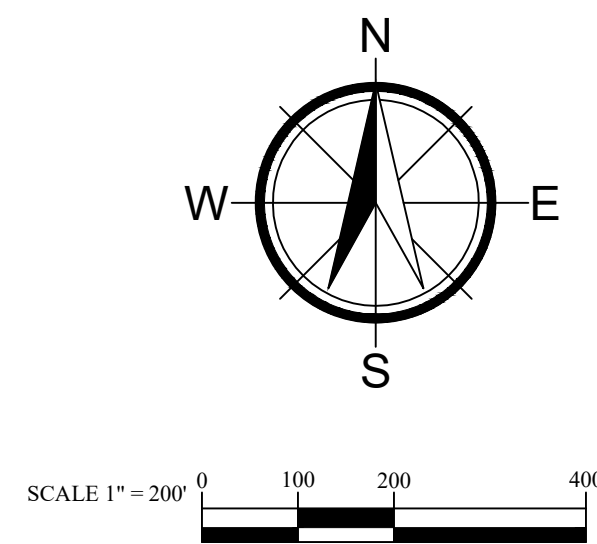


11/16/2022

W&A PROJECT #: 220047

UTILITIES PLAN

SHEET 4 OF 5



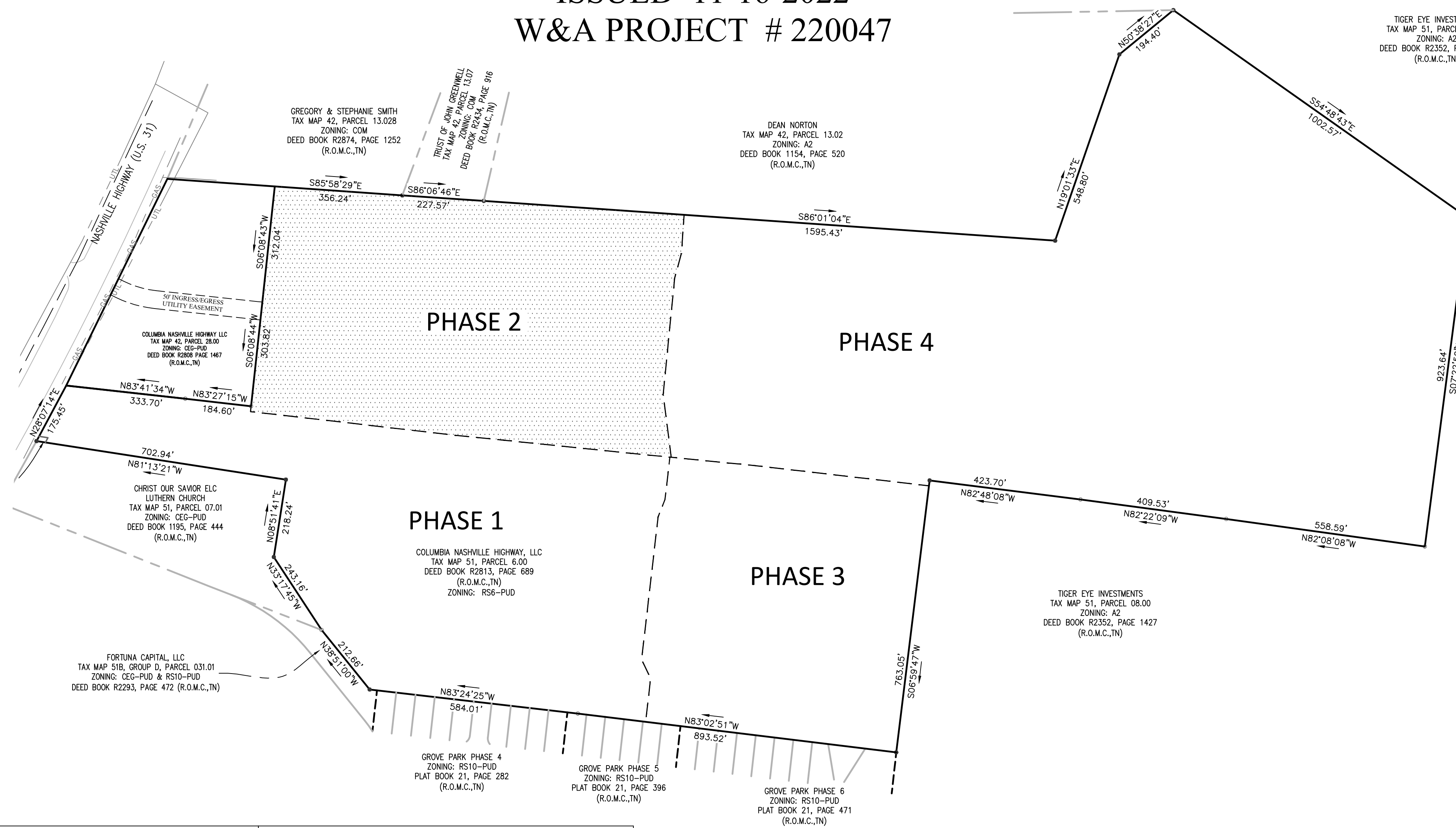
TIGER EYE INVESTMENTS
TAX MAP 51, PARCEL 08.00
ZONING: A2
DEED BOOK R2352, PAGE 1427
(R.O.M.C.,TN)

1. The purpose of this plat is to create 114 units in Phase 2 of the McClure Farms.
2. Property is identified as a portion of parcel 6.00 on Maury County, Tennessee Property Map: 51 in the civil district. Property is located in the city of Columbia and accessed from Nashville Highway.
3. Subject properties are currently zoned RS6-PUD per the City of Columbia GIS Mapping.
4.

Total Area in Phase 2:	17.20 acres±
Total Right of Way Dedication:	4.04 acres±
Total Open Space:	7.29 acres±
Total Number of Lots:	114 units Phase 2

5. All distances shown are in feet and decimals thereof.
6. This property is NOT located in an area designated as a "Special Flood Hazard Area" as per the Federal Emergency Management Agency "National Flood Insurance Program" Rate Map No. 47119C0180E. (Zone X), (Map Revised APRIL 16, 2007).

8. All property corners that were set are marked by a 1/2" Rebar with a yellow cap that reads "W&A Eng.", unless otherwise noted.



Sheet List Table	
Sheet Number	Sheet Title
1	COVER
2	EXISTING CONDITIONS
3	PRELIMINARY PLAT
4	UTILITY PLAN
5	SLOPE ANALYSIS

MCCLURE FARMS - PHASE 2
PRELIMINARY PLAT
2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

Know what's below.
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DATE: 11/16/2022

W & A ENGINEERING
4101 CHARLOTTE AVE. E215
NASHVILLE, TN. 37209
ATTN: TRAVIS BONAR, PE
615-610-1023

W & A ENGINEERING
4101 CHARLOTTE AVE. E215
NASHVILLE, TN. 37209
ATTN: ADAM BLEDSOE, PLS
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3185 SOUTH CAPITAL OF TEXAS HIGHWAY,
SUITE 275
AUSTIN, TEXAS, 78704
ATTN CHRIS LYNCH
512-583-9810

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BARTON CREEK PLAZA III
3185 SOUTH CAPITAL OF TEXAS HIGHWAY,
SUITE 275
AUSTIN, TEXAS. 78704
ATTN CHRIS LYNCH
512-583-9810

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 _____
City of Columbia Planning Commission

in recording this plat has designated certain areas of land shown hereon as common areas intended for use by the homeowners within McClure Farms Subdivision 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 City of Columbia 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 _____

I hereby certify that the water system(s) outlined or indicated on the final subdivision plat entitled McClure Farms Subdivision 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, & Agency or Authorized Approving Agent
------	--

I hereby certify that the sewer system(s) outlined or indicated on the final subdivision plat entitled McClure Farms Subdivision 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, & Agency or Authorized Approving Agent
------	--

SURVEYOR'S CERTIFICATE
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 ratio 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.

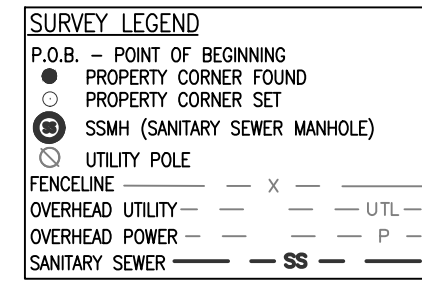
11-16-2022

Date Adam C. Bledsoe
Tennessee Registered Land
Surveyor #3099

I (we) hereby certify that I am (we are) the owner(s) of the property shown and described hereon as evidenced in Book Number 2808, Page 1461, of the Maury County Register's Office, and that I (we) hereby adopt this plan of subdivision with my (our) free consent, establish the minimum building restriction lines, and that offers of irrevocable dedication for all public ways, public easements, utilities, and other facilities have been filed.

Date _____ By _____

Page 10 of 10



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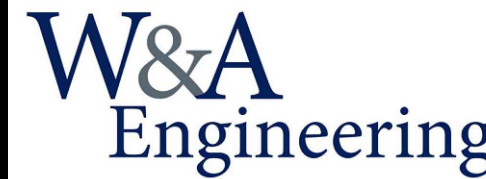
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CIVIL ENGINEERING · LANDSCAPE ARCHITECTURE
TRAFFIC ENGINEERING · SURVEYING
ECONOMIC DEVELOPMENT

4101 CHARLOTTE AVE. SUITE E21
Nashville, TN 37209
P: (615) 610-1023
waengineering.com

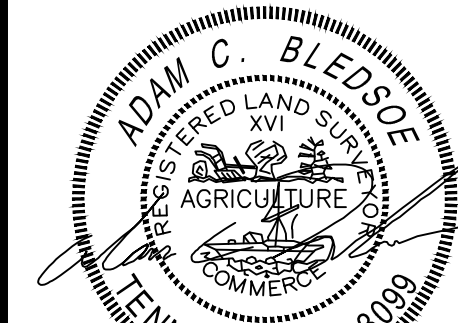
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MCCLURE FARMS - PHASE 2
PRELIMINARY PLAT
2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

Know what's below.
Call before you dig.

[illegible]

DATE: 11/16/2022

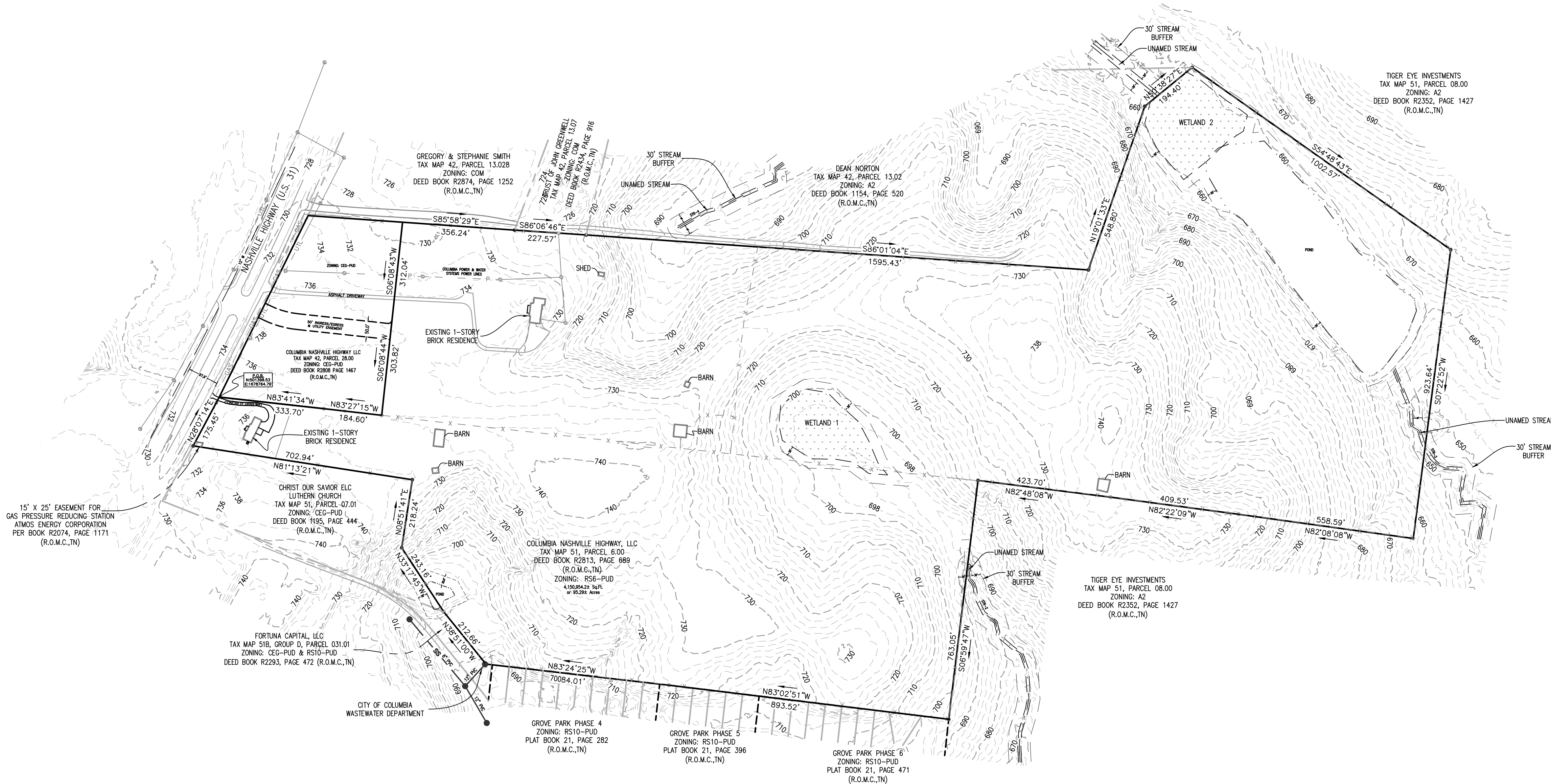


11/16/2022

W&A PROJECT #: 220047

Existing Conditions

SHEET 2 OF 5



Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
1	0.06	2560.77
2	0.05	2163.33
3	0.05	2163.33
4	0.05	2163.33
5	0.05	2163.33
6	0.06	2560.77
7	0.06	2560.77
8	0.05	2163.33
9	0.05	2163.33
10	0.05	2163.33
11	0.05	2163.33
12	0.06	2560.77
13	0.06	2560.77
14	0.05	2163.33
15	0.05	2163.33
16	0.05	2163.33
17	0.05	2163.33
18	0.06	2560.77
19	0.06	2430.56
20	0.05	2053.33

Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
21	0.05	2053.33
22	0.05	2053.33
23	0.05	2053.33
24	0.05	2053.33
25	0.05	2053.33
26	0.06	2430.56
27	0.05	2053.33
28	0.05	2053.33
29	0.05	2053.33
30	0.06	2430.56
31	0.06	2430.56
32	0.05	2053.33
33	0.05	2053.33
34	0.05	2053.33
35	0.05	2053.33
36	0.06	2430.56
37	0.06	2560.75
38	0.05	2163.33
39	0.05	2163.33
40	0.05	2163.33

Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
41	0.05	2163.33
42	0.05	2163.33
43	0.05	2163.33
44	0.06	2560.77
45	0.06	2800.00
46	0.05	2184.69
47	0.05	2088.88
48	0.05	2054.92
49	0.05	2053.33
50	0.06	2430.56
51	0.06	2430.56
52	0.05	2053.33
53	0.05	2053.33
54	0.05	2053.33
55	0.05	2053.33
56	0.05	2053.33
57	0.05	2053.33
58	0.06	2430.55
59	0.06	2430.56
60	0.05	2053.33

Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
61	0.05	2053.33
62	0.05	2053.33
63	0.05	2053.33
64	0.06	2439.78
65	0.06	2600.49
66	0.05	2144.13
67	0.05	2137.22
68	0.05	2169.16
69	0.05	2240.58
70	0.06	2800.80
71	0.06	2430.56
72	0.05	2053.33
73	0.05	2053.33
74	0.05	2053.33
75	0.06	2430.56
76	0.05	2053.33
77	0.05	2053.33
78	0.05	2053.33
79	0.05	2053.33
80	0.06	2430.56

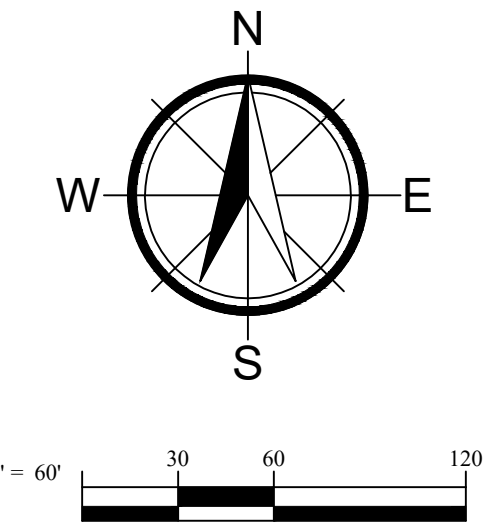
Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
81	0.06	2430.56
82	0.05	2053.33
83	0.05	2053.33
84	0.05	2053.33
85	0.05	2053.33
86	0.06	2430.56
87	0.06	2560.77
88	0.05	2052.68
89	0.05	2052.29
90	0.05	2051.91
91	0.06	2560.86
92	0.05	2163.41
93	0.05	2163.41
94	0.05	2163.41
95	0.06	2560.77
96	0.05	2053.33
97	0.05	2163.33
98	0.05	2163.33
99	0.05	2163.33
100	0.06	2560.77

Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
101	0.06	2803.83
102	0.06	2437.94
103	0.06	2450.47
104	0.06	2415.47
105	0.05	2334.01
106	0.06	2656.12
107	0.06	2560.77
108	0.05	2163.33
109	0.05	2163.33
110	0.05	2163.33
111	0.05	2163.33
112	0.05	2163.33
113	0.05	2163.33
114	0.06	2560.77

LINE TABLE		
LINE #	BEARING	LENGTH
L1	S83°51'16"E	19.94'
L2	S61°11'18"E	8.41'
L3	S61°11'18"E	14.12'
L4	S61°11'18"E	15.50'
L5	S83°54'24"E	10.16'
L6	S83°54'24"E	7.71'
L7	N83°54'24"W	16.94'
L8	S83°54'24"E	1.27'
L9	N06°08'44"E	12.26'
L10	S06°08'44"W	6.99'
L11	N06°11'30"E	7.14'
L12	S06°11'30"W	9.83'
L13	S83°54'24"E	26.22'
L14	S83°54'24"E	9.86'
L15	S06°11'30"W	9.85'
L16	N06°11'30"E	6.69'
L17	S06°08'44"W	14.54'
L18	N06°08'44"E	16.14'
L19	S86°23'43"E	15.08'

CURVE TABLE		
CURVE #	CHORD BEARING	CHORD LENGTH
C1	S40°07'29"E	21.00'
C2	S49°52'31"W	19.84'
C3	N40°06'07"W	21.01'
C4	N51°08'33"E	20.40'
C5	S72°32'51"E	49.56'
C6	N65°54'02"W	28.79'
C7	S32°14'01"E	17.42'
C8	S73°04'49"E	47.01'
C9	S61°44'51"E	2.44'
C10	S26°09'49"E	15.89'
C11	N63°50'11"E	24.95'
C12	S63°14'36"E	12.55'
C13	S69°01'39"E	22.78'
C14	S52°47'08"E	22.21'
C15	S81°58'00"E	11.85'
C16	S38°51'27"E	20.44'
C17	S49°53'53"W	19.83'
C18	N40°07'29"W	21.00'
C19	N51°07'10"E	20.41'
C20	S38°39'14"E	20.54'
C21	S51°20'46"W	20.31'

CURVE TABLE		
CURVE #	CHORD BEARING	CHORD LENGTH
C22	N86°29'26"W	24.80'
C23	S87°47'56"W	30.01'
C24	S81°55'50"W	26.32'
C25	S76°53'35"W	22.04'
C26	S72°18'15"W	22.01'
C27	S67°42'20"W	22.13'
C28	S63°04'01"W	22.40'
C29	S57°54'44"W	27.08'
C30	S51°14'48"W	17.70'
C31	S57°29'17"W	47.79'
C32	N64°35'29"E	50.92'
C33	N56°23'58"E	24.82'
C34	N52°36'29"E	11.57'
C35	N52°47'08"E	10.86'
C36	N56°59'30"E	22.17'
C37	N62°37'03"E	22.01'
C38	N68°13'51"E	22.07'
C39	N74°24'53"E	26.50'
C40	N86°56'27"E	71.88'
C41	S38°52'50"E	20.43'
C42	S49°52'31"W	19.84'



SURVEY LEGEND	
P.O.B. - POINT OF BEGINNING	---
PROPERTY CORNER FOUND	---
PROPERTY CORNER SET	---
SSM (SANITARY SEWER MANHOLE)	---
UTILITY POLE	---
PROPERTY LINE	---
EASEMENT	---
BUILDING SETBACK	---
BUFFER	---
MAIL CONTOURS	---
MIN CONTOURS	---
STORM SYSTEM	---
SANITARY SEWER	---
WATER LINE	---



GREGORY & STEPHANIE SMITH
TAX MAP 42, PARCEL 13.028
ZONING: COM
DEED BOOK R2874, PAGE 1252
(R.O.M.C., TN)

TRUST OF JOHN GREENING
TAX MAP 42, PARCEL 13.028
ZONING: COM
DEED BOOK R2874, PAGE 1252
(R.O.M.C., TN)

COLUMBIA NASHVILLE HIGHWAY LLC
TAX MAP 42, PARCEL 26.00
ZONING: C22-PUD
DEED BOOK R2808, PAGE 1467
(R.O.M.C., TN)



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MCCLURE FARMS - PHASE 2

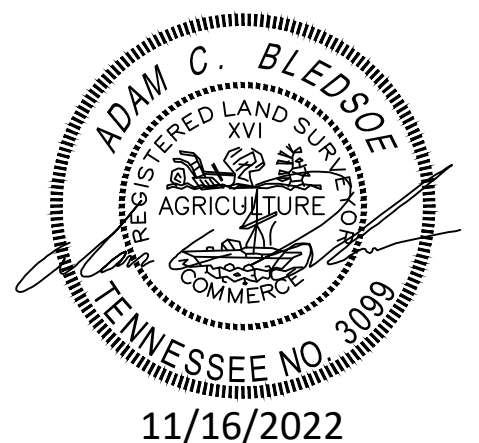
PRELIMINARY PLAT

2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

Know what's below.
Call before you dig.

REVISIONS	
DATE	COMMENT

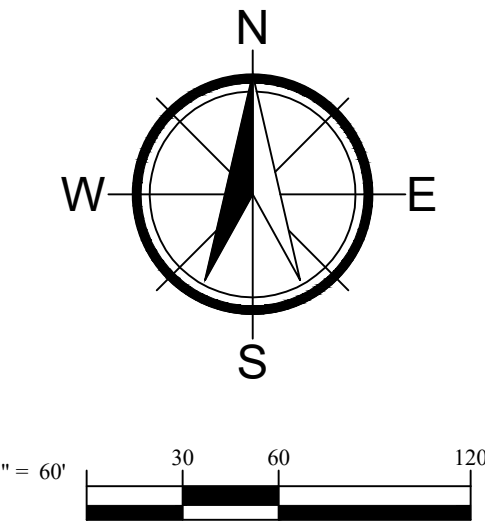
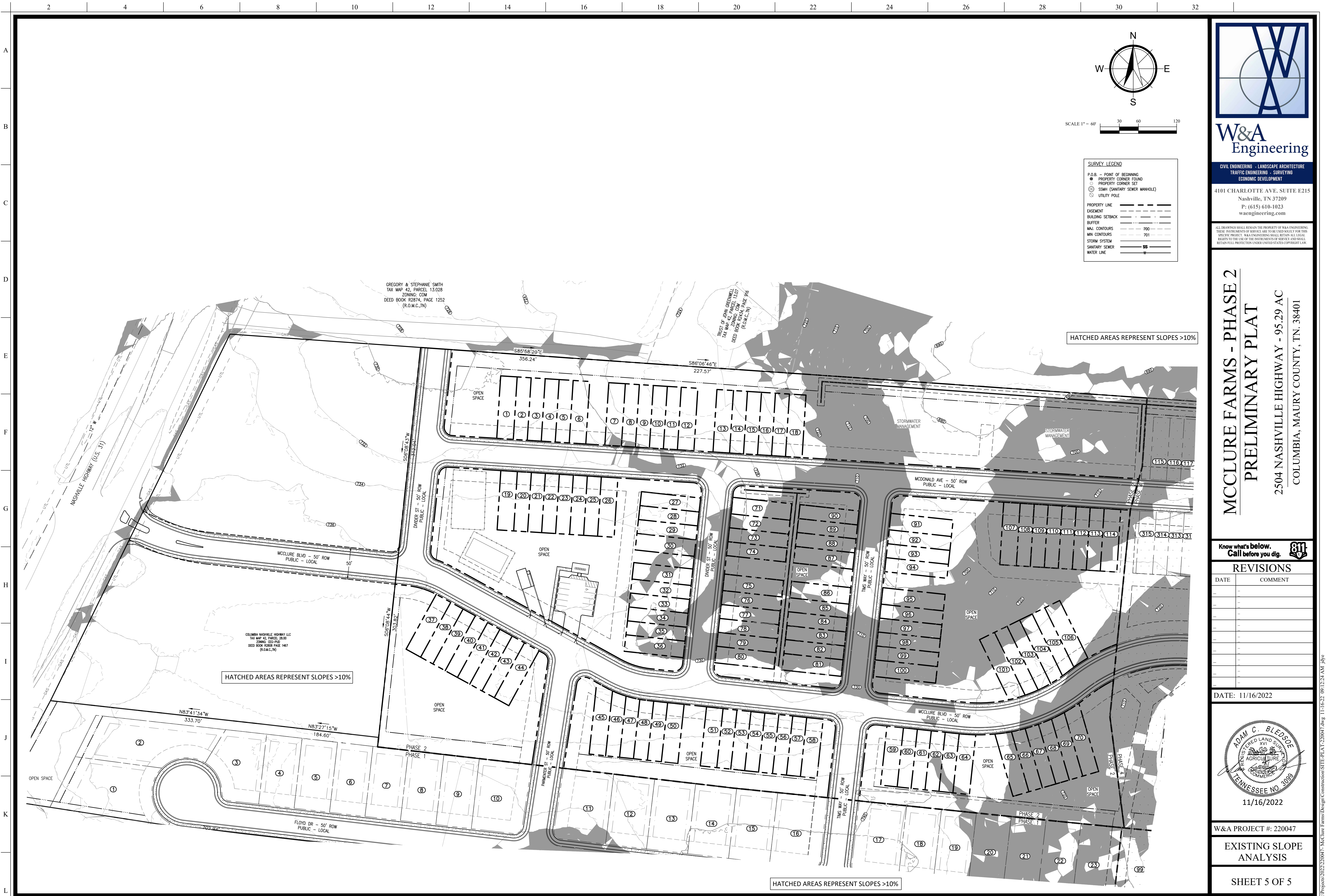
DATE: 11/16/2022



W&A PROJECT #: 220047

PRELIMINARY
PLAT

SHEET 3 OF 5



SURVEY LEGEND	
P.O.B. - POINT OF BEGINNING	---
PROPERTY CORNER FOUND	●
PROPERTY CORNER SET	○
SSM (SANITARY SEWER MANHOLE)	⊙
UTILITY POLE	⊕
PROPERTY LINE	---
EASEMENT	---
BUILDING SETBACK	---
BUFFER	---
MAJ. CONTOURS	700
MIN CONTOURS	701
STORM SYSTEM	---
SANITARY SEWER	SS
WATER LINE	W

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MCCLURE FARMS - PHASE 2

PRELIMINARY PLAT

2504 NASHVILLE HIGHWAY - 95.29 AC

COLUMBIA, MAURY COUNTY, TN. 38401

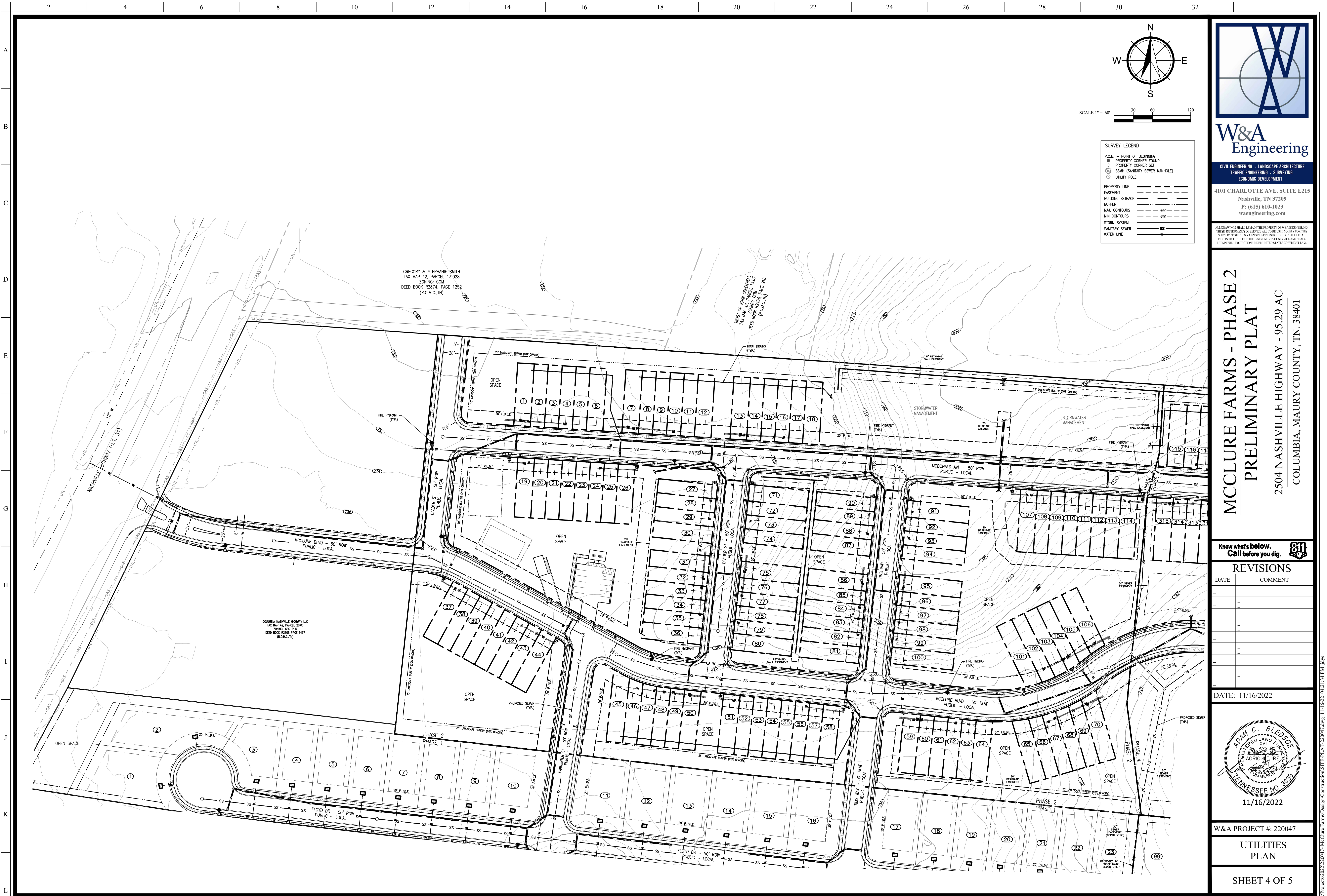
REVISIONS	
DATE	COMMENT

DATE: 11/16/2022

W&A PROJECT #: 220047

EXISTING SLOPE ANALYSIS

SHEET 5 OF 5



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MCCLURE FARMS - PHASE 2
PRELIMINARY PLAT
2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

Know what's below.
Call before you dig.

REVISIONS	
DATE	COMMENT

DATE: 11/16/2022



W&A PROJECT #: 220047

UTILITIES
PLAN

SHEET 4 OF 5

A
B
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Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
71	0.16	7105.99'
72	0.16	7127.87'
73	0.16	7149.75'
74	0.16	7171.62'
75	0.17	7193.50'
76	0.17	7215.37'
77	0.17	7237.25'
78	0.17	7259.13'
79	0.17	7281.00'
80	0.17	7302.88'
81	0.17	7324.75'
82	0.17	7346.62'
83	0.16	6903.30'
84	0.16	6903.30'
85	0.15	6580.17'
86	0.22	9553.50'
87	0.16	7019.98'
88	0.15	6720.00'
89	0.15	6720.00'
90	0.20	8584.54'
91	0.21	8945.98'
92	0.21	9263.97'
93	0.23	9900.00'
94	0.21	8954.28'
95	0.16	7000.24'
96	0.15	6703.52'
97	0.15	6657.18'
98	0.18	7704.63'
100	0.22	9563.14'
101	0.16	6903.00'
102	0.16	6903.00'
103	0.16	6903.00'
104	0.16	6903.00'
105	0.22	9563.11'
106	0.22	9563.07'
107	0.16	6903.00'
108	0.16	6903.00'
109	0.16	6903.00'
110	0.16	6903.00'
111	0.22	9563.13'
113	0.16	6858.44'
114	0.16	6903.00'
115	0.16	6903.00'
116	0.16	6903.00'
117	0.22	9563.13'

Open Space Table		
Open Space	Area (acre)	Area (sq.ft)
1	2.12	92281.30
1	0.16	6896.90

CURVE TABLE			
CURVE #	CHORD BEARING	CHORD LENGTH	RADIUS
C37	N38°24'27"W	18.86'	11.99
C38	S51°35'33"W	18.85'	12.00
C39	N38°24'27"W	18.85'	12.00
C40	S51°35'33"W	18.85'	12.00
C41	N46°22'30"W	146.10'	113.00
C42	S01°22'07"E	31.43'	113.00
C43	S51°35'33"W	18.85'	12.00
C44	N38°24'27"W	18.85'	12.00
C45	S06°25'01"W	1.04'	163.00
C46	N02°27'55"W	49.50'	163.00
C47	S19°57'10"E	50.00'	163.00
C48	S37°31'42"E	50.00'	163.00
C49	S54°28'05"E	46.41'	151.29
C50	S71°13'26"E	48.96'	159.62
C51	S81°37'14"E	10.20'	300.19

LINE TABLE		
LINE #	BEARING	LENGTH
L8	N83°08'25"W	30.00'
L9	N83°24'49"W	17.98'
L10	S83°24'49"E	38.02'
L11	S06°35'56"W	27.98'
L12	N83°24'49"W	3.98'
L13	N84°47'45"W	10.70'
L14	S83°35'23"E	48.47'
L15	S83°35'23"E	21.24'

PHASE 1

PHASE 2

PHASE 4

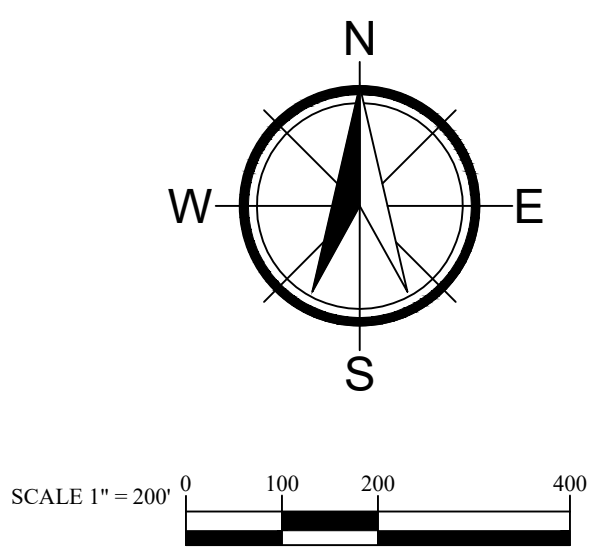
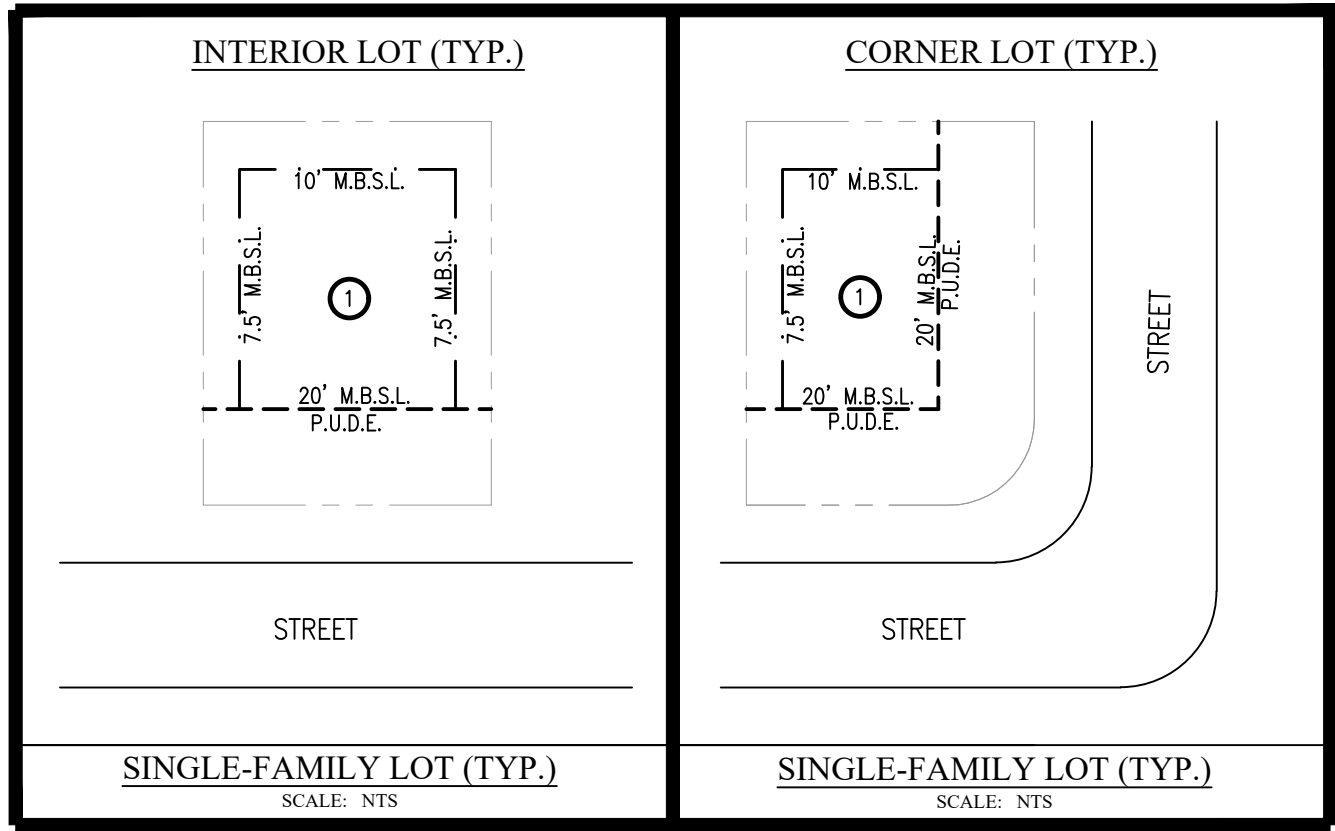




HATCHED AREAS REPRESENT SLOPES >10%



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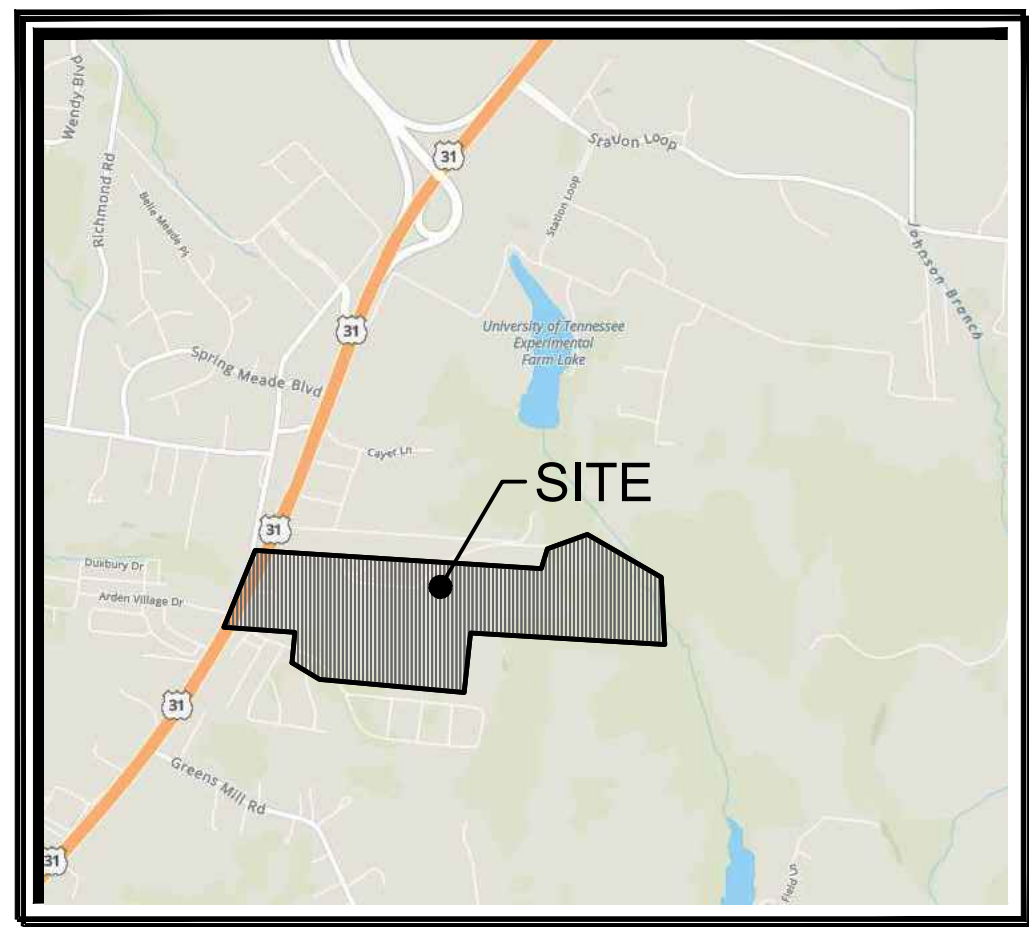
PRELIMINARY PLAT - PHASE 3

FOR

McCLURE FARMS

2504 NASHVILLE HWY

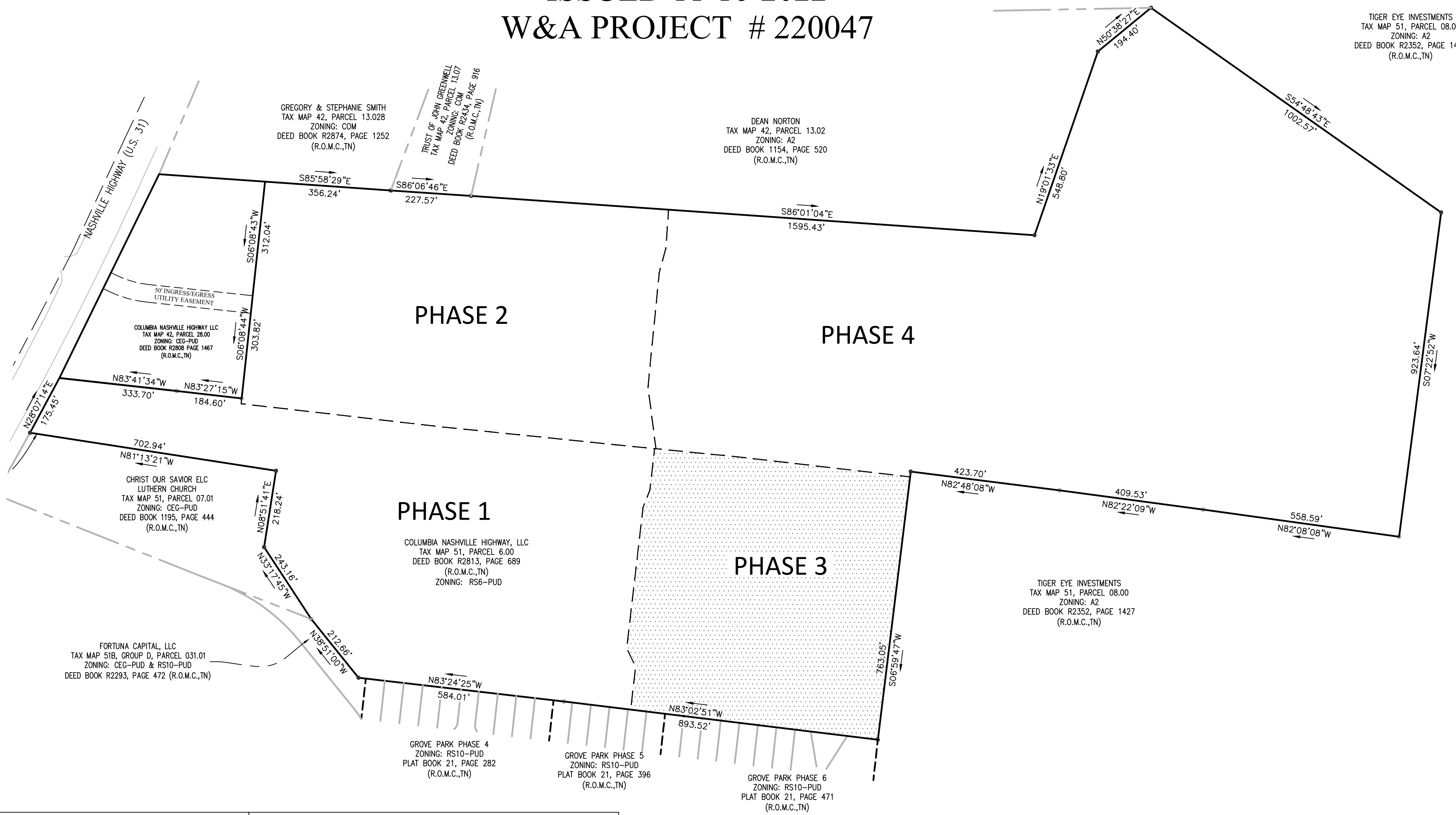
COLUMBIA, MAURY COUNTY, #38401



95.29-ACRE SITE
ISSUED 11-16-2022
W&A PROJECT # 220047

NOTES:

- The purpose of this plat is to create 46 units in Phase 3 of the McClure Farms.
- Property is identified as a portion of parcel 6.00 on Maury County, Tennessee Property Map: 51 in the civil district. Property is located in the city of Columbia and accessed from Nashville Highway.
- Subject properties are currently zoned RS6-PUD per the City of Columbia GIS Mapping.
- Total Area in Phase 3: 12.46 acres±
Total Right of Way Dedication: 2.19 acres±
Total Open Space: 2.28 acres±
Total Number of Lots: 46 Lots - Phase 3
- Minimum Building Setbacks
Front: 20' (facing street)
Side: 7.5'
Rear: 10'
- All distances shown are in feet and decimals thereof.
- This property is **NOT** located in an area designated as a "Special Flood Hazard Area" as per the Federal Emergency Management Agency "National Flood Insurance Program" Rate Map No. 47119C0180E. (Zone X), (Map Revised APRIL 16, 2007).
- 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. Special attention has been taken to indicate the approximate nature of the utilities, shown hereon. 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 are in the exact location indicated. Therefore, reliance upon the type, size, and location of utilities shown must 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 three (3), nor no more than ten (10) working days prior to the date of their intent to excavate and to avoid any possible hazard or conflict.
- All property corners that were set are marked by a 1/2" Rebar with a yellow cap that reads "W&A Eng.", unless otherwise noted.



Sheet List Table	
Sheet Number	Sheet Title
1	COVER
2	EXISTING CONDITIONS
3	PRELIMINARY PLAT
4	UTILITY PLAN
5	SLOPE ANALYSIS



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MCCLURE FARMS - PHASE 3
PRELIMINARY PLAT
2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

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REVISIONS	
DATE	COMMENT

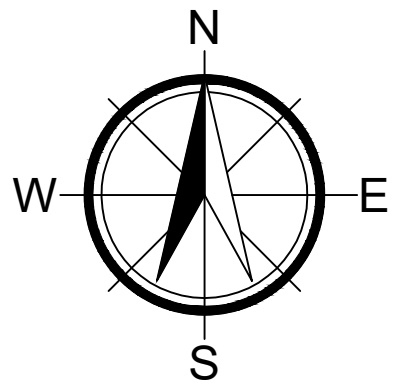
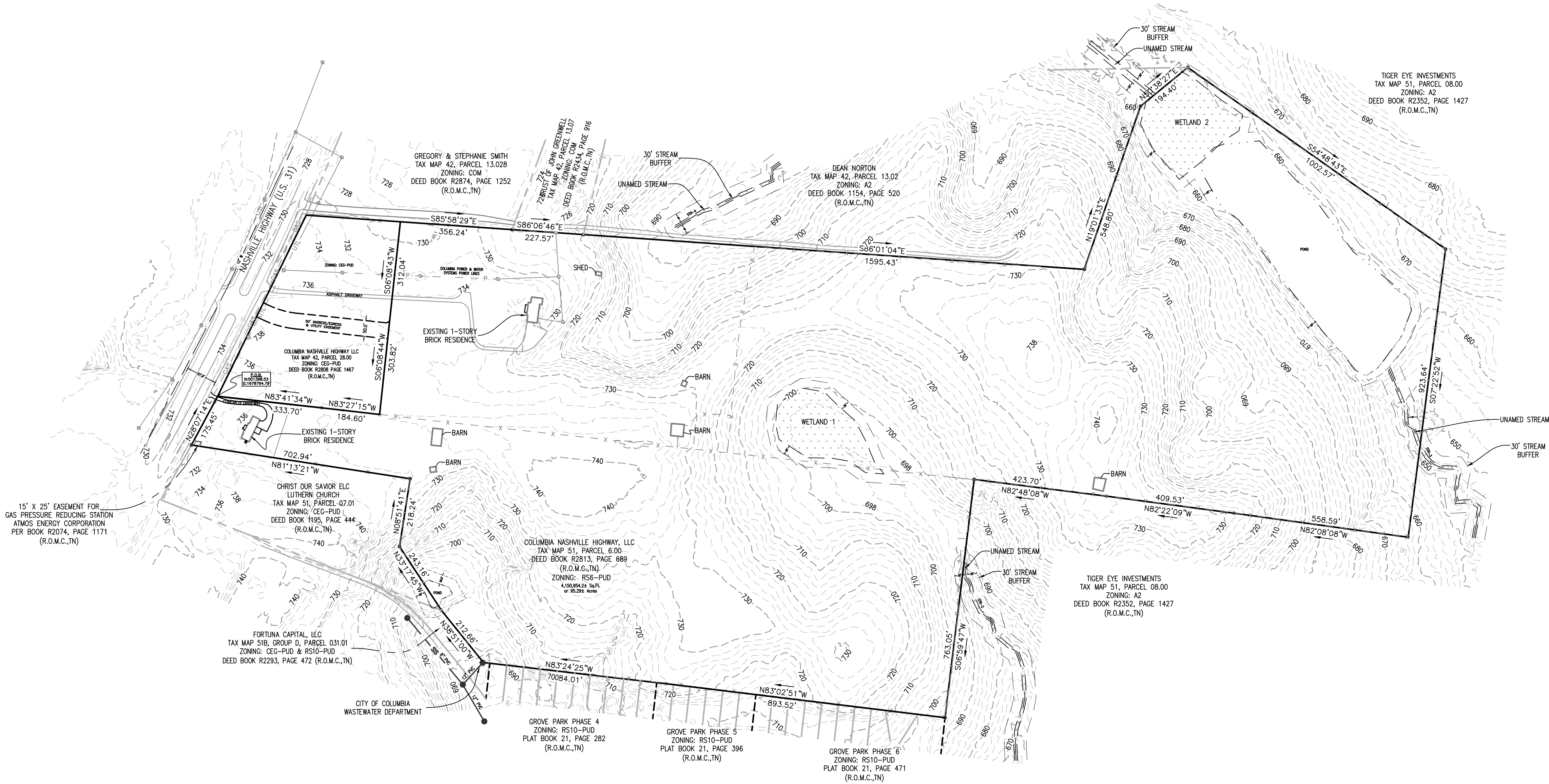
DATE: 11/16/2022



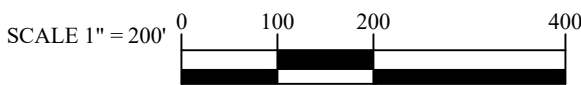
W&A PROJECT #: 220047

COVER SHEET

SHEET 1 OF 5



SURVEY LEGEND	
P.O.B. - POINT OF BEGINNING	
PROPERTY CORNER FOUND	
PROPERTY CORNER SET	
SSMH (SANITARY SEWER MANHOLE)	
UTILITY POLE	
FENCELINE	X
OVERHEAD UTILITY	UTL
OVERHEAD POWER	P
SANITARY SEWER	SS



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MCCLURE FARMS - PHASE 3 PRELIMINARY PLAT

2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

Know what's below.
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REVISIONS	
DATE	COMMENT

DATE: 11/16/2022

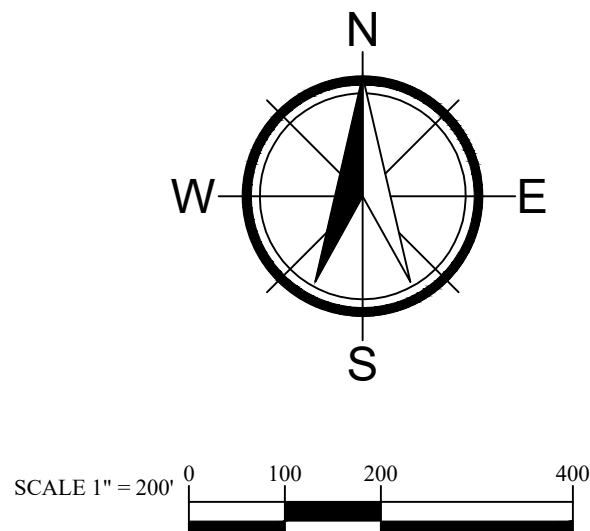
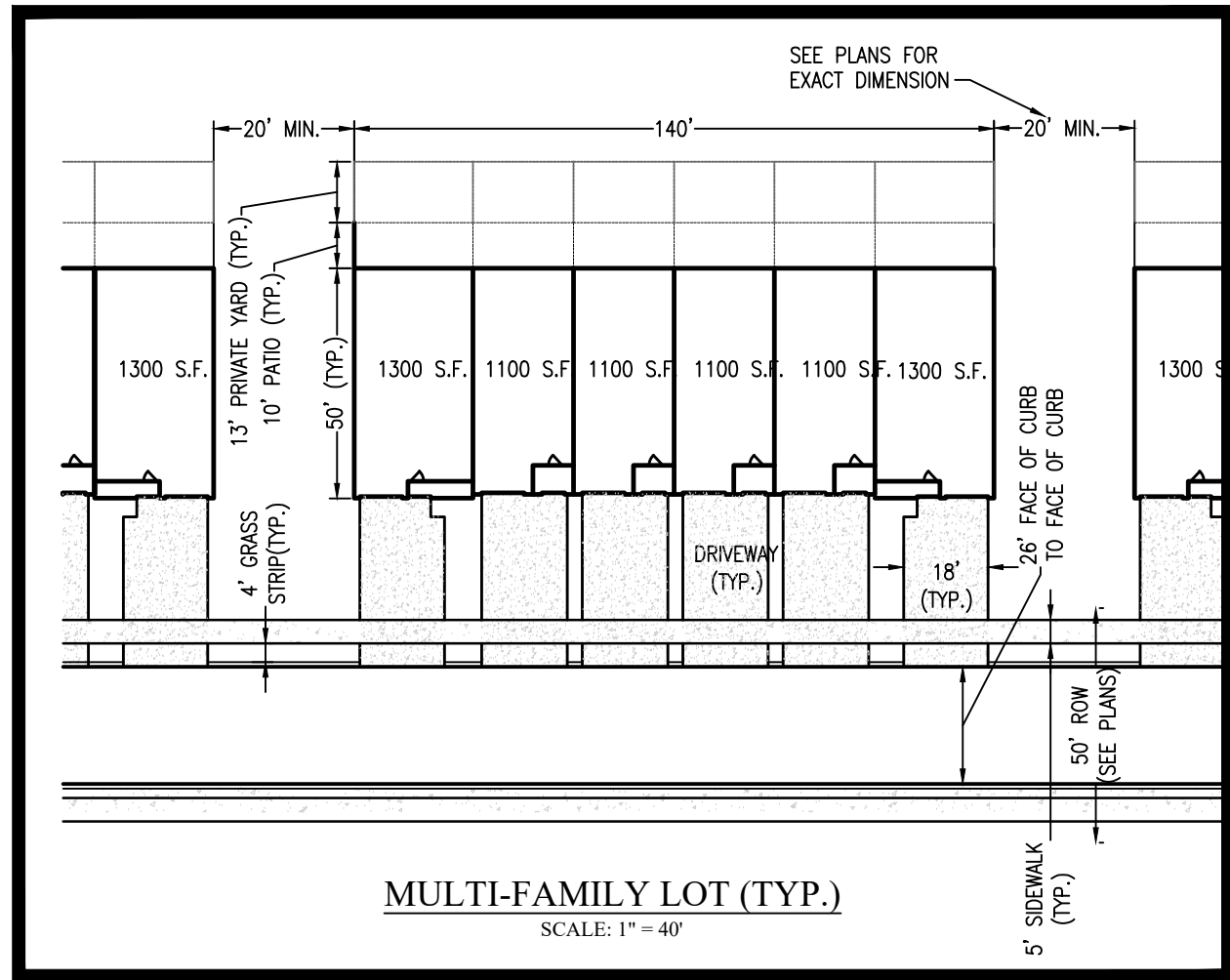


W&A PROJECT #: 220047

Existing Conditions

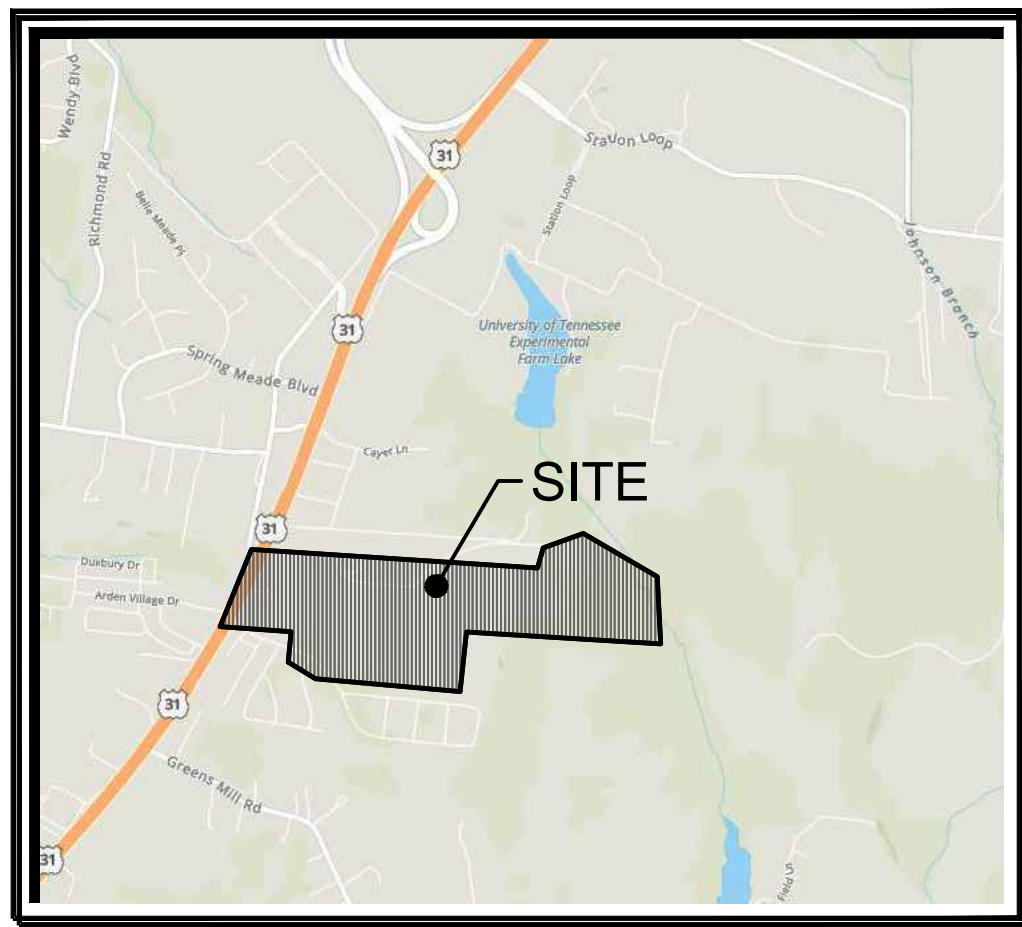
SHEET 2 OF 5

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PRELIMINARY PLAT - PHASE 4 FOR McCLURE FARMS 2504 NASHVILLE HWY COLUMBIA, MAURY COUNTY, #38401

95.29-ACRE SITE
ISSUED 11-16-2022
W&A PROJECT # 220047

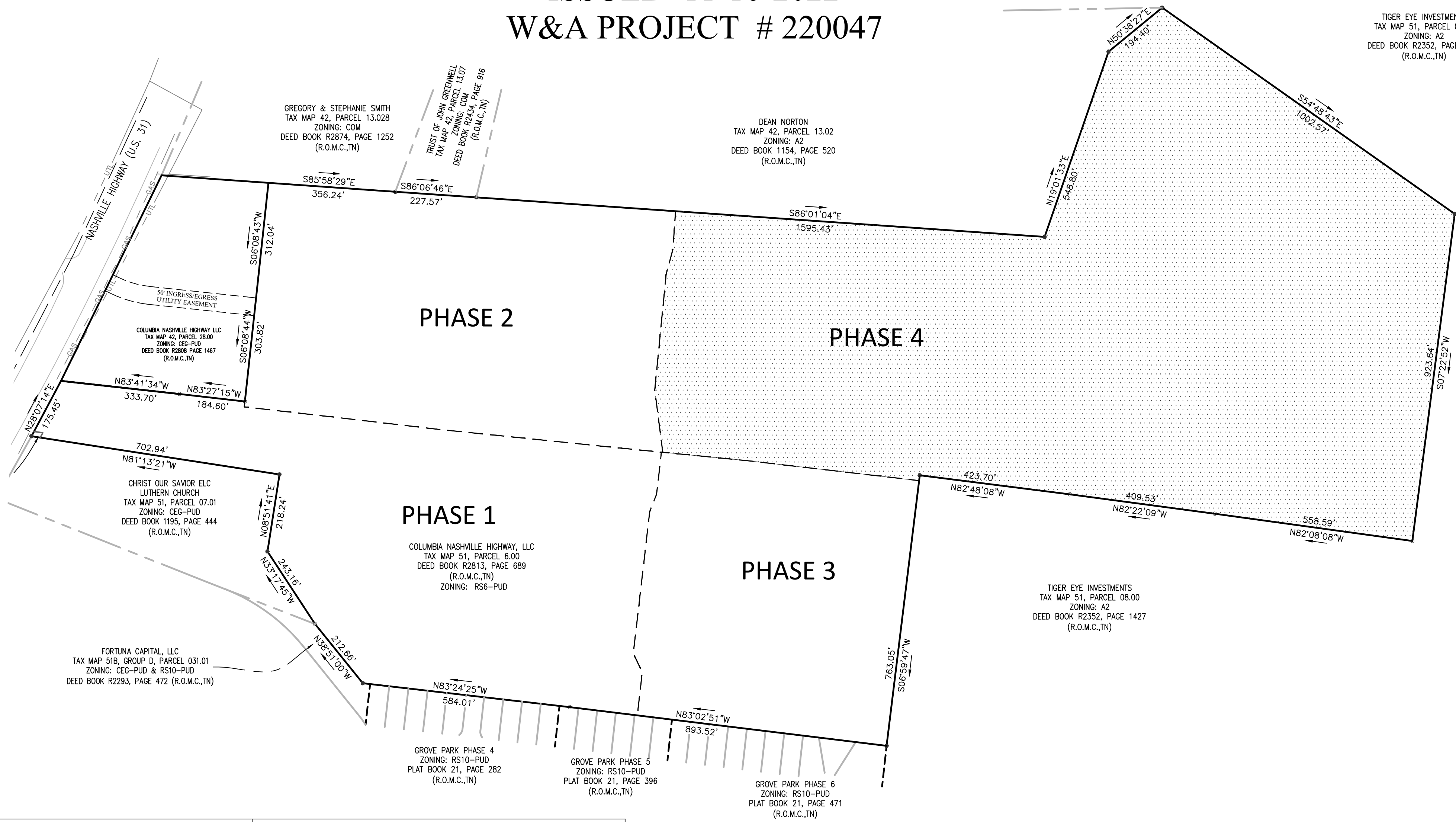


VICINITY MAP
SCALE: NTS

- The purpose of this plat is to create units in Phase 4 of the McClure Farms.
- Property is identified as a portion of parcel 6.00 on Maury County, Tennessee Property Map: 51 in the civil district. Property is located in the city of Columbia and accessed from Nashville Highway.
- Subject properties are currently zoned RS6-PUD per the City of Columbia GIS Mapping.
- Total Area in Phase 4: 46.29 acres±
Total Right of Way Dedication: 5.13 acres±
Total Open Space: 30.53 acres±
Total Number of Lots: 201 units Phase 4

Minimum Building Setbacks
Front: 20' (facing street)
Side: 0'
Rear: 10'

- All distances shown are in feet and decimals thereof.
- This property is **NOT** located in an area designated as a "Special Flood Hazard Area" as per the Federal Emergency Management Agency "National Flood Insurance Program" Rate Map No. 47119C0180E. (Zone X), (Map Revised APRIL 16, 2007).
- 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. Special attention has been taken to indicate the approximate nature of the utilities, shown hereon. 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 are in the exact location indicated. Therefore, reliance upon the type, size, and location of utilities shown must 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 three (3), nor no more than ten (10) working days prior to the date of their intent to excavate and to avoid any possible hazard or conflict.
- All property corners that were set are marked by a 1/2" Rebar with a yellow cap that reads "W&A Eng.", unless otherwise noted.



TIGER EYE INVESTMENTS
TAX MAP 51, PARCEL 08.00
ZONING: A2
DEED BOOK R2352, PAGE 1427
(R.O.M.C.,TN)

Sheet List Table	
Sheet Number	Sheet Title
1	COVER
2	EXISTING CONDITIONS
3	PRELIMINARY PLAT
4	UTILITY PLAN
5	SLOPE ANALYSIS

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 City of Columbia Planning Commission	CERTIFICATE OF COMMON AREAS DEDICATION In recording this plat has designated certain areas of land shown hereon as common areas intended for use by the homeowners within McClure Farms Subdivision 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 City of Columbia 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 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 2808, Page 1461, of the Maury County Register's Office, and that I (we) hereby adopt this plan of subdivision with my (our) free consent, establish the minimum building restriction lines, and that offers of irrevocable dedication for all public ways, public easements, utilities, and other facilities have been filed. _____ Date _____ By:
CERTIFICATE OF APPROVAL OF WATER SYSTEM I hereby certify that the water system(s) outlined or indicated on the final subdivision plat entitled McClure Farms Subdivision 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, & Agency or Authorized Approving Agent	CERTIFICATE OF APPROVAL OF PUBLIC SEWER SYSTEM I hereby certify that the sewer system(s) outlined or indicated on the final subdivision plat entitled McClure Farms Subdivision 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, & Agency or Authorized Approving Agent	SURVEYOR'S CERTIFICATE 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 ratio 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. 11-16-2022 _____ Adam C. Bledsoe Tennessee Registered Land Surveyor #3099	

OWNER:
GH TENNESSEE, LLC
BARTON CREEK PLAZA III
3185 SOUTH CAPITAL OF TEXAS HIGHWAY,
SUITE 275
AUSTIN, TEXAS. 78704
ATTN CHRIS LYNCH
512-583-9810

DEVELOPER:
GH TENNESSEE, LLC
BARTON CREEK PLAZA III
3185 SOUTH CAPITAL OF TEXAS HIGHWAY,
SUITE 275
AUSTIN, TEXAS. 78704
ATTN CHRIS LYNCH
512-583-9810

ENGINEER:
W & A ENGINEERING
4101 CHARLOTTE AVE. E215
NASHVILLE, TN. 37209
ATTN: TRAVIS BONAR, PE
615-610-1023

SURVEYOR:
W & A ENGINEERING
4101 CHARLOTTE AVE. E215
NASHVILLE, TN. 37209
ATTN: ADAM BLEDSOE, PLS
615-610-1023



W&A Engineering

CIVIL ENGINEERING - LANDSCAPE ARCHITECTURE
TRAFFIC ENGINEERING - SURVEYING
ECONOMIC DEVELOPMENT

4101 CHARLOTTE AVE. SUITE E215
Nashville, TN 37209
P: (615) 610-1023
waengineering.com

ALL DRAWINGS SHALL REMAIN THE PROPERTY OF W&A ENGINEERING. THESE INSTRUMENTS OF SERVICE ARE TO BE USED ONLY FOR THE SPECIFIC PROJECT. W&A ENGINEERING SHALL RETAIN ALL LEGAL RIGHTS TO THE USE OF THE INSTRUMENTS OF SERVICE, AND SHALL RETAIN FULL PROTECTION UNDER UNITED STATES COPYRIGHT LAW.

MCCLURE FARMS - PHASE 4
PRELIMINARY PLAT
2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

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

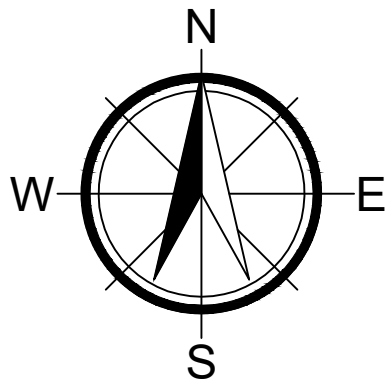
REVISIONS	
DATE	COMMENT

DATE: 11/16/2022



11/16/2022
W&A PROJECT #: 220047

COVER SHEET
SHEET 1 OF 5



SURVEY LEGEND	
P.O.B. - POINT OF BEGINNING	
PROPERTY CORNER FOUND	
PROPERTY CORNER SET	
SSMH (SANITARY SEWER MANHOLE)	
UTILITY POLE	
FENCELINE	
OVERHEAD UTILITY	X
OVERHEAD POWER	UTL
SANITARY SEWER	P



W&A Engineering

CIVIL ENGINEERING - LANDSCAPE ARCHITECTURE
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MCCLURE FARMS - PHASE 4 PRELIMINARY PLAT

2504 NASHVILLE HIGHWAY - 95.29 AC
COLUMBIA, MAURY COUNTY, TN. 38401

Know what's below.
Call before you dig.

REVISIONS	
DATE	COMMENT

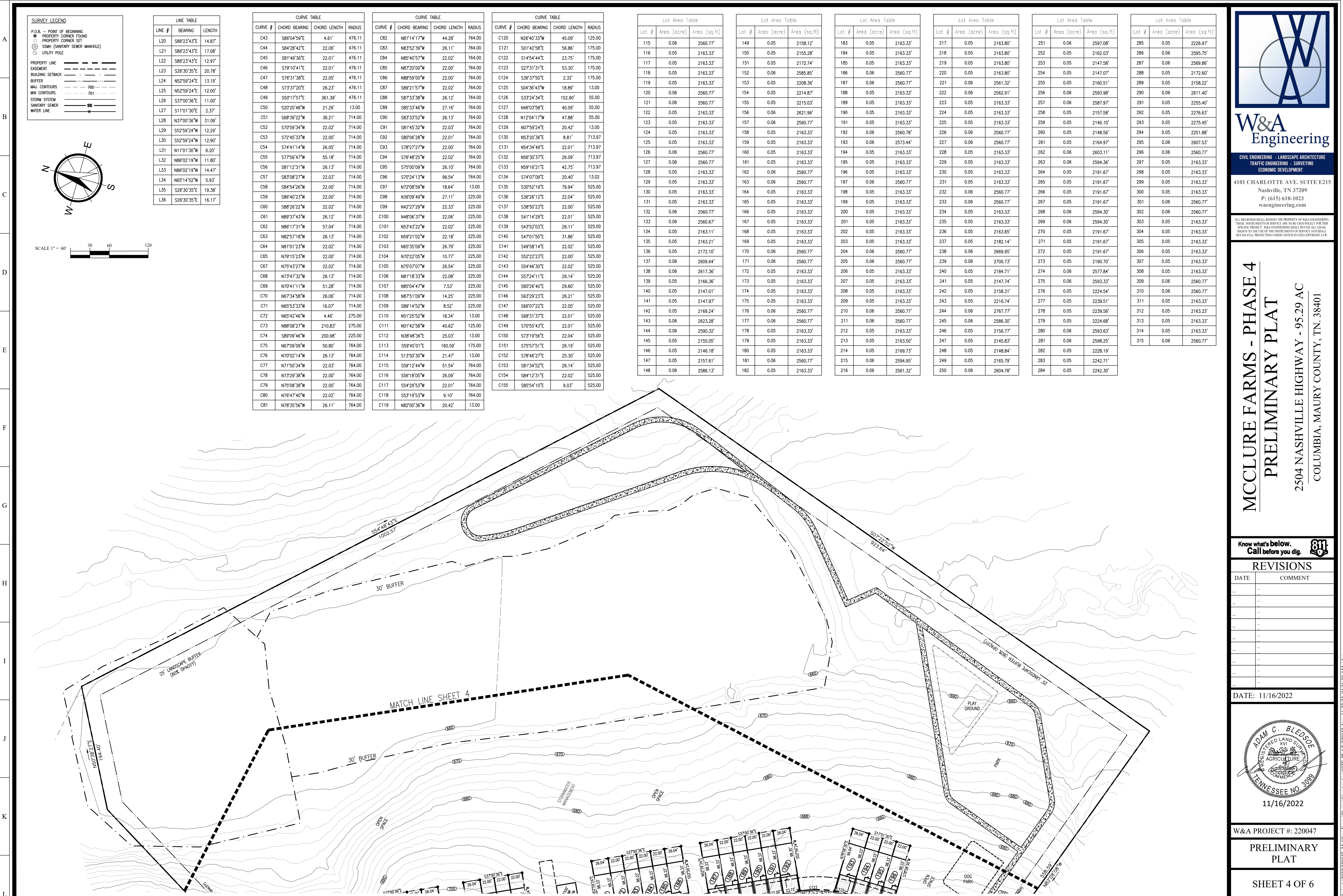
DATE: 11/16/2022



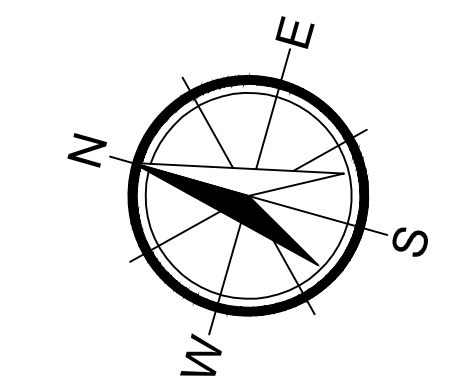
W&A PROJECT #: 220047

Existing Conditions

SHEET 2 OF 6



SURVEY LEGEND		
P.O.B. - POINT OF BEGINNING	○	PROPERTY CORNER FOUND
○	○	PROPERTY CORNER SET
○	○	SSMH (SANITARY SEWER MANHOLE)
○	○	UTILITY POLE
PROPERTY LINE	---	---
EASEMENT	---	---
BUILDING SETBACK	---	---
BUFFER	---	---
MAIL CONTOURS	---	---
MIN CONTOURS	---	---
STORM SYSTEM	---	---
SANITARY SEWER	---	---
WATER LINE	---	---



LINE TABLE		
LINE #	BEARING	LENGTH
L20	S86°23'43"E	14.87'
L21	S86°23'43"E	17.08'
L22	S86°23'43"E	12.97'
L23	S28°30'35"E	20.78'
L24	N52°59'24"E	13.19'
L25	N52°59'24"E	12.00'
L26	S37°00'36"E	11.00'
L27	S11°01'30"E	2.37'
L28	N37°00'36"W	31.06'
L29	S52°59'24"W	12.29'
L30	S52°59'24"W	12.90'
L31	N11°01'30"W	6.20'
L32	N86°02'19"W	11.80'
L33	N86°02'19"W	14.47'
L34	N65°14'52"W	5.93'
L35	S26°30'35"E	19.38'
L36	S26°30'35"E	16.17'

CURVE TABLE			
CURVE #	CHORD BEARING	CHORD LENGTH	RADIUS
C43	S86°04'59"E	4.61'	476.11
C44	S84°28'42"E	22.06'	476.11
C45	S81°49'36"E	22.01'	476.11
C46	S79°10'41"E	22.01'	476.11
C47	S78°31'38"E	22.05'	476.11
C48	S73°37'20"E	26.23'	476.11
C49	S50°17'57"E	361.39'	476.11
C50	S20°20'48"W	21.26'	13.00
C51	S68°39'22"W	36.21'	714.00
C52	S70°59'34"W	22.02'	714.00
C53	S72°45'33"W	22.00'	714.00
C54	S74°41'14"W	26.05'	714.00
C55	S77°56'47"W	55.18'	714.00
C56	S81°12'31"W	26.13'	714.00
C57	S83°08'27"W	22.03'	714.00
C58	S84°54'26"W	22.00'	714.00
C59	S86°40'23"W	22.00'	714.00
C60	S88°26'22"W	22.02'	714.00
C61	N89°37'43"W	26.12'	714.00
C62	N86°17'31"W	57.04'	714.00
C63	N82°57'18"W	26.13'	714.00
C64	N81°01'23"W	22.02'	714.00
C65	N79°15'23"W	22.00'	714.00
C67	N75°43'27"W	22.02'	714.00
C68	N73°47'32"W	26.13'	714.00
C69	N70°41'11"W	51.28'	714.00
C70	N67°34'58"W	26.06'	714.00
C71	N65°53'33"W	16.07'	714.00
C72	N65°42'46"W	4.46'	275.00
C73	N88°08'27"W	210.83'	275.00
C74	S89°09'46"W	200.98'	225.00
C75	N67°09'09"W	50.80'	764.00
C76	N70°02'14"W	26.13'	764.00
C77	N71°50'34"W	22.03'	764.00
C78	N73°29'38"W	22.00'	764.00
C79	N75°08'38"W	22.00'	764.00
C80	N76°47'40"W	22.02'	764.00
C81	N78°35'56"W	26.11'	764.00

CURVE TABLE			
CURVE #	CHORD BEARING	CHORD LENGTH	RADIUS
C82	N81°14'17"W	44.28'	764.00
C83	N83°52'39"W	26.11'	764.00
C84	N85°40'57"W	22.02'	764.00
C85	N87°20'00"W	22.00'	764.00
C86	N88°59'00"W	22.00'	764.00
C87	S89°21'57"W	22.02'	764.00
C88	S87°33'38"W	26.12'	764.00
C89	S85°33'46"W	27.16'	764.00
C90	S83°33'52"W	26.13'	764.00
C91	S81°45'32"W	22.03'	764.00
C92	S80°06'28"W	22.01'	764.00
C93	S78°27'27"W	22.00'	764.00
C94	S76°48'25"W	22.02'	764.00
C95	S75°00'09"W	26.10'	764.00
C96	S70°24'13"W	96.54'	764.00
C97	N72°08'59"W	18.64'	13.00
C98	N36°09'49"W	27.11'	225.00
C99	N42°27'29"W	22.33'	225.00
C100	N48°06'37"W	22.06'	225.00
C101	N53°43'22"W	22.02'	225.00
C102	N59°21'02"W	22.18'	225.00
C103	N65°35'09"W	26.79'	225.00
C104	N70°22'05"W	10.77'	225.00
C105	N75°07'07"W	26.54'	225.00
C106	N81°18'33"W	22.08'	225.00
C107	N85°04'47"W	7.53'	225.00
C108	N87°51'09"W	14.25'	225.00
C109	S89°14'52"W	8.52'	225.00
C110	N51°25'52"W	18.34'	13.00
C111	N01°42'58"W	40.62'	125.00
C112	N36°48'36"E	25.03'	13.00
C113	S59°45'01"E	160.59'	175.00
C114	S13°50'30"W	21.47'	13.00
C115	S59°12'44"W	51.54'	764.00
C116	S56°18'05"W	26.09'	764.00
C117	S54°29'53"W	22.01'	764.00
C118	S53°19'53"W	9.10'	764.00
C119	N82°00'36"W	20.42'	13.00

CURVE TABLE			
CURVE #	CHORD BEARING	CHORD LENGTH	RADIUS
C120	N26°40'33"W	45.09'	125.00
C121	S01°42'58"E	56.86'	175.00
C122	S14°54'44"E	23.75'	175.00
C123	S27°31'31"E	53.30'	175.00
C124	S36°37'50"E	2.32'	175.00
C125	S04°36'43"W	18.89'	13.00
C126	S33°24'34"E	152.90'	55.00
C127	N46°03'58"E	40.09'	55.00
C128	N12°04'17"W	47.88'	55.00
C129	N07°59'24"E	20.42'	13.00
C130	N53°20'36"E	8.81'	713.97
C131	N54°34'49"E	22.01'	713.97
C132	N56°30'37"E	26.09'	713.97
C133	N59°16'21"E	42.75'	713.97
C134	S74°07'09"E	20.40'	13.02
C135	S30°52'19"E	79.94'	525.00
C136	S36°26'12"E	22.04'	525.00
C137	S38°50'23"E	22.00'	525.00
C138	S41°14'29"E	22.01'	525.00
C139	S45°52'03"E	26.11'	525.00
C140	S47°01'50"E	31.86'	525.00
C141	S49°58'14"E	22.02'	525.00
C142	S52°22'23"E	22.00'	525.00
C143	S54°46'30"E	22.02'	525.00
C144	S57°24'11"E	26.14'	525.00
C145	S60°26'40"E	29.60'	525.00
C146	S63°29'23"E	26.21'	525.00
C147	S66°07'22"E	22.05'	525.00
C148	S68°31'37"E	22.01'	525.00
C149	S70°55'43"E	22.01'	525.00
C150	S73°19'56"E	22.04'	525.00
C151	S75°57'51"E	26.19'	525.00
C152	S78°46'27"E	25.30'	525.00
C153	S81°34'52"E	26.14'	525.00
C154	S84°12'31"E	22.02'	525.00
C155	S85°54'10"E	9.03'	525.00

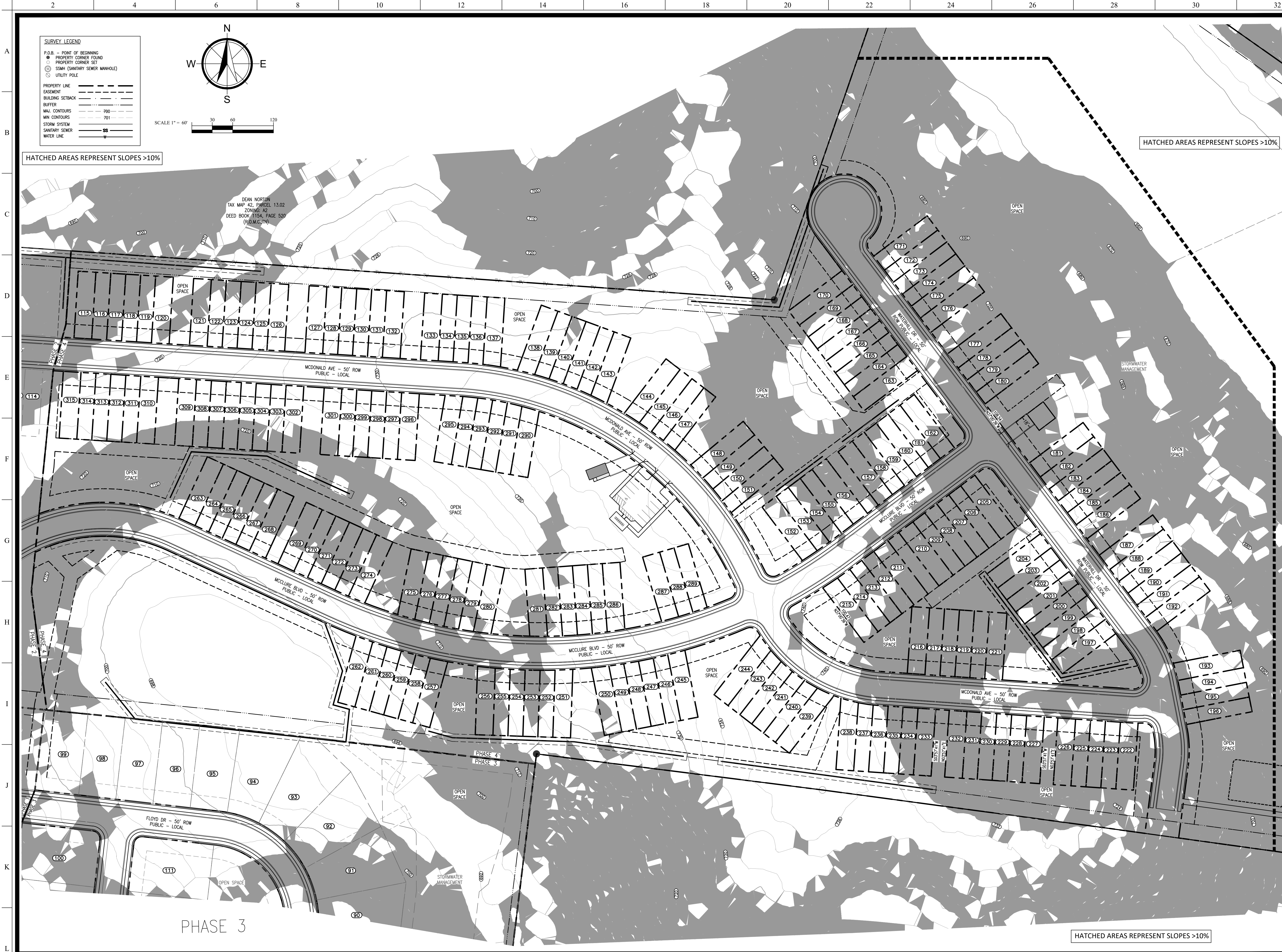
Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
115	0.06	2560.77'
116	0.05	2163.33'
117	0.05	2163.33'
118	0.05	2163.33'
119	0.05	2163.33'
120	0.06	2560.77'
121	0.06	2560.77'
122	0.05	2163.33'
123	0.05	2163.33'
124	0.05	2163.33'
125	0.05	2163.33'
126	0.06	2560.77'
127	0.06	2560.77'
128	0.05	2163.33'
129	0.05	2163.33'
130	0.05	2163.33'
131	0.05	2163.33'
132	0.06	2560.77'
133	0.06	2560.67'
134	0.05	2163.11'
135	0.05	2163.21'
136	0.05	2172.10'
137	0.06	2609.64'
138	0.06	2617.36'
139	0.05	2166.36'
140	0.05	2147.01'
141	0.05	2147.97'
142	0.05	2169.24'
143	0.06	2623.28'
144	0.06	2590.32'
145	0.05	2155.05'
146	0.05	2146.18'
147	0.05	2157.61'
148	0.06	2586.13'

Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
149	0.05	2158.12'
150	0.05	2155.28'
151	0.05	2172.74'
152	0.06	2585.85'
153	0.05	2208.36'
154	0.05	2214.87'
155	0.05	2215.03'
156	0.06	2621.96'
157	0.06	2560.77'
158	0.05	2163.33'
159	0.05	2163.33'
160	0.05	2163.33'
161	0.05	2163.33'
162	0.06	2560.77'
163	0.06	2560.77'
164	0.05	2163.33'
165	0.05	2163.33'
166	0.05	2163.33'
167	0.05	2163.33'
168	0.05	2163.33'
169	0.05	2163.33'
170	0.06	2560.77'
171	0.06	2560.77'
172	0.05	2163.33'
173	0.05	2163.33'
174	0.05	2163.33'
175	0.05	2163.33'
176	0.06	2560.77'
177	0.06	2560.77'
178	0.05	2163.33'
179	0.05	2163.33'
180	0.05	2163.33'
181	0.06	2560.77'
182	0.05	2163.33'

Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
183	0.05	2163.33'
184	0.05	2163.33'
185	0.05	2163.33'
186	0.06	2560.77'
187	0.06	2560.77'
188	0.05	2163.33'
189	0.05	2163.33'
190	0.05	2163.33'
191	0.05	2163.33'
192	0.06	2560.78'
193	0.06	2573.44'
194	0.05	2163.33'
195	0.05	2163.33'
196	0.05	2163.33'
197	0.06	2560.77'
198	0.05	2163.33'
199	0.05	2163.33'
200	0.05	2163.33'
201	0.05	2163.33'
202	0.05	2163.33'
203	0.05	2163.33'
204	0.06	2560.77'
205	0.06	2560.77'
206	0.05	2163.33'
207	0.05	2163.33'
208	0.05	2163.33'
209	0.05	2163.33'
210	0.06	2560.77'
211	0.06	2560.77'
212	0.05	2163.33'
213	0.05	2163.50'
214	0.05	2169.73'
215	0.06	2594.95'
216	0.06	2561.32'

Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
217	0.05	2163.80'
218	0.05	2163.80'
219	0.05	2163.80'
220	0.05	2163.80'
221	0.06	2561.32'
222	0.06	2562.91'
223	0.05	2163.33'
224	0.05	2163.33'
225	0.05	2163.33'
226	0.06	2560.77'
227	0.06	2560.77'
228	0.05	2163.33'
229	0.05	2163.33'
230	0.05	2163.33'
231	0.05	2163.33'
232	0.06	2560.77'
233	0.06	2560.77'
234	0.05	2163.33'
235	0.05	2163.33'
236	0.05	2163.65'
237	0.05	2182.14'
238	0.06	2669.95'
239	0.06	2700.73'
240	0.05	2184.71'
241	0.05	2147.74'
242	0.05	2158.31'
243	0.05	2216.74'
244	0.06	2767.77'
245	0.06	2586.30'
246	0.05	2156.77'
247	0.05	2145.83'
248	0.05	2148.84'
249	0.05	2165.79'
250	0.06	2604.78'

Lot Area Table		
Lot #	Area (acre)	Area (sq.ft)
251	0.06	2597.08'
252	0.05	2162.03'
253	0.05	2147.58'
254	0.05	2147.07'
255	0.05	2160.51'
256	0.06	2593.98'
257	0.06	2587.97'
258	0.05	2157.58'
259	0.05	2146.10'
260	0.05	2148.56'
261	0.05	2164.97'
262	0.06	2603.11'
263	0.06	2594.36'
264	0.05	2191.67'
265	0.05	21





April 16, 2021

Clint Camp, PE
W&A Engineering
807 2nd Avenue South
Nashville, TN 37210

Project: 2504 Nashville Highway Mixed-Use Development – Columbia, TN

Subject: Traffic Impact Study – Recommended Improvements

Dear Clint,

The following improvements are recommended for the 2504 Nashville Highway Mixed-Use Development based on the findings presented within the Traffic Impact Study (TIS).

Improvement Recommendations for the 2504 Nashville Highway Mixed-Use Development

Nashville Highway (US-31) and Spring Meade Boulevard

- Interconnect and optimize the existing and proposed traffic signals along Nashville Highway (US-31) within the study area to operate as a coordinated system.

Nashville Highway (US-31) and Old Highway 31/Site Access 1

- Construct Site Access 1 along Nashville Highway with a left-in/right-in/right-out configuration to be aligned with Old Highway 31 with one (1) inbound lane and one (1) outbound lane operating under a stop condition according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- Construct one (1) exclusive right-turn lane on the northbound approach of Nashville Highway (US-31) at its intersection with Old Highway 31/Site Access 1. The right-turn lane shall provide a minimum of 300 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- Construct one (1) exclusive left-turn lane on the southbound approach of Nashville Highway (US-31) at its intersection with Old Highway 31/Site Access 1. The left-turn lane shall provide a minimum of 300 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.



Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

- Interconnect and optimize the existing and proposed traffic signals along Nashville Highway (US-31) within the study area to operate as a coordinated system.
- If feasible, extend the existing right-turn lane on the northbound approach of Nashville Highway (US-31) at its intersection with Arden Village Drive/Grove Park Way. The right-turn lane shall be extended to a minimum of 300 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- If feasible, extend the existing left-turn lane on the southbound approach of Nashville Highway (US-31) at its intersection with Arden Village Drive/Grove Park Way. The left-turn lane shall be extended to a minimum of 200 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- If feasible, extend the existing right-turn lane on the westbound approach of Grove Park Way at its intersection with Nashville Highway (US-31). The right-turn lane shall be extended to a minimum of 250 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.

Persimmon Street and Site Access 2

- Construct Site Access 3 along Persimmon Street via the existing stub-out with one (1) inbound lane and one (1) outbound lane operating under a stop condition according to MUTCD, AASHTO, TDOT, and City of Columbia standards.

Nashville Highway (US-31) and Greens Mill Road

- Interconnect and optimize the existing and proposed traffic signals along Nashville Highway (US-31) within the study area to operate as a coordinated system.

Nashville Highway (US-31) and Hidden Creek Way

- Interconnect and optimize the existing and proposed traffic signals along Nashville Highway (US-31) within the study area to operate as a coordinated system.



3 of 3

Please see the attached figure for a summary of the recommended improvements for this development.

Please let me know if you have any questions, comments, or concerns.

Sincerely,

Date: April 16, 2021

Blake A. Turner, P.E.

Principal-Vice President

T-Square Engineering, Inc.



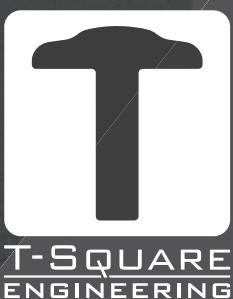
4/16/21

TRAFFIC IMPACT STUDY

2504 Nashville Highway
Mixed-Use Development

2504 & 2524 Nashville Highway
Columbia, TN

T2-Eng.com



TRAFFIC IMPACT STUDY

2504 Nashville Highway Mixed-Use Development
2504 & 2524 Nashville Highway
Columbia, TN

Prepared for:



807 2nd Avenue South
Nashville, TN 37210



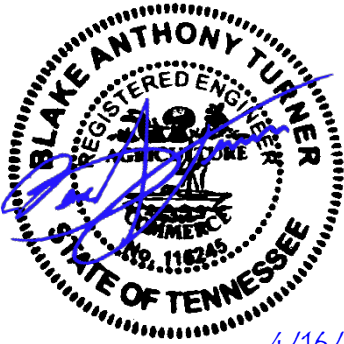
T-SQUARE ENGINEERING

1329 West Main Street
Franklin, TN 37064
615.678.8212
www.T2-eng.com



Certification

I certify that this Traffic Impact Study has been prepared by me and under my immediate supervision and that I have the experience and training in the field of traffic and transportation engineering.



4/16/21

Blake A. Turner, P.E.
T-Square Engineering, Inc.
Principal – Vice President

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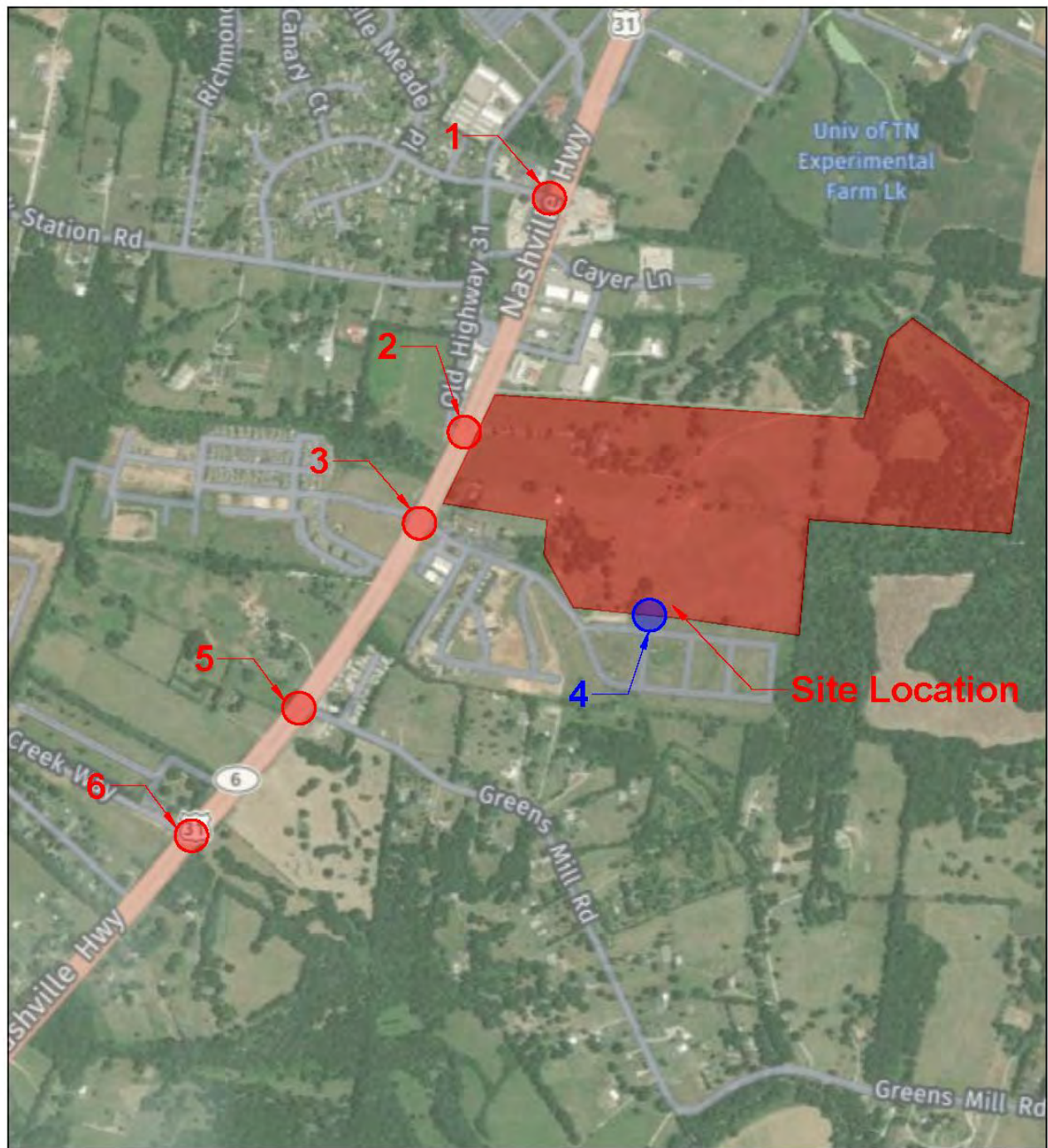
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Introduction

The purpose of this study is to analyze the traffic impacts on the surrounding roadway network associated with the proposed 2504 Nashville Highway Mixed-Use Development along Nashville Highway in Columbia, TN. The proposed mixed-use development will consist of approximately 147 single-family homes, approximately 471 multi-family (low-rise) housing units, a coffee shop with drive-through of approximately 3,725 SF, a shopping center of approximately 3,500 SF, and a day care center of approximately 13,000 SF.

As shown on the Location Map and Preliminary Site Plan on Figures 1 and 2, respectively, the proposed development is located along the east side of Nashville Highway in Columbia, TN. The development is proposing two (2) site access points: one (1) site access with a left-in/right-in/right-out configuration on the east side of Nashville Highway to be aligned with the intersection of Nashville Highway and Old Highway 31 and one (1) site access to be connected to the existing stub-out located along Persimmon Street, east of Grove Park Way within the Grove Park Subdivision. The surrounding area is predominantly residential.

This study analyzes the existing and projected traffic operations of the roadway networks and intersections surrounding the proposed development. To evaluate the projected traffic operations, existing traffic volumes were grown (background traffic volumes) to a 2023 design year based on average traffic growth rates and combined with the generated traffic volumes from nearby background developments and estimated trips generated from the proposed development. Lastly, improvement recommendations were presented to alleviate the anticipated traffic volumes' effect on the existing roadway network near the site.



LEGEND

- Existing Study Intersection
- Proposed Study Intersection



Figure 1
Location Map

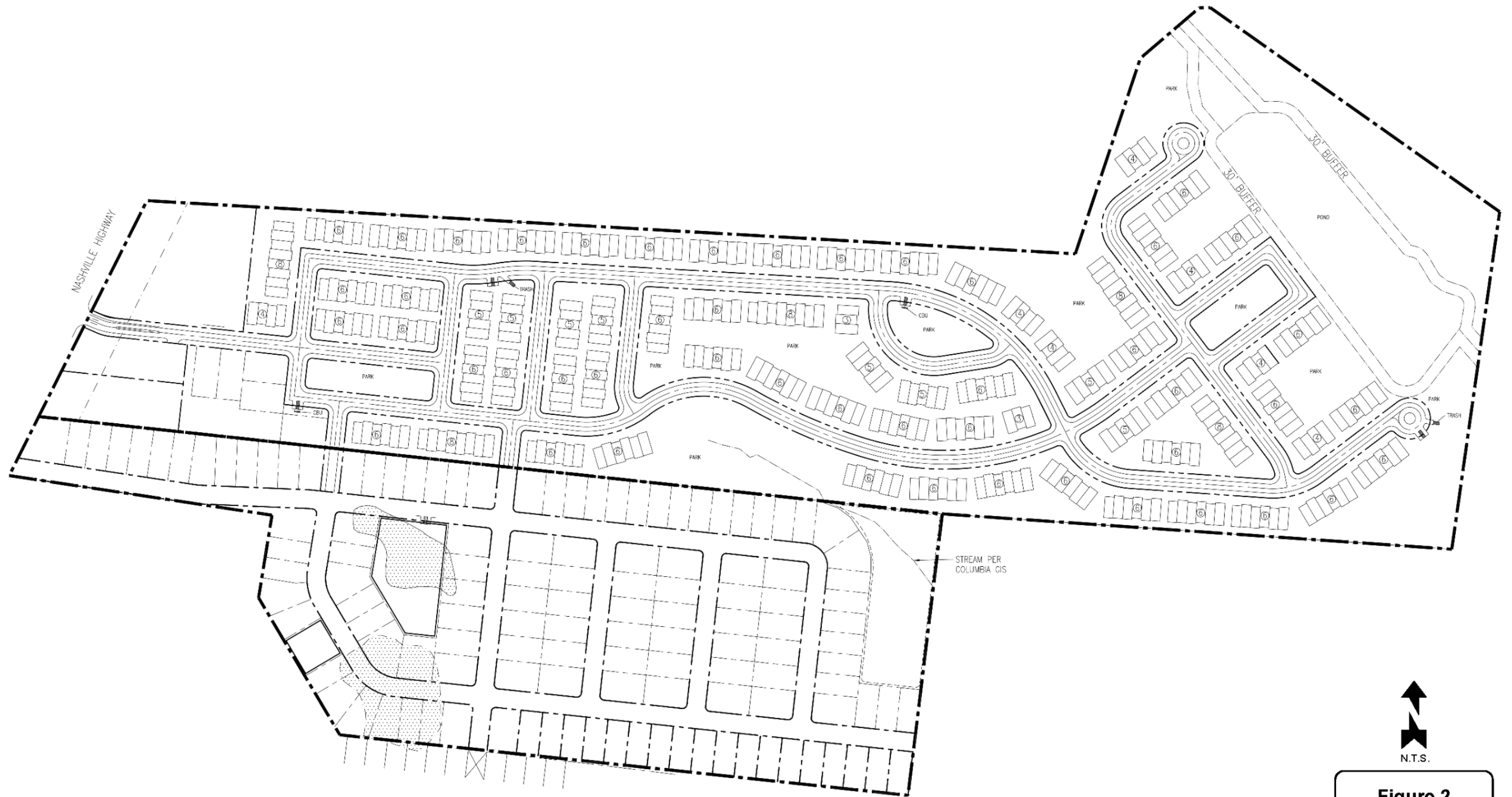


Figure 2
Preliminary Site Plan

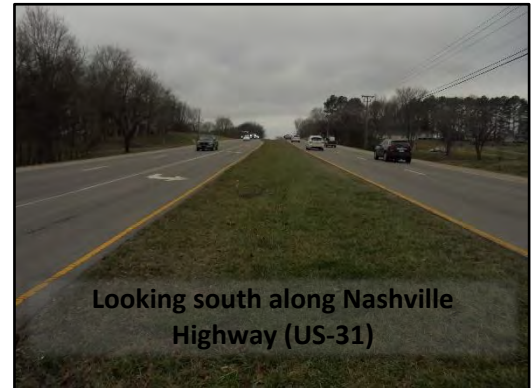
Existing Study Area

Existing Roadway Network

The existing roadway network surrounding the proposed 2504 Nashville Highway Mixed-Use Development includes Nashville Highway (US-31), Spring Meade Boulevard, Old Highway 31N, Arden Village Drive, Grove Park Way, Greens Mill Road, and Hidden Creek Way. Below is a description of each roadway serving the proposed development:

Nashville Highway (US-31)

Nashville Highway (US-31) is functionally classified by the City of Columbia as an arterial roadway. Nashville Highway (US-31) is oriented in a north-south direction and provides a connection from the City of Columbia to the south and the City of Spring Hill to the north. Near the project site, Nashville Highway (US-31) is a four (4) lane divided roadway with two (2) twelve (12) foot travel lanes in each direction (northbound and southbound) and eight (8) foot shoulders. The posted speed limit along Nashville Highway (US-31) is 55 MPH.



Spring Meade Boulevard

Spring Meade Boulevard is not functionally classified by the City of Columbia, and therefore classified as a local roadway for this study. Near the project site, Spring Meade Boulevard is oriented in an east-west direction and provides a connection between Carters Creek Station Road to the west and Nashville Highway (US-31) to the east. Near the project site, Spring Meade Boulevard is a two (2) lane roadway with one (1) twelve (12) foot travel lane in each direction (eastbound and westbound) in each direction. Curb and gutter exist on either side of Spring Meade Boulevard. There is no posted speed limit along Spring Meade Boulevard. The assumed speed limit is 25 MPH.



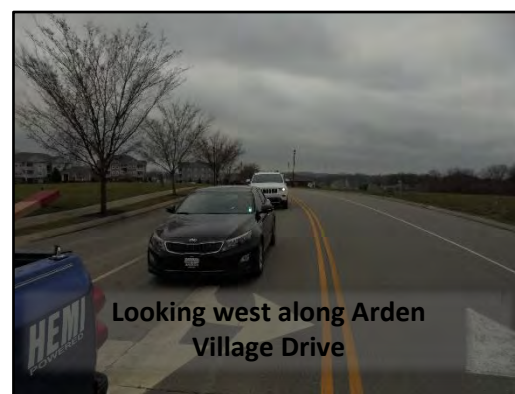
Old Highway 31N

Old Highway 31N is not functionally classified by the City of Columbia, and therefore classified as a local roadway for this study. Near the project site, Old Highway 31N is oriented in a north-south direction and provides a connection to Spring Hill High School to the north and Nashville Highway (US-31) to the south. Near the project site, Old Highway 31N is a two (2) lane roadway with one (1) ten (10) foot travel lane in each direction (northbound and southbound) and two (2) foot shoulders. The posted speed limit along Old Highway 31 ranges from 25 to 35 MPH.



Arden Village Drive

Arden Village Drive is not functionally classified by the City of Columbia, and therefore classified as a local roadway for this study. Near the project site, Arden Village Drive is oriented in an east-west direction and provides a connection from Nashville Highway (US-31) to the east and the proposed site to the west. Near the project site, Arden Village Drive is a two (2) lane roadway with one (1) twelve (12) foot travel lane in each direction (eastbound and westbound). Curb and gutter exist on either side of Arden Village Drive. There is no posted speed limit along Arden Village Drive. The assumed speed limit is 25 MPH.



Grove Park Way

Grove Park Way is not functionally classified by the City of Columbia, and therefore classified as a local roadway for this study. Near the project site, Grove Park Way is oriented in an east-west direction and provides a connection from Nashville Highway (US-31) to the west and terminates to the east. Near the project site, Grove Park Way is a two (2) lane roadway with one (1) twelve (12) foot travel lane in each direction (eastbound and westbound). Curb and gutter exist on either side of Grove Park Way. There is no posted speed limit along Grove Park Way. The assumed speed limit is 25 MPH.



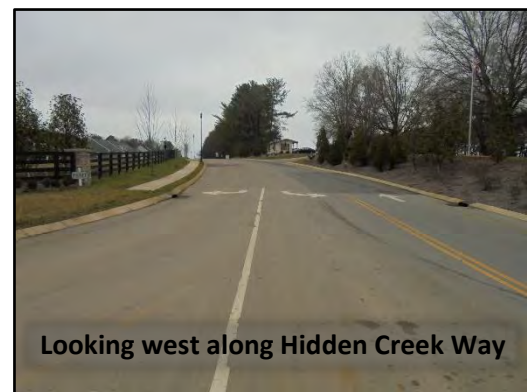
Greens Mill Road

Greens Mill Road is functionally classified by the City of Columbia as a collector roadway. Near the project site, Greens Mill Road is oriented in an east-west direction and provides a connection from Nashville Highway (US-31) to the west and Kedron Road to the east. Near the project site, Greens Mill Road is a two (2) lane roadway with one (1) ten (10) foot travel lane in each direction (eastbound and westbound) and two (2) foot shoulders. The posted speed limit along Greens Mill Road is 45 MPH.



Hidden Creek Way

Hidden Creek Way is not functionally classified by the City of Columbia, and therefore classified as a local roadway for this study. Near the project site, Hidden Creek Way is oriented in an east-west direction and provides a connection from Nashville Highway (US-31) to the east and the proposed site to the west. Near the project site, Hidden Creek Way is a two (2) lane roadway with one (1) twelve (12) foot travel lane in each direction (eastbound and westbound). Curb and gutter exist on either side of Hidden Creek Way. No shoulders exist along Hidden Creek Way. There is no posted speed limit along Hidden Creek Way. The assumed speed is 25 MPH.

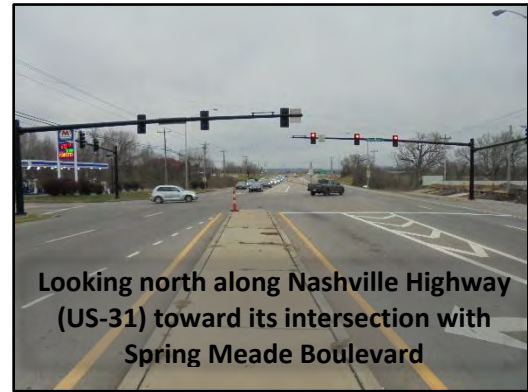


Existing Intersections

This study analyzed five (5) existing intersections within the vicinity of the project site. The intersections analyzed are listed below with a brief description of each, and Figure 3 shows the existing lane geometry at the intersections.

Nashville Highway (US-31) and Spring Meade Boulevard

The existing intersection of Nashville Highway (US-31) and Spring Meade Boulevard is a signalized intersection with four (4) approaches. The northbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 250 feet of storage, one (1) exclusive lane for through movements, and one (1) shared lane for through and right-turn movements. The southbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 220 feet of storage, one (1) exclusive lane for through movements, and one (1) shared lane for through and right-turn movements. The eastbound approach of Spring Meade Boulevard has one (1) exclusive lane for left-turn movements with approximately 400 feet of storage and one (1) shared lane for through and right-turn movements. The westbound approach Driveway has one (1) shared lane for left-turn, through, and right-turn movements.



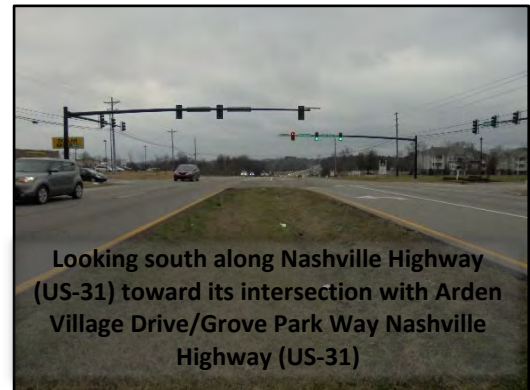
Nashville Highway (US-31) and Old Highway 31N

The existing intersection of Nashville Highway (US-31) and Old Highway 31N is an unsignalized intersection with three (3) approaches. The northbound approach of Nashville Highway (US-31) has one (1) shared lane for left-turn and through movements and one (1) exclusive lane for through movements operating under a free flow condition. The southbound approach of Nashville Highway (US-31) has one (1) exclusive lane for through movements and one (1) shared lane for through and right-turn movements operating under a free flow condition. The eastbound approach of Old Highway 31N has one (1) shared lane for left-turn and right-turn movements operating under a stop condition.



Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

The existing intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way is a signalized intersection with four (4) approaches. The northbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 330 feet of storage, two (2) exclusive lanes for through movements, and one (1) exclusive lane for right-turn movements with approximately 125 feet of storage. The southbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 330 feet of storage, two (2) exclusive lanes for through movements, and one (1) exclusive lane for right-turn movements with approximately 125 feet of storage. The eastbound approach of Arden Village Drive has one (1) shared lane for left-turn and through movements and one (1) exclusive lane for right-turn movements with approximately 150 feet of storage. The westbound approach of Grove Park Way has one (1) shared lane for left-turn and through movements and one (1) exclusive lane for right-turn movements with approximately 100 feet of storage.



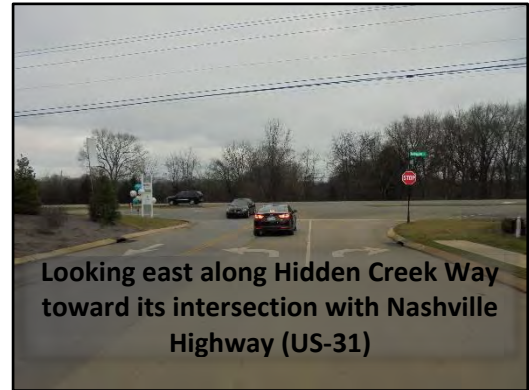
Nashville Highway (US-31) and Greens Mill Road

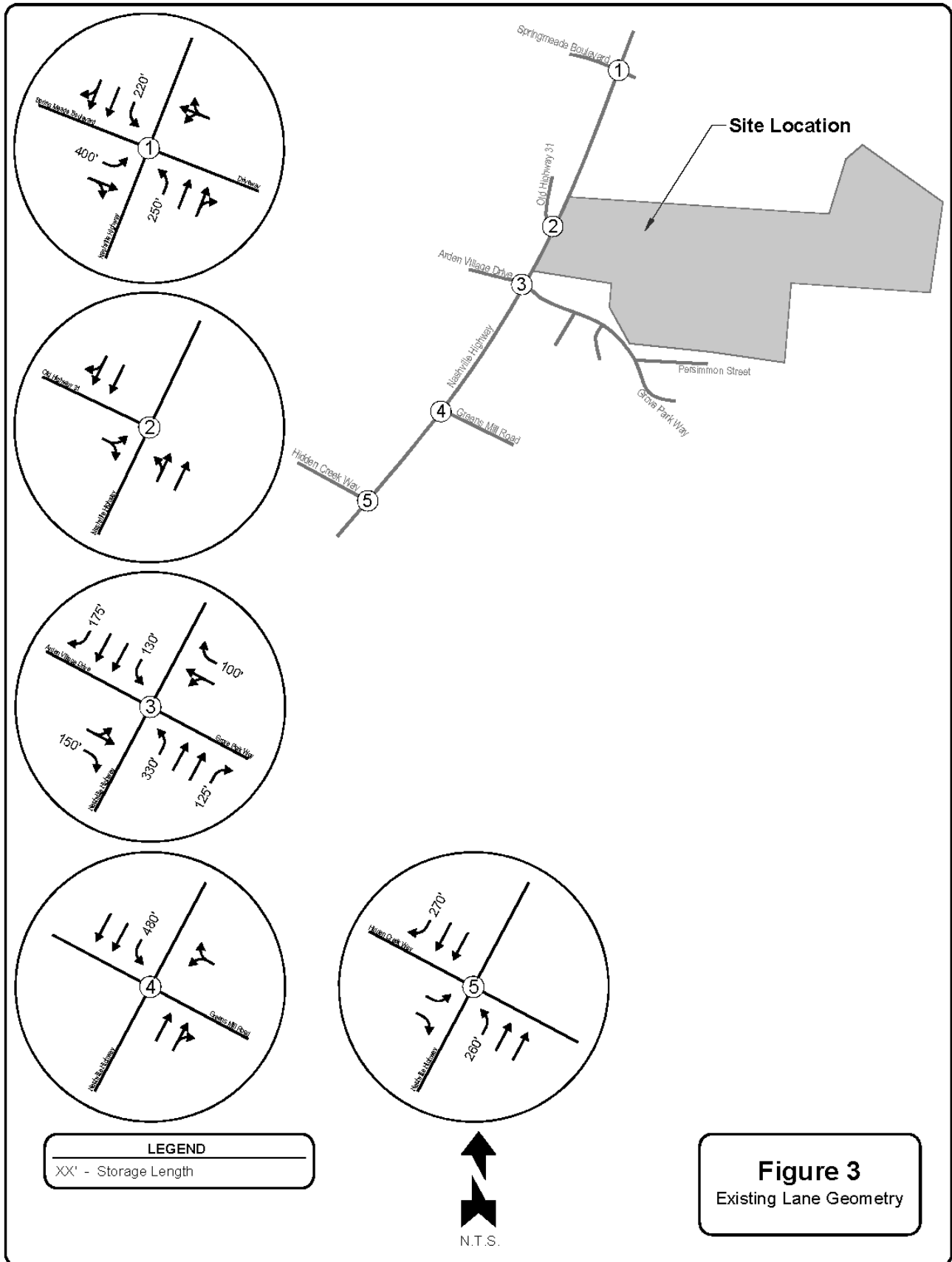
The existing intersection of Greens Mill Road and Nashville Highway (US-31) is an unsignalized intersection with three (3) approaches. The northbound approach of Nashville Highway (US-31) has one (1) exclusive lane for through movements and one (1) shared lane for through and right-turn movements operating under a free flow condition. The southbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 480 feet of storage and two (2) exclusive lanes for through movements operating under a free flow condition. The westbound approach of Greens Mill Road has one (1) shared lane for left-turn and right-turn movements operating under a stop condition.



Nashville Highway (US-31) and Hidden Creek Way

The existing intersection of Hidden Creek Way and Nashville Highway (US-31) is an unsignalized intersection with three (3) approaches. The northbound approach of Nashville Highway (US-31) has one (1) exclusive lane for left-turn movements with approximately 260 feet of storage and two (2) exclusive lanes for through movements operating under a free flow condition. The southbound approach of Nashville Highway (US-31) has two (2) exclusive lanes for through movements and one (1) exclusive lane for right-turn movements with approximately 270 feet of storage operating under a free flow condition. The eastbound approach of Hidden Creek Way has one (1) exclusive lane for left-turn movements and one (1) exclusive lane for right-turn movements operating under a stop condition.





Existing Traffic Volumes

To establish existing traffic volumes within the study area (as requested and provided by the City of Columbia), T-Square Engineering utilized the turning movement counts conducted by RG Phillips Consulting as part of the MSC Apartments Traffic Impact Study (TIS) in March 2020 for the following intersections:

- Nashville Highway (US-31) & Spring Meade Boulevard
- Nashville Highway (US-31) & Old Highway 31
- Nashville Highway (US-31) & Arden Village Drive/Grove Park Way

To establish existing (2021) traffic volumes, it should be noted that the traffic count volumes for the above intersections were grown for one (1) year by a factor 3.76% determined by the calculated average growth rate within the surrounding area, shown within Figure 5 below.

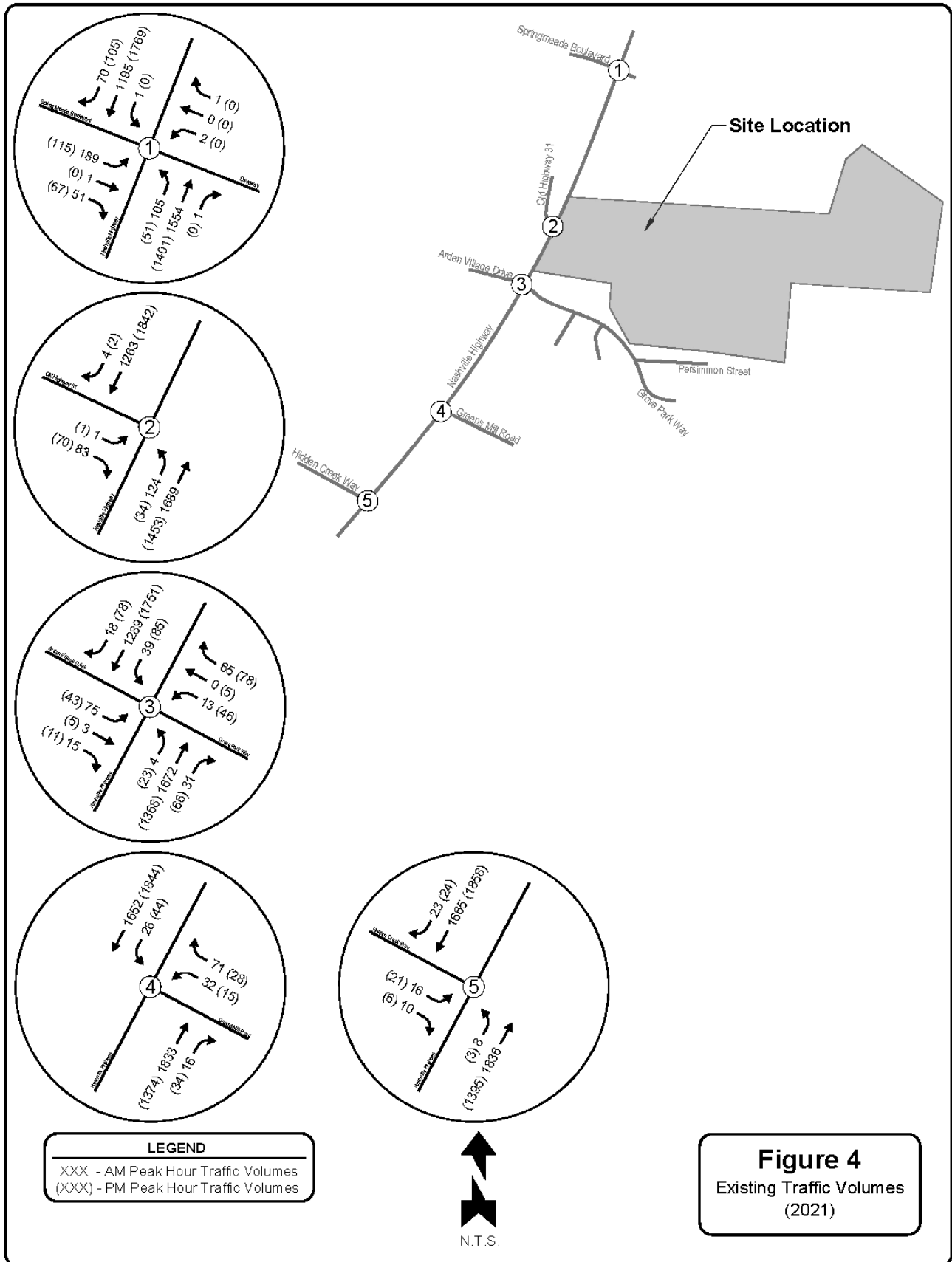
In addition, as requested by the City of Columbia, T-Square Engineering utilized the turning movement counts conducted by T-Square Engineering as part of the Carters Station Master Plan Traffic Impact Study (TIS) in May 2019 for the following intersections:

- Nashville Highway (US-31) & Greens Mill Road
- Nashville Highway (US-31) & Hidden Creek Way

To establish existing (2021) traffic volumes, it should be noted that the traffic count volumes at for the above intersections were grown for two (2) years by a factor 3.76% determined by the calculated average growth rate within the surrounding area, shown within Figure 5 below.

In addition, T-Square Engineering also conducted turning movement counts at the intersection of Grove Park Way and Persimmon Street on a typical weekday in January 2021 while schools were in session. The turning movement count was conducted over a total of twelve (12) hours from 6:00 AM – 6:00 PM.

For this analysis, the AM and PM peak hour traffic volumes were established and determined to occur between 7:15 AM – 8:15 AM and 4:45 PM – 5:45 PM, respectively. Figure 4 shows the existing peak hour totals at the study intersections for the AM and PM peak hour periods. Appendix A contains the original peak hour turning movement counts and the adjusted peak hour turning movement counts.



Existing Capacity Analysis

To evaluate the existing traffic operations at the study intersections within the vicinity of the project site, AM and PM peak hour capacity analyses were performed per the calculations outlined in the Highway Capacity Manual¹(HCM). Levels of service (LOS), corresponding average delays, and 95th percentile queues were calculated for each turning movement. An LOS is a qualitative measure or grade used to distinguish how traffic is serviced at an intersection or along a roadway. The range of LOS is A to F, with A being the highest and F the lowest. The 95th percentile queue is the queue length (in vehicles) that has only a five (5) percent probability of being exceeded during the analysis period. The 95th percentile queue is not typical of what an average driver would experience, and driver experiences would be better characterized by the mean queue length. The table below details each LOS for signalized and unsignalized intersections, as specified within the HCM.

Table 1. Level of Service (LOS) Details

Level of Service*	Average Control Delay (seconds per vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Source: HCM 2010, Exhibits 18-4 and 19-1

To determine the effectiveness of traffic operations within the study area a minimum LOS or baseline needs to be established. Any LOS below the established baseline will be considered unsatisfactory. LOS C is generally acceptable for typical roadway function while LOS D is typically considered to be the minimum acceptable LOS. According to the City of Columbia's *Transportation Master Plan (2018)*, "In urban areas, LOS D is typically considered to be the minimum acceptable level of service." The following conditions shall be considered unsatisfactory for the purposes of this study:

1. Overall intersections with an LOS E or F.
2. Individual traffic movements with an LOS E or F.

The existing intersections within the study area were analyzed with existing traffic volumes under existing roadway conditions/geometries. It should be noted that existing traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Spring Meade Boulevard and Nashville Highway (US-31) and Arden Village Drive/Grove Park Way for this analysis. The existing capacity analyses were conducted using *Synchro/SimTraffic* software by Trafficware for both signalized and unsignalized intersections. Appendix C contains the detailed capacity analyses results.

¹ Transportation Research Board (TRB). Highway Capacity Manual, 5th Edition (2010). Washington, DC: 2010

Table 2. Existing Capacity Analyses

Study Intersection	Control	Approach	2021 Existing Conditions					
			AM Peak Hour			PM Peak Hour		
			LOS	Delay (s)	Queue (ft)	LOS	Delay (s)	Queue (ft)
1. Nashville Highway (US-31) and Spring Meade Boulevard	Signal	NB Left	D	39.2	105	F	82.6	83
		NB Thru	B	14.6	175	A	4.4	126
		NB Thru/Right	B	14.5	193	A	0.0	135
		SB Left	F	112.4	9	A	0.0	0
		SB Thru	B	16.1	253	B	13.8	334
		SB Thru/Right	B	16.1	260	B	14.2	355
		EB Left	C	29.0	161	E	65.4	159
		EB Thru/Right	C	24.7	50	E	64.0	103
		WB Left	C	25.3	0	A	0.0	0
		WB Thru/Right	C	23.5	9	A	0.0	0
		Overall	B	17.0	--	B	13.8	--
2. Nashville Highway (US-31) and Old Highway 31N	TWSC	NB Left	B	15.0	50	C	19.7	25
		EB Left/Right	C	20.6	50	D	26.8	50
3. Nashville Highway (US-31) and Arden Village Drive/Grove Park Way	Signal	NB Left	E	65.6	8	F	81.8	48
		NB Thru	C	20.2	365	B	17.1	373
		NB Right	A	8.7	111	A	9.7	89
		SB Left	E	75.6	63	F	93.7	153
		SB Thru	B	15.0	313	B	18.6	584
		SB Right	A	8.5	92	A	8.0	170
		EB Left/Thru	E	74.8	152	F	87.5	89
		EB Right	E	62.9	36	E	75.4	29
		WB Left/Thru	E	63.2	63	E	74.4	103
		WB Right	E	78.2	88	F	85.7	86
		Overall	C	21.5	--	C	23.2	--
4. Nashville Highway (US-31) and Greens Mill Road	TWSC	SB Left	C	19.2	25	B	14.4	25
		WB Left/Right	F	78.3	125	D	25.7	25
5. Nashville Highway (US-31) and Hidden Creek Way	TWSC	NB Left	C	16.3	25	C	18.4	0
		EB Left	E	48.4	25	F	65.0	25
		EB Right	C	18.4	25	C	20.6	25

The following assessments are based on the results of the Existing Capacity Analyses as shown in Table 2:

- At the intersection of Nashville Highway (US-31) and Springmeade Boulevard/Private Drive, the northbound left-turn movement currently operates at LOS F during the PM peak hour period. The southbound left-turn movement currently operates at LOS F during the AM peak hour period. The eastbound left-turn movement currently operates at a LOS E during the PM peak hour. The eastbound shared through/right-turn movement currently operates at LOS E during the PM peak hour period.
 - The overall intersection will operate at LOS B during both the AM and PM peak hours, with existing traffic volumes.
- At the intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way, the northbound left-turn movement currently operates at LOS E and F during the AM and PM peak hour periods, respectively. The southbound left-turn movement currently operates at LOS E and F during the AM and PM peak hour periods, respectively. The eastbound shared left-turn/through movement currently operates at LOS E and F during the AM and PM peak hour periods, respectively. The eastbound right-turn movement currently operates at LOS E during both the AM and PM peak hour periods. The westbound shared left-turn/through movement currently operates at LOS E during both the AM and PM peak hour periods. The westbound right-turn movement currently operates at LOS E and F during the AM and PM peak hour periods, respectively.
 - The overall intersection will operate at LOS C during both the AM and PM peak hours, respectively, with existing traffic volumes.
- At the intersection of Nashville Highway (US-31) and Greens Mill Road, the westbound shared left-turn/right-turn movement currently operates at LOS F during the AM peak hour period.
- At the intersection of Nashville Highway (US-31) and Hidden Creek Way, the eastbound left-turn movement currently operates at LOS E and F during the AM and PM peak hour periods, respectively.
- All other critical movements to the study intersections surrounding the proposed development currently operate at a minimum of LOS D during the AM and PM peak hours of operation with existing traffic volumes.

Background Traffic Volumes

To account for traffic growth within the vicinity of the project site prior to the completion of the proposed 2504 Nashville Highway Mixed-Use Development, 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 2022 design year (development completion). Figure 5 displays the locations of the TDOT Count Stations within the surrounding area.

As shown in Figure 5, the average yearly percent change in traffic over a six (6) year period from 2013 - 2018 was 3.76%. However, to conform to the recently conducted traffic impact studies within the area, the existing traffic volumes as shown on Figure 4 were grown by +2.00% per year for two (2) years. Figure D1 in Appendix D shows the background peak hour totals at the study intersections for the AM and PM peak hour periods.

To account for the additional traffic growth within the vicinity of the project site, the generated traffic volumes from previously conducted Traffic Studies near the project site were added to the grown background traffic volumes. These developments are listed below as outlined within the Greens Mill Master Plan Traffic Impact Study conducted by KCI Technologies.

- Grove Park (Single-Family Residential)
- Homestead (Single-Family Residential)
- Villages at Carters Station (Single-Family Residential)
- Drumright Property (Single-Family and Multifamily Residential)
- Arden Village (Retail Space)
- MSC Apartments (Multifamily Residential)
- The Ridge at Carters Village (Single Family Residential)
- Greens Mill Development (Single Family Residential)

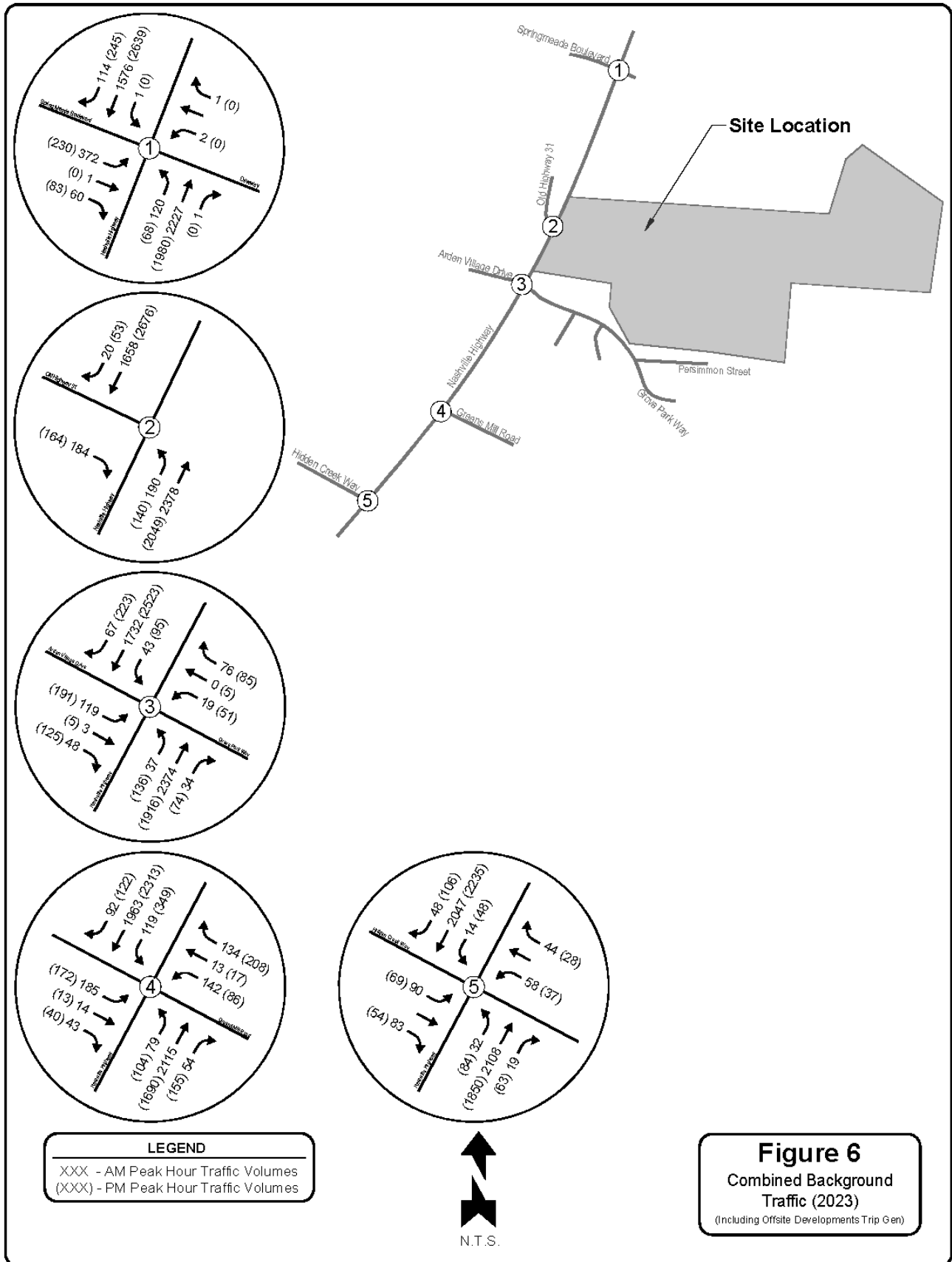
The total generated background development volumes can be found on Figure D2 in Appendix D. The generated traffic volumes from each development above are shown on Figures D3-D11 in Appendix D. The background traffic volumes as shown in Figure D1 were added to the total generated background development volumes as shown in Figure D2, resulting in the total combined background peak hour traffic volumes for the study intersections, as shown on Figure 6.



TDOT Count Station:	Maury 000091		Maury 000019		Average % Growth
Year	AADT	% Change	AADT	% Change	
2018	36,823	--	1,251	--	--
2017	35,063	5.02%	1,202	4.08%	4.55%
2016	33,930	4.26%	1,131	5.31%	4.76%
2015	34,875	1.86%	1,195	1.56%	1.71%
2014	34,235	1.89%	1,072	4.17%	3.03%
2013	30,975	3.78%	973	5.71%	4.75%
Average % Change	3.36%		4.17%		3.76%
Applied % Growth*					2.00%*
*Applied Growth matches Background Growth utilized with the MSC Apartments Traffic Impact Study (May 2020)					



Figure 5
TDOT Count Locations &
Background Traffic
Growth Trends



Background Capacity Analyses

To evaluate the background traffic operations at the study intersections within the vicinity of the project site, the AM and PM peak hour capacity analyses were performed based on calculations outlined in the Highway Capacity Manual (HCM). Levels of service (LOS), corresponding average delays, and 95th percentile queues were calculated for each turning movement.

The previously conducted Traffic Studies for the background developments resulted in multiple recommended roadway improvements to study intersections. These recommended improvements will be utilized as part of the background roadway conditions and have been included in the background capacity analyses. The improvements are listed below by intersection. Figure 7 shows a summary of the off-site improvements from previously conducted traffic studies for background developments.

Nashville Highway (US-31) and Spring Meade Boulevard

- Configure the eastbound approach to include one (1) exclusive left-turn lane, one (1) exclusive through lane, and one (1) exclusive right-turn lane (Ridge at Carters Station)

Nashville Highway (US-31) and Old Highway 31N

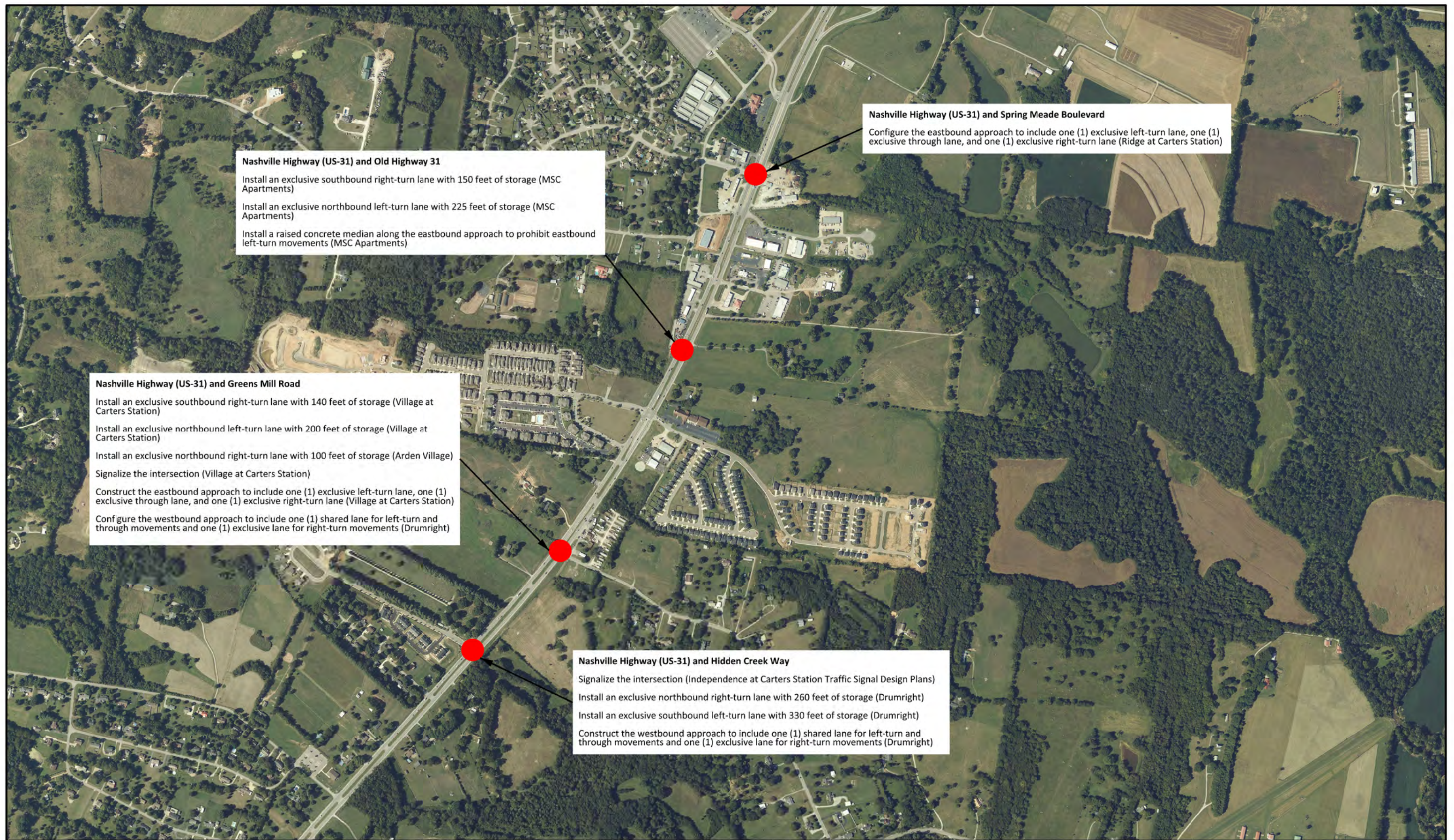
- Install an exclusive southbound right-turn lane with 150 feet of storage (MSC Apartments)
- Install an exclusive northbound left-turn lane with 225 feet of storage (MSC Apartments)
- Install a raised concrete median along the eastbound approach to prohibit eastbound left-turn movements (MSC Apartments)

Nashville Highway (US-31) and Greens Mill Road

- Install an exclusive southbound right-turn lane with 140 feet of storage (Village at Carters Station)
- Install an exclusive northbound left-turn lane with 200 feet of storage (Village at Carters Station)
- Install an exclusive northbound right-turn lane with 100 feet of storage (Arden Village)
- Signalize the intersection (Village at Carters Station)
- Construct the eastbound approach to include one (1) exclusive left-turn lane, one (1) exclusive through lane, and one (1) exclusive right-turn lane (Village at Carters Station)
- Configure the westbound approach to include one (1) shared lane for left-turn and through movements and one (1) exclusive lane for right-turn movements (Drumright)

Nashville Highway (US-31) and Hidden Creek Way

- Signalize the intersection (Independence at Carters Station Traffic Signal Design Plans)
- Install an exclusive northbound right-turn lane with 260 feet of storage (Drumright)
- Install an exclusive southbound left-turn lane with 330 feet of storage (Drumright)
- Construct the westbound approach to include one (1) shared lane for left-turn and through movements and one (1) exclusive lane for right-turn movements (Drumright)



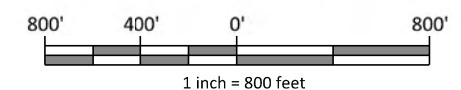
T-SQUARE ENGINEERING
 CIVIL-SITE | TRAFFIC | WASTEWATER

Figure 7 - Off-Site Improvements for Background Developments

2504 Nashville Highway Mixed-Use Development • Columbia, TN • Approximate Scale: 1" = 800'

Prepared by T-Square Engineering, Inc.

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The intersections were analyzed based on background roadway conditions and lane geometries as outlined in the Background Traffic Volumes section above. It should be noted that existing traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Spring Meade Boulevard and Nashville Highway (US-31) and Arden Village Drive/Grove Park Way for this analysis. However, optimized traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Greens Mill Road and Nashville Highway (US-31) and Hidden Creek Way for this analysis. The background capacity analyses were conducted using *Synchro/SimTraffic* software by Trafficware for both signalized and unsignalized intersections. Appendix C contains the detailed capacity analyses results.

Table 3. Background Capacity Analyses

Study Intersection	Control	Approach	2023 Background Conditions					
			AM Peak Hour			PM Peak Hour		
			LOS	Delay (s)	Queue (ft)	LOS	Delay (s)	Queue (ft)
1. Nashville Highway (US-31) and Spring Meade Boulevard	Signal	NB Left	E	58.6	176	E	66.0	90
		NB Thru	F	109.9	330	B	12.8	292
		NB Thru/Right	F	109.5	353	A	0.0	323
		SB Left	F	139.8	0	A	0.0	0
		SB Thru	F	73.7	1067	F	187.3	2500+
		SB Thru/Right	F	79.6	1066	F	204.6	2500+
		EB Left	E	61.2	303	D	49.6	215
		EB Thru	C	29.1	11	A	0.0	0
		EB Right	C	30.5	62	D	43.5	93
		WB Left	C	29.1	0	A	0.0	0
		WB Thru/Right	C	29.1	23	A	0.0	0
		Overall	F	90.7	--	F	116.4	--
2. Nashville Highway (US-31) and Old Highway 31N	TWSC	NB Left	D	32.1	100	F	253.7	275
		EB Right	E	44.1	125	F	328.8	325
3. Nashville Highway (US-31) and Arden Village Drive/Grove Park Way	Signal	NB Left	D	50.4	343	F	97.3	541
		NB Thru	F	209.0	1499	F	89.8	1314
		NB Right	B	12.0	214	B	16.5	242
		SB Left	D	51.9	154	F	83.4	176
		SB Thru	F	51.6	489	F	275.3	557
		SB Right	B	12.3	217	C	20.7	364
		EB Left/Thru	D	50.7	137	F	82.3	248
		EB Right	D	43.7	71	E	61.7	123
		WB Left/Thru	D	44.9	43	E	65.8	121
		WB Right	E	55.8	96	E	75.9	112
		Overall	F	132.7	--	F	170.9	--
4. Nashville Highway (US-31) and Greens Mill Road	Signal	NB Left	D	52.4	368	F	117.5	339
		NB Thru	F	58.8	1076	D	48.6	1121
		NB Right	B	10.4	221	B	17.5	267
		SB Left	F	166.0	372	F	111.8	262
		SB Thru	D	37.7	641	F	63.4	608
		SB Right	B	10.7	225	A	8.6	192
		EB Left	F	258.1	338	F	245.3	431
		EB Thru	D	45.2	127	D	50.3	651
		EB Right	D	46.4	60	D	51.5	60
		WB Left/Thru	D	53.4	213	E	55.5	207
		WB Right	D	50.4	184	F	90.2	215
		Overall	E	58.4	--	E	67.0	--
5. Nashville Highway (US-31) and Hidden Creek Way	Signal	NB Left	C	31.0	282	E	60.7	493
		NB Thru	C	29.9	2500+	B	17.7	2500+
		NB Right	A	6.5	249	A	6.8	463
		SB Left	C	30.0	27	C	21.6	44
		SB Thru	C	28.8	313	D	41.9	296
		SB Right	A	7.2	14	A	7.3	16
		EB Left/Thru	F	401.1	139	F	308.0	104
		EB Right	D	45.3	115	D	50.4	78
		WB Left/Thru	F	189.1	87	F	102.4	70
		WB Right	D	43.6	80	D	49.2	82
		Overall	D	39.0	--	D	35.6	--

The following assessments are based on the results of the Background Capacity Analyses as shown in Table 3:

- At the intersection of Nashville Highway (US-31) and Springmeade Boulevard/Private Drive, the northbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods. The northbound through movement will operate at LOS F during the AM peak hour period. The northbound through/right-turn movement will operate at LOS F during the AM peak hour period. The southbound left-turn movement will operate at LOS F during the AM peak hour period. The southbound through movement will operate at LOS F during both the AM and PM peak hour periods. The southbound through/right-turn movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound left-turn movement will operate at a LOS E during the AM peak hour.
 - The overall intersection will operate at LOS F during both the AM and PM peak hours, with background traffic volumes and existing signal timings.
- At the intersection of Nashville Highway (US-31) and Old Highway 31, the northbound left-turn movement will operate at LOS F during the PM peak hour period. The eastbound right-turn movement will operate at LOS E and F during the AM and PM peak hour periods, respectively.
- At the intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way, the northbound left-turn movement will operate at LOS F during the PM peak hour period. The northbound through movement will operate at LOS F during both the AM and PM peak hour periods. The southbound left-turn movement will operate at LOS F during the PM peak hour period. The southbound through movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound shared left-turn/through movement will operate at LOS F during the PM peak hour period. The eastbound right-turn movement will operate at LOS E during the PM peak hour period. The westbound shared left-turn/through movement will operate at LOS E during the PM peak hour period. The westbound right-turn movement will operate at LOS E during both the AM and PM peak hour periods.
 - The overall intersection will operate at LOS F during both the AM and PM peak hours, respectively, with background traffic volumes and existing signal timings.
- At the intersection of Nashville Highway (US-31) and Greens Mill Road, the northbound left-turn movement will operate at LOS F during the PM peak hour period. The northbound through movement will operate at LOS F during the AM peak hour period. The southbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods. The southbound through movement will operate at LOS F during the PM peak hour period. The eastbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods. The westbound shared left-turn/through movement will operate at LOS E during the PM peak hour period. The westbound right turn movement will operate at LOS F during the PM peak hour period.
 - The overall intersection will operate at LOS E during both the AM and PM peak hours, respectively, with background traffic volumes and optimized signal timings.

- At the intersection of Nashville Highway (US-31) and Hidden Creek Way, the northbound left-turn movement will operate at LOS E during the PM peak hour period. The eastbound shared left-turn/through movement will operate at LOS F during both the AM and PM peak hour periods. The westbound shared left-turn/through movement will operate at LOS F during both the AM and PM peak hour periods.
 - The overall intersection will operate at LOS D during both the AM and PM peak hours, respectively, with background traffic volumes and optimized signal timings.
- All other critical movements to the study intersections surrounding the proposed development currently operate at a minimum of LOS D during the AM and PM peak hours of operation with background traffic volumes.

Impacts

Traffic Generation

Trips were generated to establish projected traffic volumes for the proposed 2504 Nashville Highway Mixed-Use Development. Daily and peak hour trips were generated by formulas presented in the Trip Generation Manual² based on the land uses proposed by the development. As previously stated, the proposed development will consist of approximately 147 single-family homes, approximately 471 multi-family (low-rise) housing units, a coffee shop with drive-through of approximately 3,725 SF, a shopping center of approximately 3,500 SF, and a day care center of approximately 13,000 SF.

Internal Trips

As described in the *Trip Generation Handbook*, developments containing multiple land uses will commonly have internal trips, or trips from land use to land use without leaving the development site. Based on the NCHRP Report 684, “Enhancing Internal Trip Capture Estimation for Mixed-Use Developments,” and assumptions made by T-Square Engineering for this study, an estimated 9% internal capture rate was calculated for daily and PM peak hour trips.

Pass-By Trips

Studies have shown that new retail and restaurant developments generate relatively low “new” traffic. Traffic entering or exiting the new development are considered pass-by or captured trips. Pass-by or captured trips are vehicles that would have already been on the roadway regardless of the new development being constructed. The *Trip Generation Handbook* provides typical weekday pass-by percentages for various land uses based on the size of each land use. Based on the *Trip Generation Handbook* and assumptions made by T-Square Engineering for this study, 20% and 50% pass-by was used for the shopping center and coffee shop land uses, respectively.

The Table below provides a summary of the internal, pass-by and new trips generated for the proposed development.

² Institute of Transportation Engineers (ITE). Trip Generation Manual, 10th Edition. Washington, DC: ITE, 2020

Table 4. 2504 Nashville Highway Mixed-Use Development Trip Generation Summary

Land Use (ITE Code)	Size	Generated Traffic Volumes ³				
		Daily	AM Peak		PM Peak	
			Enter	Exit	Enter	Exit
Single-Family Housing (210)	147 DU	1,482	27	82	93	54
Internal Trips		133	0	0	8	5
External Trips (Raw – Internal)		1,349	27	82	85	49
Pass-By Trips		0	0	0	0	0
New Trips (External – Pass-By)		1,349	27	82	85	49
Multi-Family (Low-Rise) Housing (220)	471 DU	3,520	48	160	148	87
Internal Trips		317	0	0	13	8
External Trips		3,203	48	160	135	79
Pass-By Trips		0	0	0	0	0
New Trips		3,203	48	160	135	79
Coffee/Donut Shop w/ Drive Thru (937)	3,725 SF	3,060	169	163	81	81
Internal Trips		275	0	0	7	7
External Trips		2,785	169	163	74	74
Pass-By Trips (50%)		1,393	85	82	37	37
New Trips		1,392	84	81	37	37
Shopping Center (820)	3,500 SF	615	95	58	22	24
Internal Trips		55	0	0	2	2
External Trips		560	95	58	20	22
Pass-By Trips (20%)		112	19	12	4	4
New Trips		448	76	46	16	18
Day Care Center (565)	13,000 SF	619	76	67	68	77
Internal Trips		56	0	0	6	7
External Trips		563	76	67	62	70
Pass-By Trips		0	0	0	0	0
New Trips		563	76	67	62	70
TOTAL GENERATED TRIPS		9,296	415	530	412	323
TOTAL GENERATED INTERNAL TRIPS		836	0	0	36	29
TOTAL GENERATED EXTERNAL TRIPS		8,460	415	530	376	294
TOTAL GENERATED PASS-BY TRIPS		1,505	104	94	41	41
TOTAL GENERATED NEW TRIPS		6,955	311	436	335	253

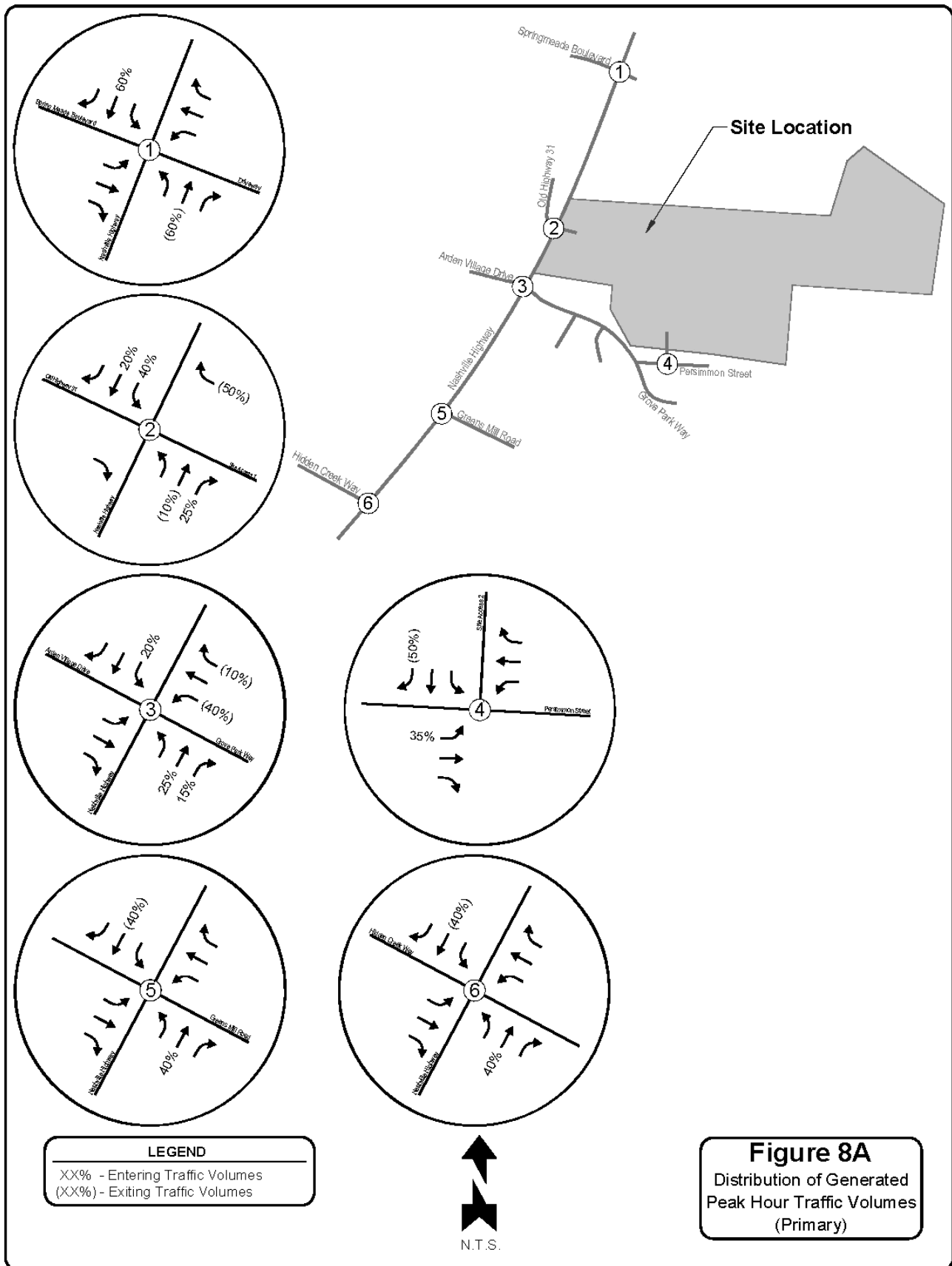
³ Institute of Transportation Engineers (ITE). Trip Generation Manual, 10th Edition. Washington, DC: ITE, 2020

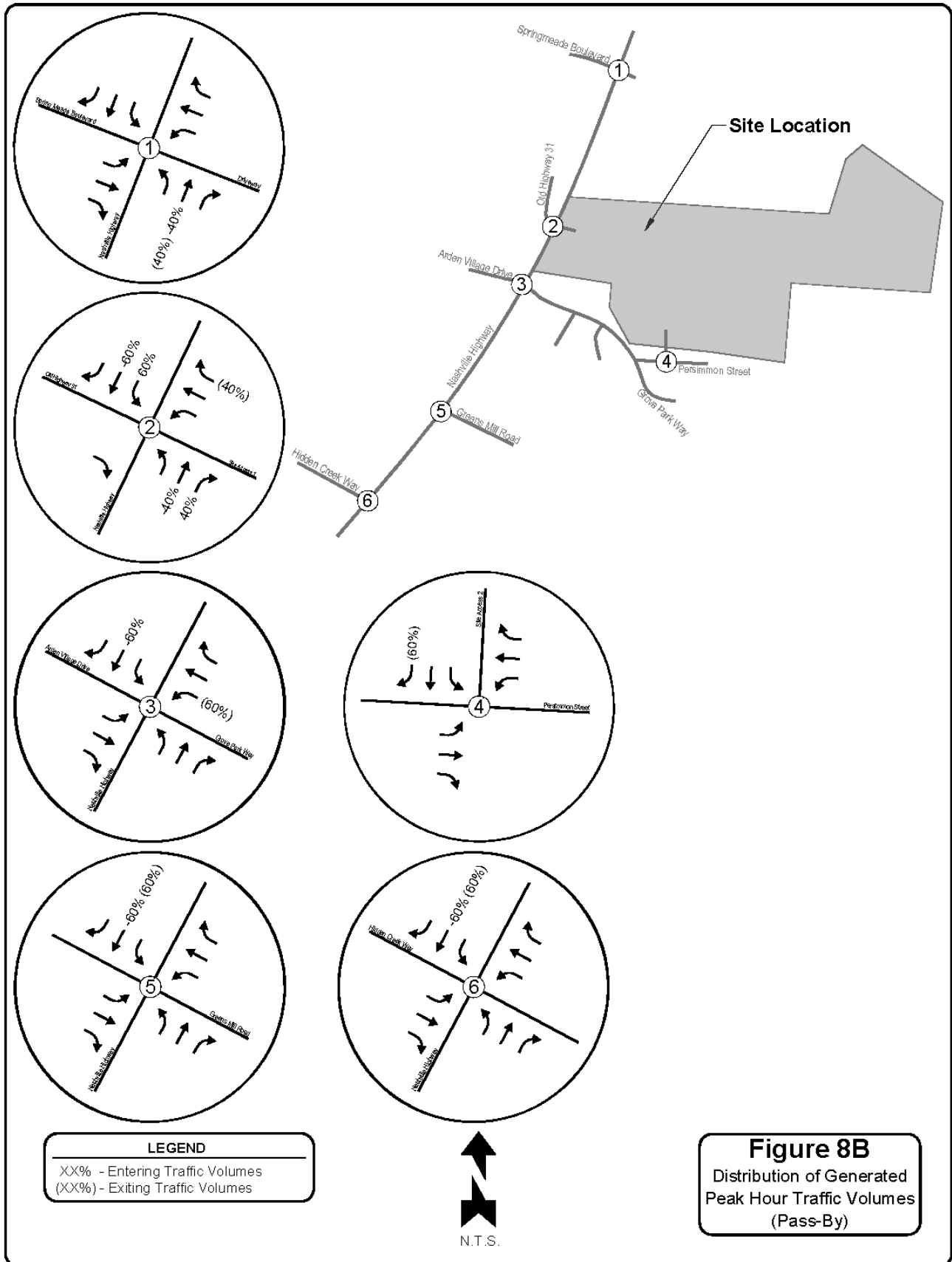
Projected Traffic Distribution and Assignments

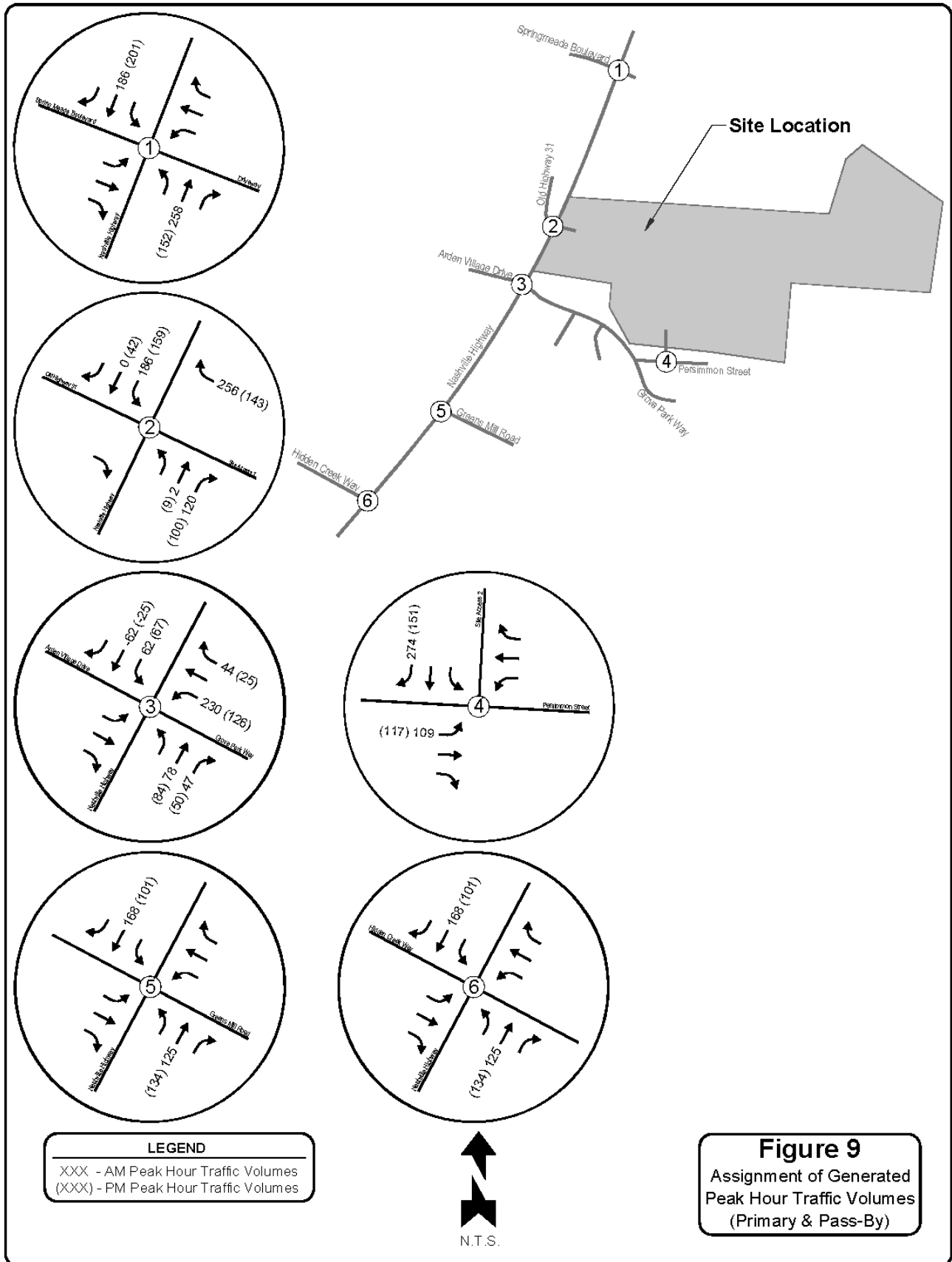
For the purposes of this study, the estimated directional distributions shown on Figures 8A and 8B were made for the proposed development's primary and pass-by generated trips, respectively. These directional distributions were established based on the following:

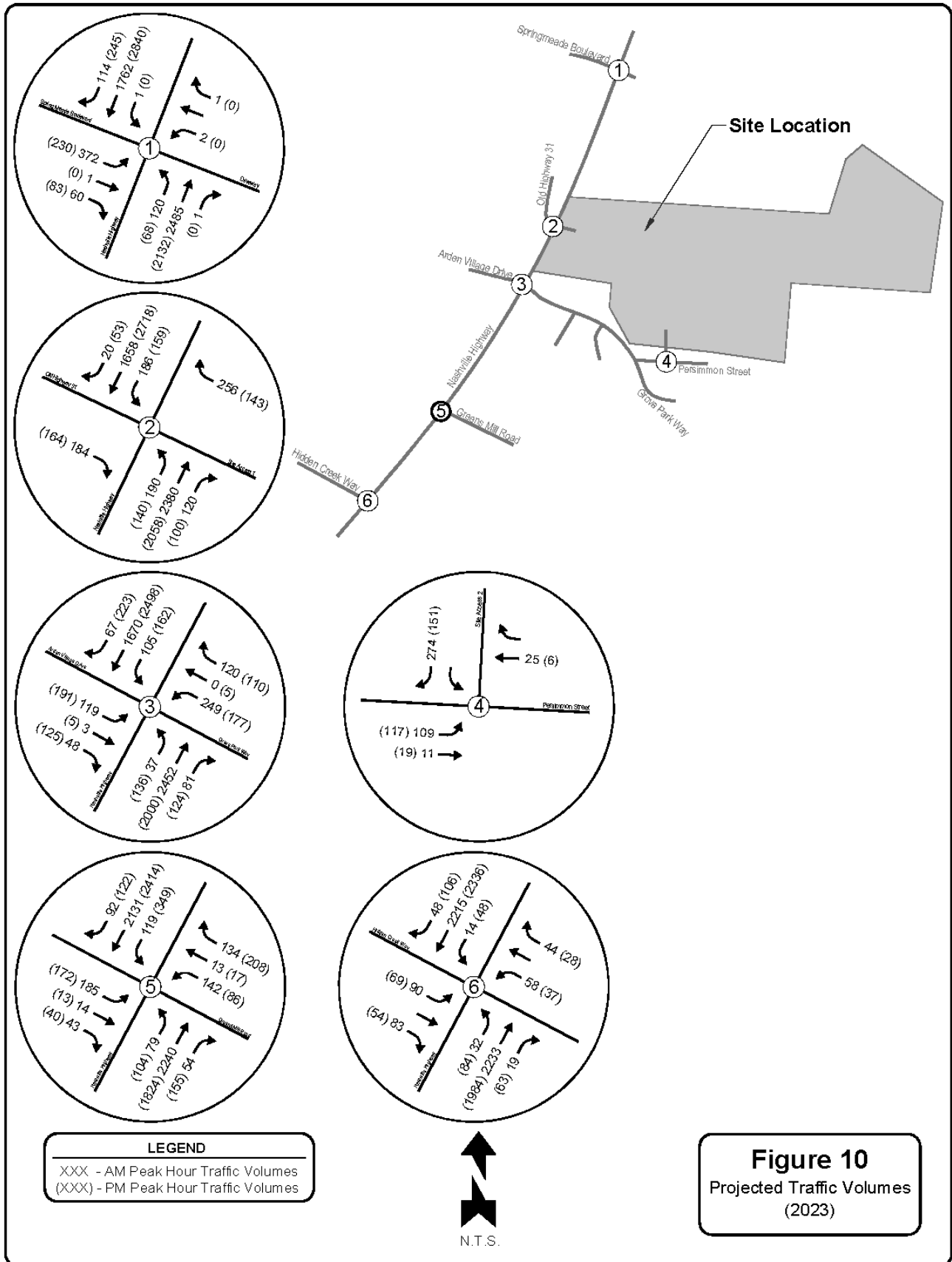
- Conducted hourly turning movement counts.
- Existing land use characteristics.
- Existing roadway network.
- Existing lane geometry of surrounding intersections.
- The developments proposed access location.
- Locations of populations centers within the surrounding area.
- Comments provided by the City of Columbia's Traffic Engineer.

Figure D12 in Appendix D shows the primary generated trips which were assigned to the existing roadway network per the distributions shown on Figure 8A. Figure D13 in Appendix D shows the pass-by generated trips which were assigned to the existing roadway network per the distributions shown on Figure 8B. Figure 9 shows the total (primary and pass-by) generated trips which were assigned to the roadway network. The generated peak hour traffic volumes (primary and pass-by) as shown on Figure 9 were added to the combined background volumes as shown on Figure 6, resulting in the total projected peak hour traffic volumes as shown on Figure 10.









Projected Capacity Analysis

To evaluate the projected traffic operations at the study intersections within the vicinity of the project site, AM and PM peak hour capacity analyses were performed. The capacity analyses include the total projected traffic volumes generated from the proposed development in addition to background traffic volumes. Levels-of-service (LOS), corresponding average delays, and 95th percentile queues were calculated for each turning movement. The intersections were analyzed based on background roadway conditions and lane geometries as outlined previously with projected traffic volumes.

The intersections were analyzed based on background roadway conditions and lane geometries as outlined in the Background Traffic Volumes section above. It should be noted that existing traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Spring Meade Boulevard and Nashville Highway (US-31) and Arden Village Drive/Grove Park Way for this analysis. However, optimized traffic signal timings were utilized at the intersections of Nashville Highway (US-31) and Greens Mill Road and Nashville Highway (US-31) and Hidden Creek Way for this analysis. The projected capacity analyses were conducted using *Synchro/SimTraffic* software by Trafficware for both signalized and unsignalized intersections. Appendix C contains the detailed capacity analyses results.

Table 5. Projected Capacity Analyses

Study Intersection	Control	Approach	2023 Projected Conditions					
			AM Peak Hour			PM Peak Hour		
			LOS	Delay (s)	Queue (ft)	LOS	Delay (s)	Queue (ft)
1. Nashville Highway (US-31) and Spring Meade Boulevard	Signal	NB Left	E	58.6	116	E	66.0	100
		NB Thru	F	167.1	303	B	16.2	222
		NB Thru/Right	F	166.8	303	A	0.0	238
		SB Left	F	139.8	0	A	0.0	0
		SB Thru	F	115.1	2500+	F	229.1	2500+
		SB Thru/Right	F	124.6	2500+	F	246.6	2500+
		EB Left	E	61.2	320	D	49.6	263
		EB Thru	C	29.1	0	A	0.0	0
		EB Right	C	30.5	68	D	43.5	103
		WB Left	C	29.1	0	A	0.0	0
		WB Right	C	29.1	12	A	0.0	0
		Overall	F	136.6	--	F	140.9	--
2. Nashville Highway (US-31) and Old Highway 31N	TWSC	NB Left	D	32.1	100	F	279.6	275
		SB Left	F	263.2	325	F	74.2	175
		EB Right	E	44.1	125	F	352.8	325
		WB Right	F	500.0+	575	F	81.5	150
3. Nashville Highway (US-31) and Arden Village Drive/Grove Park Way	Signal	NB Left	E	63.0	305	F	114.6	555
		NB Thru	F	367.6	1417	F	178.0	1402
		NB Right	C	20.6	162	C	23.2	185
		SB Left	E	67.9	257	F	164.3	239
		SB Thru	F	80.4	524	F	321.3	608
		SB Right	B	17.7	193	C	25.2	336
		EB Left/Thru	E	61.4	112	F	91.2	520
		EB Right	D	52.6	53	E	67.1	124
		WB Left/Thru	E	70.9	349	F	88.5	284
		WB Right	D	46.5	213	E	66.0	204
		Overall	F	218.4	--	F	218.7	--
4. Persimmon Street and Site Access 2	TWSC	SB L/T/R	A	9.8	50	A	9.0	25
		EB Left	A	7.5	25	A	7.4	25
5. Nashville Highway (US-31) and Greens Mill Road	Signal	NB Left	E	63.2	405	F	148.8	402
		NB Thru	F	73.7	1081	F	57.0	1079
		NB Right	A	9.9	269	B	16.9	288
		SB Left	F	166.7	239	F	151.9	267
		SB Thru	F	53.8	537	F	72.7	318
		SB Right	B	10.1	207	A	8.5	34
		EB Left	F	323.5	356	F	281.5	387
		EB Thru	D	46.4	939	D	54.4	1159
		EB Right	D	47.7	83	E	55.7	64
		WB Left/Thru	E	55.4	257	E	60.2	513
		WB Right	D	51.9	212	E	98.9	341
		Overall	E	73.2	--	E	78.1	--
6. Nashville Highway (US-31) and Hidden Creek Way	Signal	NB Left	D	37.4	398	F	92.8	501
		NB Thru	C	33.2	2500+	B	17.3	2500+
		NB Right	A	6.0	281	A	6.0	524
		SB Left	D	36.2	30	C	25.7	32
		SB Thru	D	36.4	398	D	37.4	233
		SB Right	A	6.6	12	A	6.4	7
		EB Left/Thru	F	468.3	203	F	410.0	151
		EB Right	D	51.3	120	E	61.0	71
		WB Left/Thru	F	225.9	84	F	147.4	69
		WB Right	D	49.3	138	E	59.4	76
		Overall	D	45.2	--	D	35.4	--

The following assessments are based on the results of the Projected Capacity Analyses as shown in Table 5:

- At the intersection of Nashville Highway (US-31) and Springmeade Boulevard/Private Drive, the northbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods. The northbound through movement will operate at LOS F during the AM peak hour period. The northbound through/right-turn movement will operate at LOS F during the AM peak hour period. The southbound left-turn movement will operate at LOS F during the AM peak hour period. The southbound through movement will operate at LOS F during both the AM and PM peak hour periods. The southbound shared through/right-turn movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound left-turn movement will operate at a LOS E during the AM peak hour.
 - The overall intersection will operate at LOS F during both the AM and PM peak hours, with projected traffic volumes and existing signal timings.
- At the intersection of Nashville Highway (US-31) and Old Highway 31, the northbound left-turn movement will operate at LOS F during the PM peak hour period. The southbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound right-turn movement will operate at LOS E and F during the AM and PM peak hour periods, respectively. The westbound right-turn movement will operate at LOS F during both the AM and PM peak hour periods.
- At the intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way, the northbound left-turn movement will operate at LOS E and F during the AM and PM peak hour periods, respectively. The northbound through movement will operate at LOS F during both the AM and PM peak hour periods. The southbound left-turn movement will operate at LOS E and F during the AM and PM peak hour periods, respectively. The southbound through movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound shared left-turn/through movement will operate at LOS E and F during the AM and PM peak hour periods, respectively. The eastbound right-turn movement will operate at LOS E during the PM peak hour period. The westbound shared left-turn/through movement will operate at LOS E and F during the AM and PM peak hour periods. The westbound right-turn movement will operate at LOS E during the PM peak hour period.
 - The overall intersection will operate at LOS F during both the AM and PM peak hours, respectively, with projected traffic volumes and existing signal timings.
- At the intersection of Nashville Highway (US-31) and Greens Mill Road, the northbound left-turn movement will operate at LOS E and F during the AM and PM peak hour periods, respectively. The northbound through movement will operate at LOS F during both the AM and PM peak hour periods. The southbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods. The southbound through movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound right-turn movement will operate at LOS E during the PM peak hour period. The westbound shared left-turn/through movement will operate at LOS E during both the

AM and PM peak hour periods. The westbound right turn movement will operate at LOS E during the PM peak hour period.

- o The overall intersection will operate at LOS E during both the AM and PM peak hours, with projected traffic volumes and optimized signal timings.
- At the intersection of Nashville Highway (US-31) and Hidden Creek Way, the northbound left-turn movement will operate at LOS F during the PM peak hour period. The eastbound shared left-turn/through movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound right-turn movement will operate at LOS E during the PM peak hour period. The westbound shared left-turn/through movement will operate at LOS F during both the AM and PM peak hour periods. The westbound right-turn movement will operate at LOS E during the PM peak hour period.
 - o The overall intersection will operate at LOS D during both the AM and PM peak hours, respectively, with projected traffic volumes and optimized signal timings.
- All other critical movements to the study intersections surrounding the proposed development currently operate at a minimum of LOS D during the AM and PM peak hours of operation with projected traffic volumes.

Intersection Assessments (Projected Conditions)

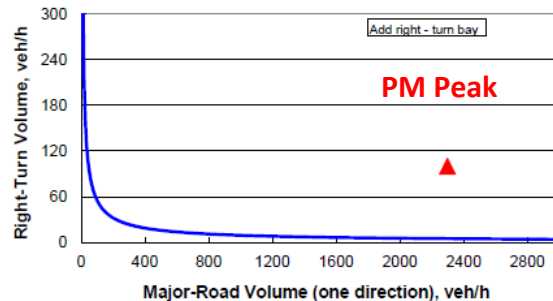
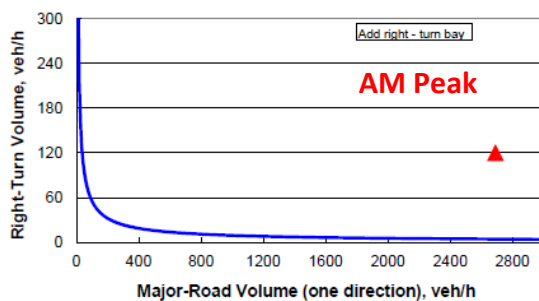
Engineering assessments were performed on the intersections within the study area to identify underlying inefficiencies and solutions to alleviate any concerns associated with intersection geometries and traffic volumes along the roadway network.

Major Road Approach Geometry Warrants - Projected

Major-road approach left-turn lane warrants were performed based on Figures 2-5 and 2-6 in the *NCHRP Report 457 – Evaluating Intersection Improvements: An Engineering Study Guide*⁴ and projected traffic volumes.

Table 6. Major-Road Approach Geometry, NBR Nashville Highway (US-31) at Old Highway 31/SA1

Variable	AM Peak	PM Peak
Major-road speed, mph:	55	55
Major-road volume (one direction), veh/h:	2690	2298
Major-road right-turn volume, veh/h:	120	100
Limiting right-turn volume, veh/h:	4	5
Right-turn bay warranted:	YES	YES
Source: <i>NCHRP Report 457: Evaluating Intersection Improvements: An Engineering Study Guide</i>		

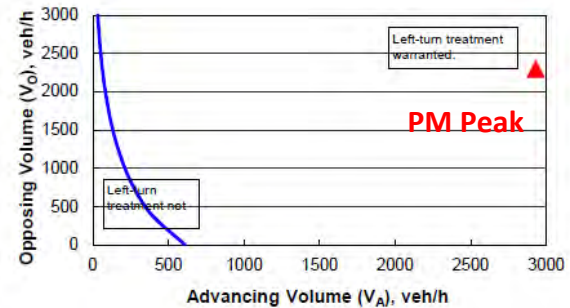
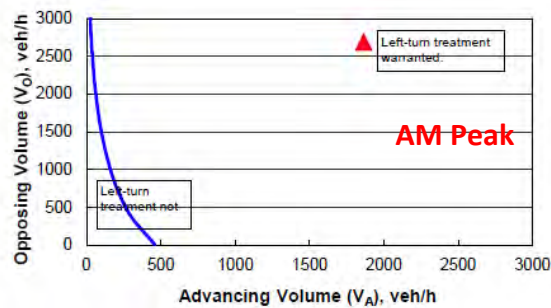


As shown in Table 6 and the corresponding graphs, it was determined that a northbound right-turn lane is warranted along Nashville Highway at its intersection with Old Highway 31/Site Access 1 during both peak hour periods with projected traffic volumes.

⁴ Transportation Research Board (TRB). *Evaluating Intersection Improvements: An Engineering Study Guide*. Washington, DC: 2001

Table 7. Major-Road Approach Geometry, SBL Nashville Highway at Old Highway 31/SA1

Variable	AM Peak	PM Peak
85 th percentile speed, mph:	55	55
Percent of left-turns in advancing volume (V_A), %:	10%	5%
Advancing volume (V_A), veh/h:	1864	2930
Opposing volume (V_O), veh/h:	2690	2298
Limiting advancing volume (V_A), veh/h:	32	62
Left-turn bay warranted:	YES	YES
Source: NCHRP Report 457: Evaluating Intersection Improvements: An Engineering Study Guide		



As shown in Table 7 and the corresponding graphs, it was determined that a southbound left-turn lane is warranted along Nashville Highway (US-31) at its intersection with Old Highway 31/Site Access 1 during both peak hour periods with projected traffic volumes.

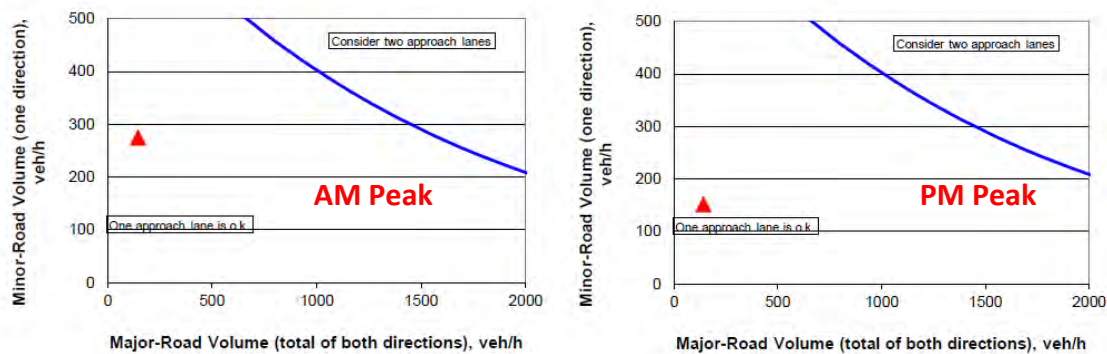
Minor Road Approach Geometry Warrants – Projected

Minor-road approach geometric warrants were performed based on Figure 2-4 in the *NCHRP Report 457 – Evaluating Intersection Improvements: An Engineering Study Guide*⁵. The results of the warrants are shown below.

Table 8. Minor-Road Approach Geometry, SBR Site Access 2 at Persimmon Street

Variable	AM Peak	PM Peak
Major-road volume (total both directions), veh/h:	145	142
Percentage of right-turns on minor road, %:	100%	100%
Minor-road volume (one direction), veh/h:	274	151
Limiting minor-road volume (one direction), veh/h:	697	698
Right-turn bay warranted:	One (1) approach lane is sufficient	One (1) approach lane is sufficient

Source: *NCHRP Report 457: Evaluating Intersection Improvements: An Engineering Study Guide*



As shown in Table 8 and the corresponding graphs, it was determined that one (1) shared lane for left-turn, through, and right-turn movements on the southbound approach Site Access 2 at its intersection with Persimmon Street is sufficient with projected traffic volumes.

⁵ Transportation Research Board (TRB). *Evaluating Intersection Improvements: An Engineering Study Guide*. Washington, DC: 2001

Conclusions

Existing Conditions

Intersection Capacity Analyses

- At the intersection of Nashville Highway (US-31) and Springmeade Boulevard/Private Drive, the northbound left-turn movement currently operates at LOS F during the PM peak hour period. The southbound left-turn movement currently operates at LOS F during the AM peak hour period. The eastbound left-turn movement currently operates at a LOS E during the PM peak hour. The eastbound shared through/right-turn movement currently operates at LOS E during the PM peak hour period.
 - The overall intersection will operate at LOS B during both the AM and PM peak hours, with existing traffic volumes.
- At the intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way, the northbound left-turn movement currently operates at LOS E and F during the AM and PM peak hour periods, respectively. The southbound left-turn movement currently operates at LOS E and F during the AM and PM peak hour periods, respectively. The eastbound shared left-turn/through movement currently operates at LOS E and F during the AM and PM peak hour periods, respectively. The eastbound right-turn movement currently operates at LOS E during both the AM and PM peak hour periods. The westbound shared left-turn/through movement currently operates at LOS E during both the AM and PM peak hour periods. The westbound right-turn movement currently operates at LOS E and F during the AM and PM peak hour periods, respectively.
 - The overall intersection will operate at LOS C during both the AM and PM peak hours, respectively, with existing traffic volumes.
- At the intersection of Nashville Highway (US-31) and Greens Mill Road, the westbound shared left-turn/right-turn movement currently operates at LOS F during the AM peak hour period.
- At the intersection of Nashville Highway (US-31) and Hidden Creek Way, the eastbound left-turn movement currently operates at LOS E and F during the AM and PM peak hour periods, respectively.
- All other critical movements to the study intersections surrounding the proposed development currently operate at a minimum of LOS D during the AM and PM peak hours of operation with existing traffic volumes.

Background Conditions

Intersection Capacity Analyses

- At the intersection of Nashville Highway (US-31) and Springmeade Boulevard/Private Drive, the northbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods. The northbound through movement will operate at LOS F during the AM peak hour period. The northbound through/right-turn movement will operate at

LOS F during the AM peak hour period. the southbound left-turn movement will operate at LOS F during the AM peak hour period. The southbound through movement will operate at LOS F during both the AM and PM peak hour periods. The southbound through/right-turn movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound left-turn movement will operate at a LOS E during the AM peak hour.

- o The overall intersection will operate at LOS F during both the AM and PM peak hours, with background traffic volumes and existing signal timings.
- At the intersection of Nashville Highway (US-31) and Old Highway 31, the northbound left-turn movement will operate at LOS F during the PM peak hour period. The eastbound right-turn movement will operate at LOS E and F during the AM and PM peak hour periods, respectively.
- At the intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way, the northbound left-turn movement will operate at LOS F during the PM peak hour period. The northbound through movement will operate at LOS F during both the AM and PM peak hour periods. The southbound left-turn movement will operate at LOS F during the PM peak hour period. The southbound through movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound shared left-turn/through movement will operate at LOS F during the PM peak hour period. The eastbound right-turn movement will operate at LOS E during the PM peak hour period. The westbound shared left-turn/through movement will operate at LOS E during the PM peak hour period. The westbound right-turn movement will operate at LOS E during both the AM and PM peak hour periods.
 - o The overall intersection will operate at LOS F during both the AM and PM peak hours, respectively, with background traffic volumes and existing signal timings.
- At the intersection of Nashville Highway (US-31) and Greens Mill Road, the northbound left-turn movement will operate at LOS F during the PM peak hour period. The northbound through movement will operate at LOS F during the AM peak hour period. The southbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods. The southbound through movement will operate at LOS F during the PM peak hour period. The eastbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods. The westbound shared left-turn/through movement will operate at LOS E during the PM peak hour period. The westbound right turn movement will operate at LOS F during the PM peak hour period.
 - o The overall intersection will operate at LOS E during both the AM and PM peak hours, respectively, with background traffic volumes and optimized signal timings.
- At the intersection of Nashville Highway (US-31) and Hidden Creek Way, the northbound left-turn movement will operate at LOS E during the PM peak hour period. The eastbound shared left-turn/through movement will operate at LOS F during both the AM and PM peak hour periods. The westbound shared left-turn/through movement will operate at LOS F during both the AM and PM peak hour periods.
 - o The overall intersection will operate at LOS D during both the AM and PM peak hours, respectively, with background traffic volumes and optimized signal timings.

- All other critical movements to the study intersections surrounding the proposed development currently operate at a minimum of LOS D during the AM and PM peak hours of operation with background traffic volumes.

Projected Conditions

Intersection Capacity Analyses

- At the intersection of Nashville Highway (US-31) and Springmeade Boulevard/Private Drive, the northbound left-turn movement will operate at LOS E during both the AM and PM peak hour periods. The northbound through movement will operate at LOS F during the AM peak hour period. The northbound through/right-turn movement will operate at LOS F during the AM peak hour period. The southbound left-turn movement will operate at LOS F during the AM peak hour period. The southbound through movement will operate at LOS F during both the AM and PM peak hour periods. The southbound shared through/right-turn movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound left-turn movement will operate at a LOS E during the AM peak hour.
 - The overall intersection will operate at LOS F during both the AM and PM peak hours, with projected traffic volumes and existing signal timings.
- At the intersection of Nashville Highway (US-31) and Old Highway 31, the northbound left-turn movement will operate at LOS F during the PM peak hour period. The southbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound right-turn movement will operate at LOS E and F during the AM and PM peak hour periods, respectively. The westbound right-turn movement will operate at LOS F during both the AM and PM peak hour periods.
- At the intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way, the northbound left-turn movement will operate at LOS E and F during the AM and PM peak hour periods, respectively. The northbound through movement will operate at LOS F during both the AM and PM peak hour periods. The southbound left-turn movement will operate at LOS E and F during the AM and PM peak hour periods, respectively. The southbound through movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound shared left-turn/through movement will operate at LOS E and F during the AM and PM peak hour periods, respectively. The eastbound right-turn movement will operate at LOS E during the PM peak hour period. The westbound shared left-turn/through movement will operate at LOS E and F during the AM and PM peak hour periods. The westbound right-turn movement will operate at LOS E during the PM peak hour period.
 - The overall intersection will operate at LOS F during both the AM and PM peak hours, respectively, with projected traffic volumes and existing signal timings.
- At the intersection of Nashville Highway (US-31) and Greens Mill Road, the northbound left-turn movement will operate at LOS E and F during the AM and PM peak hour periods, respectively. The northbound through movement will operate at LOS F during both the AM and PM peak hour periods. The southbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods. The southbound through movement

will operate at LOS F during both the AM and PM peak hour periods. The eastbound left-turn movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound right-turn movement will operate at LOS E during the PM peak hour period. The westbound shared left-turn/through movement will operate at LOS E during both the AM and PM peak hour periods. The westbound right turn movement will operate at LOS E during the PM peak hour period.

- o The overall intersection will operate at LOS E during both the AM and PM peak hours, with projected traffic volumes and optimized signal timings.
- At the intersection of Nashville Highway (US-31) and Hidden Creek Way, the northbound left-turn movement will operate at LOS F during the PM peak hour period. The eastbound shared left-turn/through movement will operate at LOS F during both the AM and PM peak hour periods. The eastbound right-turn movement will operate at LOS E during the PM peak hour period. The westbound shared left-turn/through movement will operate at LOS F during both the AM and PM peak hour periods. The westbound right-turn movement will operate at LOS E during the PM peak hour period.
 - o The overall intersection will operate at LOS D during both the AM and PM peak hours, respectively, with projected traffic volumes and optimized signal timings.
- All other critical movements to the study intersections surrounding the proposed development currently operate at a minimum of LOS D during the AM and PM peak hours of operation with projected traffic volumes.

Queue Length Analyses

- Based on the capacity analyses and existing/proposed turn lane lengths at the study intersections, the following turn lanes should be extended to manage the queue lengths for these movements based on projected traffic volumes. The proposed lane extensions are solely related to the turn lane movements directly impacted by construction of the development.
 - o If feasible, extend the storage length of the southbound left-turn lane at the intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way from 130 feet to approximately 300 feet.
 - o If feasible, extend the storage length of the northbound right-turn lane at the intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way from 125 feet to approximately 200 feet.
 - o If feasible, extend the storage length of the westbound right-turn lane at the intersection of Nashville Highway (US-31) and Arden Village Drive/Grove Park Way from 100 feet to approximately 250 feet.

Turn Lane Analyses

- It was determined that the northbound approach of Nashville Highway (US-31) at its intersection with Old Highway 31/Site Access 1 will warrant one (1) exclusive lane for right-turning movements with projected traffic volumes.
- It was determined that the southbound approach of Nashville Highway (US-31) at its intersection with Old Highway 31/Site Access 1 will warrant one (1) exclusive lane for left-turning movements with projected traffic volumes.
- It was determined that the southbound approach of Site Access 2 at its intersection with Persimmon Street will be sufficient with one (1) shared lane for left-turn/through/right-turn movements 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 have been presented to be implemented as part of the proposed 2504 Nashville Highway Mixed-Use Development in Columbia, TN. These recommendations will be constructed in addition to the various improvements at the study intersections outlined in previously conducted traffic studies within the area. Figure 11 shows a summary of the recommended improvements for this development.

Improvement Recommendations for the 2504 Nashville Highway Mixed-Use Development

Nashville Highway (US-31) and Spring Meade Boulevard

- Interconnect and optimize the existing and proposed traffic signals along Nashville Highway (US-31) within the study area to operate as a coordinated system.

Nashville Highway (US-31) and Old Highway 31/Site Access 1

- Construct Site Access 1 along Nashville Highway with a left-in/right-in/right-out configuration to be aligned with Old Highway 31 with one (1) inbound lane and one (1) outbound lane operating under a stop condition according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- Construct one (1) exclusive right-turn lane on the northbound approach of Nashville Highway (US-31) at its intersection with Old Highway 31/Site Access 1. The right-turn lane shall provide a minimum of 300 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- Construct one (1) exclusive left-turn lane on the southbound approach of Nashville Highway (US-31) at its intersection with Old Highway 31/Site Access 1. The left-turn lane shall provide a minimum of 300 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.

Nashville Highway (US-31) and Arden Village Drive/Grove Park Way

- Interconnect and optimize the existing and proposed traffic signals along Nashville Highway (US-31) within the study area to operate as a coordinated system.
- If feasible, extend the existing right-turn lane on the northbound approach of Nashville Highway (US-31) at its intersection with Arden Village Drive/Grove Park Way. The right-turn lane shall be extended to a minimum of 300 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- If feasible, extend the existing left-turn lane on the southbound approach of Nashville Highway (US-31) at its intersection with Arden Village Drive/Grove Park Way. The left-turn lane shall be extended to a minimum of 200 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.
- If feasible, extend the existing right-turn lane on the westbound approach of Grove Park Way at its intersection with Nashville Highway (US-31). The right-turn lane shall be

extended to a minimum of 250 feet of storage and taper lengths according to MUTCD, AASHTO, TDOT, and City of Columbia standards.

Persimmon Street and Site Access 2

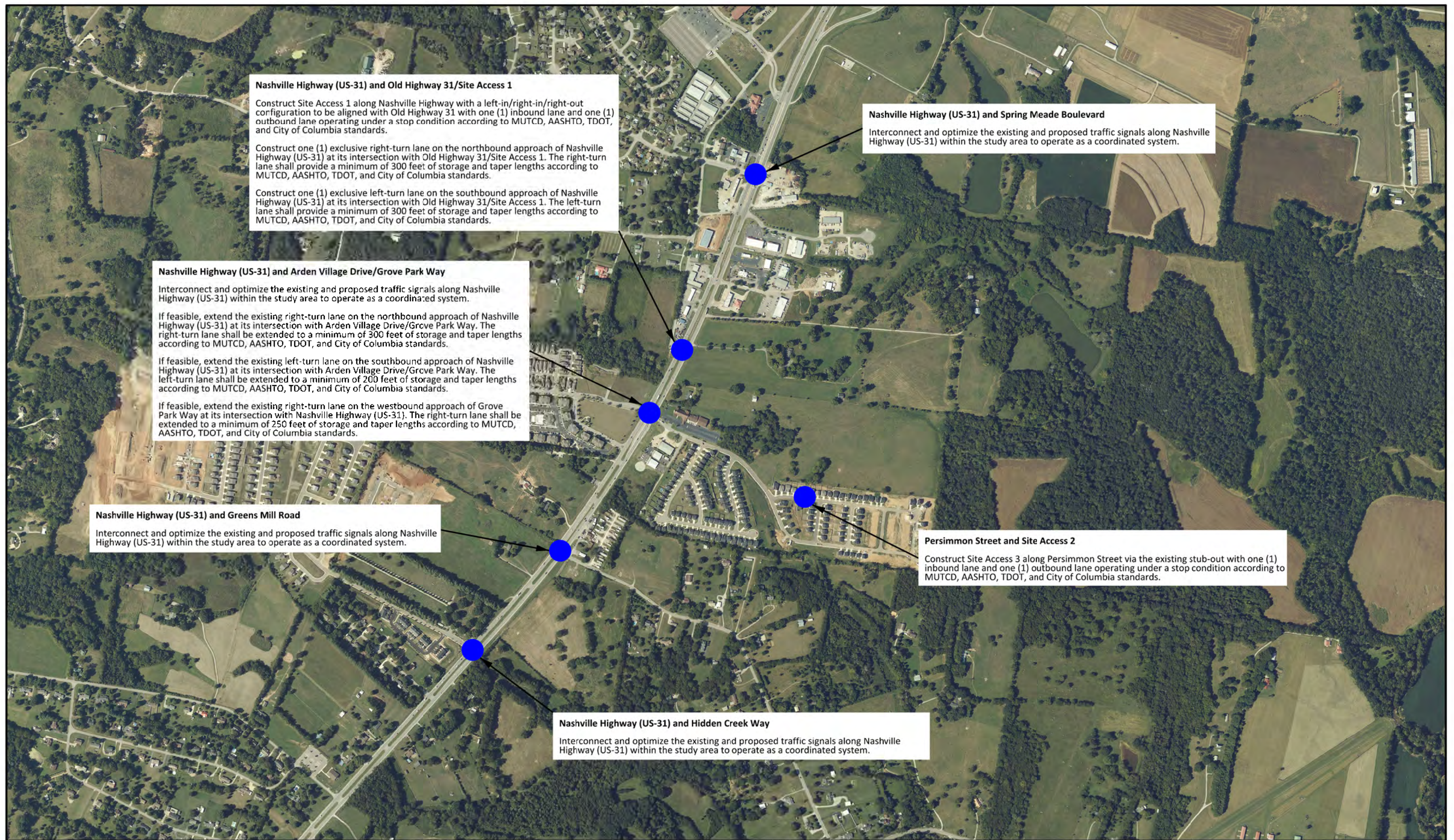
- Construct Site Access 2 along Persimmon Street via the existing stub-out with one (1) inbound lane and one (1) outbound lane operating under a stop condition according to MUTCD, AASHTO, TDOT, and City of Columbia standards.

Nashville Highway (US-31) and Greens Mill Road

- Interconnect and optimize the existing and proposed traffic signals along Nashville Highway (US-31) within the study area to operate as a coordinated system.

Nashville Highway (US-31) and Hidden Creek Way

- Interconnect and optimize the existing and proposed traffic signals along Nashville Highway (US-31) within the study area to operate as a coordinated system.



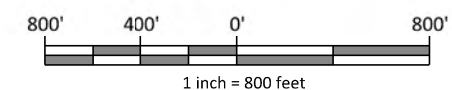
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CIVIL-SITE | TRAFFIC | WASTEWATER

Figure 11 - Recommended Improvements for 2504 Nashville Highway Development

2504 Nashville Highway Mixed-Use Development • Columbia, TN • Approximate Scale: 1" = 800'

Prepared by T-Square Engineering, Inc.

1329 West Main Street • Franklin, TN 37064 • www.T2-Eng.com



APPENDIX

APPENDIX A – DETAILED TURNING MOVEMENT COUNTS AND SIGNAL TIMINGS

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)
Count Sites: 5
Intersection #: 1
Intersection: US-31 (NASHVILLE HIGHWAY) & SPRING MEADE BOULEV

Southbound: US-31 (Nashville Highway)
Westbound: Driveway
Northbound: US-31 (Nashville Highway)
Eastbound: Spring Meade Boulevard

Lat/Long: 35.711906, -86.973619

Count Date: 3/10/2020

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

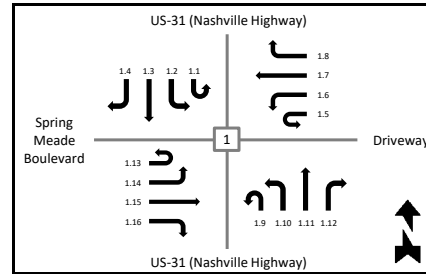
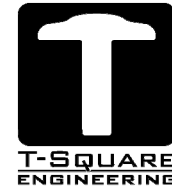
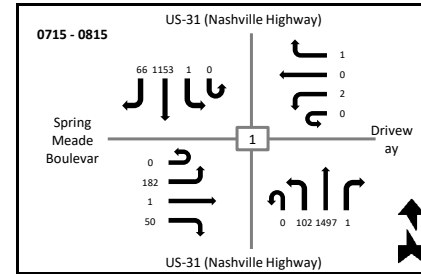


Figure 2 - AM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound Driveway						Northbound US-31 (Nashville Highway)						Eastbound Spring Meade Boulevard					
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds X-Walk	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds X-Walk	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds X-Walk	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds X-Walk	App Total
0630 - 0645	0	0	285	11	0	296	0	0	0	0	0	0	0	12	299	0	0	311	0	21	0	22	0	43
0645 - 0700	0	0	214	15	0	229	0	0	0	0	0	0	0	13	360	1	0	374	0	20	0	10	0	30
0700 - 0715	0	0	230	10	0	240	0	1	0	0	0	1	0	18	313	0	0	331	0	43	0	12	0	55
0715 - 0730	0	0	276	21	0	297	0	0	0	0	0	0	0	39	399	0	0	438	0	49	0	12	0	61
0730 - 0745	0	0	325	14	0	339	0	1	0	0	0	1	0	31	363	1	0	395	0	64	0	20	0	84
0745 - 0800	0	0	276	15	0	291	0	0	0	0	0	0	0	21	419	0	0	440	0	40	0	13	0	53
0800 - 0815	0	1	276	16	0	293	0	1	0	1	0	2	0	11	316	0	0	327	0	29	1	5	0	35
0815 - 0830	0	0	255	15	0	270	0	0	0	0	0	0	0	4	356	0	0	360	0	29	0	5	0	34
Grand Total	0	1	2137	117	0	2255	0	3	0	1	0	4	0	149	2825	2	0	2976	0	295	1	99	0	395
Peak Hour Total																								
0715 - 0815	0	1	1153	66	0	1220	0	2	0	1	0	3	0	102	1497	1	0	1600	0	182	1	50	0	233
App %	0.00%	0.04%	94.77%	5.19%			0.00%	75.00%	0.00%	25.00%			0.00%	5.01%	94.93%	0.07%			0.00%	74.68%	0.25%	25.06%		
Int %	0.00%	0.02%	37.96%	2.08%		40.05%	0.00%	0.05%	0.00%	0.02%		0.07%	0.00%	2.65%	50.18%	0.04%		52.86%	0.00%	5.24%	0.02%	1.76%		7.02%
Cars Total	0	1	2137	117			0	3	0	1			0	149	2825	2			0	295	1	99		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	100.00%	100.00%	100.00%			0.00%	100.00%	0.00%	100.00%			0.00%	100.00%	100.00%	100.00%			0.00%	100.00%	100.00%	100.00%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
 Intersection #: 1
 Intersection: US-31 (NASHVILLE HIGHWAY) & SPRING MEADE BOULEVARD

Southbound: US-31 (Nashville Highway)
 Westbound: Driveway
 Northbound: US-31 (Nashville Highway)
 Eastbound: Spring Meade Boulevard

Lat/Long: 35.711906, -86.973619

Count Date: 3/10/2020

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

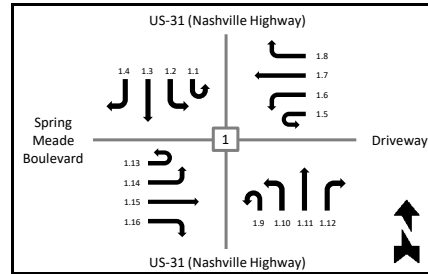
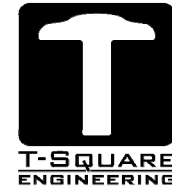
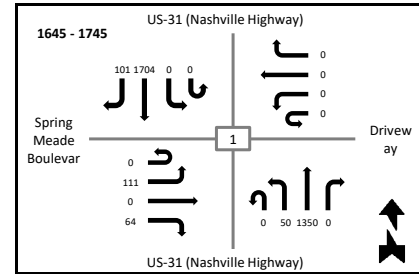


Figure 2 - PM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	US-31 (Nashville Highway)						Driveway						US-31 (Nashville Highway)						Spring Meade Boulevard					
Time	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds X-Walk	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds X-Walk	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds X-Walk	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds X-Walk	App Total
1600 - 1615	0	0	384	24	0	408	0	2	0	0	0	2	0	7	297	0	0	304	0	24	0	17	0	41
1615 - 1630	0	0	423	24	0	447	0	0	0	0	0	0	0	13	325	0	0	338	0	30	0	10	0	40
1630 - 1645	0	0	446	23	0	469	0	0	0	0	0	0	0	6	290	0	0	296	0	27	0	18	0	45
1645 - 1700	0	0	392	26	0	418	0	0	0	0	0	0	0	9	334	0	0	343	0	39	0	19	0	58
1700 - 1715	0	0	455	26	0	481	0	0	0	0	0	0	0	13	319	0	0	332	0	26	0	19	0	45
1715 - 1730	0	0	417	23	0	440	0	0	0	0	0	0	0	20	340	0	0	360	0	23	0	14	0	37
1730 - 1745	0	0	440	26	0	466	0	0	0	0	0	0	0	8	357	0	0	365	0	23	0	12	0	35
1745 - 1800	0	0	388	31	0	419	0	0	0	0	0	0	0	6	264	0	0	270	0	27	0	15	0	42
Grand Total	0	0	3345	203	0	3548	0	2	0	0	0	2	0	82	2526	0	0	2608	0	219	0	124	0	343
Peak Hour Total																								
1645 - 1745	0	0	1704	101	0	1805	0	0	0	0	0	0	0	50	1350	0	0	1400	0	111	0	64	0	175
App %	0.00%	0.00%	94.28%	5.72%			0.00%	100.00%	0.00%	0.00%			0.00%	3.14%	96.86%	0.00%			0.00%	63.85%	0.00%	36.15%		
Int %	0.00%	0.00%	51.45%	3.12%		54.58%	0.00%	0.03%	0.00%	0.00%		0.03%	0.00%	1.26%	38.86%	0.00%		40.12%	0.00%	3.37%	0.00%	1.91%		5.28%
Cars Total	0	0	3345	203			0	2	0	0			0	82	2526	0			0	219	0	124		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	0.00%	100.00%	100.00%			0.00%	100.00%	0.00%	0.00%			0.00%	100.00%	100.00%	0.00%			0.00%	100.00%	0.00%	100.00%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 2
Intersection: NASHVILLE HIGHWAY & OLD HIGHWAY 31

Southbound: US-31 (Nashville Highway)
Westbound: US-31 (Nashville Highway)
Northbound: US-31 (Nashville Highway)
Eastbound: Old Highway 31

Lat/Long: 35.707620, -86.975748

Count Date: 3/10/2020

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

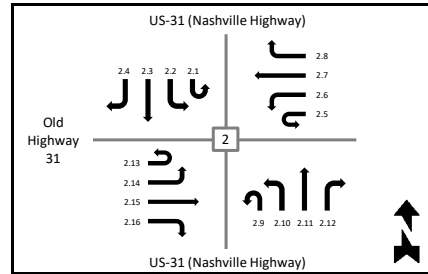
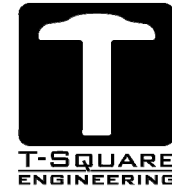
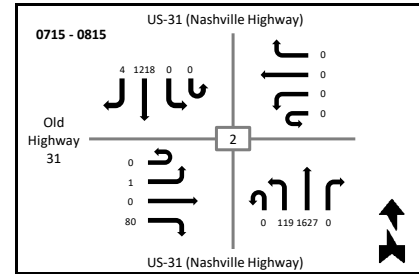


Figure 2 - AM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	US-31 (Nashville Highway)												US-31 (Nashville Highway)						Old Highway 31					
Time	U-Turn 2.1	Left 2.2	Thru 2.3	Right 2.4	Peds X-Walk	App Total	U-Turn 2.5	Left 2.6	Thru 2.7	Right 2.8	Peds X-Walk	App Total	U-Turn 2.9	Left 2.10	Thru 2.11	Right 2.12	Peds X-Walk	App Total	U-Turn 2.13	Left 2.14	Thru 2.15	Right 2.16	Peds X-Walk	App Total
0630 - 0645	0	0	316	0	0	316	0	0	0	0	0	0	0	16	315	0	0	331	0	0	0	21	0	21
0645 - 0700	0	0	242	0	0	242	0	0	0	0	0	0	0	26	358	0	0	384	0	0	0	11	0	11
0700 - 0715	0	0	246	0	0	246	0	0	0	0	0	0	0	41	385	0	0	426	0	0	0	8	0	8
0715 - 0730	0	0	303	0	0	303	0	0	0	0	0	0	0	37	453	0	0	490	0	0	0	20	0	20
0730 - 0745	0	0	351	2	0	353	0	0	0	0	0	0	0	50	439	0	0	489	0	1	0	26	0	27
0745 - 0800	0	0	286	1	0	287	0	0	0	0	0	0	0	17	398	0	0	415	0	0	0	28	0	28
0800 - 0815	0	0	278	1	0	279	0	0	0	0	0	0	0	15	337	0	0	352	0	0	0	6	0	6
0815 - 0830	0	0	258	0	0	258	0	0	0	0	0	0	0	15	381	0	0	396	0	1	0	11	0	12
Grand Total	0	0	2280	4	0	2284	0	0	0	0	0	0	0	217	3066	0	0	3283	0	2	0	131	0	133
Peak Hour Total																								
0715 - 0815	0	0	1218	4	0	1222	0	0	0	0	0	0	0	119	1627	0	0	1746	0	1	0	80	0	81
App %	0.00%	0.00%	99.82%	0.18%			0.00%	0.00%	0.00%	0.00%			0.00%	6.61%	93.39%	0.00%			0.00%	1.50%	0.00%	98.50%		
Int %	0.00%	0.00%	40.00%	0.07%		40.07%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	3.81%	53.79%	0.00%		57.60%	0.00%	0.04%	0.00%	2.30%		2.33%
Cars Total	0	0	2280	4			0	0	0	0			0	217	3066	0			0	2	0	131		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	0.00%	100.00%	100.00%			0.00%	0.00%	0.00%	0.00%			0.00%	100.00%	100.00%	0.00%			0.00%	100.00%	0.00%	100.00%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
 Intersection #: 2
 Intersection: NASHVILLE HIGHWAY & OLD HIGHWAY 31

Southbound: US-31 (Nashville Highway)
 Westbound: US-31 (Nashville Highway)
 Northbound: US-31 (Nashville Highway)
 Eastbound: Old Highway 31

Lat/Long: 35.707620, -86.975748

Count Date: 3/10/2020

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

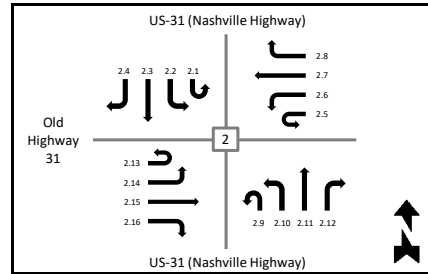
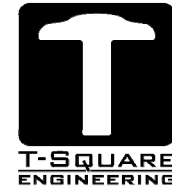
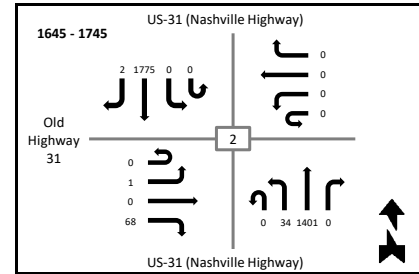


Figure 2 - PM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	US-31 (Nashville Highway)												US-31 (Nashville Highway)						Old Highway 31					
Time	U-Turn 2.1	Left 2.2	Thru 2.3	Right 2.4	Peds X-Walk	App Total	U-Turn 2.5	Left 2.6	Thru 2.7	Right 2.8	Peds X-Walk	App Total	U-Turn 2.9	Left 2.10	Thru 2.11	Right 2.12	Peds X-Walk	App Total	U-Turn 2.13	Left 2.14	Thru 2.15	Right 2.16	Peds X-Walk	App Total
1600 - 1615	0	0	435	1	0	436	0	0	0	0	0	0	0	4	304	0	0	308	0	1	0	18	0	19
1615 - 1630	0	0	431	2	0	433	0	0	0	0	0	0	0	8	351	0	0	359	0	0	0	20	0	20
1630 - 1645	0	0	444	0	0	444	0	0	0	0	0	0	0	12	292	0	0	304	0	0	0	21	0	21
1645 - 1700	0	0	442	0	0	442	0	0	0	0	0	0	0	10	356	0	0	366	0	0	0	24	0	24
1700 - 1715	0	0	436	0	0	436	0	0	0	0	0	0	0	13	302	0	0	315	0	0	0	20	0	20
1715 - 1730	0	0	451	1	0	452	0	0	0	0	0	0	0	6	378	0	0	384	0	0	0	13	0	13
1730 - 1745	0	0	446	1	0	447	0	0	0	0	0	0	0	5	365	0	0	370	0	1	0	11	0	12
1745 - 1800	0	0	406	0	0	406	0	0	0	0	0	0	0	7	286	0	0	293	0	0	0	13	0	13
Grand Total	0	0	3491	5	0	3496	0	0	0	0	0	0	0	65	2634	0	0	2699	0	2	0	140	0	142
Peak Hour Total																								
1645 - 1745	0	0	1775	2	0	1777	0	0	0	0	0	0	0	34	1401	0	0	1435	0	1	0	68	0	69
App %	0.00%	0.00%	99.86%	0.14%			0.00%	0.00%	0.00%	0.00%			0.00%	2.41%	97.59%	0.00%			0.00%	1.41%	0.00%	98.59%		
Int %	0.00%	0.00%	55.09%	0.08%		55.17%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	1.03%	41.57%	0.00%		42.59%	0.00%	0.03%	0.00%	2.21%		2.24%
Cars Total	0	0	3491	5			0	0	0	0			0	65	2634	0			0	2	0	140		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	0.00%	100.00%	100.00%			0.00%	0.00%	0.00%	0.00%			0.00%	100.00%	100.00%	0.00%			0.00%	100.00%	0.00%	100.00%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 3
Intersection: US-31 (NASHVILLE HIGHWAY) & ARDEN VILLAGE DRIVE/GROVE PARK WAY

Southbound: US-31 (Nashville Highway)
Westbound: Grove Park Way
Northbound: US-31 (Nashville Highway)
Eastbound: Arden Village Drive

Lat/Long: 35.706079, -86.976717

Count Date: 3/10/2020

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

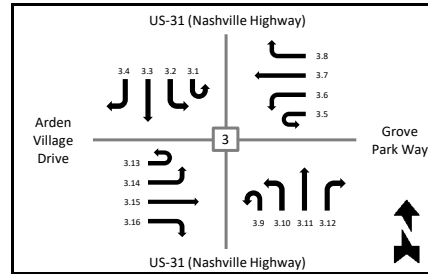
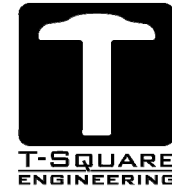
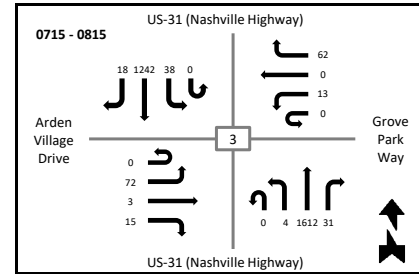


Figure 2 - AM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	US-31 (Nashville Highway)						Grove Park Way						US-31 (Nashville Highway)						Arden Village Drive					
Time	U-Turn 3.1	Left 3.2	Thru 3.3	Right 3.4	Peds X-Walk	App Total	U-Turn 3.5	Left 3.6	Thru 3.7	Right 3.8	Peds X-Walk	App Total	U-Turn 3.9	Left 3.10	Thru 3.11	Right 3.12	Peds X-Walk	App Total	U-Turn 3.13	Left 3.14	Thru 3.15	Right 3.16	Peds X-Walk	App Total
0630 - 0645	0	2	334	1	0	337	0	2	0	9	0	11	0	1	309	1	0	311	0	13	0	4	0	17
0645 - 0700	0	1	250	2	0	253	0	3	0	11	0	14	0	0	359	4	0	363	0	14	0	0	0	14
0700 - 0715	0	3	247	4	0	254	0	5	0	10	0	15	0	1	398	2	0	401	0	18	0	3	0	21
0715 - 0730	0	6	314	3	0	323	0	1	0	13	0	14	0	0	456	10	0	466	0	21	1	4	0	26
0730 - 0745	0	5	368	4	0	377	0	4	0	16	0	20	0	2	460	8	0	470	0	13	1	4	0	18
0745 - 0800	0	12	298	4	0	314	0	1	0	16	0	17	0	1	378	3	0	382	0	21	1	5	0	27
0800 - 0815	0	15	262	7	0	284	0	7	0	17	0	24	0	1	318	10	0	329	0	17	0	2	0	19
0815 - 0830	0	11	255	3	0	269	0	5	1	19	0	25	0	6	357	17	0	380	0	20	0	2	0	22
Grand Total	0	55	2328	28	0	2411	0	28	1	111	0	140	0	12	3035	55	0	3102	0	137	3	24	0	164
Peak Hour Total																								
0715 - 0815	0	38	1242	18	0	1298	0	13	0	62	0	75	0	4	1612	31	0	1647	0	72	3	15	0	90
App %	0.00%	2.28%	96.56%	1.16%			0.00%	20.00%	0.71%	79.29%			0.00%	0.39%	97.84%	1.77%			0.00%	83.54%	1.83%	14.63%		
Int %	0.00%	0.95%	40.02%	0.48%		41.45%	0.00%	0.48%	0.02%	1.91%		2.41%	0.00%	0.21%	52.17%	0.95%		53.33%	0.00%	2.36%	0.05%	0.41%		2.82%
Cars Total	0	55	2328	28			0	28	1	111			0	12	3035	55			0	137	3	24		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	100.00%	100.00%	100.00%			0.00%	100.00%	100.00%	100.00%			0.00%	100.00%	100.00%	100.00%			0.00%	100.00%	100.00%	100.00%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 3
Intersection: US-31 (NASHVILLE HIGHWAY) & ARDEN VILLAGE DRIVE/GROVE PARK WAY

Southbound: US-31 (Nashville Highway)
Westbound: Grove Park Way
Northbound: US-31 (Nashville Highway)
Eastbound: Arden Village Drive

Lat/Long: 35.706079, -86.976717

Count Date: 3/10/2020

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

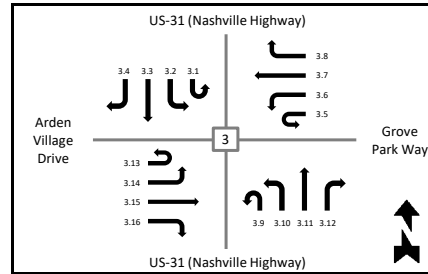
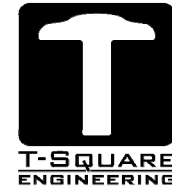
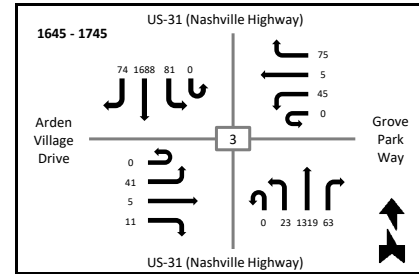


Figure 2 - PM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound Grove Park Way						Northbound US-31 (Nashville Highway)						Eastbound Arden Village Drive					
	U-Turn 3.1	Left 3.2	Thru 3.3	Right 3.4	Peds X-Walk	App Total	U-Turn 3.5	Left 3.6	Thru 3.7	Right 3.8	Peds X-Walk	App Total	U-Turn 3.9	Left 3.10	Thru 3.11	Right 3.12	Peds X-Walk	App Total	U-Turn 3.13	Left 3.14	Thru 3.15	Right 3.16	Peds X-Walk	App Total
1600 - 1615	0	16	426	11	0	453	0	3	2	15	0	20	0	1	282	11	0	294	0	11	1	3	0	15
1615 - 1630	0	10	419	22	0	451	0	4	2	11	0	17	0	4	341	11	0	356	0	7	0	5	0	12
1630 - 1645	0	16	429	20	0	465	0	9	3	11	0	23	0	7	282	7	0	296	0	11	0	2	0	13
1645 - 1700	0	18	432	16	0	466	0	9	1	12	0	22	0	6	347	11	0	364	0	7	1	2	0	10
1700 - 1715	0	25	415	16	0	456	0	11	1	24	0	36	0	8	276	20	0	304	0	15	1	5	0	21
1715 - 1730	0	17	430	17	0	464	0	17	2	20	0	39	0	4	359	17	0	380	0	5	1	1	0	7
1730 - 1745	0	21	411	25	0	457	0	8	1	19	0	28	0	5	337	15	0	357	0	14	2	3	0	19
1745 - 1800	0	17	387	15	0	419	0	9	1	18	0	28	0	5	271	9	0	285	0	4	2	1	0	7
Grand Total	0	140	3349	142	0	3631	0	70	13	130	0	213	0	40	2495	101	0	2636	0	74	8	22	0	104
Peak Hour Total																								
1645 - 1745	0	81	1688	74	0	1843	0	45	5	75	0	125	0	23	1319	63	0	1405	0	41	5	11	0	57
App %	0.00%	3.86%	92.23%	3.91%			0.00%	32.86%	6.10%	61.03%			0.00%	1.52%	94.65%	3.83%			0.00%	71.15%	7.69%	21.15%		
Int %	0.00%	2.13%	50.87%	2.16%		55.15%	0.00%	1.06%	0.20%	1.97%		3.24%	0.00%	0.61%	37.89%	1.53%		40.04%	0.00%	1.12%	0.12%	0.33%		1.58%
Cars Total	0	140	3349	142			0	70	13	130			0	40	2495	101			0	74	8	22		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	100.00%	100.00%	100.00%			0.00%	100.00%	100.00%	100.00%			0.00%	100.00%	100.00%	100.00%			0.00%	100.00%	100.00%	100.00%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)
Count Sites: 5
Intersection #: 4
Intersection: US-31 (NASHVILLE HIGHWAY) & GREENS MILL ROAD
Southbound: US-31 (Nashville Highway)
Westbound: Greens Mill Road
Northbound: US-31 (Nashville Highway)
Eastbound:
Lat/Long: 35.702686, -86.979380
Count Date: 1/15/2019
Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

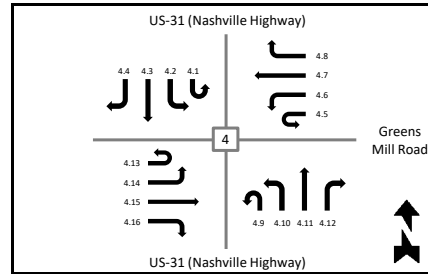
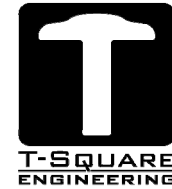
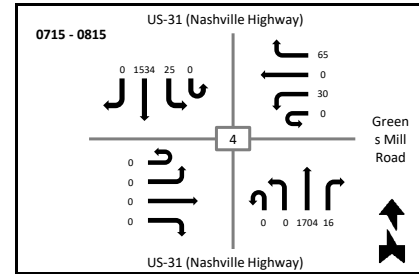


Figure 2 - AM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound Greens Mill Road						Northbound US-31 (Nashville Highway)						Eastbound					
	U-Turn 4.1	Left 4.2	Thru 4.3	Right 4.4	Peds X-Walk	App Total	U-Turn 4.5	Left 4.6	Thru 4.7	Right 4.8	Peds X-Walk	App Total	U-Turn 4.9	Left 4.10	Thru 4.11	Right 4.12	Peds X-Walk	App Total	U-Turn 4.13	Left 4.14	Thru 4.15	Right 4.16	Peds X-Walk	App Total
0600 - 0615	0	3	183	0	0	186	0	3	0	3	0	6	0	0	327	3	0	330	0	0	0	0	0	0
0615 - 0630	0	3	448	0	0	451	0	2	0	8	0	10	0	0	306	1	0	307	0	0	0	0	0	0
0630 - 0645	0	4	328	0	0	332	0	3	0	2	0	5	0	0	368	4	0	372	0	0	0	0	0	0
0645 - 0700	0	2	266	0	0	268	0	7	0	16	0	23	0	0	382	1	0	383	0	0	0	0	0	0
0700 - 0715	0	4	283	0	0	287	0	6	0	25	0	31	0	0	378	1	0	379	0	0	0	0	0	0
0715 - 0730	0	4	362	0	0	366	0	10	0	25	0	35	0	0	462	6	0	468	0	0	0	0	0	0
0730 - 0745	0	11	450	0	0	461	0	9	0	21	0	30	0	0	459	3	0	462	0	0	0	0	0	0
0745 - 0800	0	6	439	0	0	445	0	6	0	12	0	18	0	0	398	4	0	402	0	0	0	0	0	0
0800 - 0815	0	4	283	0	0	287	0	5	0	7	0	12	0	0	385	3	0	388	0	0	0	0	0	0
0815 - 0830	0	6	224	0	0	230	0	6	0	6	0	12	0	0	363	5	0	368	0	0	0	0	0	0
0830 - 0845	0	3	248	0	0	251	0	6	0	11	0	17	0	0	295	6	0	301	0	0	0	0	0	0
0845 - 0900	0	6	246	0	0	252	0	3	0	7	0	10	0	0	274	2	0	276	0	0	0	0	0	0
Grand Total	0	56	3760	0	0	3816	0	66	0	143	0	209	0	0	4397	39	0	4436	0	0	0	0	0	0
Peak Hour Total	0	25	1534	0	0	1559	0	30	0	65	0	95	0	0	1704	16	0	1720	0	0	0	0	0	0
App %	0.00%	1.47%	98.53%	0.00%			0.00%	31.58%	0.00%	68.42%			0.00%	0.00%	99.12%	0.88%			0.00%	0.00%	0.00%	0.00%		
Int %	0.00%	0.66%	44.44%	0.00%		45.10%	0.00%	0.78%	0.00%	1.69%		2.47%	0.00%	0.00%	51.97%	0.46%		52.43%	0.00%	0.00%	0.00%	0.00%		0.00%
Cars Total	0	56	3570	0			0	66	0	140			0	0	4223	37			0	0	0	0		
Heavy Total	0	0	190	0			0	0	0	3			0	0	174	2			0	0	0	0		
% Cars	0.00%	100.00%	94.95%	0.00%			0.00%	100.00%	0.00%	97.90%			0.00%	0.00%	96.04%	94.87%			0.00%	0.00%	0.00%	0.00%		
% Heavy	0.00%	0.00%	5.05%	0.00%			0.00%	0.00%	0.00%	2.10%			0.00%	0.00%	3.96%	5.13%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)
Count Sites: 5
Intersection #: 4
Intersection: US-31 (NASHVILLE HIGHWAY) & GREENS MILL ROAD
Southbound: US-31 (Nashville Highway)
Westbound: Greens Mill Road
Northbound: US-31 (Nashville Highway)
Eastbound:
Lat/Long: 35.702686, -86.979380
Count Date: 1/15/2019
Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

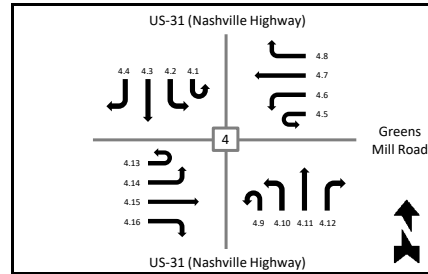
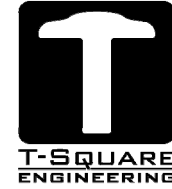
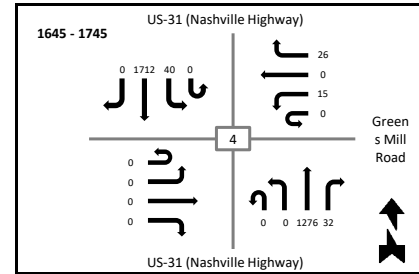


Figure 2 - PM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound Greens Mill Road						Northbound US-31 (Nashville Highway)						Eastbound					
	U-Turn 4.1	Left 4.2	Thru 4.3	Right 4.4	Peds X-Walk	App Total	U-Turn 4.5	Left 4.6	Thru 4.7	Right 4.8	Peds X-Walk	App Total	U-Turn 4.9	Left 4.10	Thru 4.11	Right 4.12	Peds X-Walk	App Total	U-Turn 4.13	Left 4.14	Thru 4.15	Right 4.16	Peds X-Walk	App Total
1500 - 1515	0	27	424	0	0	451	0	5	0	4	0	9	0	0	256	6	0	262	0	0	0	0	0	0
1515 - 1530	0	12	408	0	0	420	0	2	0	6	0	8	0	0	347	8	0	355	0	0	0	0	0	0
1530 - 1545	0	12	480	0	0	492	0	2	0	10	0	12	0	0	326	4	0	330	0	0	0	0	0	0
1545 - 1600	0	13	424	0	0	437	0	7	0	9	0	16	0	0	346	6	0	352	0	0	0	0	0	0
1600 - 1615	0	7	370	0	0	377	0	5	0	8	0	13	0	0	271	10	0	281	0	0	0	0	0	0
1615 - 1630	0	15	439	0	0	454	0	8	0	6	0	14	0	0	314	8	0	322	0	0	0	0	0	0
1630 - 1645	0	14	455	0	0	469	0	6	0	10	0	16	0	0	353	9	0	362	0	0	0	0	0	0
1645 - 1700	0	13	453	0	0	466	0	2	0	9	0	11	0	0	320	6	0	326	0	0	0	0	0	0
1700 - 1715	0	10	427	0	0	437	0	6	0	8	0	14	0	0	325	10	0	335	0	0	0	0	0	0
1715 - 1730	0	10	416	0	0	426	0	5	0	6	0	11	0	0	319	6	0	325	0	0	0	0	0	0
1730 - 1745	0	7	416	0	0	423	0	2	0	3	0	5	0	0	312	10	0	322	0	0	0	0	0	0
1745 - 1800	0	1	371	0	0	372	0	3	0	5	0	8	0	0	284	2	0	286	0	0	0	0	0	0
Grand Total	0	141	5083	0	0	5224	0	53	0	84	0	137	0	0	3773	85	0	3858	0	0	0	0	0	0
Peak Hour Total	0	40	1712	0	0	1752	0	15	0	26	0	41	0	0	1276	32	0	1308	0	0	0	0	0	0
1645 - 1745	0	40	1712	0	0	1752	0	15	0	26	0	41	0	0	1276	32	0	1308	0	0	0	0	0	0
App %	0.00%	2.70%	97.30%	0.00%			0.00%	38.69%	0.00%	61.31%			0.00%	0.00%	97.80%	2.20%			0.00%	0.00%	0.00%	0.00%		
Int %	0.00%	1.53%	55.14%	0.00%		56.67%	0.00%	0.57%	0.00%	0.91%		1.49%	0.00%	0.00%	40.93%	0.92%		41.85%	0.00%	0.00%	0.00%	0.00%		0.00%
Cars Total	0	140	4953	0			0	51	0	83			0	0	3648	82			0	0	0	0		
Heavy Total	0	1	130	0			0	2	0	1			0	0	125	3			0	0	0	0		
% Cars	0.00%	99.29%	97.44%	0.00%			0.00%	96.23%	0.00%	98.81%			0.00%	0.00%	96.69%	96.47%			0.00%	0.00%	0.00%	0.00%		
% Heavy	0.00%	0.71%	2.56%	0.00%			0.00%	3.77%	0.00%	1.19%			0.00%	0.00%	3.31%	3.53%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 5
Intersection: US-31 (NASHVILLE HIGHWAY) & HIDDEN CREEK WAY

Southbound: US-31 (Nashville Highway)
Westbound: US-31 (Nashville Highway)
Northbound: US-31 (Nashville Highway)
Eastbound: Hidden Creek Way

Lat/Long: 35.700319, -86.981818

Count Date: 1/15/2019

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

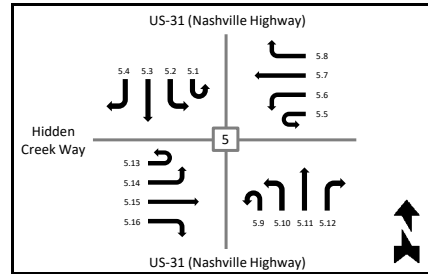
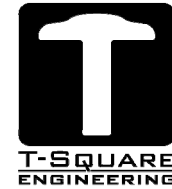
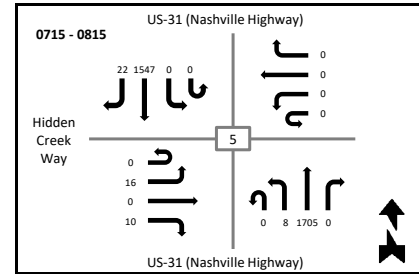


Figure 2 - AM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound						Northbound US-31 (Nashville Highway)						Eastbound Hidden Creek Way					
	U-Turn 5.1	Left 5.2	Thru 5.3	Right 5.4	Peds X-Walk	App Total	U-Turn 5.5	Left 5.6	Thru 5.7	Right 5.8	Peds X-Walk	App Total	U-Turn 5.9	Left 5.10	Thru 5.11	Right 5.12	Peds X-Walk	App Total	U-Turn 5.13	Left 5.14	Thru 5.15	Right 5.16	Peds X-Walk	App Total
0600 - 0615	0	0	196	2	0	198	0	0	0	0	0	0	0	0	346	0	0	346	0	5	0	0	0	5
0615 - 0630	0	0	440	1	0	441	0	0	0	0	0	0	0	2	294	0	0	296	0	4	0	1	0	5
0630 - 0645	0	0	344	5	0	349	0	0	0	0	0	0	1	1	377	0	0	379	0	7	0	1	0	8
0645 - 0700	0	0	249	4	0	253	0	0	0	0	0	0	0	4	388	0	0	392	0	1	0	3	0	4
0700 - 0715	0	0	295	4	0	299	0	0	0	0	0	0	0	2	366	0	0	368	0	6	0	3	0	9
0715 - 0730	0	0	378	6	0	384	0	0	0	0	0	0	0	3	493	0	0	496	0	3	0	3	0	6
0730 - 0745	0	0	460	5	0	465	0	0	0	0	0	0	0	1	437	0	0	438	0	5	0	2	0	7
0745 - 0800	0	0	419	8	0	427	0	0	0	0	0	0	0	2	400	0	0	402	0	5	0	3	0	8
0800 - 0815	0	0	290	3	0	293	0	0	0	0	0	0	0	2	375	0	0	377	0	3	0	2	0	5
0815 - 0830	0	0	227	6	0	233	0	0	0	0	0	0	0	1	363	0	0	364	0	4	0	0	0	4
0830 - 0845	0	0	249	5	0	254	0	0	0	0	0	0	0	3	298	0	0	301	0	5	0	2	0	7
0845 - 0900	0	0	246	4	0	250	0	0	0	0	0	0	0	0	262	0	0	262	0	8	0	1	0	9
Grand Total	0	0	3793	53	0	3846	0	0	0	0	0	0	1	21	4399	0	0	4421	0	56	0	21	0	77
Peak Hour Total																								
0715 - 0815	0	0	1547	22	0	1569	0	0	0	0	0	0	0	8	1705	0	0	1713	0	16	0	10	0	26
App %	0.00%	0.00%	98.62%	1.38%			0.00%	0.00%	0.00%	0.00%			0.02%	0.48%	99.50%	0.00%			0.00%	72.73%	0.00%	27.27%		
Int %	0.00%	0.00%	45.46%	0.64%		46.09%	0.00%	0.00%	0.00%	0.00%		0.00%	0.01%	0.25%	52.72%	0.00%		52.98%	0.00%	0.67%	0.00%	0.25%		0.92%
Cars Total	0	0	3610	49			0	0	0	0			1	20	4208	0			0	55	0	19		
Heavy Total	0	0	183	4			0	0	0	0			0	1	191	0			0	1	0	2		
% Cars	0.00%	0.00%	95.18%	92.45%			0.00%	0.00%	0.00%	0.00%			100.00%	95.24%	95.66%	0.00%			0.00%	98.21%	0.00%	90.48%		
% Heavy	0.00%	0.00%	4.82%	7.55%			0.00%	0.00%	0.00%	0.00%			0.00%	4.76%	4.34%	0.00%			0.00%	1.79%	0.00%	9.52%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
 Intersection #: 5
 Intersection: US-31 (NASHVILLE HIGHWAY) & HIDDEN CREEK WAY

Southbound: US-31 (Nashville Highway)
 Westbound: US-31 (Nashville Highway)
 Northbound: Hidden Creek Way
 Eastbound: Hidden Creek Way

Lat/Long: 35.700319, -86.981818

Count Date: 1/15/2019

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

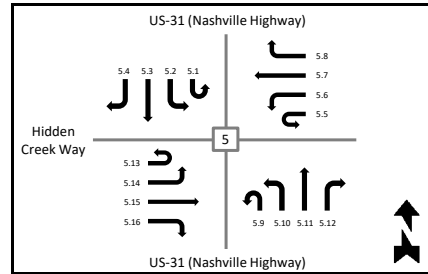
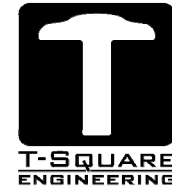
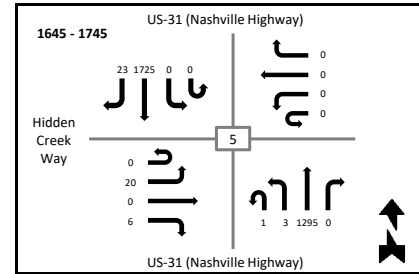


Figure 2 - PM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound						Northbound US-31 (Nashville Highway)						Eastbound Hidden Creek Way					
	U-Turn 5.1	Left 5.2	Thru 5.3	Right 5.4	Peds X-Walk	App Total	U-Turn 5.5	Left 5.6	Thru 5.7	Right 5.8	Peds X-Walk	App Total	U-Turn 5.9	Left 5.10	Thru 5.11	Right 5.12	Peds X-Walk	App Total	U-Turn 5.13	Left 5.14	Thru 5.15	Right 5.16	Peds X-Walk	App Total
1500 - 1515	0	0	414	11	0	425	0	0	0	0	0	0	0	2	277	0	0	279	0	3	0	5	0	8
1515 - 1530	0	0	391	4	0	395	0	0	0	0	0	0	0	0	331	0	0	331	0	5	0	2	0	7
1530 - 1545	0	0	463	6	0	469	0	0	0	0	0	0	0	0	329	0	0	329	0	2	0	0	0	2
1545 - 1600	0	0	438	1	0	439	0	0	0	0	0	0	1	3	348	0	0	352	0	5	0	1	0	6
1600 - 1615	0	0	385	5	0	390	0	0	0	0	0	0	0	1	273	0	0	274	0	5	0	3	0	8
1615 - 1630	0	0	444	4	0	448	0	0	0	0	0	0	0	0	323	0	0	323	0	5	0	1	0	6
1630 - 1645	0	0	449	6	0	455	0	0	0	0	0	0	0	3	361	0	0	364	0	3	0	0	0	3
1645 - 1700	0	0	465	6	0	471	0	0	0	0	0	0	0	1	323	0	0	324	0	7	0	0	0	7
1700 - 1715	0	0	425	7	0	432	0	0	0	0	0	0	1	1	325	0	0	327	0	6	0	0	0	6
1715 - 1730	0	0	425	5	0	430	0	0	0	0	0	0	0	0	327	0	0	327	0	3	0	4	0	7
1730 - 1745	0	0	410	5	0	415	0	0	0	0	0	0	0	1	320	0	0	321	0	4	0	2	0	6
1745 - 1800	0	0	362	6	0	368	0	0	0	0	0	0	1	2	267	0	0	270	0	5	0	1	0	6
Grand Total	0	0	5071	66	0	5137	0	0	0	0	0	0	3	14	3804	0	0	3821	0	53	0	19	0	72
Peak Hour Total																								
1645 - 1745	0	0	1725	23	0	1748	0	0	0	0	0	0	1	3	1295	0	0	1299	0	20	0	6	0	26
App %	0.00%	0.00%	98.72%	1.28%			0.00%	0.00%	0.00%	0.00%			0.08%	0.37%	99.56%	0.00%			0.00%	73.61%	0.00%	26.39%		
Int %	0.00%	0.00%	56.16%	0.73%		56.89%	0.00%	0.00%	0.00%	0.00%		0.00%	0.03%	0.16%	42.13%	0.00%		42.31%	0.00%	0.59%	0.00%	0.21%		0.80%
Cars Total	0	0	4935	61			0	0	0	0			3	14	3680	0			0	48	0	17		
Heavy Total	0	0	136	5			0	0	0	0			0	0	124	0			0	5	0	2		
% Cars	0.00%	0.00%	97.32%	92.42%			0.00%	0.00%	0.00%	0.00%			100.00%	100.00%	96.74%	0.00%			0.00%	90.57%	0.00%	89.47%		
% Heavy	0.00%	0.00%	2.68%	7.58%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	3.26%	0.00%			0.00%	9.43%	0.00%	10.53%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)
Count Sites: 5
Intersection #: 1
Intersection: US-31 (NASHVILLE HIGHWAY) & SPRING MEADE BOULEV

Southbound: US-31 (Nashville Highway)
Westbound: Driveway
Northbound: US-31 (Nashville Highway)
Eastbound: Spring Meade Boulevard

Lat/Long: 35.711906, -86.973619

Count Date: 3/10/2020 --> Grown to 2021

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

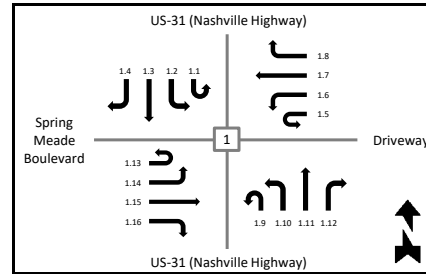
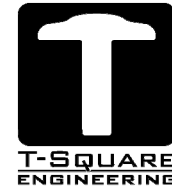
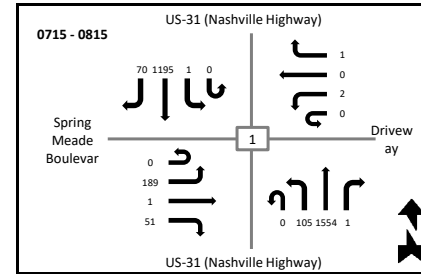


Figure 2 - AM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound Driveway						Northbound US-31 (Nashville Highway)						Eastbound Spring Meade Boulevard					
	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds X-Walk	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds X-Walk	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds X-Walk	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds X-Walk	App Total
0630 - 0645	0	0	296	11	0	307	0	0	0	0	0	0	0	12	310	0	0	322	0	22	0	23	0	45
0645 - 0700	0	0	222	16	0	238	0	0	0	0	0	0	0	13	374	1	0	388	0	21	0	10	0	31
0700 - 0715	0	0	239	10	0	249	0	1	0	0	0	1	0	19	325	0	0	344	0	45	0	12	0	57
0715 - 0730	0	0	286	22	0	308	0	0	0	0	0	0	0	40	414	0	0	454	0	51	0	12	0	63
0730 - 0745	0	0	337	15	0	352	0	1	0	0	0	1	0	32	377	1	0	410	0	66	0	21	0	87
0745 - 0800	0	0	286	16	0	302	0	0	0	0	0	0	0	22	435	0	0	457	0	42	0	13	0	55
0800 - 0815	0	1	286	17	0	304	0	1	0	1	0	2	0	11	328	0	0	339	0	30	1	5	0	36
0815 - 0830	0	0	265	16	0	281	0	0	0	0	0	0	0	4	369	0	0	373	0	30	0	5	0	35
Grand Total	0	1	2217	123	0	2341	0	3	0	1	0	4	0	153	2932	2	0	3087	0	307	1	101	0	409
Peak Hour Total																								
0715 - 0815	0	1	1195	70	0	1266	0	2	0	1	0	3	0	105	1554	1	0	1660	0	189	1	51	0	241
App %	0.00%	0.04%	94.70%	5.25%			0.00%	75.00%	0.00%	25.00%			0.00%	4.96%	94.98%	0.06%			0.00%	75.06%	0.24%	24.69%		
Int %	0.00%	0.02%	37.96%	2.11%		40.08%	0.00%	0.05%	0.00%	0.02%		0.07%	0.00%	2.62%	50.20%	0.03%		52.85%	0.00%	5.26%	0.02%	1.73%		7.00%
Cars Total	0	1	2137	117			0	3	0	1			0	149	2825	2			0	295	1	99		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	100.00%	96.39%	95.12%			0.00%	100.00%	0.00%	100.00%			0.00%	97.39%	96.35%	100.00%			0.00%	96.09%	100.00%	98.02%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 1
Intersection: US-31 (NASHVILLE HIGHWAY) & SPRING MEADE BOULEVARD

Southbound: US-31 (Nashville Highway)
Westbound: Driveway
Northbound: US-31 (Nashville Highway)
Eastbound: Spring Meade Boulevard

Lat/Long: 35.711906, -86.973619

Count Date: 3/10/2020 --> Grown to 2021

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

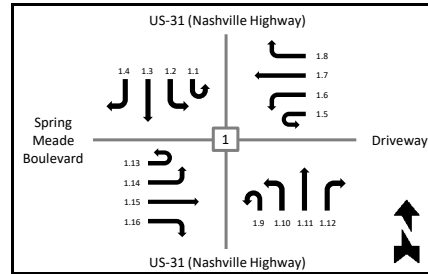
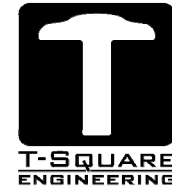
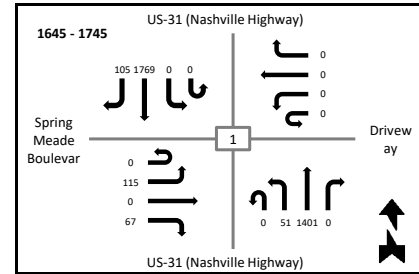


Figure 2 - PM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	US-31 (Nashville Highway)						Driveway						US-31 (Nashville Highway)						Spring Meade Boulevard					
Time	U-Turn 1.1	Left 1.2	Thru 1.3	Right 1.4	Peds X-Walk	App Total	U-Turn 1.5	Left 1.6	Thru 1.7	Right 1.8	Peds X-Walk	App Total	U-Turn 1.9	Left 1.10	Thru 1.11	Right 1.12	Peds X-Walk	App Total	U-Turn 1.13	Left 1.14	Thru 1.15	Right 1.16	Peds X-Walk	App Total
1600 - 1615	0	0	398	25	0	423	0	2	0	0	0	2	0	7	308	0	0	315	0	25	0	18	0	43
1615 - 1630	0	0	439	25	0	464	0	0	0	0	0	0	0	13	337	0	0	350	0	31	0	10	0	41
1630 - 1645	0	0	463	24	0	487	0	0	0	0	0	0	0	6	301	0	0	307	0	28	0	19	0	47
1645 - 1700	0	0	407	27	0	434	0	0	0	0	0	0	0	9	347	0	0	356	0	40	0	20	0	60
1700 - 1715	0	0	472	27	0	499	0	0	0	0	0	0	0	13	331	0	0	344	0	27	0	20	0	47
1715 - 1730	0	0	433	24	0	457	0	0	0	0	0	0	0	21	353	0	0	374	0	24	0	15	0	39
1730 - 1745	0	0	457	27	0	484	0	0	0	0	0	0	0	8	370	0	0	378	0	24	0	12	0	36
1745 - 1800	0	0	403	32	0	435	0	0	0	0	0	0	0	6	274	0	0	280	0	28	0	16	0	44
Grand Total	0	0	3472	211	0	3683	0	2	0	0	0	2	0	83	2621	0	0	2704	0	227	0	130	0	357
Peak Hour Total																								
1645 - 1745	0	0	1769	105	0	1874	0	0	0	0	0	0	0	51	1401	0	0	1452	0	115	0	67	0	182
App %	0.00%	0.00%	94.27%	5.73%			0.00%	100.00%	0.00%	0.00%			0.00%	3.07%	96.93%	0.00%			0.00%	63.59%	0.00%	36.41%		
Int %	0.00%	0.00%	51.47%	3.13%		54.60%	0.00%	0.03%	0.00%	0.00%		0.03%	0.00%	1.23%	38.85%	0.00%		40.08%	0.00%	3.36%	0.00%	1.93%		5.29%
Cars Total	0	0	3345	203			0	2	0	0			0	82	2526	0			0	219	0	124		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	0.00%	96.34%	96.21%			0.00%	100.00%	0.00%	0.00%			0.00%	98.80%	96.38%	0.00%			0.00%	96.48%	0.00%	95.38%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 2
Intersection: NASHVILLE HIGHWAY & OLD HIGHWAY 31

Southbound: US-31 (Nashville Highway)
Westbound: US-31 (Nashville Highway)
Northbound: US-31 (Nashville Highway)
Eastbound: Old Highway 31

Lat/Long: 35.707620, -86.975748

Count Date: 3/10/2020 --> Grown to 2021

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

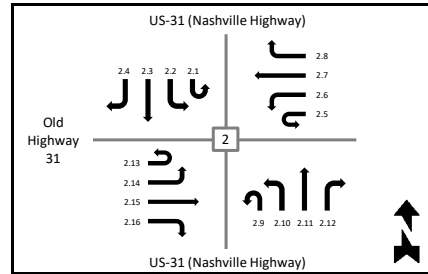
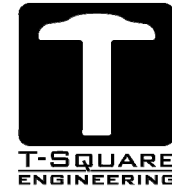
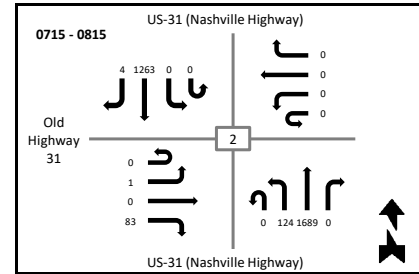


Figure 2 - AM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	US-31 (Nashville Highway)												US-31 (Nashville Highway)						Old Highway 31					
Time	U-Turn 2.1	Left 2.2	Thru 2.3	Right 2.4	Peds X-Walk	App Total	U-Turn 2.5	Left 2.6	Thru 2.7	Right 2.8	Peds X-Walk	App Total	U-Turn 2.9	Left 2.10	Thru 2.11	Right 2.12	Peds X-Walk	App Total	U-Turn 2.13	Left 2.14	Thru 2.15	Right 2.16	Peds X-Walk	App Total
0630 - 0645	0	0	328	0	0	328	0	0	0	0	0	0	0	17	327	0	0	344	0	0	0	22	0	22
0645 - 0700	0	0	251	0	0	251	0	0	0	0	0	0	0	27	371	0	0	398	0	0	0	11	0	11
0700 - 0715	0	0	255	0	0	255	0	0	0	0	0	0	0	43	399	0	0	442	0	0	0	8	0	8
0715 - 0730	0	0	314	0	0	314	0	0	0	0	0	0	0	38	470	0	0	508	0	0	0	21	0	21
0730 - 0745	0	0	364	2	0	366	0	0	0	0	0	0	0	52	456	0	0	508	0	1	0	27	0	28
0745 - 0800	0	0	297	1	0	298	0	0	0	0	0	0	0	18	413	0	0	431	0	0	0	29	0	29
0800 - 0815	0	0	288	1	0	289	0	0	0	0	0	0	0	16	350	0	0	366	0	0	0	6	0	6
0815 - 0830	0	0	268	0	0	268	0	0	0	0	0	0	0	16	395	0	0	411	0	1	0	11	0	12
Grand Total	0	0	2365	4	0	2369	0	0	0	0	0	0	0	227	3181	0	0	3408	0	2	0	135	0	137
Peak Hour Total																								
0715 - 0815	0	0	1263	4	0	1267	0	0	0	0	0	0	0	124	1689	0	0	1813	0	1	0	83	0	84
App %	0.00%	0.00%	99.83%	0.17%			0.00%	0.00%	0.00%	0.00%			0.00%	6.66%	93.34%	0.00%			0.00%	1.46%	0.00%	98.54%		
Int %	0.00%	0.00%	39.99%	0.07%		40.06%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	3.84%	53.79%	0.00%		57.63%	0.00%	0.03%	0.00%	2.28%		2.32%
Cars Total	0	0	2280	4			0	0	0	0			0	217	3066	0			0	2	0	131		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	0.00%	96.41%	100.00%			0.00%	0.00%	0.00%	0.00%			0.00%	95.59%	96.38%	0.00%			0.00%	100.00%	0.00%	97.04%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 2
Intersection: NASHVILLE HIGHWAY & OLD HIGHWAY 31

Southbound: US-31 (Nashville Highway)
Westbound: US-31 (Nashville Highway)
Northbound: US-31 (Nashville Highway)
Eastbound: Old Highway 31

Lat/Long: 35.707620, -86.975748

Count Date: 3/10/2020 --> Grown to 2021

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

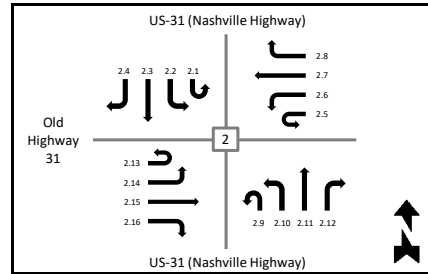
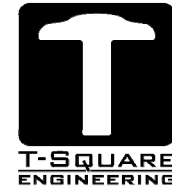
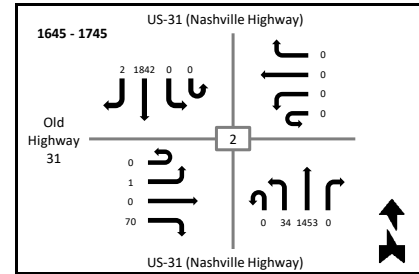


Figure 2 - PM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound US-31 (Nashville Highway)						Northbound US-31 (Nashville Highway)						Eastbound Old Highway 31					
	U-Turn 2.1	Left 2.2	Thru 2.3	Right 2.4	Peds X-Walk	App Total	U-Turn 2.5	Left 2.6	Thru 2.7	Right 2.8	Peds X-Walk	App Total	U-Turn 2.9	Left 2.10	Thru 2.11	Right 2.12	Peds X-Walk	App Total	U-Turn 2.13	Left 2.14	Thru 2.15	Right 2.16	Peds X-Walk	App Total
1600 - 1615	0	0	451	1	0	452	0	0	0	0	0	0	0	4	315	0	0	319	0	1	0	19	0	20
1615 - 1630	0	0	447	2	0	449	0	0	0	0	0	0	0	8	364	0	0	372	0	0	0	21	0	21
1630 - 1645	0	0	461	0	0	461	0	0	0	0	0	0	0	12	303	0	0	315	0	0	0	22	0	22
1645 - 1700	0	0	459	0	0	459	0	0	0	0	0	0	0	10	369	0	0	379	0	0	0	25	0	25
1700 - 1715	0	0	452	0	0	452	0	0	0	0	0	0	0	13	313	0	0	326	0	0	0	21	0	21
1715 - 1730	0	0	468	1	0	469	0	0	0	0	0	0	0	6	392	0	0	398	0	0	0	13	0	13
1730 - 1745	0	0	463	1	0	464	0	0	0	0	0	0	0	5	379	0	0	384	0	1	0	11	0	12
1745 - 1800	0	0	421	0	0	421	0	0	0	0	0	0	0	7	297	0	0	304	0	0	0	13	0	13
Grand Total	0	0	3622	5	0	3627	0	0	0	0	0	0	0	65	2732	0	0	2797	0	2	0	145	0	147
Peak Hour Total																								
1645 - 1745	0	0	1842	2	0	1844	0	0	0	0	0	0	0	34	1453	0	0	1487	0	1	0	70	0	71
App %	0.00%	0.00%	99.86%	0.14%			0.00%	0.00%	0.00%	0.00%			0.00%	2.32%	97.68%	0.00%			0.00%	1.36%	0.00%	98.64%		
Int %	0.00%	0.00%	55.12%	0.08%		55.20%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.99%	41.58%	0.00%		42.57%	0.00%	0.03%	0.00%	2.21%		2.24%
Cars Total	0	0	3491	5			0	0	0	0			0	65	2634	0			0	2	0	140		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	0.00%	96.38%	100.00%			0.00%	0.00%	0.00%	0.00%			0.00%	100.00%	96.41%	0.00%			0.00%	100.00%	0.00%	96.55%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 3
Intersection: US-31 (NASHVILLE HIGHWAY) & ARDEN VILLAGE DRIVE/GROVE PARK WAY

Southbound: US-31 (Nashville Highway)
Westbound: Grove Park Way
Northbound: US-31 (Nashville Highway)
Eastbound: Arden Village Drive

Lat/Long: 35.706079, -86.976717

Count Date: 3/10/2020 --> Grown to 2021

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

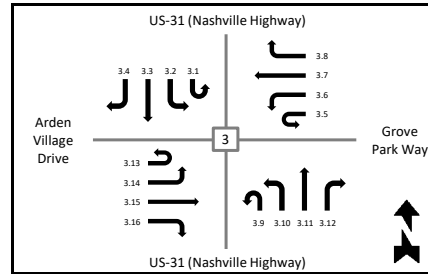
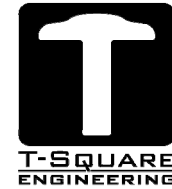
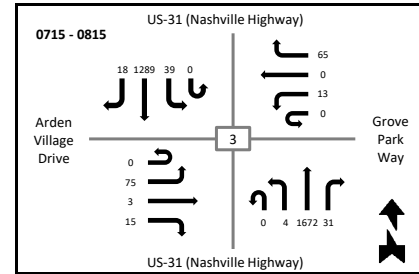


Figure 2 - AM Peak Hour TMC



	Southbound						Westbound						Northbound						Eastbound					
	US-31 (Nashville Highway)						Grove Park Way						US-31 (Nashville Highway)						Arden Village Drive					
Time	U-Turn 3.1	Left 3.2	Thru 3.3	Right 3.4	Peds X-Walk	App Total	U-Turn 3.5	Left 3.6	Thru 3.7	Right 3.8	Peds X-Walk	App Total	U-Turn 3.9	Left 3.10	Thru 3.11	Right 3.12	Peds X-Walk	App Total	U-Turn 3.13	Left 3.14	Thru 3.15	Right 3.16	Peds X-Walk	App Total
0630 - 0645	0	2	347	1	0	350	0	2	0	9	0	11	0	1	321	1	0	323	0	13	0	4	0	17
0645 - 0700	0	1	259	2	0	262	0	3	0	11	0	14	0	0	372	4	0	376	0	15	0	0	0	15
0700 - 0715	0	3	256	4	0	263	0	5	0	10	0	15	0	1	413	2	0	416	0	19	0	3	0	22
0715 - 0730	0	6	326	3	0	335	0	1	0	13	0	14	0	0	473	10	0	483	0	22	1	4	0	27
0730 - 0745	0	5	382	4	0	391	0	4	0	17	0	21	0	2	477	8	0	487	0	13	1	4	0	18
0745 - 0800	0	12	309	4	0	325	0	1	0	17	0	18	0	1	392	3	0	396	0	22	1	5	0	28
0800 - 0815	0	16	272	7	0	295	0	7	0	18	0	25	0	1	330	10	0	341	0	18	0	2	0	20
0815 - 0830	0	11	265	3	0	279	0	5	1	20	0	26	0	6	370	18	0	394	0	21	0	2	0	23
Grand Total	0	56	2416	28	0	2500	0	28	1	115	0	144	0	12	3148	56	0	3216	0	143	3	24	0	170
Peak Hour Total																								
0715 - 0815	0	39	1289	18	0	1346	0	13	0	65	0	78	0	4	1672	31	0	1707	0	75	3	15	0	93
App %	0.00%	2.24%	96.64%	1.12%			0.00%	19.44%	0.69%	79.86%			0.00%	0.37%	97.89%	1.74%			0.00%	84.12%	1.76%	14.12%		
Int %	0.00%	0.93%	40.07%	0.46%		41.46%	0.00%	0.46%	0.02%	1.91%		2.39%	0.00%	0.20%	52.21%	0.93%		53.33%	0.00%	2.37%	0.05%	0.40%		2.82%
Cars Total	0	55	2328	28			0	28	1	111			0	12	3035	55			0	137	3	24		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	98.21%	96.36%	100.00%			0.00%	100.00%	100.00%	96.52%			0.00%	100.00%	96.41%	98.21%			0.00%	95.80%	100.00%	100.00%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
 Intersection #: 3
 Intersection: US-31 (NASHVILLE HIGHWAY) & ARDEN VILLAGE DRIVE/GROVE PARK WAY

Southbound: US-31 (Nashville Highway)
 Westbound: Grove Park Way
 Northbound: US-31 (Nashville Highway)
 Eastbound: Arden Village Drive

Lat/Long: 35.706079, -86.976717

Count Date: 3/10/2020 --> Grown to 2021

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

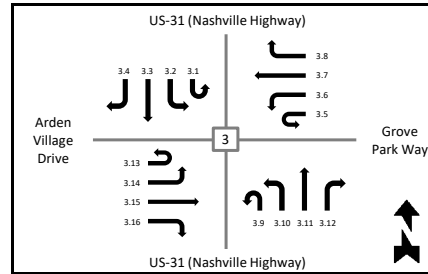
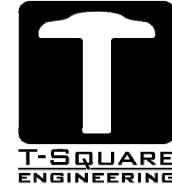
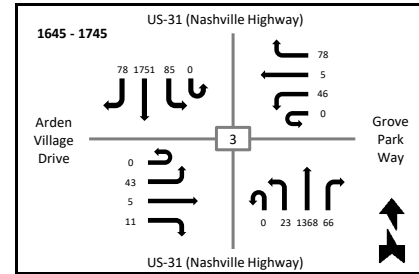


Figure 2 - PM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound Grove Park Way						Northbound US-31 (Nashville Highway)						Eastbound Arden Village Drive					
	U-Turn 3.1	Left 3.2	Thru 3.3	Right 3.4	Peds X-Walk	App Total	U-Turn 3.5	Left 3.6	Thru 3.7	Right 3.8	Peds X-Walk	App Total	U-Turn 3.9	Left 3.10	Thru 3.11	Right 3.12	Peds X-Walk	App Total	U-Turn 3.13	Left 3.14	Thru 3.15	Right 3.16	Peds X-Walk	App Total
1600 - 1615	0	17	442	11	0	470	0	3	2	16	0	21	0	1	293	11	0	305	0	11	1	3	0	15
1615 - 1630	0	10	435	23	0	468	0	4	2	11	0	17	0	4	354	11	0	369	0	7	0	5	0	12
1630 - 1645	0	17	445	21	0	483	0	9	3	11	0	23	0	7	293	7	0	307	0	11	0	2	0	13
1645 - 1700	0	19	448	17	0	484	0	9	1	12	0	22	0	6	360	11	0	377	0	7	1	2	0	10
1700 - 1715	0	26	431	17	0	474	0	11	1	25	0	37	0	8	286	21	0	315	0	16	1	5	0	22
1715 - 1730	0	18	446	18	0	482	0	18	2	21	0	41	0	4	372	18	0	394	0	5	1	1	0	7
1730 - 1745	0	22	426	26	0	474	0	8	1	20	0	29	0	5	350	16	0	371	0	15	2	3	0	20
1745 - 1800	0	18	402	16	0	436	0	9	1	19	0	29	0	5	281	9	0	295	0	4	2	1	0	7
Grand Total	0	147	3475	149	0	3771	0	71	13	135	0	219	0	40	2589	104	0	2733	0	76	8	22	0	106
Peak Hour Total																								
1645 - 1745	0	85	1751	78	0	1914	0	46	5	78	0	129	0	23	1368	66	0	1457	0	43	5	11	0	59
App %	0.00%	3.90%	92.15%	3.95%			0.00%	32.42%	5.94%	61.64%			0.00%	1.46%	94.73%	3.81%			0.00%	71.70%	7.55%	20.75%		
Int %	0.00%	2.15%	50.89%	2.18%		55.22%	0.00%	1.04%	0.19%	1.98%		3.21%	0.00%	0.59%	37.91%	1.52%		40.02%	0.00%	1.11%	0.12%	0.32%		1.55%
Cars Total	0	140	3349	142			0	70	13	130			0	40	2495	101			0	74	8	22		
Heavy Total	0	0	0	0			0	0	0	0			0	0	0	0			0	0	0	0		
% Cars	0.00%	95.24%	96.37%	95.30%			0.00%	98.59%	100.00%	96.30%			0.00%	100.00%	96.37%	97.12%			0.00%	97.37%	100.00%	100.00%		
% Heavy	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)
Count Sites: 5
Intersection #: 4
Intersection: US-31 (NASHVILLE HIGHWAY) & GREENS MILL ROAD
Southbound: US-31 (Nashville Highway)
Westbound: Greens Mill Road
Northbound: US-31 (Nashville Highway)
Eastbound:
Lat/Long: 35.702686, -86.979380
Count Date: 1/15/2019 --> Grown to 2021
Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

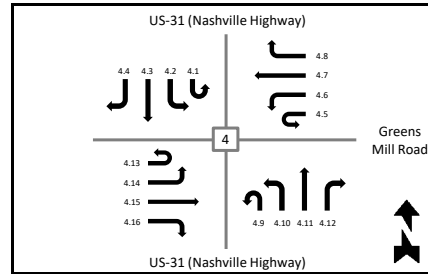
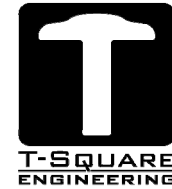
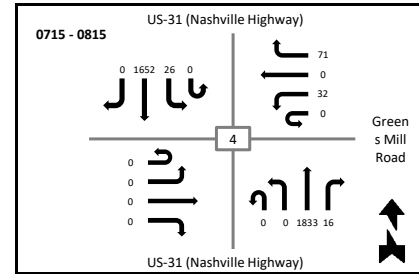


Figure 2 - AM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound Greens Mill Road						Northbound US-31 (Nashville Highway)						Eastbound					
	U-Turn 4.1	Left 4.2	Thru 4.3	Right 4.4	Peds X-Walk	App Total	U-Turn 4.5	Left 4.6	Thru 4.7	Right 4.8	Peds X-Walk	App Total	U-Turn 4.9	Left 4.10	Thru 4.11	Right 4.12	Peds X-Walk	App Total	U-Turn 4.13	Left 4.14	Thru 4.15	Right 4.16	Peds X-Walk	App Total
0600 - 0615	0	3	197	0	0	200	0	3	0	3	0	6	0	0	352	3	0	355	0	0	0	0	0	0
0615 - 0630	0	3	482	0	0	485	0	2	0	9	0	11	0	0	329	1	0	330	0	0	0	0	0	0
0630 - 0645	0	4	353	0	0	357	0	3	0	2	0	5	0	0	396	4	0	400	0	0	0	0	0	0
0645 - 0700	0	2	286	0	0	288	0	8	0	17	0	25	0	0	411	1	0	412	0	0	0	0	0	0
0700 - 0715	0	4	305	0	0	309	0	6	0	27	0	33	0	0	407	1	0	408	0	0	0	0	0	0
0715 - 0730	0	4	390	0	0	394	0	11	0	27	0	38	0	0	497	6	0	503	0	0	0	0	0	0
0730 - 0745	0	12	484	0	0	496	0	10	0	23	0	33	0	0	494	3	0	497	0	0	0	0	0	0
0745 - 0800	0	6	473	0	0	479	0	6	0	13	0	19	0	0	428	4	0	432	0	0	0	0	0	0
0800 - 0815	0	4	305	0	0	309	0	5	0	8	0	13	0	0	414	3	0	417	0	0	0	0	0	0
0815 - 0830	0	6	241	0	0	247	0	6	0	6	0	12	0	0	391	5	0	396	0	0	0	0	0	0
0830 - 0845	0	3	267	0	0	270	0	6	0	12	0	18	0	0	318	6	0	324	0	0	0	0	0	0
0845 - 0900	0	6	265	0	0	271	0	3	0	8	0	11	0	0	295	2	0	297	0	0	0	0	0	0
Grand Total	0	57	4048	0	0	4105	0	69	0	155	0	224	0	0	4732	39	0	4771	0	0	0	0	0	0
Peak Hour Total	0	26	1652	0	0	1678	0	32	0	71	0	103	0	0	1833	16	0	1849	0	0	0	0	0	0
App %	0.00%	1.39%	98.61%	0.00%			0.00%	30.80%	0.00%	69.20%			0.00%	0.00%	99.18%	0.82%			0.00%	0.00%	0.00%	0.00%		
Int %	0.00%	0.63%	44.48%	0.00%		45.11%	0.00%	0.76%	0.00%	1.70%		2.46%	0.00%	0.00%	52.00%	0.43%		52.43%	0.00%	0.00%	0.00%	0.00%		0.00%
Cars Total	0	56	3570	0			0	66	0	140			0	0	4223	37			0	0	0	0		
Heavy Total	0	0	190	0			0	0	0	3			0	0	174	2			0	0	0	0		
% Cars	0.00%	98.25%	88.19%	0.00%			0.00%	95.65%	0.00%	90.32%			0.00%	0.00%	89.24%	94.87%			0.00%	0.00%	0.00%	0.00%		
% Heavy	0.00%	0.00%	4.69%	0.00%			0.00%	0.00%	0.00%	1.94%			0.00%	0.00%	3.68%	5.13%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 4
Intersection: US-31 (NASHVILLE HIGHWAY) & GREENS MILL ROAD

Southbound: US-31 (Nashville Highway)
Westbound: Greens Mill Road
Northbound: US-31 (Nashville Highway)
Eastbound:

Lat/Long: 35.702686, -86.979380

Count Date: 1/15/2019 --> Grown to 2021

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

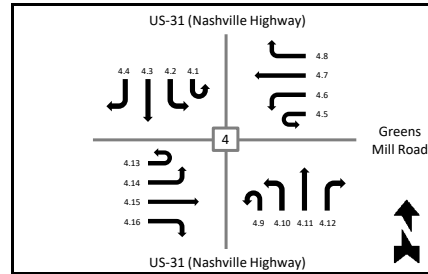
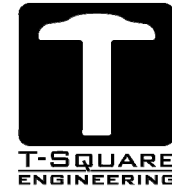
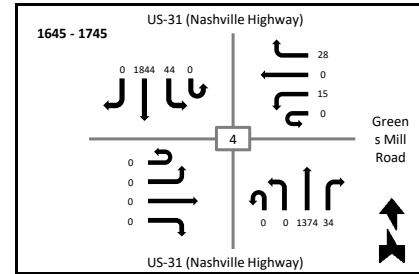


Figure 2 - PM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound Greens Mill Road						Northbound US-31 (Nashville Highway)						Eastbound					
	U-Turn 4.1	Left 4.2	Thru 4.3	Right 4.4	Peds X-Walk	App Total	U-Turn 4.5	Left 4.6	Thru 4.7	Right 4.8	Peds X-Walk	App Total	U-Turn 4.9	Left 4.10	Thru 4.11	Right 4.12	Peds X-Walk	App Total	U-Turn 4.13	Left 4.14	Thru 4.15	Right 4.16	Peds X-Walk	App Total
1500 - 1515	0	29	456	0	0	485	0	5	0	4	0	9	0	0	276	6	0	282	0	0	0	0	0	0
1515 - 1530	0	13	439	0	0	452	0	2	0	6	0	8	0	0	374	9	0	383	0	0	0	0	0	0
1530 - 1545	0	13	517	0	0	530	0	2	0	11	0	13	0	0	351	4	0	355	0	0	0	0	0	0
1545 - 1600	0	14	456	0	0	470	0	8	0	10	0	18	0	0	373	6	0	379	0	0	0	0	0	0
1600 - 1615	0	8	398	0	0	406	0	5	0	9	0	14	0	0	292	11	0	303	0	0	0	0	0	0
1615 - 1630	0	16	473	0	0	489	0	9	0	6	0	15	0	0	338	9	0	347	0	0	0	0	0	0
1630 - 1645	0	15	490	0	0	505	0	6	0	11	0	17	0	0	380	10	0	390	0	0	0	0	0	0
1645 - 1700	0	14	488	0	0	502	0	2	0	10	0	12	0	0	345	6	0	351	0	0	0	0	0	0
1700 - 1715	0	11	460	0	0	471	0	6	0	9	0	15	0	0	350	11	0	361	0	0	0	0	0	0
1715 - 1730	0	11	448	0	0	459	0	5	0	6	0	11	0	0	343	6	0	349	0	0	0	0	0	0
1730 - 1745	0	8	448	0	0	456	0	2	0	3	0	5	0	0	336	11	0	347	0	0	0	0	0	0
1745 - 1800	0	1	399	0	0	400	0	3	0	5	0	8	0	0	306	2	0	308	0	0	0	0	0	0
Grand Total	0	153	5472	0	0	5625	0	55	0	90	0	145	0	0	4064	91	0	4155	0	0	0	0	0	0
Peak Hour Total																								
1645 - 1745	0	44	1844	0	0	1888	0	15	0	28	0	43	0	0	1374	34	0	1408	0	0	0	0	0	0
App %	0.00%	2.72%	97.28%	0.00%			0.00%	37.93%	0.00%	62.07%			0.00%	0.00%	97.81%	2.19%			0.00%	0.00%	0.00%	0.00%		
Int %	0.00%	1.54%	55.13%	0.00%		56.68%	0.00%	0.55%	0.00%	0.91%		1.46%	0.00%	0.00%	40.95%	0.92%		41.86%	0.00%	0.00%	0.00%	0.00%		0.00%
Cars Total	0	140	4953	0			0	51	0	83			0	0	3648	82			0	0	0	0		
Heavy Total	0	1	130	0			0	2	0	1			0	0	125	3			0	0	0	0		
% Cars	0.00%	91.50%	90.52%	0.00%			0.00%	92.73%	0.00%	92.22%			0.00%	0.00%	89.76%	90.11%			0.00%	0.00%	0.00%	0.00%		
% Heavy	0.00%	0.65%	2.38%	0.00%			0.00%	3.64%	0.00%	1.11%			0.00%	0.00%	3.08%	3.30%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 5
Intersection: US-31 (NASHVILLE HIGHWAY) & HIDDEN CREEK WAY

Southbound: US-31 (Nashville Highway)
Westbound: US-31 (Nashville Highway)
Northbound: Hidden Creek Way
Eastbound: Hidden Creek Way

Lat/Long: 35.700319, -86.981818

Count Date: 1/15/2019 --> Grown to 2021

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

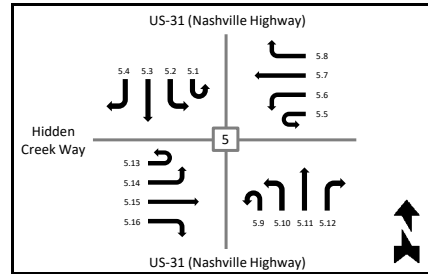
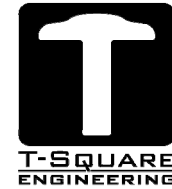
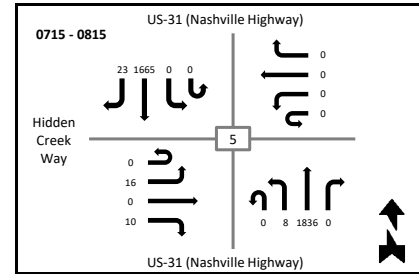


Figure 2 - AM Peak Hour TMC



Time	Southbound US-31 (Nashville Highway)						Westbound						Northbound US-31 (Nashville Highway)						Eastbound Hidden Creek Way					
	U-Turn 5.1	Left 5.2	Thru 5.3	Right 5.4	Peds X-Walk	App Total	U-Turn 5.5	Left 5.6	Thru 5.7	Right 5.8	Peds X-Walk	App Total	U-Turn 5.9	Left 5.10	Thru 5.11	Right 5.12	Peds X-Walk	App Total	U-Turn 5.13	Left 5.14	Thru 5.15	Right 5.16	Peds X-Walk	App Total
0600 - 0615	0	0	211	2	0	213	0	0	0	0	0	0	0	0	373	0	0	373	0	5	0	0	0	5
0615 - 0630	0	0	474	1	0	475	0	0	0	0	0	0	0	2	317	0	0	319	0	4	0	1	0	5
0630 - 0645	0	0	370	5	0	375	0	0	0	0	0	0	1	1	406	0	0	408	0	8	0	1	0	9
0645 - 0700	0	0	268	4	0	272	0	0	0	0	0	0	0	4	418	0	0	422	0	1	0	3	0	4
0700 - 0715	0	0	318	4	0	322	0	0	0	0	0	0	0	2	394	0	0	396	0	6	0	3	0	9
0715 - 0730	0	0	407	6	0	413	0	0	0	0	0	0	0	3	531	0	0	534	0	3	0	3	0	6
0730 - 0745	0	0	495	5	0	500	0	0	0	0	0	0	0	1	470	0	0	471	0	5	0	2	0	7
0745 - 0800	0	0	451	9	0	460	0	0	0	0	0	0	0	2	431	0	0	433	0	5	0	3	0	8
0800 - 0815	0	0	312	3	0	315	0	0	0	0	0	0	0	2	404	0	0	406	0	3	0	2	0	5
0815 - 0830	0	0	244	6	0	250	0	0	0	0	0	0	0	1	391	0	0	392	0	4	0	0	0	4
0830 - 0845	0	0	268	5	0	273	0	0	0	0	0	0	0	3	321	0	0	324	0	5	0	2	0	7
0845 - 0900	0	0	265	4	0	269	0	0	0	0	0	0	0	0	282	0	0	282	0	9	0	1	0	10
Grand Total	0	0	4083	54	0	4137	0	0	0	0	0	0	1	21	4738	0	0	4760	0	58	0	21	0	79
Peak Hour Total																								
0715 - 0815	0	0	1665	23	0	1688	0	0	0	0	0	0	0	8	1836	0	0	1844	0	16	0	10	0	26
App %	0.00%	0.00%	98.69%	1.31%			0.00%	0.00%	0.00%	0.00%			0.02%	0.44%	99.54%	0.00%			0.00%	73.42%	0.00%	26.58%		
Int %	0.00%	0.00%	45.49%	0.60%		46.09%	0.00%	0.00%	0.00%	0.00%		0.00%	0.01%	0.23%	52.79%	0.00%		53.03%	0.00%	0.65%	0.00%	0.23%		0.88%
Cars Total	0	0	3610	49			0	0	0	0			1	20	4208	0			0	55	0	19		
Heavy Total	0	0	183	4			0	0	0	0			0	1	191	0			0	1	0	2		
% Cars	0.00%	0.00%	88.42%	90.74%			0.00%	0.00%	0.00%	0.00%			100.00%	95.24%	88.81%	0.00%			0.00%	94.83%	0.00%	90.48%		
% Heavy	0.00%	0.00%	4.48%	7.41%			0.00%	0.00%	0.00%	0.00%			0.00%	4.76%	4.03%	0.00%			0.00%	1.72%	0.00%	9.52%		

Location: Maury County (Columbia)
Count Type: Classified Turning Movement Count (TMC)

Count Sites: 5
Intersection #: 5
Intersection: US-31 (NASHVILLE HIGHWAY) & HIDDEN CREEK WAY

Southbound: US-31 (Nashville Highway)
Westbound: US-31 (Nashville Highway)
Northbound: Hidden Creek Way
Eastbound: Hidden Creek Way

Lat/Long: 35.700319, -86.981818

Count Date: 1/15/2019 --> Grown to 2021

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

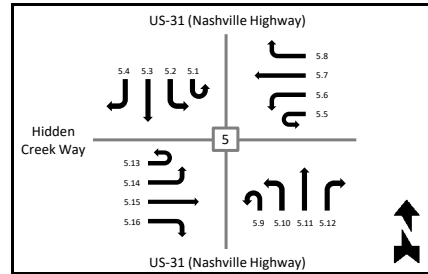
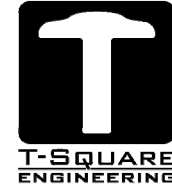
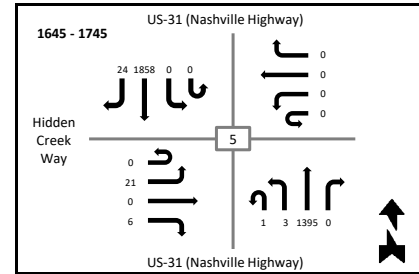


Figure 2 - PM Peak Hour TMC



Time	Southbound						Westbound						Northbound						Eastbound					
	US-31 (Nashville Highway)												US-31 (Nashville Highway)						Hidden Creek Way					
	U-Turn 5.1	Left 5.2	Thru 5.3	Right 5.4	Peds X-Walk	App Total	U-Turn 5.5	Left 5.6	Thru 5.7	Right 5.8	Peds X-Walk	App Total	U-Turn 5.9	Left 5.10	Thru 5.11	Right 5.12	Peds X-Walk	App Total	U-Turn 5.13	Left 5.14	Thru 5.15	Right 5.16	Peds X-Walk	App Total
1500 - 1515	0	0	446	12	0	458	0	0	0	0	0	0	0	2	298	0	0	300	0	3	0	5	0	8
1515 - 1530	0	0	421	4	0	425	0	0	0	0	0	0	0	0	356	0	0	356	0	5	0	2	0	7
1530 - 1545	0	0	498	6	0	504	0	0	0	0	0	0	0	0	354	0	0	354	0	2	0	0	0	2
1545 - 1600	0	0	472	1	0	473	0	0	0	0	0	0	1	3	375	0	0	379	0	5	0	1	0	6
1600 - 1615	0	0	414	5	0	419	0	0	0	0	0	0	0	1	294	0	0	295	0	5	0	3	0	8
1615 - 1630	0	0	478	4	0	482	0	0	0	0	0	0	0	0	348	0	0	348	0	5	0	1	0	6
1630 - 1645	0	0	483	6	0	489	0	0	0	0	0	0	0	3	389	0	0	392	0	3	0	0	0	3
1645 - 1700	0	0	501	6	0	507	0	0	0	0	0	0	0	1	348	0	0	349	0	8	0	0	0	8
1700 - 1715	0	0	458	8	0	466	0	0	0	0	0	0	1	1	350	0	0	352	0	6	0	0	0	6
1715 - 1730	0	0	458	5	0	463	0	0	0	0	0	0	0	0	352	0	0	352	0	3	0	4	0	7
1730 - 1745	0	0	441	5	0	446	0	0	0	0	0	0	0	1	345	0	0	346	0	4	0	2	0	6
1745 - 1800	0	0	390	6	0	396	0	0	0	0	0	0	1	2	287	0	0	290	0	5	0	1	0	6
Grand Total	0	0	5460	68	0	5528	0	0	0	0	0	0	3	14	4096	0	0	4113	0	54	0	19	0	73
Peak Hour Total																								
1645 - 1745	0	0	1858	24	0	1882	0	0	0	0	0	0	1	3	1395	0	0	1399	0	21	0	6	0	27
App %	0.00%	0.00%	98.77%	1.23%			0.00%	0.00%	0.00%	0.00%			0.07%	0.34%	99.59%	0.00%			0.00%	73.97%	0.00%	26.03%		
Int %	0.00%	0.00%	56.21%	0.70%		56.91%	0.00%	0.00%	0.00%	0.00%		0.00%	0.03%	0.14%	42.17%	0.00%		42.34%	0.00%	0.56%	0.00%	0.20%		0.75%
Cars Total	0	0	4935	61			0	0	0	0			3	14	3680	0			0	48	0	17		
Heavy Total	0	0	136	5			0	0	0	0			0	0	124	0			0	5	0	2		
% Cars	0.00%	0.00%	90.38%	89.71%			0.00%	0.00%	0.00%	0.00%			100.00%	100.00%	89.84%	0.00%			0.00%	88.89%	0.00%	89.47%		
% Heavy	0.00%	0.00%	2.49%	7.35%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	3.03%	0.00%			0.00%	9.26%	0.00%	10.53%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 7
 Intersection #: 7
 Intersection: GROVE PARK WAY & PERSIMMON STREET

Southbound: Grove Park Way
 Westbound: Persimmon Street
 Northbound: Grove Park Way
 Eastbound:

Lat/Long: 35.70401755633158, -86.97303814253952

Count Date: 1/20/2021

Time Period: 0600 - 0900 (Weekday AM Peak)

Figure 1 - Turning Movement Designation

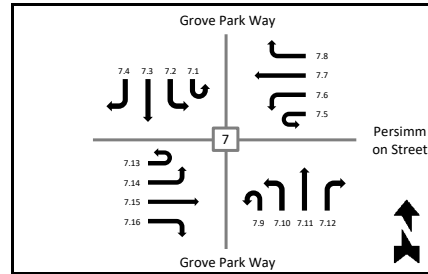
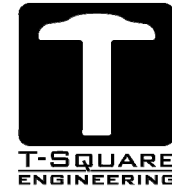
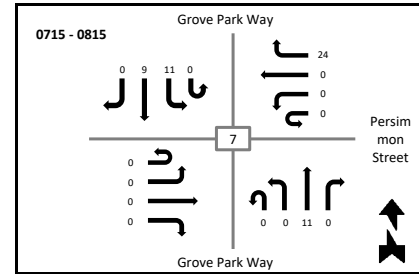


Figure 2 - AM Peak Hour TMC



Time	Southbound Grove Park Way						Westbound Persimmon Street						Northbound Grove Park Way						Eastbound					
	U-Turn 7.1	Left 7.2	Thru 7.3	Right 7.4	Peds X-Walk	App Total	U-Turn 7.5	Left 7.6	Thru 7.7	Right 7.8	Peds X-Walk	App Total	U-Turn 7.9	Left 7.10	Thru 7.11	Right 7.12	Peds X-Walk	App Total	U-Turn 7.13	Left 7.14	Thru 7.15	Right 7.16	Peds X-Walk	App Total
0600 - 0615	0	0	1	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0
0615 - 0630	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	1	0	0	0	0	0	0
0630 - 0645	0	0	0	0	0	0	0	0	0	8	0	8	0	0	3	0	0	3	0	0	0	0	0	0
0645 - 0700	0	2	0	0	0	2	0	0	0	4	0	4	0	0	4	0	0	4	0	0	0	0	0	0
0700 - 0715	0	3	0	0	0	3	0	0	0	4	0	4	0	0	5	0	0	5	0	0	0	0	0	0
0715 - 0730	0	1	1	0	0	2	0	0	0	3	0	3	0	0	6	0	0	6	0	0	0	0	0	0
0730 - 0745	0	3	3	0	0	6	0	0	0	5	0	5	0	0	2	0	0	2	0	0	0	0	0	0
0745 - 0800	0	2	1	0	0	3	0	0	0	9	0	9	0	0	2	0	0	2	0	0	0	0	0	0
0800 - 0815	0	5	4	0	0	9	0	0	0	7	0	7	0	0	1	0	0	1	0	0	0	0	0	0
0815 - 0830	0	2	2	0	0	4	0	0	0	2	0	2	0	0	6	0	0	6	0	0	0	0	0	0
0830 - 0845	0	2	1	0	0	3	0	0	0	4	0	4	0	0	2	0	0	2	0	0	0	0	0	0
0845 - 0900	0	1	0	0	0	1	0	0	0	3	0	3	0	0	1	0	0	1	0	0	0	0	0	0
Grand Total	0	21	13	0	0	0	0	0	0	56	0	56	0	0	33	0	0	33	0	0	0	0	0	0
Peak Hour Total	0	11	9	0	0	20	0	0	0	24	0	24	0	0	11	0	0	11	0	0	0	0	0	0
App %	0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	100.00%			0.00%	0.00%	100.00%	0.00%			0.00%	0.00%	0.00%	0.00%		
Int %	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	1.90%	54.29%	0.00%		56.19%	0.00%	1.90%	0.00%	0.00%		1.90%	0.00%	0.00%	40.00%	1.90%		41.90%
Cars Total	0	20	12	0			0	0	0	54			0	0	32	0			0	0	0	0		
Heavy Total	0	1	1	0			0	0	0	2			0	0	1	0			0	0	0	0		
% Cars	0.00%	95.24%	92.31%	0.00%			0.00%	0.00%	0.00%	96.43%			0.00%	0.00%	96.97%	0.00%			0.00%	0.00%	0.00%	0.00%		
% Heavy	0.00%	4.76%	7.69%	0.00%			0.00%	0.00%	0.00%	3.57%			0.00%	0.00%	3.03%	0.00%			0.00%	0.00%	0.00%	0.00%		

Location: Maury County (Columbia)
 Count Type: Classified Turning Movement Count (TMC)

Count Sites: 7
 Intersection #: 7
 Intersection: GROVE PARK WAY & PERSIMMON STREET

Southbound: Grove Park Way
 Westbound: Persimmon Street
 Northbound: Grove Park Way
 Eastbound:

Lat/Long: 35.70401755633158, -86.97303814253952

Count Date: 1/20/2021

Time Period: 1500 - 1800 (Weekday PM Peak)

Figure 1 - Turning Movement Designation

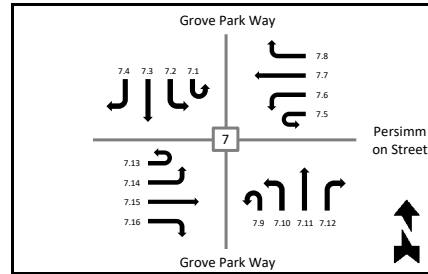
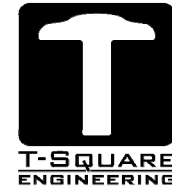
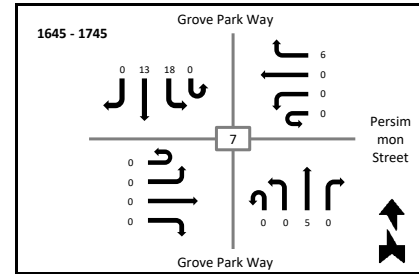


Figure 2 - PM Peak Hour TMC



Time	Southbound Grove Park Way						Westbound Persimmon Street						Northbound Grove Park Way						Eastbound					
	U-Turn 7.1	Left 7.2	Thru 7.3	Right 7.4	Peds X-Walk	App Total	U-Turn 7.5	Left 7.6	Thru 7.7	Right 7.8	Peds X-Walk	App Total	U-Turn 7.9	Left 7.10	Thru 7.11	Right 7.12	Peds X-Walk	App Total	U-Turn 7.13	Left 7.14	Thru 7.15	Right 7.16	Peds X-Walk	App Total
1500 - 1515	2	9	4	0	0	15	0	0	0	2	0	2	0	0	1	0	0	1	0	0	0	0	0	0
1515 - 1530	0	5	2	0	0	7	0	0	0	3	0	3	0	0	3	0	0	3	0	0	0	0	0	0
1530 - 1545	0	2	3	0	0	5	0	0	0	2	0	2	0	0	1	0	0	1	0	0	0	0	0	0
1545 - 1600	0	4	8	0	0	12	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	0
1600 - 1615	0	7	5	0	0	12	0	0	0	1	0	1	0	0	4	0	0	4	0	0	0	0	0	0
1615 - 1630	0	0	2	0	0	2	0	0	0	4	0	4	0	0	1	0	1	1	0	0	0	0	0	0
1630 - 1645	0	4	2	0	0	6	0	0	0	4	0	4	0	0	2	0	0	2	0	0	0	0	0	0
1645 - 1700	0	6	4	0	0	10	0	0	0	2	0	2	0	0	2	0	0	2	0	0	0	0	0	0
1700 - 1715	0	3	3	0	0	6	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
1715 - 1730	0	6	3	0	0	9	0	0	0	2	0	2	0	0	2	0	0	2	0	0	0	0	0	0
1730 - 1745	0	3	3	0	0	6	0	0	0	2	0	2	0	0	0	0	1	0	0	0	0	0	0	0
1745 - 1800	0	9	1	0	0	10	0	0	0	1	0	1	0	0	2	0	0	2	0	0	0	0	0	0
Grand Total	2	58	40	0	0	100	0	0	0	27	0	27	0	0	19	0	2	19	0	0	0	0	0	0
Peak Hour Total																								
1645 - 1745	0	18	13	0	0	31	0	0	0	6	0	6	0	0	5	0	1	5	0	0	0	0	0	0
App %	2.00%	58.00%	40.00%	0.00%			0.00%	0.00%	0.00%	100.00%			0.00%	0.00%	100.00%	0.00%			0.00%	0.00%	0.00%	0.00%		
Int %	1.37%	39.73%	27.40%	0.00%		68.49%	0.00%	0.00%	0.00%	18.49%		18.49%	0.00%	0.00%	13.01%	0.00%		13.01%	0.00%	0.00%	0.00%	0.00%		0.00%
Cars Total	2	58	37	0			0	0	0	25			0	0	19	0			0	0	0	0		
Heavy Total	0	0	3	0			0	0	0	2			0	0	0	0			0	0	0	0		
% Cars	100.00%	100.00%	92.50%	0.00%			0.00%	0.00%	0.00%	92.59%			0.00%	0.00%	100.00%	0.00%			0.00%	0.00%	0.00%	0.00%		
% Heavy	0.00%	0.00%	7.50%	0.00%			0.00%	0.00%	0.00%	7.41%			0.00%	0.00%	0.00%	0.00%			0.00%	0.00%	0.00%	0.00%		

Sepac 3.34g Timings Data

Location:	Nashville Hwy
and	Arden Village

TS #	28
Date:	7-2-20

key 3-1	Vehicle times							
Phase	1	2	3	4	5	6	7	8
min green	5	25	7	7	5	25	10	15
pass/10	20	50	30	30	20	50	40	50
max # 1	20	60	30	30	20	60	25	35
max # 2	30	80	30	50	30	80	30	50
yellow/10	45	45	45	45	45	45	40	40
red/10	15	30	20	20	15	30	10	10

key 3-2	Density Times							
Phase	1	2	3	4	5	6	7	8
aini/10								
max int								
Tb4								
carsb4								
Time to								
Min gap								

key 3-3	Pedestrian Times							
Phase	1	2	3	4	5	6	7	8
Walk		7		7		7		7
Ped clear		8		8		8		8
fl wk								
ext pcl								
act riw								
	1 = yes 0 = no							

key 3-7	Sequence control							
phase	1	2	3	4	5	6	7	8
ph. Omit								
ph. Yell								
Codes	0	01-08 # - phase						
	none	phase is omitted by # on						
	none phase yellow is omitted by # yellow							

key 3-5	V. & P. recalls							
Phases	1	2	3	4	5	6	7	8
veh. recall		2				2		
ped recall								
delay								
Codes		0		1		2		3
		none		Inactive		red		yellow
		none		to na 1		to na II		to both
		none		1 call		minimum		maximum
		none		1 call		ped		na

key 3-6	N. lock & misc							
Phase	1	2	3	4	5	6	7	8
non lock	1	0	1	1	1	0	0	0
2 entry								
lc pass								
con. Ser.								
no sgap								
	1 = yes 0 = no							

key 3-4	Init. Na response							
phase	1	2	3	4	5	6	7	8
initial	1	4	1	1	1	4	0	0
na resp		1		2		1		2
Codes	0		1		2		3	4
Init	none	inact		red		yel		grn
na resp	none	to 1	to 2	both				

key 4-4	OVL TRAILING GREENS, YELLOWS AND REDS		
	GREEN	YELLOW	RED
OLA	0	40	20
OLB	0	40	20
OLC	0	40	20
OLD	0	40	20

key 3-8-1								key 3-8-2								
Det. Controls																
detector	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
assign phase	1	0	2	2	2	2	2	0	3	0	4	4	4	4	4	0
oper mode																
switch																
key 3-8-1								key 3-8-2								
Det. Timings "Change From Controls to Timings"																
extend time																
delay time																
key 3-8-3								key 3-8-4								
Det. Controls																
detector	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
assign phase	1	3	5	0	6	6	6	6	6	0	0	0	7	0	8	8
oper mode																
switch																
key 3-8-3								key 3-8-4								
Det. Timings "Change From Controls to Timings"																
extend time																
delay time																
codes	0		1		2		3									
	norm veh		norm ped		one call		st bar a		st bar b							
	none															
	none															

key3-8-9 Ped. Dets.								
Ped Det Control	1	2	3	4	5	6	7	8
Assigned phase	1	2	3	4	0	6	0	8
Operation Mode	1	1	1	1	0	1	0	1
Switch Phase								
Mode	0-veh	1-ped	2-one	3-sba				
	4-sbb	5-ppl	6-ppt	7-and				

Startup & misc.		key 4-1
Startup time	0	time in sec.
Startup state	0	0-fl 1-red
red rev/10	40	time in tenths
auto ped clear	0	o-no 1- yes
Stop t reset	0	0-no 1-yes
Alt. sequence	0	0-18
I'NAT'L SEQ	0	0-no 1-yes

Coordination data and set up key 5-1						
Coord. Setup	0	1	2	3	4	5
Oper	0	fre	aut	man		
mode	0	prm	yld	pyl	pom	som
max	2	inh	mx1	mx2		
corr	0	dwl	ndw	swy	sw+	sw2
ofst	0	beg	end of green			
frce	0	pln cycle time				
mx dwell	0					
yield period	0					

Overlap Standard use up/down to switch between overlaps

key 4-3

0-no 1-yes

Overlap A

Overlap A																				
OVL Phase																				
PHS/CHN	1	2	3	4	5	6	7	8	9	0		1	2	3	4	5	6	7	8	9
OVL CHN																				

Overlap B

OVL Phase																				
PHS/CHN	1	2	3	4	5	6	7	8	9	0		1	2	3	4	5	6	7	8	9
OVL CHN																				

Overlap C

OVL Phase																				
PHS/CHN	1	2	3	4	5	6	7	8	9	0		1	2	3	4	5	6	7	8	9
OVL CHN																				

Overlap D

OVL Phase																				
PHS/CHN	1	2	3	4	5	6	7	8	9	0		1	2	3	4	5	6	7	8	9
OVL CHN																				

key 5-3	Input Dial1 split1 Phase Param. Level 2
Phase	1 2 3 4 5 6 7 8
Time	
Mode	
mode:	0-actuated 1-coord ph 2-min rec 3-max rec 4-ped rec 5-mx+p 6-ph omit 7-dual coord phase

key 5-3	Input Dial 2 split 1 phase Param. Level 2
Phase	1 2 3 4 5 6 7 8
Time	
Mode	
Mode:	0-actuated 1-coord ph 2-min rec 3-max rec 4-ped rec 5-mx+p rec 6-ph omit 7-dual coord phase

key 5-3						
Input Dial1 Split 1 Param. Level 1						
offset	time	alt	patn	r2	r3	r4
#	sec	seq	mode	lag	lag	lag
1						
2						
3						
mode		0-6 nrm/prm/yld/pyl/pom/som/fac				

key 5-3	Input Dial 2 split 1 Param. Level 1					
Offset	time	alt	patn	r2	r3	r4
#	sec	seq	mode	lag	lag	lag
1						
2						
3						

CYC ZERO	24
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key 6-3-E

26

26

26

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26



TIR

Sepac 3.34g Timings Data

Location:	Nashville Hwy
and	Springmeade

TS #	27
Date:	9-2-20

key 3-1	Vehicle times							
Phase	1	2	3	4	5	6	7	8
min green	5	25	7	5	5	25	10	15
pass/10	15	40	30	20	15	40	40	50
max # 1	25	60	20	35	20	60	25	35
max # 2	30	80	30	50	30	80	30	50
yellow/10	40	40	40	40	40	40	40	40
red/10	10	30	10	10	10	30	10	10

key 3-2	Density Times							
Phase	1	2	3	4	5	6	7	8
aini/10								
max int								
Tb4								
carsb4								
Time to								
Min gap								

key 3-3	Pedestrian Times							
Phase	1	2	3	4	5	6	7	8
Walk		7		7		7		7
Ped clear		8		8		8		8
fl wk								
ext pcl								
act riw								
	1 = yes 0 = no							

key 3-7	Sequence control							
phase	1	2	3	4	5	6	7	8
ph. Omit								
ph. Yell								
Codes	0	01-08 # - phase						
	none	phase is omitted by # on						
	none phase yellow is omitted by # yellow							

key 3-5	V. & P. recalls							
Phases	1	2	3	4	5	6	7	8
veh. recall		2				2		
ped recall								
delay								
Codes		0		1		2		3
		none		Inactive		red		yellow
		none		to na 1		to na II		to both
		none		1 call		minimum		maximum
		none		1 call		ped		na
								na+

key 3-6	N. lock & misc							
Phase	1	2	3	4	5	6	7	8
non lock	1	0	1	1	1	0	0	0
2 entry								
lc pass								
con. Ser.								
no sgap								
	1 = yes 0 = no							

key 3-4	Init. Na response							
phase	1	2	3	4	5	6	7	8
initial	1	4	1	1	1	4	0	0
na resp		1		1		1		

Codes	0	1	2	3	4
Init	none	inact	red	yel	grn
na resp	none	to 1	to 2	both	

key 4-4	OVL TRAILING GREENS, YELLOWS AND REDS		
	GREEN	YELLOW	RED
OLA	0	40	20
OLB	0	40	20
OLC	0	40	20
OLD	0	40	20

key 3-8-1								key 3-8-2								
Det. Controls																
detector	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
assign phase	1	0	2	2	2	2	2	0	3	0	4	4	4	4	4	0
oper mode																
switch																
key 3-8-1								key 3-8-2								
Det. Timings "Change From Controls to Timings"																
extend time																
delay time																
key 3-8-3								key 3-8-4								
Det. Controls																
detector	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
assign phase	1	3	5	0	6	6	6	6	6	0	0	0	7	0	8	8
oper mode																
switch																
key 3-8-3								key 3-8-4								
Det. Timings "Change From Controls to Timings"																
extend time																
delay time																
codes	0		1		2		3	4								
	norm veh		norm ped		one call		st bar a	st bar b								
	none															
	none															

key3-8-9 Ped. Dets.								
Ped Det Control	1	2	3	4	5	6	7	8
Assigned phase	1	2	3	4	0	6	0	8
Operation Mode	1	1	1	1	0	1	0	1
Switch Phase								
Mode	0-veh	1-ped	2-0ne	3-sba				
	4-sbb	5-ppl	6-ppt	7-and				

Startup & misc.		key 4-1
Startup time	0	time in sec.
Startup state	0	0-fl 1-red
red rev/10	40	time in tenths
auto ped clear	0	0-no 1- yes
Stop t reset	0	0-no 1-yes
Alt. sequence	0	0-18
I'NAT'L SEQ	0	0-no 1-yes

Coordination data and set up key 5-1						
Coord. Setup	0	1	2	3	4	5
Oper	0	fre	aut	man		
mode	0	prm	yld	pyl	pom	som
max	2	inh	mx1	mx2		
corr	0	dwl	ndw	swy	sw+	sw2
ofst	0	beg	end of green			
frce	0	pln cycle time				
mx dwell	0					
yield period	0					

Overlap Standard use up/down to switch between overlaps

key 4-3

0-no 1-yes

Overlap A

OVL Phase																			
PHS/CHN	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
OVL CHN																			

Overlap B

OVL Phase																			
PHS/CHN	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
OVL CHN																			

Overlap C

OVL Phase																			
PHS/CHN	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
OVL CHN																			

Overlap D

OVL Phase																			
PHS/CHN	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
OVL CHN																			

key 5-3	Input Dial1 split1 Phase Param. Level 2
Phase	1 2 3 4 5 6 7 8
Time	
Mode	
mode:	0-actuated 1-coord ph 2-min rec 3-max rec 4-ped rec 5-mx+p 6-ph omit 7-dual coord phase

key 5-3	Input Dial 2 split 1 phase Param. Level 2
Phase	1 2 3 4 5 6 7 8
Time	
Mode	
Mode:	0-actuated 1-coord ph 2-min rec 3-max rec 4-ped rec 5-mx+p rec 6-ph omit 7-dual coord phase

key 5-3	Input Dial1 Split 1 Param. Level 1
offset	time alt patn r2 r3 r4
#	sec seq mode lag lag lag
1	
2	
3	
mode	0-6 nrm/prm/yld/pyl/pom/som/fac

key 5-3	Input Dial 2 split 1 Param. Level 1
Offset	time alt patn r2 r3 r4
#	sec seq mode lag lag lag
1	
2	
3	

notes

A hand-drawn diagram of a 3x3 grid. The top row contains the numbers 2, 5, and 1. The middle row contains the number 4 on the left and 3 on the right. The bottom row contains a square with an 'X' inside on the left and the numbers 1, 1, and 6 on the right. Arrows indicate a path: a downward arrow from 5 to 4, a rightward arrow from 4 to 3, and an upward arrow from 6 to 1.

Max-2

26

16

26

26

26

APPENDIX B – DETAILED TRIP GENERATION CALCULATIONS



TRIP GENERATION

Project:	2504 Nashville Highway Master Development – Columbia, TN
ITE Land Use:	Single-Family Housing, Multi-Family Housing (Low-Rise), Coffee/Donut Shop with Drive-Thru, Shopping Center, and Day Care Center
ITE Code:	210, 220, 937, 820, & 565
Trip Ends vs:	ITE 210 – 147 DU; ITE 220 – 471 DU; ITE 937 – 3,725 SF; ITE 820 – 3,500 SF and ITE 565 – 13,000 SF
Daily Equation:	Weekday – Varies by Land Use
AM Equation:	Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 AM – Varies by Land Use
PM Equation:	Peak Hour of Adjacent Street Traffic, One Hour Between 4 and 6 PM – Varies by Land Use

Total Site Generated Traffic (Includes Internal and Pass-By Trips)

Land Use	Size	Generated Traffic Volumes				
		Daily	AM Peak		PM Peak	
			Enter	Exit	Enter	Exit
Single-Family Housing (210)	147 DU	1,482	27	82	93	54
Multi-Family Housing (Low-Rise) (220)	471 DU	3,520	48	160	148	87
Coffee/Donut Shop with Drive-Thru (937)	3,725 SF	3,060	169	163	81	81
Shopping Center (820)	3,500 SF	615	95	58	22	24
Day Care Center (565)	13,000 SF	619	76	67	68	77
TOTAL		9,296	415	530	412	323

New Site Generated Traffic (Excludes Internal and Pass-By Trips)

Land Use	Size	Generated Traffic Volumes				
		Daily	AM Peak		PM Peak	
			Enter	Exit	Enter	Exit
Single-Family Housing (210)	147 DU	1,349	27	82	85	49
Multi-Family Housing (Low-Rise) (220)	471 DU	3,203	48	160	135	79
Coffee/Donut Shop with Drive-Thru (937)	3,725 SF	1,392	84	81	37	37
Shopping Center (820)	3,500 SF	448	76	46	16	18
Day Care Center (565)	13,000 SF	563	76	67	62	70
TOTAL		6,955	311	436	335	253



Internal and Pass-By Trip Calculations

Internal Trips

As described in the *Trip Generation Handbook*, developments containing multiple land uses will commonly have internal trips, or trips from land use to land use without leaving the development site. Based on the NCHRP Report 684, “Enhancing Internal Trip Capture Estimation for Mixed-Use Developments,” and assumptions made by T-Square Engineering for this study, an estimated **9% internal capture rate** was calculated for daily and PM peak hour trips.

Pass-By Trips

Studies have shown that new retail and restaurant developments generate relatively low “new” traffic. Traffic entering or exiting the new development are considered pass-by or captured trips. Pass-by or captured trips are vehicles that would have already been on the roadway regardless of the new development being constructed. The *Trip Generation Handbook* provides typical weekday pass-by percentages for various land uses based on the size of each land use. Based on the *Trip Generation Handbook* and assumptions made by T-Square Engineering for this study, **20% and 50% pass-by** were used for the shopping center and coffee shop land uses, respectively. The Table below provides a summary of the internal, pass-by and new trips generated for the proposed development.



Internal and Pass-By Trips

Land Use (ITE Code)	Size	Generated Traffic Volumes ¹				
		Daily	AM Peak		PM Peak	
			Enter	Exit	Enter	Exit
Single-Family Housing (210)	147 DU	1,482	27	82	93	54
Internal Trips		133	0	0	8	5
External Trips (Raw – Internal)		1,349	27	82	85	49
Pass-By Trips		0	0	0	0	0
New Trips (External – Pass-By)		1,349	27	82	85	49
Multi-Family (Low-Rise) Housing (220)	471 DU	3,520	48	160	148	87
Internal Trips		317	0	0	13	8
External Trips		3,203	48	160	135	79
Pass-By Trips		0	0	0	0	0
New Trips		3,203	48	160	135	79
Coffee/Donut Shop w/ Drive Thru (937)	3,725 SF	3,060	169	163	81	81
Internal Trips		275	0	0	7	7
External Trips		2,785	169	163	74	74
Pass-By Trips (50%)		1,393	85	82	37	37
New Trips		1,392	84	81	37	37
Shopping Center (820)	3,500 SF	615	95	58	22	24
Internal Trips		55	0	0	2	2
External Trips		560	95	58	20	22
Pass-By Trips (20%)		112	19	12	4	4
New Trips		448	76	46	16	18
Day Care Center (565)	13,000 SF	619	76	67	68	77
Internal Trips		56	0	0	6	7
External Trips		563	76	67	62	70
Pass-By Trips		0	0	0	0	0
New Trips		563	76	67	62	70
TOTAL GENERATED TRIPS		9,296	415	530	412	323
TOTAL GENERATED INTERNAL TRIPS		836	0	0	36	29
TOTAL GENERATED EXTERNAL TRIPS		8,460	415	530	376	294
TOTAL GENERATED PASS-BY TRIPS		1,505	104	94	41	41
TOTAL GENERATED NEW TRIPS		6,955	311	436	335	253

¹ Institute of Transportation Engineers (ITE). Trip Generation Manual, 10th Edition. Washington, DC: ITE, 2020



TRIP GENERATION CALCULATIONS

Single-Family Homes (210) – 147 Dwelling Units

<i>Time Period</i>	<i>Formula²</i>	<i>Calculation²</i>	<i>Trips</i>
<i>Daily</i>	$Ln(T) = 0.92Ln(X) + 2.71$	$Ln(T) = 0.92Ln(147) + 2.71$	1,482
<i>AM Peak (Total)</i>	$T = 0.71(X) + 4.80$	$T = 0.71(147) + 4.80$	109
<i>AM Peak (Entering)</i>	$T = 0.25(Total\ AM\ Trips)$	$T = 0.25(109)$	27
<i>AM Peak (Exiting)</i>	$T = 0.75(Total\ AM\ Trips)$	$T = 0.75(109)$	82
<i>PM Peak (Total)</i>	$Ln(T) = 0.96Ln(X) + 0.20$	$Ln(T) = 0.96Ln(147) + 0.20$	147
<i>PM Peak (Entering)</i>	$T = 0.63(Total\ PM\ Trips)$	$T = 0.63(147)$	93
<i>PM Peak (Exiting)</i>	$T = 0.37(Total\ PM\ Trips)$	$T = 0.37(147)$	54

Multi-Family (Low-Rise) Homes (220) – 471 Dwelling Units

<i>Time Period</i>	<i>Formula</i>	<i>Calculation²</i>	<i>Trips</i>
<i>Daily</i>	$T = 7.56(X) - 40.86$	$T = 7.56(471) - 40.86$	3,520
<i>AM Peak (Total)</i>	$Ln(T) = 0.95Ln(X) - 0.51$	$Ln(T) = 0.95Ln(471) - 0.51$	208
<i>AM Peak (Entering)</i>	$T = 0.23(Total\ AM\ Trips)$	$T = 0.23(208)$	48
<i>AM Peak (Exiting)</i>	$T = 0.77(Total\ AM\ Trips)$	$T = 0.77(208)$	160
<i>PM Peak (Total)</i>	$Ln(T) = 0.89Ln(X) - 0.02$	$Ln(T) = 0.89Ln(471) - 0.02$	235
<i>PM Peak (Entering)</i>	$T = 0.63(Total\ PM\ Trips)$	$T = 0.63(235)$	148
<i>PM Peak (Exiting)</i>	$T = 0.37(Total\ PM\ Trips)$	$T = 0.37(235)$	87

² Institute of Transportation Engineers (ITE). Trip Generation Manual, 10th Edition. Washington, DC: ITE, 2020

**Coffee/Donut Shop with Drive-Thru (937) – 3,725 SF**

<i>Time Period</i>	<i>Formula</i>	<i>Calculation²</i>	<i>Trips</i>
<i>Daily</i>	$T = 820.38(X)$	$T = 820.38(3.73)$	3,060
<i>AM Peak (Total)</i>	$T = 88.99(X)$	$T = 88.99(3.73)$	332
<i>AM Peak (Entering)</i>	$T = 0.51(\text{Total AM Trips})$	$T = 0.51(332)$	169
<i>AM Peak (Exiting)</i>	$T = 0.49(\text{Total AM Trips})$	$T = 0.49(332)$	163
<i>PM Peak (Total)</i>	$T = 43.38(X)$	$T = 43.38(3.73)$	162
<i>PM Peak (Entering)</i>	$T = 0.50(\text{Total PM Trips})$	$T = 0.50(162)$	81
<i>PM Peak (Exiting)</i>	$T = 0.50(\text{Total PM Trips})$	$T = 0.50(162)$	81

Day Care Center (565) – 13,000 SF

<i>Time Period</i>	<i>Formula</i>	<i>Calculation</i>	<i>Trips</i>
<i>Daily</i>	$T = 47.62(X)$	$T = 47.62(13)$	619
<i>AM Peak (Total)</i>	$T = 11.00(X)$	$T = 11.00(13)$	143
<i>AM Peak (Entering)</i>	$T = 0.53(\text{Total AM Trips})$	$T = 0.53(143)$	76
<i>AM Peak (Exiting)</i>	$T = 0.47(\text{Total AM Trips})$	$T = 0.47(143)$	67
<i>PM Peak (Total)</i>	$T = 11.12(X)$	$T = 11.12(13)$	145
<i>PM Peak (Entering)</i>	$T = 0.47(\text{Total PM Trips})$	$T = 0.47(145)$	68
<i>PM Peak (Exiting)</i>	$T = 0.53(\text{Total PM Trips})$	$T = 0.53(145)$	77



Shopping Center (820) – 3,500 SF

<i>Time Period</i>	<i>Formula</i>	<i>Calculation</i>	<i>Trips</i>
<i>Daily</i>	$Ln(T) = 0.68Ln(X) + 5.57$	$Ln(T) = 0.68Ln(3.5) + 5.57$	615
<i>AM Peak (Total)</i>	$T = 0.50(X) + 151.78$	$T = 0.50(3.5) + 151.78$	153
<i>AM Peak (Entering)</i>	$T = 0.62(Total\ AM\ Trips)$	$T = 0.62(153)$	95
<i>AM Peak (Exiting)</i>	$T = 0.38(Total\ AM\ Trips)$	$T = 0.38(153)$	58
<i>PM Peak (Total)</i>	$Ln(T) = 0.74Ln(X) + 2.89$	$Ln(T) = 0.74Ln(3.5) + 2.89$	46
<i>PM Peak (Entering)</i>	$T = 0.48(Total\ PM\ Trips)$	$T = 0.48(46)$	22
<i>PM Peak (Exiting)</i>	$T = 0.52(Total\ PM\ Trips)$	$T = 0.52(46)$	24

Single-Family Detached Housing

(210)

Vehicle Trip Ends vs: Dwelling Units

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: 173

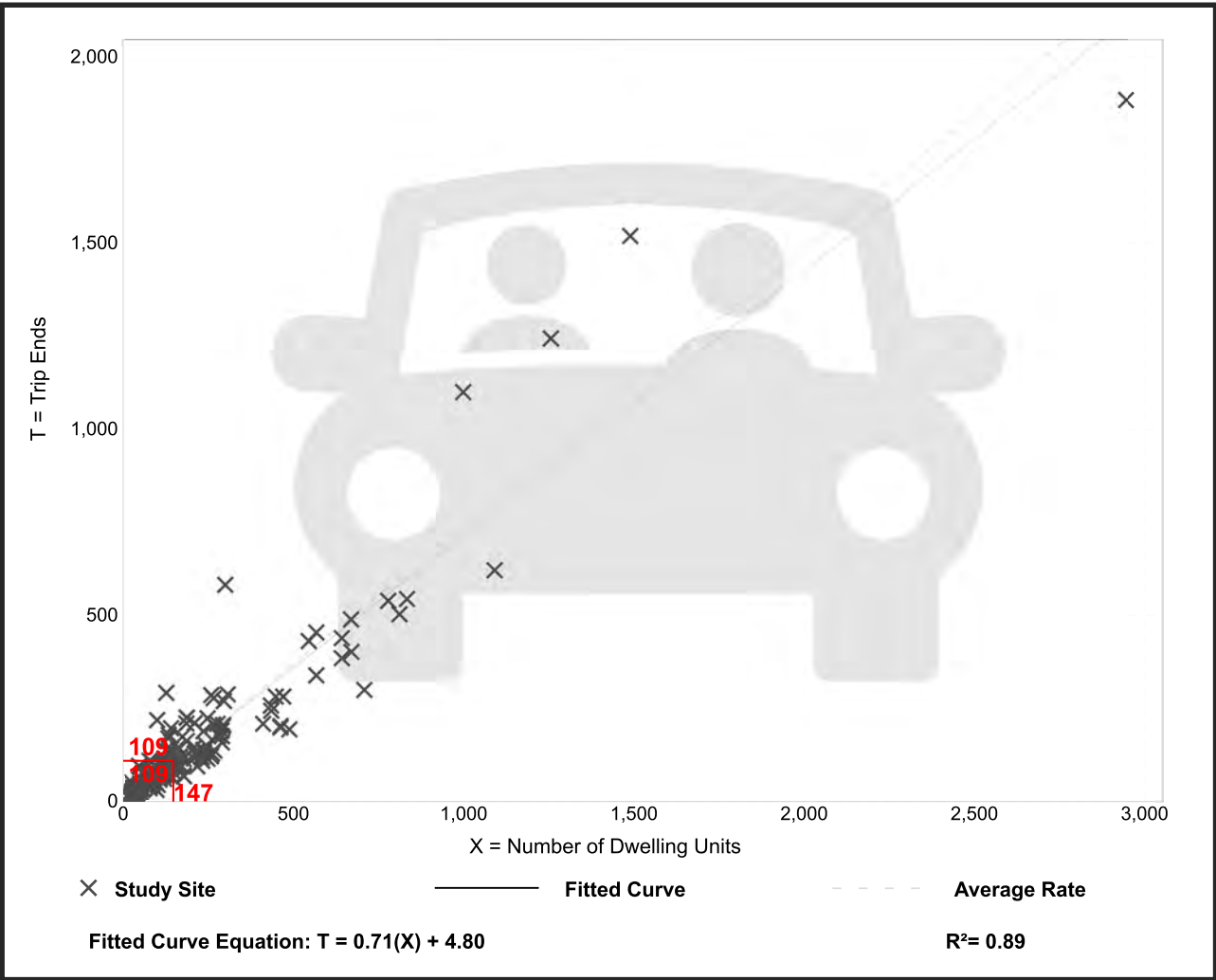
Avg. Num. of Dwelling Units: 219

Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



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Single-Family Detached Housing

(210)

Vehicle Trip Ends vs:

Dwelling Units

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. Num. of Dwelling Units:

242

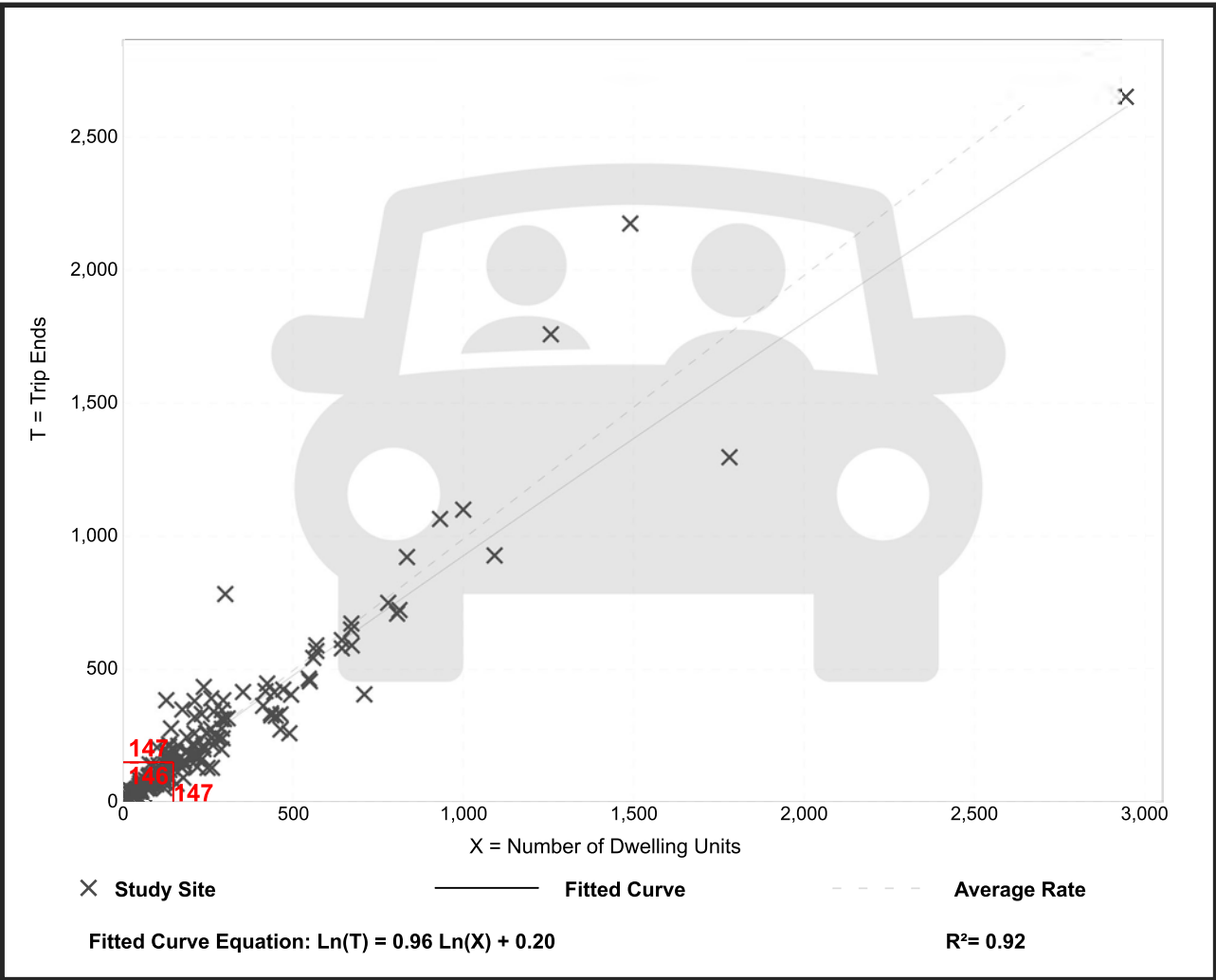
Directional Distribution:

63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



Single-Family Detached Housing

(210)

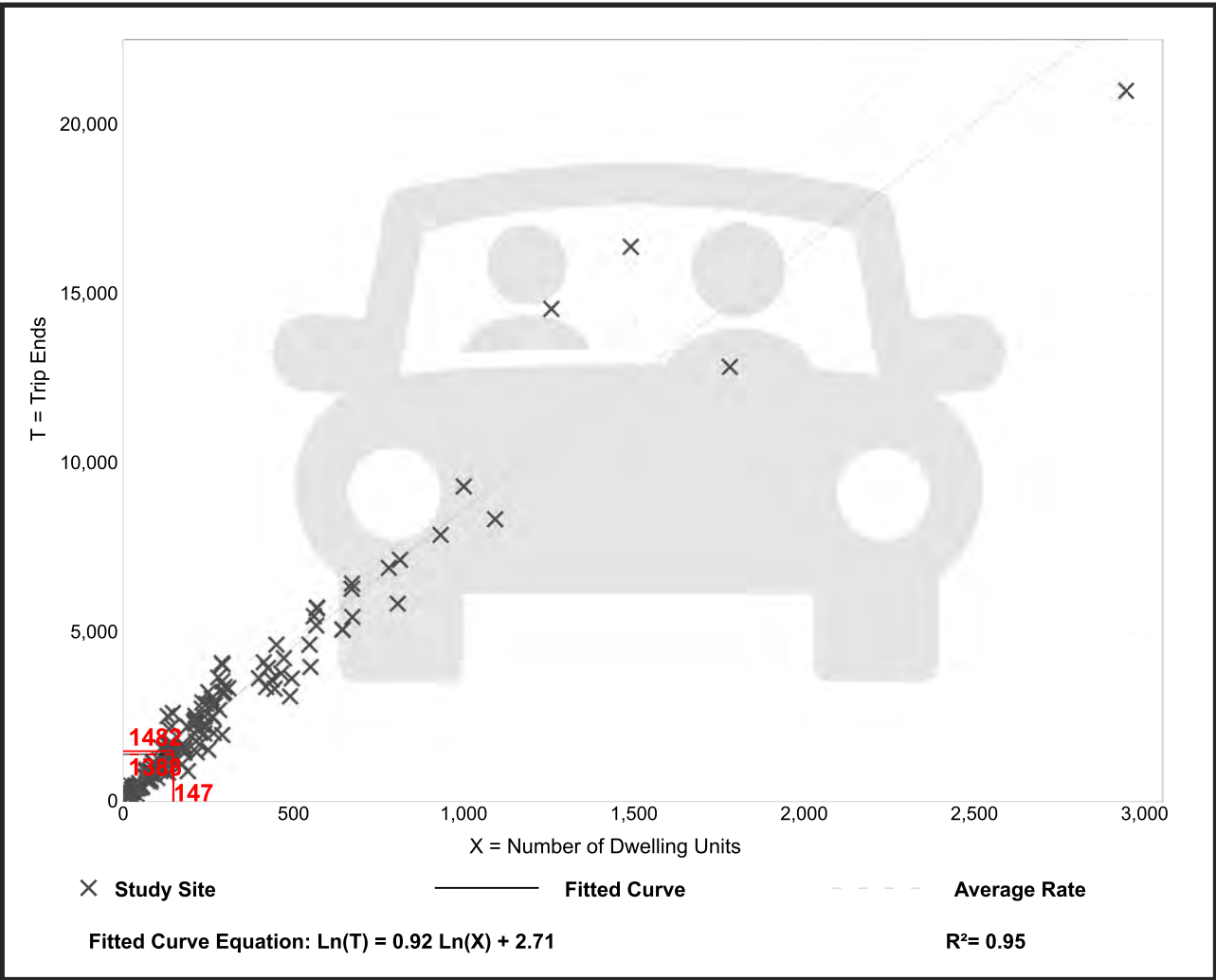
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 159
Avg. Num. of Dwelling Units: 264
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



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Multifamily Housing (Low-Rise)

(220)

Vehicle Trip Ends vs: Dwelling Units

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: 42

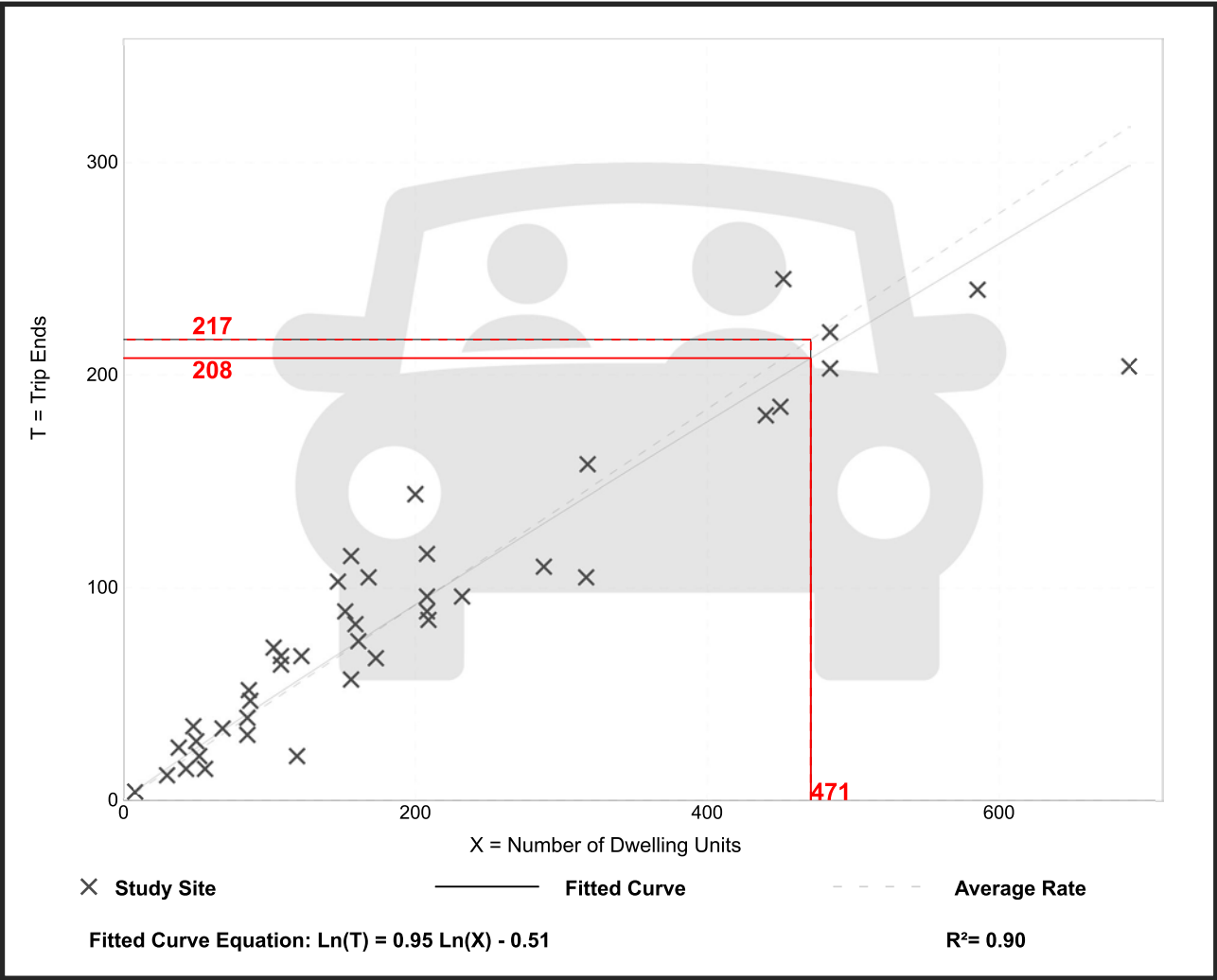
Avg. Num. of Dwelling Units: 199

Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



Multifamily Housing (Low-Rise)

(220)

Vehicle Trip Ends vs:

Dwelling Units

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:

50

Avg. Num. of Dwelling Units:

187

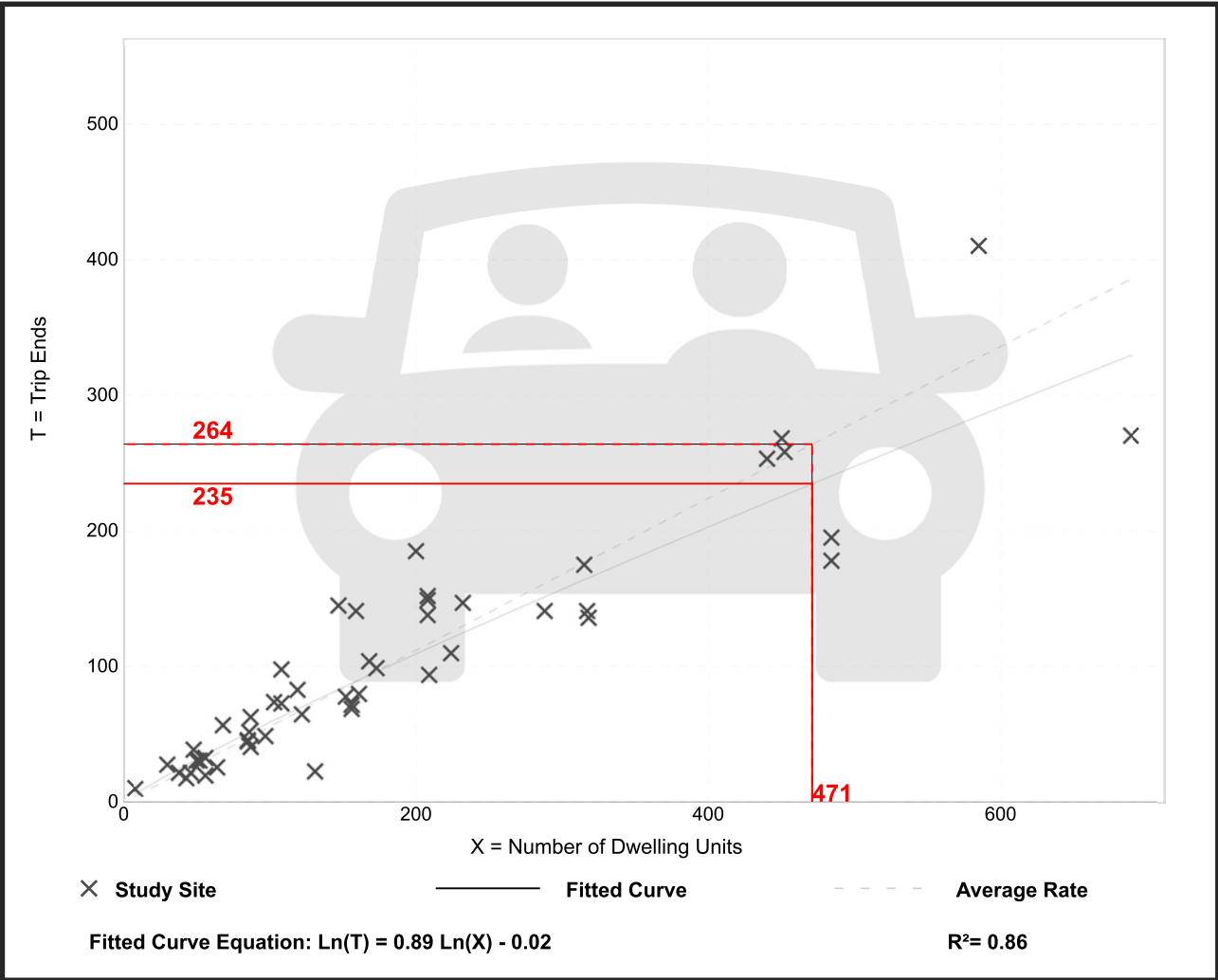
Directional Distribution:

63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



Multifamily Housing (Low-Rise) (220)

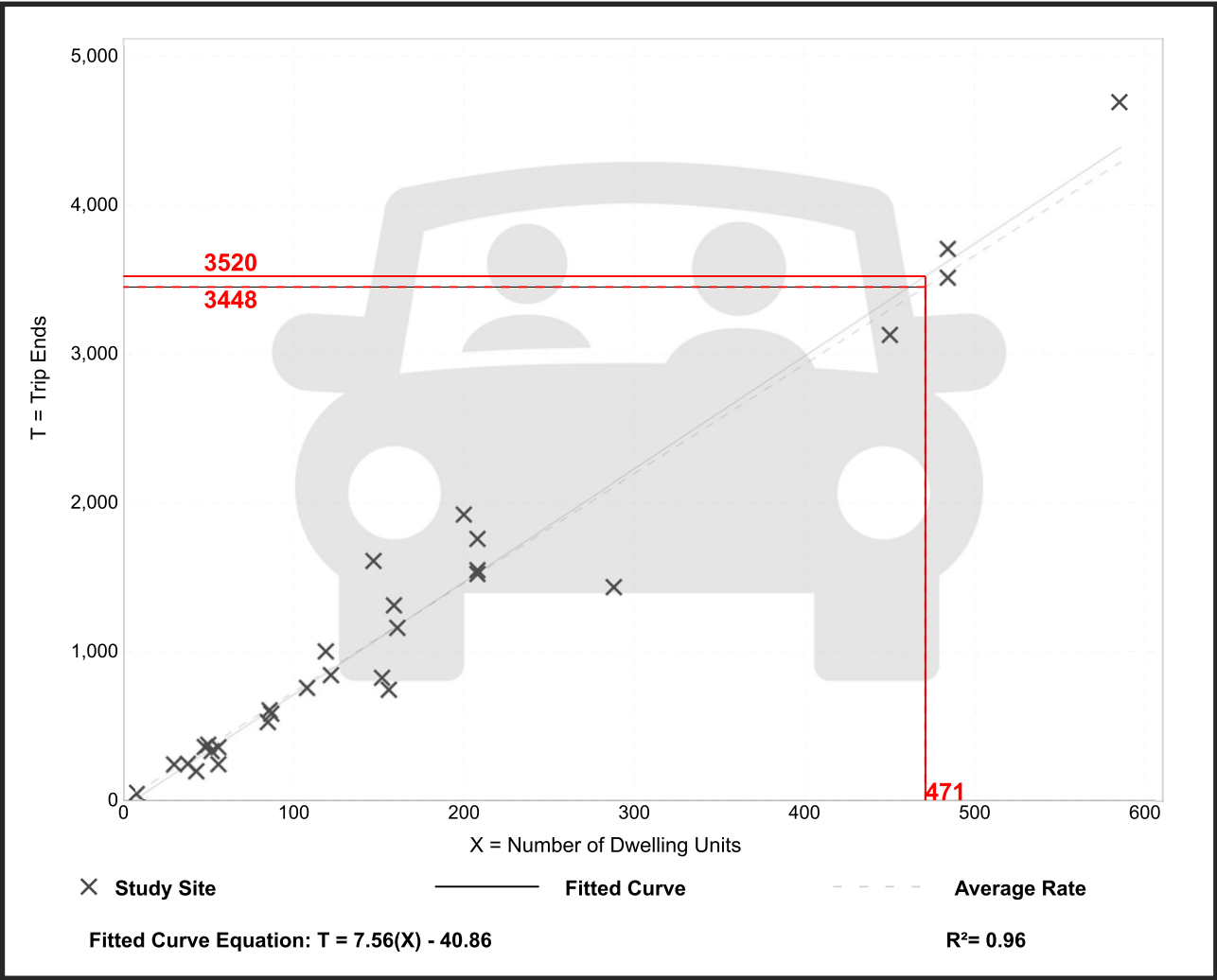
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



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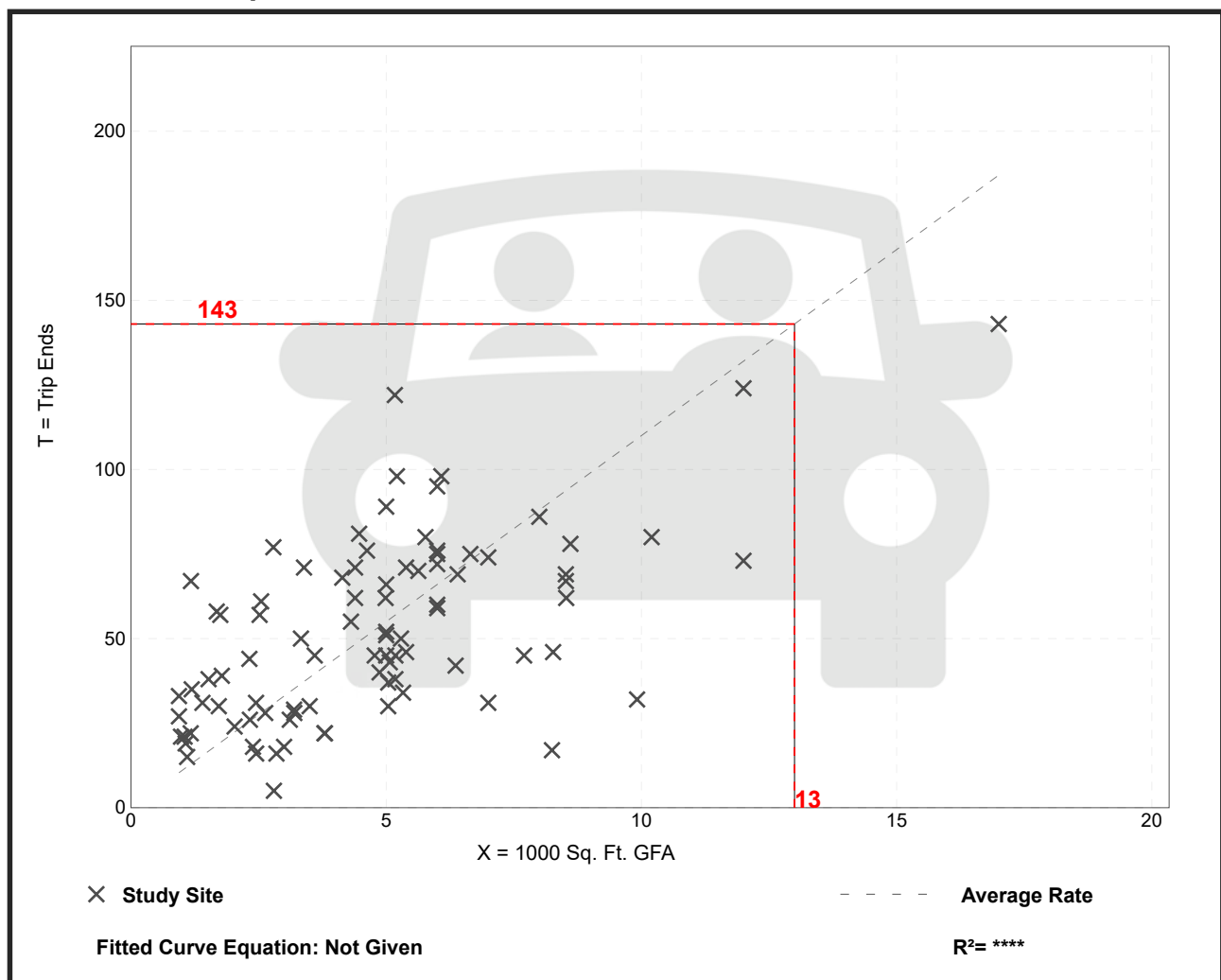
Day Care Center (565)

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: 89
 Avg. 1000 Sq. Ft. GFA: 5
 Directional Distribution: 53% entering, 47% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.00	1.79 - 57.02	6.08

Data Plot and Equation



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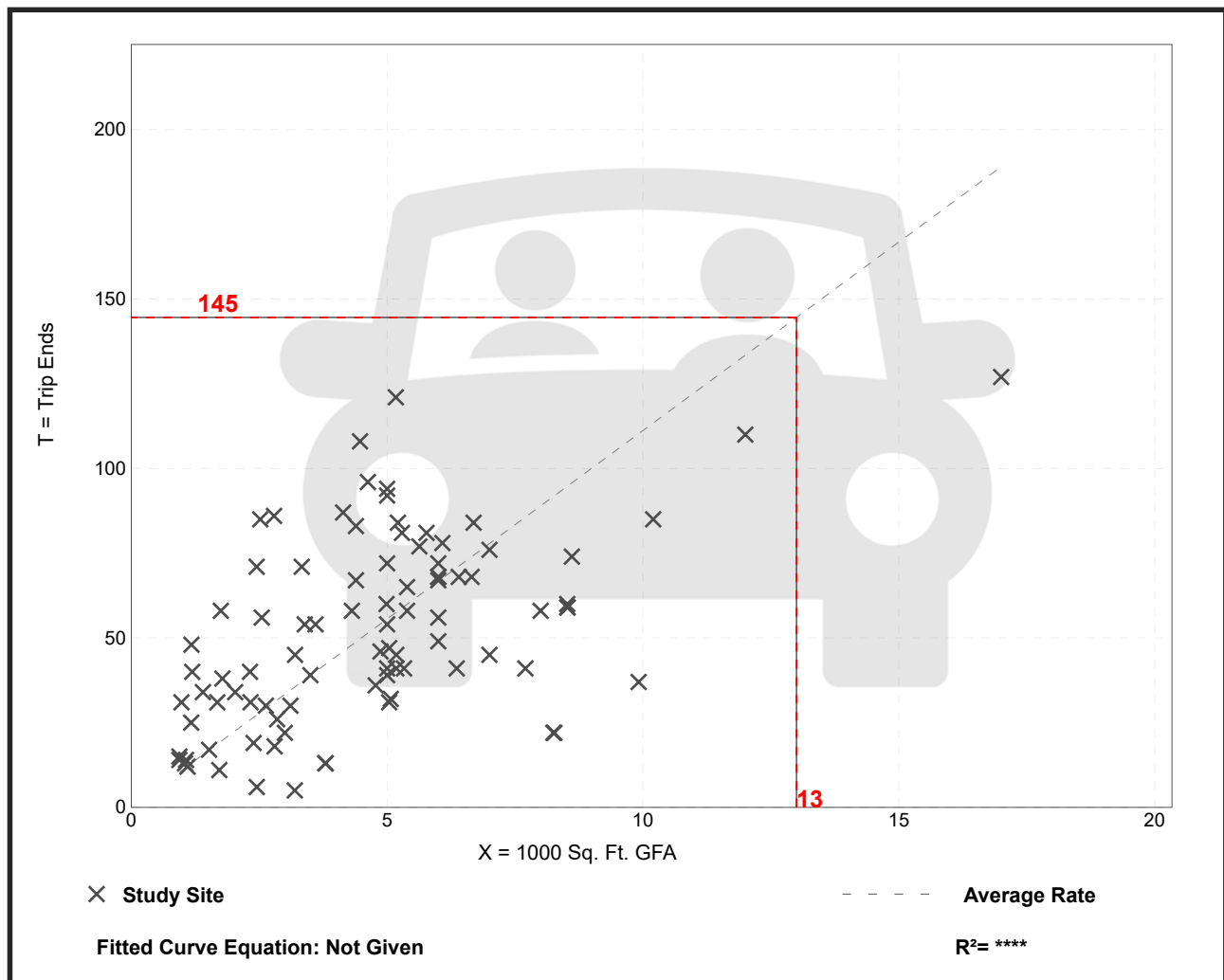
Day Care Center (565)

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: 90
 Avg. 1000 Sq. Ft. GFA: 5
 Directional Distribution: 47% entering, 53% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.12	1.56 - 40.85	6.28

Data Plot and Equation



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Day Care Center

(565)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 27

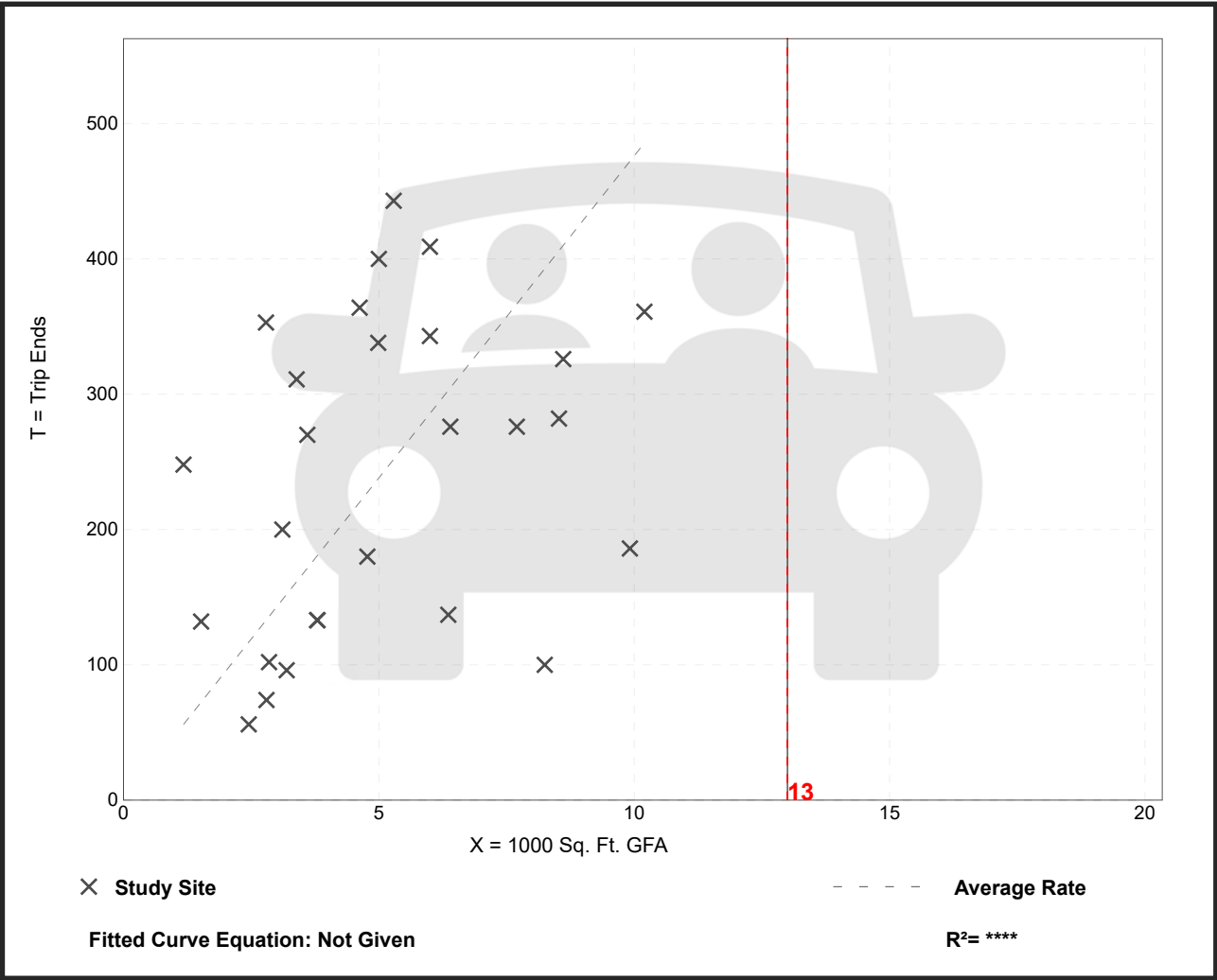
Avg. 1000 Sq. Ft. GFA: 5

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
47.62	12.12 - 211.06	29.78

Data Plot and Equation



Shopping Center (820)

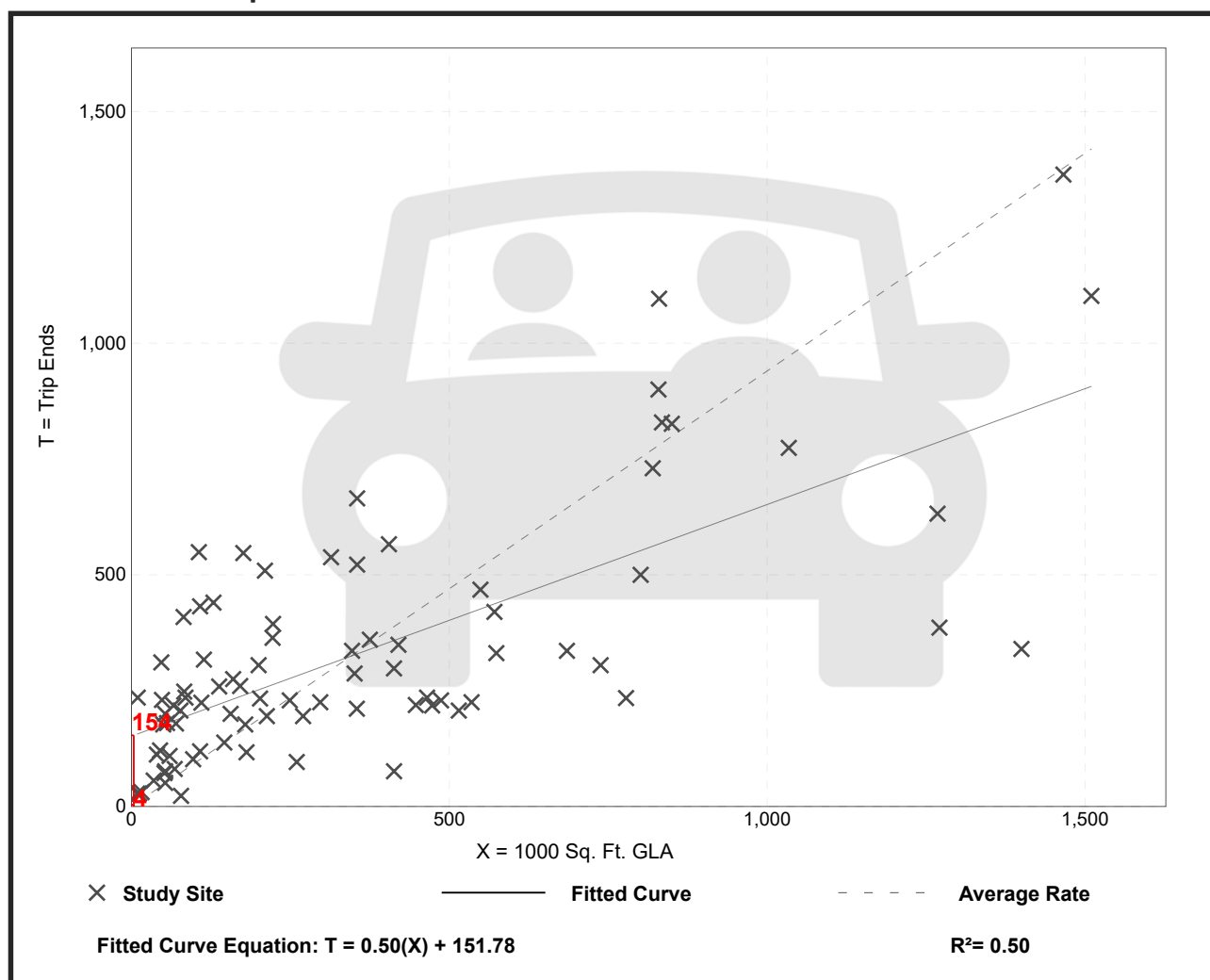
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban
 Number of Studies: 84
 Avg. 1000 Sq. Ft. GLA: 351
 Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.94	0.18 - 23.74	0.87

Data Plot and Equation



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Shopping Center (820)

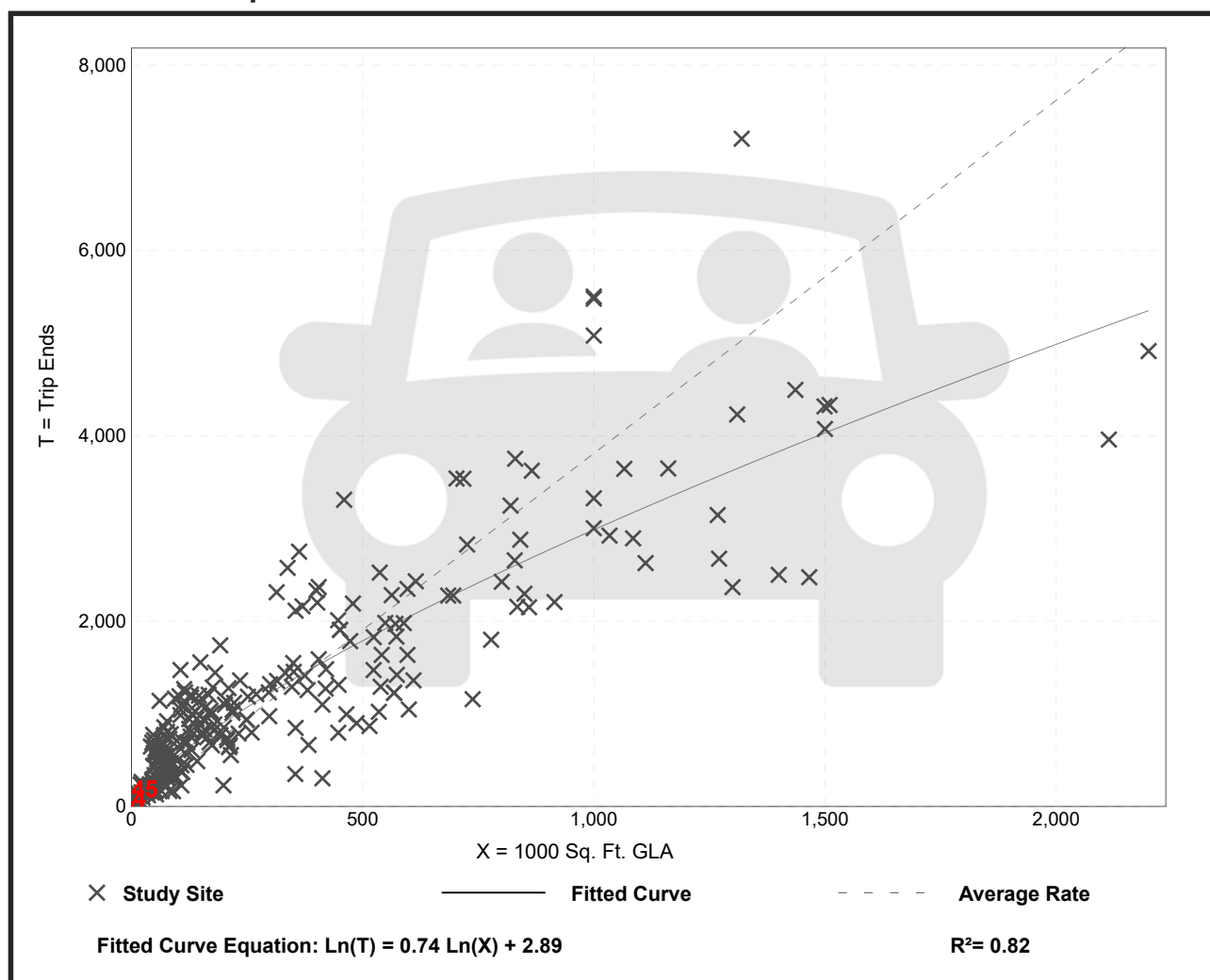
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban
 Number of Studies: 261
 Avg. 1000 Sq. Ft. GLA: 327
 Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.81	0.74 - 18.69	2.04

Data Plot and Equation



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Shopping Center (820)

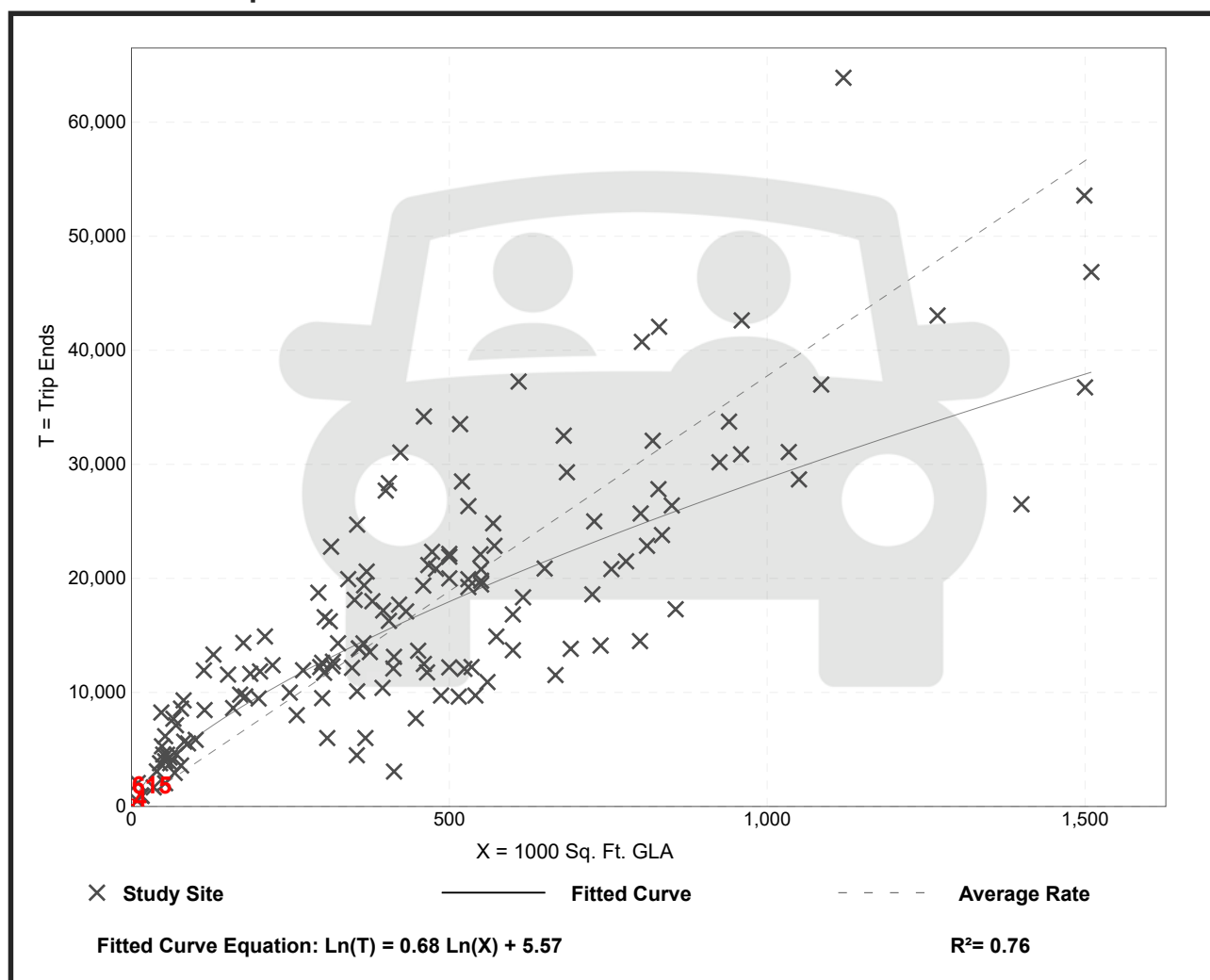
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 147
Avg. 1000 Sq. Ft. GLA: 453
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
37.75	7.42 - 207.98	16.41

Data Plot and Equation



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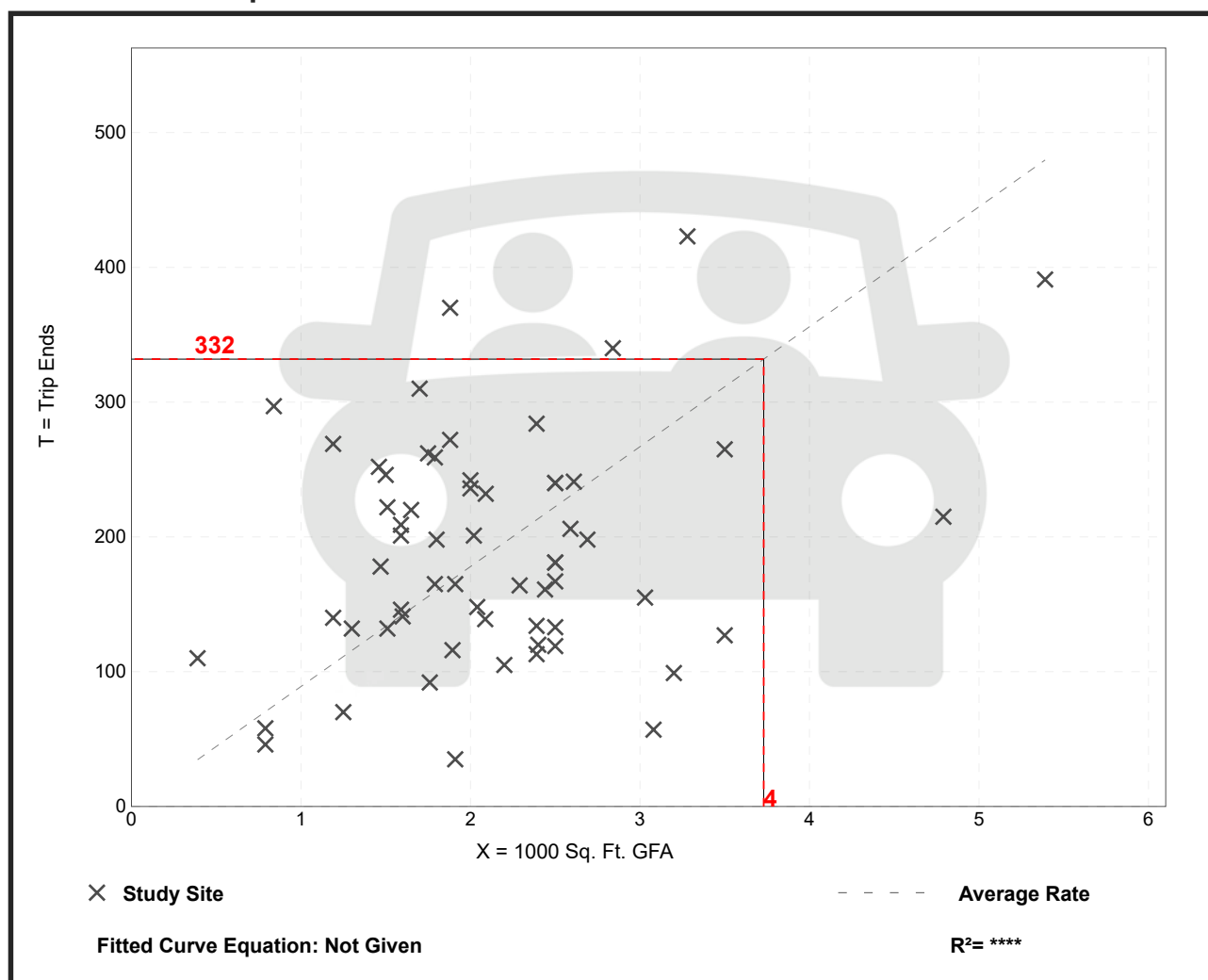
Coffee/Donut Shop with Drive-Through Window (937)

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: 61
 Avg. 1000 Sq. Ft. GFA: 2
 Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
88.99	18.32 - 353.57	48.19

Data Plot and Equation



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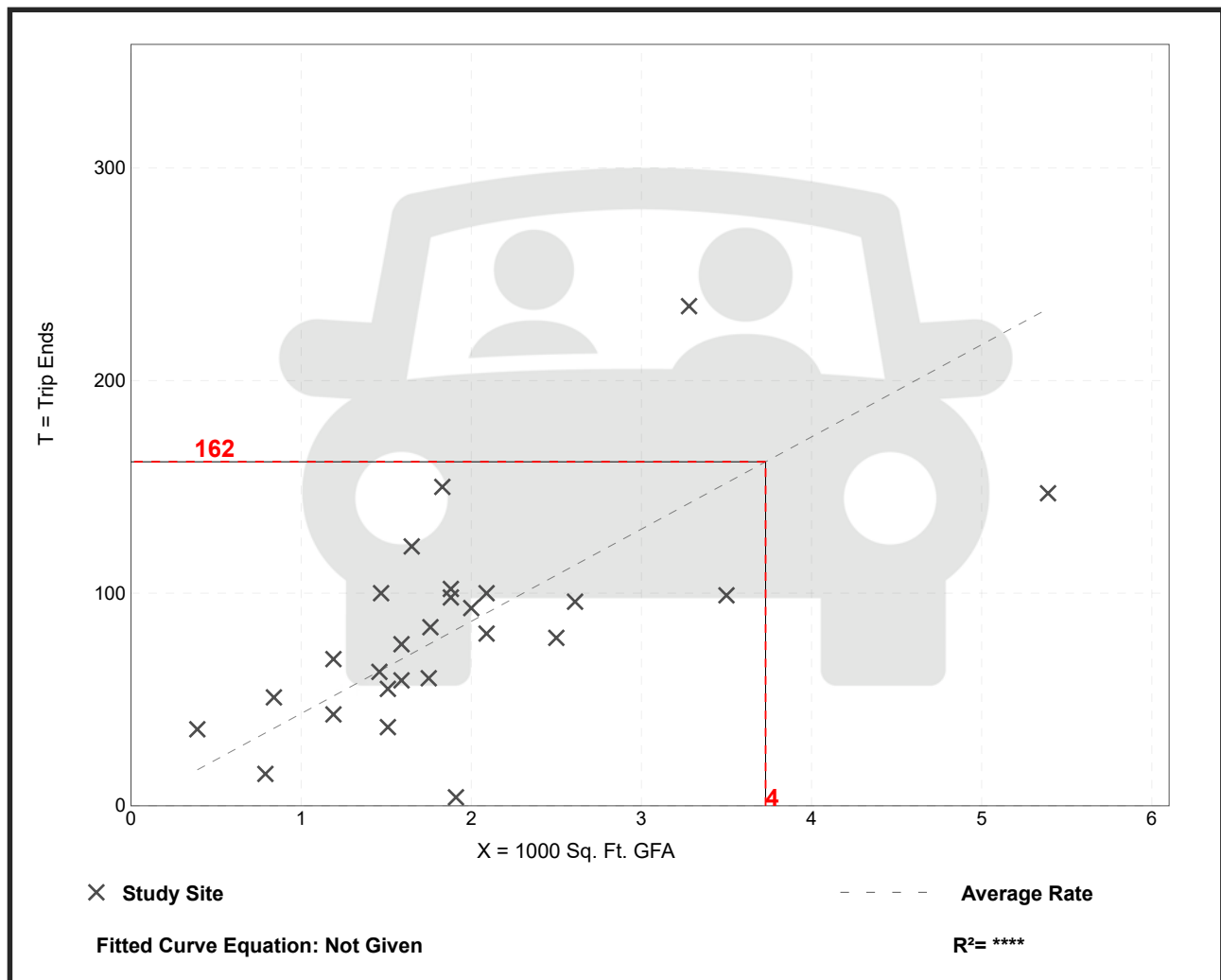
Coffee/Donut Shop with Drive-Through Window (937)

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: 26
 Avg. 1000 Sq. Ft. GFA: 2
 Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
43.38	2.09 - 92.31	18.88

Data Plot and Equation



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Coffee/Donut Shop with Drive-Through Window (937)

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

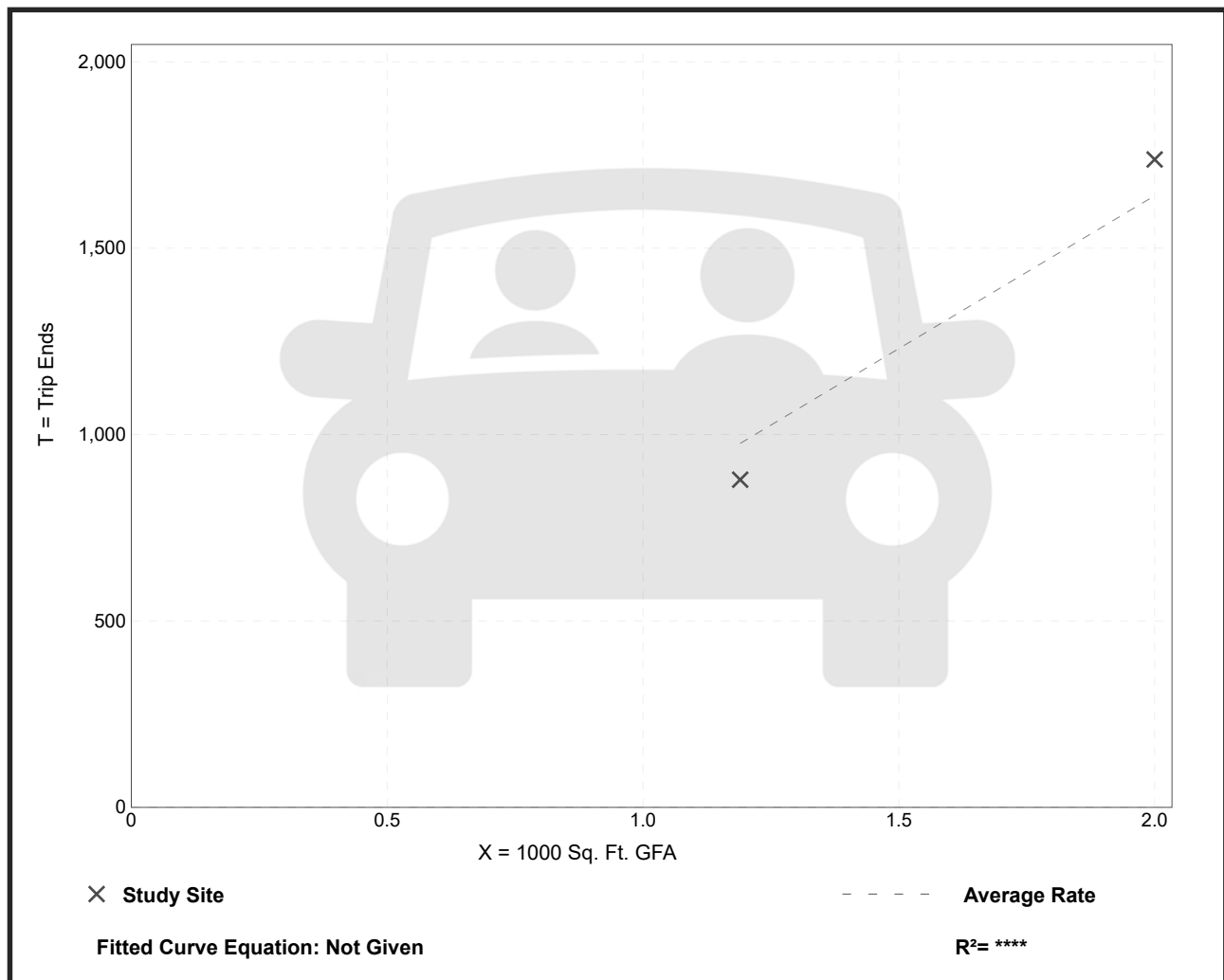
Setting/Location: General Urban/Suburban
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 2
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
820.38	738.66 - 869.00	*

Data Plot and Equation

Caution – Small Sample Size



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APPENDIX C – CAPACITY ANALYSES

EXISTING CAPACITY ANALYSES

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2504 Nashville Highway
Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	1	51	2	0	1	105	1554	1	1	1195	70
Future Volume (veh/h)	189	1	51	2	0	1	105	1554	1	1	1195	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	205	1	55	2	0	1	114	1689	1	1	1299	76
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	356	5	280	304	0	285	149	2089	1	3	1676	98
Arrive On Green	0.18	0.18	0.18	0.18	0.00	0.18	0.08	0.58	0.58	0.00	0.49	0.49
Sat Flow, veh/h	1410	28	1559	1342	0	1583	1774	3630	2	1774	3399	199
Grp Volume(v), veh/h	205	0	56	2	0	1	114	823	867	1	675	700
Grp Sat Flow(s),veh/h/ln	1410	0	1588	1342	0	1583	1774	1770	1862	1774	1770	1828
Q Serve(g_s), s	9.8	0.0	2.1	0.1	0.0	0.0	4.4	25.8	25.8	0.0	21.9	22.0
Cycle Q Clear(g_c), s	9.8	0.0	2.1	2.2	0.0	0.0	4.4	25.8	25.8	0.0	21.9	22.0
Prop In Lane	1.00		0.98	1.00		1.00	1.00		0.00	1.00		0.11
Lane Grp Cap(c), veh/h	356	0	285	304	0	285	149	1019	1072	3	872	901
V/C Ratio(X)	0.58	0.00	0.20	0.01	0.00	0.00	0.77	0.81	0.81	0.39	0.77	0.78
Avail Cap(c_a), veh/h	708	0	681	639	0	680	508	1342	1412	508	1342	1386
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	0.0	24.4	25.3	0.0	23.5	31.3	11.8	11.8	34.9	14.5	14.6
Incr Delay (d2), s/veh	1.5	0.0	0.3	0.0	0.0	0.0	7.9	2.8	2.7	77.5	1.5	1.5
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	3.9	0.0	0.9	0.0	0.0	0.0	2.5	13.2	13.8	0.1	10.9	11.3
LnGrp Delay(d),s/veh	29.0	0.0	24.7	25.3	0.0	23.5	39.2	14.6	14.5	112.4	16.1	16.1
LnGrp LOS	C		C	C		C	D	B	B	F	B	B
Approach Vol, veh/h	261				3			1804			1376	
Approach Delay, s/veh	28.1				24.7			16.1			16.1	
Approach LOS	C				C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	5.1	47.2	17.6		10.9	41.5	17.6					
Change Period (Y+Rc), s	5.0	7.0	5.0		5.0	7.0	5.0					
Max Green Setting (Gmax), s	20.0	53.0	30.0		20.0	53.0	30.0					
Max Q Clear Time (g_c+I1), s	2.0	27.8	11.8		6.4	24.0	4.2					
Green Ext Time (p_c), s	0.0	12.4	0.8		0.2	9.6	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	17.0											
HCM 2010 LOS	B											

Queuing and Blocking Report
Existing AM

01/28/2021

Intersection: 1: Nashville Highway & Spring Meade Road/Private Drive

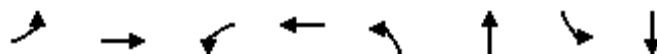
Movement	EB	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	180	53	28	155	209	235	29	333	330
Average Queue (ft)	106	25	1	56	95	109	1	152	157
95th Queue (ft)	161	50	9	105	175	193	9	253	260
Link Distance (ft)	417	417	233		1664	1664		1260	1260
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)				255			220		
Storage Blk Time (%)								2	
Queuing Penalty (veh)								0	

Timings

1: Nashville Highway & Spring Meade Road/Private Drive

2504 Nashville Highway

Existing AM



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	189	1	2	0	105	1554	1	1195
Future Volume (vph)	189	1	2	0	105	1554	1	1195
Turn Type	Perm	NA	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8					
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	7.0	7.0	5.0	25.0	5.0	25.0
Minimum Split (s)	23.0	23.0	12.0	12.0	10.0	32.0	10.0	32.0
Total Split (s)	35.0	35.0	35.0	35.0	25.0	60.0	25.0	60.0
Total Split (%)	29.2%	29.2%	29.2%	29.2%	20.8%	50.0%	20.8%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	7.0	5.0	7.0
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	19.6	19.6	19.6	19.6	11.9	61.7	5.8	46.5
Actuated g/C Ratio	0.21	0.21	0.21	0.21	0.12	0.65	0.06	0.49
v/c Ratio	0.71	0.15	0.01	0.00	0.52	0.74	0.01	0.80
Control Delay	50.6	10.6	32.5	0.0	50.7	15.8	51.0	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	10.6	32.5	0.0	50.7	15.8	51.0	26.4
LOS	D	B	C	A	D	B	D	C
Approach Delay		42.0		21.7		18.0		26.5
Approach LOS		D		C		B		C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 95.4

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 23.2

Intersection LOS: C

Intersection Capacity Utilization 78.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

Ø1	Ø2	Ø4	Ø8
25 s	60 s	35 s	35 s
Ø5	Ø6	Ø8	Ø8
25 s	60 s	35 s	35 s

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	83	124	1689	1263	4
Future Vol, veh/h	1	83	124	1689	1263	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	90	135	1836	1373	4
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2563	689	1377	0	-	0
Stage 1	1375	-	-	-	-	-
Stage 2	1188	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	21	388	494	-	-	-
Stage 1	200	-	-	-	-	-
Stage 2	252	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	21	388	494	-	-	-
Mov Cap-2 Maneuver	21	-	-	-	-	-
Stage 1	200	-	-	-	-	-
Stage 2	252	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	20.6	1		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	494	-	321	-	-	
HCM Lane V/C Ratio	0.273	-	0.284	-	-	
HCM Control Delay (s)	15	0	20.6	-	-	
HCM Lane LOS	B	A	C	-	-	
HCM 95th %tile Q(veh)	1.1	-	1.1	-	-	

HCM 2010 Signalized Intersection Summary

3: Nashville Highway & Arden Village Dr. /Grove Park Way

2504 Nashville Highway
Existing AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	3	15	13	0	65	4	1672	31	39	1289	18
Future Volume (veh/h)	75	3	15	13	0	65	4	1672	31	39	1289	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	82	3	16	14	0	71	4	1817	34	42	1401	20
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	107	4	99	102	0	91	63	2309	1033	67	2317	1036
Arrive On Green	0.06	0.06	0.06	0.06	0.00	0.06	0.04	0.65	0.65	0.04	0.65	0.65
Sat Flow, veh/h	1714	63	1583	1774	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	85	0	16	14	0	71	4	1817	34	42	1401	20
Grp Sat Flow(s),veh/h/ln	1777	0	1583	1774	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	6.6	0.0	1.3	1.0	0.0	6.2	0.3	51.3	1.1	3.3	31.7	0.6
Cycle Q Clear(g_c), s	6.6	0.0	1.3	1.0	0.0	6.2	0.3	51.3	1.1	3.3	31.7	0.6
Prop In Lane	0.96		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	0	99	102	0	91	63	2309	1033	67	2317	1036
V/C Ratio(X)	0.76	0.00	0.16	0.14	0.00	0.78	0.06	0.79	0.03	0.63	0.60	0.02
Avail Cap(c_a), veh/h	298	0	266	298	0	266	177	2309	1033	177	2317	1036
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.6	0.0	62.1	62.6	0.0	65.1	65.2	17.4	8.6	66.4	13.8	8.5
Incr Delay (d2), s/veh	10.2	0.0	0.8	0.6	0.0	13.1	0.4	2.8	0.1	9.2	1.2	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	3.6	0.0	0.6	0.5	0.0	3.1	0.2	25.9	0.5	1.8	15.8	0.3
LnGrp Delay(d),s/veh	74.8	0.0	62.9	63.2	0.0	78.2	65.6	20.2	8.7	75.6	15.0	8.5
LnGrp LOS	E		E	E		E	E	C	A	E	B	A
Approach Vol, veh/h	101					85		1855		1463		
Approach Delay, s/veh	72.9					75.7		20.1		16.7		
Approach LOS	E					E		C		B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	11.3	98.8	15.3		11.0	99.1	14.6					
Change Period (Y+Rc), s	6.0	7.5	6.5		6.0	7.5	6.5					
Max Green Setting (Gmax), s	14.0	52.5	23.5		14.0	52.5	23.5					
Max Q Clear Time (g_c+I1), s	5.3	53.3	8.6		2.3	33.7	8.2					
Green Ext Time (p_c), s	0.0	0.0	0.4		0.0	9.0	0.2					
Intersection Summary												
HCM 2010 Ctrl Delay	21.5											
HCM 2010 LOS	C											

Queuing and Blocking Report
Existing AM

01/27/2021

Intersection: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	216	47	153	143	21	424	446	229	79	367	404	275
Average Queue (ft)	72	12	14	43	1	203	207	17	32	78	147	11
95th Queue (ft)	152	36	63	88	8	354	365	111	63	229	313	92
Link Distance (ft)	574	574	457			1402	1402			532	532	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)				100	330			130	125			175
Storage Blk Time (%)				2		1	14			1	4	
Queuing Penalty (veh)				0		0	4			1	1	

Timings

3: Nashville Highway & Arden Village Dr. /Grove Park Way

2504 Nashville Highway

Existing AM

	→	↘	←	↖	↙	↑	↗	↘	↓	↖
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	3	15	0	65	4	1672	31	39	1289	18
Future Volume (vph)	3	15	0	65	4	1672	31	39	1289	18
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	21.5	21.5	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	30.0	30.0	30.0	30.0	20.0	60.0	60.0	20.0	60.0	60.0
Total Split (%)	21.4%	21.4%	21.4%	21.4%	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	12.0	12.0	7.3	7.3	5.9	90.4	90.4	8.7	100.3	100.3
Actuated g/C Ratio	0.09	0.09	0.05	0.05	0.04	0.65	0.65	0.06	0.72	0.72
v/c Ratio	0.56	0.06	0.15	0.34	0.05	0.80	0.03	0.38	0.55	0.02
Control Delay	74.6	0.5	66.8	4.4	65.5	24.5	0.1	72.1	12.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.6	0.5	66.8	4.4	65.5	24.5	0.1	72.1	12.3	0.0
LOS	E	A	E	A	E	C	A	E	B	A
Approach Delay	62.9		14.7			24.2			13.8	
Approach LOS	E		B			C			B	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 3.5 (3%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 20.7

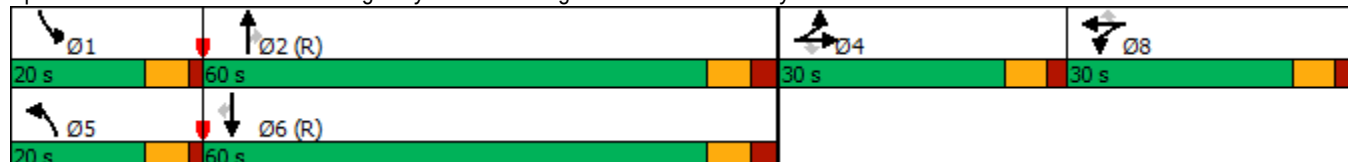
Intersection LOS: C

Intersection Capacity Utilization 75.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Nashville Highway & Arden Village Dr. /Grove Park Way



Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	3	0	35	12	0
Future Vol, veh/h	20	3	0	35	12	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	3	0	38	13	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	25	0	62	24
Stage 1	-	-	-	-	24	-
Stage 2	-	-	-	-	38	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1589	-	944	1052
Stage 1	-	-	-	-	999	-
Stage 2	-	-	-	-	984	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1589	-	944	1052
Mov Cap-2 Maneuver	-	-	-	-	944	-
Stage 1	-	-	-	-	999	-
Stage 2	-	-	-	-	984	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		8.9	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	944	-	-	1589	-	
HCM Lane V/C Ratio	0.014	-	-	-	-	
HCM Control Delay (s)	8.9	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	71	1833	16	26	1652
Future Vol, veh/h	32	71	1833	16	26	1652
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	77	1992	17	28	1796
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2955	1005	0	0	2009	0
Stage 1	2001	-	-	-	-	-
Stage 2	954	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	~ 11	240	-	-	281	-
Stage 1	91	-	-	-	-	-
Stage 2	335	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 10	240	-	-	281	-
Mov Cap-2 Maneuver	82	-	-	-	-	-
Stage 1	91	-	-	-	-	-
Stage 2	302	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	78.3	0		0.3		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	150	281	-	
HCM Lane V/C Ratio	-	-	0.746	0.101	-	
HCM Control Delay (s)	-	-	78.3	19.2	-	
HCM Lane LOS	-	-	F	C	-	
HCM 95th %tile Q(veh)	-	-	4.5	0.3	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	10	8	1836	1665	23
Future Vol, veh/h	16	10	8	1836	1665	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	260	-	-	265
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	11	9	1996	1810	25
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2826	905	1835	0	-	0
Stage 1	1810	-	-	-	-	-
Stage 2	1016	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 14	279	328	-	-	-
Stage 1	116	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 14	279	328	-	-	-
Mov Cap-2 Maneuver	100	-	-	-	-	-
Stage 1	113	-	-	-	-	-
Stage 2	310	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	36.9	0.1		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	328	-	100	279	-	-
HCM Lane V/C Ratio	0.027	-	0.174	0.039	-	-
HCM Control Delay (s)	16.3	-	48.4	18.4	-	-
HCM Lane LOS	C	-	E	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	0.1	-	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2504 Nashville Highway
Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	0	67	0	0	0	51	1401	0	0	1769	105
Future Volume (veh/h)	115	0	67	0	0	0	51	1401	0	0	1769	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	125	0	73	0	0	0	55	1523	0	0	1923	114
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	0	140	51	164	0	71	2923	0	1	2549	150
Arrive On Green	0.09	0.00	0.09	0.00	0.00	0.00	0.04	0.83	0.00	0.00	0.75	0.75
Sat Flow, veh/h	1774	0	1583	1322	1863	0	1774	3632	0	1774	3398	199
Grp Volume(v), veh/h	125	0	73	0	0	0	55	1523	0	0	992	1045
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1322	1863	0	1774	1770	0	1774	1770	1828
Q Serve(g_s), s	9.7	0.0	6.2	0.0	0.0	0.0	4.3	18.4	0.0	0.0	44.7	46.7
Cycle Q Clear(g_c), s	9.7	0.0	6.2	0.0	0.0	0.0	4.3	18.4	0.0	0.0	44.7	46.7
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.11
Lane Grp Cap(c), veh/h	208	0	140	51	164	0	71	2923	0	1	1327	1371
V/C Ratio(X)	0.60	0.00	0.52	0.00	0.00	0.00	0.77	0.52	0.00	0.00	0.75	0.76
Avail Cap(c_a), veh/h	432	0	339	218	399	0	253	2923	0	253	1327	1371
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	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	62.6	0.0	61.0	0.0	0.0	0.0	66.6	3.7	0.0	0.0	9.9	10.2
Incr Delay (d2), s/veh	2.8	0.0	3.0	0.0	0.0	0.0	16.0	0.7	0.0	0.0	3.9	4.0
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	4.9	0.0	2.8	0.0	0.0	0.0	2.4	9.2	0.0	0.0	22.9	24.8
LnGrp Delay(d),s/veh	65.4	0.0	64.0	0.0	0.0	0.0	82.6	4.4	0.0	0.0	13.8	14.2
LnGrp LOS	E		E				F	A			B	B
Approach Vol, veh/h		198			0			1578			2037	
Approach Delay, s/veh		64.9			0.0			7.1			14.0	
Approach LOS		E						A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	122.6		17.4	10.6	112.0		17.4				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	20.0	73.0		30.0	20.0	73.0		30.0				
Max Q Clear Time (g_c+I1), s	0.0	20.4		11.7	6.3	48.7		0.0				
Green Ext Time (p_c), s	0.0	14.8		0.7	0.1	16.1		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			13.8									
HCM 2010 LOS			B									

Intersection: 1: Nashville Highway & Spring Meade Road/Private Drive

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	TR	L	T	TR	T	TR
Maximum Queue (ft)	181	182	90	158	178	386	400
Average Queue (ft)	96	42	35	49	67	183	201
95th Queue (ft)	159	103	83	126	138	334	355
Link Distance (ft)	417	417		1664	1664	1260	1260
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			255				
Storage Blk Time (%)						5	
Queuing Penalty (veh)						0	

Timings
1: Nashville Highway & Spring Meade Road/Private Drive

2504 Nashville Highway
Existing PM

							
Lane Group	EBL	EBT	NBL	NBT	SBT	Ø1	Ø8
Lane Configurations							
Traffic Volume (vph)	115	0	51	1401	1769		
Future Volume (vph)	115	0	51	1401	1769		
Turn Type	Perm	NA	Prot	NA	NA		
Protected Phases		4	5	2	6	1	8
Permitted Phases	4						
Detector Phase	4	4	5	2	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	25.0	25.0	5.0	7.0
Minimum Split (s)	23.0	23.0	10.0	32.0	32.0	10.0	12.0
Total Split (s)	35.0	35.0	25.0	80.0	80.0	25.0	35.0
Total Split (%)	25.0%	25.0%	17.9%	57.1%	57.1%	18%	25%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	5.0	5.0	7.0	7.0		
Lead/Lag			Lead	Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	C-Min	C-Min	None	None
Act Effect Green (s)	17.7	17.7	9.7	110.3	97.8		
Actuated g/C Ratio	0.13	0.13	0.07	0.79	0.70		
v/c Ratio	0.70	0.18	0.45	0.55	0.83		
Control Delay	78.4	1.0	73.2	6.9	21.4		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	78.4	1.0	73.2	6.9	21.4		
LOS	E	A	E	A	C		
Approach Delay		49.8		9.2	21.4		
Approach LOS		D		A	C		

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 129.5 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 17.8
 Intersection LOS: B
 Intersection Capacity Utilization 68.6%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive



Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	70	34	1453	1842	2
Future Vol, veh/h	1	70	34	1453	1842	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	76	37	1579	2002	2
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2867	1002	2004	0	-	0
Stage 1	2003	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	13	241	282	-	-	-
Stage 1	90	-	-	-	-	-
Stage 2	373	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	241	282	-	-	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	373	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	26.8	9.6		0		
HCM LOS	D					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	282	-	241	-	-	
HCM Lane V/C Ratio	0.131	-	0.32	-	-	
HCM Control Delay (s)	19.7	9.4	26.8	-	-	
HCM Lane LOS	C	A	D	-	-	
HCM 95th %tile Q(veh)	0.4	-	1.3	-	-	

HCM 2010 Signalized Intersection Summary
 3: Nashville Highway & Arden Village Dr. /Grove Park Way

2504 Nashville Highway
 Existing PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	5	11	46	5	78	23	1368	66	85	1751	78
Future Volume (veh/h)	43	5	11	46	5	78	23	1368	66	85	1751	78
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	47	5	12	50	5	85	25	1487	72	92	1903	85
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	7	65	110	11	107	55	2341	1047	114	2457	1099
Arrive On Green	0.04	0.04	0.04	0.07	0.07	0.07	0.03	0.66	0.66	0.06	0.69	0.69
Sat Flow, veh/h	1611	171	1583	1620	162	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	52	0	12	55	0	85	25	1487	72	92	1903	85
Grp Sat Flow(s),veh/h/ln	1782	0	1583	1782	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	4.6	0.0	1.2	4.8	0.0	8.5	2.2	39.3	2.6	8.2	56.9	2.8
Cycle Q Clear(g_c), s	4.6	0.0	1.2	4.8	0.0	8.5	2.2	39.3	2.6	8.2	56.9	2.8
Prop In Lane	0.90		1.00	0.91		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	73	0	65	121	0	107	55	2341	1047	114	2457	1099
V/C Ratio(X)	0.71	0.00	0.18	0.46	0.00	0.79	0.45	0.64	0.07	0.81	0.77	0.08
Avail Cap(c_a), veh/h	262	0	233	262	0	233	155	2341	1047	155	2457	1099
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	75.8	0.0	74.1	71.7	0.0	73.5	76.2	15.8	9.6	73.9	16.2	7.9
Incr Delay (d2), s/veh	11.8	0.0	1.3	2.7	0.0	12.2	5.6	1.3	0.1	19.8	2.5	0.1
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	2.5	0.0	0.5	2.4	0.0	4.1	1.2	19.4	1.2	4.6	28.3	1.2
LnGrp Delay(d),s/veh	87.5	0.0	75.4	74.4	0.0	85.7	81.8	17.1	9.7	93.7	18.6	8.0
LnGrp LOS	F		E	E		F	F	B	A	F	B	A
Approach Vol, veh/h	64		140				1584			2080		
Approach Delay, s/veh	85.3		81.3				17.8			21.5		
Approach LOS	F		F				B			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	16.2	113.3	13.1		11.0	118.6	17.3					
Change Period (Y+Rc), s	6.0	7.5	6.5		6.0	7.5	6.5					
Max Green Setting (Gmax), s	14.0	72.5	23.5		14.0	72.5	23.5					
Max Q Clear Time (g_c+I1), s	10.2	41.3	6.6		4.2	58.9	10.5					
Green Ext Time (p_c), s	0.1	12.6	0.2		0.0	10.1	0.4					
Intersection Summary												
HCM 2010 Ctrl Delay			23.2									
HCM 2010 LOS			C									

Queuing and Blocking Report
Existing PM

01/27/2021

Intersection: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	97	28	152	114	68	408	407	229	224	536	536	275
Average Queue (ft)	43	8	43	43	18	212	217	18	87	258	317	37
95th Queue (ft)	89	29	103	86	48	359	373	89	153	526	584	170
Link Distance (ft)	574	574	457			1402	1402			532	532	
Upstream Blk Time (%)										0	0	
Queuing Penalty (veh)										1	3	
Storage Bay Dist (ft)				100	330			130	125			175
Storage Blk Time (%)			3	0		1	17		7	9	15	
Queuing Penalty (veh)			2	0		0	11		62	7	12	

Timings

3: Nashville Highway & Arden Village Dr. /Grove Park Way

2504 Nashville Highway

Existing PM

	→	↘	←	↙	↖	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	5	11	5	78	23	1368	66	85	1751	78
Future Volume (vph)	5	11	5	78	23	1368	66	85	1751	78
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	21.5	21.5	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	30.0	30.0	30.0	30.0	20.0	80.0	80.0	20.0	80.0	80.0
Total Split (%)	18.8%	18.8%	18.8%	18.8%	12.5%	50.0%	50.0%	12.5%	50.0%	50.0%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effect Green (s)	10.2	10.2	10.4	10.4	7.8	102.0	102.0	13.6	112.6	112.6
Actuated g/C Ratio	0.06	0.06	0.06	0.06	0.05	0.64	0.64	0.08	0.70	0.70
v/c Ratio	0.46	0.06	0.47	0.40	0.29	0.66	0.07	0.61	0.76	0.07
Control Delay	84.5	0.5	84.8	9.6	81.4	22.2	0.8	87.2	21.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.5	0.5	84.8	9.6	81.4	22.2	0.8	87.2	21.3	1.1
LOS	F	A	F	A	F	C	A	F	C	A
Approach Delay	68.8		39.1			22.1			23.4	
Approach LOS	E		D			C			C	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 3.5 (2%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 24.2

Intersection LOS: C

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

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Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	31	6	0	11	8	0
Future Vol, veh/h	31	6	0	11	8	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	7	0	12	9	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	41	0	50	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	12	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1568	-	959	1034
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	1011	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1568	-	959	1034
Mov Cap-2 Maneuver	-	-	-	-	959	-
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	1011	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		8.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	959	-	-	1568	-	
HCM Lane V/C Ratio	0.009	-	-	-	-	
HCM Control Delay (s)	8.8	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	28	1374	34	44	1844
Future Vol, veh/h	15	28	1374	34	44	1844
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	30	1493	37	48	2004
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	2610	765	0	0	1530	0
Stage 1	1512	-	-	-	-	-
Stage 2	1098	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	20	346	-	-	431	-
Stage 1	169	-	-	-	-	-
Stage 2	281	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	18	346	-	-	431	-
Mov Cap-2 Maneuver	131	-	-	-	-	-
Stage 1	169	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	25.7	0	0.3			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	220	431	-	
HCM Lane V/C Ratio	-	-	0.212	0.111	-	
HCM Control Delay (s)	-	-	25.7	14.4	-	
HCM Lane LOS	-	-	D	B	-	
HCM 95th %tile Q(veh)	-	-	0.8	0.4	-	

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	6	3	1395	1858	24
Future Vol, veh/h	21	6	3	1395	1858	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	260	-	-	265
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	7	3	1516	2020	26
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	2784	1010	2046	0	-	0
Stage 1	2020	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 15	238	271	-	-	-
Stage 1	89	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 15	238	271	-	-	-
Mov Cap-2 Maneuver	82	-	-	-	-	-
Stage 1	88	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	55.1	0		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	271	-	82	238	-	-
HCM Lane V/C Ratio	0.012	-	0.278	0.027	-	-
HCM Control Delay (s)	18.4	-	65	20.6	-	-
HCM Lane LOS	C	-	F	C	-	-
HCM 95th %tile Q(veh)	0	-	1	0.1	-	-
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

BACKGROUND CAPACITY ANALYSES

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2504 Nashville Highway
Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	1	60	2	0	1	120	2227	1	1	1576	114
Future Volume (veh/h)	372	1	60	2	0	1	120	2227	1	1	1576	114
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	404	1	65	2	0	1	130	2421	1	1	1713	124
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	450	508	432	428	0	432	160	2073	1	2	1615	116
Arrive On Green	0.27	0.27	0.27	0.27	0.00	0.27	0.09	0.57	0.57	0.00	0.48	0.48
Sat Flow, veh/h	1410	1863	1583	1330	0	1583	1774	3631	1	1774	3350	240
Grp Volume(v), veh/h	404	1	65	2	0	1	130	1180	1242	1	897	940
Grp Sat Flow(s),veh/h/ln	1410	1863	1583	1330	0	1583	1774	1770	1862	1774	1770	1820
Q Serve(g_s), s	29.9	0.0	3.4	0.1	0.0	0.1	7.9	62.8	62.8	0.1	53.0	53.0
Cycle Q Clear(g_c), s	30.0	0.0	3.4	0.2	0.0	0.1	7.9	62.8	62.8	0.1	53.0	53.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.13
Lane Grp Cap(c), veh/h	450	508	432	428	0	432	160	1010	1063	2	853	878
V/C Ratio(X)	0.90	0.00	0.15	0.00	0.00	0.00	0.81	1.17	1.17	0.41	1.05	1.07
Avail Cap(c_a), veh/h	450	508	432	428	0	432	323	1010	1063	323	853	878
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	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	29.1	30.3	29.1	0.0	29.1	49.1	23.6	23.6	54.8	28.5	28.5
Incr Delay (d2), s/veh	20.5	0.0	0.2	0.0	0.0	0.0	9.5	86.3	85.9	85.0	45.2	51.1
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	14.8	0.0	1.5	0.0	0.0	0.0	4.3	54.5	57.3	0.1	36.6	39.0
LnGrp Delay(d),s/veh	61.2	29.1	30.5	29.1	0.0	29.1	58.6	109.9	109.5	139.8	73.7	79.6
LnGrp LOS	E	C	C	C		C	E	F	F	F	F	F
Approach Vol, veh/h		470			3			2552			1838	
Approach Delay, s/veh		56.9			29.1			107.1			76.7	
Approach LOS		E			C			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	69.8		35.0	14.9	60.0		35.0				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	20.0	53.0		30.0	20.0	53.0		30.0				
Max Q Clear Time (g_c+I1), s	2.1	64.8		32.0	9.9	55.0		2.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.2	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				90.7								
HCM 2010 LOS				F								

Queuing and Blocking Report

Background AM

01/28/2021

Intersection: 1: Nashville Highway & Spring Meade Road/Private Drive

Movement	EB	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	TR	L	T	TR	T	TR
Maximum Queue (ft)	311	30	76	52	354	377	382	1086	1075
Average Queue (ft)	212	1	30	4	72	218	235	635	641
95th Queue (ft)	303	11	62	23	176	330	353	1067	1066
Link Distance (ft)	416	416	416	233		1658	1658	2647	2647
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)					255				
Storage Blk Time (%)						2		43	
Queuing Penalty (veh)						3		0	

Timings 1: Nashville Highway & Spring Meade Road/Private Drive

2504 Nashville Highway
Background AM

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	372	1	60	2	0	120	2227	1	1576
Future Volume (vph)	372	1	60	2	0	120	2227	1	1576
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4			8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	4	4	4	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	7.0	7.0	5.0	25.0	5.0	25.0
Minimum Split (s)	23.0	23.0	23.0	12.0	12.0	10.0	32.0	10.0	32.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	25.0	60.0	25.0	60.0
Total Split (%)	29.2%	29.2%	29.2%	29.2%	29.2%	20.8%	50.0%	20.8%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	7.0	5.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	30.0	30.0	30.0	30.0	30.0	13.6	69.5	5.6	53.1
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.12	0.61	0.05	0.47
v/c Ratio	1.09	0.00	0.14	0.01	0.00	0.62	1.12	0.01	1.12
Control Delay	112.2	33.0	5.5	33.0	0.0	60.3	83.8	54.0	92.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.2	33.0	5.5	33.0	0.0	60.3	83.8	54.0	92.9
LOS	F	C	A	C	A	E	F	D	F
Approach Delay		97.3			22.0		82.6		92.9
Approach LOS		F			C		F		F

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 113.7

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 87.9

Intersection LOS: F

Intersection Capacity Utilization 107.2%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

		
Ø1	Ø2	Ø4
25 s	60 s	35 s
		
Ø5	Ø6	Ø8
25 s	60 s	35 s

Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗	↘	↗↗	↗↗	↗
Traffic Vol, veh/h	0	184	190	2378	1658	20
Future Vol, veh/h	0	184	190	2378	1658	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	225	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	200	207	2585	1802	22
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	901	1824	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0	281	332	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	281	332	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	44.1	2.4		0		
HCM LOS	E					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	332	-	281	-	-	
HCM Lane V/C Ratio	0.622	-	0.712	-	-	
HCM Control Delay (s)	32.1	-	44.1	-	-	
HCM Lane LOS	D	-	E	-	-	
HCM 95th %tile Q(veh)	3.9	-	5	-	-	

HCM 2010 Signalized Intersection Summary
 3: Nashville Highway & Arden Village Dr. /Grove Park Way

2504 Nashville Highway
 Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	3	48	19	0	76	37	2374	34	43	1732	67
Future Volume (veh/h)	119	3	48	19	0	76	37	2374	34	43	1732	67
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	129	3	52	21	0	83	40	2580	37	47	1883	73
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	4	156	124	0	111	88	1839	823	88	1839	823
Arrive On Green	0.10	0.10	0.10	0.07	0.00	0.07	0.05	0.52	0.52	0.05	0.52	0.52
Sat Flow, veh/h	1736	40	1583	1774	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	132	0	52	21	0	83	40	2580	37	47	1883	73
Grp Sat Flow(s),veh/h/ln	1776	0	1583	1774	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	7.3	0.0	3.1	1.1	0.0	5.2	2.2	52.5	1.2	2.6	52.5	2.3
Cycle Q Clear(g_c), s	7.3	0.0	3.1	1.1	0.0	5.2	2.2	52.5	1.2	2.6	52.5	2.3
Prop In Lane	0.98		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	175	0	156	124	0	111	88	1839	823	88	1839	823
V/C Ratio(X)	0.75	0.00	0.33	0.17	0.00	0.75	0.46	1.40	0.04	0.54	1.02	0.09
Avail Cap(c_a), veh/h	413	0	368	413	0	368	246	1839	823	246	1839	823
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.3	0.0	42.4	44.2	0.0	46.1	46.7	24.3	11.9	46.9	24.3	12.2
Incr Delay (d2), s/veh	6.4	0.0	1.2	0.6	0.0	9.7	3.7	184.7	0.0	5.0	27.3	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	3.9	0.0	1.4	0.6	0.0	2.6	1.2	72.7	0.5	1.4	32.5	1.0
LnGrp Delay(d),s/veh	50.7	0.0	43.7	44.9	0.0	55.8	50.4	209.0	12.0	51.9	51.6	12.3
LnGrp LOS	D		D	D		E	D	F	B	D	F	B
Approach Vol, veh/h	184					104		2657		2003		
Approach Delay, s/veh	48.7					53.6		203.9		50.2		
Approach LOS	D					D		F		D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	11.0	60.0	16.5		11.0	60.0	13.6					
Change Period (Y+Rc), s	6.0	7.5	6.5		6.0	7.5	6.5					
Max Green Setting (Gmax), s	14.0	52.5	23.5		14.0	52.5	23.5					
Max Q Clear Time (g_c+I1), s	4.6	54.5	9.3		4.2	54.5	7.2					
Green Ext Time (p_c), s	0.0	0.0	0.7		0.0	0.0	0.3					
Intersection Summary												
HCM 2010 Ctrl Delay			132.7									
HCM 2010 LOS			F									

Queuing and Blocking Report
Background AM

01/28/2021

Intersection: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	150	124	52	125	429	1396	1425	230	225	521	527	275
Average Queue (ft)	73	21	13	52	94	1273	1279	60	52	278	296	57
95th Queue (ft)	137	71	43	96	343	1499	1482	214	154	476	489	217
Link Distance (ft)	1451	1451	457			1377	1377			527	527	
Upstream Blk Time (%)						2	2			0	0	
Queuing Penalty (veh)						23	27			1	1	
Storage Bay Dist (ft)				100	330			130	125			175
Storage Blk Time (%)				1		45	44			26	25	
Queuing Penalty (veh)				0		17	15			11	17	

Timings

3: Nashville Highway & Arden Village Dr. /Grove Park Way

2504 Nashville Highway

Background AM

	→	↘	←	↙	↖	↑	↗	↘	↓	↙
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	3	48	0	76	37	2374	34	43	1732	67
Future Volume (vph)	3	48	0	76	37	2374	34	43	1732	67
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	21.5	21.5	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	30.0	30.0	30.0	30.0	20.0	60.0	60.0	20.0	60.0	60.0
Total Split (%)	21.4%	21.4%	21.4%	21.4%	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	13.2	13.2	7.6	7.6	8.0	53.9	53.9	8.3	56.8	56.8
Actuated g/C Ratio	0.13	0.13	0.07	0.07	0.08	0.52	0.52	0.08	0.55	0.55
v/c Ratio	0.58	0.16	0.16	0.35	0.29	1.40	0.04	0.33	0.97	0.08
Control Delay	55.5	1.1	52.8	5.9	54.7	207.5	0.1	55.1	40.6	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	1.1	52.8	5.9	54.7	207.5	0.1	55.1	40.6	0.6
LOS	E	A	D	A	D	F	A	E	D	A
Approach Delay	40.1		15.4			202.3			39.5	
Approach LOS	D		B			F			D	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 103.3

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.40

Intersection Signal Delay: 126.5

Intersection LOS: F

Intersection Capacity Utilization 95.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

↖ Ø1	↑ Ø2	↗ Ø4	↘ Ø8
20 s	60 s	30 s	30 s
↙ Ø5	↓ Ø6		
20 s	60 s		

Intersection						
Int Delay, s/veh	2.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	7	0	36	26	0
Future Vol, veh/h	21	7	0	36	26	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	8	0	39	28	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	31	0	66	27
Stage 1	-	-	-	-	27	-
Stage 2	-	-	-	-	39	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1582	-	939	1048
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	983	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1582	-	939	1048
Mov Cap-2 Maneuver	-	-	-	-	939	-
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	983	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		9	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	939	-	-	1582	-	
HCM Lane V/C Ratio	0.03	-	-	-	-	
HCM Control Delay (s)	9	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	0.1	-	-	0	-	

HCM 2010 Signalized Intersection Summary

5: Nashville Highway & Green Mills

2504 Nashville Highway
Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	14	43	142	13	134	79	2115	54	119	1963	92
Future Volume (veh/h)	185	14	43	142	13	134	79	2115	54	119	1963	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	201	15	47	154	14	146	86	2299	59	129	2134	100
Adj No. of Lanes	1	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	373	317	292	22	317	121	2199	984	115	2204	986
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.03	0.62	0.62	0.04	0.62	0.62
Sat Flow, veh/h	1221	1863	1583	1212	110	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	201	15	47	168	0	146	86	2299	59	129	2134	100
Grp Sat Flow(s),veh/h/ln	1221	1863	1583	1323	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	11.3	0.9	3.4	15.8	0.0	11.4	2.5	87.0	2.1	5.0	80.2	3.6
Cycle Q Clear(g_c), s	28.0	0.9	3.4	16.7	0.0	11.4	2.5	87.0	2.1	5.0	80.2	3.6
Prop In Lane	1.00		1.00	0.92		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	150	373	317	314	0	317	121	2199	984	115	2204	986
V/C Ratio(X)	1.34	0.04	0.15	0.54	0.00	0.46	0.71	1.05	0.06	1.12	0.97	0.10
Avail Cap(c_a), veh/h	150	373	317	328	0	334	123	2199	984	115	2204	986
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	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.3	45.2	46.2	51.9	0.0	49.4	35.4	26.5	10.4	44.9	25.1	10.6
Incr Delay (d2), s/veh	191.8	0.0	0.2	1.5	0.0	1.0	17.0	32.3	0.0	121.2	12.6	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	13.8	0.5	1.5	6.1	0.0	5.1	2.6	52.0	0.9	8.3	42.7	1.6
LnGrp Delay(d),s/veh	258.1	45.2	46.4	53.4	0.0	50.4	52.4	58.8	10.4	166.0	37.7	10.7
LnGrp LOS	F	D	D	D		D	D	F	B	F	D	B
Approach Vol, veh/h	263			314			2444			2363		
Approach Delay, s/veh	208.1			52.0			57.4			43.6		
Approach LOS	F			D			E			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	11.0	94.5	34.5		10.8	94.7	34.5					
Change Period (Y+Rc), s	6.0	7.5	6.5		6.0	7.5	* 6.5					
Max Green Setting (Gmax), s	5.0	87.0	28.0		5.0	87.0	* 30					
Max Q Clear Time (g_c+I1), s	7.0	89.0	30.0		4.5	82.2	18.7					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.0	4.3	1.0					
Intersection Summary												
HCM 2010 Ctrl Delay			58.4									
HCM 2010 LOS			E									
Notes												

Queuing and Blocking Report

Background AM

01/29/2021

Intersection: 5: Nashville Highway & Green Mills

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	T	R	L	T	T
Maximum Queue (ft)	346	355	72	230	206	300	1077	1079	200	579	644	711
Average Queue (ft)	195	23	25	139	110	151	1062	1062	66	111	373	389
95th Queue (ft)	338	127	60	213	184	368	1075	1076	221	372	616	641
Link Distance (ft)		1732	1732	3856			1056	1056			1377	1377
Upstream Blk Time (%)							15	17				
Queuing Penalty (veh)							170	189				
Storage Bay Dist (ft)	250				220	200			100	480		
Storage Blk Time (%)	12			0	0		59	62			4	22
Queuing Penalty (veh)	2			0	0		46	34			5	21

Intersection: 5: Nashville Highway & Green Mills

Movement	SB
Directions Served	R
Maximum Queue (ft)	240
Average Queue (ft)	63
95th Queue (ft)	225
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	140
Storage Blk Time (%)	
Queuing Penalty (veh)	

Timings
5: Nashville Highway & Green Mills

2504 Nashville Highway
Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	14	43	142	13	134	79	2115	54	119	1963	92
Future Volume (vph)	185	14	43	142	13	134	79	2115	54	119	1963	92
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	24.5	23.0	23.0	23.0	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	34.5	34.5	34.5	34.5	34.5	34.5	11.0	94.5	94.5	11.0	94.5	94.5
Total Split (%)	24.6%	24.6%	24.6%	24.6%	24.6%	24.6%	7.9%	67.5%	67.5%	7.9%	67.5%	67.5%
Yellow Time (s)	4.5	4.5	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5		5.0	5.0	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	28.0	28.0	28.0		29.5	29.5	93.5	87.0	87.0	93.5	87.0	87.0
Actuated g/C Ratio	0.20	0.20	0.20		0.21	0.21	0.67	0.62	0.62	0.67	0.62	0.62
v/c Ratio	1.07	0.04	0.12		0.59	0.37	0.74	1.05	0.06	1.10	0.97	0.10
Control Delay	139.0	45.7	2.6		59.1	24.1	54.8	59.1	1.5	141.7	39.0	3.8
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	139.0	45.7	2.6		59.1	24.1	54.8	59.1	1.5	141.7	39.0	3.8
LOS	F	D	A		E	C	D	E	A	F	D	A
Approach Delay		109.3			42.8			57.5			43.1	
Approach LOS		F			D			E			D	

Intersection Summary

Cycle Length: 140	
Actuated Cycle Length: 140	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 52.9	Intersection LOS: D
Intersection Capacity Utilization 98.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Nashville Highway & Green Mills

 Ø1	 Ø2	 Ø4
11 s	94.5 s	34.5 s
 Ø5	 Ø6	 Ø8
11 s	94.5 s	34.5 s

HCM 2010 Signalized Intersection Summary

6: Nashville Highway & Hidden Creek Way

2504 Nashville Highway
Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1	83	58	1	44	32	2108	19	14	2047	48
Future Volume (veh/h)	90	1	83	58	1	44	32	2108	19	14	2047	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	98	1	90	63	1	48	35	2291	21	15	2225	52
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	0	248	61	1	248	125	2370	1060	100	2326	1041
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.03	0.67	0.67	0.02	0.66	0.66
Sat Flow, veh/h	0	2	1583	0	3	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	99	0	90	64	0	48	35	2291	21	15	2225	52
Grp Sat Flow(s),veh/h/ln	2	0	1583	3	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	6.0	0.0	0.0	3.1	0.7	71.5	0.5	0.3	68.4	1.4
Cycle Q Clear(g_c), s	18.5	0.0	6.0	18.5	0.0	3.1	0.7	71.5	0.5	0.3	68.4	1.4
Prop In Lane	0.99		1.00	0.98		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	61	0	248	61	0	248	125	2370	1060	100	2326	1041
V/C Ratio(X)	1.62	0.00	0.36	1.05	0.00	0.19	0.28	0.97	0.02	0.15	0.96	0.05
Avail Cap(c_a), veh/h	61	0	248	61	0	248	149	2370	1060	146	2356	1054
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.9	0.0	44.4	58.8	0.0	43.2	29.8	18.2	6.5	29.3	18.6	7.2
Incr Delay (d2), s/veh	342.3	0.0	0.9	129.1	0.0	0.4	1.2	11.7	0.0	0.7	10.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	2.7	4.2	0.0	1.4	0.8	38.2	0.2	0.3	36.4	0.6
LnGrp Delay(d),s/veh	401.1	0.0	45.3	189.1	0.0	43.6	31.0	29.9	6.5	30.0	28.8	7.2
LnGrp LOS	F		D	F		D	C	C	A	C	C	A
Approach Vol, veh/h	189			112			2347			2292		
Approach Delay, s/veh	231.7			126.7			29.7			28.4		
Approach LOS	F			F			C			C		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	7.9	86.5	23.5		9.4	85.0	23.5					
Change Period (Y+Rc), s	6.0	7.5	* 5		6.0	7.5	5.0					
Max Green Setting (Gmax), s	5.0	78.5	* 19		5.0	78.5	18.0					
Max Q Clear Time (g_c+I1), s	2.3	73.5	20.5		2.7	70.4	20.5					
Green Ext Time (p_c), s	0.0	4.6	0.0		0.0	7.1	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay		39.0										
HCM 2010 LOS		D										
Notes												

Queuing and Blocking Report
Background AM

01/29/2021

Intersection: 6: Nashville Highway & Hidden Creek Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	164	136	96	117	360	4958	4969	360	41	288	392	32
Average Queue (ft)	70	58	40	35	63	4927	4934	49	8	163	169	3
95th Queue (ft)	139	115	87	80	282	4945	4958	249	27	291	313	14
Link Distance (ft)	2047	2047	2206	2206		4906	4906			1056	1056	
Upstream Blk Time (%)						96	93					
Queuing Penalty (veh)						0	0					
Storage Bay Dist (ft)					260			260	330			265
Storage Blk Time (%)						67	66				1	
Queuing Penalty (veh)						22	13				0	

Timings

6: Nashville Highway & Hidden Creek Way

2504 Nashville Highway
Background AM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	1	83	58	1	44	32	2108	19	14	2047	48
Future Volume (vph)	90	1	83	58	1	44	32	2108	19	14	2047	48
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	22.5	22.5	22.5	23.0	23.0	23.0	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	11.0	86.0	86.0	11.0	86.0	86.0
Total Split (%)	19.2%	19.2%	19.2%	19.2%	19.2%	19.2%	9.2%	71.7%	71.7%	9.2%	71.7%	71.7%
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		5.0	5.0	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)		16.4	16.4		15.9	15.9	85.1	81.7	81.7	84.0	79.6	79.6
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.74	0.71	0.71	0.73	0.70	0.70
v/c Ratio		0.54	0.29		0.41	0.16	0.25	0.91	0.02	0.11	0.90	0.05
Control Delay		58.4	10.8		54.8	1.5	8.1	21.2	0.1	5.1	22.3	0.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		58.4	10.8		54.8	1.5	8.1	21.2	0.1	5.1	22.3	0.9
LOS		E	B		D	A	A	C	A	A	C	A
Approach Delay		35.8			32.0			20.9			21.7	
Approach LOS		D			C			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 114.4

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 22.1

Intersection LOS: C

Intersection Capacity Utilization 90.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Hidden Creek Way

 Ø1	 Ø2	 Ø4
11 s	86 s	23 s
 Ø5	 Ø6	 Ø8
11 s	86 s	23 s

HCM 2010 Signalized Intersection Summary
1: Nashville Highway & Spring Meade Road/Private Drive

2504 Nashville Highway
Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	0	83	0	0	0	68	1980	0	0	2639	245
Future Volume (veh/h)	230	0	83	0	0	0	68	1980	0	0	2639	245
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	250	0	90	0	0	0	74	2152	0	0	2868	266
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	302	257	63	302	0	96	2596	0	2	2086	190
Arrive On Green	0.16	0.00	0.16	0.00	0.00	0.00	0.05	0.73	0.00	0.00	0.64	0.64
Sat Flow, veh/h	1774	1863	1583	1301	1863	0	1774	3632	0	1774	3280	300
Grp Volume(v), veh/h	250	0	90	0	0	0	74	2152	0	0	1527	1607
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1301	1863	0	1774	1770	0	1774	1770	1810
Q Serve(g_s), s	15.8	0.0	5.8	0.0	0.0	0.0	4.7	47.5	0.0	0.0	73.0	73.0
Cycle Q Clear(g_c), s	15.8	0.0	5.8	0.0	0.0	0.0	4.7	47.5	0.0	0.0	73.0	73.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.17
Lane Grp Cap(c), veh/h	350	302	257	63	302	0	96	2596	0	2	1125	1151
V/C Ratio(X)	0.71	0.00	0.35	0.00	0.00	0.00	0.77	0.83	0.00	0.00	1.36	1.40
Avail Cap(c_a), veh/h	526	487	414	192	487	0	309	2596	0	309	1125	1151
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	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	0.0	42.7	0.0	0.0	0.0	53.6	10.4	0.0	0.0	20.9	20.9
Incr Delay (d2), s/veh	2.7	0.0	0.8	0.0	0.0	0.0	12.4	2.4	0.0	0.0	166.4	183.7
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	8.0	0.0	2.6	0.0	0.0	0.0	2.7	23.6	0.0	0.0	87.3	94.9
LnGrp Delay(d),s/veh	49.6	0.0	43.5	0.0	0.0	0.0	66.0	12.8	0.0	0.0	187.3	204.6
LnGrp LOS	D		D				E	B			F	F
Approach Vol, veh/h		340			0			2226			3134	
Approach Delay, s/veh		48.0			0.0			14.6			196.2	
Approach LOS		D						B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	91.2		23.6	11.2	80.0		23.6				
Change Period (Y+Rc), s	5.0	7.0		5.0	5.0	7.0		5.0				
Max Green Setting (Gmax), s	20.0	73.0		30.0	20.0	73.0		30.0				
Max Q Clear Time (g_c+I1), s	0.0	49.5		17.8	6.7	75.0		0.0				
Green Ext Time (p_c), s	0.0	17.0		0.8	0.1	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			116.4									
HCM 2010 LOS			F									

Queuing and Blocking Report
Background PM

01/28/2021

Intersection: 1: Nashville Highway & Spring Meade Road/Private Drive

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	TR	T	TR
Maximum Queue (ft)	267	114	100	296	329	2710	2710
Average Queue (ft)	138	49	45	156	175	2675	2672
95th Queue (ft)	215	93	90	292	323	2702	2695
Link Distance (ft)	416	416		1658	1658	2647	2647
Upstream Blk Time (%)						67	75
Queuing Penalty (veh)						0	0
Storage Bay Dist (ft)			255				
Storage Blk Time (%)				1		39	
Queuing Penalty (veh)				1		0	

Timings 1: Nashville Highway & Spring Meade Road/Private Drive

2504 Nashville Highway
Background PM

							
Lane Group	EBL	EBR	NBL	NBT	SBT	Ø1	Ø8
Lane Configurations							
Traffic Volume (vph)	230	83	68	1980	2639		
Future Volume (vph)	230	83	68	1980	2639		
Turn Type	Perm	Perm	Prot	NA	NA		
Protected Phases			5	2	6	1	8
Permitted Phases	4	4					
Detector Phase	4	4	5	2	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	25.0	25.0	5.0	7.0
Minimum Split (s)	23.0	23.0	10.0	32.0	32.0	10.0	12.0
Total Split (s)	35.0	35.0	25.0	80.0	80.0	25.0	35.0
Total Split (%)	25.0%	25.0%	17.9%	57.1%	57.1%	18%	25%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	5.0	5.0	7.0	7.0		
Lead/Lag			Lead	Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	None
Act Effect Green (s)	25.9	25.9	10.6	86.6	73.7		
Actuated g/C Ratio	0.21	0.21	0.09	0.69	0.59		
v/c Ratio	0.85	0.17	0.49	0.88	1.51		
Control Delay	74.4	0.7	67.8	20.8	258.4		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	74.4	0.7	67.8	20.8	258.4		
LOS	E	A	E	C	F		
Approach Delay				22.3	258.4		
Approach LOS				C	F		

Intersection Summary

Cycle Length: 140
Actuated Cycle Length: 124.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.51
Intersection Signal Delay: 154.1
Intersection LOS: F
Intersection Capacity Utilization 103.5%
ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

		
Ø1	Ø2	Ø4
25 s	80 s	35 s
		
Ø5	Ø6	Ø8
25 s	80 s	35 s

Intersection						
Int Delay, s/veh	17.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗	↘	↗↗	↗↗	↗
Traffic Vol, veh/h	0	164	140	2049	2676	53
Future Vol, veh/h	0	164	140	2049	2676	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	225	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	178	152	2227	2909	58
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	-	1455	2967	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	4.14	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	0 ~ 119	~ 117		-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	- ~ 119	~ 117		-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s\$	328.8	16.2		0		
HCM LOS	F					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	~ 117	-	119	-	-	
HCM Lane V/C Ratio	1.301	-	1.498	-	-	
HCM Control Delay (s)	253.7	-	\$ 328.8	-	-	
HCM Lane LOS	F	-	F	-	-	
HCM 95th %tile Q(veh)	10.1	-	12.7	-	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 2010 Signalized Intersection Summary

3: Nashville Highway & Arden Village Dr. /Grove Park Way

2504 Nashville Highway
Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	5	125	51	5	85	136	1916	74	95	2523	223
Future Volume (veh/h)	191	5	125	51	5	85	136	1916	74	95	2523	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	208	5	136	55	5	92	148	2083	80	103	2742	242
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	6	217	121	11	117	171	1883	842	127	1796	803
Arrive On Green	0.14	0.14	0.14	0.07	0.07	0.07	0.10	0.53	0.53	0.07	0.51	0.51
Sat Flow, veh/h	1734	42	1583	1633	148	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	213	0	136	60	0	92	148	2083	80	103	2742	242
Grp Sat Flow(s),veh/h/ln	1776	0	1583	1781	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	16.8	0.0	11.6	4.6	0.0	8.2	11.8	76.0	3.6	8.2	72.5	12.7
Cycle Q Clear(g_c), s	16.8	0.0	11.6	4.6	0.0	8.2	11.8	76.0	3.6	8.2	72.5	12.7
Prop In Lane	0.98		1.00	0.92		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	243	0	217	132	0	117	171	1883	842	127	1796	803
V/C Ratio(X)	0.88	0.00	0.63	0.45	0.00	0.78	0.87	1.11	0.09	0.81	1.53	0.30
Avail Cap(c_a), veh/h	292	0	260	293	0	260	174	1883	842	174	1796	803
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	60.5	0.0	58.2	63.4	0.0	65.0	63.7	33.4	16.5	65.4	35.2	20.5
Incr Delay (d2), s/veh	21.8	0.0	3.4	2.4	0.0	10.8	33.6	56.3	0.0	18.0	240.1	0.2
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	9.8	0.0	5.3	2.4	0.0	3.9	7.4	51.6	1.6	4.6	95.3	5.6
LnGrp Delay(d),s/veh	82.3	0.0	61.7	65.8	0.0	75.9	97.3	89.8	16.5	83.4	275.3	20.7
LnGrp LOS	F		E	E		E	F	F	B	F	F	C
Approach Vol, veh/h		349			152			2311			3087	
Approach Delay, s/veh		74.2			71.9			87.7			248.9	
Approach LOS		E			E			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	16.2	83.5		26.1	19.8	80.0		17.1				
Change Period (Y+Rc), s	6.0	7.5		6.5	6.0	7.5		6.5				
Max Green Setting (Gmax), s	14.0	72.5		23.5	14.0	72.5		23.5				
Max Q Clear Time (g_c+I1), s	10.2	78.0		18.8	13.8	74.5		10.2				
Green Ext Time (p_c), s	0.1	0.0		0.7	0.0	0.0		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			170.9									
HCM 2010 LOS			F									

Queuing and Blocking Report
Background PM

01/28/2021

Intersection: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	256	148	191	158	430	1366	1352	230	224	556	572	275
Average Queue (ft)	163	65	57	54	290	1058	1074	72	74	535	538	159
95th Queue (ft)	248	123	121	112	541	1312	1314	242	176	548	557	364
Link Distance (ft)	1451	1451	457			1377	1377			527	527	
Upstream Blk Time (%)						0				25	27	
Queuing Penalty (veh)						0				359	380	
Storage Bay Dist (ft)				100	330			130	125			175
Storage Blk Time (%)			3	3		42	44		3	47	46	
Queuing Penalty (veh)			3	2		58	33		44	44	103	

Timings

3: Nashville Highway & Arden Village Dr. /Grove Park Way

2504 Nashville Highway

Background PM

	→	↘	←	↖	↙	↑	↗	↘	↓	↖
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	5	125	5	85	136	1916	74	95	2523	223
Future Volume (vph)	5	125	5	85	136	1916	74	95	2523	223
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	21.5	21.5	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	30.0	30.0	30.0	30.0	20.0	80.0	80.0	20.0	80.0	80.0
Total Split (%)	18.8%	18.8%	18.8%	18.8%	12.5%	50.0%	50.0%	12.5%	50.0%	50.0%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	21.2	21.2	10.4	10.4	14.0	74.1	74.1	12.5	72.6	72.6
Actuated g/C Ratio	0.15	0.15	0.07	0.07	0.10	0.51	0.51	0.09	0.50	0.50
v/c Ratio	0.82	0.39	0.47	0.42	0.87	1.15	0.09	0.68	1.55	0.29
Control Delay	84.5	11.8	77.5	10.8	105.3	107.5	1.6	86.9	277.0	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.5	11.8	77.5	10.8	105.3	107.5	1.6	86.9	277.0	12.7
LOS	F	B	E	B	F	F	A	F	F	B
Approach Delay	56.2		37.2			103.7			249.9	
Approach LOS	E		D			F			F	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 144.7

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.55

Intersection Signal Delay: 175.7

Intersection LOS: F

Intersection Capacity Utilization 111.5%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

↖ Ø1	↑ Ø2	↗ Ø4	↖ Ø8
20 s	80 s	30 s	30 s
↖ Ø5	↓ Ø6		
20 s	80 s		

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	32	18	0	11	15	0
Future Vol, veh/h	32	18	0	11	15	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	35	20	0	12	16	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	57	45
Stage 1	-	-	-	-	45	-
Stage 2	-	-	-	-	12	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1550	-	950	1025
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	1011	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1550	-	950	1025
Mov Cap-2 Maneuver	-	-	-	-	950	-
Stage 1	-	-	-	-	977	-
Stage 2	-	-	-	-	1011	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		8.9	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	950	-	-	1550	-	
HCM Lane V/C Ratio	0.017	-	-	-	-	
HCM Control Delay (s)	8.9	-	-	0	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	0.1	-	-	0	-	

HCM 2010 Signalized Intersection Summary

5: Nashville Highway & Green Mills

2504 Nashville Highway
Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	13	40	86	17	208	104	1690	155	349	2313	122
Future Volume (veh/h)	172	13	40	86	17	208	104	1690	155	349	2313	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	187	14	43	93	18	226	113	1837	168	379	2514	133
Adj No. of Lanes	1	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	291	248	224	39	248	115	1873	838	360	2353	1053
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.04	0.53	0.53	0.17	0.66	0.66
Sat Flow, veh/h	1131	1863	1583	1129	251	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	187	14	43	111	0	226	113	1837	168	379	2514	133
Grp Sat Flow(s),veh/h/ln	1131	1863	1583	1380	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	11.4	0.9	3.3	9.7	0.0	19.7	4.8	71.1	7.8	24.0	93.1	4.3
Cycle Q Clear(g_c), s	21.9	0.9	3.3	10.5	0.0	19.7	4.8	71.1	7.8	24.0	93.1	4.3
Prop In Lane	1.00		1.00	0.84		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	143	291	248	263	0	248	115	1873	838	360	2353	1053
V/C Ratio(X)	1.31	0.05	0.17	0.42	0.00	0.91	0.98	0.98	0.20	1.05	1.07	0.13
Avail Cap(c_a), veh/h	143	291	248	278	0	265	115	1873	838	360	2353	1053
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	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	66.4	50.2	51.2	54.4	0.0	58.1	38.6	32.3	17.4	49.9	23.5	8.6
Incr Delay (d2), s/veh	178.9	0.1	0.3	1.1	0.0	32.1	78.9	16.4	0.1	61.9	39.9	0.1
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	12.6	0.5	1.5	4.0	0.0	10.8	6.9	39.0	3.4	20.1	58.2	1.9
LnGrp Delay(d),s/veh	245.3	50.3	51.5	55.5	0.0	90.2	117.5	48.6	17.5	111.8	63.4	8.6
LnGrp LOS	F	D	D	E		F	F	D	B	F	F	A
Approach Vol, veh/h	244				337			2118			3026	
Approach Delay, s/veh	199.9				78.8			49.8			67.0	
Approach LOS	F				E			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	30.0	81.6	28.4		11.0	100.6	28.4					
Change Period (Y+Rc), s	6.0	7.5	6.5		6.0	7.5	* 6.5					
Max Green Setting (Gmax), s	24.0	74.1	21.9		5.0	93.1	* 23					
Max Q Clear Time (g_c+I1), s	26.0	73.1	23.9		6.8	95.1	21.7					
Green Ext Time (p_c), s	0.0	0.9	0.0		0.0	0.0	0.2					
Intersection Summary												
HCM 2010 Ctrl Delay	67.0											
HCM 2010 LOS	E											
Notes												

Queuing and Blocking Report
Background PM

01/29/2021

Intersection: 5: Nashville Highway & Green Mills

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	T	R	L	T	T
Maximum Queue (ft)	350	636	70	344	286	300	1078	1068	200	347	1339	465
Average Queue (ft)	273	225	28	85	116	147	1042	1042	122	165	221	193
95th Queue (ft)	431	651	60	207	215	339	1121	1112	267	262	608	378
Link Distance (ft)		1732	1732	3856			1056	1056			1377	1377
Upstream Blk Time (%)							8	8				
Queuing Penalty (veh)							75	79				
Storage Bay Dist (ft)	250				220	200			100	480		
Storage Blk Time (%)	54			0	3		48	50				13
Queuing Penalty (veh)	7			1	3		50	77				16

Intersection: 5: Nashville Highway & Green Mills

Movement	SB
Directions Served	R
Maximum Queue (ft)	240
Average Queue (ft)	51
95th Queue (ft)	192
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	140
Storage Blk Time (%)	
Queuing Penalty (veh)	

Timings

5: Nashville Highway & Green Mills

2504 Nashville Highway
Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	13	40	86	17	208	104	1690	155	349	2313	122
Future Volume (vph)	172	13	40	86	17	208	104	1690	155	349	2313	122
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	24.5	23.0	23.0	23.0	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	28.4	28.4	28.4	28.4	28.4	28.4	11.0	81.6	81.6	30.0	100.6	100.6
Total Split (%)	20.3%	20.3%	20.3%	20.3%	20.3%	20.3%	7.9%	58.3%	58.3%	21.4%	71.9%	71.9%
Yellow Time (s)	4.5	4.5	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5		5.0	5.0	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	21.9	21.9	21.9		23.4	23.4	80.6	74.1	74.1	105.6	93.1	93.1
Actuated g/C Ratio	0.16	0.16	0.16		0.17	0.17	0.58	0.53	0.53	0.75	0.66	0.66
v/c Ratio	1.07	0.05	0.12		0.48	0.50	0.97	0.98	0.19	1.06	1.07	0.12
Control Delay	142.2	50.8	0.7		60.4	11.0	107.2	49.1	5.8	107.4	64.1	4.2
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	142.2	50.8	0.7		60.4	11.0	107.2	49.1	5.8	107.4	64.1	4.2
LOS	F	D	A		E	B	F	D	A	F	E	A
Approach Delay		112.0			27.3			48.7			66.9	
Approach LOS		F			C			D			E	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 59.8

Intersection LOS: E

Intersection Capacity Utilization 102.6%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 5: Nashville Highway & Green Mills



HCM 2010 Signalized Intersection Summary

6: Nashville Highway & Hidden Creek Way

2504 Nashville Highway
Background PM

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	69	0	54	37	0	28	84	1850	63	48	2235	106						
Future Volume (veh/h)	69	0	54	37	0	28	84	1850	63	48	2235	106						
Number	7	4	14	3	8	18	5	2	12	1	6	16						
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0						
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						
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863						
Adj Flow Rate, veh/h	75	0	59	40	0	30	91	2011	68	52	2429	115						
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92						
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2						
Cap, veh/h	55	0	225	55	0	225	121	2419	1082	166	2404	1075						
Arrive On Green	0.14	0.00	0.14	0.14	0.00	0.14	0.04	0.68	0.68	0.03	0.68	0.68						
Sat Flow, veh/h	0	0	1583	0	0	1583	1774	3539	1583	1774	3539	1583						
Grp Volume(v), veh/h	75	0	59	40	0	30	91	2011	68	52	2429	115						
Grp Sat Flow(s),veh/h/ln	0	0	1583	0	0	1583	1774	1770	1583	1774	1770	1583						
Q Serve(g_s), s	0.0	0.0	4.3	0.0	0.0	2.2	2.5	54.3	1.9	1.1	88.5	3.3						
Cycle Q Clear(g_c), s	18.5	0.0	4.3	18.5	0.0	2.2	2.5	54.3	1.9	1.1	88.5	3.3						
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00						
Lane Grp Cap(c), veh/h	55	0	225	55	0	225	121	2419	1082	166	2404	1075						
V/C Ratio(X)	1.36	0.00	0.26	0.72	0.00	0.13	0.75	0.83	0.06	0.31	1.01	0.11						
Avail Cap(c_a), veh/h	55	0	225	55	0	225	123	2419	1082	176	2404	1075						
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00						
Uniform Delay (d), s/veh	65.2	0.0	49.8	65.2	0.0	48.9	38.4	15.1	6.8	20.6	20.9	7.2						
Incr Delay (d2), s/veh	242.8	0.0	0.6	37.3	0.0	0.3	22.3	2.6	0.0	1.1	21.0	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	5.7	0.0	1.9	2.0	0.0	1.0	4.0	27.1	0.8	1.1	49.7	1.5						
LnGrp Delay(d),s/veh	308.0	0.0	50.4	102.4	0.0	49.2	60.7	17.7	6.8	21.6	41.9	7.3						
LnGrp LOS	F		D	F		D	E	B	A	C	F	A						
Approach Vol, veh/h	134				70				2170									
Approach Delay, s/veh	194.6				79.6				19.2									
Approach LOS	F				E				B									
Timer	1	2	3	4	5	6	7	8										
Assigned Phs	1	2			4	5	6	8										
Phs Duration (G+Y+Rc), s	10.2	96.6			23.5	10.8	96.0	23.5										
Change Period (Y+Rc), s	6.0	7.5			* 5	6.0	7.5	5.0										
Max Green Setting (Gmax), s	5.0	88.5			* 19	5.0	88.5	18.0										
Max Q Clear Time (g_c+I1), s	3.1	56.3			20.5	4.5	90.5	20.5										
Green Ext Time (p_c), s	0.0	19.8			0.0	0.0	0.0	0.0										
Intersection Summary																		
HCM 2010 Ctrl Delay 35.6																		
HCM 2010 LOS D																		
Notes																		

Queuing and Blocking Report

Background PM

01/29/2021

Intersection: 6: Nashville Highway & Hidden Creek Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	114	94	92	128	360	2525	2509	360	58	305	347	35
Average Queue (ft)	59	40	29	32	229	1406	1393	170	17	121	134	5
95th Queue (ft)	104	78	70	82	493	2595	2573	463	44	277	296	16
Link Distance (ft)	2047	2047	2206	2206		4906	4906			1056	1056	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					260			260	330			265
Storage Blk Time (%)						51	53				1	
Queuing Penalty (veh)						43	34				1	

Timings 6: Nashville Highway & Hidden Creek Way

2504 Nashville Highway

Background PM

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	0	54	37	0	28	84	1850	63	48	2235	106
Future Volume (vph)	69	0	54	37	0	28	84	1850	63	48	2235	106
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	22.5	22.5	22.5	23.0	23.0	23.0	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	11.0	96.0	96.0	11.0	96.0	96.0
Total Split (%)	17.7%	17.7%	17.7%	17.7%	17.7%	17.7%	8.5%	73.8%	73.8%	8.5%	73.8%	73.8%
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		5.0	5.0	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)		16.0	16.0		15.5	15.5	96.2	90.7	90.7	95.0	88.5	88.5
Actuated g/C Ratio		0.13	0.13		0.12	0.12	0.75	0.71	0.71	0.75	0.69	0.69
v/c Ratio		0.44	0.21		0.26	0.11	0.72	0.80	0.06	0.39	0.99	0.10
Control Delay		60.4	5.6		55.4	0.9	50.2	16.2	1.7	15.2	35.1	2.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Total Delay		60.4	5.6		55.4	0.9	50.2	16.2	1.7	15.2	35.6	2.2
LOS		E	A		E	A	D	B	A	B	D	A
Approach Delay		36.3			32.0			17.1			33.7	
Approach LOS		D			C			B			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 127.5

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 26.5

Intersection LOS: C

Intersection Capacity Utilization 92.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Hidden Creek Way

											
11 s	96 s		23 s			23 s			23 s		
											
11 s	96 s		23 s			23 s			23 s		

PROJECTED CAPACITY ANALYSES

HCM 2010 Signalized Intersection Summary

1: Nashville Highway & Spring Meade Road/Private Drive

04/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	372	1	60	2	0	1	120	2485	1	1	1762	114
Future Volume (veh/h)	372	1	60	2	0	1	120	2485	1	1	1762	114
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	404	1	65	2	0	1	130	2701	1	1	1915	124
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	450	508	432	428	0	432	160	2073	1	2	1629	104
Arrive On Green	0.27	0.27	0.27	0.27	0.00	0.27	0.09	0.57	0.57	0.00	0.48	0.48
Sat Flow, veh/h	1410	1863	1583	1330	0	1583	1774	3631	1	1774	3378	216
Grp Volume(v), veh/h	404	1	65	2	0	1	130	1316	1386	1	993	1046
Grp Sat Flow(s),veh/h/ln	1410	1863	1583	1330	0	1583	1774	1770	1863	1774	1770	1825
Q Serve(g_s), s	29.9	0.0	3.4	0.1	0.0	0.1	7.9	62.8	62.8	0.1	53.0	53.0
Cycle Q Clear(g_c), s	30.0	0.0	3.4	0.2	0.0	0.1	7.9	62.8	62.8	0.1	53.0	53.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.00	1.00		0.12
Lane Grp Cap(c), veh/h	450	508	432	428	0	432	160	1010	1064	2	853	880
V/C Ratio(X)	0.90	0.00	0.15	0.00	0.00	0.00	0.81	1.30	1.30	0.41	1.16	1.19
Avail Cap(c_a), veh/h	450	508	432	428	0	432	323	1010	1064	323	853	880
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	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	29.1	30.3	29.1	0.0	29.1	49.1	23.6	23.6	54.8	28.5	28.5
Incr Delay (d2), s/veh	20.5	0.0	0.2	0.0	0.0	0.0	9.5	143.5	143.2	85.0	86.6	96.2
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	14.8	0.0	1.5	0.0	0.0	0.0	4.3	70.6	74.2	0.1	46.4	50.1
LnGrp Delay(d),s/veh	61.2	29.1	30.5	29.1	0.0	29.1	58.6	167.1	166.8	139.8	115.1	124.6
LnGrp LOS	E	C	C	C		C	E	F	F	F	F	F
Approach Vol, veh/h	470				3			2832			2040	
Approach Delay, s/veh	56.9				29.1			162.0			120.0	
Approach LOS	E				C			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	5.2	69.8	35.0		14.9	60.0	35.0					
Change Period (Y+Rc), s	5.0	7.0	5.0		5.0	7.0	5.0					
Max Green Setting (Gmax), s	20.0	53.0	30.0		20.0	53.0	30.0					
Max Q Clear Time (g_c+I1), s	2.1	64.8	32.0		9.9	55.0	2.2					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.2	0.0	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	136.6											
HCM 2010 LOS	F											

Scenario 1 2504 Nashville Highway 10:10 am 01/27/2021 Projected AM
T-Square Engineering

Synchro 11 Report
Page 2

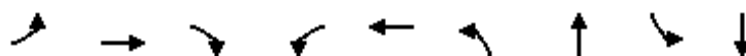
Intersection: 1: Nashville Highway & Spring Meade Road/Private Drive

Movement	EB	EB	WB	NB	NB	NB	SB	SB
Directions Served	L	R	TR	L	T	TR	T	TR
Maximum Queue (ft)	334	96	30	109	343	332	2699	2699
Average Queue (ft)	216	30	2	65	161	169	2290	2293
95th Queue (ft)	320	68	12	116	303	303	3197	3193
Link Distance (ft)	416	416	233		1656	1656	2647	2647
Upstream Blk Time (%)							51	49
Queuing Penalty (veh)							0	0
Storage Bay Dist (ft)				255				
Storage Blk Time (%)					2		53	
Queuing Penalty (veh)					2		1	

Timings

1: Nashville Highway & Spring Meade Road/Private Drive

04/16/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	←	→	→	←	→	←	→	←	→
Traffic Volume (vph)	372	1	60	2	0	120	2485	1	1762
Future Volume (vph)	372	1	60	2	0	120	2485	1	1762
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	Prot	NA
Protected Phases		4			8	5	2	1	6
Permitted Phases	4		4	8					
Detector Phase	4	4	4	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	7.0	7.0	5.0	25.0	5.0	25.0
Minimum Split (s)	23.0	23.0	23.0	12.0	12.0	10.0	32.0	10.0	32.0
Total Split (s)	35.0	35.0	35.0	35.0	35.0	25.0	60.0	25.0	60.0
Total Split (%)	29.2%	29.2%	29.2%	29.2%	29.2%	20.8%	50.0%	20.8%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	7.0	5.0	7.0
Lead/Lag						Lead	Lag	Lead	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min
Act Effect Green (s)	30.0	30.0	30.0	30.0	30.0	13.6	69.5	5.6	53.1
Actuated g/C Ratio	0.26	0.26	0.26	0.26	0.26	0.12	0.61	0.05	0.47
v/c Ratio	1.09	0.00	0.14	0.01	0.00	0.62	1.25	0.01	1.24
Control Delay	112.2	33.0	5.5	33.0	0.0	60.3	139.5	54.0	143.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	112.2	33.0	5.5	33.0	0.0	60.3	139.5	54.0	143.7
LOS	F	C	A	C	A	E	F	D	F
Approach Delay		97.3			22.0		135.8		143.7
Approach LOS		F			C		F		F

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 113.7

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 135.4

Intersection LOS: F

Intersection Capacity Utilization 114.3%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

Ø1 25 s	Ø2 60 s	Ø4 35 s
Ø5 25 s	Ø6 60 s	Ø8 35 s

Intersection												
Int Delay, s/veh	75.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗			↗↗	↗
Traffic Vol, veh/h	0	0	184	0	0	256	190	2380	120	186	1658	20
Future Vol, veh/h	0	0	184	0	0	256	190	2380	120	186	1658	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	225	-	-	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	200	0	0	278	207	2587	130	202	1802	22
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	901	-	-	1359	1824	0	0	2717	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	281	0	0	~ 139	332	-	-	~ 147	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	281	-	-	~ 139	332	-	-	~ 147	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	44.1		\$ 528.6		2.3		121.9					
HCM LOS	E		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	332	-	-	281	139	~ 147	-	-				
HCM Lane V/C Ratio	0.622	-	-	0.712	2.002	1.375	-	-				
HCM Control Delay (s)	32.1	-	-	44.1	\$ 528.6	263.2	107.5	-				
HCM Lane LOS	D	-	-	E	F	F	F	-				
HCM 95th %tile Q(veh)	3.9	-	-	5	22.1	12.8	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

HCM 2010 Signalized Intersection Summary

3: Nashville Highway & Arden Village Dr. /Grove Park Way

04/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	3	48	249	0	120	37	2452	81	105	1670	67
Future Volume (veh/h)	119	3	48	249	0	120	37	2452	81	105	1670	67
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	129	3	52	271	0	130	40	2665	88	114	1815	73
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	4	150	305	0	272	73	1536	687	143	1675	749
Arrive On Green	0.09	0.09	0.09	0.17	0.00	0.17	0.04	0.43	0.43	0.08	0.47	0.47
Sat Flow, veh/h	1736	40	1583	1774	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	132	0	52	271	0	130	40	2665	88	114	1815	73
Grp Sat Flow(s),veh/h/ln	1776	0	1583	1774	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	8.8	0.0	3.7	18.1	0.0	9.0	2.7	52.5	4.0	7.6	57.2	3.1
Cycle Q Clear(g_c), s	8.8	0.0	3.7	18.1	0.0	9.0	2.7	52.5	4.0	7.6	57.2	3.1
Prop In Lane	0.98		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	0	150	305	0	272	73	1536	687	143	1675	749
V/C Ratio(X)	0.79	0.00	0.35	0.89	0.00	0.48	0.55	1.73	0.13	0.80	1.08	0.10
Avail Cap(c_a), veh/h	345	0	308	345	0	308	205	1536	687	205	1675	749
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	0.0	51.2	49.0	0.0	45.2	56.9	34.2	20.5	54.7	31.9	17.6
Incr Delay (d2), s/veh	7.8	0.0	1.4	21.9	0.0	1.3	6.2	333.3	0.1	13.3	48.6	0.1
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	4.7	0.0	1.7	10.7	0.0	4.0	1.4	96.7	1.8	4.3	39.2	1.3
LnGrp Delay(d),s/veh	61.4	0.0	52.6	70.9	0.0	46.5	63.0	367.6	20.6	67.9	80.4	17.7
LnGrp LOS	E		D	E		D	E	F	C	E	F	B
Approach Vol, veh/h		184			401			2793			2002	
Approach Delay, s/veh		58.9			63.0			352.3			77.4	
Approach LOS		E			E			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.7	60.0		18.0	11.0	64.7		27.3				
Change Period (Y+Rc), s	6.0	7.5		6.5	6.0	7.5		6.5				
Max Green Setting (Gmax), s	14.0	52.5		23.5	14.0	52.5		23.5				
Max Q Clear Time (g_c+I1), s	9.6	54.5		10.8	4.7	59.2		20.1				
Green Ext Time (p_c), s	0.1	0.0		0.7	0.0	0.0		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			218.4									
HCM 2010 LOS			F									

Queuing and Blocking Report
Projected AM

04/16/2021

Intersection: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	128	64	401	200	430	1433	1421	230	225	519	531	274
Average Queue (ft)	68	24	212	101	74	1383	1380	36	129	334	351	48
95th Queue (ft)	112	53	349	213	305	1416	1417	162	257	497	524	193
Link Distance (ft)	1451	1451				1377	1377			527	527	
Upstream Blk Time (%)						13	14			0	0	
Queuing Penalty (veh)						164	179			0	3	
Storage Bay Dist (ft)				100	330			130	125			175
Storage Blk Time (%)			43	4		58	57		3	29	26	
Queuing Penalty (veh)			52	9		21	46		27	30	18	

Timings

3: Nashville Highway & Arden Village Dr. /Grove Park Way

04/16/2021

	→	↘	←	↖	↙	↑	↗	↘	↓	↖
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Traffic Volume (vph)	3	48	0	120	37	2452	81	105	1670	67
Future Volume (vph)	3	48	0	120	37	2452	81	105	1670	67
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	21.5	21.5	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	30.0	30.0	30.0	30.0	20.0	60.0	60.0	20.0	60.0	60.0
Total Split (%)	21.4%	21.4%	21.4%	21.4%	14.3%	42.9%	42.9%	14.3%	42.9%	42.9%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	14.9	14.9	22.5	22.5	8.4	52.7	52.7	12.3	59.2	59.2
Actuated g/C Ratio	0.12	0.12	0.17	0.17	0.07	0.41	0.41	0.10	0.46	0.46
v/c Ratio	0.65	0.17	0.88	0.34	0.35	1.84	0.12	0.68	1.12	0.09
Control Delay	69.9	1.3	80.7	10.1	67.7	408.4	1.8	77.8	96.1	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.9	1.3	80.7	10.1	67.7	408.4	1.8	77.8	96.1	0.5
LOS	E	A	F	B	E	F	A	E	F	A
Approach Delay	50.5		57.8			390.8			91.6	
Approach LOS	D		E			F			F	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 129

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.84

Intersection Signal Delay: 243.0

Intersection LOS: F

Intersection Capacity Utilization 110.7%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

Ø1	Ø2	Ø4	Ø8
20 s	60 s	30 s	30 s
Ø5	Ø6		
20 s	60 s		

Intersection

Int Delay, s/veh 8.4

Movement EBL EBT WBT WBR SBL SBRLane Configurations 

Traffic Vol, veh/h 109 11 25 0 0 274

Future Vol, veh/h 109 11 25 0 0 274

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 118 12 27 0 0 298

Major/Minor Major1 Major2 Minor2

Conflicting Flow All 27 0 - 0 275 27

Stage 1 - - - - 27 -

Stage 2 - - - - 248 -

Critical Hdwy 4.12 - - - 6.42 6.22

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy 2.218 - - - 3.518 3.318

Pot Cap-1 Maneuver 1587 - - - 715 1048

Stage 1 - - - - 996 -

Stage 2 - - - - 793 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1587 - - - 661 1048

Mov Cap-2 Maneuver - - - - 661 -

Stage 1 - - - - 921 -

Stage 2 - - - - 793 -

Approach EB WB SB

HCM Control Delay, s 6.8 0 9.8

HCM LOS A

Minor Lane/Major Mvmt EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1587 - - - 1048

HCM Lane V/C Ratio 0.075 - - - 0.284

HCM Control Delay (s) 7.5 0 - - 9.8

HCM Lane LOS A A - - A

HCM 95th %tile Q(veh) 0.2 - - - 1.2

HCM 2010 Signalized Intersection Summary

6: Nashville Highway & Green Mills

04/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	14	43	142	13	134	79	2240	54	119	2131	92
Future Volume (veh/h)	185	14	43	142	13	134	79	2240	54	119	2131	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	201	15	47	154	14	146	86	2435	59	129	2316	100
Adj No. of Lanes	1	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	135	353	300	278	21	300	113	2237	1001	115	2242	1003
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.03	0.63	0.63	0.04	0.63	0.63
Sat Flow, veh/h	1221	1863	1583	1210	110	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	201	15	47	168	0	146	86	2435	59	129	2316	100
Grp Sat Flow(s),veh/h/ln	1221	1863	1583	1320	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	9.5	0.9	3.5	16.0	0.0	11.5	2.6	88.5	2.0	5.0	88.7	3.5
Cycle Q Clear(g_c), s	26.5	0.9	3.5	17.0	0.0	11.5	2.6	88.5	2.0	5.0	88.7	3.5
Prop In Lane	1.00		1.00	0.92		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	135	353	300	299	0	300	113	2237	1001	115	2242	1003
V/C Ratio(X)	1.49	0.04	0.16	0.56	0.00	0.49	0.76	1.09	0.06	1.12	1.03	0.10
Avail Cap(c_a), veh/h	135	353	300	314	0	317	115	2237	1001	115	2242	1003
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	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.0	46.4	47.4	53.3	0.0	50.7	37.8	25.8	9.8	45.5	25.7	10.0
Incr Delay (d2), s/veh	256.4	0.0	0.2	2.1	0.0	1.2	25.4	48.0	0.0	121.2	28.2	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	14.8	0.5	1.5	6.2	0.0	5.1	4.1	57.8	0.9	8.3	51.7	1.5
LnGrp Delay(d),s/veh	323.5	46.4	47.7	55.4	0.0	51.9	63.2	73.7	9.9	166.7	53.8	10.1
LnGrp LOS	F	D	D	E		D	E	F	A	F	F	B
Approach Vol, veh/h	263			314			2580			2545		
Approach Delay, s/veh	258.4			53.8			71.9			57.8		
Approach LOS	F			D			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	96.0		33.0	10.8	96.2		33.0				
Change Period (Y+Rc), s	6.0	7.5		6.5	6.0	7.5		* 6.5				
Max Green Setting (Gmax), s	5.0	88.5		26.5	5.0	88.5		* 28				
Max Q Clear Time (g_c+I1), s	7.0	90.5		28.5	4.6	90.7		19.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay	73.2											
HCM 2010 LOS	E											
Notes												

Scenario 1 2504 Nashville Highway 10:10 am 01/27/2021 Projected AM
T-Square Engineering

Synchro 11 Report
Page 8

Queuing and Blocking Report
Projected AM

04/16/2021

Intersection: 6: Nashville Highway & Green Mills

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	T	R	L	T	T
Maximum Queue (ft)	350	1003	133	353	252	300	1086	1088	200	579	628	614
Average Queue (ft)	348	628	29	135	109	181	1067	1066	106	76	310	311
95th Queue (ft)	356	939	83	257	212	405	1081	1080	269	239	536	537
Link Distance (ft)		1732	1732	3856			1056	1056			1377	1377
Upstream Blk Time (%)							29	28				
Queuing Penalty (veh)							344	328				
Storage Bay Dist (ft)	250				220	200			100	480		
Storage Blk Time (%)	95			3	3		74	78			2	18
Queuing Penalty (veh)	13			4	5		59	42			3	17

Intersection: 6: Nashville Highway & Green Mills

Movement	SB
Directions Served	R
Maximum Queue (ft)	240
Average Queue (ft)	54
95th Queue (ft)	207
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	140
Storage Blk Time (%)	
Queuing Penalty (veh)	

Timings

6: Nashville Highway & Green Mills

04/16/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	14	43	142	13	134	79	2240	54	119	2131	92
Future Volume (vph)	185	14	43	142	13	134	79	2240	54	119	2131	92
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	24.5	23.0	23.0	23.0	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	33.0	33.0	33.0	33.0	33.0	33.0	11.0	96.0	96.0	11.0	96.0	96.0
Total Split (%)	23.6%	23.6%	23.6%	23.6%	23.6%	23.6%	7.9%	68.6%	68.6%	7.9%	68.6%	68.6%
Yellow Time (s)	4.5	4.5	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5		5.0	5.0	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	26.5	26.5	26.5		28.0	28.0	95.0	88.5	88.5	95.0	88.5	88.5
Actuated g/C Ratio	0.19	0.19	0.19		0.20	0.20	0.68	0.63	0.63	0.68	0.63	0.63
v/c Ratio	1.16	0.04	0.13		0.62	0.38	0.74	1.09	0.06	1.10	1.04	0.10
Control Delay	167.6	46.9	2.7		62.0	25.0	55.2	74.2	1.4	142.1	54.8	3.6
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0
Total Delay	167.6	46.9	2.7		62.0	25.0	55.2	75.7	1.4	142.1	54.8	3.6
LOS	F	D	A		E	C	E	E	A	F	D	A
Approach Delay		131.2			44.8			73.3			57.3	
Approach LOS		F			D			E			E	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 67.2

Intersection LOS: E

Intersection Capacity Utilization 102.1%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Green Mills

 Ø1	 Ø2	 Ø4
11 s	96 s	33 s
 Ø5	 Ø6	 Ø8
11 s	96 s	33 s

HCM 2010 Signalized Intersection Summary

7: Nashville Highway & Hidden Creek Way

04/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	0	83	58	0	44	32	2233	19	14	2215	48
Future Volume (veh/h)	90	0	83	58	0	44	32	2233	19	14	2215	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	98	0	90	63	0	48	35	2427	21	15	2408	52
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	0	227	56	0	227	107	2468	1104	89	2427	1086
Arrive On Green	0.14	0.00	0.14	0.14	0.00	0.14	0.03	0.70	0.70	0.02	0.69	0.69
Sat Flow, veh/h	0	0	1583	0	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	98	0	90	63	0	48	35	2427	21	15	2408	52
Grp Sat Flow(s),veh/h/ln	0	0	1583	0	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	6.7	0.0	0.0	3.5	0.7	85.3	0.5	0.3	86.4	1.4
Cycle Q Clear(g_c), s	18.5	0.0	6.7	18.5	0.0	3.5	0.7	85.3	0.5	0.3	86.4	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	0	227	56	0	227	107	2468	1104	89	2427	1086
V/C Ratio(X)	1.76	0.00	0.40	1.13	0.00	0.21	0.33	0.98	0.02	0.17	0.99	0.05
Avail Cap(c_a), veh/h	56	0	227	56	0	227	127	2468	1104	130	2427	1086
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.5	0.0	50.2	64.5	0.0	48.8	35.7	18.8	6.0	35.3	20.0	6.6
Incr Delay (d2), s/veh	403.7	0.0	1.1	160.4	0.0	0.5	1.8	14.4	0.0	0.9	16.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.0	3.0	4.5	0.0	1.5	0.9	46.1	0.2	0.4	47.0	0.6
LnGrp Delay(d),s/veh	468.3	0.0	51.3	225.9	0.0	49.3	37.4	33.2	6.0	36.2	36.4	6.6
LnGrp LOS	F		D	F		D	D	C	A	D	D	A
Approach Vol, veh/h	188			111			2483			2475		
Approach Delay, s/veh	268.7			149.6			33.1			35.8		
Approach LOS	F			F			C			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	8.1	97.5	23.5		9.6	96.0	23.5					
Change Period (Y+Rc), s	6.0	7.5	* 5		6.0	7.5	5.0					
Max Green Setting (Gmax), s	5.0	88.5	* 19		5.0	88.5	18.0					
Max Q Clear Time (g_c+I1), s	2.3	87.3	20.5		2.7	88.4	20.5					
Green Ext Time (p_c), s	0.0	1.2	0.0		0.0	0.1	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	45.2											
HCM 2010 LOS	D											
Notes												

Scenario 1 2504 Nashville Highway 10:10 am 01/27/2021 Projected AM
T-Square Engineering

Synchro 11 Report
Page 11

Queuing and Blocking Report
Projected AM

04/16/2021

Intersection: 7: Nashville Highway & Hidden Creek Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	243	138	75	180	359	4958	4945	360	82	409	467	30
Average Queue (ft)	102	64	44	53	123	4929	4925	60	5	195	210	2
95th Queue (ft)	203	120	84	138	398	4948	4940	281	30	382	398	12
Link Distance (ft)	2047	2047	2206	2206		4906	4906			1056	1056	
Upstream Blk Time (%)						99	99					
Queuing Penalty (veh)						0	0					
Storage Bay Dist (ft)					260			260	330			265
Storage Blk Time (%)						83	86			1	3	
Queuing Penalty (veh)						27	16			0	2	

Timings

7: Nashville Highway & Hidden Creek Way

04/16/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	0	83	58	0	44	32	2233	19	14	2215	48
Future Volume (vph)	90	0	83	58	0	44	32	2233	19	14	2215	48
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	22.5	22.5	22.5	23.0	23.0	23.0	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	11.0	96.0	96.0	11.0	96.0	96.0
Total Split (%)	17.7%	17.7%	17.7%	17.7%	17.7%	17.7%	8.5%	73.8%	73.8%	8.5%	73.8%	73.8%
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		5.0	5.0	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)		16.4	16.4		15.9	15.9	95.0	91.6	91.6	93.9	89.5	89.5
Actuated g/C Ratio		0.13	0.13		0.13	0.13	0.76	0.74	0.74	0.76	0.72	0.72
v/c Ratio		0.56	0.32		0.43	0.17	0.27	0.93	0.02	0.12	0.95	0.04
Control Delay		64.3	13.6		61.1	2.8	8.9	22.9	0.1	5.1	26.0	1.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Total Delay		64.3	13.6		61.1	2.8	8.9	22.9	0.1	5.1	26.2	1.1
LOS		E	B		E	A	A	C	A	A	C	A
Approach Delay		40.0			35.9			22.6			25.6	
Approach LOS		D			D			C			C	

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 124.3

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 24.9

Intersection LOS: C

Intersection Capacity Utilization 93.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 7: Nashville Highway & Hidden Creek Way

 Ø1	 Ø2	 Ø4
11 s	96 s	23 s
 Ø5	 Ø6	 Ø8
11 s	96 s	23 s

HCM 2010 Signalized Intersection Summary

1: Nashville Highway & Spring Meade Road/Private Drive

04/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	0	83	0	0	0	68	2132	0	0	2840	245
Future Volume (veh/h)	230	0	83	0	0	0	68	2132	0	0	2840	245
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	250	0	90	0	0	0	74	2317	0	0	3087	266
Adj No. of Lanes	1	1	1	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	302	257	63	302	0	96	2596	0	2	2100	178
Arrive On Green	0.16	0.00	0.16	0.00	0.00	0.00	0.05	0.73	0.00	0.00	0.64	0.64
Sat Flow, veh/h	1774	1863	1583	1301	1863	0	1774	3632	0	1774	3302	281
Grp Volume(v), veh/h	250	0	90	0	0	0	74	2317	0	0	1634	1719
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1301	1863	0	1774	1770	0	1774	1770	1813
Q Serve(g_s), s	15.8	0.0	5.8	0.0	0.0	0.0	4.7	58.0	0.0	0.0	73.0	73.0
Cycle Q Clear(g_c), s	15.8	0.0	5.8	0.0	0.0	0.0	4.7	58.0	0.0	0.0	73.0	73.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.15
Lane Grp Cap(c), veh/h	350	302	257	63	302	0	96	2596	0	2	1125	1153
V/C Ratio(X)	0.71	0.00	0.35	0.00	0.00	0.00	0.77	0.89	0.00	0.00	1.45	1.49
Avail Cap(c_a), veh/h	526	487	414	192	487	0	309	2596	0	309	1125	1153
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	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	0.0	42.7	0.0	0.0	0.0	53.6	11.8	0.0	0.0	20.9	20.9
Incr Delay (d2), s/veh	2.7	0.0	0.8	0.0	0.0	0.0	12.4	4.4	0.0	0.0	208.2	225.7
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	8.0	0.0	2.6	0.0	0.0	0.0	2.7	29.6	0.0	0.0	100.4	108.5
LnGrp Delay(d),s/veh	49.6	0.0	43.5	0.0	0.0	0.0	66.0	16.2	0.0	0.0	229.1	246.6
LnGrp LOS	D		D				E	B			F	F
Approach Vol, veh/h	340				0			2391			3353	
Approach Delay, s/veh	48.0				0.0			17.8			238.1	
Approach LOS	D							B			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	0.0	91.2	23.6		11.2	80.0	23.6					
Change Period (Y+Rc), s	5.0	7.0	5.0		5.0	7.0	5.0					
Max Green Setting (Gmax), s	20.0	73.0	30.0		20.0	73.0	30.0					
Max Q Clear Time (g_c+I1), s	0.0	60.0	17.8		6.7	75.0	0.0					
Green Ext Time (p_c), s	0.0	11.1	0.8		0.1	0.0	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	140.9											
HCM 2010 LOS	F											

Queuing and Blocking Report
Projected PM

04/16/2021

Intersection: 1: Nashville Highway & Spring Meade Road/Private Drive

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	TR	T	TR
Maximum Queue (ft)	263	132	109	251	275	2710	2710
Average Queue (ft)	176	56	43	122	132	2672	2675
95th Queue (ft)	263	103	100	222	238	2695	2697
Link Distance (ft)	416	416		1656	1656	2647	2647
Upstream Blk Time (%)						85	86
Queuing Penalty (veh)						0	0
Storage Bay Dist (ft)			255				
Storage Blk Time (%)				0		51	
Queuing Penalty (veh)				0		0	

Timings

1: Nashville Highway & Spring Meade Road/Private Drive

04/16/2021



Lane Group	EBL	EBR	NBL	NBT	SBT	Ø1	Ø8
Lane Configurations							
Traffic Volume (vph)	230	83	68	2132	2840		
Future Volume (vph)	230	83	68	2132	2840		
Turn Type	Perm	Perm	Prot	NA	NA		
Protected Phases			5	2	6	1	8
Permitted Phases	4	4					
Detector Phase	4	4	5	2	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	25.0	25.0	5.0	7.0
Minimum Split (s)	23.0	23.0	10.0	32.0	32.0	10.0	12.0
Total Split (s)	35.0	35.0	25.0	80.0	80.0	25.0	35.0
Total Split (%)	25.0%	25.0%	17.9%	57.1%	57.1%	18%	25%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	3.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	5.0	5.0	7.0	7.0		
Lead/Lag			Lead	Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	None
Act Effect Green (s)	25.9	25.9	10.6	86.6	73.7		
Actuated g/C Ratio	0.21	0.21	0.09	0.69	0.59		
v/c Ratio	0.85	0.17	0.49	0.94	1.62		
Control Delay	74.4	0.7	67.8	27.0	304.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	74.4	0.7	67.8	27.0	304.3		
LOS	E	A	E	C	F		
Approach Delay				28.3	304.3		
Approach LOS				C	F		

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 124.7

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.62

Intersection Signal Delay: 181.9

Intersection LOS: F

Intersection Capacity Utilization 109.0%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Nashville Highway & Spring Meade Road/Private Drive

Ø1	Ø2	Ø4
25 s	80 s	35 s
Ø5	Ø6	Ø8
25 s	80 s	35 s

Intersection												
Int Delay, s/veh	21.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗			↗	↗
Traffic Vol, veh/h	0	0	164	0	0	143	140	2058	100	159	2718	53
Future Vol, veh/h	0	0	164	0	0	143	140	2058	100	159	2718	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	225	-	-	-	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	178	0	0	155	152	2237	109	173	2954	58

Major/Minor	Minor2		Minor1		Major1		Major2	
Conflicting Flow All	-	-	1477	-	-	1173	3012	0
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.94	-	-	6.94	4.14	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.32	-	-	3.32	2.22	-
Pot Cap-1 Maneuver	0	0	~ 115	0	0	185	~ 112	-
Stage 1	0	0	-	0	0	-	-	-
Stage 2	0	0	-	0	0	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	~ 115	-	-	185	~ 112	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	352.8	81.5	17	4
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	~ 112	-	-	115	185	207	-
HCM Lane V/C Ratio	1.359	-	-	1.55	0.84	0.835	-
HCM Control Delay (s)	279.6	-	-	352.8	81.5	74.2	0
HCM Lane LOS	F	-	-	F	F	F	A
HCM 95th %tile Q(veh)	10.5	-	-	13	6	6.2	-

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

HCM 2010 Signalized Intersection Summary

3: Nashville Highway & Arden Village Dr. /Grove Park Way

04/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	5	125	177	5	110	136	2000	124	162	2498	223
Future Volume (veh/h)	191	5	125	177	5	110	136	2000	124	162	2498	223
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	208	5	136	192	5	120	148	2174	135	176	2715	242
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	234	6	213	219	6	200	162	1678	750	162	1678	750
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.09	0.47	0.47	0.09	0.47	0.47
Sat Flow, veh/h	1734	42	1583	1731	45	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	213	0	136	197	0	120	148	2174	135	176	2715	242
Grp Sat Flow(s),veh/h/ln	1776	0	1583	1776	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	18.0	0.0	12.4	16.7	0.0	11.0	12.6	72.5	7.5	14.0	72.5	14.5
Cycle Q Clear(g_c), s	18.0	0.0	12.4	16.7	0.0	11.0	12.6	72.5	7.5	14.0	72.5	14.5
Prop In Lane	0.98		1.00	0.97		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	0	213	225	0	200	162	1678	750	162	1678	750
V/C Ratio(X)	0.89	0.00	0.64	0.88	0.00	0.60	0.91	1.30	0.18	1.08	1.62	0.32
Avail Cap(c_a), veh/h	273	0	243	273	0	243	162	1678	750	162	1678	750
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.1	0.0	62.6	65.6	0.0	63.1	68.9	40.2	23.1	69.5	40.2	25.0
Incr Delay (d2), s/veh	26.1	0.0	4.5	22.8	0.0	2.9	45.8	137.7	0.1	94.8	281.1	0.2
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	10.6	0.0	5.7	9.6	0.0	5.0	8.3	67.5	3.3	11.1	100.9	6.4
LnGrp Delay(d),s/veh	91.2	0.0	67.1	88.5	0.0	66.0	114.6	178.0	23.2	164.3	321.3	25.2
LnGrp LOS	F		E	F		E	F	F	C	F	F	C
Approach Vol, veh/h		349			317			2457			3133	
Approach Delay, s/veh		81.8			80.0			165.6			289.6	
Approach LOS		F			E			F			F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.0	80.0		27.1	20.0	80.0		25.8				
Change Period (Y+Rc), s	6.0	7.5		6.5	6.0	7.5		6.5				
Max Green Setting (Gmax), s	14.0	72.5		23.5	14.0	72.5		23.5				
Max Q Clear Time (g_c+I1), s	16.0	74.5		20.0	14.6	74.5		18.7				
Green Ext Time (p_c), s	0.0	0.0		0.6	0.0	0.0		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			218.7									
HCM 2010 LOS			F									

Queuing and Blocking Report
Projected PM

04/16/2021

Intersection: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	549	186	353	200	430	1401	1398	230	224	553	546	275
Average Queue (ft)	272	58	181	98	271	1378	1381	51	135	499	486	136
95th Queue (ft)	520	124	284	204	555	1402	1400	185	239	601	608	336
Link Distance (ft)	1451	1451				1377	1377			527	527	
Upstream Blk Time (%)						12	13			5	5	
Queuing Penalty (veh)						129	142			76	75	
Storage Bay Dist (ft)				100	330			130	125			175
Storage Blk Time (%)			39	6	0	60	59		23	39	38	
Queuing Penalty (veh)			42	12	0	82	74		293	63	85	

Timings

3: Nashville Highway & Arden Village Dr. /Grove Park Way

04/16/2021

	→	↘	←	↖	↙	↑	↗	↘	↓	↖
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Traffic Volume (vph)	5	125	5	110	136	2000	124	162	2498	223
Future Volume (vph)	5	125	5	110	136	2000	124	162	2498	223
Turn Type	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4		8		5	2		1	6	
Permitted Phases		4		8			2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	21.5	21.5	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	30.0	30.0	30.0	30.0	20.0	80.0	80.0	20.0	80.0	80.0
Total Split (%)	18.8%	18.8%	18.8%	18.8%	12.5%	50.0%	50.0%	12.5%	50.0%	50.0%
Yellow Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	21.6	21.6	20.9	20.9	14.0	72.6	72.6	14.0	72.6	72.6
Actuated g/C Ratio	0.14	0.14	0.13	0.13	0.09	0.47	0.47	0.09	0.47	0.47
v/c Ratio	0.87	0.40	0.83	0.38	0.93	1.32	0.17	1.11	1.65	0.30
Control Delay	97.1	12.6	92.8	14.3	124.7	182.0	7.1	165.3	322.6	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.1	12.6	92.8	14.3	124.7	182.0	7.1	165.3	322.6	15.4
LOS	F	B	F	B	F	F	A	F	F	B
Approach Delay	64.2		63.1			168.9			290.1	
Approach LOS	E		E			F			F	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 155.7

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.65

Intersection Signal Delay: 218.4

Intersection LOS: F

Intersection Capacity Utilization 110.8%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 3: Nashville Highway & Arden Village Dr. /Grove Park Way

↖ Ø1	↑ Ø2	↗ Ø4	↖ Ø8
20 s	80 s	30 s	30 s
↖ Ø5	↓ Ø6		
20 s	80 s		

HCM 2010 TWSC
5: Persimmon Street & Site Access 3

04/16/2021

Intersection						
Int Delay, s/veh	7.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	117	19	6	0	0	151
Future Vol, veh/h	117	19	6	0	0	151
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	21	7	0	0	164
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	7	0	-	0	282	7
Stage 1	-	-	-	-	7	-
Stage 2	-	-	-	-	275	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1614	-	-	-	708	1075
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	771	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1614	-	-	-	651	1075
Mov Cap-2 Maneuver	-	-	-	-	651	-
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	771	-
Approach	EB	WB		SB		
HCM Control Delay, s	6.4	0		9		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1614	-	-	-	1075	
HCM Lane V/C Ratio	0.079	-	-	-	0.153	
HCM Control Delay (s)	7.4	0	-	-	9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0.3	-	-	-	0.5	

HCM 2010 Signalized Intersection Summary

6: Nashville Highway & Green Mills

04/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	13	40	86	17	208	104	1824	155	349	2414	122
Future Volume (veh/h)	172	13	40	86	17	208	104	1824	155	349	2414	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	187	14	43	93	18	226	113	1983	168	379	2624	133
Adj No. of Lanes	1	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	288	245	218	37	245	107	1959	876	330	2405	1076
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.03	0.55	0.55	0.16	0.68	0.68
Sat Flow, veh/h	1131	1863	1583	1128	238	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	187	14	43	111	0	226	113	1983	168	379	2624	133
Grp Sat Flow(s),veh/h/ln	1131	1863	1583	1367	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	11.7	1.0	3.6	10.7	0.0	21.2	5.0	83.5	8.0	24.0	102.5	4.4
Cycle Q Clear(g_c), s	23.3	1.0	3.6	11.6	0.0	21.2	5.0	83.5	8.0	24.0	102.5	4.4
Prop In Lane	1.00		1.00	0.84		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	136	288	245	255	0	245	107	1959	876	330	2405	1076
V/C Ratio(X)	1.38	0.05	0.18	0.43	0.00	0.92	1.06	1.01	0.19	1.15	1.09	0.12
Avail Cap(c_a), veh/h	136	288	245	261	0	252	107	1959	876	330	2405	1076
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	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.6	54.3	55.4	59.1	0.0	62.9	43.9	33.7	16.8	55.7	24.2	8.5
Incr Delay (d2), s/veh	209.8	0.1	0.3	1.2	0.0	36.0	104.5	23.4	0.1	96.1	48.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.5	0.5	1.6	4.4	0.0	11.7	7.5	46.9	3.5	22.6	65.7	1.9
LnGrp Delay(d),s/veh	281.5	54.4	55.7	60.2	0.0	98.9	148.8	57.0	16.9	151.9	72.7	8.5
LnGrp LOS	F	D	E	E		F	F	F	B	F	F	A
Approach Vol, veh/h	244				337			2264			3136	
Approach Delay, s/veh	228.6				86.2			58.7			79.6	
Approach LOS	F				F			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	30.0	91.0	29.8		11.0	110.0	29.8					
Change Period (Y+Rc), s	6.0	7.5	6.5		6.0	7.5	* 6.5					
Max Green Setting (Gmax), s	24.0	83.5	22.5		5.0	102.5	* 24					
Max Q Clear Time (g_c+I1), s	26.0	85.5	25.3		7.0	104.5	23.2					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.0	0.0	0.1					
Intersection Summary												
HCM 2010 Ctrl Delay	78.1											
HCM 2010 LOS	E											
Notes												

Scenario 2 2504 Nashville Highway 12:39 pm 01/28/2021 Projected PM
T-Square Engineering

Synchro 11 Report
Page 8

Queuing and Blocking Report
Projected PM

04/16/2021

Intersection: 6: Nashville Highway & Green Mills

Movement	EB	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	LT	R	L	T	T	R	L	T	T
Maximum Queue (ft)	350	1210	86	654	320	300	1081	1090	200	286	320	336
Average Queue (ft)	338	640	29	206	195	187	1064	1066	140	158	163	167
95th Queue (ft)	387	1159	64	513	341	402	1075	1079	288	267	315	318
Link Distance (ft)		1732	1732	3856			1056	1056			1377	1377
Upstream Blk Time (%)							27	31				
Queuing Penalty (veh)							279	324				
Storage Bay Dist (ft)	250				220	200			100	480		
Storage Blk Time (%)	88			2	23		72	73				9
Queuing Penalty (veh)	11			5	24		75	112				11

Intersection: 6: Nashville Highway & Green Mills

Movement	SB
Directions Served	R
Maximum Queue (ft)	40
Average Queue (ft)	12
95th Queue (ft)	34
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	140
Storage Blk Time (%)	
Queuing Penalty (veh)	

Timings

6: Nashville Highway & Green Mills

04/16/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	13	40	86	17	208	104	1824	155	349	2414	122
Future Volume (vph)	172	13	40	86	17	208	104	1824	155	349	2414	122
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	24.5	24.5	24.5	23.0	23.0	23.0	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	29.0	29.0	29.0	29.0	29.0	29.0	11.0	91.0	91.0	30.0	110.0	110.0
Total Split (%)	19.3%	19.3%	19.3%	19.3%	19.3%	19.3%	7.3%	60.7%	60.7%	20.0%	73.3%	73.3%
Yellow Time (s)	4.5	4.5	4.5	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	1.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5		5.0	5.0	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)	22.5	22.5	22.5		24.0	24.0	90.0	83.5	83.5	115.0	102.5	102.5
Actuated g/C Ratio	0.15	0.15	0.15		0.16	0.16	0.60	0.56	0.56	0.77	0.68	0.68
v/c Ratio	1.15	0.05	0.13		0.50	0.54	1.04	1.01	0.18	1.13	1.09	0.12
Control Delay	169.9	55.3	0.8		66.1	15.4	131.4	54.9	6.1	134.7	70.6	4.2
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	169.9	55.3	0.8		66.1	15.4	131.4	54.9	6.1	134.7	70.6	4.2
LOS	F	E	A		E	B	F	D	A	F	E	A
Approach Delay		133.5			32.1			55.1			75.6	
Approach LOS		F			C			E			E	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 67.7

Intersection LOS: E

Intersection Capacity Utilization 105.4%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 6: Nashville Highway & Green Mills



HCM 2010 Signalized Intersection Summary

7: Nashville Highway & Hidden Creek Way

04/16/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	0	54	37	0	28	84	1984	63	48	2336	106
Future Volume (veh/h)	69	0	54	37	0	28	84	1984	63	48	2336	106
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	75	0	59	40	0	30	91	2157	68	52	2539	115
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	0	195	48	0	195	108	2565	1147	151	2552	1141
Arrive On Green	0.12	0.00	0.12	0.12	0.00	0.12	0.03	0.72	0.72	0.03	0.72	0.72
Sat Flow, veh/h	0	0	1583	0	0	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	75	0	59	40	0	30	91	2157	68	52	2539	115
Grp Sat Flow(s),veh/h/ln	0	0	1583	0	0	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	0.0	0.0	5.1	0.0	0.0	2.5	3.5	64.7	1.9	1.1	106.6	3.3
Cycle Q Clear(g_c), s	18.5	0.0	5.1	18.5	0.0	2.5	3.5	64.7	1.9	1.1	106.6	3.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	48	0	195	48	0	195	108	2565	1147	151	2552	1141
V/C Ratio(X)	1.57	0.00	0.30	0.84	0.00	0.15	0.84	0.84	0.06	0.34	1.00	0.10
Avail Cap(c_a), veh/h	48	0	195	48	0	195	108	2565	1147	157	2552	1141
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	75.3	0.0	60.1	75.3	0.0	59.0	51.0	14.6	6.0	24.4	20.7	6.3
Incr Delay (d2), s/veh	334.8	0.0	0.9	72.1	0.0	0.4	41.8	2.7	0.0	1.4	16.6	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	6.4	0.0	2.3	2.6	0.0	1.1	5.0	32.1	0.8	1.4	57.4	1.4
LnGrp Delay(d),s/veh	410.0	0.0	61.0	147.4	0.0	59.4	92.8	17.3	6.0	25.7	37.4	6.4
LnGrp LOS	F		E	F		E	F	B	A	C	D	A
Approach Vol, veh/h	134				70			2316			2706	
Approach Delay, s/veh	256.3				109.7			19.9			35.8	
Approach LOS	F				F			B			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	10.4	116.6	23.5		11.0	116.0	23.5					
Change Period (Y+Rc), s	6.0	7.5	* 5		6.0	7.5	5.0					
Max Green Setting (Gmax), s	5.0	108.5	* 19		5.0	108.5	18.0					
Max Q Clear Time (g_c+I1), s	3.1	66.7	20.5		5.5	108.6	20.5					
Green Ext Time (p_c), s	0.0	25.6	0.0		0.0	0.0	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay			35.4									
HCM 2010 LOS			D									
Notes												

Scenario 2 2504 Nashville Highway 12:39 pm 01/28/2021 Projected PM
T-Square Engineering

Synchro 11 Report
Page 11

Queuing and Blocking Report
Projected PM

04/16/2021

Intersection: 7: Nashville Highway & Hidden Creek Way

Movement	EB	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LT	R	LT	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	219	88	93	73	360	4969	4969	360	41	345	335	10
Average Queue (ft)	75	37	31	37	221	4926	4929	263	10	90	98	2
95th Queue (ft)	151	71	69	76	501	4944	4952	524	32	227	233	7
Link Distance (ft)	2047	2047	2206	2206		4906	4906			1056	1056	
Upstream Blk Time (%)						94	93					
Queuing Penalty (veh)						0	0					
Storage Bay Dist (ft)					260			260	330			265
Storage Blk Time (%)						78	78			0	1	
Queuing Penalty (veh)						65	49			0	1	

7: Nashville Highway & Hidden Creek Way

04/16/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	0	54	37	0	28	84	1984	63	48	2336	106
Future Volume (vph)	69	0	54	37	0	28	84	1984	63	48	2336	106
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0	5.0	25.0	25.0	5.0	25.0	25.0
Minimum Split (s)	22.5	22.5	22.5	23.0	23.0	23.0	11.0	32.5	32.5	11.0	32.5	32.5
Total Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	11.0	116.0	116.0	11.0	116.0	116.0
Total Split (%)	15.3%	15.3%	15.3%	15.3%	15.3%	15.3%	7.3%	77.3%	77.3%	7.3%	77.3%	77.3%
Yellow Time (s)	3.5	3.5	3.5	4.0	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	3.0	3.0	1.5	3.0	3.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.5	4.5		5.0	5.0	6.0	7.5	7.5	6.0	7.5	7.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		16.1	16.1		15.6	15.6	116.2	110.7	110.7	115.0	108.5	108.5
Actuated g/C Ratio		0.11	0.11		0.11	0.11	0.79	0.75	0.75	0.78	0.74	0.74
v/c Ratio		0.51	0.25		0.31	0.13	0.83	0.81	0.06	0.44	0.98	0.10
Control Delay		74.5	9.2		68.0	1.1	76.5	15.9	1.8	20.5	31.7	1.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	12.0	0.0
Total Delay		74.5	9.2		68.0	1.1	76.5	15.9	1.8	20.5	43.6	1.9
LOS		E	A		E	A	E	B	A	C	D	A
Approach Delay		45.8			39.3			17.8			41.4	
Approach LOS		D			D			B			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 147.6

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 31.1

Intersection LOS: C

Intersection Capacity Utilization 95.4%

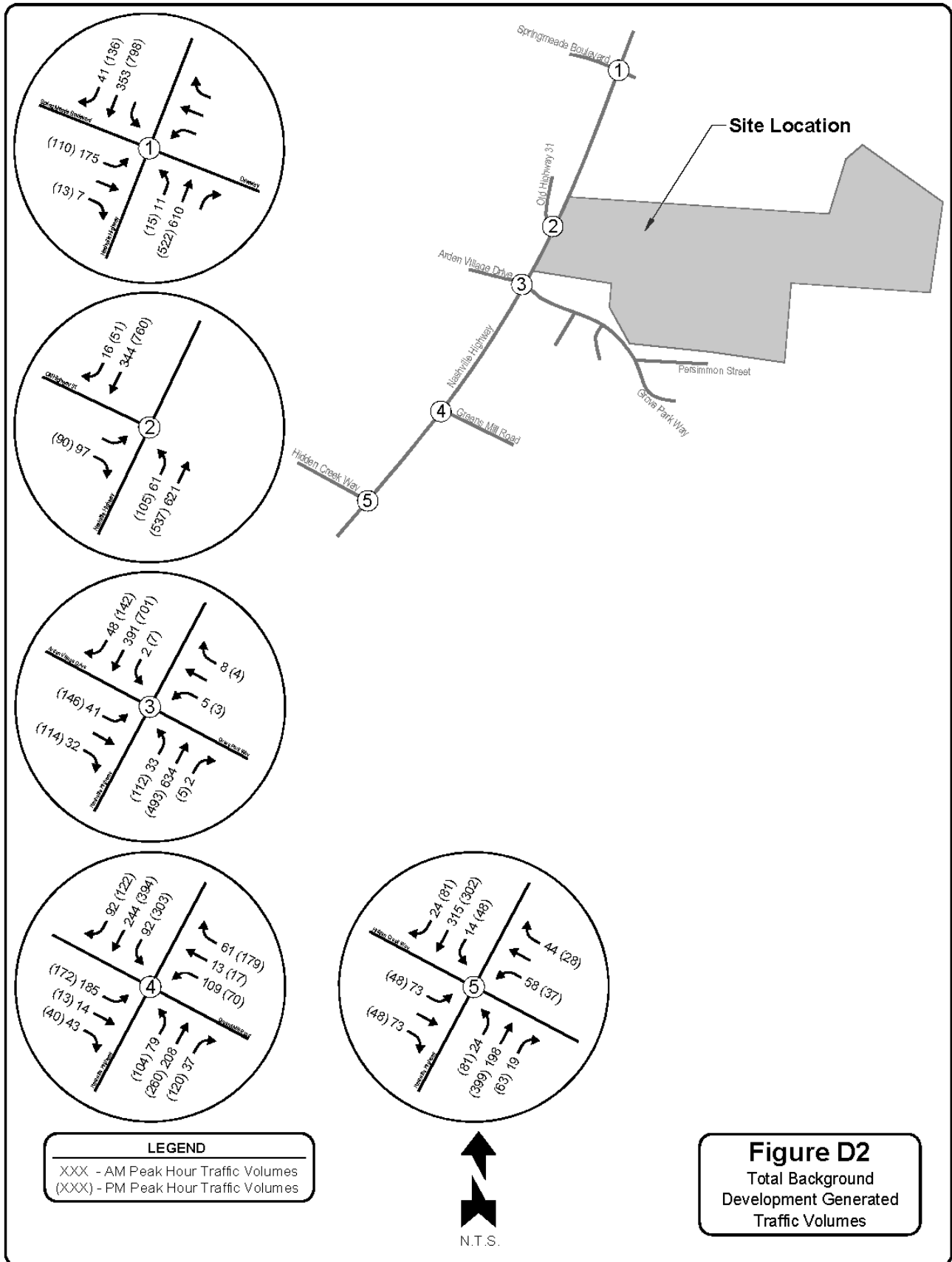
ICU Level of Service F

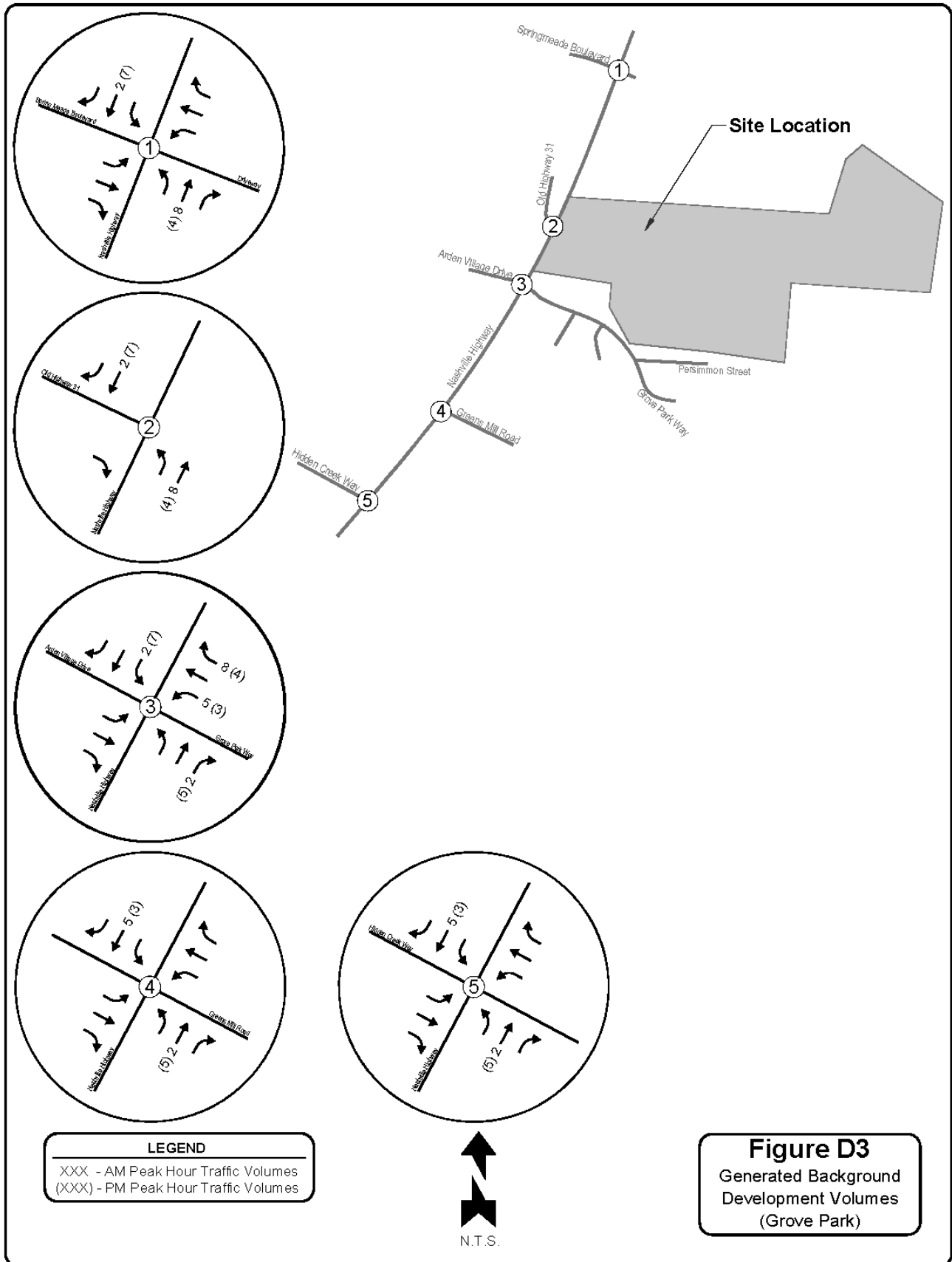
Analysis Period (min) 15

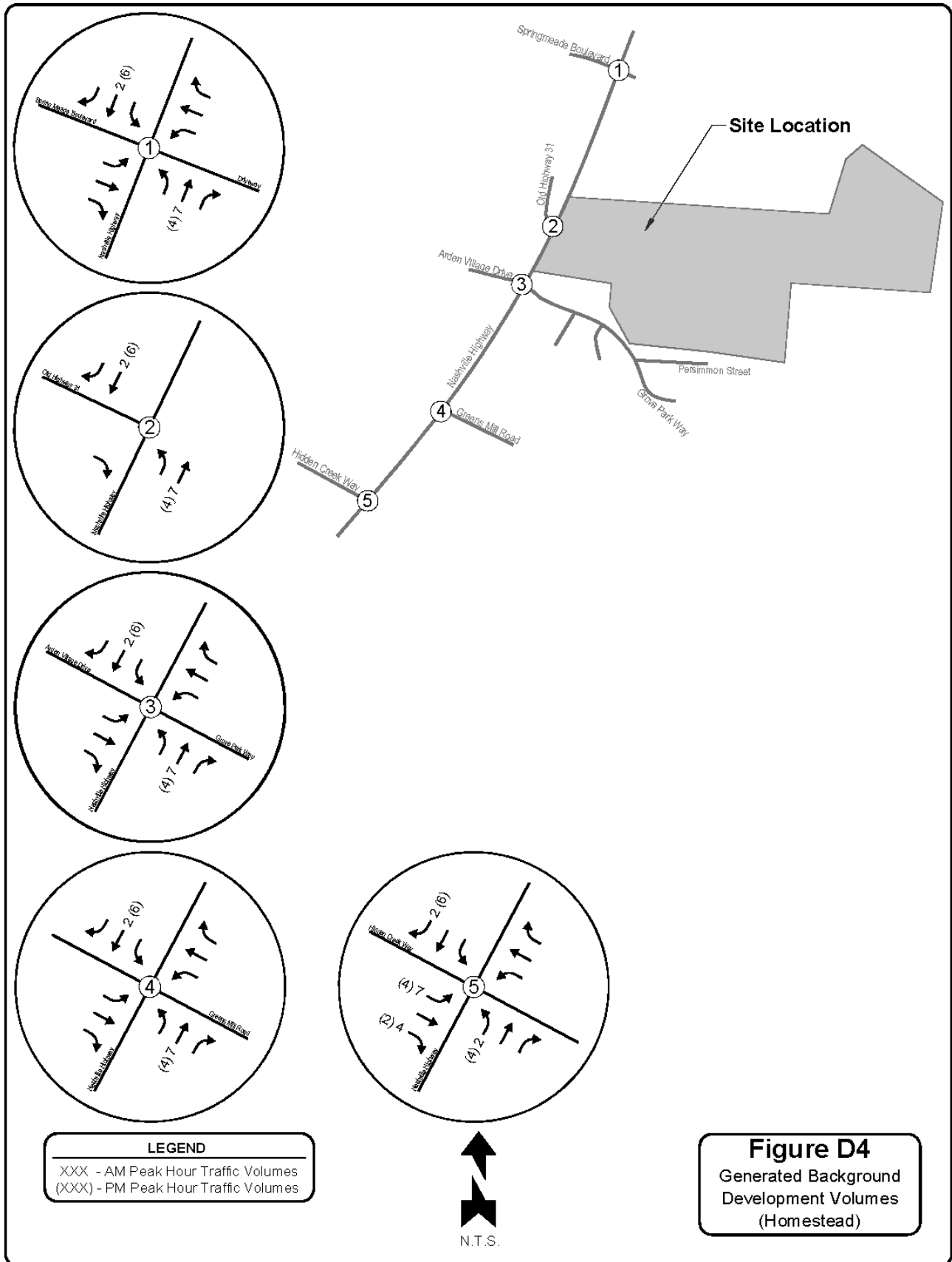
Splits and Phases: 7: Nashville Highway & Hidden Creek Way

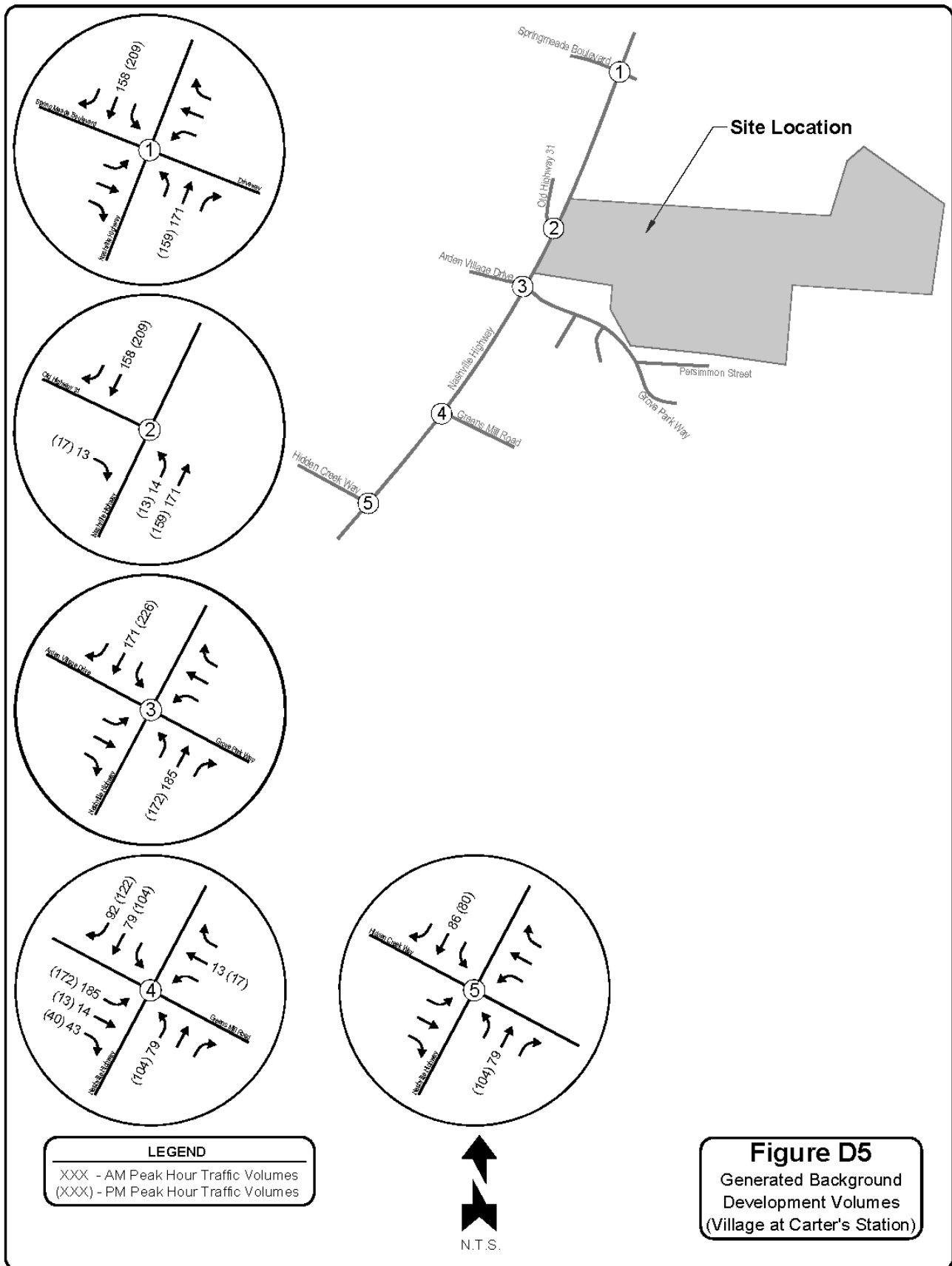


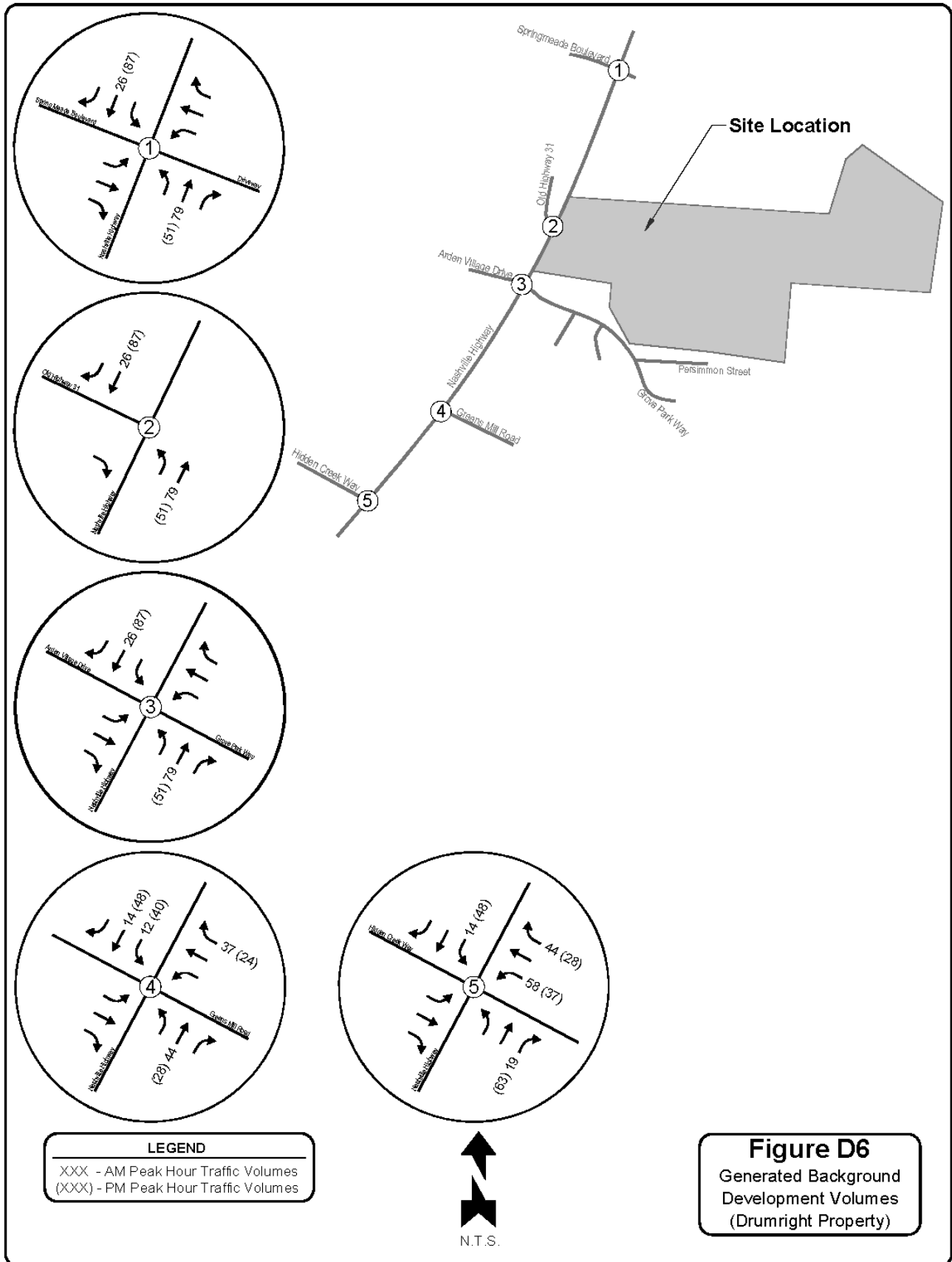
APPENDIX D – ADDITIONAL FIGURES

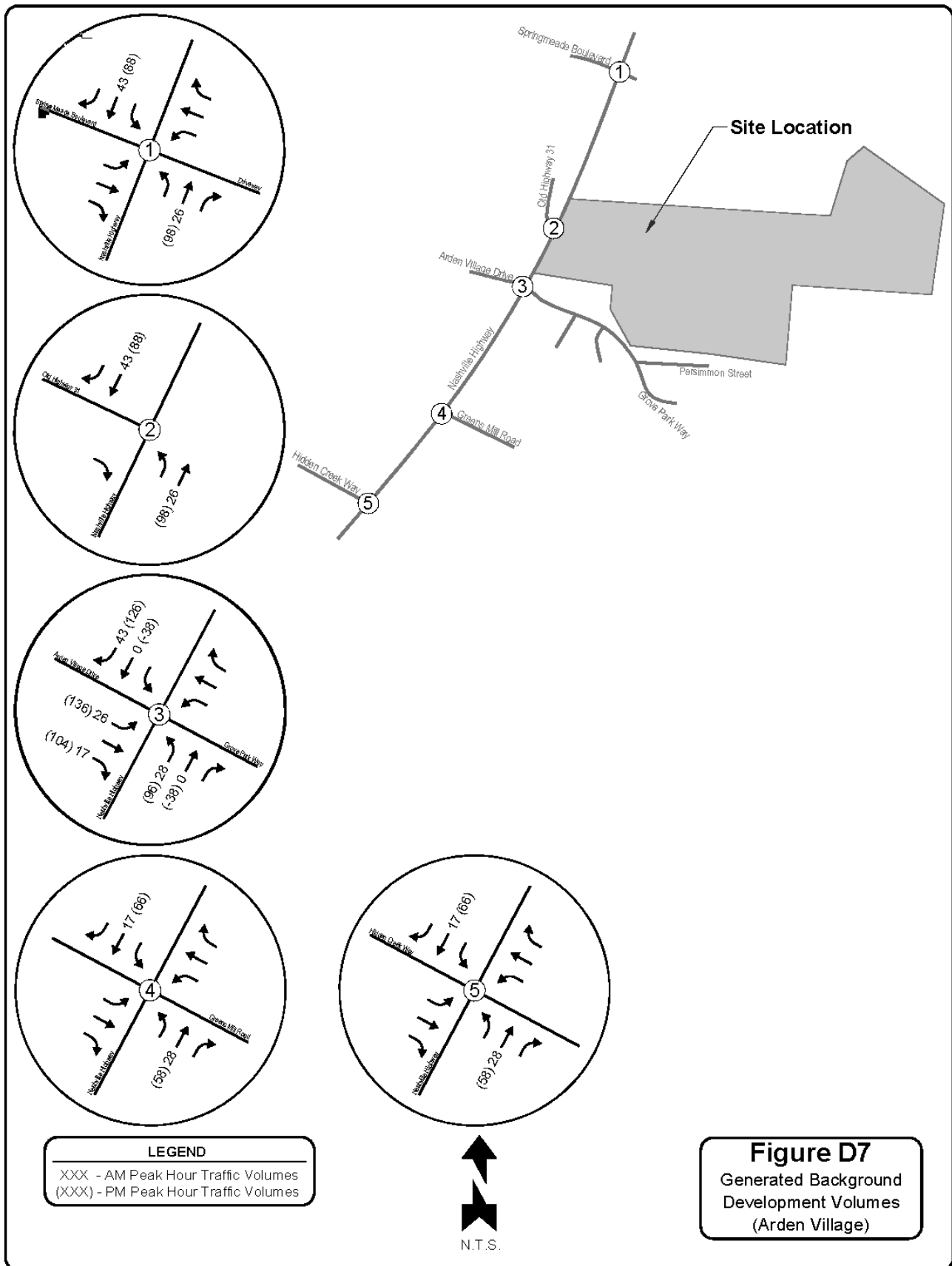


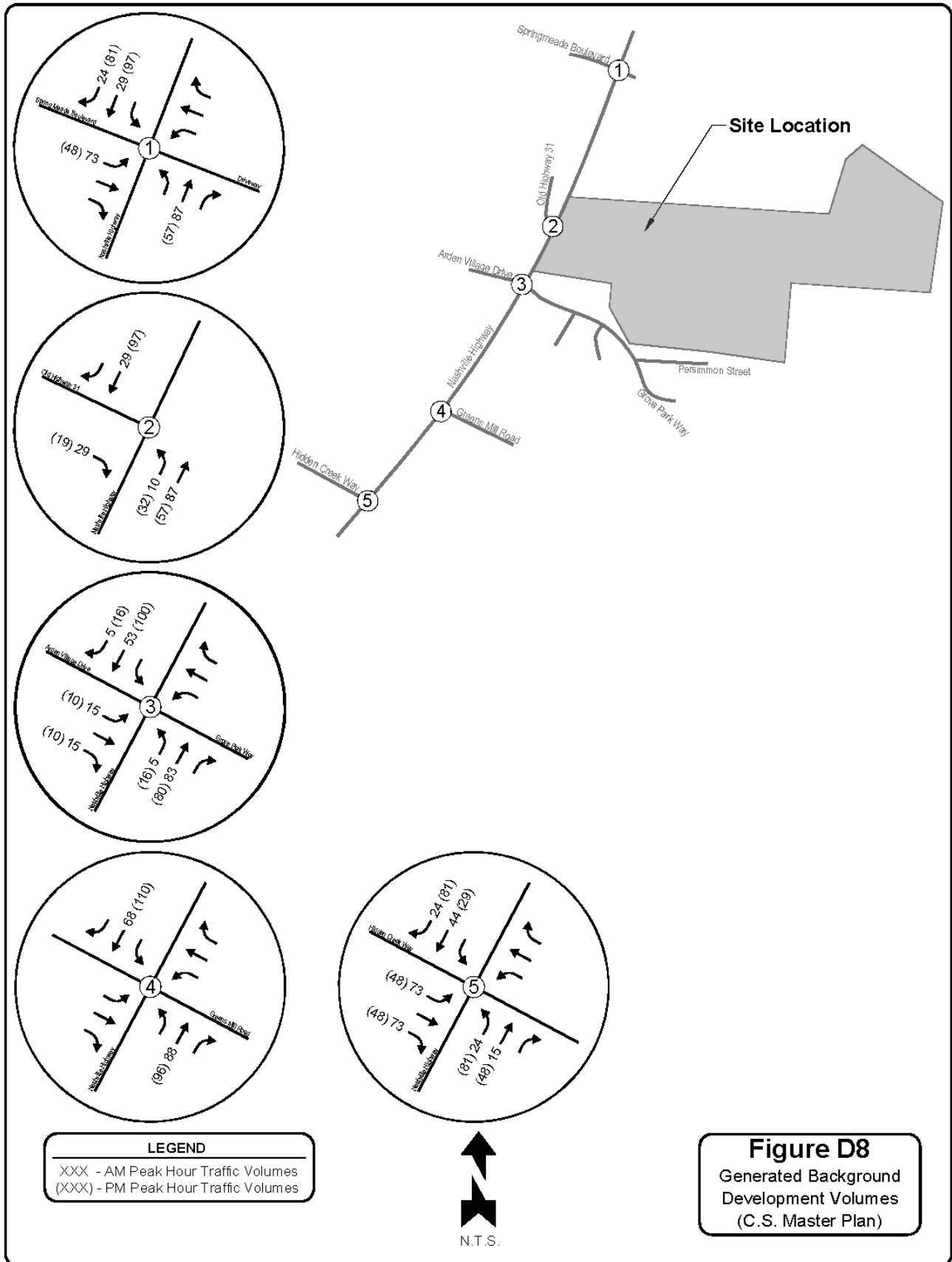


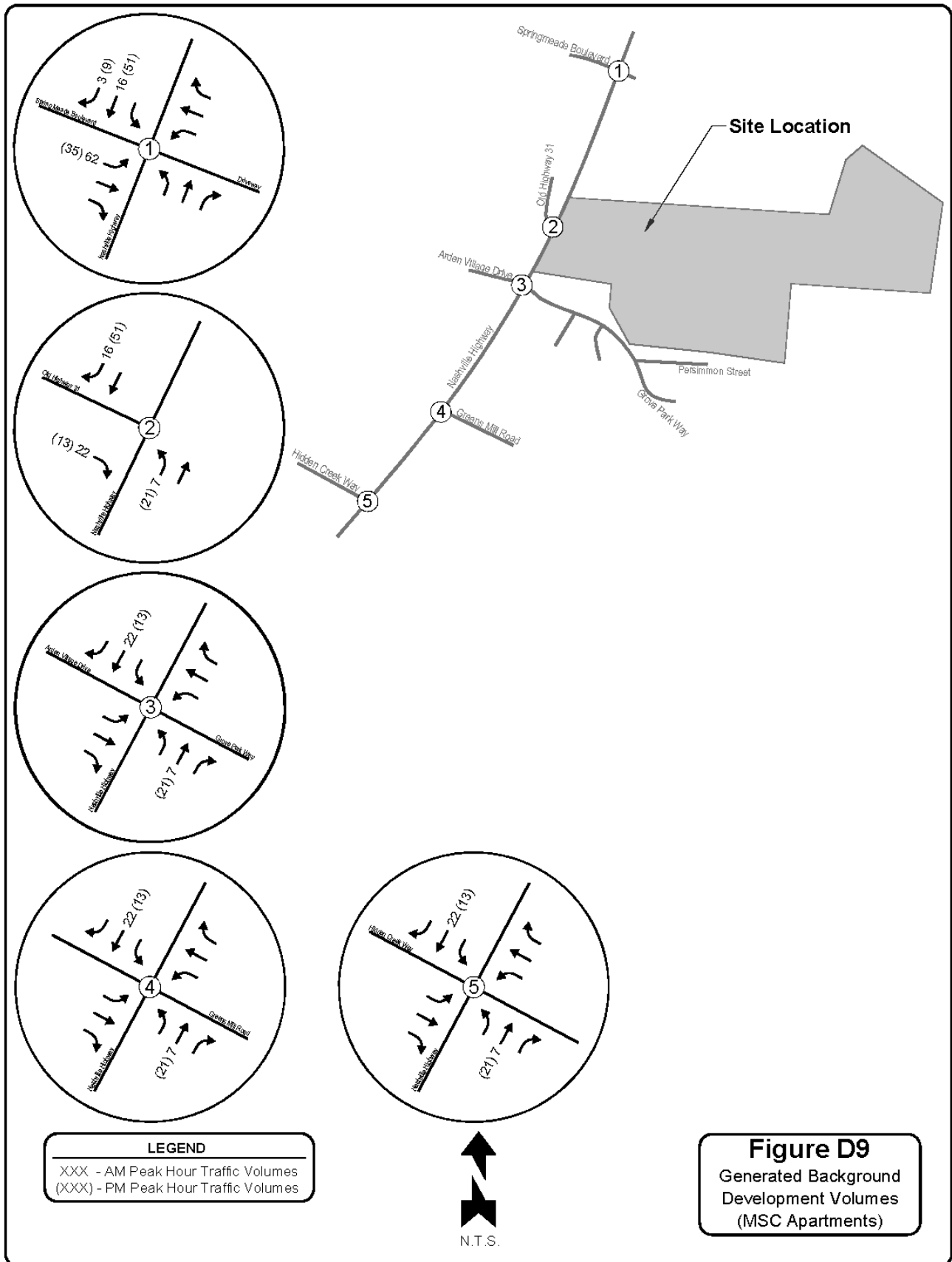


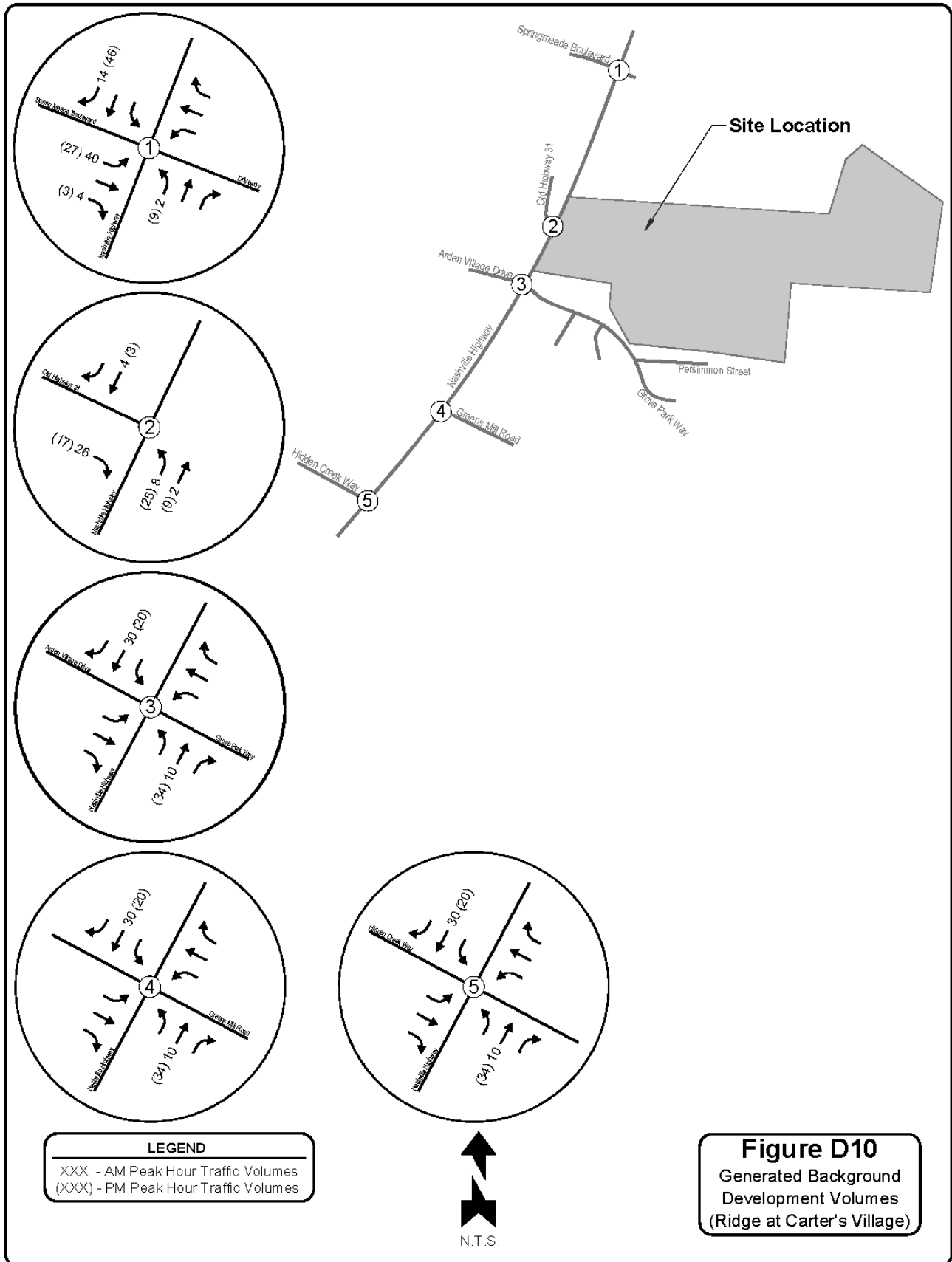


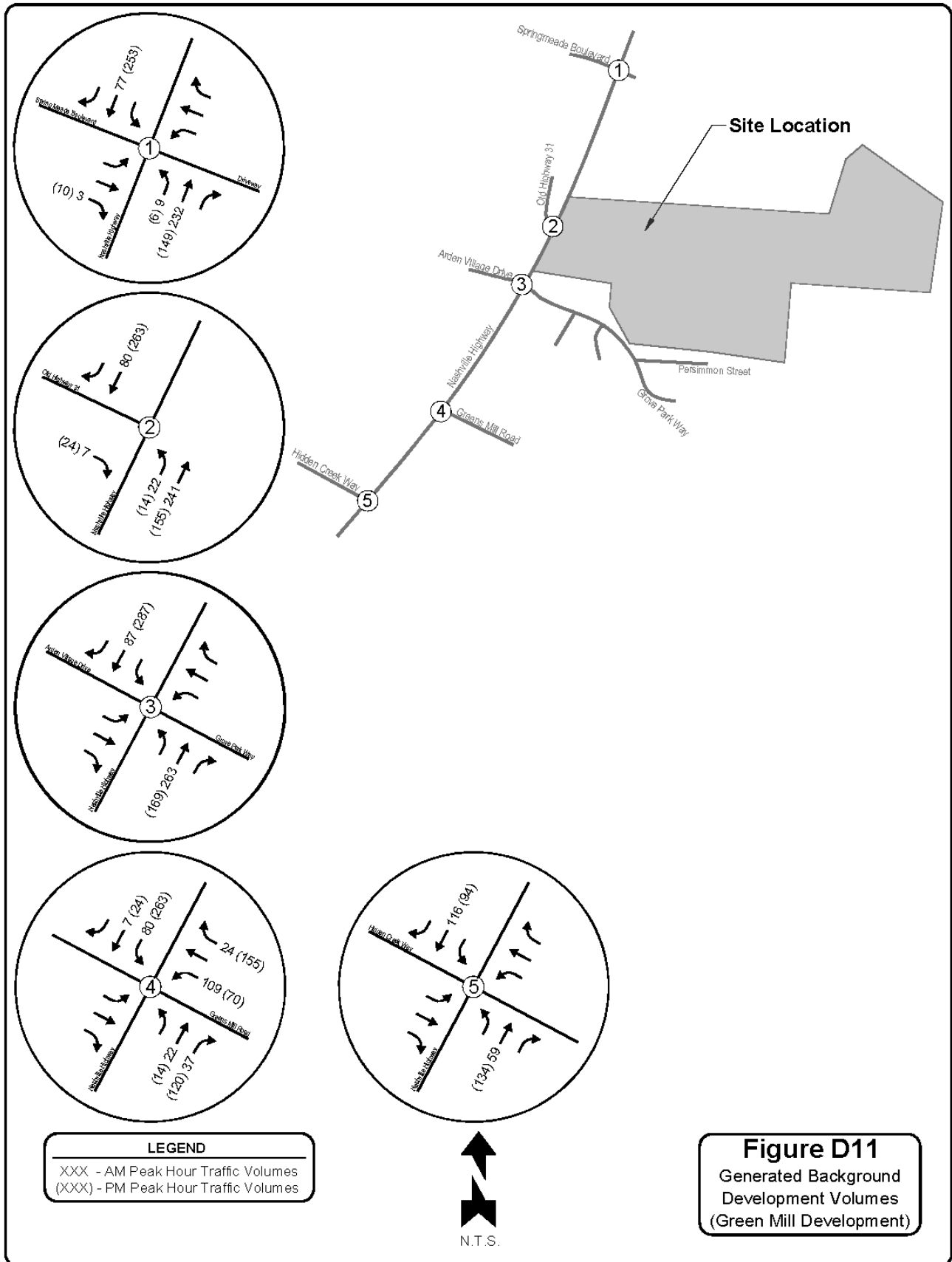


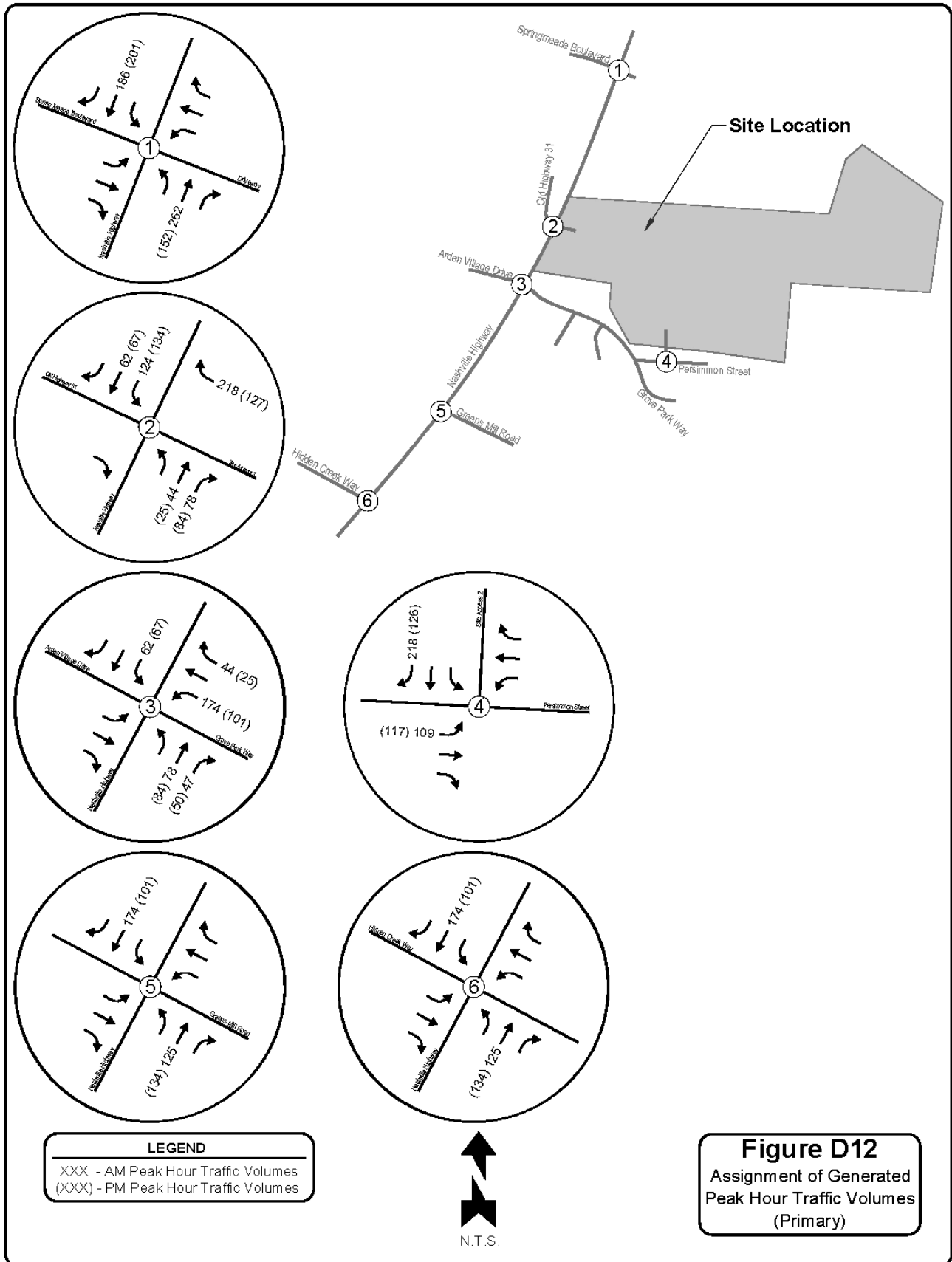


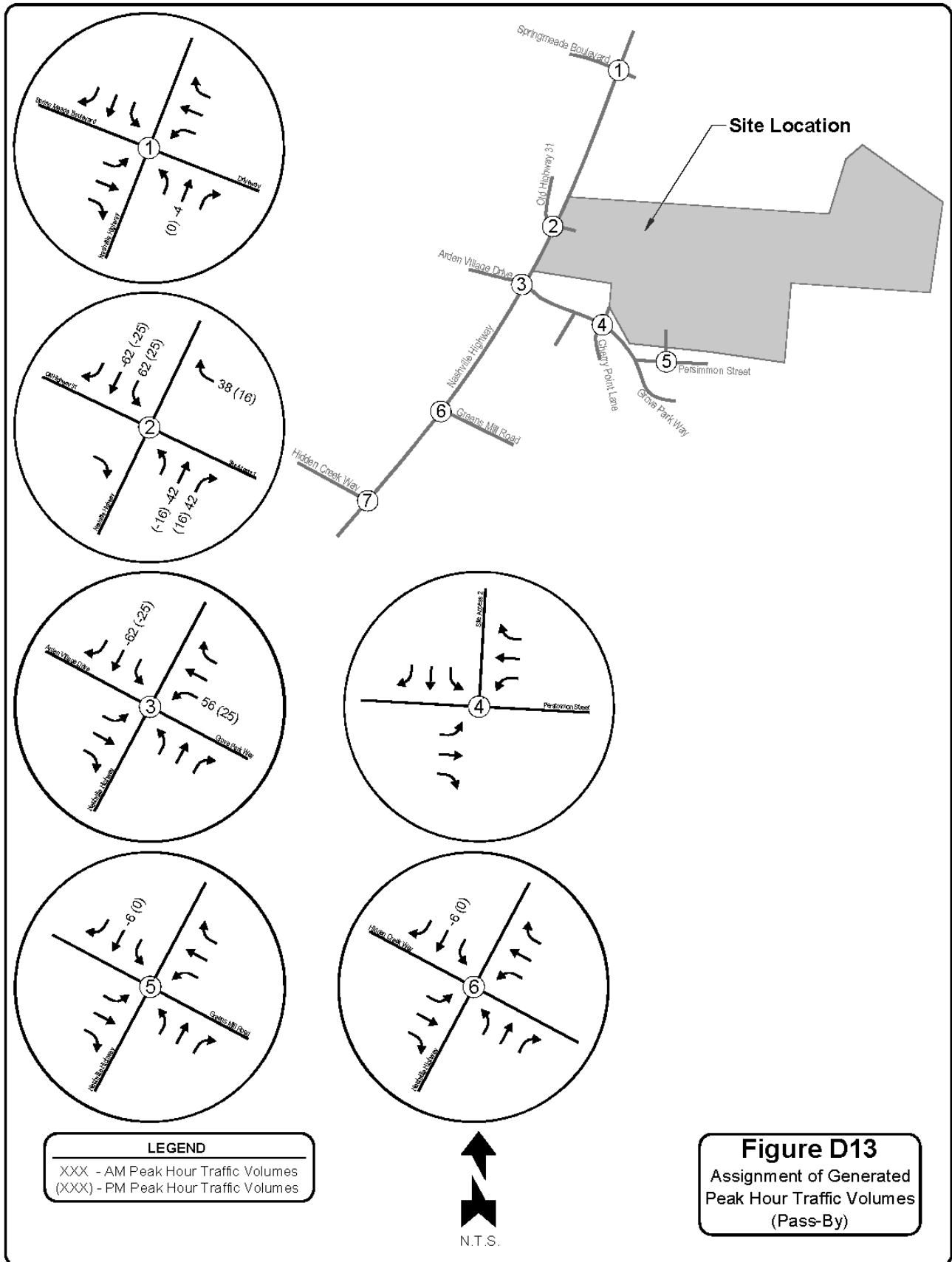


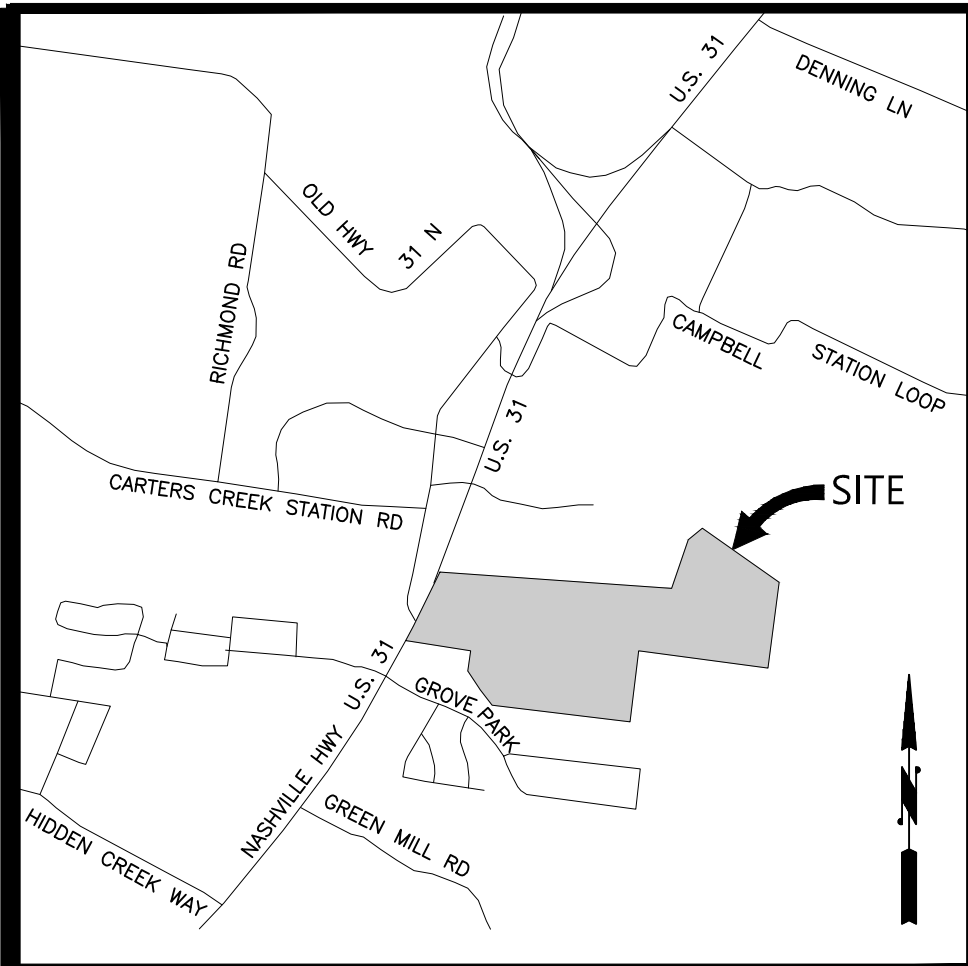








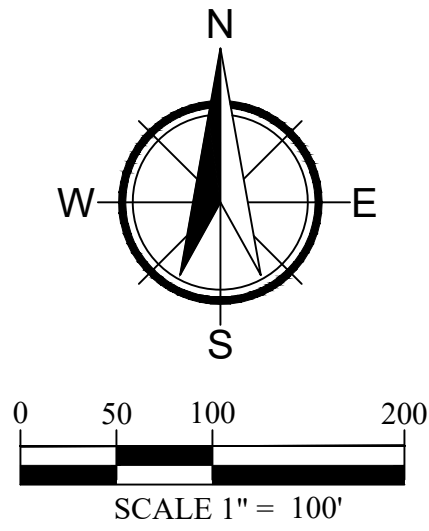




Property: Columbia Nashville Highway, LLC,
Owner: a Delaware Limited Liability Company

Address: 3841 Green Hills Village Drive
Suite 400
Nashville, TN 37215

Total: 4,399,527.0± Sq.Ft.
Acreage: or 101.00 Acres

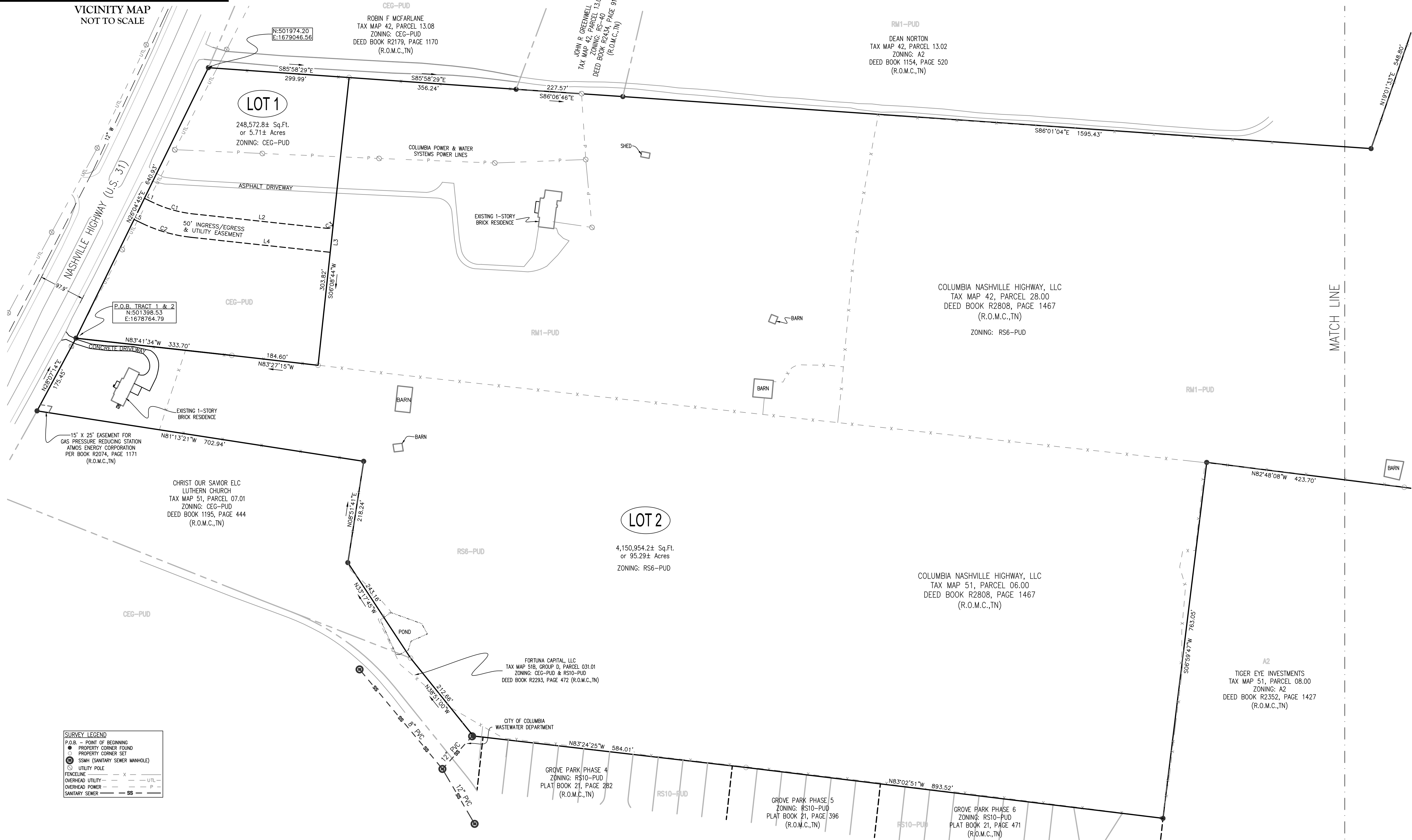


Tennessee State Plane
Coordinate System
Zone 5301, Fipstone 4100,
NAD 83 Datum

Line Table		
Line #	Direction	Length
L1	N63°55'15"W	16.70'
L2	S83°51'16"E	285.60'
L3	S06°08'44"W	62.00'
L4	N83°51'16"W	297.60'
L5	S63°55'15"E	16.70'

Curve Table				
Curve #	Length	Radius	CHORD	CH. LENGTH
C1	93.93'	270.00'	S73°53'15"E	93.46'
C2	111.33'	320.00'	S73°53'15"E	110.77'
C3	18.85'	12.00'	N51°08'45"E	16.97'

VICINITY MAP
NOT TO SCALE



SURVEY LEGEND	
P.O.B. - POINT OF BEGINNING	●
PROPERTY CORNER FOUND	○
PROPERTY CORNER SET	○
SSMH (SANITARY SEWER MANHOLE)	⊙
UTILITY POLE	⊙
FEWELINE	---
OVERHEAD UTILITY	---
OVERHEAD POWER	---
SANITARY SEWER	---



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807 2nd Avenue South
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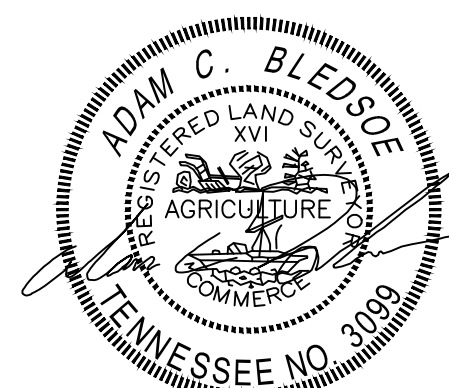
McCLURE
FARMS

MINOR PLAT
2504 & 2524
NASHVILLE HIGHWAY
COLUMBIA, TN 38402
MAURY COUNTY

W&A PROJECT NO.
#20312

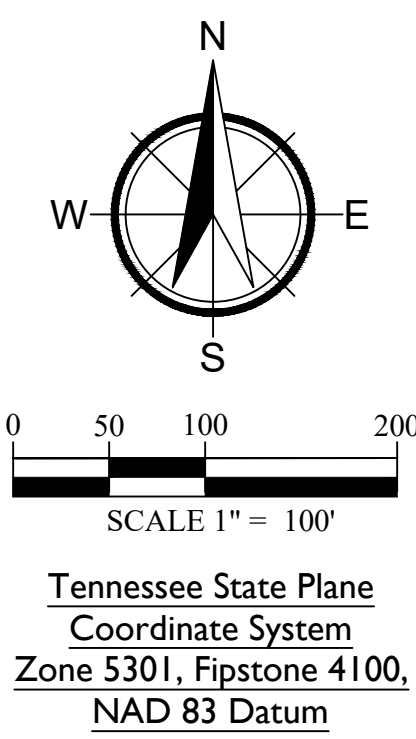
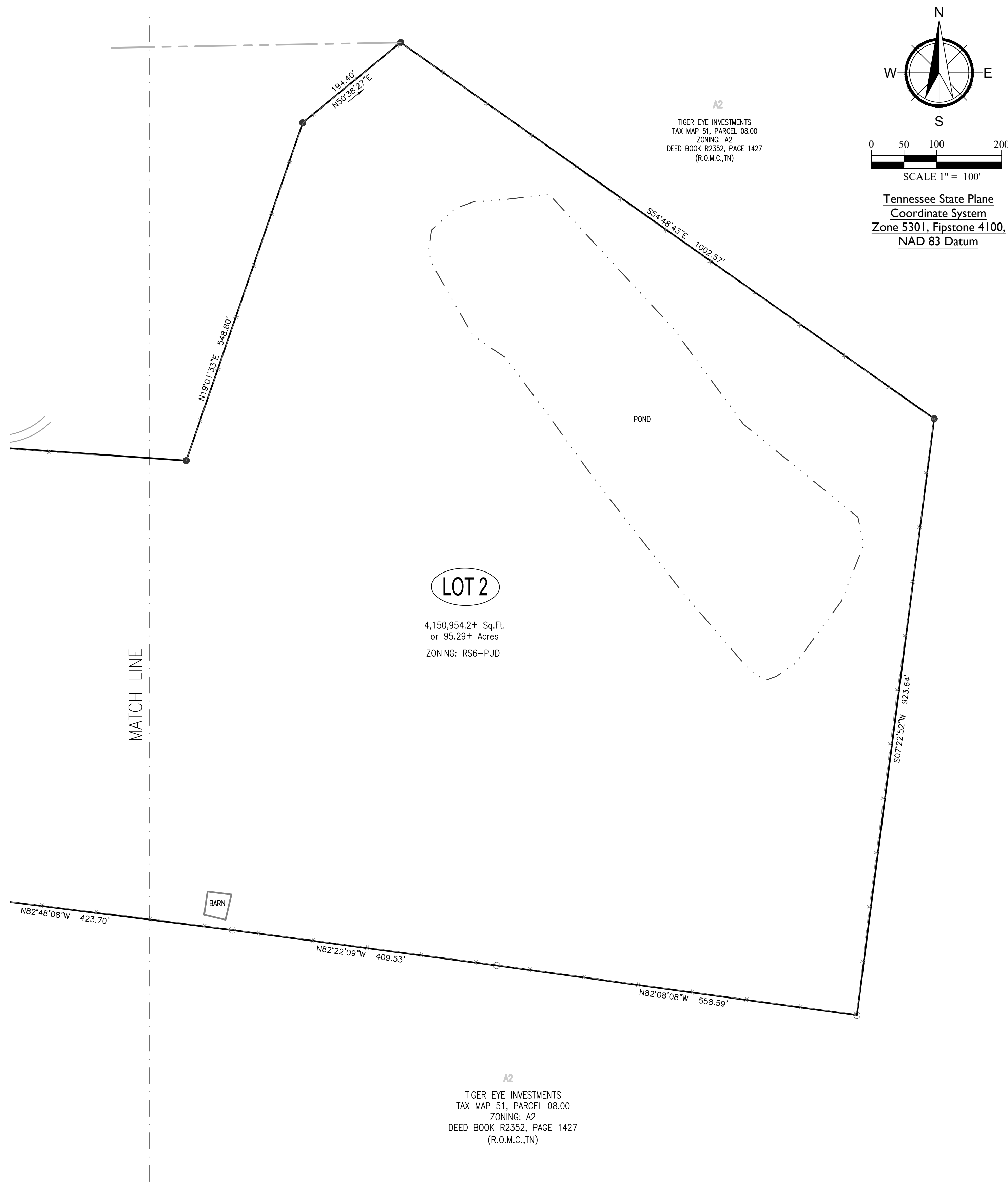
REVISIONS

DATE	COMMENT
01/19/22	Added Ingress/Egress Easement.
01/24/22	Changed drawing scale to 1"=100'.
01/24/22	Removed revoked easements from drawing.
01/24/22	Added certificate of compliance.
01/24/22	Additional utility information added.
07/22/22	Additional utility information added.



DATE: 01/10/2022

SHEET 1 of 2



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 2808, Page 1461, of the Maury County Register's Office, and that I (we) hereby adopt this plan of subdivision with my (our) free consent, establish the minimum building restriction lines, and that offers of irrevocable dedication for all public ways, public easements, utilities, and other facilities have been filed.

Date _____ Columbia Nashville Highway, LLC
a Delaware Limited Liability Company

By: Mac One Realty Managemant, L.P.,
a Tennessee Limited Partnership,
it's Manager

By: The Elizabeth C. McDonald 2014 Trust,
it's General Partner

By: _____
E.H. Camp, III, Trustee

CERTIFICATE OF APPROVAL OF WATER SYSTEM

I hereby certify that the water system(s) outlined or indicated on the final subdivision plat entitled _____ 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, & Agency or
Authorized Approving Agent

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 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, TN

SURVEYOR'S CERTIFICATE

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 ratio 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.

01/31/2022
Date

Adam C. Bledsoe
Adam C. Bledsoe
Tennessee Registered Land
Surveyor #3099

Property: Columbia Nashville Highway, LLC,
Owner a Delaware Limited Liability Company

Address: 3841 Green Hills Village Drive
Suite 400
Nashville, TN 37215

Total 4,399,527.0± Sq.Ft.
Acreage: or 101.00 Acres

NOTES:

- The purpose of this plat is to create two new tracts.
- 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. Distances were corrected for temperature and barometric pressure.
- 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 TDOT Global Positioning System (GPS) Observations and are represented in the Tennessee State Plane Coordinate System; NAD83 (Horizontal) and NAVD 88 (Vertical).
- This survey was made using the latest recorded deeds/plats and based on physical evidence found. No Title Report was furnished to this surveyor; therefore, this survey is subject to the findings of a complete title search.
- The surveyor's liability for this document shall be limited to those parties identified in the certification and does not extend to any unnamed party.
- This is NOT an ALTA/NSPS Land Title Survey.
- All distances shown are in feet and decimals thereof.
- This property is NOT located in an area designated as a "Special Flood Hazard Area" as per the Federal Emergency Management Agency "National Flood Insurance Program" Rate Map No. 47119C0180E. (Zone X), (Map Revised APRIL 16, 2007).
- 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. Special attention has been taken to indicate the approximate nature of the utilities, shown hereon. 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 are in the exact location indicated. Therefore, reliance upon the type, size, and location of utilities shown must 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 three (3), nor no more than ten (10) working days prior to the date of their intent to excavate and to avoid any possible hazard or conflict. (Tennessee One Call: 1-800-351-1111).
- Subject properties are currently zoned RM1-PUD, CEG-PUD, and RS6-PUD per the City of Columbia GIS Mapping.
- All property corners that were set are marked by a 1/2" Rebar with a yellow cap that reads "W&A Eng.", unless otherwise noted.
- Water main location based on City of Columbia Power & Water Systems Water Atlas.

SURVEY LEGEND	
P.O.B. = POINT OF BEGINNING	
● = PROPERTY CORNER FOUND	
○ = PROPERTY CORNER SET	
SSMH (SANITARY SEWER MANHOLE)	
UTILITY POLE	
FENCELINE	— X —
OVERHEAD UTILITY	— UTL —
OVERHEAD POWER	— P —
SANITARY SEWER	— SS —



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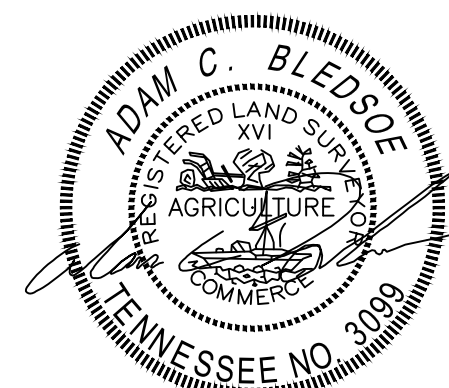
McCLURE
FARMS

MINOR PLAT
2504 & 2524
NASHVILLE HIGHWAY
COLUMBIA, TN 38402
MAURY COUNTY

W&A PROJECT NO.
#20312

REVISIONS

DATE	COMMENT
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07/22/22	Additional utility information added.
.	.
.	.



DATE: 01/10/2022

SHEET 2 of 2

January 20, 2022

W & A Engineering
Mike Donoho
807 2nd Avenue South
Nashville, TN 37210

Re: McClure Farms
2504 & 2524 Nashville Hwy., Columbia, TN
Tax Map 42 Parcel 28.00 and Tax Map 51 Parcel 6.00

Dear Sir:

Columbia Power System has an existing power line near your proposed residential development.

We are willing to serve this residential 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.

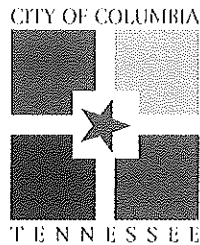
Yours truly,

COLUMBIA POWER SYSTEM



Doug Burgess, P.E.
Vice President of Power Operations

kw



WASTEWATER DEPARTMENT

25 January 2022

Mike Donoho
4101 Charlotte Ave Suite E215
Nashville, TN 37209

RE: McClure Farms Development

Mike,

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.

A handwritten signature in black ink, appearing to read "Donnie Boshers", written in a cursive style.

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department



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

P 931.388.4833
F 931.388.5287
www.cpws.com

March 16, 2021

Mike Donoho
W&A Engineering
(615 - 762 - 9861)
807 2nd Avenue S
Nashville, Tenn. 37210

RE: Water Service Availability for 2524 & 2504 Nashville Hwy.

Dear Mr. Donoho

Thank you for your water availability request on the property listed above. We look forward to working with prospective occupants of this site and providing for their water needs.

Some information relevant is:

- 1) Service would be established at the property line and Columbia Power & Water System (CPWS) maintains an existing 12-inch ductile iron water main that is across from the subject properties on the Northwest side of Nashville Highway.
- 2) The 12 -inch water main would supply potable water & fire protection only to this project. There is a fire hydrant available to this site and the existing 12-inch line is of acceptable size to provide the minimum fire flow that would allow for fire protection at this location.
- 3) If a larger water meter or a second water meter may be required, CPWS would perform a review of a plat and use that information, along with your water demand requirements, to help establish an appropriately-sized tap.
- 4) Tap fees are required for a new tap installation and the fee schedule has been attached to this letter.

- 5) Once the meter size is determined, you will need to pay the appropriate fees and sign up for service through our customer service office located at 201 Pickens Lane, Columbia, TN 38401.

A water tap at this location would be inside the city limits of Columbia and subject to the fees outlined in the attached document. The tap fee schedule also outlines the meter sizes that can be provided. All water taps will be installed by your licensed utility contractor to all relevant CPWS specifications.

A water service drawing has been created from our GIS system and attached for informational purposes. Feel free to submit plans for CPWS review as soon as they are available. If you should have any additional questions, please do not hesitate to let me know.

Sincerely,

Columbia Power & Water Systems

A handwritten signature in black ink, appearing to read "Tommy Pulley". The signature is written in a cursive, slightly slanted style.

Tommy Pulley
Water Distribution Superintendent



Preliminary Plat, Site Development Plan, and PUD Checklist

Development: **McClure Farms**

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

General

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

Lots and Land-Use

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

Structures

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



Grading, Drainage, and Storm

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

Streets, Parking, and Pedestrian Elements

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

Landscaping, Open Space, and Amenities

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

Utilities

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



PUD Specific Items

- ☐ 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:

Jason Dye

Print Name

Signature

12/12/2022

Date



PLANNING COMMISSION
PROJECT DEVELOPMENT APPLICATION

SUBMITTAL REQUIREMENTS

** 1 hard copy of all materials for submittal + PDF copy of submittal on USB thumb drive or CD
Fold hard copy submittals larger than 8½"x11"*

ADDRESS/LOCATION	2504 Nashville Highway - Columbia, Tn. 38401		
	TAX MAP: 51	GROUP:	PARCEL: 6.00
SUMMARY OF NATURE OF REQUEST AND WORK	Preliminary Plat for Phase(s) 1 - 4. McClure Farms. All associated roads, utilities, storm water, etc.		

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

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☐ Sketch Plat – <i>Must be submitted at least two weeks prior to Preliminary Plat submittal</i> ☒ Preliminary Plat ☐ Final Plat ☐ PUD Preliminary Master Plan + Checklist ☐ PUD Final Site Plan + Checklist ☐ Multi-Family Site Plan ☐ Other: _____ <i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i> <i>Freedom Point Elevations</i>	<u>Annexations/Rezoning:</u> ☐ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards <u>Plats/PUDs:</u> • Project Name (include Sections & Phases) McClure Farms _____ • Total Number of Lots 431 _____ • Total acreage 95.29 _____

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.

APPLICANT

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

NAME	Jason Dye	PHONE	615-610-1023
ADDRESS	4101 Charlotte Ave, Suite E215 Nashville, TN. 37209	EMAIL	jdye@waengineering.com

PROPERTY OWNER NAME	Gehan Homes Tennessee, LLC	PHONE	512-330-9366 ext: 4233
ADDRESS	3815 S Capital Texas Hwy Austin, TX. 78704	EMAIL	sbarksdale@gehanhomes.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.

Jason Dye

APPLICANT NAME



APPLICANT SIGNATURE

11-16-2022

DATE

11-16-2022

DATE

PROPERTY OWNER NAME

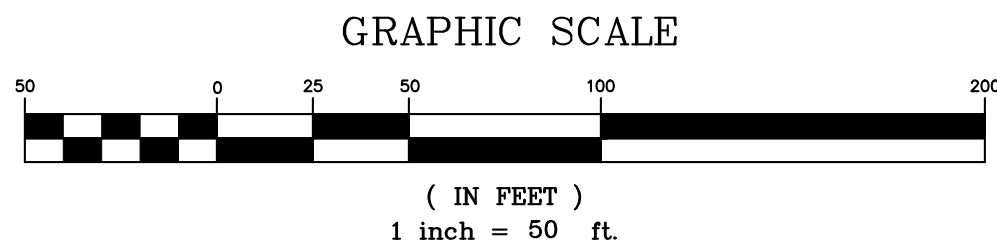
PROPERTY OWNER SIGNATURE

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	
--------------	--



1. All distances were measured with E.D.M. equipment and have been adjusted for temperature and pressure.
2. The property (Boundary) Line Survey exceeds the minimum requirements of an Urban Land Survey Category 1 as per Standards of Practice adopted by the State Board of Examiners for Land Surveyors for the State of Tennessee and the precision of the unadjusted survey is greater than 1 foot in 10,000 feet.
3. Information concerning site utility services and appearances 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 not shown should continue to exist 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 line positions and depths. The location of the existing underground utility lines shown hereon is intended to avoid hazard of unnecessary expense.
4. Information concerning major utilities or appearances 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 construction, signage, parking, noise, vibration, emissions, fire hazards, radiation, illumination, setback provisions, etc., are subject to the City of Columbia's Zoning Regulation as interpreted and regulated by the Department of Planning and Codes.
6. The area of the parcels as shown hereon.

PURPOSE NOTE:
The purpose of this plat is to combine existing 3 tracts into 1 commercial lot, create easements, and dedicate right-of-way.

I, (we) hereby certify that I am (we are) the owner(s) of the property shown and described hereon as evidenced in Book Number R2882, Page 567, 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.

Date _____ Hohenwald Financial Services, LLC _____

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

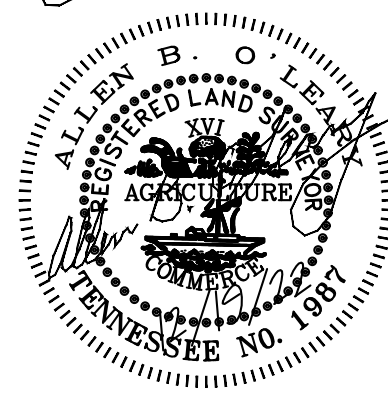
I hereby certify that the subdivision plat shown hereon has been found to comply with the City of Columbia Subdivision Regulations, with the exception of such variances, if any, as are noted in the minutes of the Planning Commission, and that it has been approved for recording in the Office of the County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

Date _____ Secretary, Planning Commission
Columbia, Tennessee

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.

Date 12/19/22 Allen B. O'Leary Allen B. O'Leary TN RLS #1987
Number

TN RLS #1987
Number



Register of Deed Recording Stamp

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

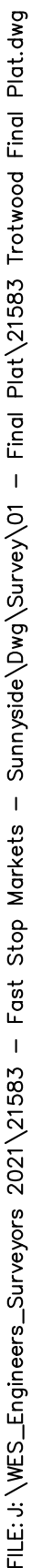


WES
ENGINEERS & SURVEYORS

Client
HOHENWALD FINANCIAL
SERVICES, LLC
108 MILL AVENUE
HOHENWALD, TN 38462

FINAL PLAT
HIGHLAND CONVENIENCE MARKET
4015 TROTWOOD AVENUE, COLUMBIA, TN 38401

[illegible]

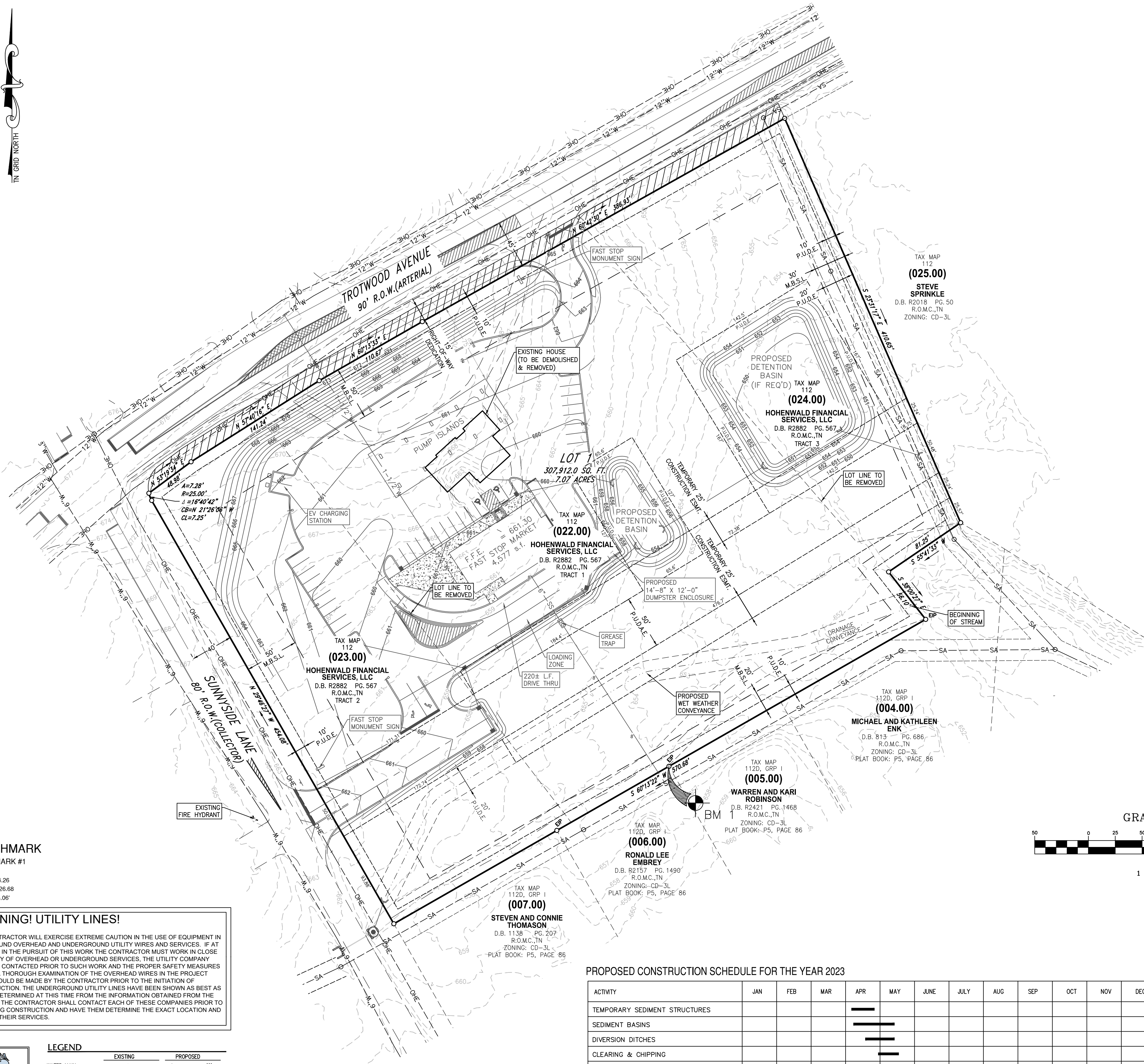
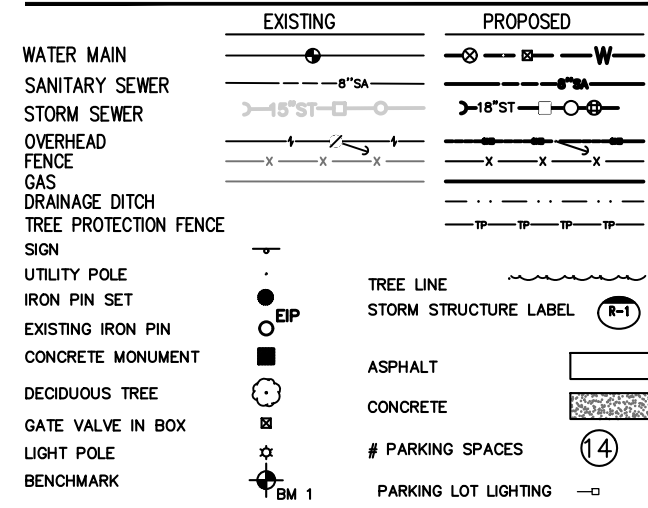


BENCHMARK #1
IRON ROD
N = 459,514.26
E = 1,643,426.68
ELEV = 655.06'

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 ANY WORK AND THE NECESSARY PRECAUTIONS TAKEN. A VISUAL 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.

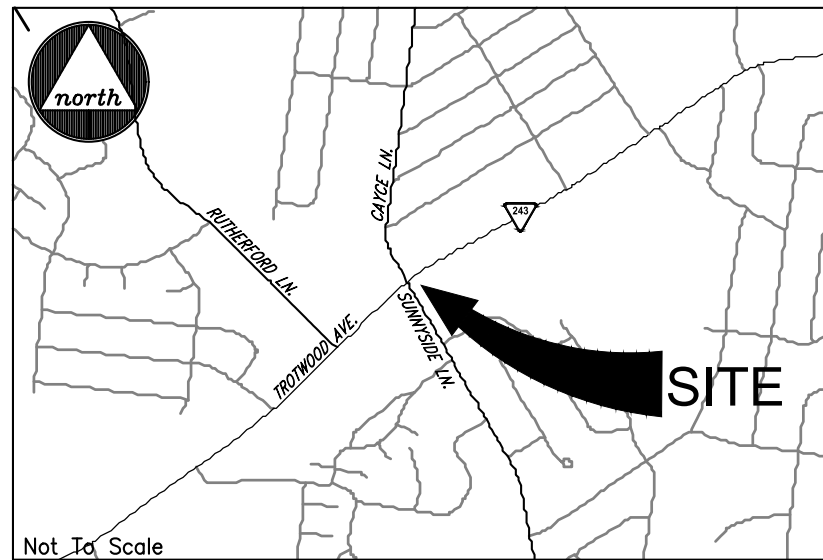
LEGEND



PROPOSED CONSTRUCTION SCHEDULE FOR THE YEAR 2023

ACTIVITY	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
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												

Location Map



Surveyor's Notes

1. All distances were measured with E.D.M. equipment and have been adjusted for temperature and pressure.
2. The property (Boundary) Line Survey exceeds the minimum requirements of an Urban Land Survey Category 1 as per Standards of Practice adopted by the State of Tennessee for Land Surveys 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, zoning, zoning violations, emissions, fire hazards, radiation, illumination, setback provisions, etc., are subject to the City of Columbia's Zoning Regulation as interpreted and regulated by the Department of Planning and Codes.
6. The area of the parcels as shown hereon.
7. This property currently identified as Tax Map No. 112 Parcel No. 022.00, 023.00, 024.00, Maury County. For designation shown thus () indicates Parcel Numbers for said map.
8. Plat reference: N/A
9. Deed reference: Book R2882 Page 567
10. Bearings based on: Tennessee State Plane, Fipzone 4100.
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 survey 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 other 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. 4711SC0260E, dated April 16, 2007, and shown hereon graphically.
17. All public utility and drainage easements located on proposed lots are to be maintained by the individual property owner for said lot.

PARCEL NUMBER:
TAX MAP 112, PCL 022.00, 023.00, 024.00

DEED BOOK:
R2882, PAGE 567

PARCEL ADDRESS:
108 MILL AVENUE
HOLMWOOD, OH 43040

EXISTING ZONING: _____

BUILDING SETBACKS:

FRONT - 50'
SIDE - 10'

ACREAGE OF PARCEL:

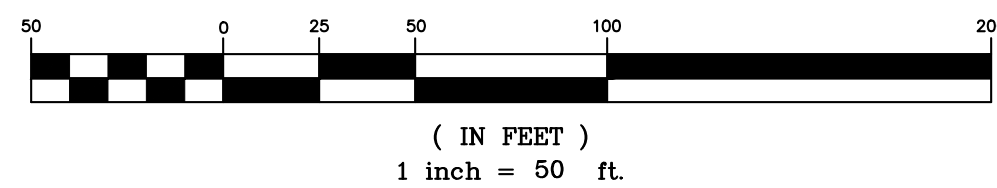
±7.07 ACRE (307,912.0 SQFT) TO
±0.24 ACRE (10,247.2 SQFT) R.C.

PROPERTY OWNER:
HOHENWALD FINANCIAL SERVICES, LLC

HOHENWALD, TN 38462

PURPOSE NOTE:
The purpose of this plat is to combine existing 3 tracts into 1 commercial lot, create easements, and dedicate right-of-way.

GRAPHIC SCALE



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.

Date 12/19/22 Allen B. O'Leary TN RLS #1987
Number



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



Client
HOHENWALD FINANCIAL
SERVICES, LLC
108 MILL AVENUE
HOHENWALD, TN 38462

PRELIMINARY PLAT
HIGHLAND CONVENIENCE MARKET
4015 TROTWOOD AVENUE, COLUMBIA, TN 38401

ob. no.	21583	Down:	EB	REVISIONS	DATE
		Checked:	AO		
Scale:		Approved:	AO		
Vertical:		Date:	12-19-2022		
Horizontal:					



December 19, 2022

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

RE: Project Name: Highland Convenience Market, Final Plat
City of Columbia Planning Commission Submittal

On behalf of Hohenwald Financial Services, LLC, the owner for the proposed commercial lot, **WES Engineers & Surveyors** would like to submit this Final Plat 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

A handwritten signature in black ink that reads 'Allen B. O'Leary'. The signature is written in a cursive style with a large, looping 'L' at the end.

Allen B. O'Leary, RLS
Principal



December 19, 2022

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

RE: Project Name: Highland Convenience Market, Preliminary Plat
City of Columbia Planning Commission Submittal

On behalf of Hohenwald Financial Services, LLC, the owner for the proposed commercial lot, **WES Engineers & Surveyors** would like to submit this Preliminary Plat 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

A handwritten signature in black ink that reads 'Allen B. O'Leary'. The signature is written in a cursive style with a large, looping 'L' at the end.

Allen B. O'Leary, RLS
Principal



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	4015 Trotwood Ave, Columbia, TN		
	TAX MAP:112	GROUP:	PARCEL: 022.00, 023.00, 024.00
SUMMARY OF NATURE OF REQUEST AND WORK	Approval to combine 3 existing tracts into 1 commercial lot and dedicate right-of-way.		

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

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☒ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Multi-Family Site Plan ☐ Other:	<u>Annexations/Rezoning/PUD's:</u> ☐ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards with check list completed ☐ Columbia Water System Availability Letter <u>Plats/PUDs:</u> ☒ Project Name (include Sections & Phases) Highland Convenience Market ☒ Total Number of Lots 1 ☒ Total acreage ±7.07

**File naming nomenclature examples:*

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

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

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

APPLICANT

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

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

PROPERTY OWNER NAME	Hohenwald Financial Services, LLC	PHONE	931-796-2274
ADDRESS	108 Mill Ave, Hohenwald, TN	EMAIL	bobby@highlandcorp.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.

SETH BRANKS
APPLICANT NAME


APPLICANT SIGNATURE

12/14/2022
DATE

HOHENWALD FINANCIAL SERVICES, LLC
PROPERTY OWNER NAME


PROPERTY OWNER SIGNATURE

12/14/2022
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			



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	4015 Trotwood Ave, Columbia, TN		
	TAX MAP:112	GROUP:	PARCEL: 022.00, 023.00, 024.00
SUMMARY OF NATURE OF REQUEST AND WORK	Approval to combine 3 existing tracts into 1 commercial lot and dedicate right-of-way.		

DATE OF PRE-APPLICATION CONFERENCE		<i>Pre-application meetings are scheduled for Wednesdays.</i>
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SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☒ Preliminary Plat ☐ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Multi-Family Site Plan ☐ Other:	<u>Annexations/Rezoning/PUD's:</u> ☐ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards with check list completed ☐ Columbia Water System Availability Letter
<i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	<u>Plats/PUDs:</u> ☒ Project Name (include Sections & Phases) Highland Convenience Market ☒ Total Number of Lots 1 ☒ Total acreage ±7.07

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

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

APPLICANT

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

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

PROPERTY OWNER NAME	Hohenwald Financial Services, LLC	PHONE	931-796-2274
ADDRESS	108 Mill Ave, Hohenwald, TN	EMAIL	bobby@highlandcorp.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.

SETH BLANKS
APPLICANT NAME


APPLICANT SIGNATURE

12/14/2022
DATE

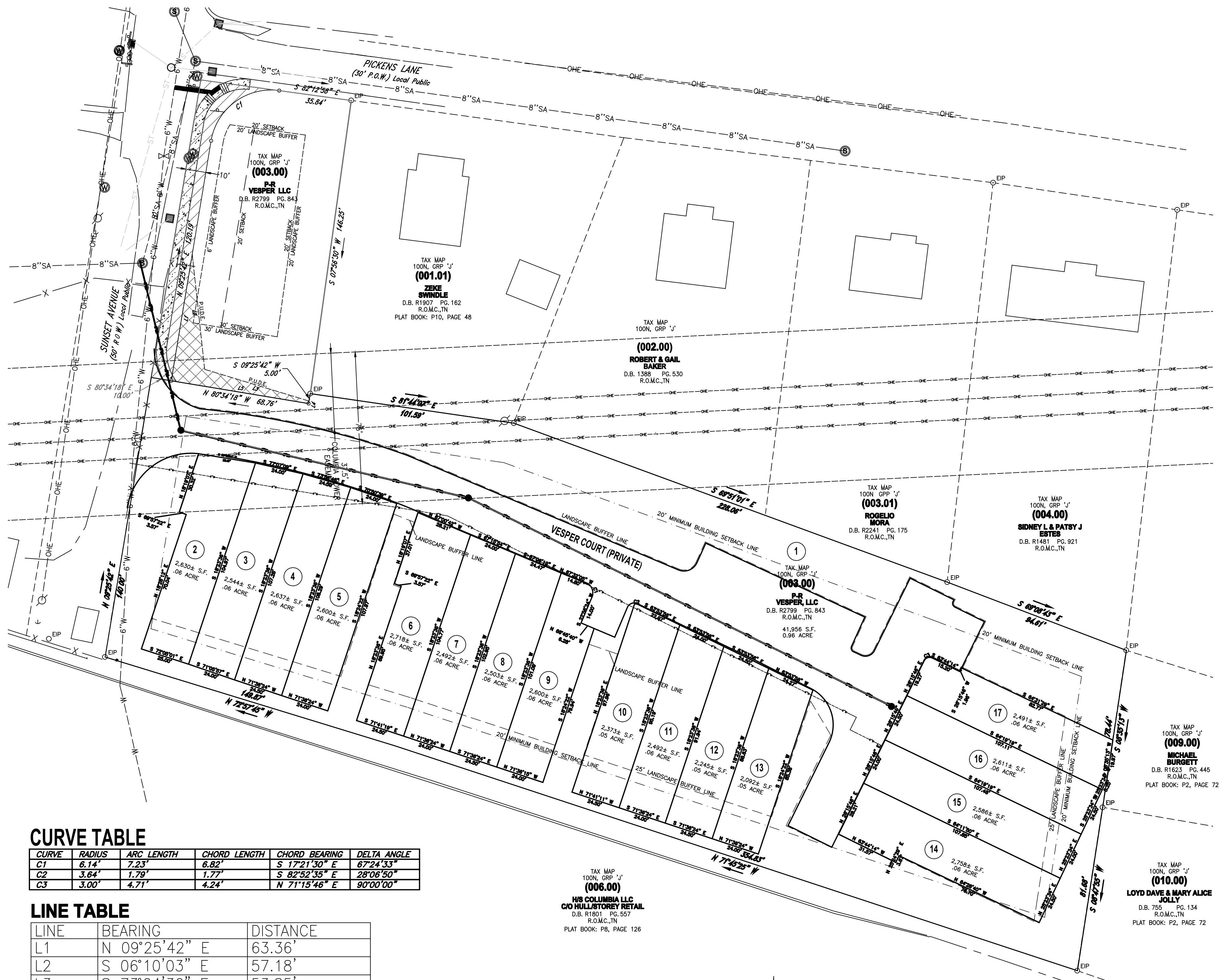
HOHENWALD FINANCIAL SERVICES, LLC
PROPERTY OWNER NAME


PROPERTY OWNER SIGNATURE

12/14/2022
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			



CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	6.14'	7.23'	6.82'	S 17°21'30" E	67°24'33"
C2	3.64'	1.79'	1.77'	S 62°52'35" E	28°06'50"
C3	3.00'	4.71'	4.24'	N 71°15'46" E	90°00'00"

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 09°25'42" E	63.36'
L2	S 06°10'03" E	57.18'
L3	S 73°04'36" E	53.85'
L4	S 09°25'42" W	1.26'
L5	N 80°34'18" W	68.76'

OPEN SPACE NOTE

ALL OPEN SPACE AREA IS TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION CREATED FOR THE PURPOSE OF MAINTAINING ALL COMMON OPEN SPACE, PRIVATE ROADWAYS, AND GROUNDS INCLUDING THE DETENTION AREAS SHOWN ON THIS PLAT. ALL OPEN SPACE AREA IS CONSIDERED PUBLIC UTILITY, DRAINAGE, AND ACCESS EASEMENT.

PURPOSE NOTE

The purpose of this plat is to create 16 residential lots.

GENERAL NOTE

The recording of this plat vacates, voids, and supercedes lot 2 on previous plat of record, P10, Page 48.

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 16, Tennessee Code Annotated, and that the ratio of precision is greater than or equal to 1:10,000.

Date _____ Number _____

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 OF WATER SYSTEM

I, (we) hereby certify that the water system(s) outlined or indicated on this final subdivision plat entitled "Vesper Court, Phase 1, Rev. 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 _____ Columbia Power & Water Systems
Columbia, Tennessee

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 has been filed to guarantee said installation.

Date _____ Director of Wastewater Department
Columbia, Tennessee

CERTIFICATE OF APPROVAL FOR SUBDIVISION NAME AND STREET NAMES

Subdivision name and street names approved by the City Engineering Department and by E-911 Maury County.

Date _____ Maury County E-911
Columbia, Tennessee

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 R2799, Page 843, 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.

Date _____ PRINTED NAME/TITLE _____

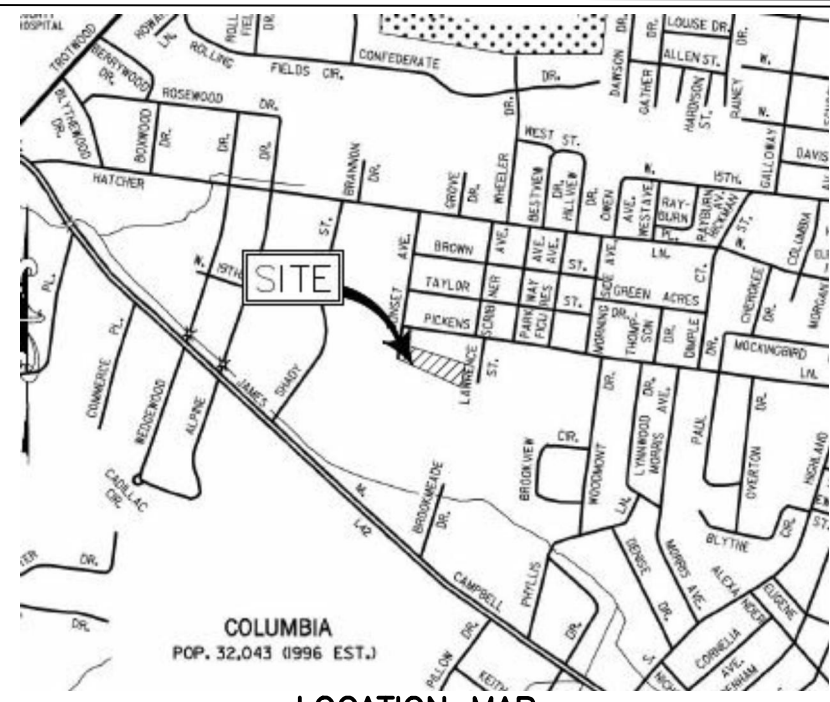
SIGNED P-R VESPER, LLC

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

Register of Deed Recording Stamp



Notes

- All distances were measured with E.D.M. equipment and have been adjusted for temperature and pressure.
- The property (Boundary) Line Survey exceeds the minimum requirements of an Urban Land Survey Category 1 as per Standards of Practice adopted by the State Board of Examiners for Land Surveyors for the State of Tennessee, and the precision of the unadjusted survey is greater than 1 foot in 10,000 feet.
- Information concerning site utility services and appurtenances shown hereon is based on visible evidence noted during the survey, information provided by utility representatives or information shown on original construction plans by other. Information and location of service lines on site should be considered approximate and there may be underground utility lines that are not shown on the survey. Owner(s) and contractor(s) should assume responsibility of locating all underground utility service lines prior to any construction, excavation or any disturbance of the existing ground elevation to avoid hazard of unnecessary expense.
- Information concerning major utilities or appurtenances shown hereon are based on visible evidence noted during the survey or information provided by utility representatives. Verification of existence, size, location, depth and availability of service should be confirmed by local utility agencies.
- The property shown hereon is located within the City of Columbia, Maury County, TN. All matters pertaining to construction, use location of improvements, signage, parking, noise, vibration, emissions, fire hazards, radiation, illumination, setback provisions, etc., are subject to the City of Columbia's Zoning Regulation as interpreted and regulated by the Department of Planning and Codes.
- The area of the parcels as shown hereon is ±0.23 Acres.
- This property currently identified as Tax Map No. 100N, Group "J", Parcel No. 003.00, Maury County. For designation shown thus () indicates Parcel Numbers for said map.
- Plot reference: P10, Page 48
- Deed reference: Book R2799, Page 843
- Bearings based on: Tennessee State Plane, Fipzone 4100.
- This drawing was prepared in accordance with our field survey notes. It shows improvements as they exist to the best of our knowledge, but is not guaranteed to be correct in each and every detail.
- This survey was prepared from current deeds of record and does not represent a title search or a guarantee of title, and is subject to any state of facts a current and accurate search may reveal.
- This survey was prepared for the exclusive use of the person, persons, or entity, if any, named on the certification hereon. Said certificate does not extend to any unnamed person without an express re-certification by the surveyor naming said person.
- The certification as provided on this survey, is purely a statement of professional opinion based on knowledge, information and belief, based on existing field evidence and documentary evidence provided by others.
- The certification is not an expressed or implied warranty or guarantee.
- 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. 47119C0285E, dated April 16, 2007, and shown hereon graphically.
- All public utility and drainage easements located on proposed lots are to be maintained by the individual property owner for said lot.
- There exists a P.U.D.E. that is 10' on all property lines parallel to and abutting roads and 5' on all interior lot lines

Legend

○ IPS	Iron Rod Found	⬆	Bench Mark	⬆	Electric Riser	⬆	Power Pole
● P.P.	Iron Rod Set	⬆	Stake Found	⬆	Telephone Riser	⬆	Flag Pole
⊙ P.P.F.	Iron Pipe Found	⬆	Minor Contour Line	⬆	Telephone Booth	⬆	Guy Wire
⊙ AXLE	Axle Found	⬆	Water Meter	⬆	Gas Meter	⬆	Mailbox
⊙ CCM	Concrete Monument	⬆	Water Valve	⬆	Gas Valve	⬆	Parking Block
⊙ P.K.F.	Concrete Monument Existing	⬆	Water Reducer	⬆	Telephone Manhole	⬆	Light Pole
⊙ P.K.S.	PK Nail Set	⬆	Clean Out	⬆	Water Manhole	⬆	Satellite Dish
⊙ R.R.S.F.	Railroad Spike Found	⬆	Sanitary Sewer Manhole	⬆	Electric Manhole	⬆	Handicap Parking
⊙ R.R.S.S.	Railroad Spike Set	⬆	Storm Sewer Manhole	⬆	Electric Meter	⬆	Water Spigot
		⬆		⬆	Cable Riser	⬆	Ballard
---	Adjoining Property Line	---	Edge of Water	---	Overhead Electric Line	---	Overhead Telephone Line
---	Subject Property Line	---	Ditch / Creek Centerline	---	Overhead Telephone Line	---	Underground Utility Line
---	Easement Line	---	Minor Contour Line	---	Underground Cable Line	---	Underground Telephone Line
---	Building Setback Line	---	Centerline	---	Sanitary Sewer Line	---	Forced Main Line
---	Centerline	---	Edge of Pavement	---	Water Line	---	
---	Edge of Gravel	---	Fence Line	---	Storm Sewer Line	---	
---	Landscape	---	Woods / Tree Line	---	Overhead Utility Line	---	
---		---		---	Overhead Cable Line	---	



VESPER COURT

FINAL PLAT RESUBDIVISION OF LOT 2

CITY OF COLUMBIA, MAURY COUNTY TENNESSEE

REVISIONS

DESIGNED BY:

DRAWN BY:

APPROVED BY:

SCALE: AS NOTED

DATE: DECEMBER 19, 2022

JOB NO. WK. ORDER
19-100 001

SHEET NO.

1 OF 1



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 of submittal on USB thumb drive or CD
Fold hard copy submittals larger than 8½"x11"*

ADDRESS/LOCATION	Vesper Court and Sunset Avenue		
	TAX MAP: 100N	GROUP: J	PARCEL: 03.00
SUMMARY OF NATURE OF REQUEST AND WORK	FINAL PLAT APPROVAL FOR VESPER COURT		

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

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☐ Sketch Plat – <i>Must be submitted at least two weeks prior to Preliminary Plat submittal</i> ☐ Preliminary Plat ☒ Final Plat ☐ PUD Preliminary Master Plan + Checklist ☐ PUD Final Site Plan + Checklist ☐ Multi-Family Site Plan ☐ Other: <i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i> <i>Freedom Point Elevations</i>	<u>Annexations/Rezoning:</u> ☐ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards <u>Plats/PUDs:</u> • Project Name (include Sections & Phases) Vesper Court Phase One, Resub. Lot 2 _____ • Total Number of Lots 17 LOTS _____ • Total acreage 1.89 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.

APPLICANT

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

NAME	Civil Design Consultants, LLC		615-638-8207
ADDRESS	8170 Coley Davis Rd., Nashville TN		jared@civilconsultants.net

PROPERTY OWNER NAME	P-R Vesper LLC	PHONE	615-585-7850
ADDRESS	1711 3rd Ave N. Unit A	EMAIL	blakeseeberger@pentagonholdings.com

Nashville, TN 37208

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.

Civil Design Consultants, LLC
APPLICANT NAME



APPLICANT SIGNATURE

12-19-2022

DATE

P-R Vesper, LLC
PROPERTY OWNER NAME



PROPERTY OWNER SIGNATURE

12/19/2022

DATE

STAFF USE ONLY

DOCKET NO.	22-0328	FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS			
DATE OF PUBLIC NOTICES IN DAILY HERALD			
BOARD ACTION			

Receipt Date: 12/19/2022

City Of Columbia
700 North Garden Street
Columbia, TN 38401
(931) 560-1500
Receipt Number: 10087698

Miscellaneous Receipt

Name: P-R VESPER LLC

Code: 206-ZONING PERMITS AND FEES

Amt: \$255.00

MR #: 10069654

Description: FINAL PLAT VESPER CT PC 2/8/2023

Reference:

Notes:

GL Account	Description	Amount
110-32660-	Zoning Permits & Fees	255.00

Payment Information

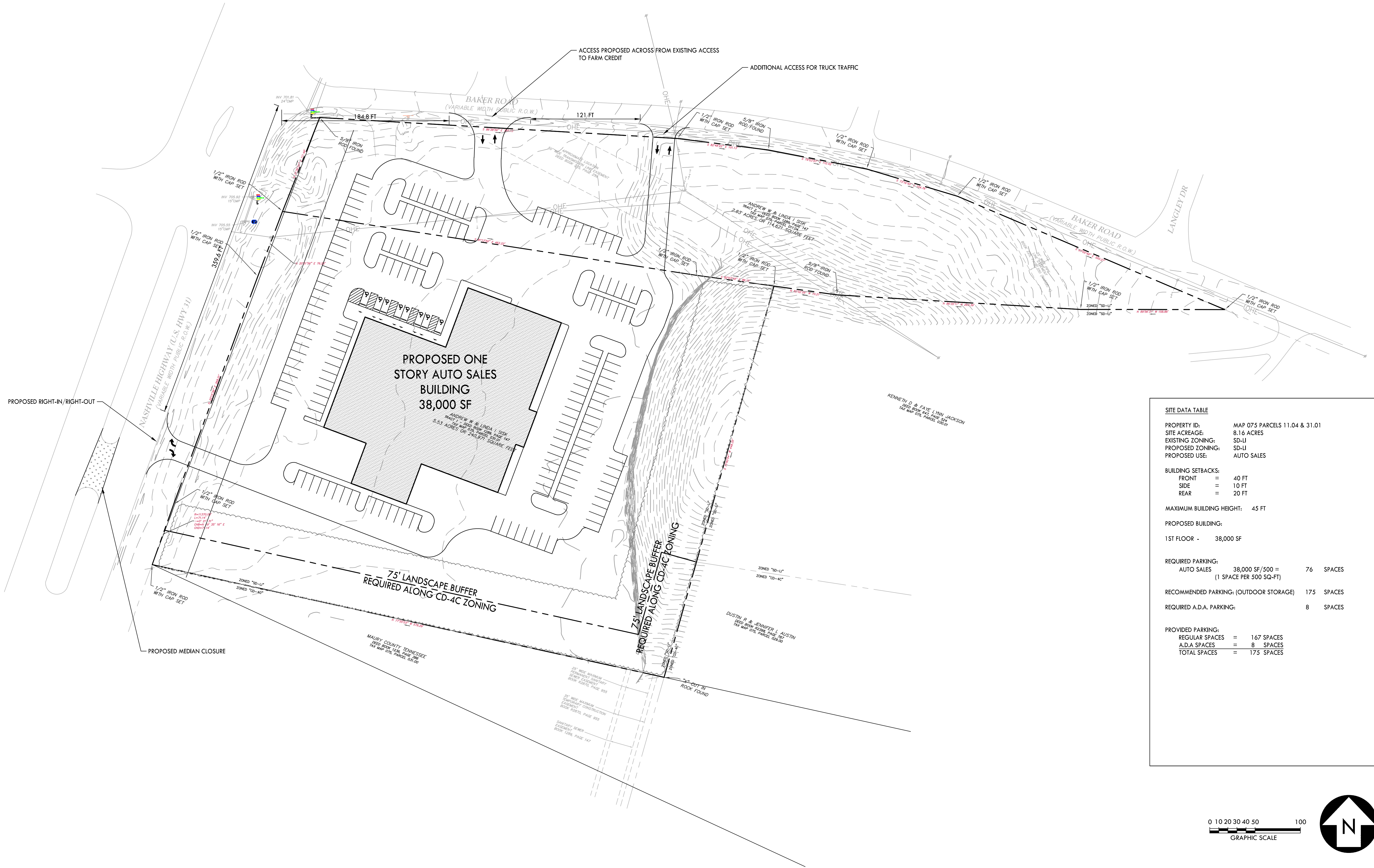
Check	1130213	\$240.00	Paid By: P-R VESPER LLC
Cash	1419	\$15.00	Paid By: CIVIL DESIGN CONSULTANTS

Amount Tendered:	\$255.00
Total Paid:	\$255.00
Change:	\$0.00

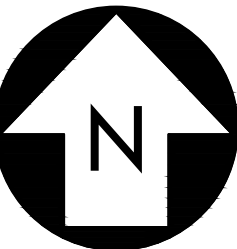
Collecting Official, City Of Columbia

☐ Voided
Batch: SH - 12/19/2022
12/19/2022 12:51 Page 1 of 1

220328



SITE DATA TABLE			
PROPERTY ID:		MAP 075 PARCELS 11.04 & 31.01	
SITE ACREAGE:		8.16 ACRES	
EXISTING ZONING:		SD-LI	
PROPOSED ZONING:		SD-LI	
PROPOSED USE:		AUTO SALES	
BUILDING SETBACKS:			
FRONT	=	40 FT	
SIDE	=	10 FT	
REAR	=	20 FT	
MAXIMUM BUILDING HEIGHT:		45 FT	
PROPOSED BUILDING:			
1ST FLOOR -		38,000 SF	
REQUIRED PARKING:			
AUTO SALES	38,000 SF/500 =	76	SPACES
	(1 SPACE PER 500 SQ-FT)		
RECOMMENDED PARKING: (OUTDOOR STORAGE)		175	SPACES
REQUIRED A.D.A. PARKING:		8	SPACES
PROVIDED PARKING:			
REGULAR SPACES	=	167 SPACES	
A.D.A. SPACES	=	8 SPACES	
TOTAL SPACES	=	175 SPACES	



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



McNabb Auto Dealership
COLUMBIA, TN

REVISIONS		DATE	
No.			

12/19/22 #22145

C1.0
PRELIMINARY SITE
LAYOUT PLAN

December 19, 2022

**McNabb Auto Dealership
Nashville Hwy & Baker Rd Intersection
Access Exception Request**



To Whom It May Concern,

With the proposed 38,000 sf auto dealership located at the southeast quadrant of the Nashville Highway & Baker Rd intersection, the applicant is requesting 3 points of access to the property.

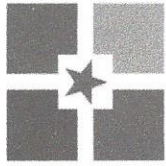
- A new right-in-right-out is proposed on Nashville Highway to assist with traffic turning into the property.
- A new full access on Baker Rd across from the existing entrance to the Farm Credit building.
- A new full access on Baker Rd further east than the aforementioned access point to assist with truck access.

As an auto sales dealership, providing adequate truck maneuvering from the public right-of-way to the property is crucial in delivering automobile inventory. Those deliveries are anticipated to be predominantly made from northbound Nashville Highway traffic. Having a right-in/right-out along Nashville Highway and a second eastern entry along Baker Road will make the ingress and egress much more efficient and safer for large scale vehicles. Allowing these access points will also limit the truck conflict at the Baker Rd and Nashville Highway intersection.

We are requesting an exception to the driveway distance requirement along Baker Road from the Nashville Highway intersection so that the western proposed access can line up with the nearby existing access to the Farm Credit building to the north. We feel that lining these entrances up would produce a safer design than having entrances staggered from each other at the prescribed distance from Nashville Highway.

Not having access to Nashville Highway would be an undue hardship due to the nature of the business being proposed. The auto dealership brand requires access to the property from the front of the building, which in this case will be Nashville Highway. If access was limited to Baker Road, truck turning within the site would be limited given the close proximity of the access points proposed along Baker Road. There is significant topography and existing electric lines that make access difficult further east down Baker Road.

We believe that these requests have not been self created, and that granting access would not be detrimental to life, safety, and public welfare.



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	Nashville Hwy, SE quadrant of Baker Rd & Nashville Hwy		
	TAX MAP: 075	GROUP:	PARCEL: 11.04 & 31.01
SUMMARY OF NATURE OF REQUEST AND WORK	Requested exception from access requirements. Requesting RIRO access on Nashville Hwy (31) Requesting two access points on Baker Rd. (exceeding max of 2 total) (one exceeding the minimum spacing from arterial)		

DATE OF PRE-APPLICATION CONFERENCE	12/7/2022	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: Access Exception <i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	<u>Annexations/Rezoning/PUD's:</u> ☐ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards with check list completed ☐ Columbia Water System Availability Letter <u>Plats/PUDs:</u> ☒ Project Name (include Sections & Phases) McNabb Auto Dealership ☒ Total Number of Lots 1 ☒ Total acreage 8.16 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 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	Adam Crunk, PE - Crunk Engineering LLC	PHONE	615-873-1795
ADDRESS	7112 Crossroads Blvd. Suite 201 Brentwood, TN 37027	EMAIL	adam@crunkeng.com

PROPERTY OWNER NAME	Andrew & Linda Sisk	PHONE	931-224-0232
ADDRESS	PO Box 317 Columbia, TN 38402	EMAIL	awsisk1@hotmail.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.

Adam Crunk, PE		12/16/2022
APPLICANT NAME	APPLICANT SIGNATURE	DATE
		12-16-2022
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			

HONEY FARM TOWNHOMES

2248 NASHVILLE HIGHWAY, COLUMBIA, TN 38401

PRELIMINARY MASTER DEVELOPMENT PLAN

GENERAL INFORMATION

DEVELOPER

NAME:
ADDRESS:
Contact:
Phone:

OWNER

NAME: CHARLES RAINES & J. D. EATHERLY
ADDRESS: P.O. BOX 1715 SPRING HILL, TN 37174
Contact: RAINES.MONICA@ICLOUD.COM
Phone: 615-456-7098

CIVIL ENGINEER

Crunk Engineering LLC
7112 Crossroads Boulevard, Suite 201
Brentwood, TN 37027
Contact: Adam Crunk, PE
Phone: 615.873.1795
Email: adam@crunkeng.com



LOCATION MAP
NOT TO SCALE

Sheet List Table	
Sheet Number	Sheet Title
C0.0	COVER SHEET
C1.0	OVERALL SITE LAYOUT PLAN
C1.1	SITE LAYOUT PLAN
C1.2	SITE LAYOUT PLAN
C2.0	OVERALL GRADING, DRAINAGE, AND UTILITY PLAN
C2.1	GRADING, DRAINAGE, AND UTILITY PLAN
C2.2	GRADING, DRAINAGE, AND UTILITY PLAN
L1.0	LANDSCAPE PLAN

SITE DATA TABLE	
PROJECT: HONEY FARM TOWNHOMES	
ADDRESS: NASHVILLE HWY 2248	
PARCEL ID: 051 05800 000	
SITE ACREAGE: 25.87 AC	
EXISTING ZONING: PUD-R	
PROPOSED ZONING: PUD-R	
PROPOSED USE: TOWNHOMES	
PROPOSED LOTS:	
SHALLOWFORD 1A -	35
SHALLOWFORD 1B -	32
MCCALLIE -	134
SHALLOWFORD 2 -	4
TOTAL =	205
BUILDING HEIGHT:	35 FT
LOT WIDTH:	18 FT MIN/180FT MAX
FRONT YARD:	
PRIMARY:	35 FT
SECONDARY:	15 FT
SIDE SETBACK:	10 FT MIN/24 FT MAX
REAR SETBACK:	10 FT MIN
REQUIRED CIVIC USE SPACE:	5% OF TOTAL AREA
PROVIDED CIVIC USE SPACE:	1.29 AC
	5.6%
	1.46 AC

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



HONEY FARM TOWNHOMES

COLUMBIA, TN

REVISIONS		DATE				
No.						
12/19/22						22135

C0.0
COVER SHEET

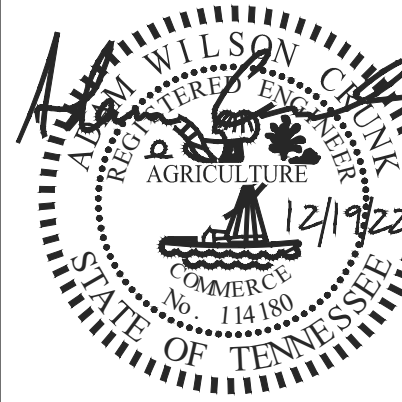
REFER TO SHEET C1.1
FOR DETAILED INFORMATION
IN THIS AREA.

REFER TO SHEET C1.2
FOR DETAILED INFORMATION
IN THIS AREA.

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REAR SETBACK:	10 FT MIN
REQUIRED CIVIC USE SPACE:	5% OF TOTAL AREA
PROVIDED CIVIC USE SPACE:	1.29 AC
	1.46 AC

- FLOOD HAZARD NOTE:
1. THE SUBJECT PROPERTY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD ZONE ACCORDING O PANEL NO. 47119C0180E OF THE F.E.M.A. FLOOD INSURANCE RATE MAPS FOR MAURY COUNTY, TENNESSEE, DATED 4/15/2007

CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
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(615) 873-1795
WWW.CRUNKENG.COM



HONEY FARM TOWNHOMES

COLUMBIA, TN

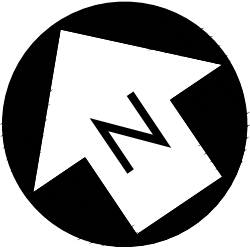
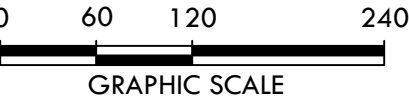
No.	REVISIONS	
	DATE	

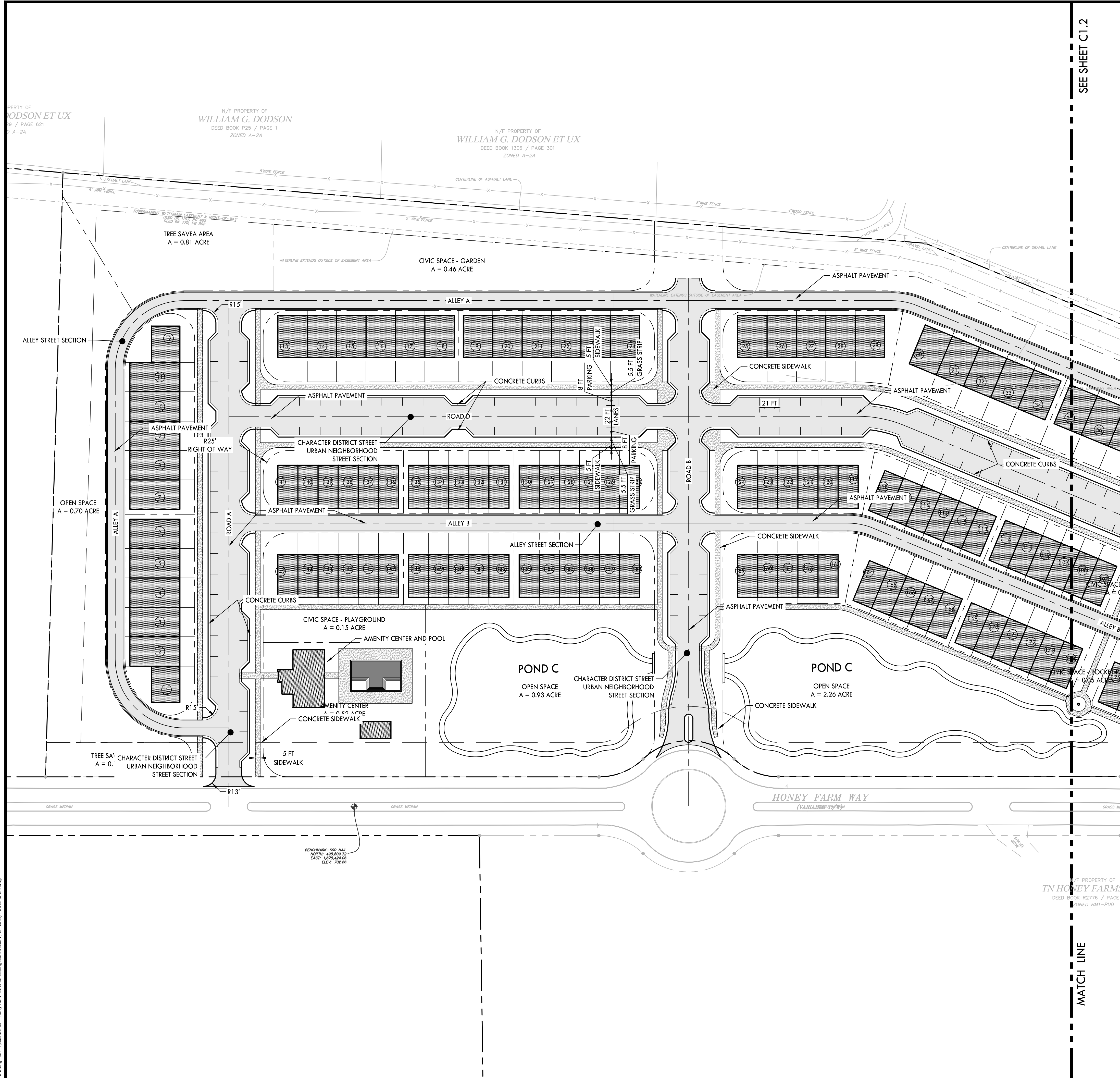
12/19/22 22135

C1.0

OVERALL SITE
LAYOUT PLAN

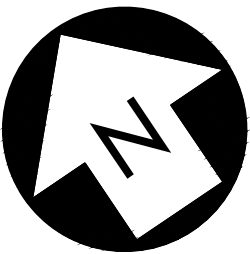
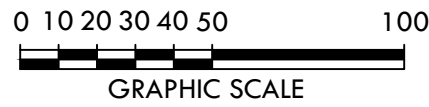
800' CIVIC USE SPACE RADIUS.
ALL LOTS/TOWNHOMES ARE WITHIN 800' OF A CIVIC USE.



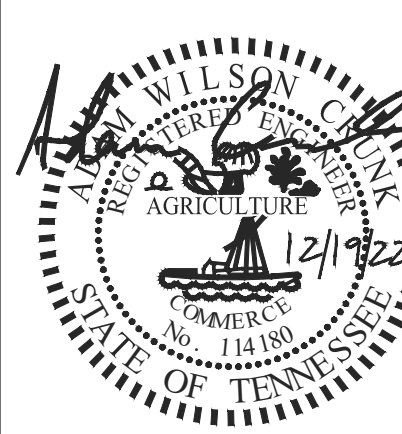


PROPOSED LAYOUT LEGEND

- PROPOSED BUILDING
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- PROPERTY LINE
- EDGE OF NEW PAVEMENT



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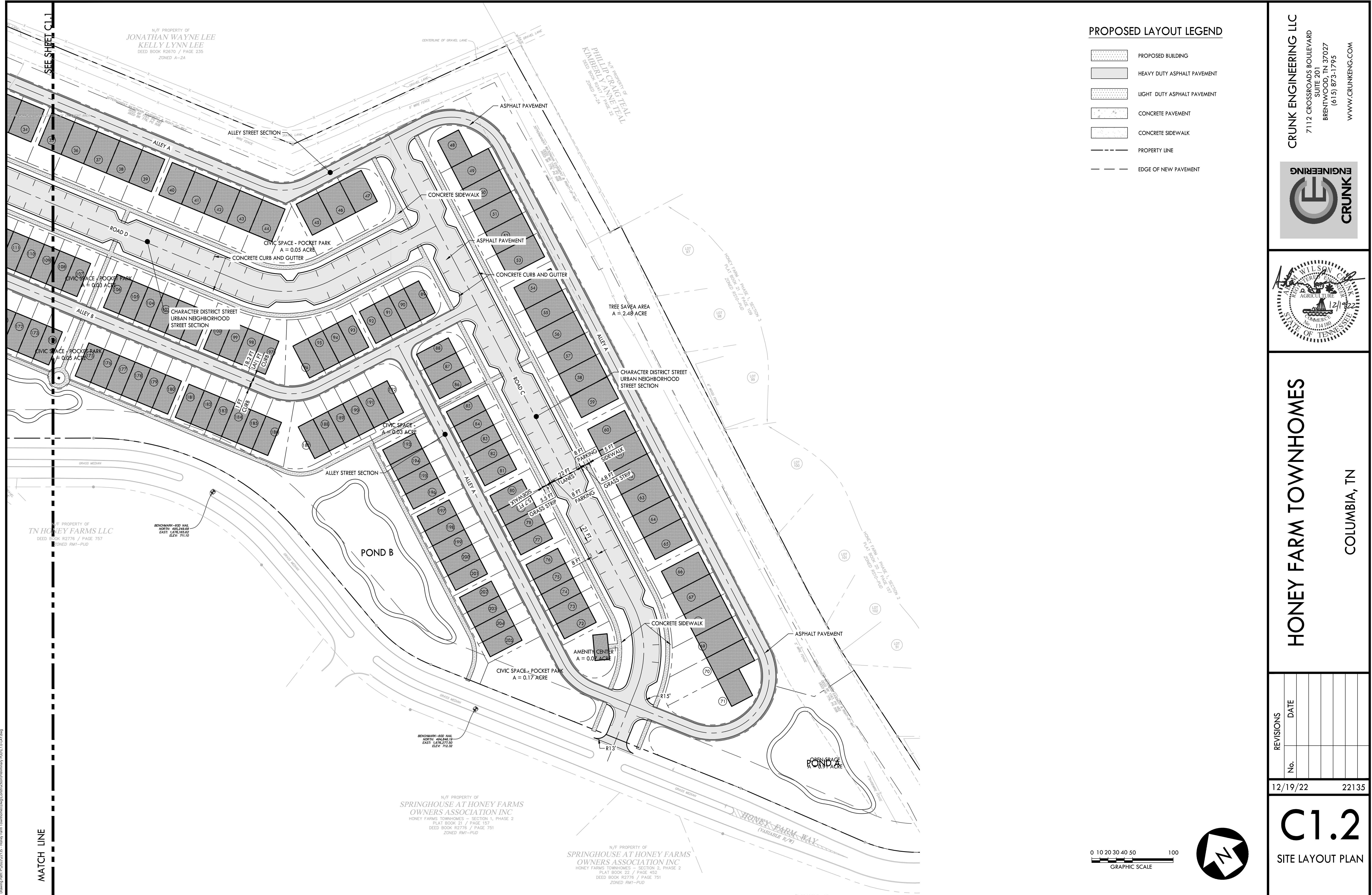
HONEY FARM TOWNHOMES

COLUMBIA, TN

No.	REVISIONS		DATE

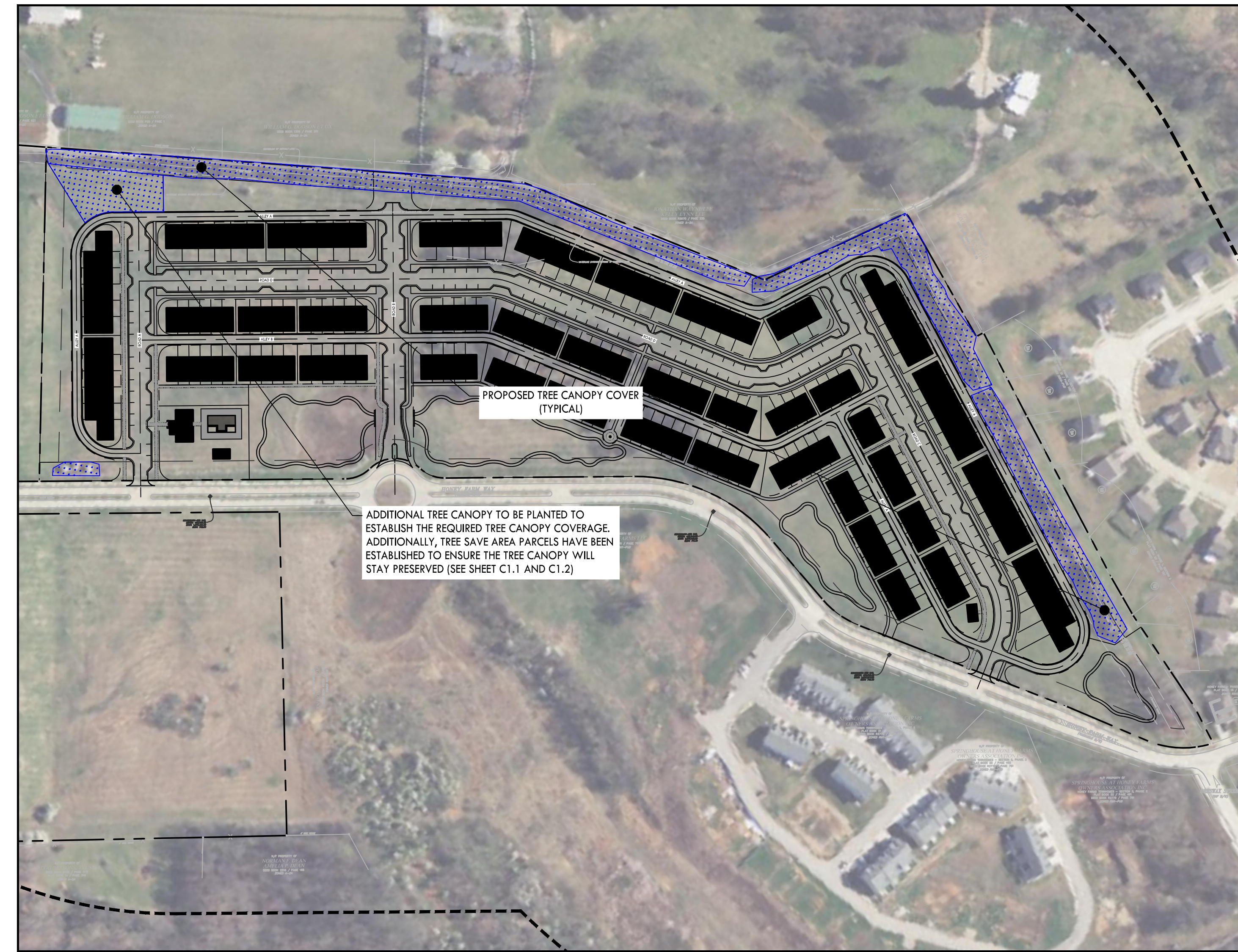
12/19/22 22135

C1.1
SITE LAYOUT PLAN

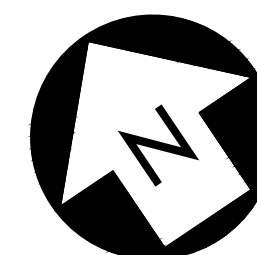




EXISTING TREE CANOPY EXHIBIT



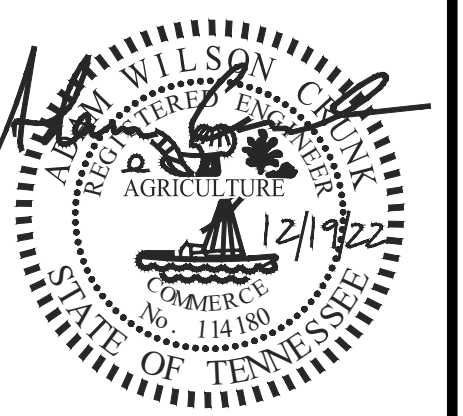
ADDITIONAL TREE CANOPY TO BE PLANTED TO ESTABLISH THE REQUIRED TREE CANOPY COVERAGE. ADDITIONALLY, TREE SAVE AREA PARCELS HAVE BEEN ESTABLISHED TO ENSURE THE TREE CANOPY WILL STAY PRESERVED (SEE SHEET C1.1 AND C1.2)



A horizontal scale bar with tick marks at 0, 50, 100, 150, and 300. The bar is divided into segments: 0-50 is black, 50-100 is white, 100-150 is black, 150-300 is white. The text "GRAPHIC SCALE" is centered below the bar.

PROPOSED TREE CANOPY EXHIBIT

<u>TREE CANOPY REQUIREMENTS:</u>	
TOTAL SITE AREA:	25.87 AC
EXISTING TREE CANOPY:	5.18 AC
PERCENTAGE OF TOTAL SITE AREA:	20.0%
REQUIRED TREE CANOPY PERCENTAGE TO REMAIN:	48.0%
	2.49 AC
EXISTING TREE CANOPY TO REMAIN:	2.18 AC
TREE CANOPY TO BE PLANTED:	0.33 AC
TOTAL PROPOSED TREE CANOPY:	2.52 AC
	48.6%



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

HONEY FARM TOWNHOMES

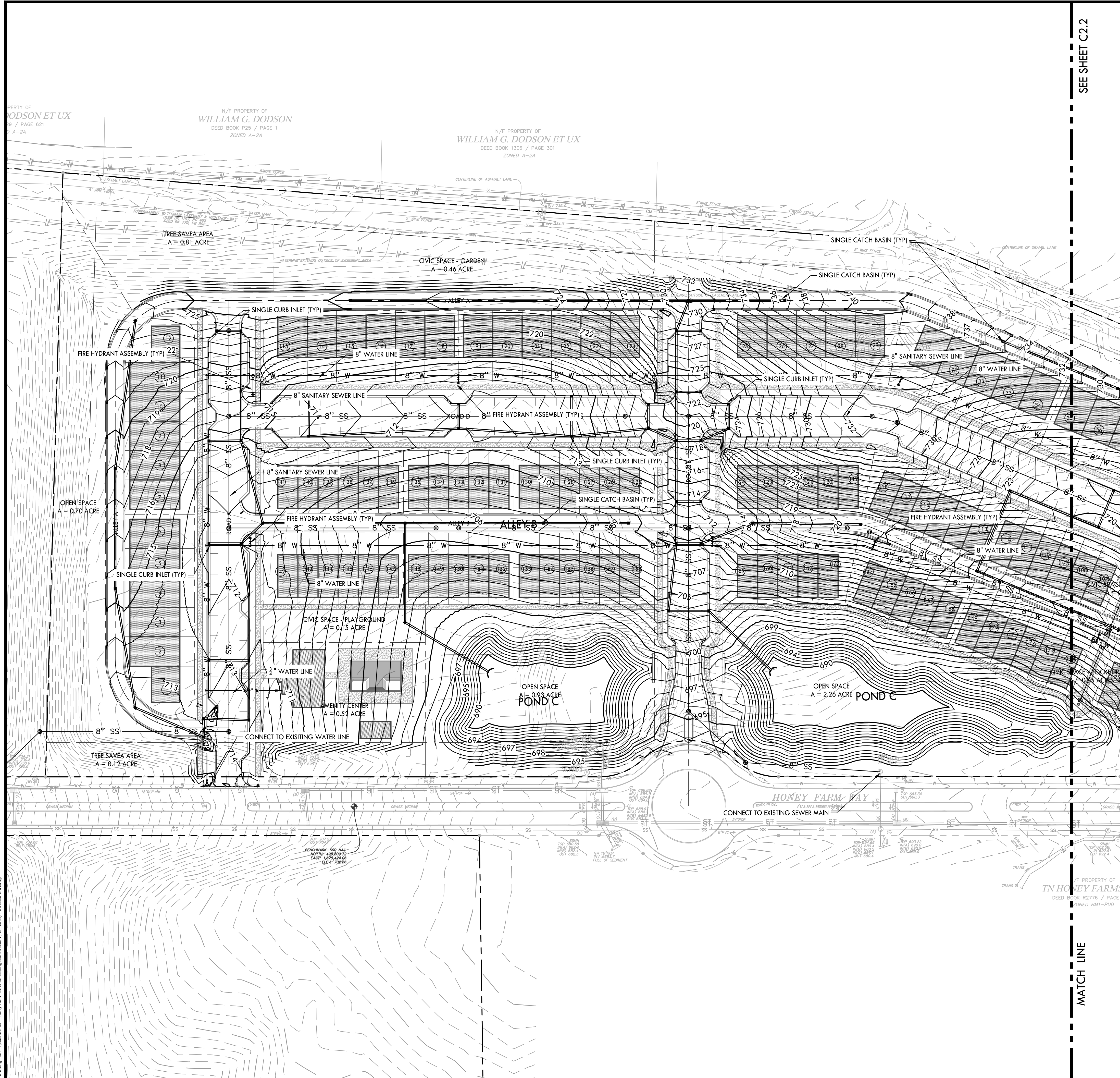
COLUMBIA, TN

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12/19/22	22135
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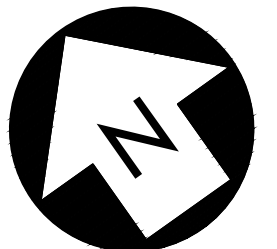
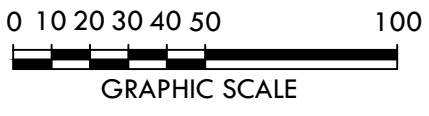
C1.3

TREE CANOPY
EXHIBIT



SEE SHEET C2.2

MATCH LINE



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



HONEY FARM TOWNHOMES

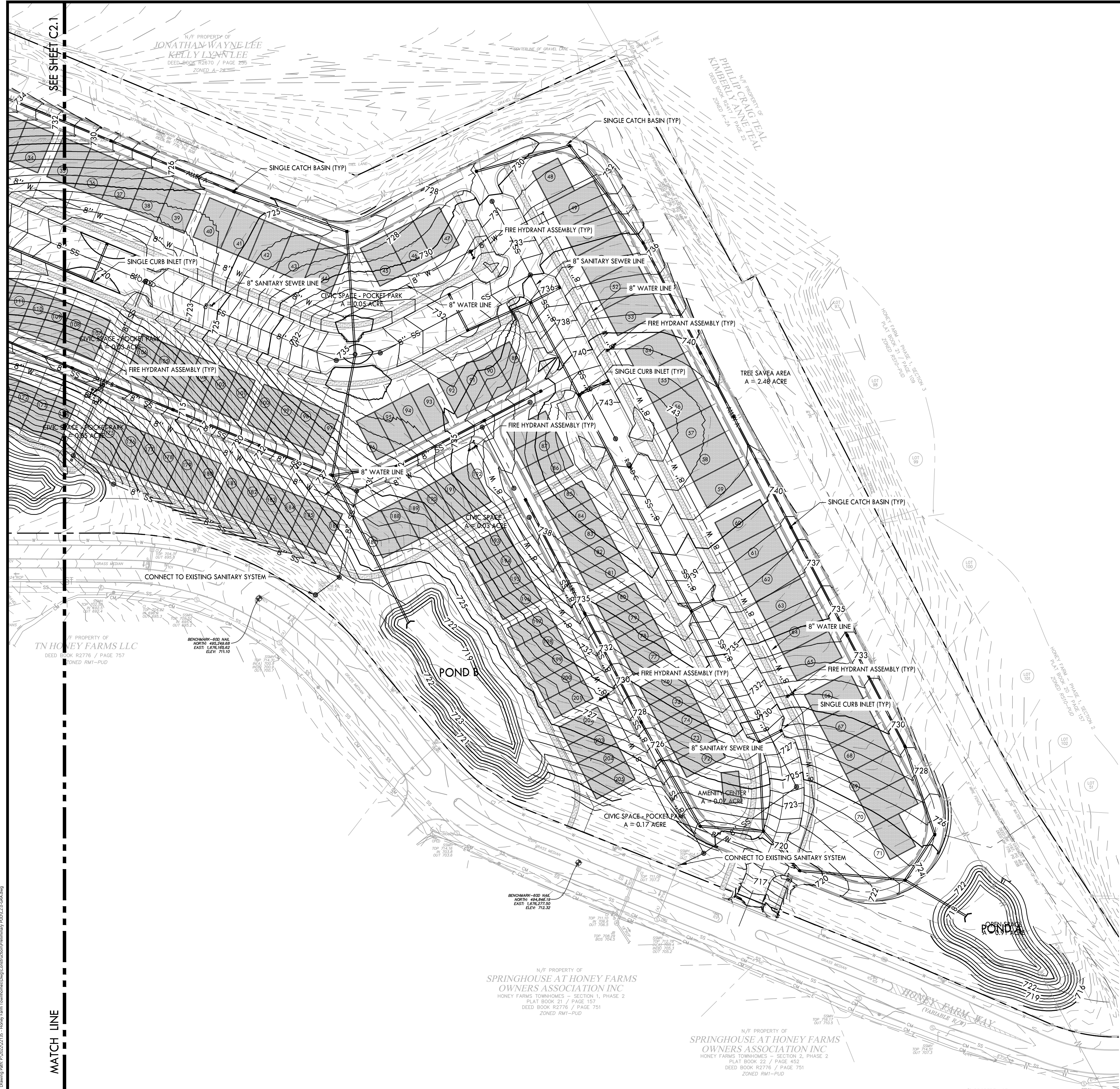
COLUMBIA, TN

REVISIONS	DATE	
	No.	

12/19/22 22135

C2.1

GRADING,
DRAINAGE, AND
UTILITY PLAN



CRUNK ENGINEERING LLC
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SUITE 201
BRENTWOOD, TN 37027
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HONEY FARM TOWNHOMES

COLUMBIA, TN

REVISIONS	No.	DATE

12/19/2222135

C2.2

GRADING,
DRAINAGE, AND
UTILITY PLAN

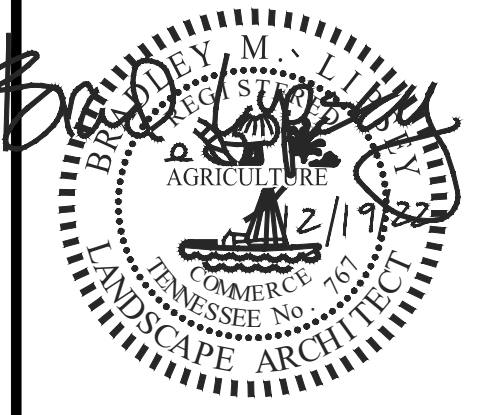
CrunkEng_Plan_12/20/2021 12:05 - Honey Farm Townhomes-Grading, Drainage and Utility Plan (C2.2) (2 of 2) (A.dwg)

Page 263 of 565

REFER TO SHEET L1.1
FOR DETAILED INFORMATION
IN THIS AREA.

REFER TO SHEET L1.2
FOR DETAILED INFORMATION
IN THIS AREA.

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HONEY FARM TOWNHOMES

COLUMBIA, TN

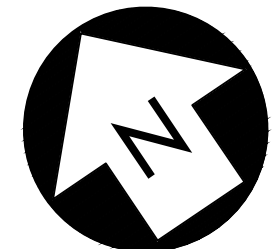
REVISIONS	
No.	DATE
12/19/22	22135

L1.0

OVERALL
LANDSCAPE PLAN



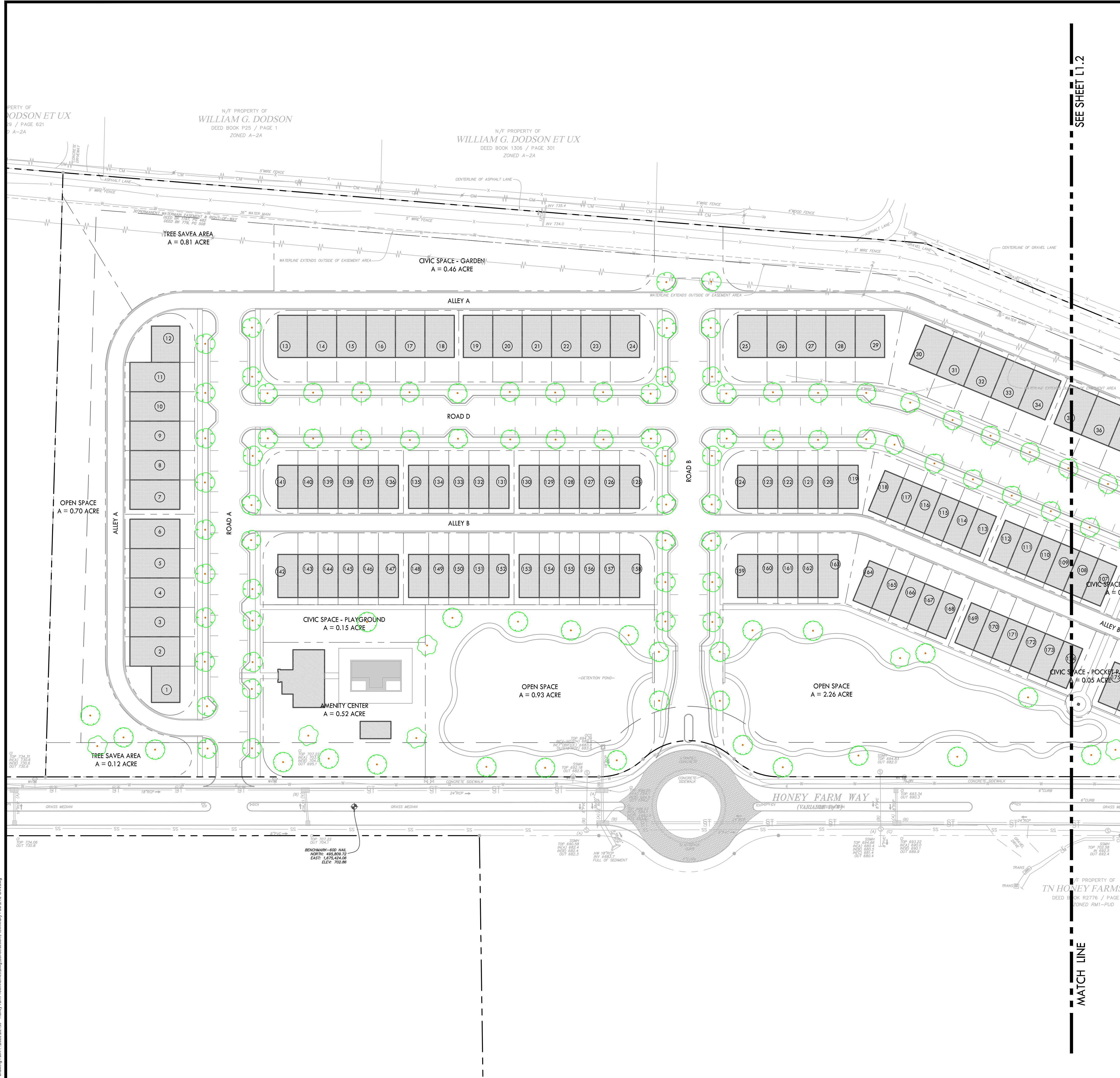
Know what's below.
Call before you dig.



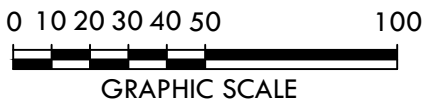
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PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	QTY
	ACE GLO	Acer rubrum 'PNI 0268' / October Glory® Red Maple	2' Cal.	B&B	44
	QUE ALB	Quercus alba / White Oak	2.5' Cal.	B&B	7
	ULM ALL	Ulmus parvifolia 'Allee' / Allee® Lacebark Elm	2' Cal.	B&B	79
	ZEL VIL	Zelkova serrata 'Village Green' / Village Green Japanese Zelkova	2' Cal.	B&B	53



- NOTES:
1. REFER TO SHEET L2.0 FOR ADDITIONAL NOTES AND DETAILS
 2. REFER TO SHEET L1.0 FOR PLANT LIST



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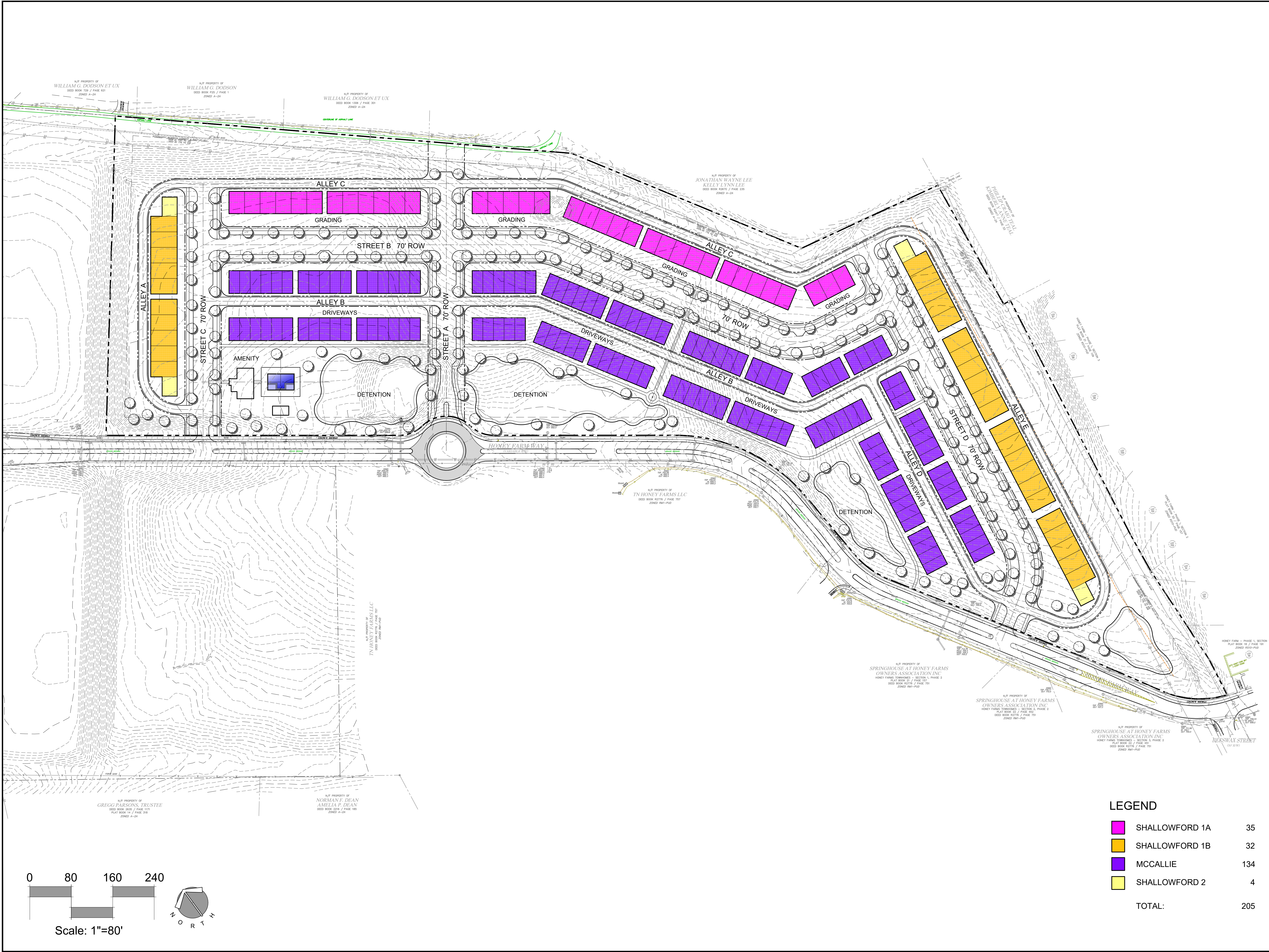
HONEY FARM TOWNHOMES

COLUMBIA, TN

REVISIONS	
No.	DATE

L1.1

LANDSCAPE PLAN



Honey Farm Columbia, Tennessee

date. December 8, 2022
revisions.

project no. 21038
scale. shown on plan

Concept Master Plan

LEGEND

	SHALLOWFORD 1A	35
	SHALLOWFORD 1B	32
	MCCALLIE	134
	SHALLOWFORD 2	4
	TOTAL:	205



ELEVATION C
COLOR SCHEME 11



ELEVATION F
COLOR SCHEME 18



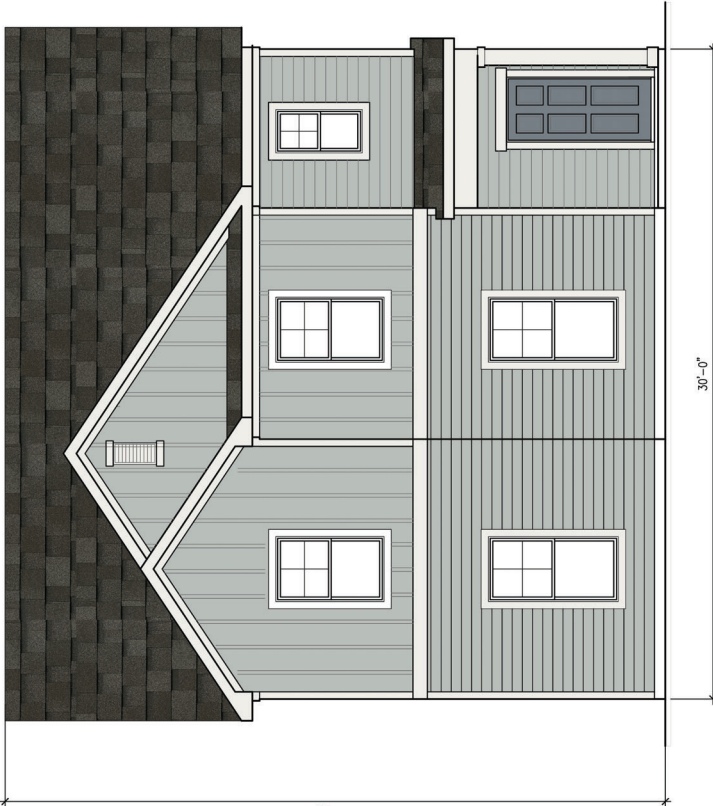
ELEVATION B
COLOR SCHEME 7



ELEVATION E
COLOR SCHEME 17



ELEVATION A
COLOR SCHEME 3



ELEVATION D
COLOR SCHEME 14



HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE: 09/08/2022	

PLAN 1

SUBDIVISION:
HONEY FARMS

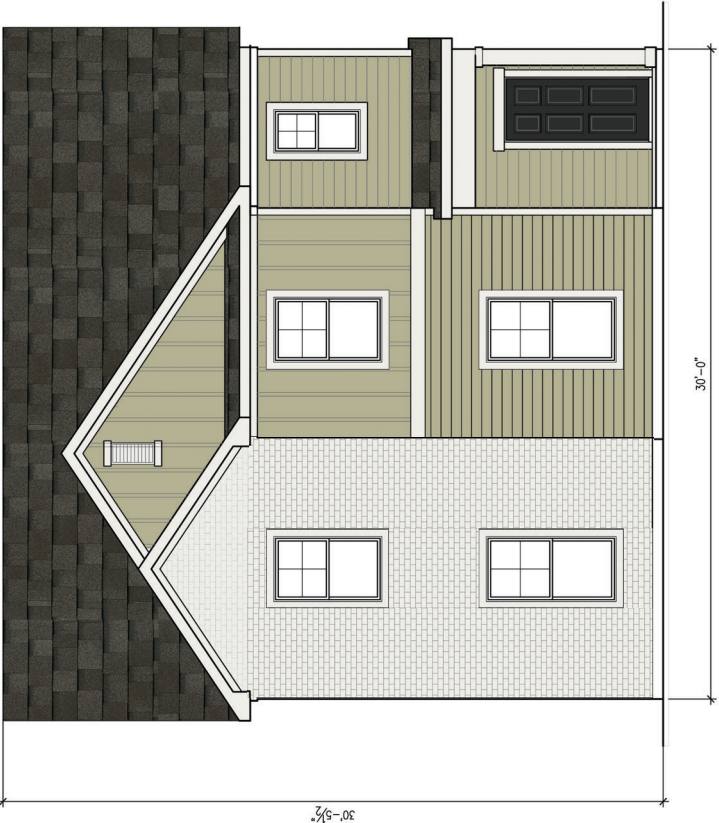
MUNICIPALITY:
COLUMBIA,
TENNESSEE

A1.1

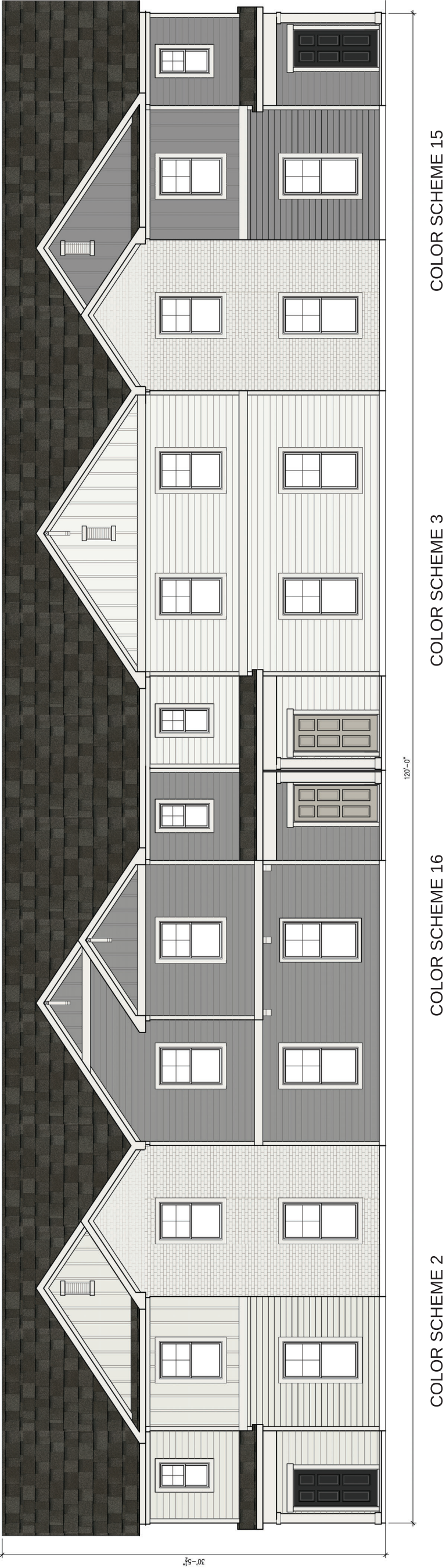
PLAN 1 FRONT ELEVATIONS
SCALE: 1/8" = 1'-0"



ELEVATION H
COLOR SCHEME 28



ELEVATION G
COLOR SCHEME 25





HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE: 09/08/2022	

PLAN 1

SUBDIVISION:
HONEY FARMS

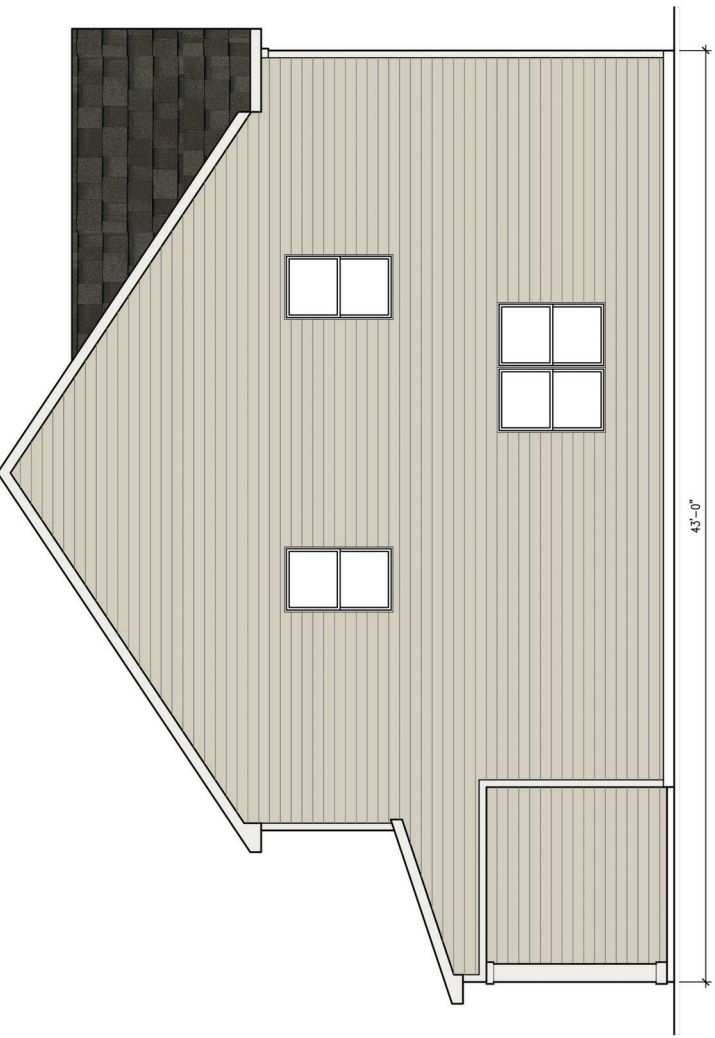
MUNICIPALITY:
COLUMBIA,
TENNESSEE

A1.1

COLOR SCHEME 5
PLAN 1 FULL ELEVATIONS
SCALE: 1/8" = 1'-0"



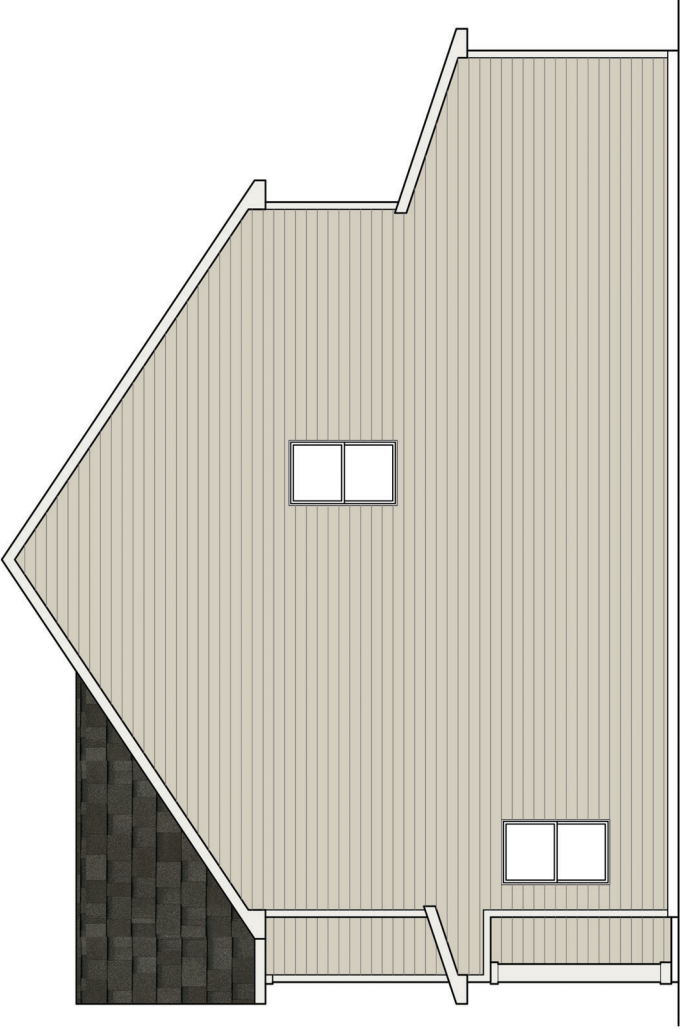
FRONT



LEFT (END UNIT CONDITION)



BACK



RIGHT (END UNIT CONDITION)



HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE: 09/08/2022	

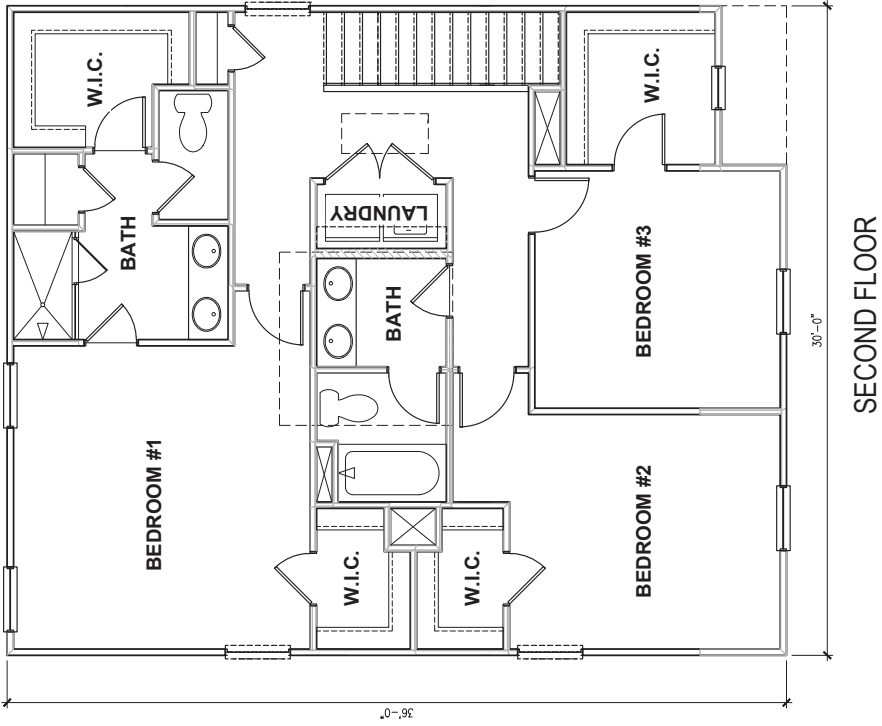
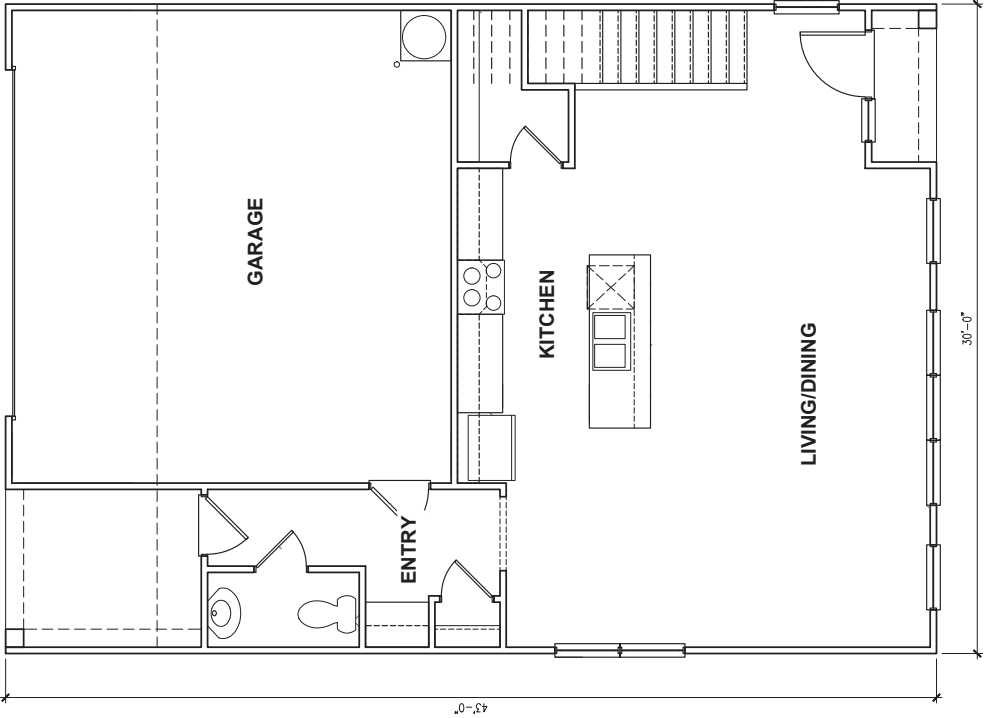
PLAN 1

SUBDIVISION:
HONEY FARMS

MUNICIPALITY:
COLUMBIA,
TENNESSEE

A2.1

PLAN 1 FLOORPLAN
SCALE: 1/8" = 1'-0"





HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE: 12/13/2022	

PLAN 2B

SUBDIVISION:
HONEY FARMS

MUNICIPALITY:
COLUMBIA,
TENNESSEE

A1.0

PLAN 2B FRONT ELEVATIONS
SCALE: 1/8" = 1'-0"



ELEVATION B
COLOR SCHEME 18



ELEVATION A
COLOR SCHEME 6



ELEVATION C
COLOR SCHEME 25



HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE: 12/13/2022	

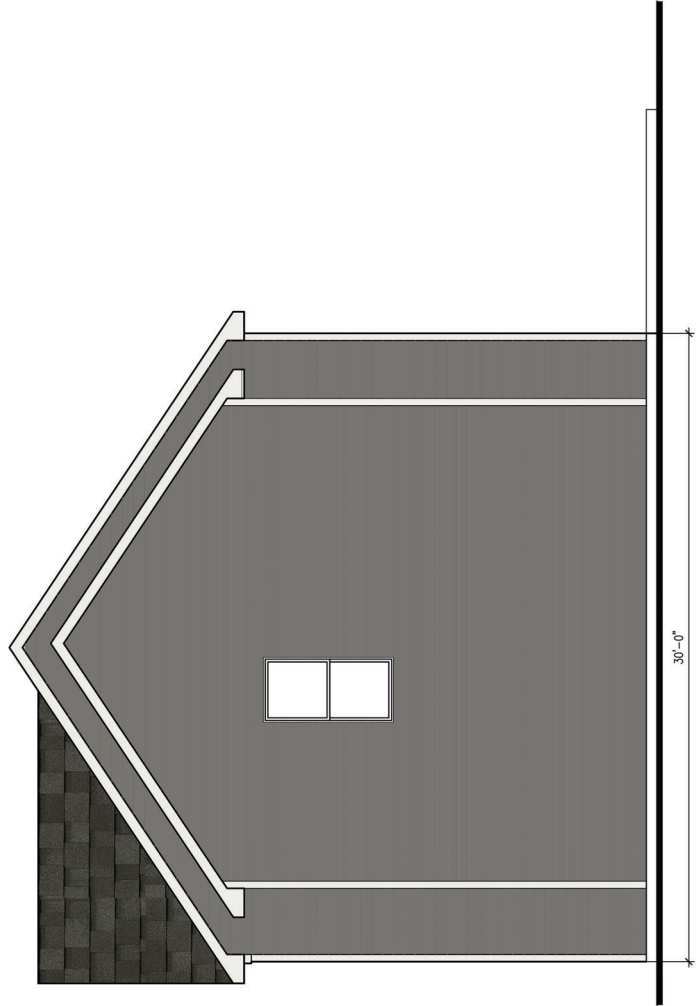
PLAN 2B

SUBDIVISION:
HONEY FARMS

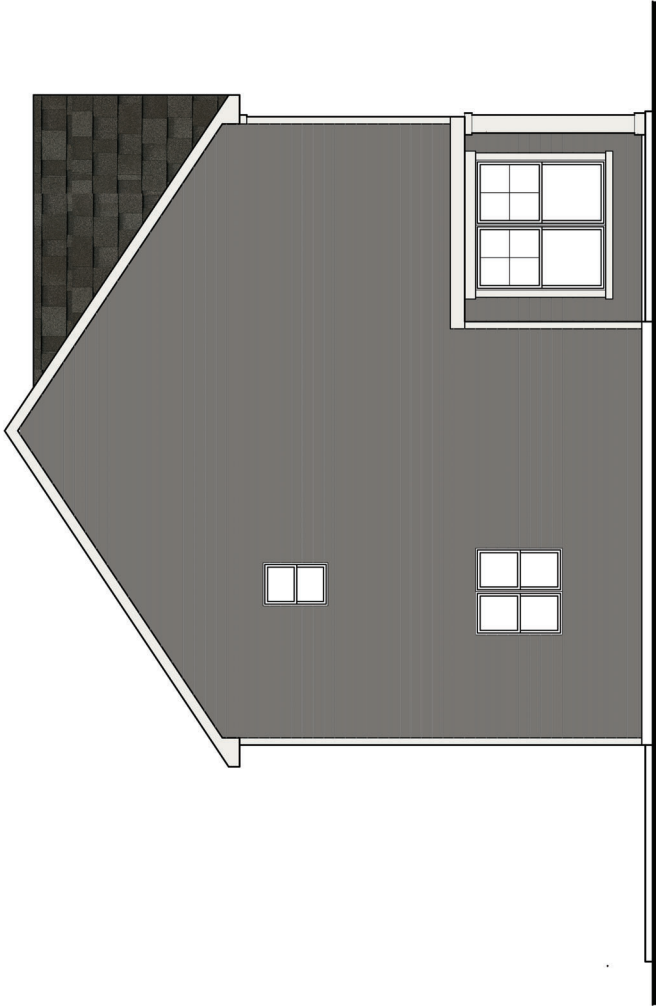
MUNICIPALITY:
COLUMBIA,
TENNESSEE

A1.1

COLOR SCHEME 21
PLAN 2B FULL ELEVATIONS
SCALE: 1/8" = 1'-0"



RIGHT



LEFT



FRONT



REAR



HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE: 12/13/2022	

PLAN 2B

SUBDIVISION:
HONEY FARMS

MUNICIPALITY:
COLUMBIA,
TENNESSEE

A1.2

PLAN 2B BUILDING CONCEPT
SCALE: NTS



COLOR SCHEME 19

COLOR SCHEME 4

COLOR SCHEME 21



HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE:	12/13/2022

PLAN 2B

SUBDIVISION:
HONEY FARMS

MUNICIPALITY:
COLUMBIA,
TENNESSEE

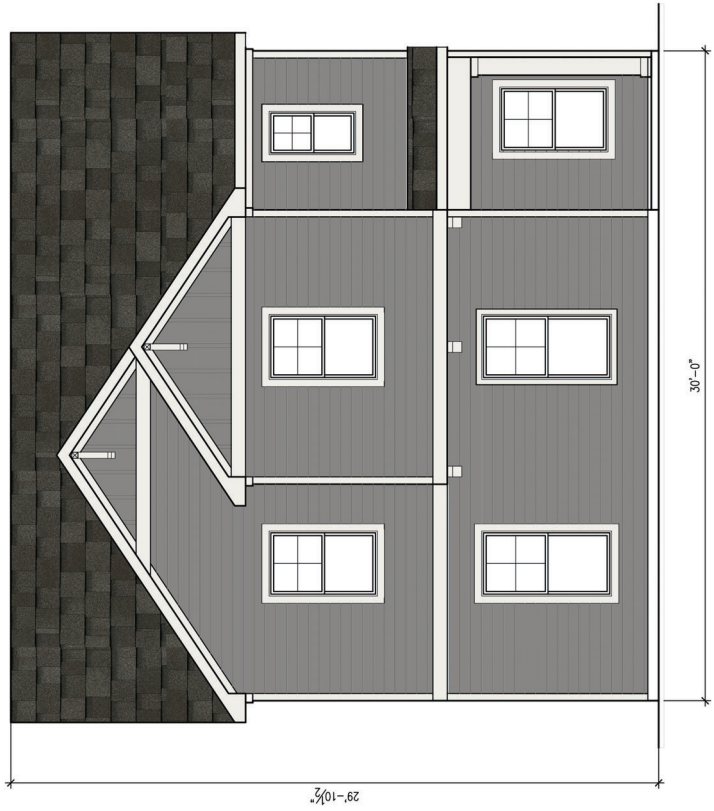
A2.1

PLAN 2B FLOORPLAN
SCALE: 1/8" = 1'-0"





ELEVATION C
COLOR SCHEME 14



ELEVATION B
COLOR SCHEME 18



ELEVATION A
COLOR SCHEME 27



ELEVATION F
COLOR SCHEME 4



ELEVATION E
COLOR SCHEME 6



ELEVATION D
COLOR SCHEME 9



HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE:	09/08/2022

PLAN 3

SUBDIVISION:
HONEY FARMS

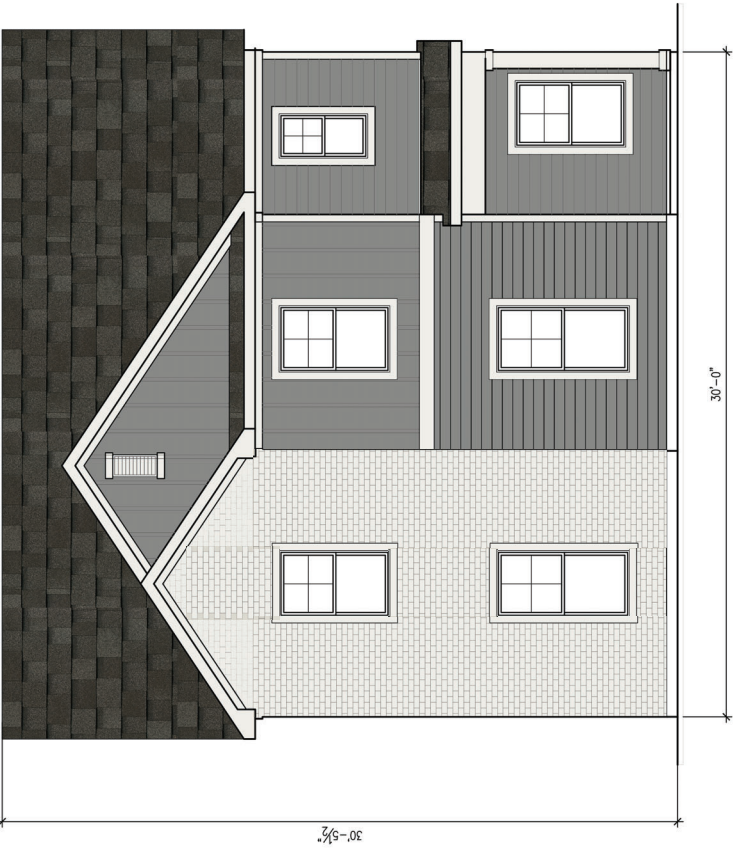
MUNICIPALITY:
COLUMBIA,
TENNESSEE

A1.1

PLAN 3 FRONT ELEVATIONS
SCALE: NTS



ELEVATION H
COLOR SCHEME 25



ELEVATION G
COLOR SCHEME 17



HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE: 09/08/2022	

PLAN 3

SUBDIVISION:
HONEY FARMS

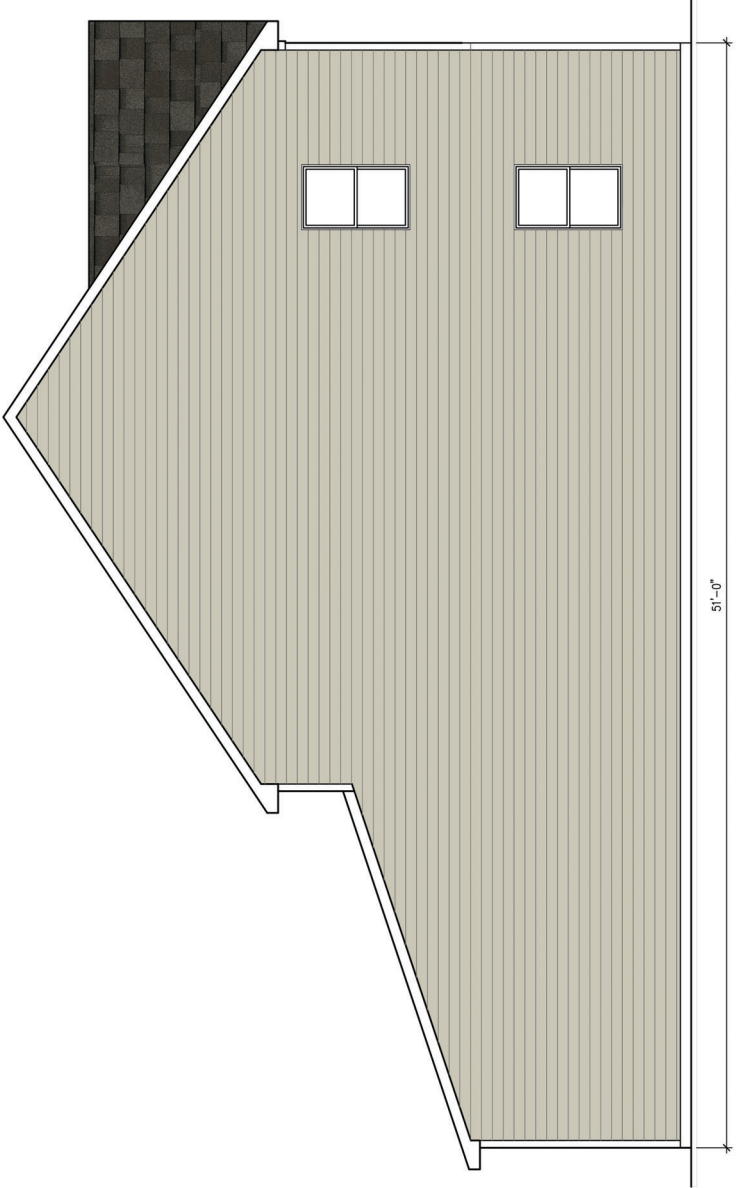
MUNICIPALITY:
COLUMBIA,
TENNESSEE

A1.2

PLAN 3 FULL ELEVATIONS
SCALE: 1/8" = 1'-0"



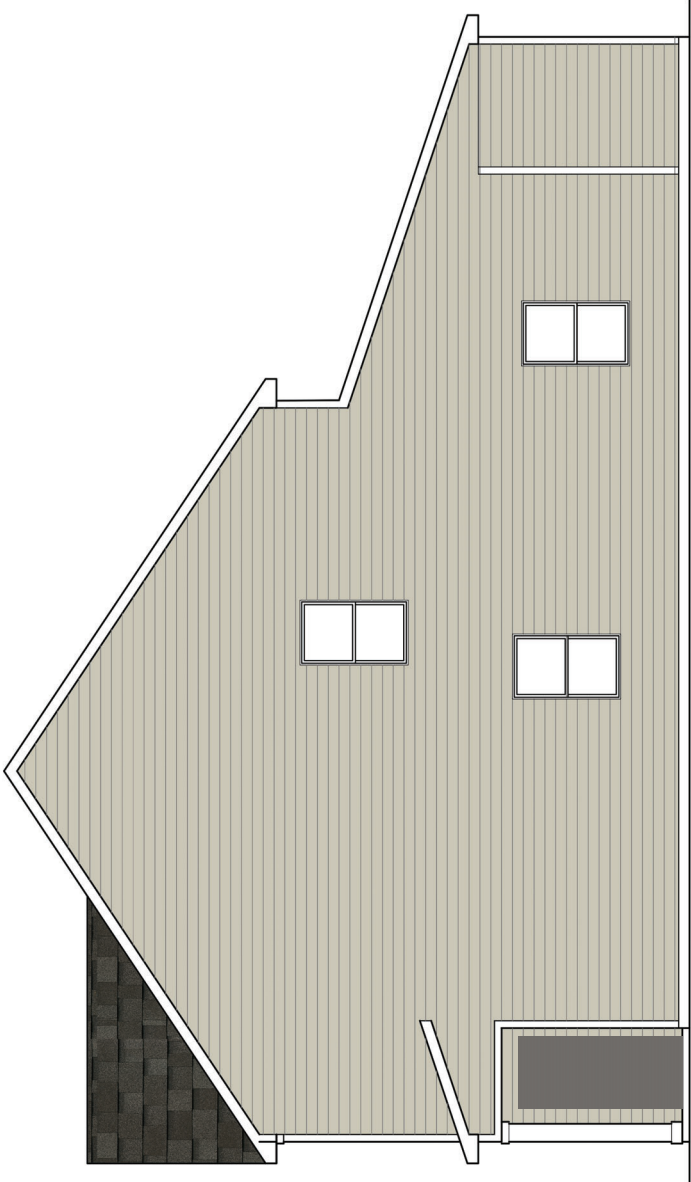
FRONT



LEFT (END UNIT CONDITION)



BACK



RIGHT (END UNIT CONDITION)



HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE: 09/08/2022	

PLAN 3

SUBDIVISION:
HONEY FARMS

MUNICIPALITY:
COLUMBIA,
TENNESSEE

A1.3

PLAN 3 BUILDING CONCEPT
SCALE: NTS



COLOR SCHEME 2

COLOR SCHEME 16

COLOR SCHEME 13

COLOR SCHEME 21



HONEY FARMS:
SCHEMATIC ELEVATIONS

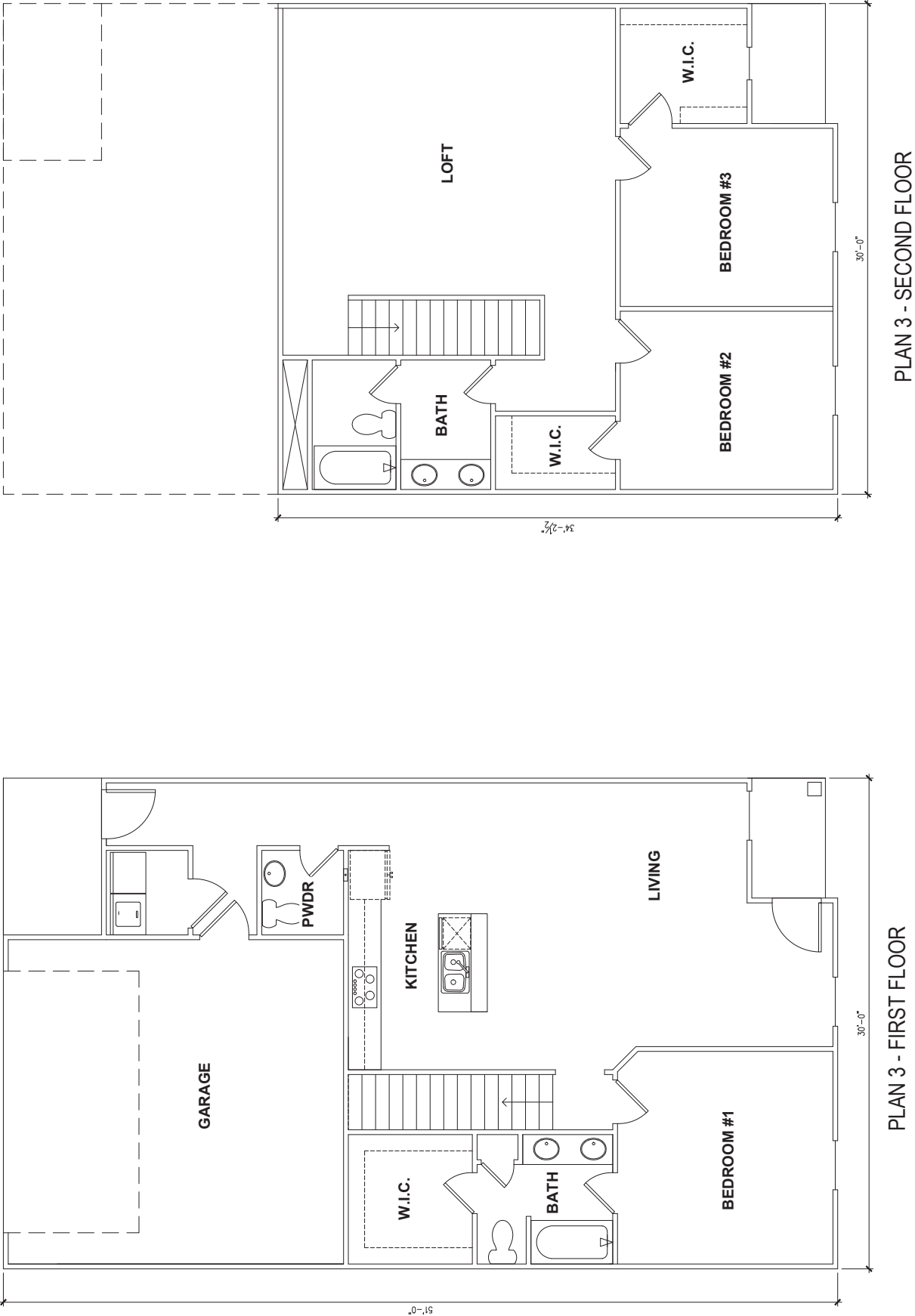
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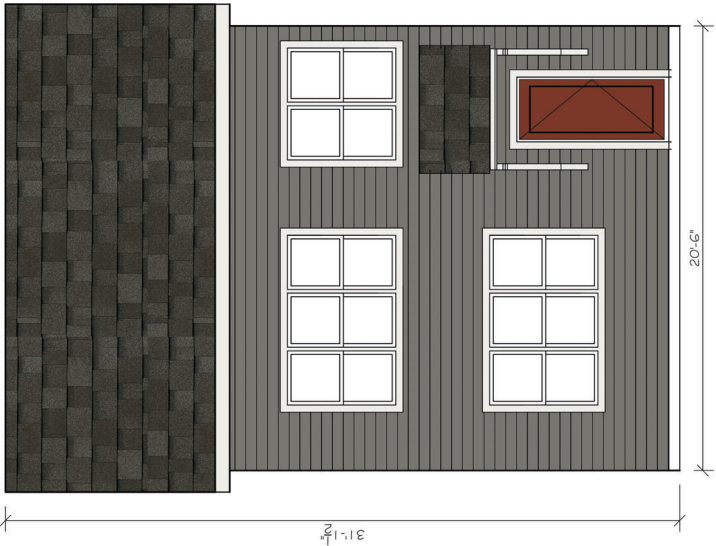
PLAN 3

SUBDIVISION:
HONEY FARMS

MUNICIPALITY:
COLUMBIA,
TENNESSEE

A2.1





ELEVATION A
(MID UNIT COND.)
COLOR SCHEME 22



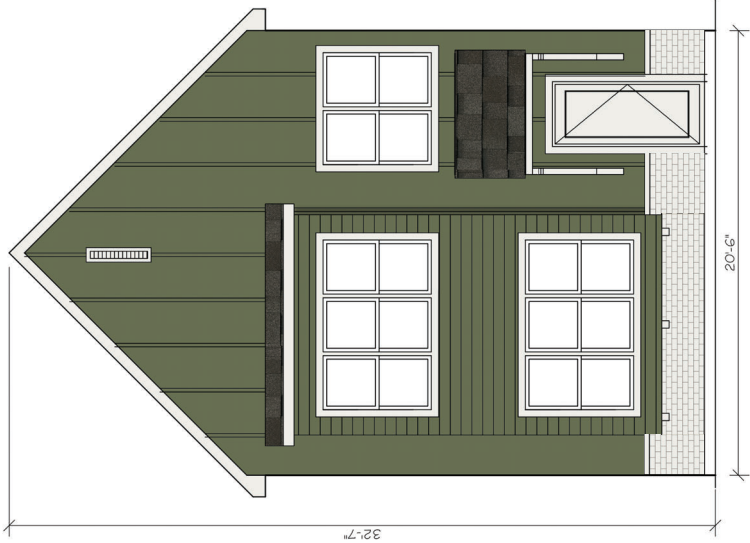
ELEVATION B
(MID UNIT COND.)
COLOR SCHEME 25



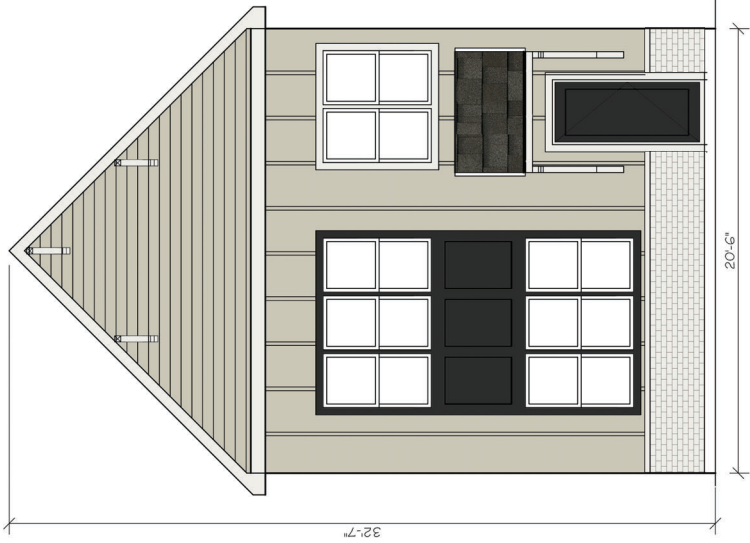
ELEVATION C
(MID UNIT COND.)
COLOR SCHEME 1



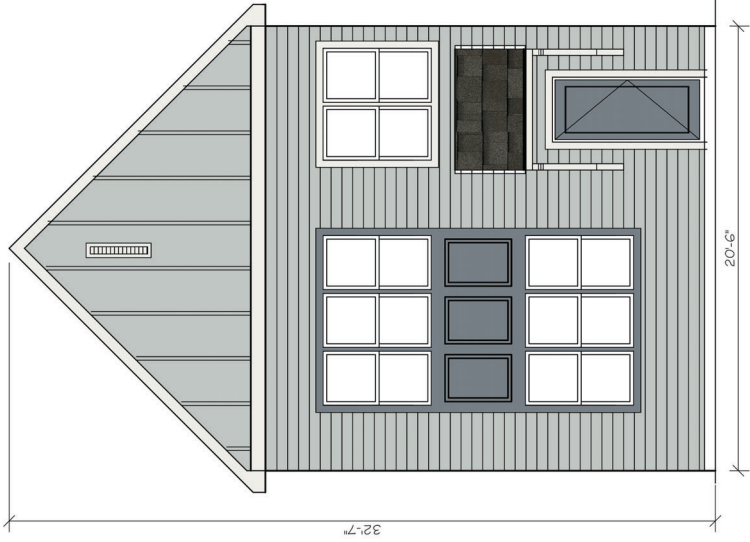
ELEVATION D
(MID UNIT COND.)
COLOR SCHEME 24



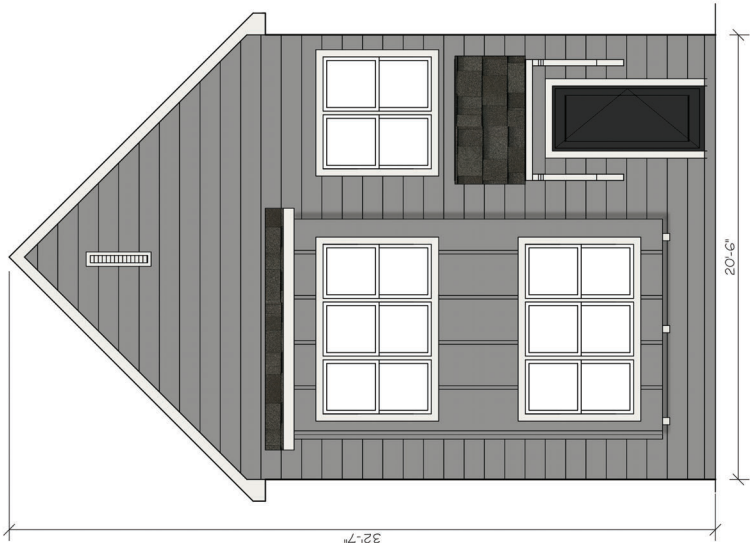
ELEVATION E
(END UNIT COND.)
COLOR SCHEME 28



ELEVATION F
(END UNIT COND.)
COLOR SCHEME 5



ELEVATION G
(END UNIT COND.)
COLOR SCHEME 15



ELEVATION H
(END UNIT COND.)
COLOR SCHEME 16



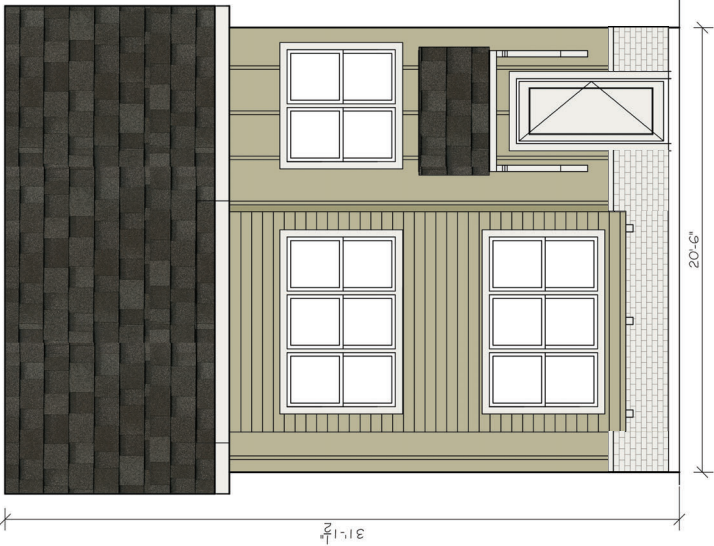
ELEVATION H
(MID UNIT COND.)
COLOR SCHEME 6



ELEVATION G
(MID UNIT COND.)
COLOR SCHEME 10



ELEVATION F
(MID UNIT COND.)
COLOR SCHEME 2



ELEVATION E
(MID UNIT COND.)
COLOR SCHEME 26



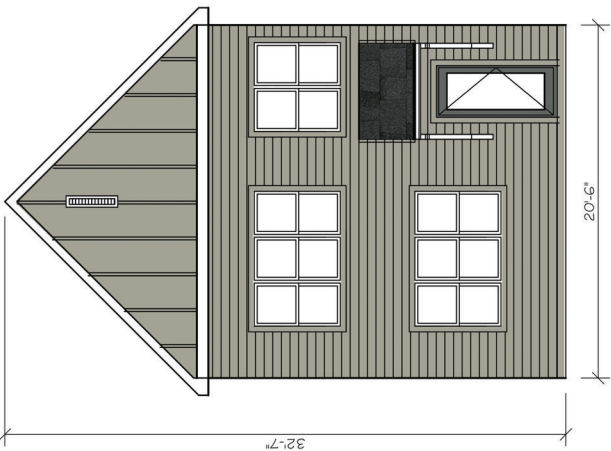
COLOR SCHEME 27

COLOR SCHEME 17

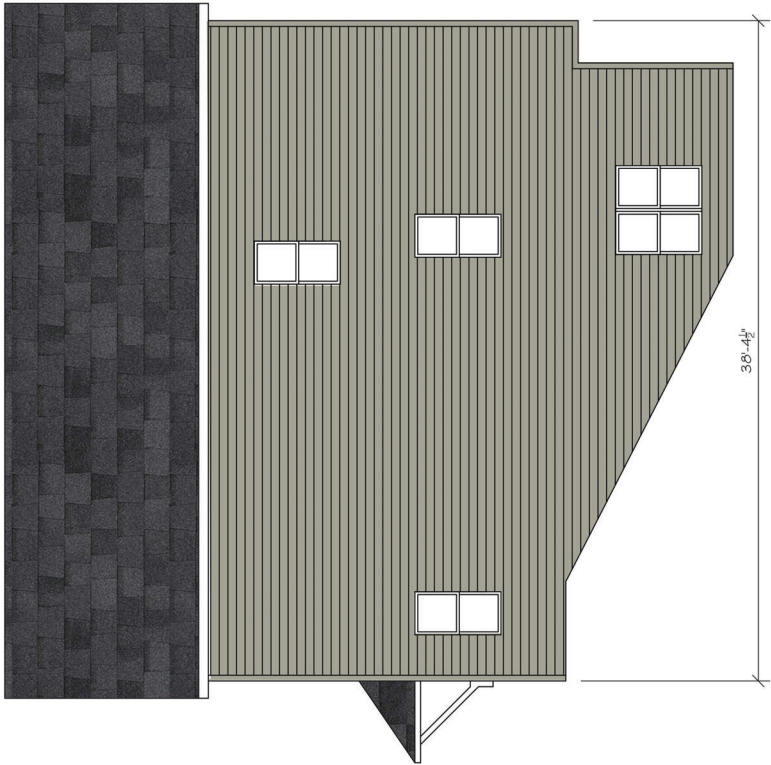
COLOR SCHEME 1

COLOR SCHEME 16

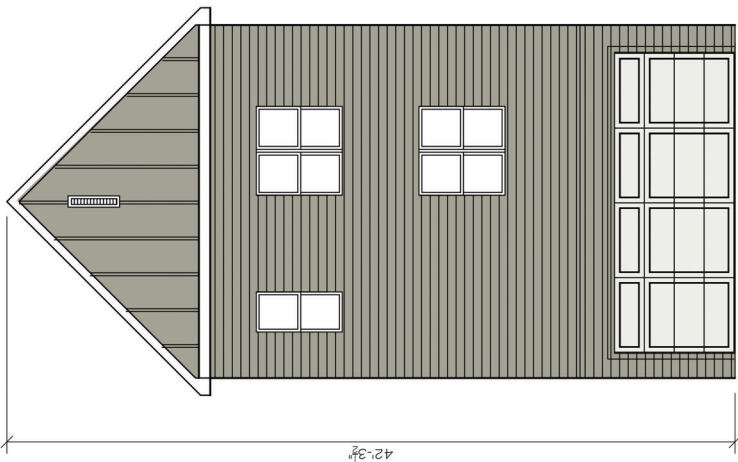
COLOR SCHEME 28



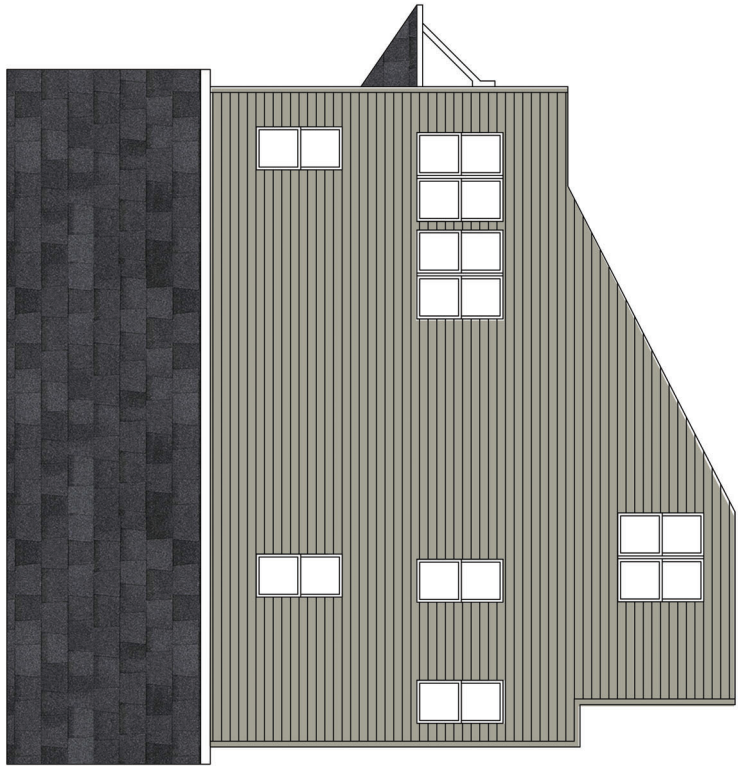
FRONT
SCHEME 10



RIGHT
SCHEME 10



REAR
SCHEME 10



LEFT
SCHEME 10



HONEY FARMS:
SCHEMATIC ELEVATIONS

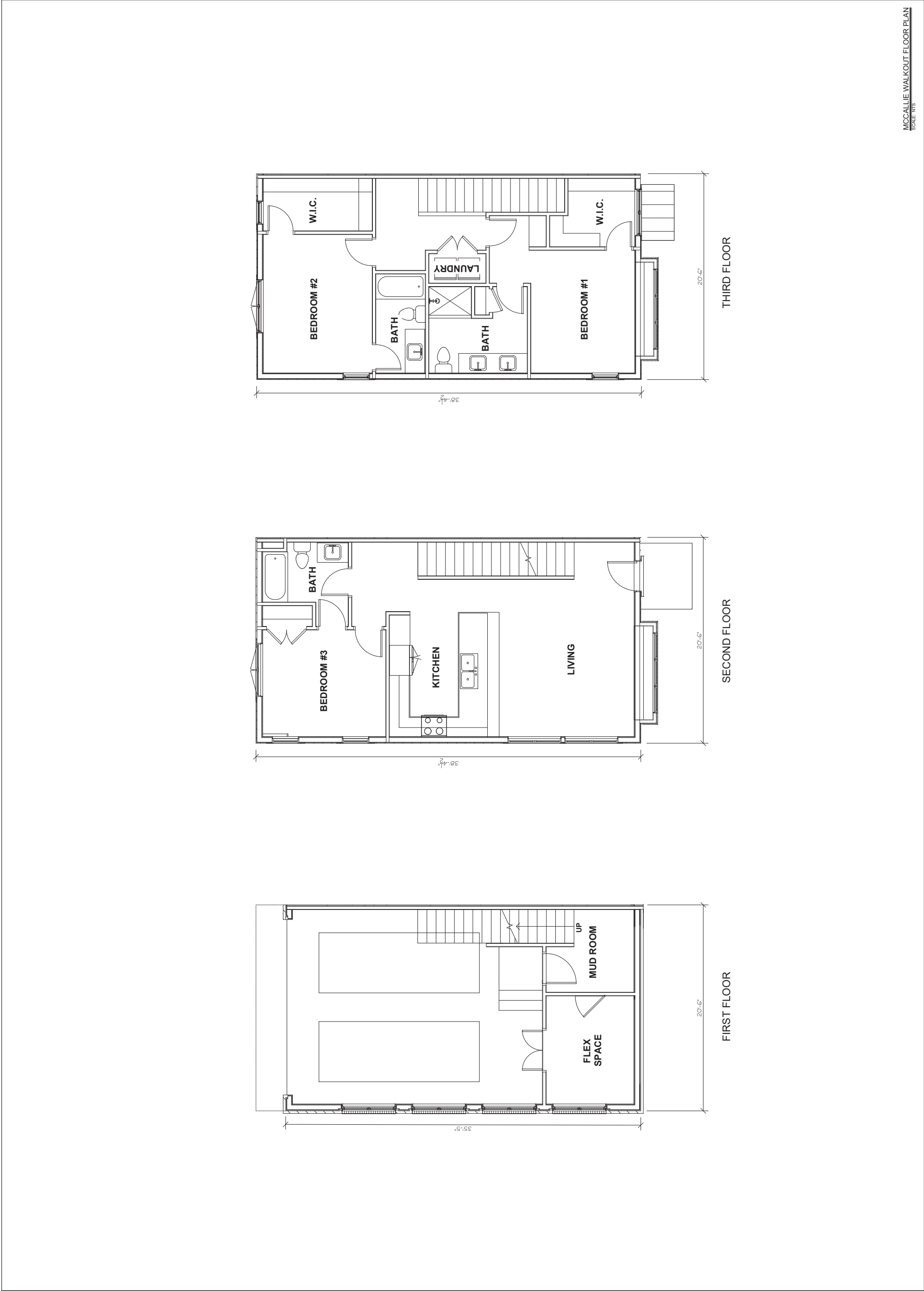
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DL	
DATE:	12/14/2022

MCCALLIE
WALKOUT

SUBDIVISION:
HONEY FARMS

MUNICIPALITY:
COLUMBIA,
TENNESSEE

A2.1

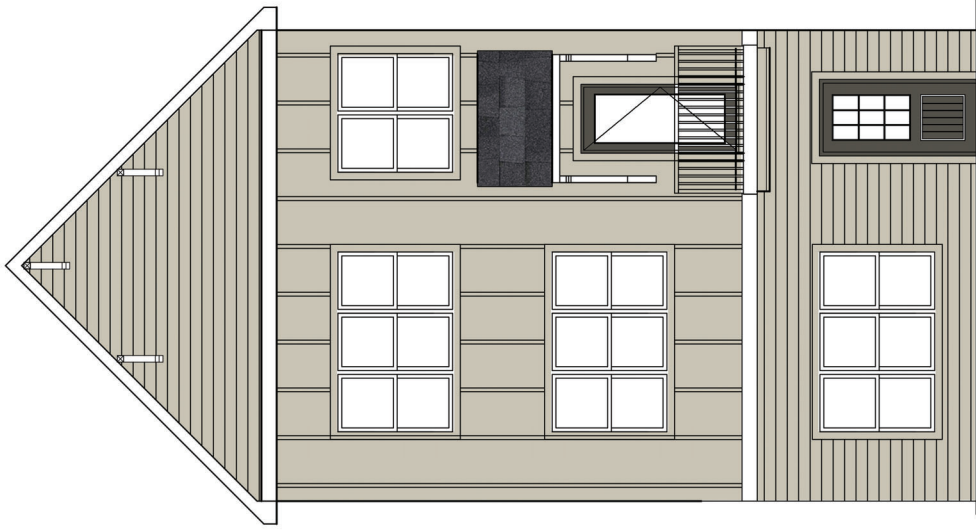


MCCALLIE WALKOUT FLOOR PLAN
SCALE: NTS



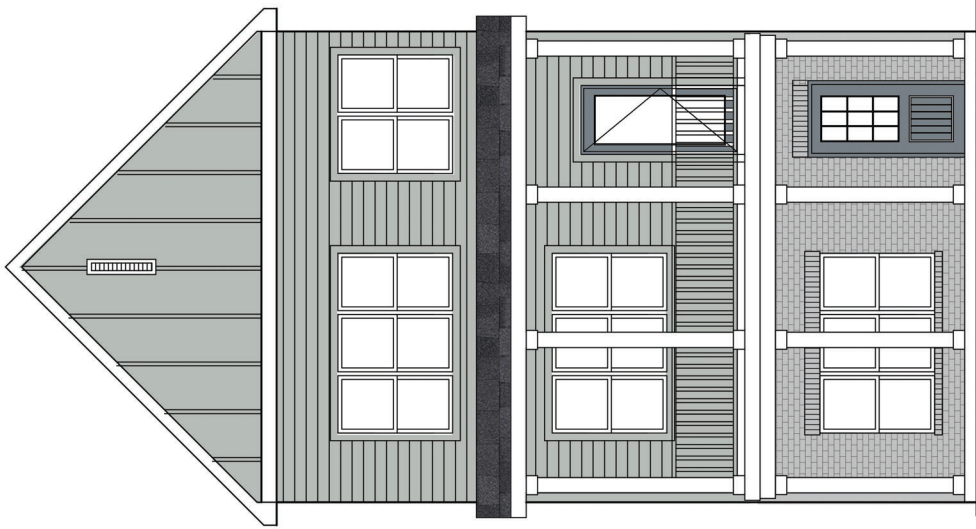
ELEVATION A
(END UNIT COND.)

SCHEME 15



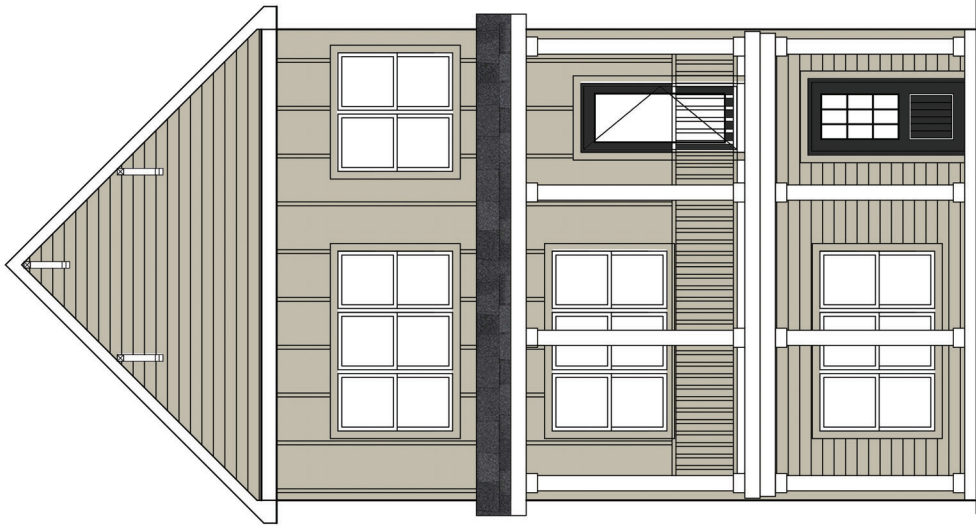
ELEVATION B
(END UNIT COND.)

SCHEME 5



ELEVATION C
(END UNIT COND.)

SCHEME 11



ELEVATION D
(END UNIT COND.)

SCHEME 4

HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE: 12/14/2022	

MCCALLIE TH

SUBDIVISION:

HONEY FARMS

MUNICIPALITY:

COLUMBIA,
TENNESSEE

A1.1





ELEVATION A
(MID UNIT COND.)

SCHEME 17



ELEVATION B
(MID UNIT COND.)

SCHEME 22



ELEVATION C
(MID UNIT COND.)

SCHEME 18



ELEVATION D
(MID UNIT COND.)

SCHEME 20

HONEY FARMS:
SCHEMATIC ELEVATIONS

DRAWN BY:	
DL	
DATE: 12/14/2022	

MCCALLIE TH

SUBDIVISION:

HONEY FARMS

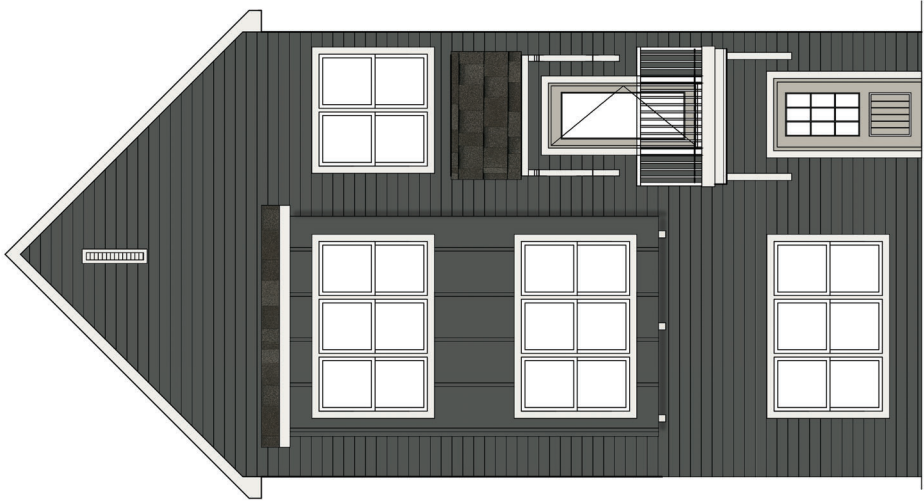
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COLUMBIA,
TENNESSEE

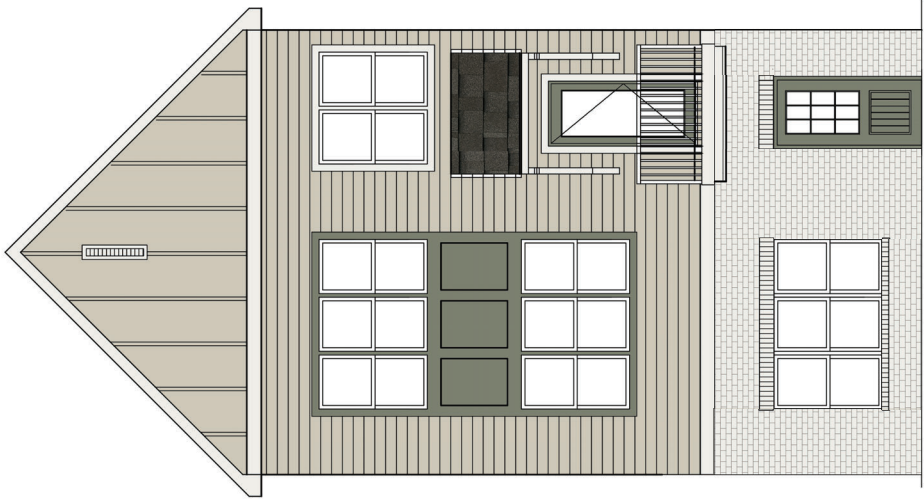
A1.2

RP
HOMES

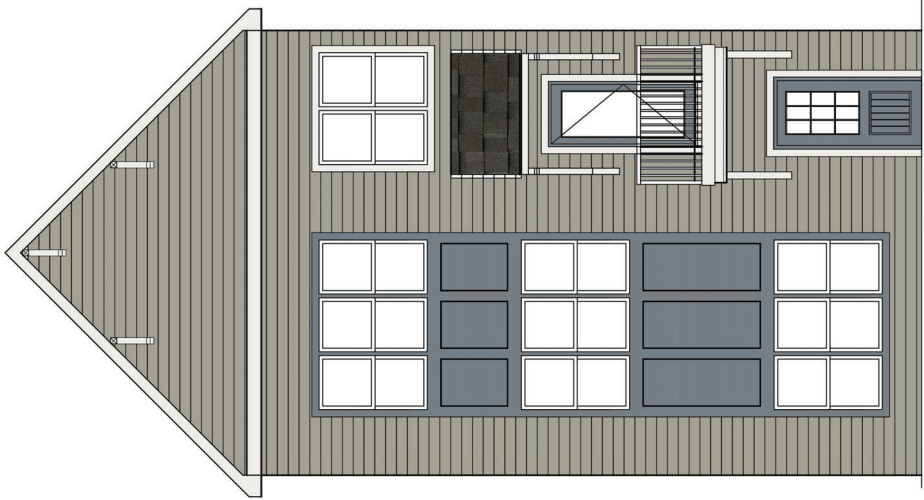




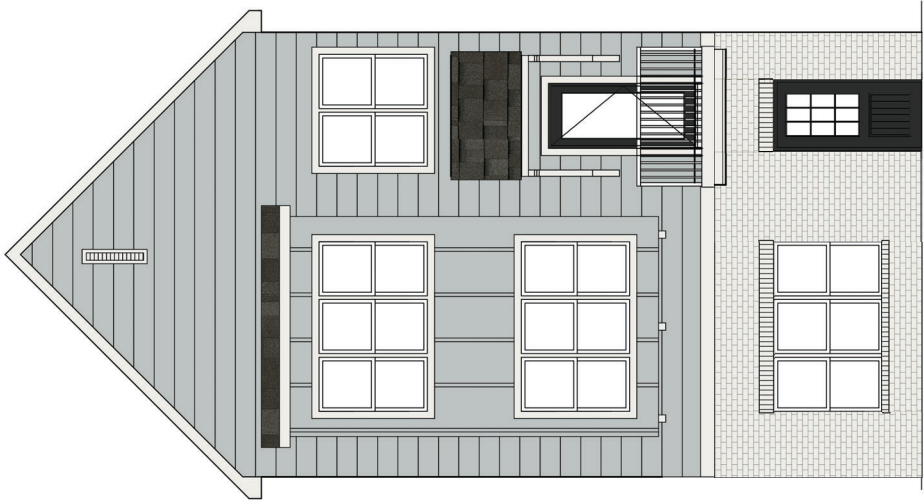
ELEVATION E
(END UNIT COND.)
COLOR SCHEME 19



ELEVATION F
(END UNIT COND.)
COLOR SCHEME 8



ELEVATION G
(END UNIT COND.)
COLOR SCHEME 12

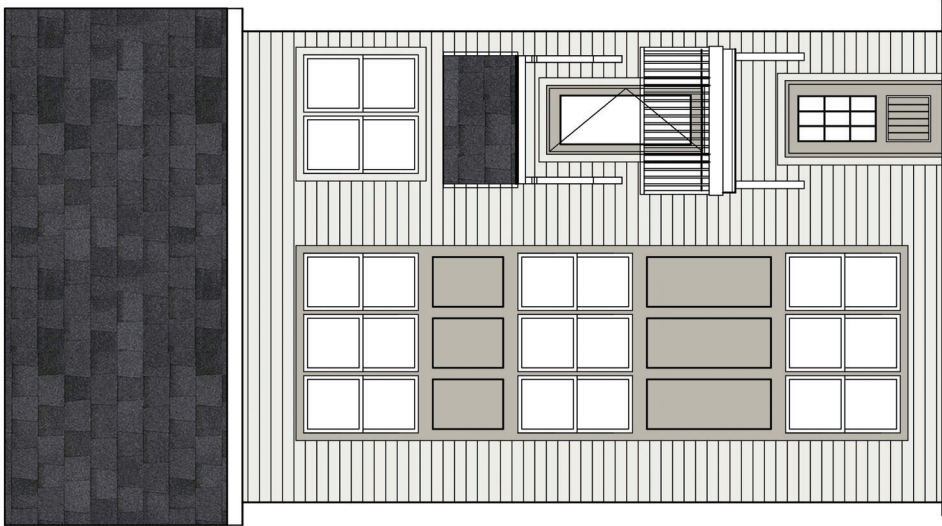


ELEVATION H
(END UNIT COND.)
COLOR SCHEME 13



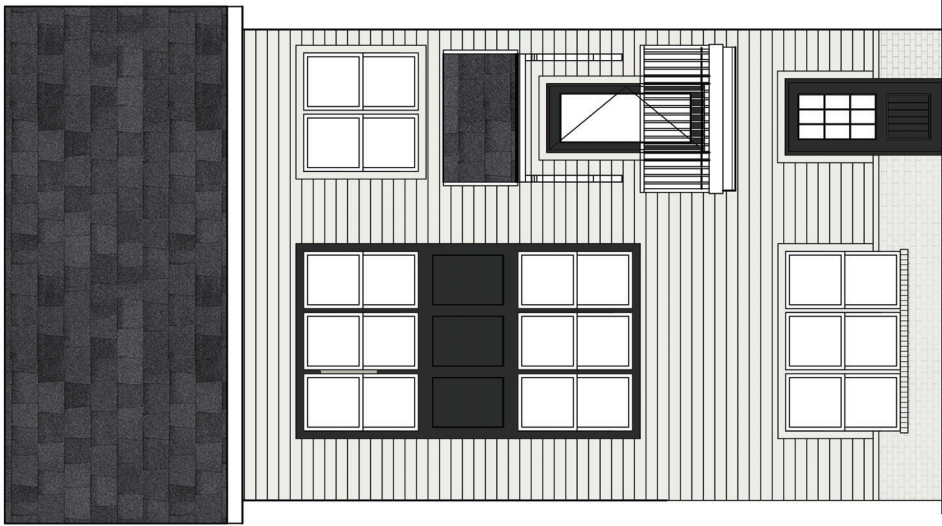
ELEVATION H
(MID UNIT COND.)

SCHEME 4



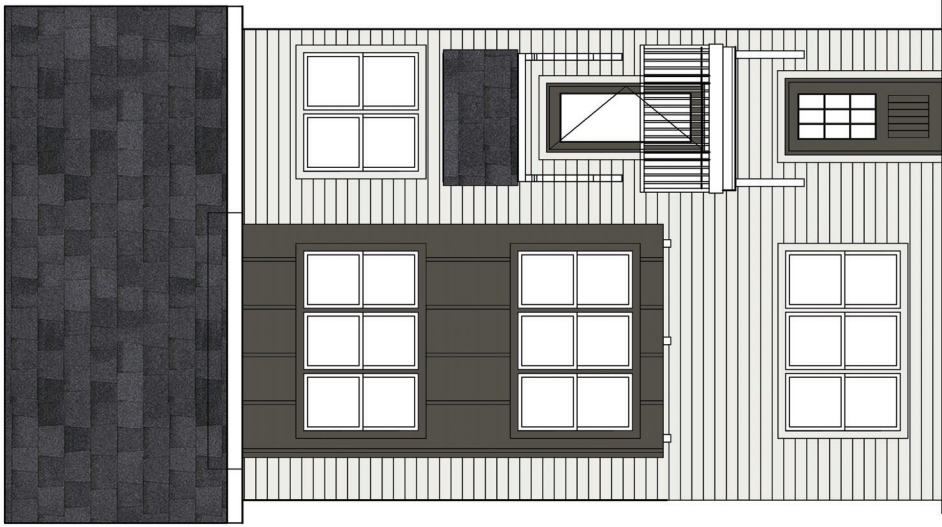
ELEVATION G
(MID UNIT COND.)

SCHEME 3



ELEVATION F
(MID UNIT COND.)

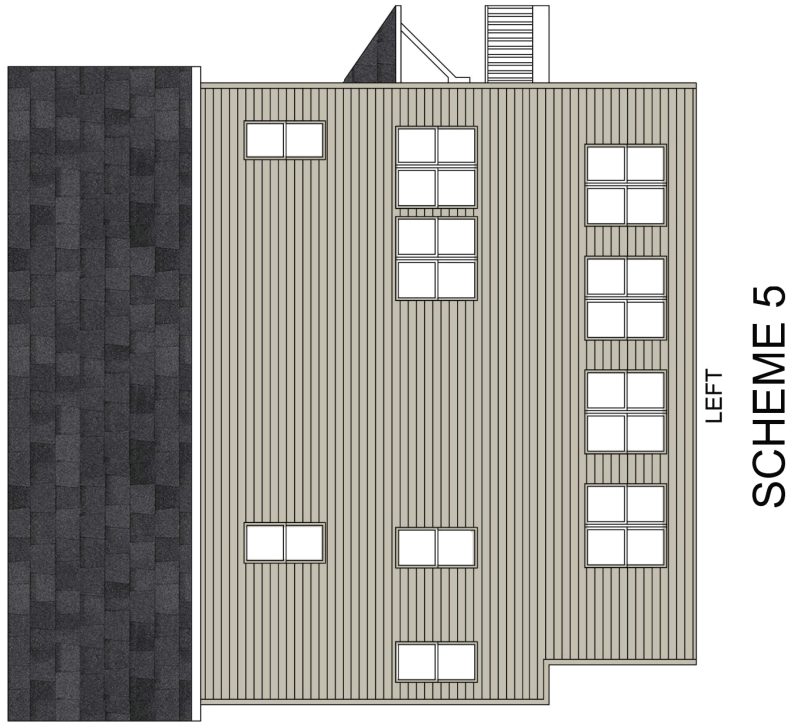
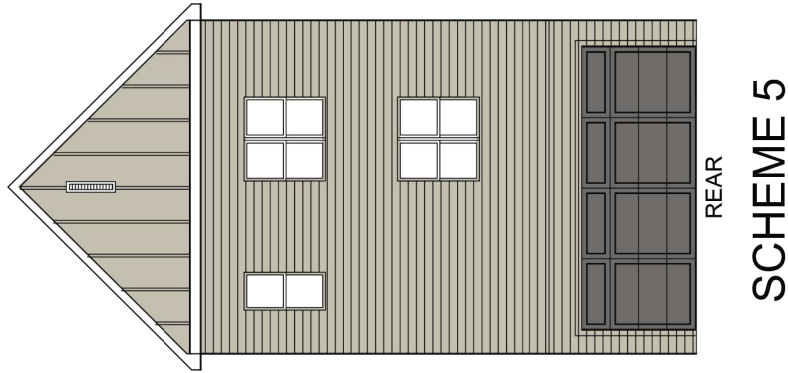
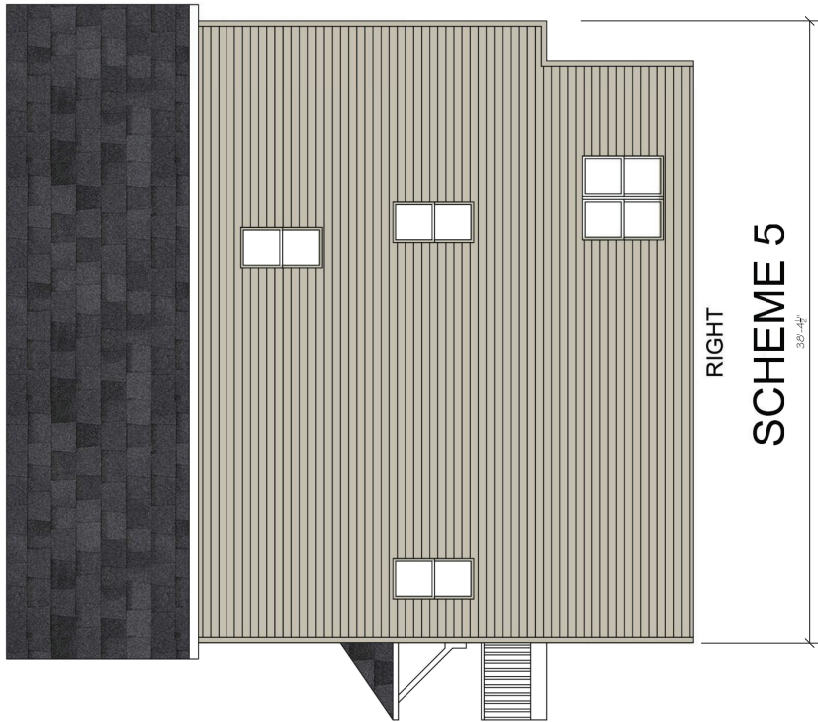
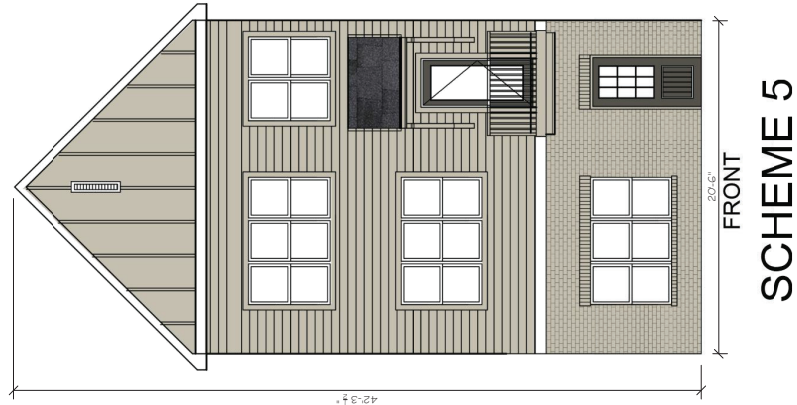
SCHEME 2

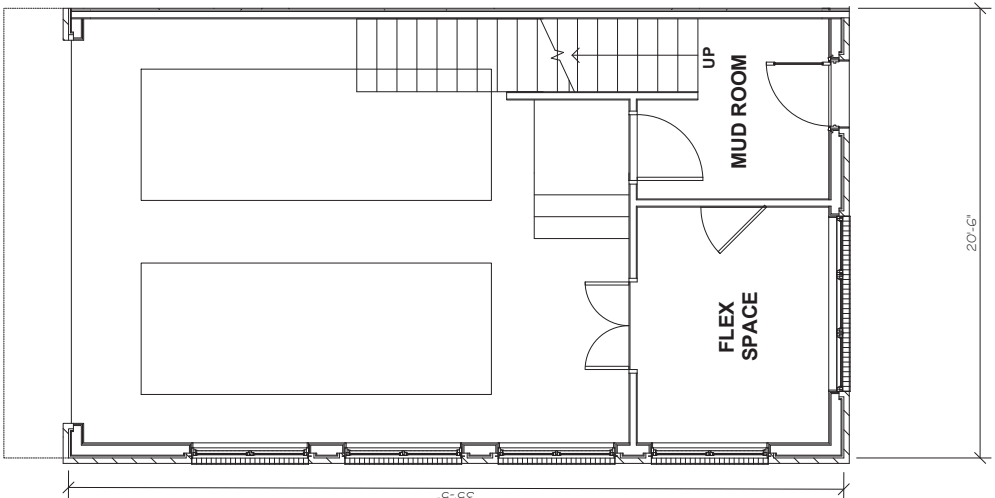
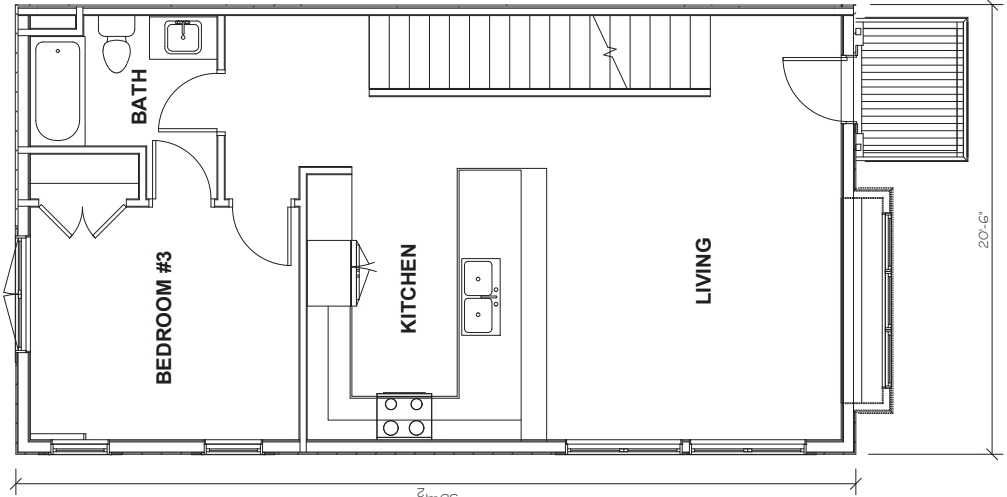
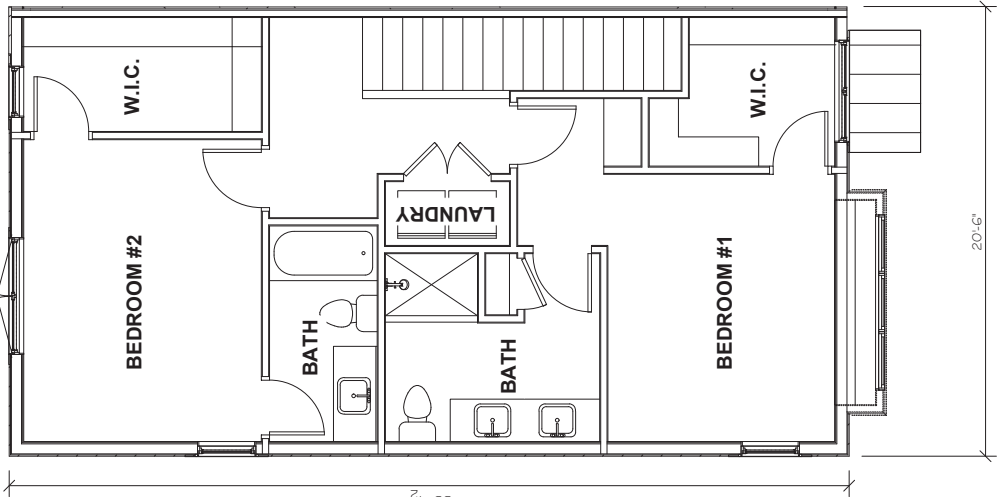


ELEVATION E
(MID UNIT COND.)

SCHEME 1



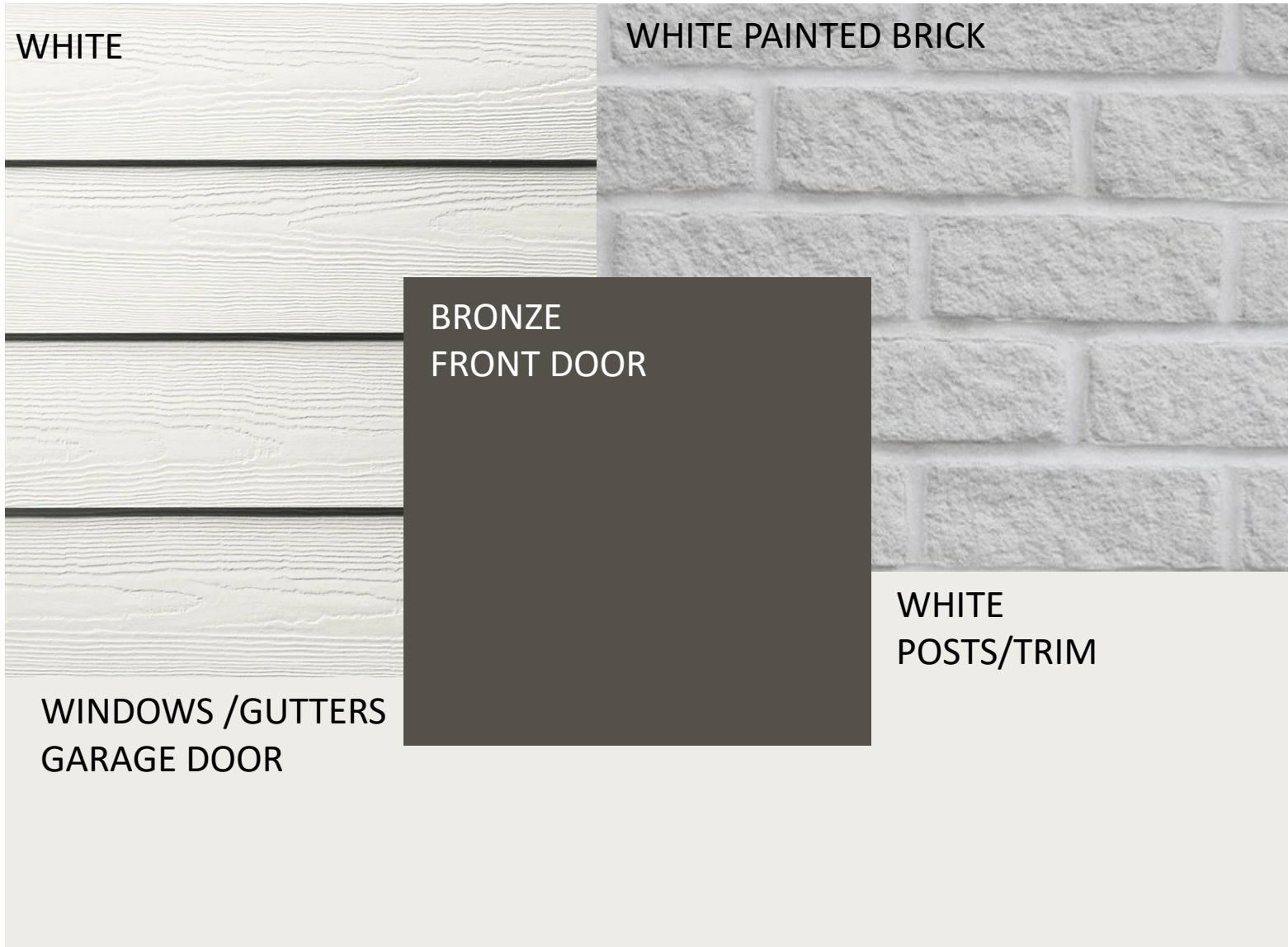




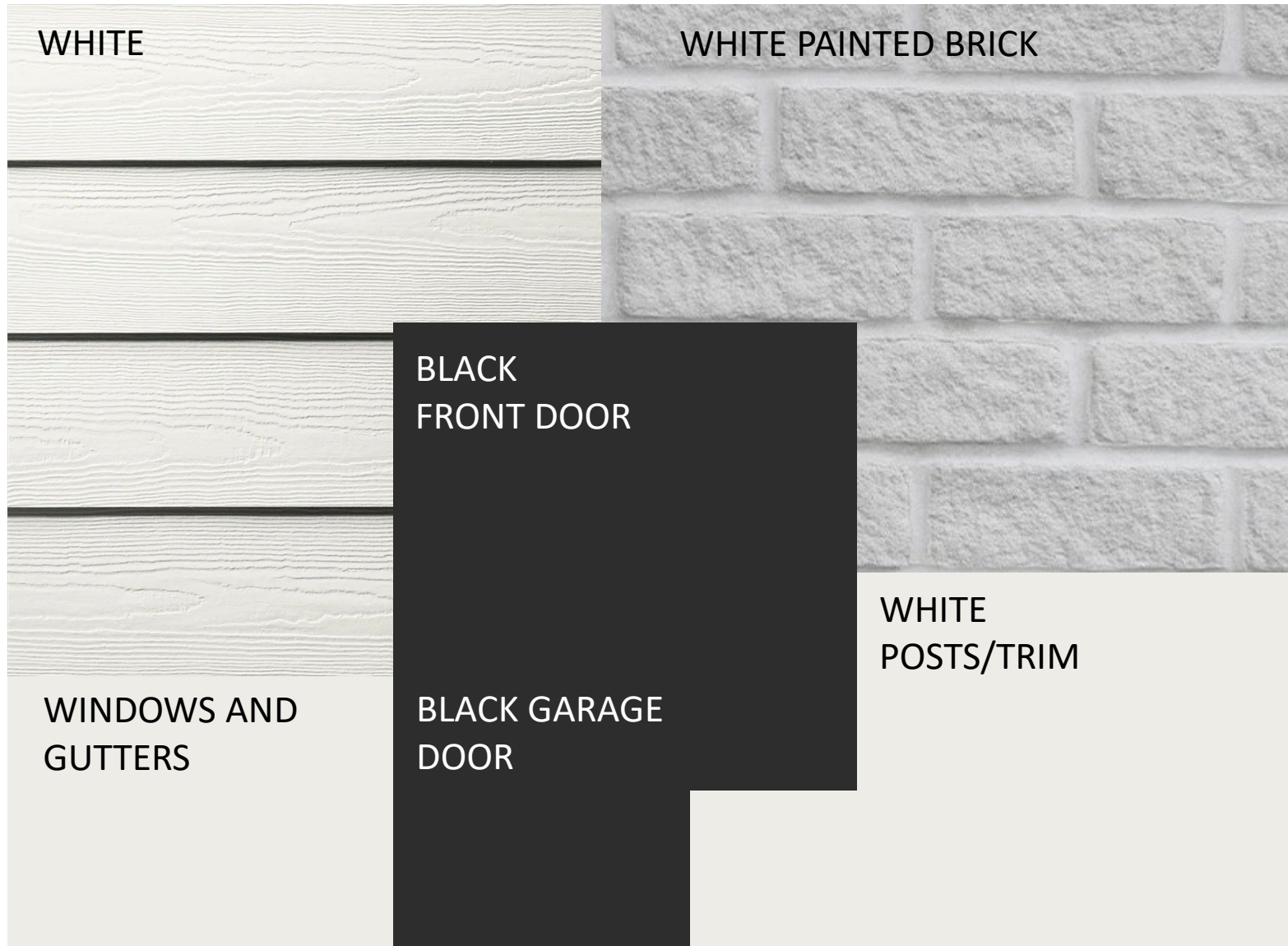
Columbia, TN - Elevations & Exterior Color Schemes

PLAN 1

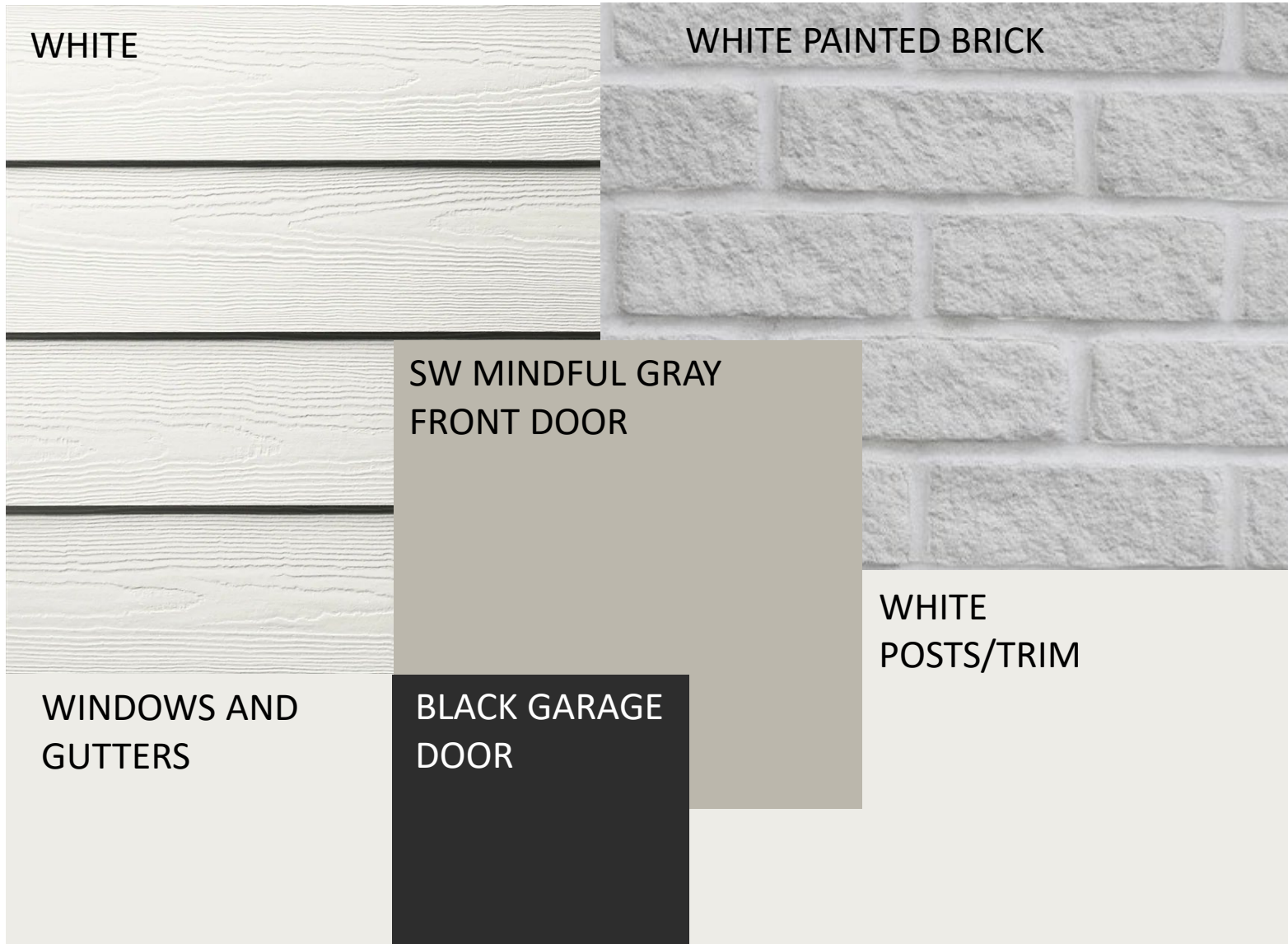
SCHEME 1



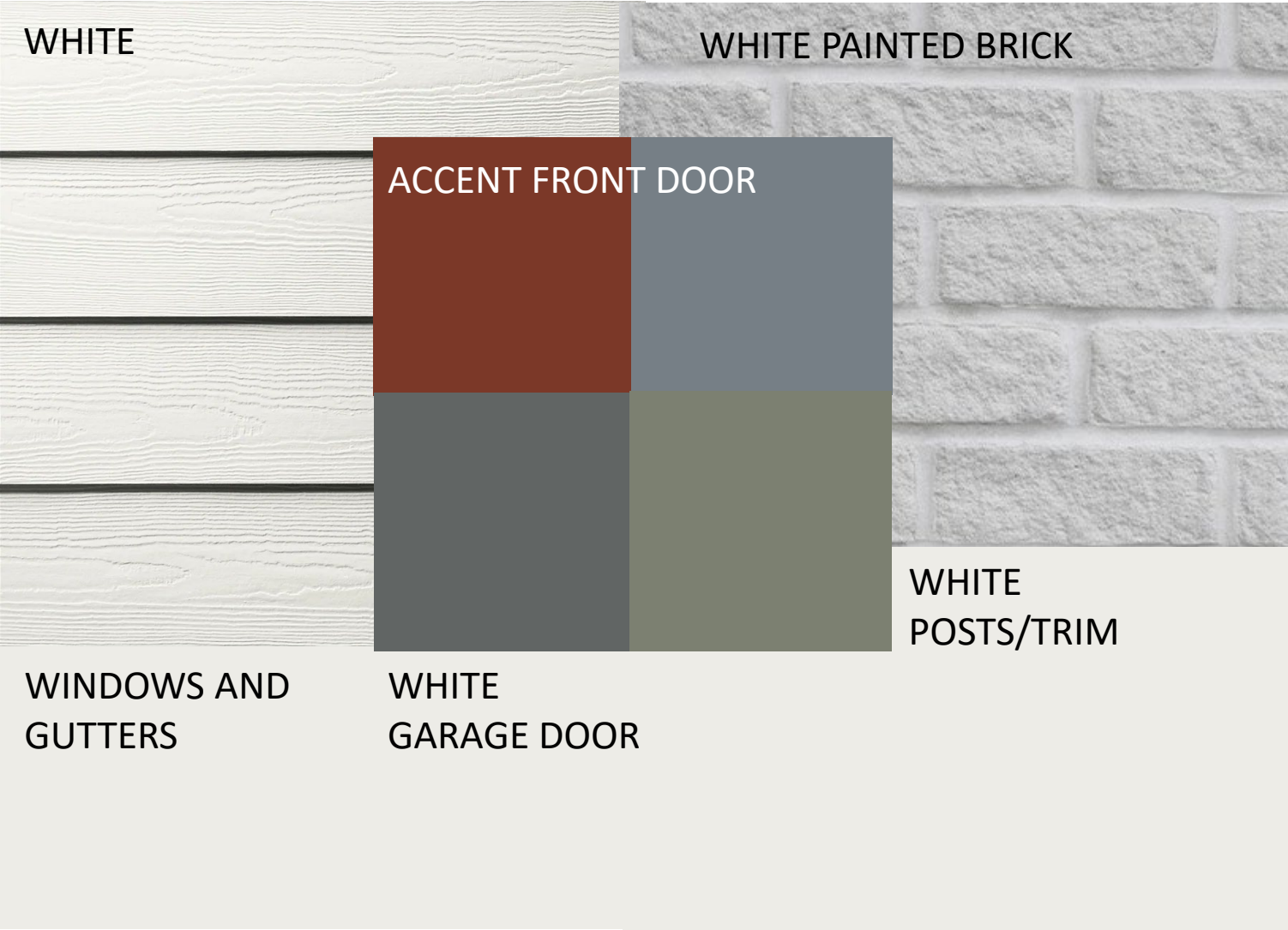
SCHEME 2



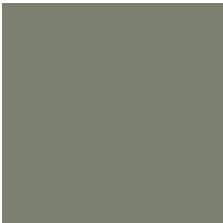
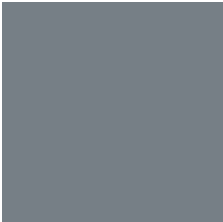
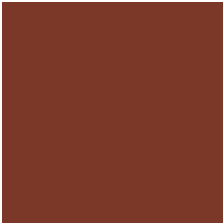
SCHEME 3



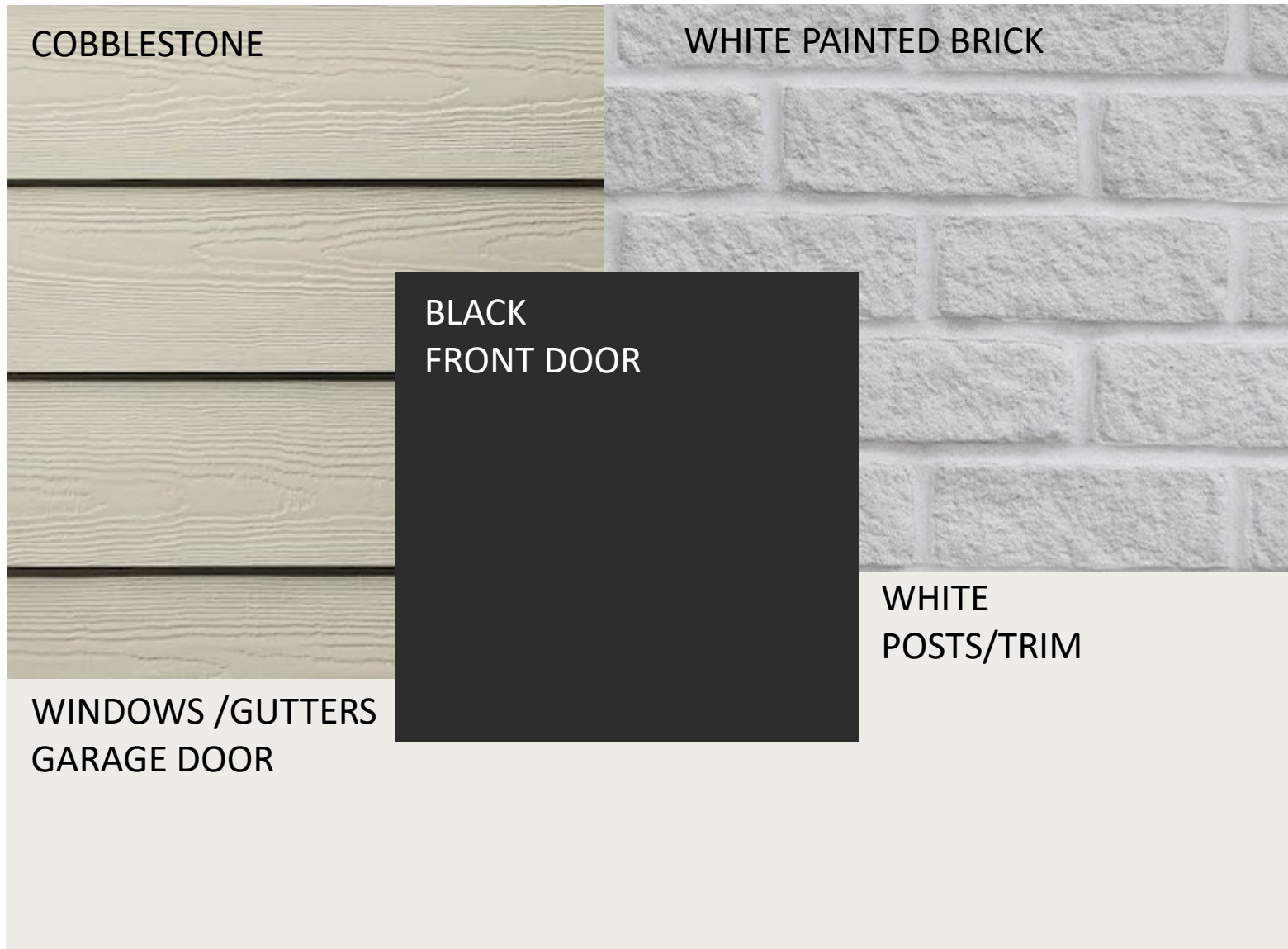
SCHEME 4



- ACCENT DOOR OPTIONS
- SW ROYCROFT COPPER RED
 - SW DOWNING SLATE
 - SW ROYCROFT PEWTER
 - SW DRIED THYME

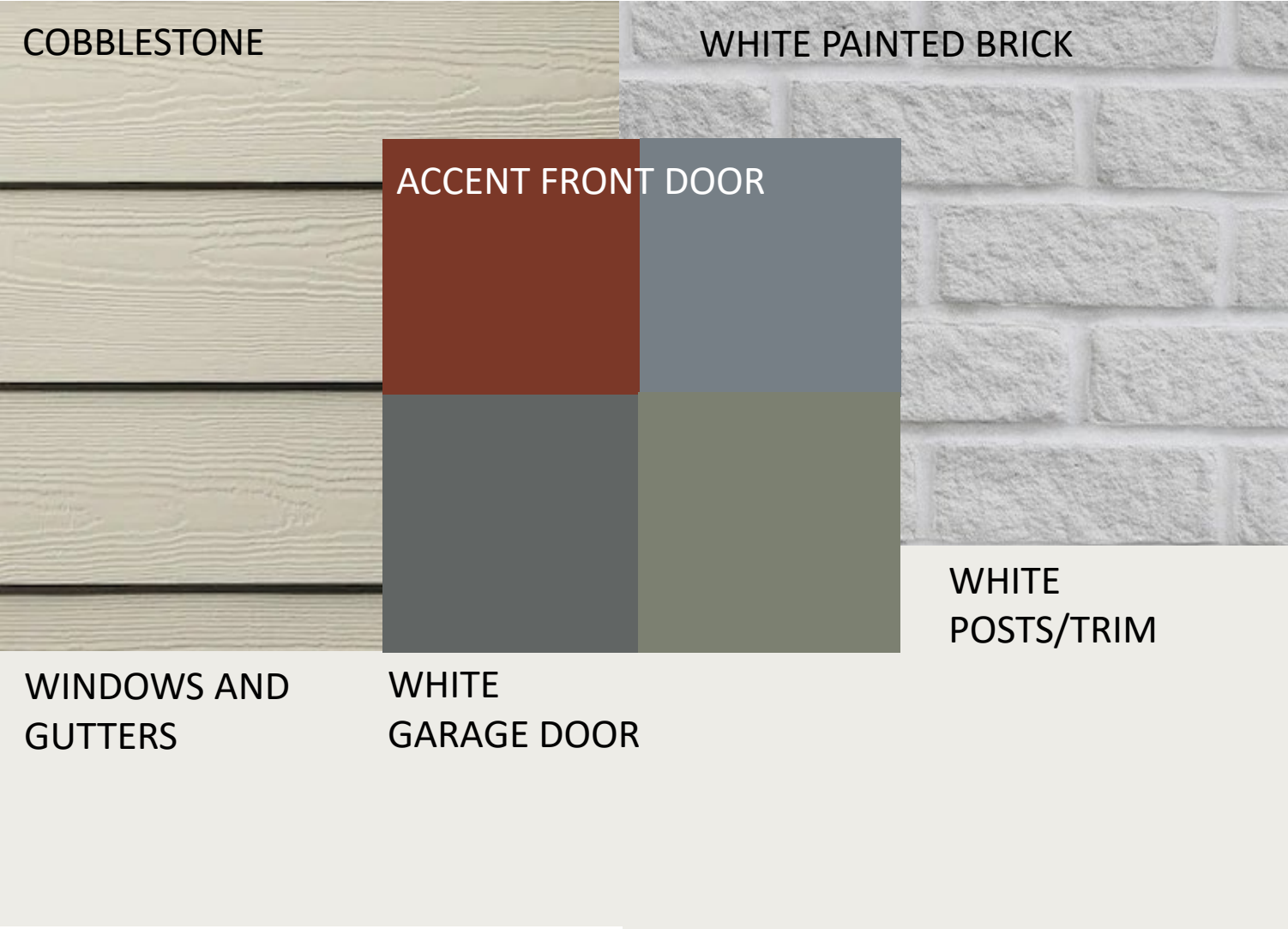


SCHEME 5

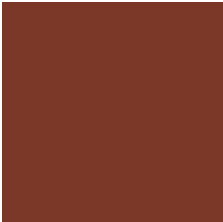


*Exterior color package may not be available depending on selections for neighboring lots

SCHEME 6



- ACCENT DOOR OPTIONS
- SW ROYCROFT COPPER RED
 - SW DOWNING SLATE
 - SW ROYCROFT PEWTER
 - SW DRIED THYME



SCHEME 7



SCHEME 8



ACCENT FRONT DOOR

- SW DRIED THYME



SCHEME 9



SCHEME 10

MONTEREY TAUPE

WHITE PAINTED BRICK

BRONZE FRONT DOOR

WHITE WINDOWS
AND GUTTERS

BRONZE
GARAGE DOOR

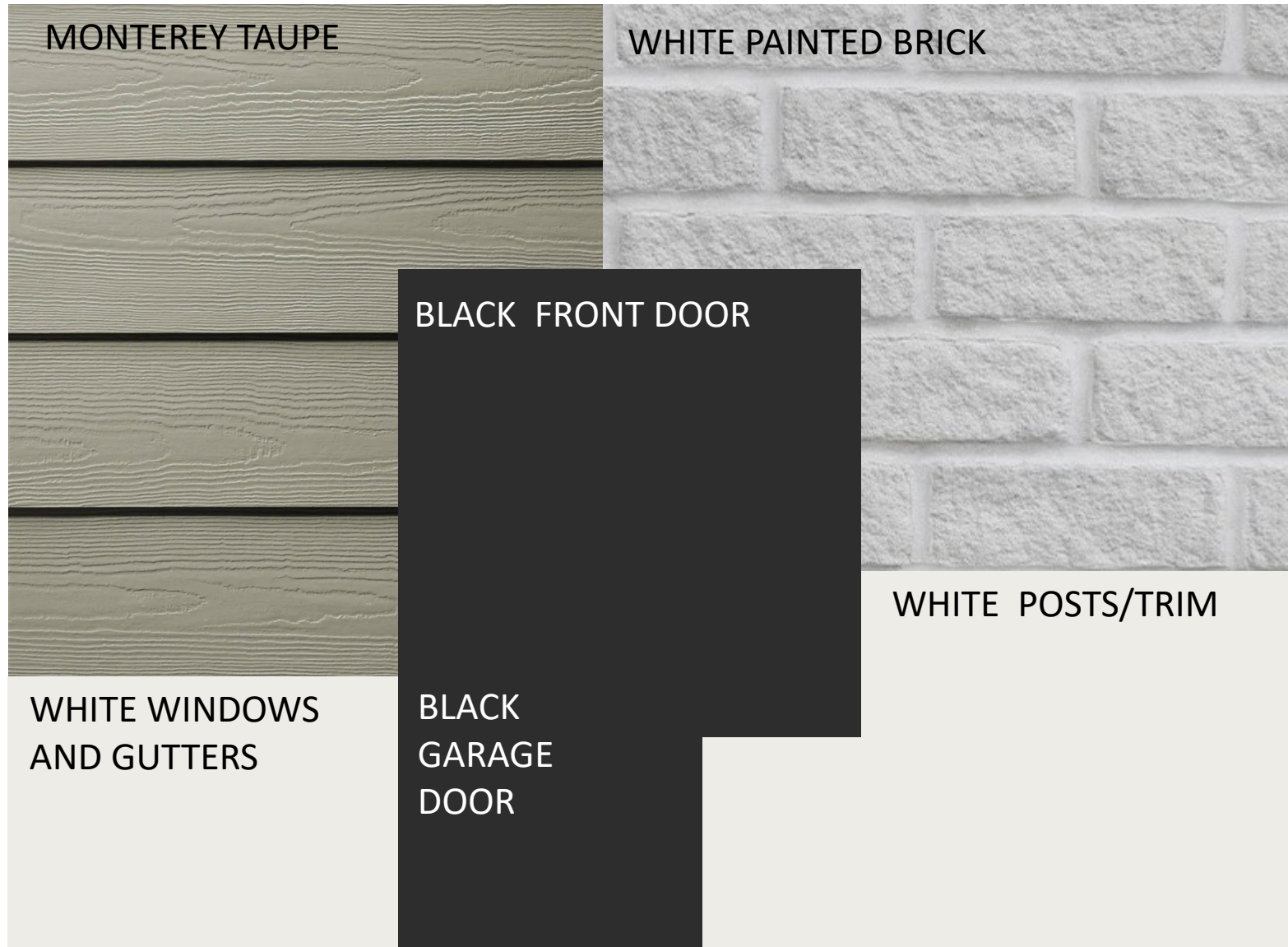
WHITE POSTS AND
TRIM

ACCENT DOOR OPTIONS

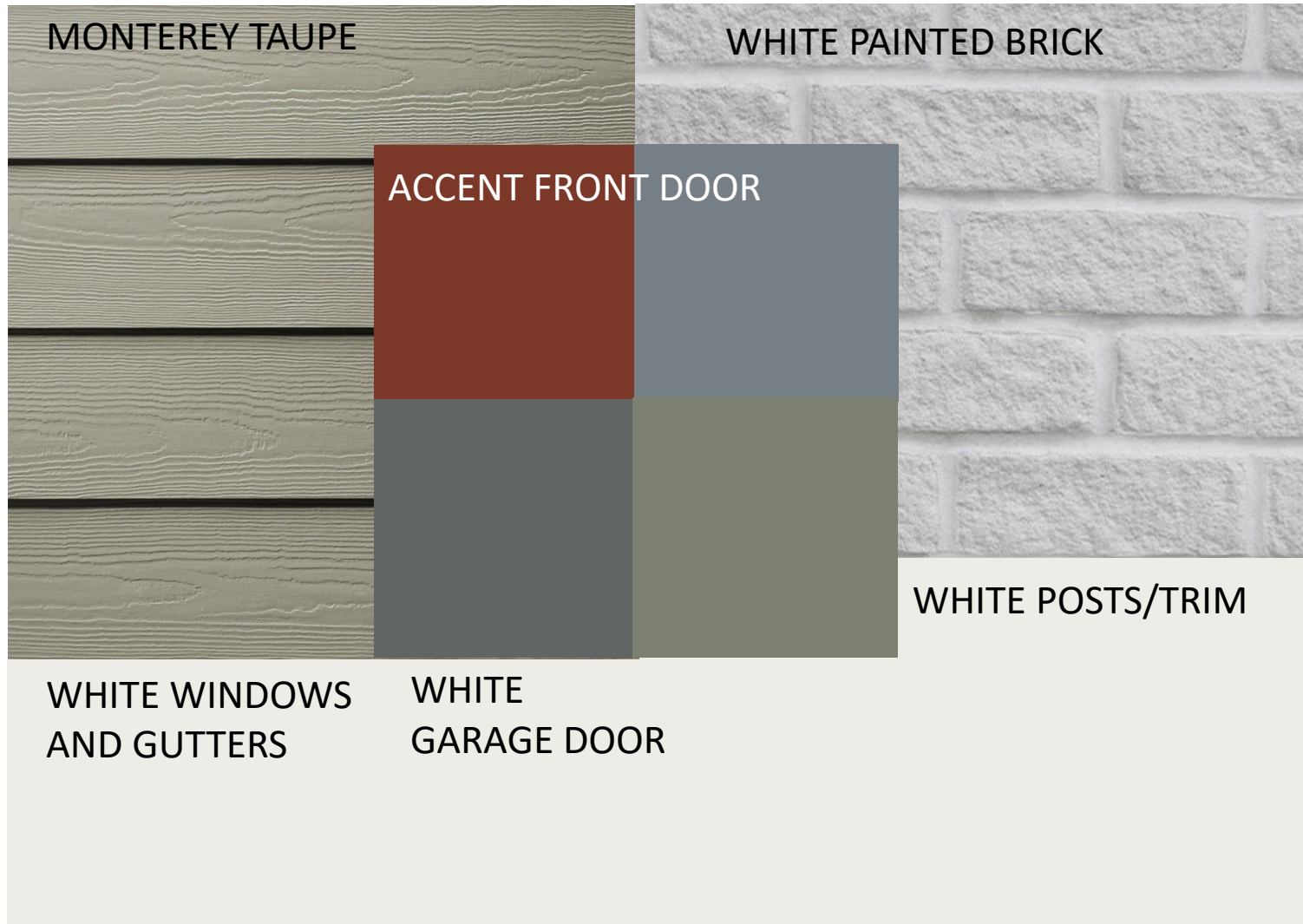
- SW DRIED THYME



SCHEME 11

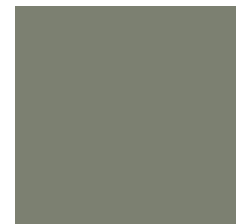
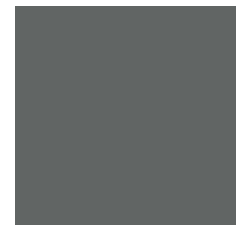
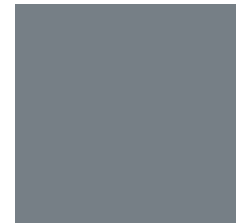
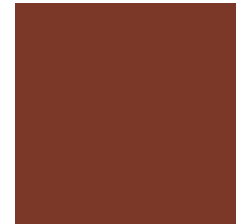


SCHEME 12

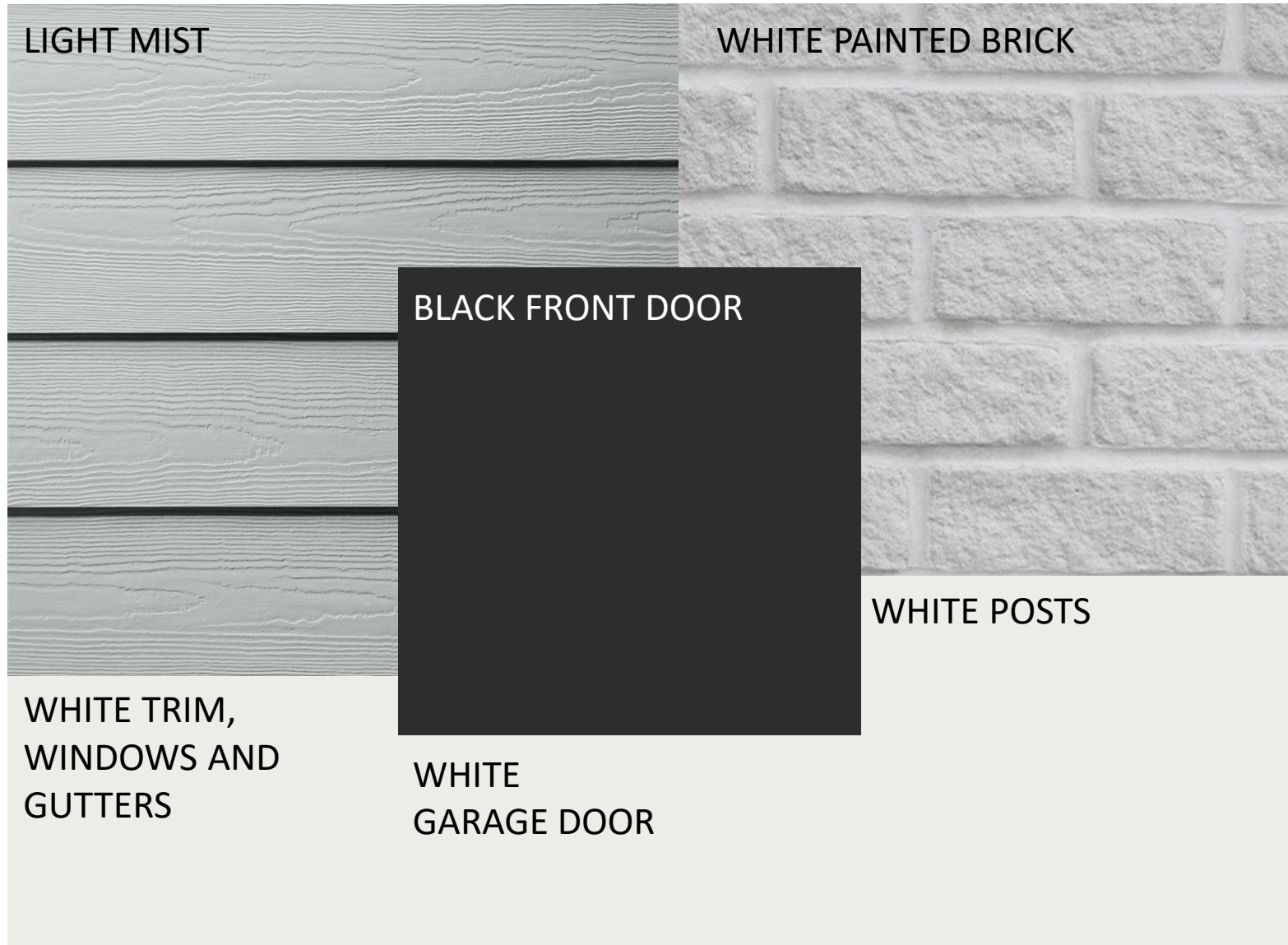


ACCENT DOOR OPTIONS

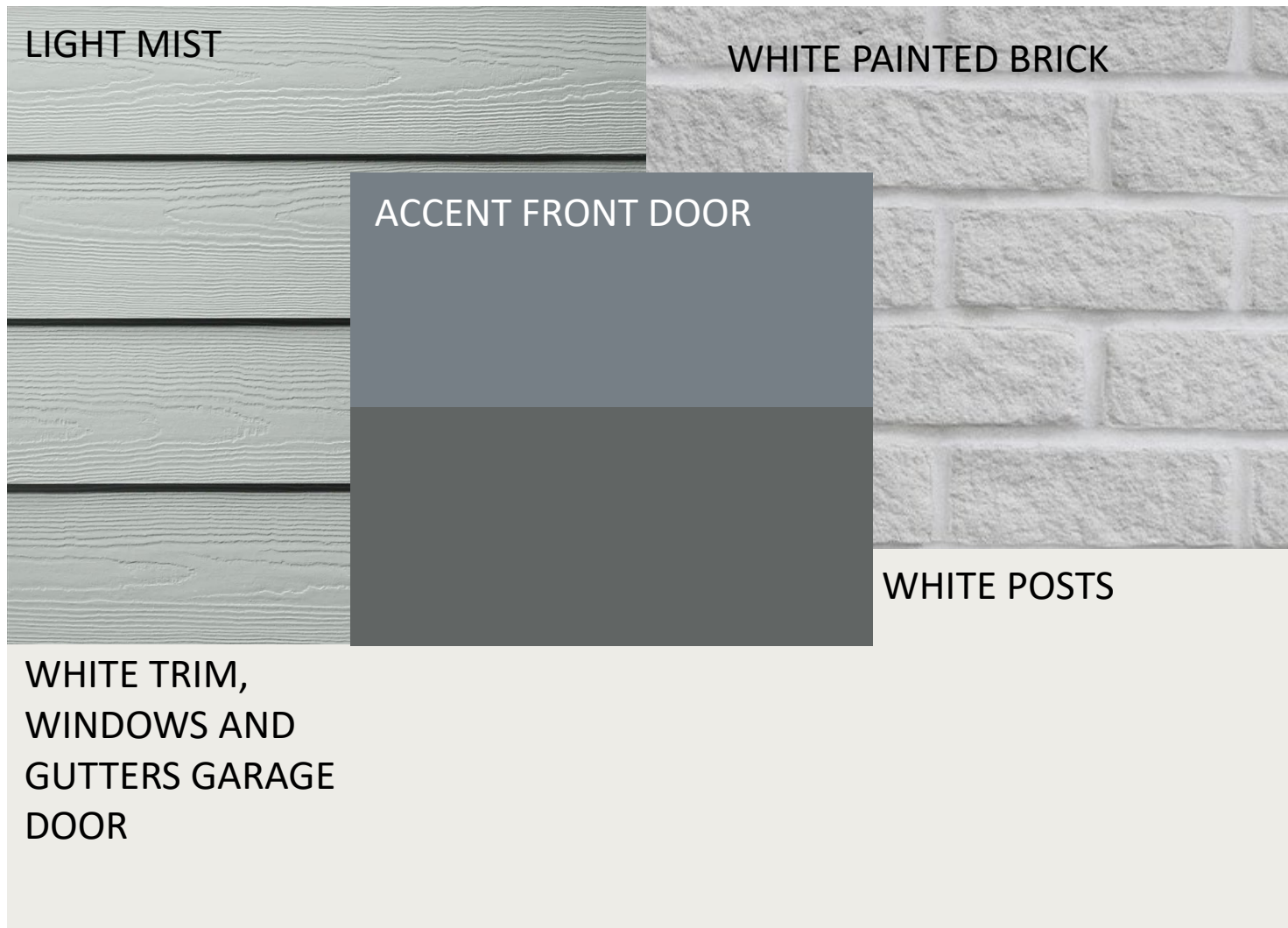
- SW ROYCROFT COPPER RED
- SW DOWNING SLATE
- SW ROYCROFT PEWTER
- SW DRIED THYME



SCHEME 13

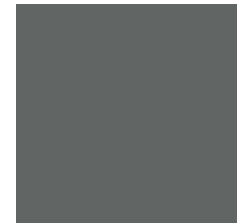
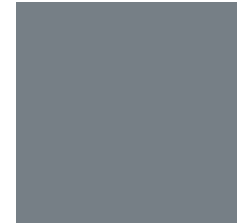


SCHEME 14

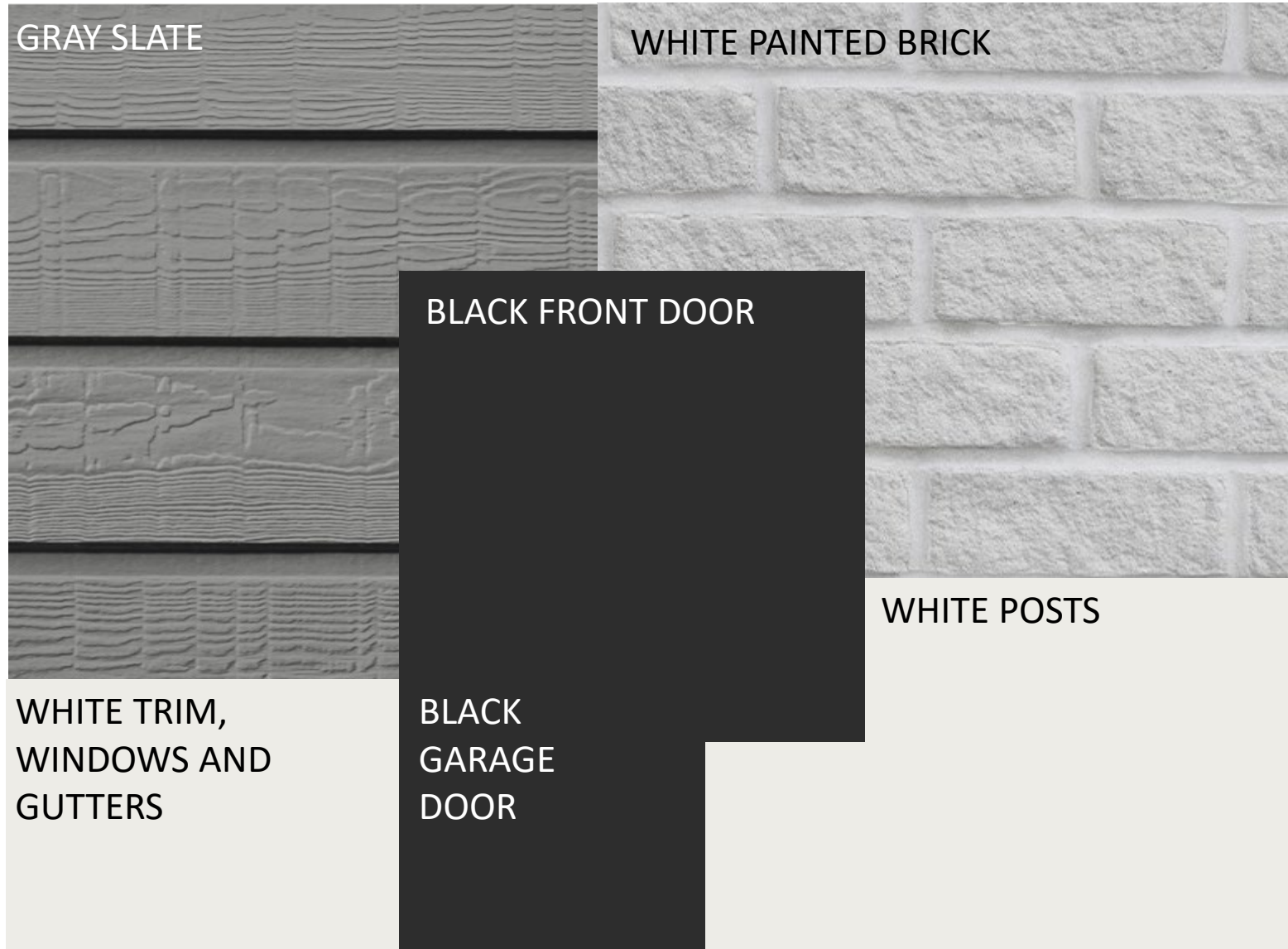


ACCENT DOOR OPTIONS

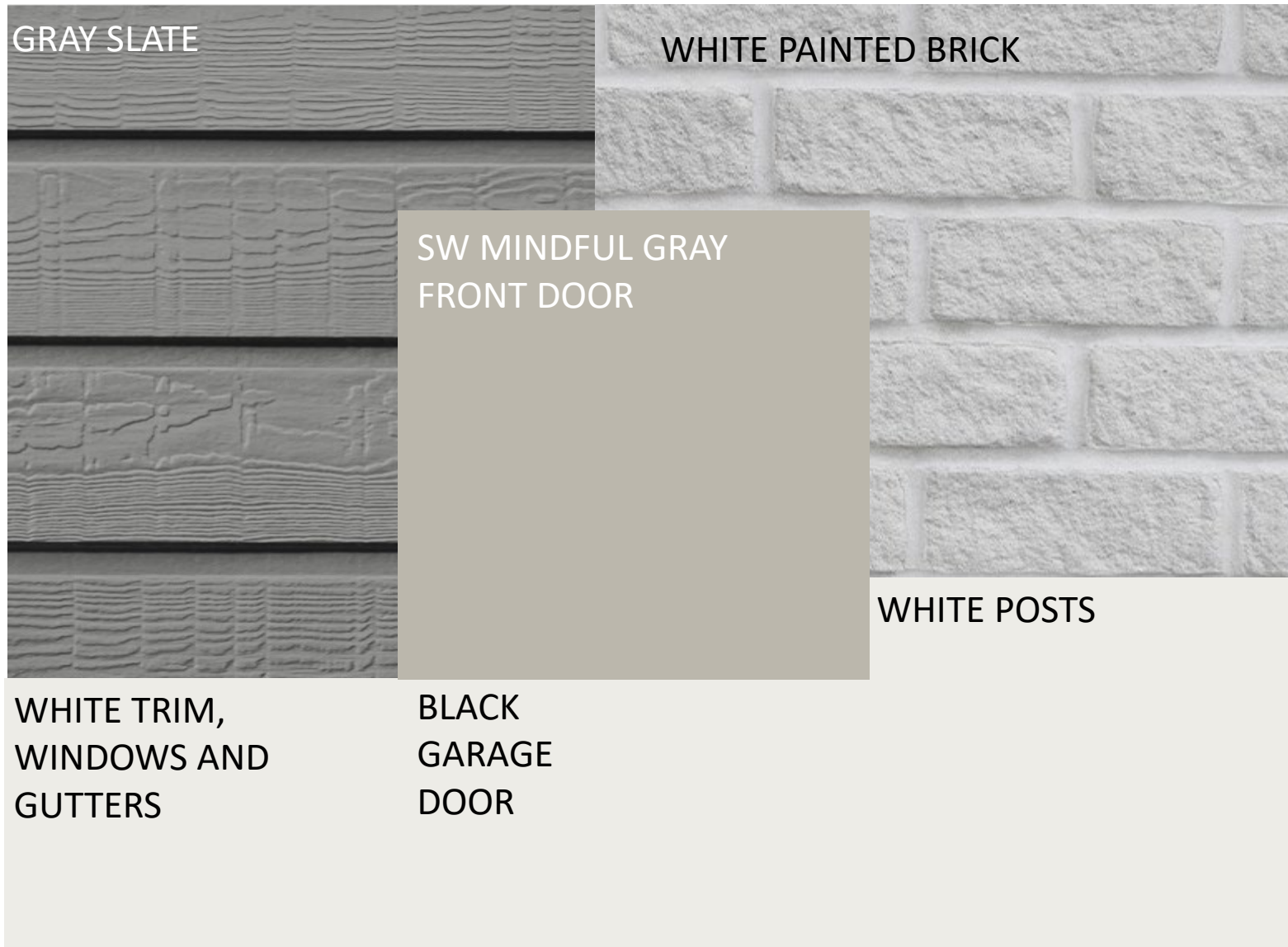
- SW DOWNING SLATE
- SW ROYCROFT PEWTER



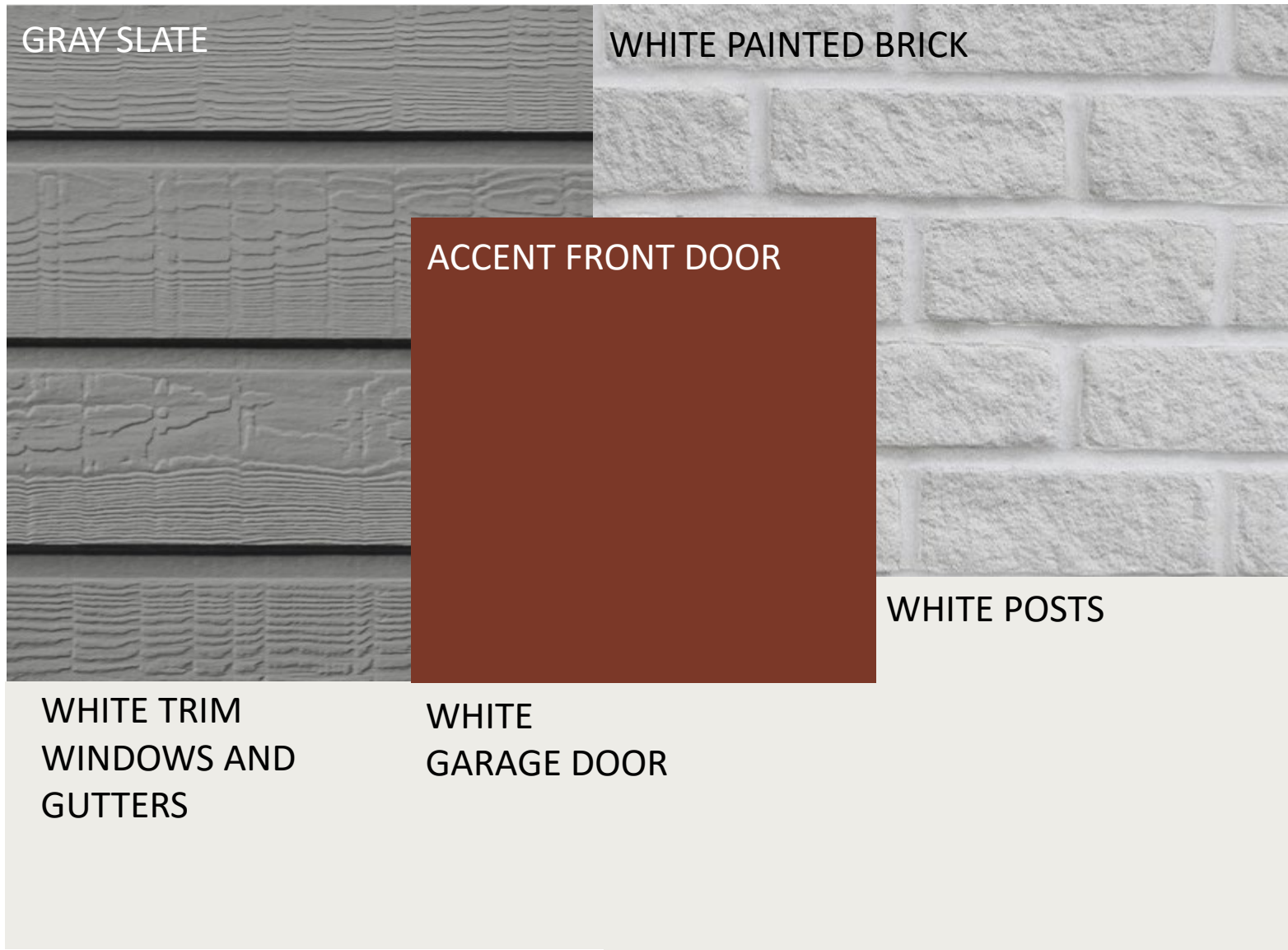
SCHEME 15



SCHEME 16

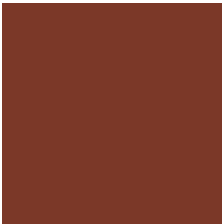


SCHEME 17

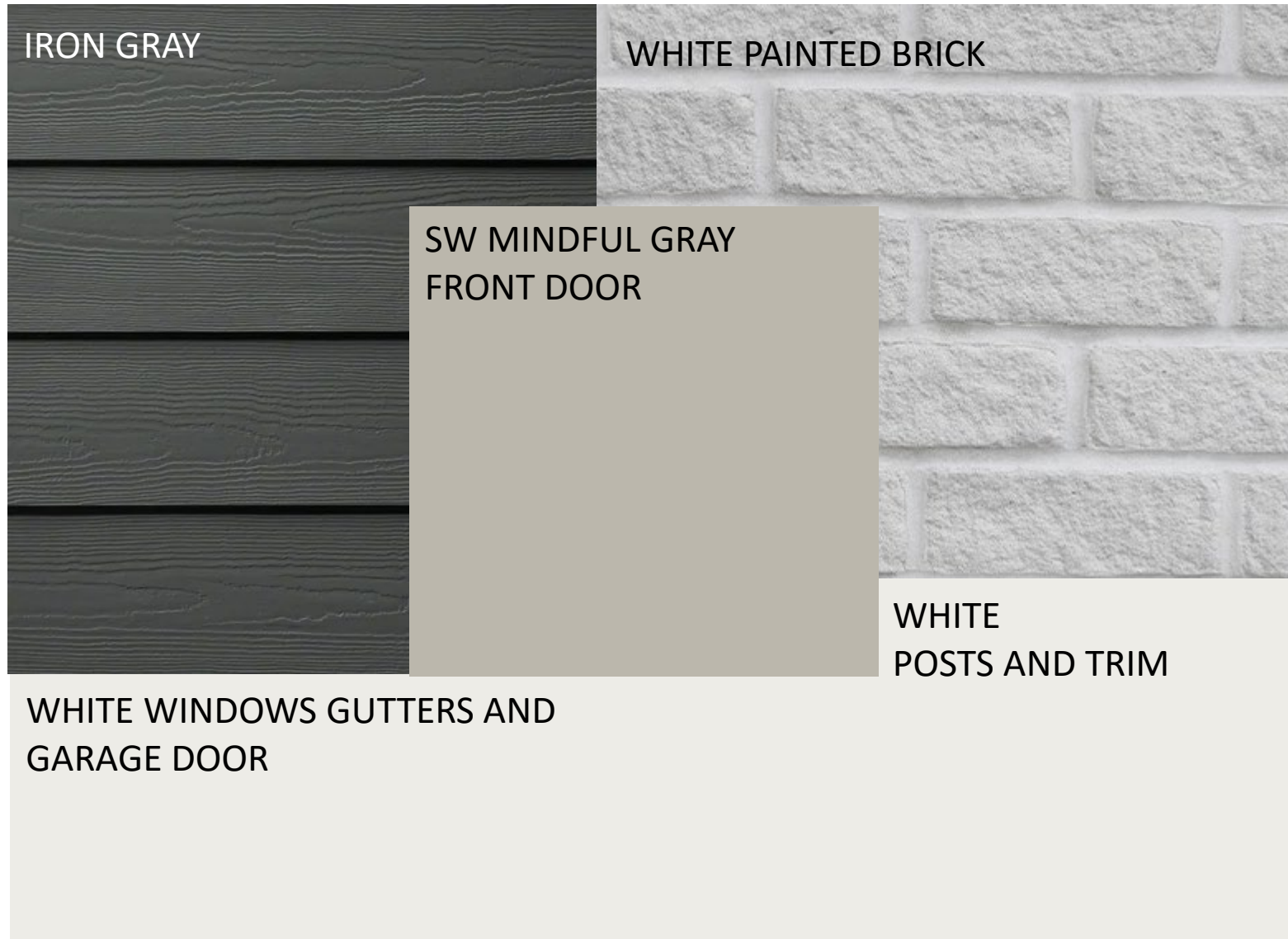


ACCENT DOOR OPTIONS

- SW ROYCROFT
COPPER RED



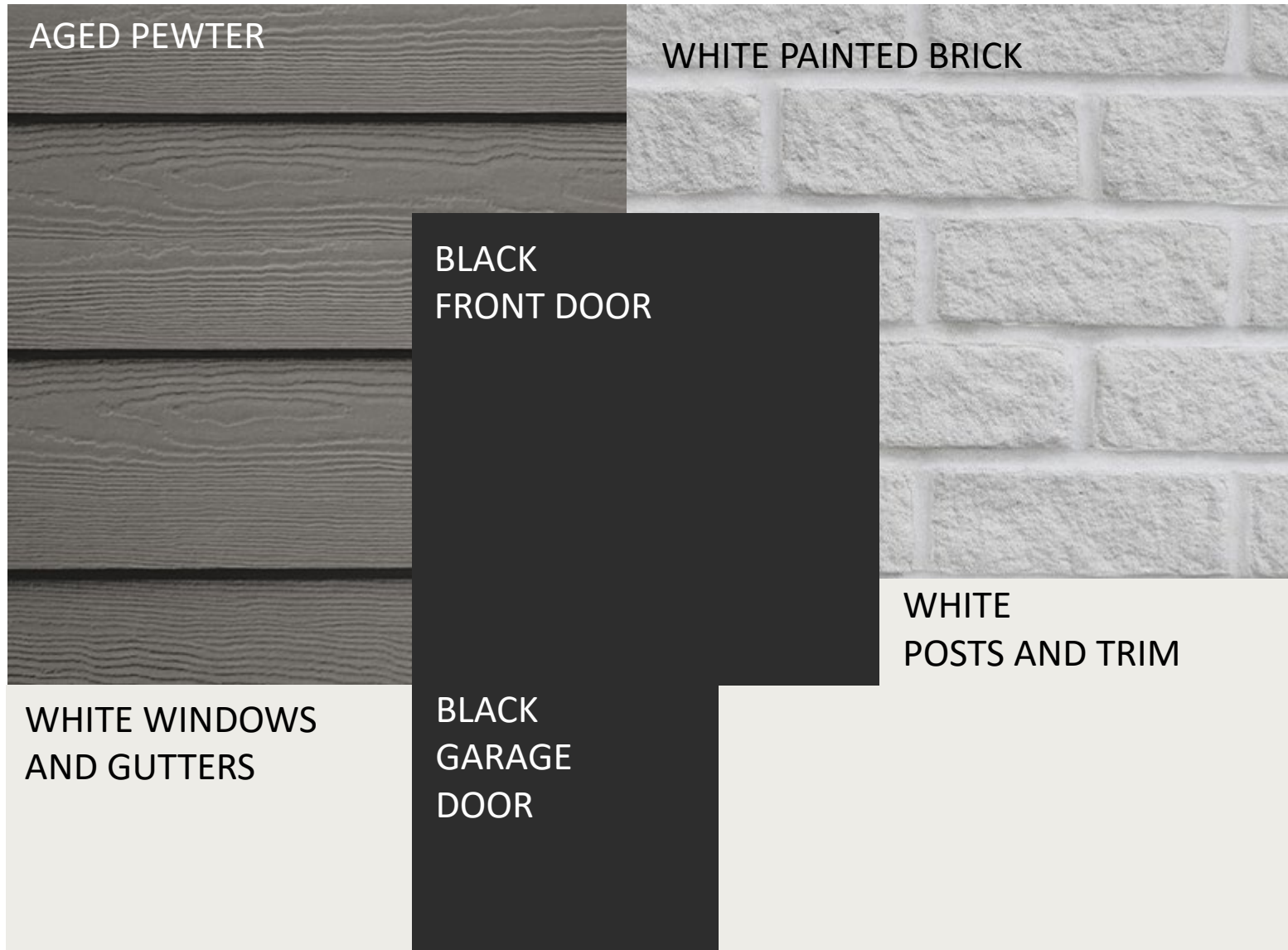
SCHEME 18



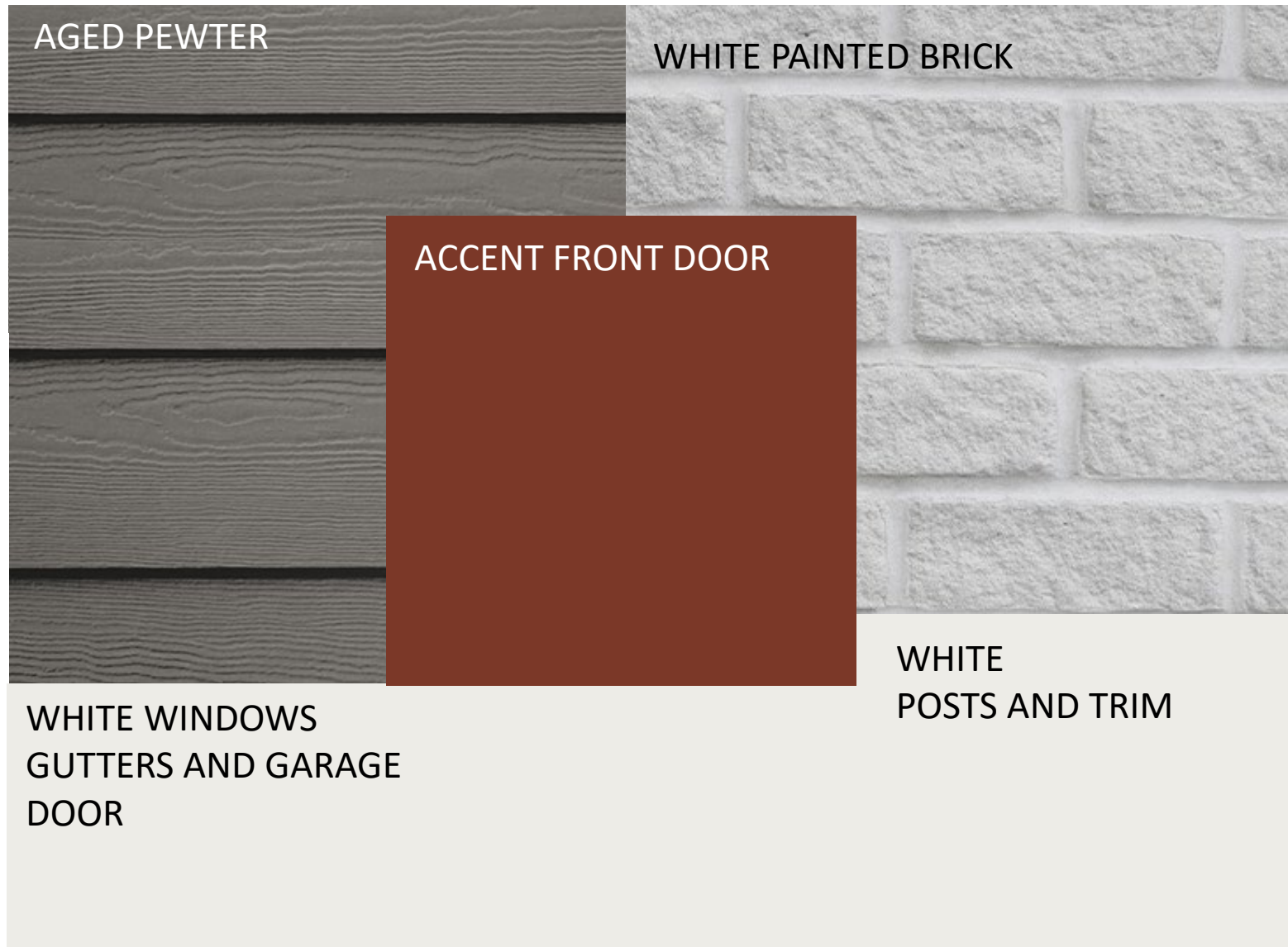
SCHEME 19



SCHEME 20



SCHEME 21



ACCENT DOOR OPTIONS

- SW ROYCROFT
COPPER RED



SCHEME 22

TIMBER BARK

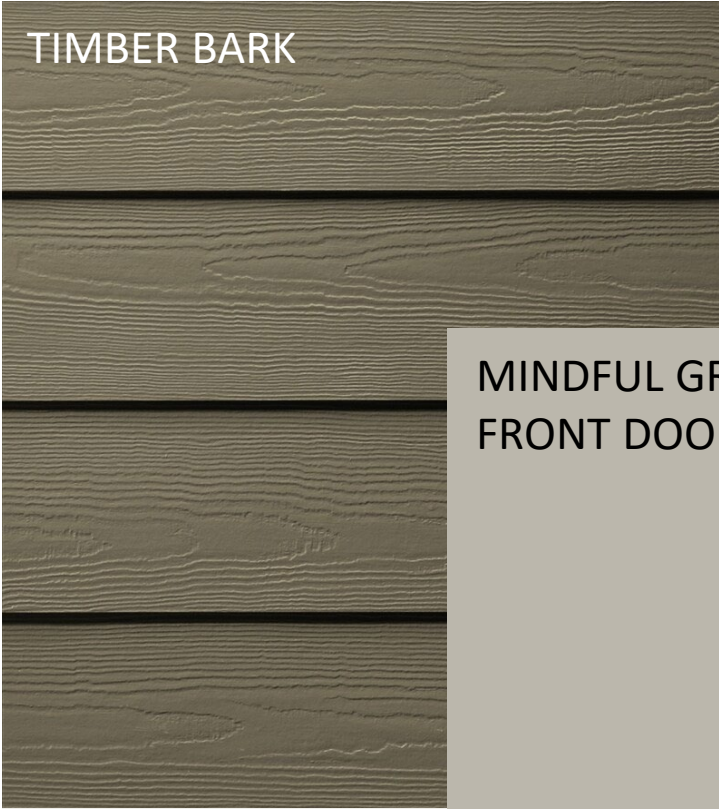
WHITE PAINTED BRICK

SW PURE WHITE
FRONT DOOR

WHITE WINDOWS
GUTTERS

WHITE
POSTS AND TRIM

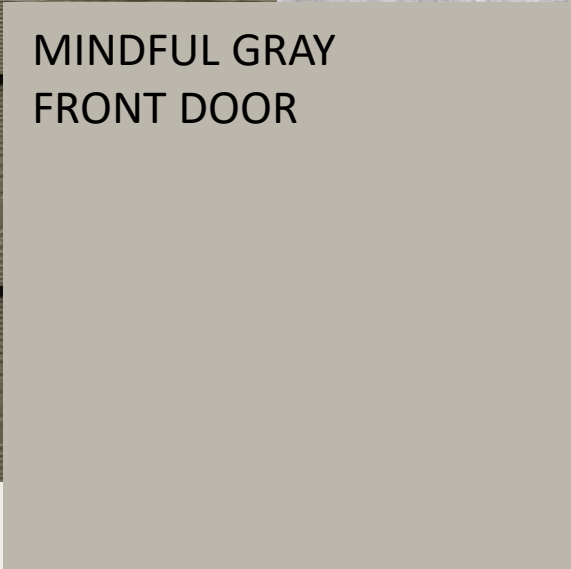
SCHEME 23



TIMBER BARK



WHITE PAINTED BRICK



MINDFUL GRAY
FRONT DOOR



WHITE
POSTS AND TRIM

WHITE WINDOWS
GUTTERS AND
GARAGE DOOR

SCHEME 24



SCHEME 25



SCHEME 26

HEATHERED MOSS

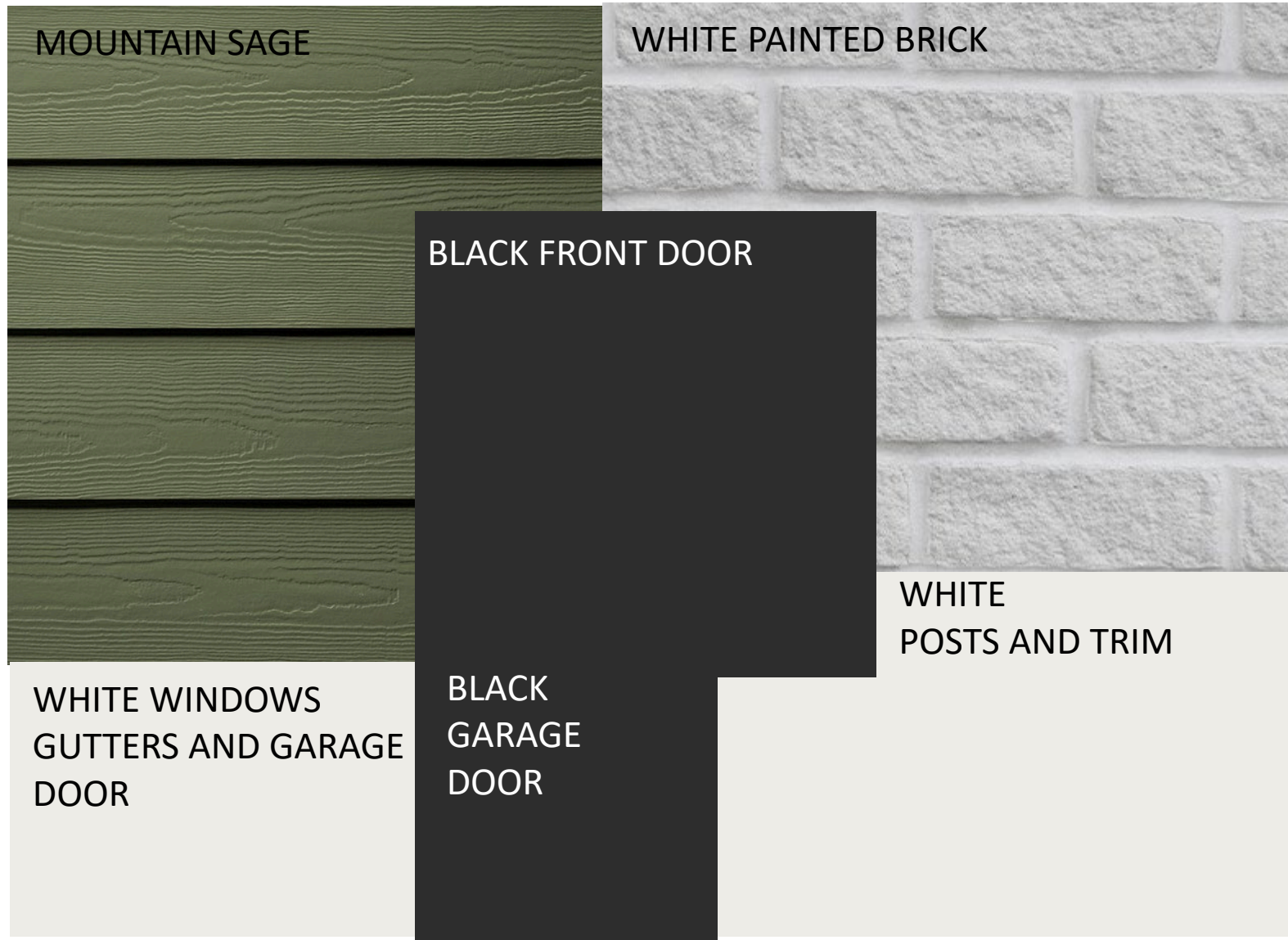
WHITE PAINTED BRICK

WHITE FRONT DOOR

WHITE WINDOWS
GUTTERS

WHITE
POSTS AND TRIM

SCHEME 27



SCHEME 28



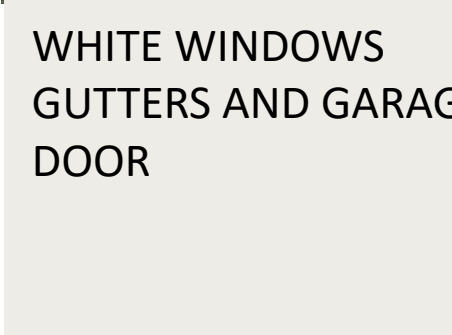
MOUNTAIN SAGE

A vertical rectangular color swatch showing a dark, muted green with a subtle wood-grain texture.

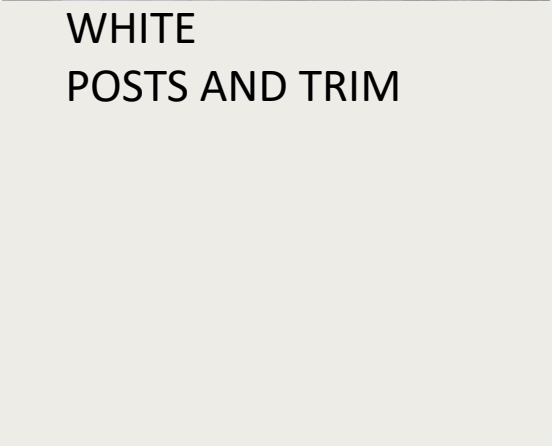
WHITE PAINTED BRICK

A vertical rectangular color swatch showing a close-up of white-painted bricks with visible mortar lines.

WHITE FRONT DOOR

A vertical rectangular color swatch showing a solid, clean white color.

WHITE WINDOWS
GUTTERS AND GARAGE
DOOR

A vertical rectangular color swatch showing a solid, clean white color, matching the front door swatch.

WHITE
POSTS AND TRIM

A vertical rectangular color swatch showing a solid, clean white color, matching the front door and windows/gutters/garage door swatches.

PLAN 3

SCHEME 1

ARCTIC WHITE

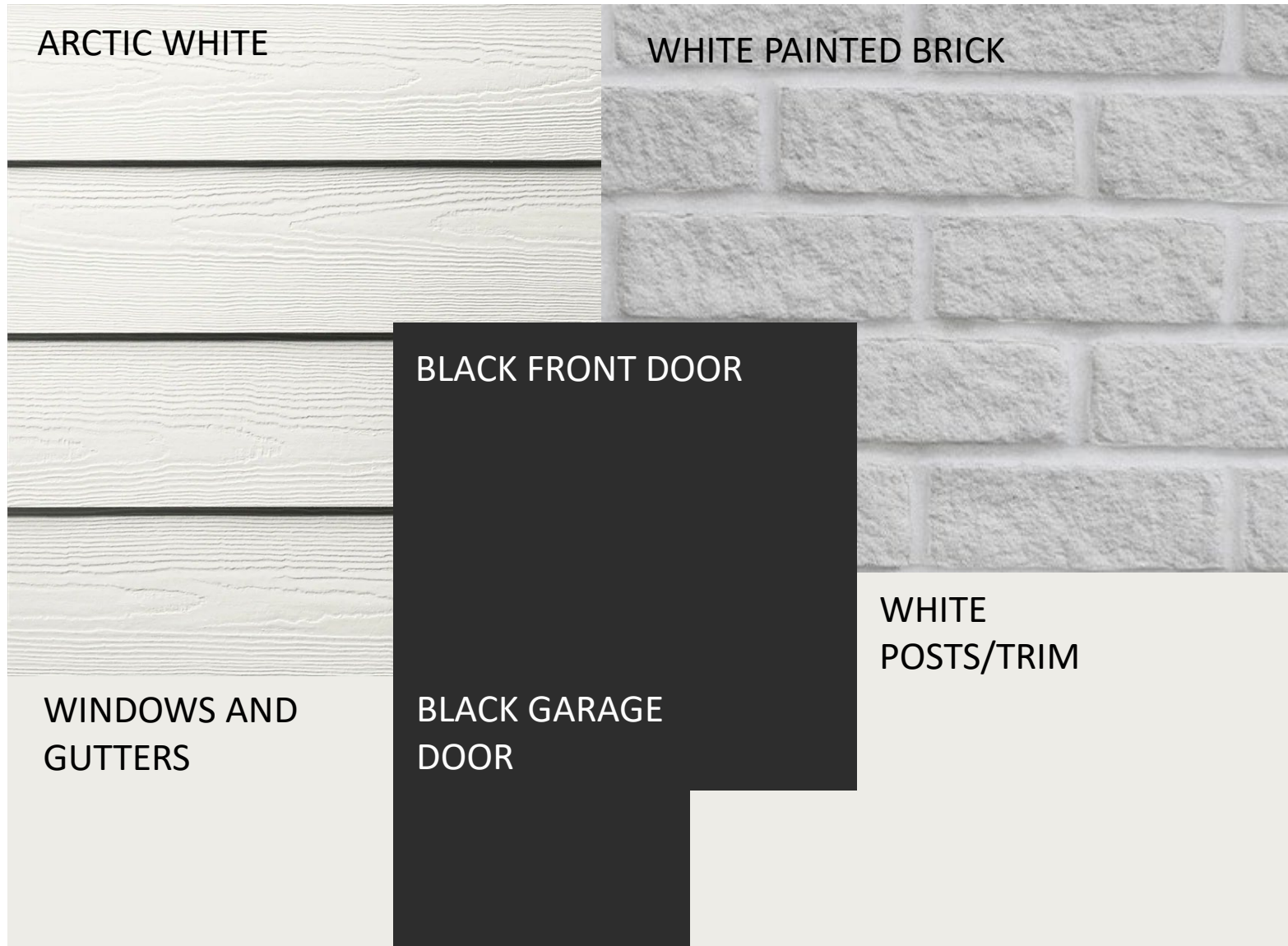
WHITE PAINTED BRICK

BRONZE FRONT DOOR

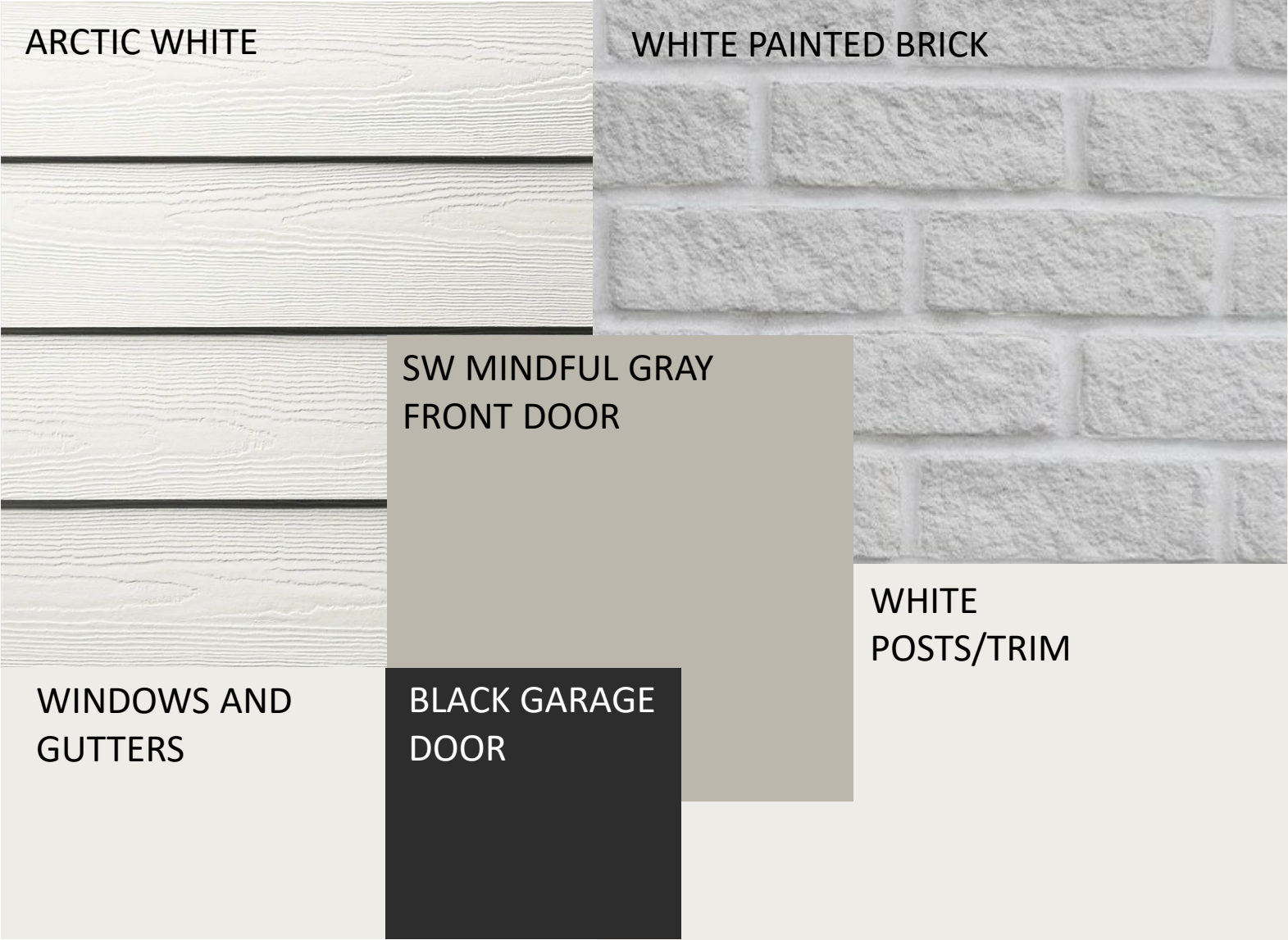
WINDOWS /GUTTERS
GARAGE DOOR

WHITE
POSTS/TRIM

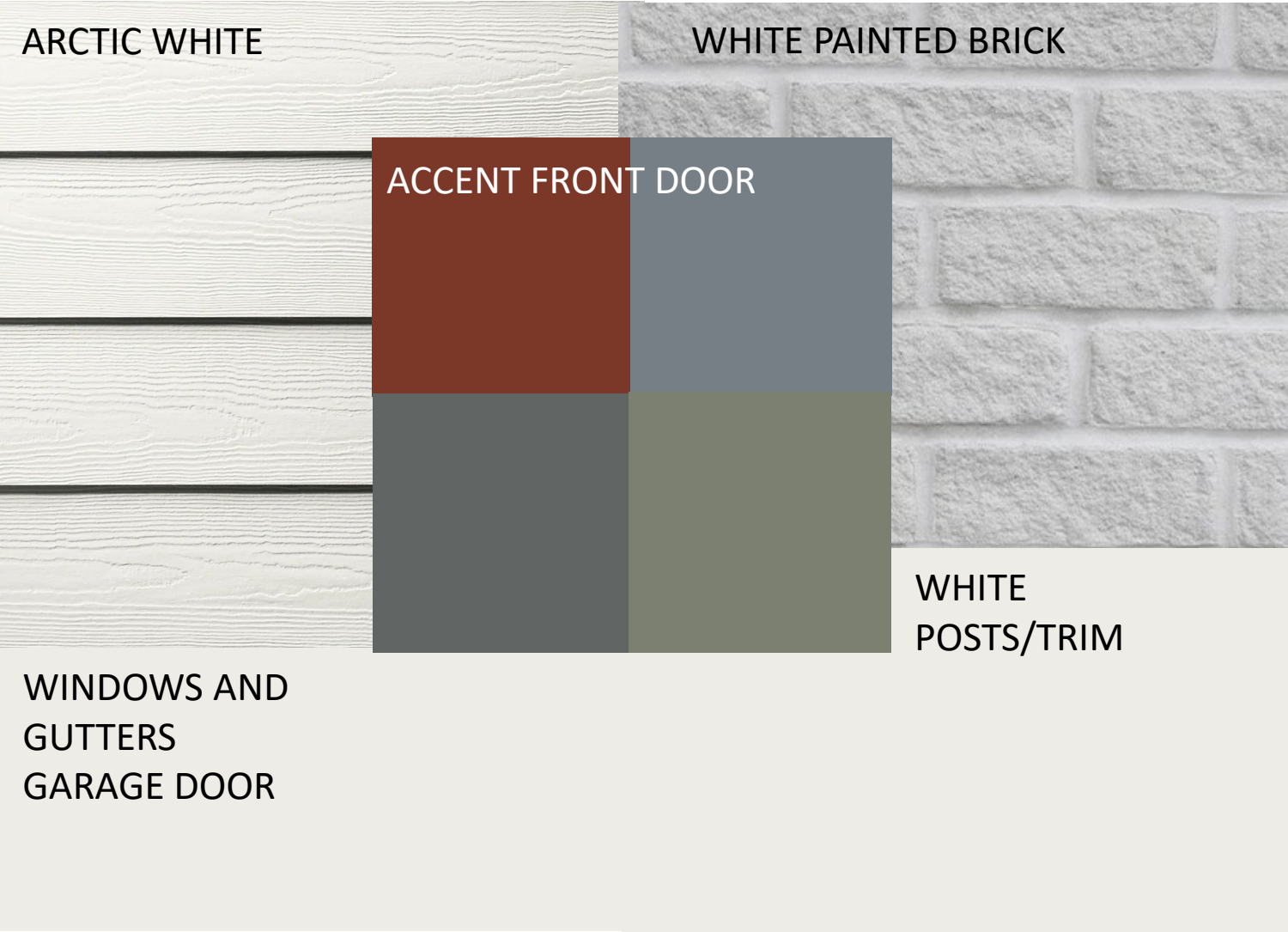
SCHEME 2



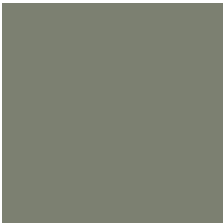
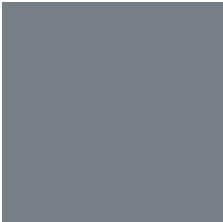
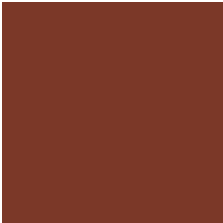
SCHEME 3



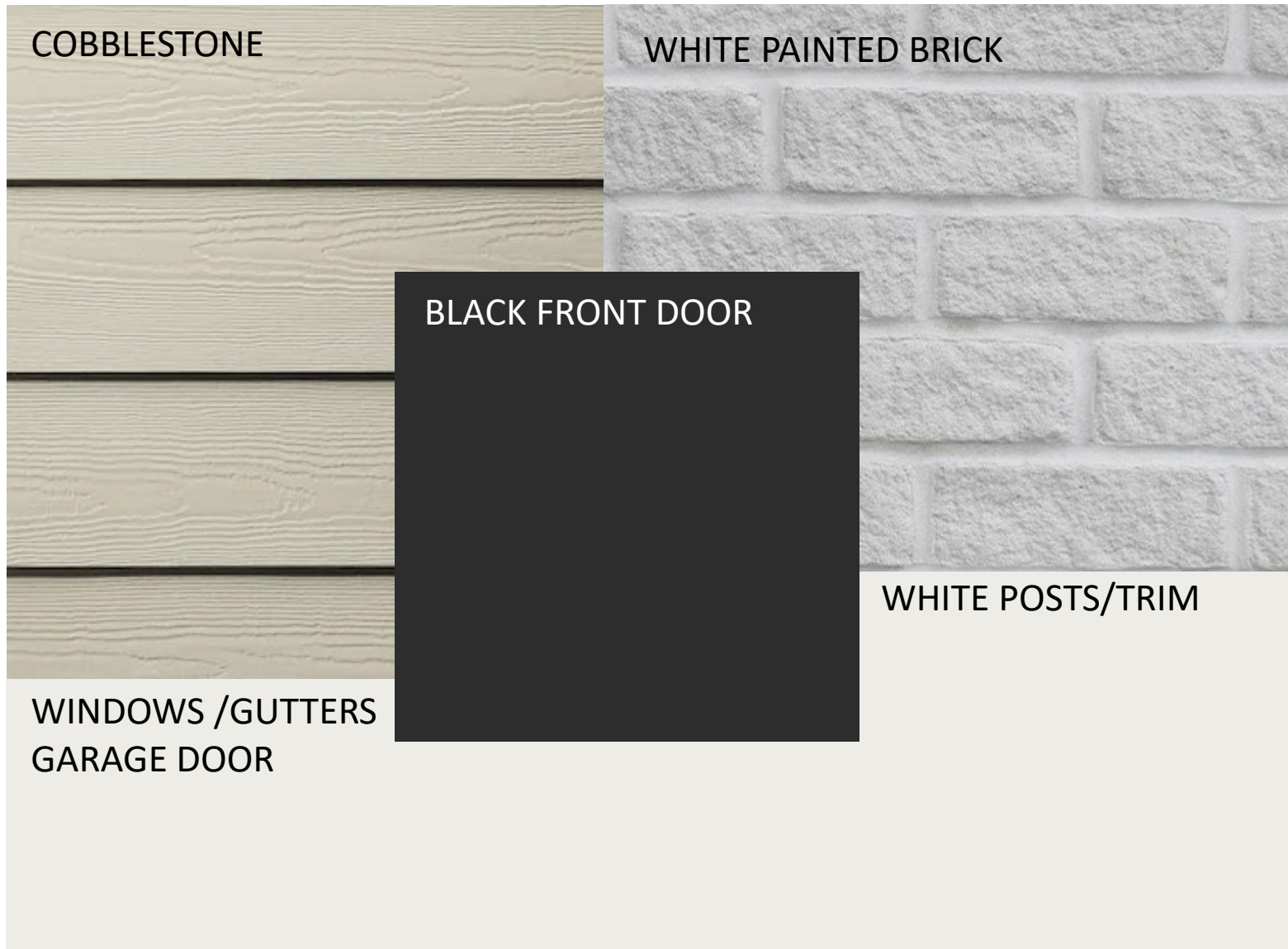
SCHEME 4



- ACCENT DOOR OPTIONS
- SW ROYCROFT COPPER RED
 - SW DOWNING SLATE
 - SW ROYCROFT PEWTER
 - SW DRIED THYME

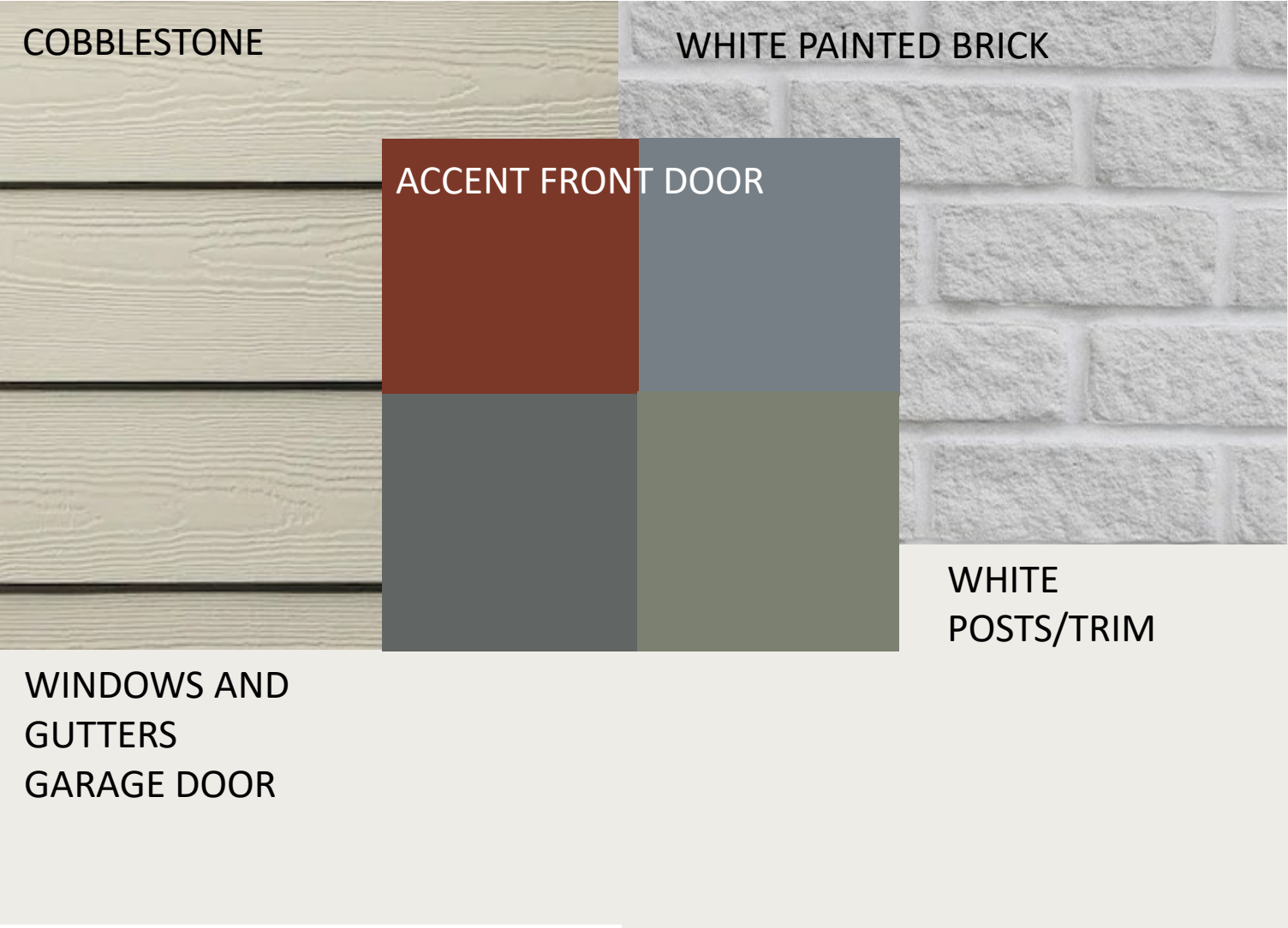


SCHEME 5



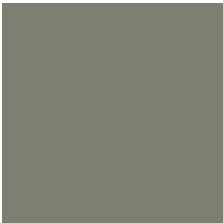
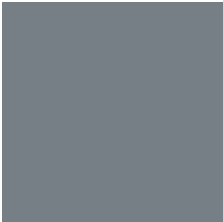
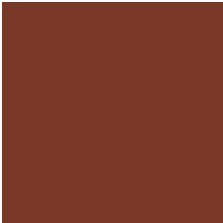
*Exterior color package may not be available depending on selections for neighboring lots

SCHEME 6



ACCENT DOOR OPTIONS

- SW ROYCROFT COPPER RED
- SW DOWNING SLATE
- SW ROYCROFT PEWTER
- SW DRIED THYME



SCHEME 7



SCHEME 8



ACCENT FRONT DOOR

- SW DRIED THYME



SCHEME 9



SCHEME 10

MONTEREY TAUPE

WHITE PAINTED BRICK

BRONZE FRONT DOOR

WHITE WINDOWS
AND GUTTERS

BRONZE
GARAGE DOOR

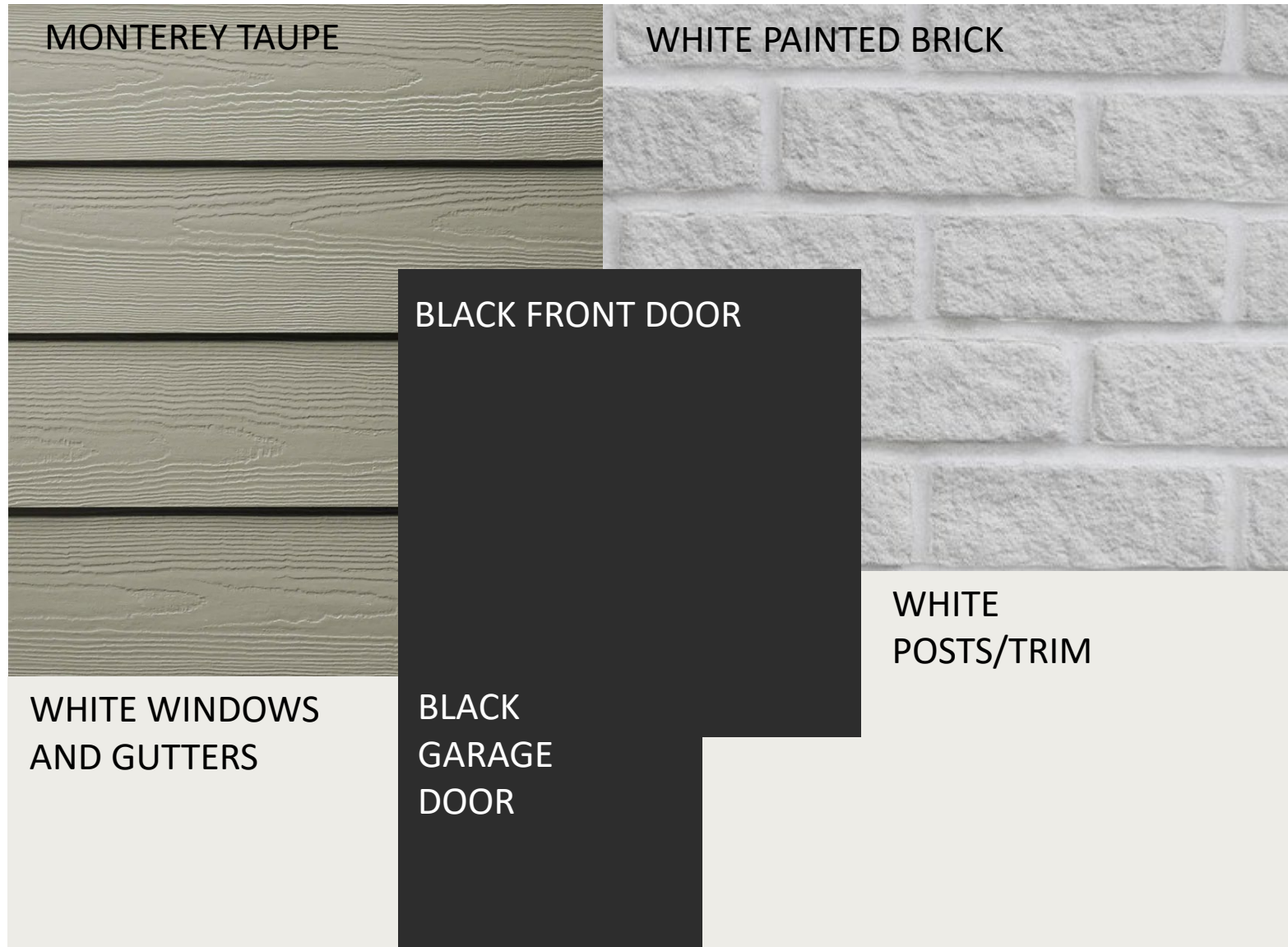
WHITE POSTS AND
TRIM

ACCENT DOOR OPTIONS

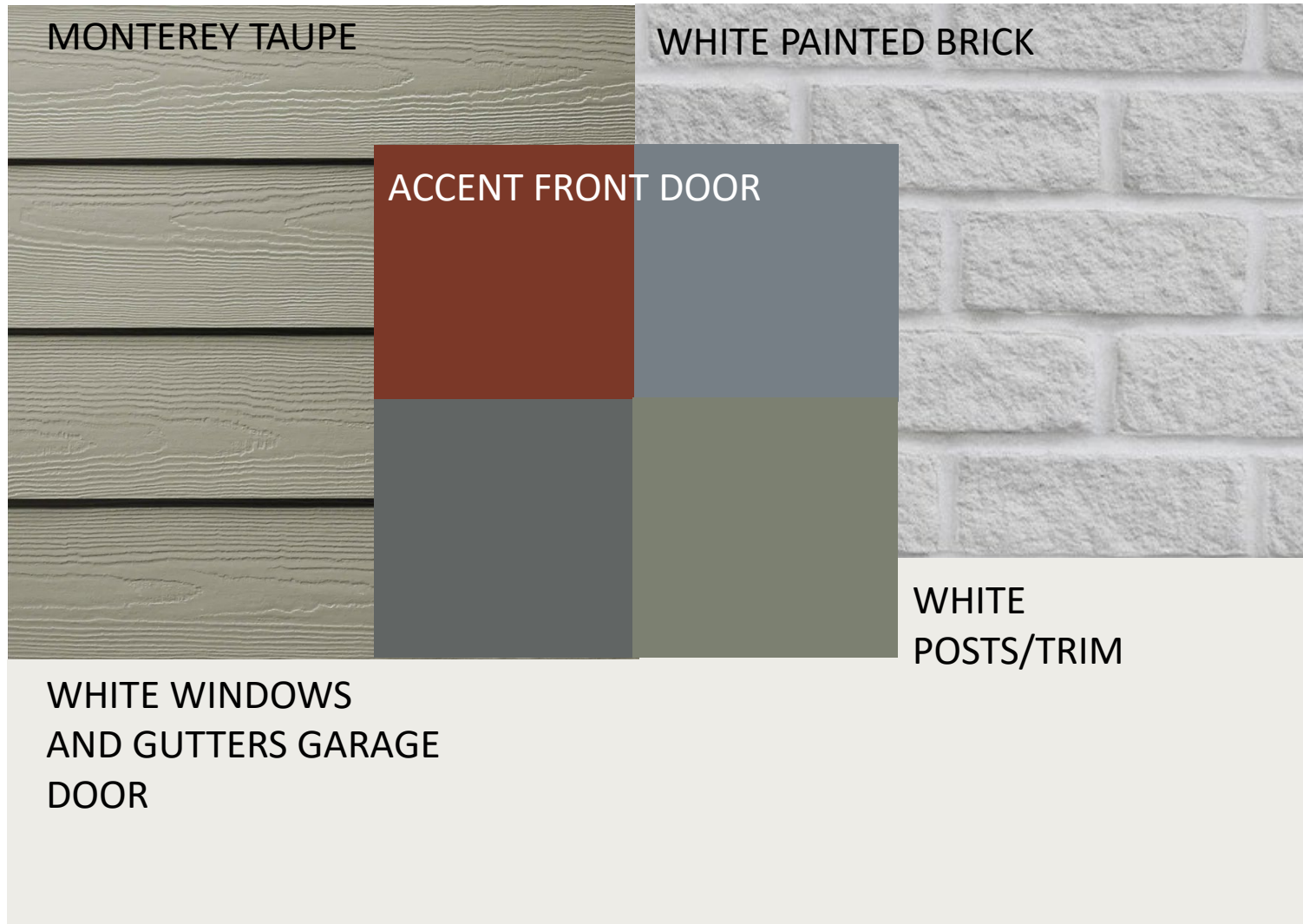
- SW DRIED THYME



SCHEME 11

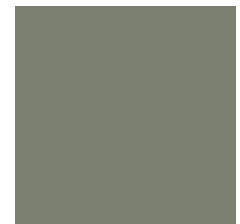
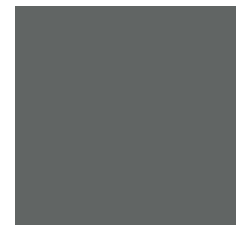
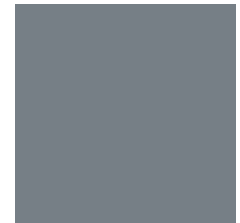
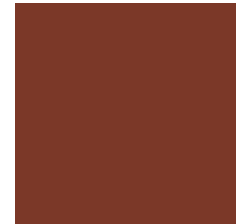


SCHEME 12

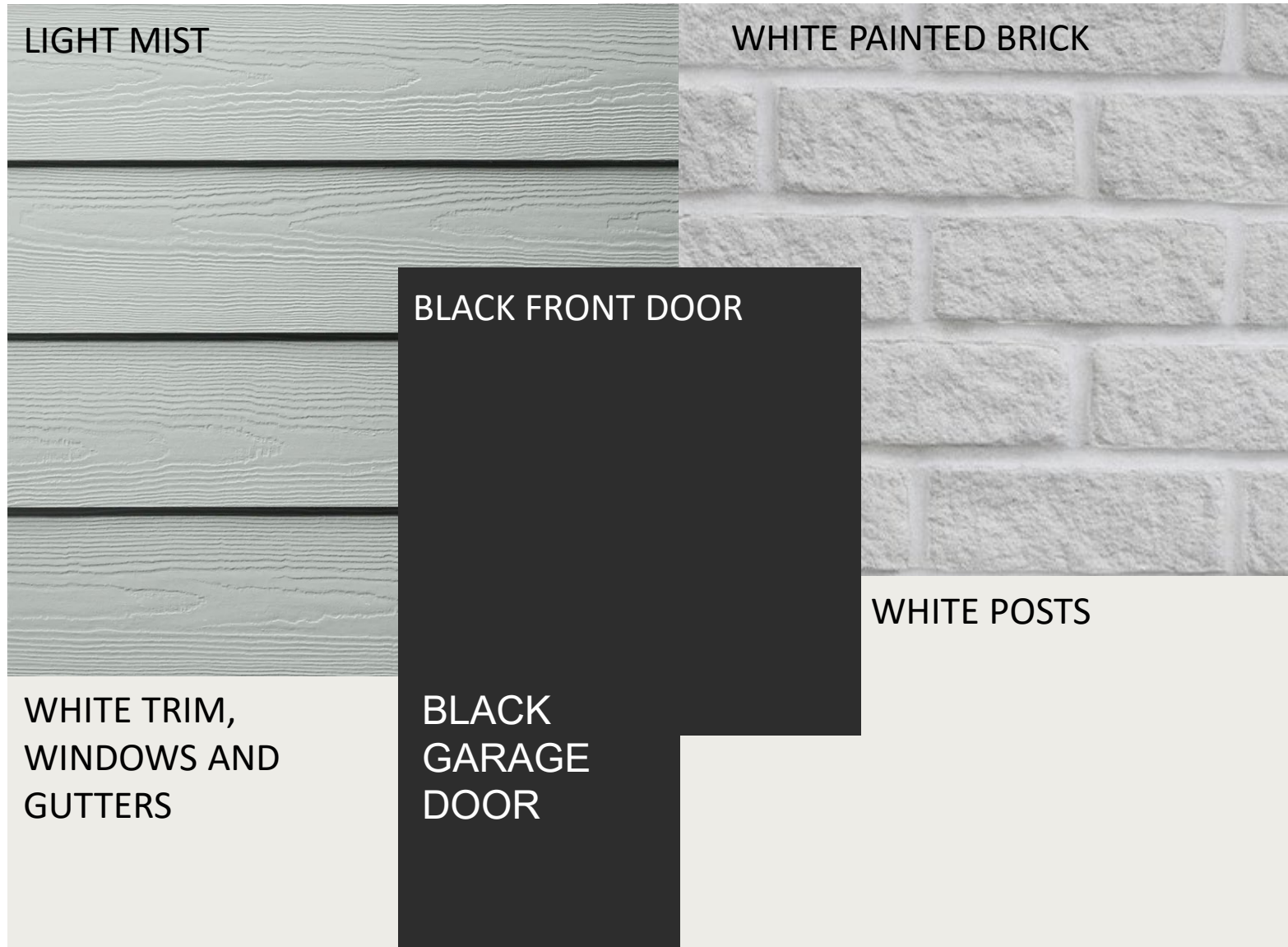


ACCENT DOOR OPTIONS

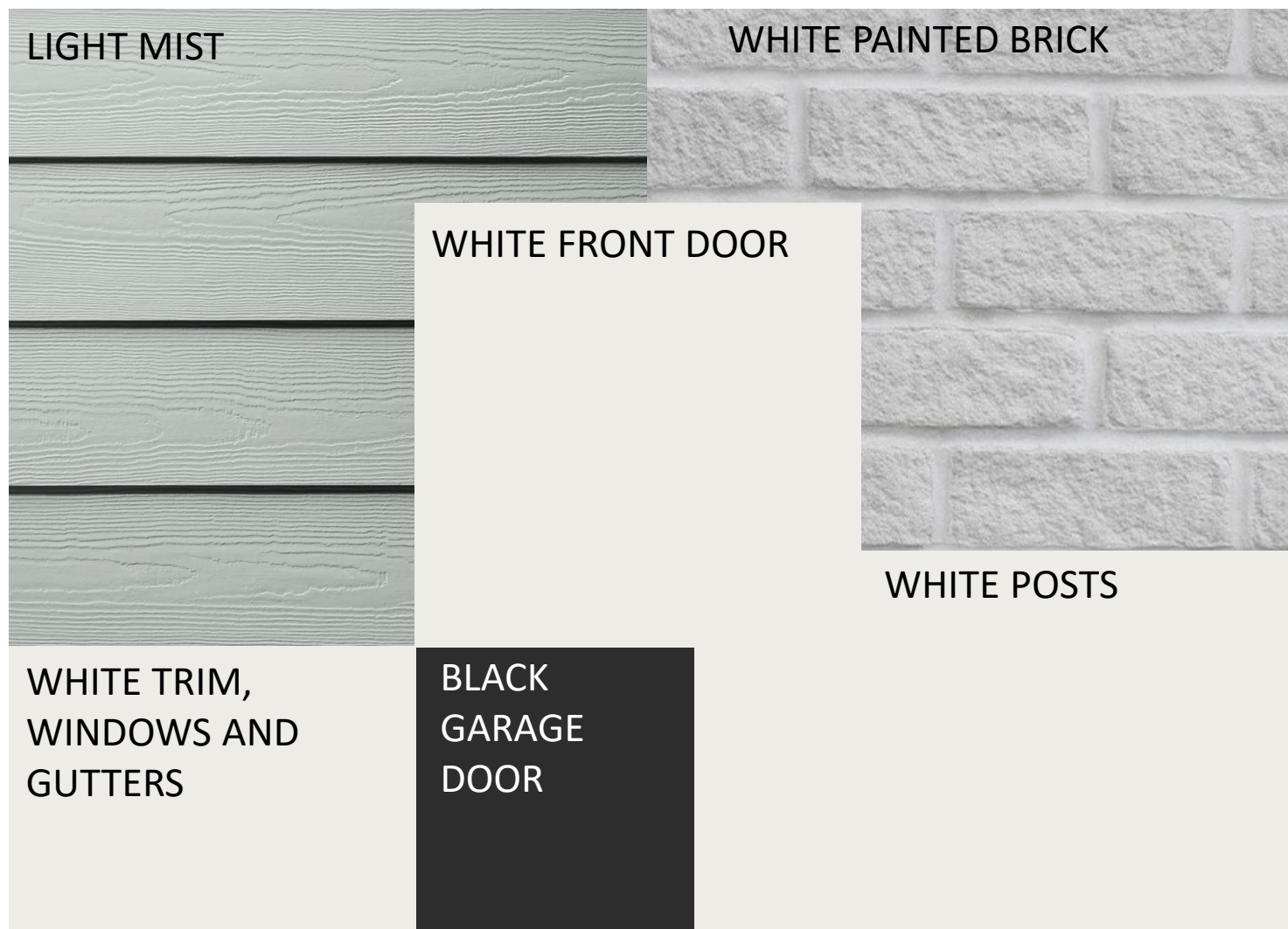
- SW ROYCROFT COPPER RED
- SW DOWNING SLATE
- SW ROYCROFT PEWTER
- SW DRIED THYME



SCHEME 13

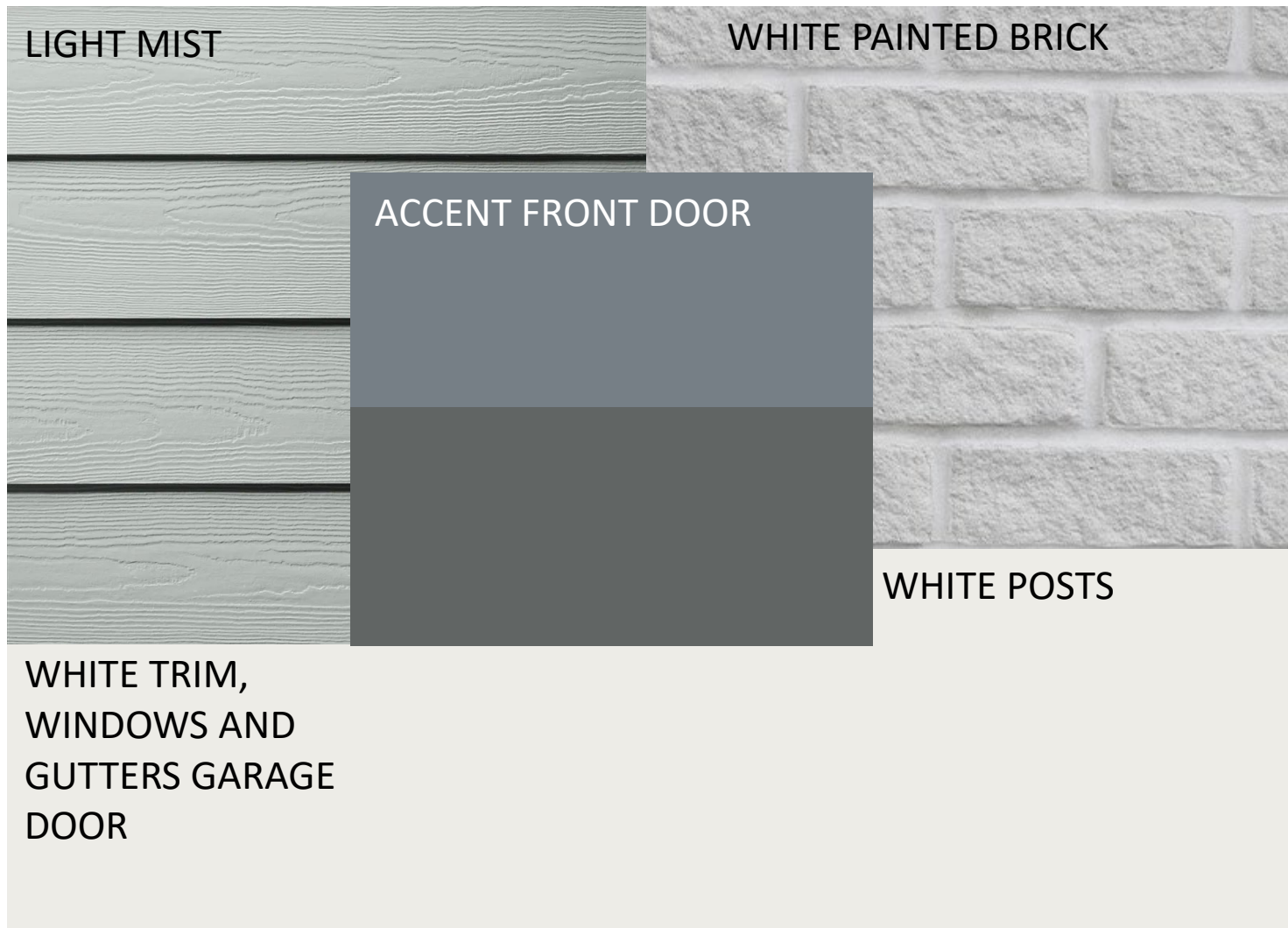


SCHEME 14



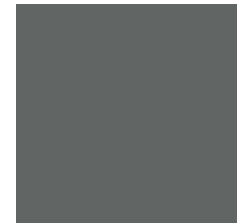
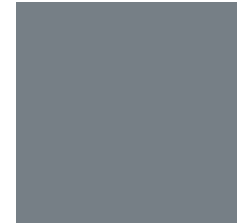
*LIKELY NOT APPLICABLE IF AROUND DOOR IS PAINTED WHITE BRICK

SCHEME 15

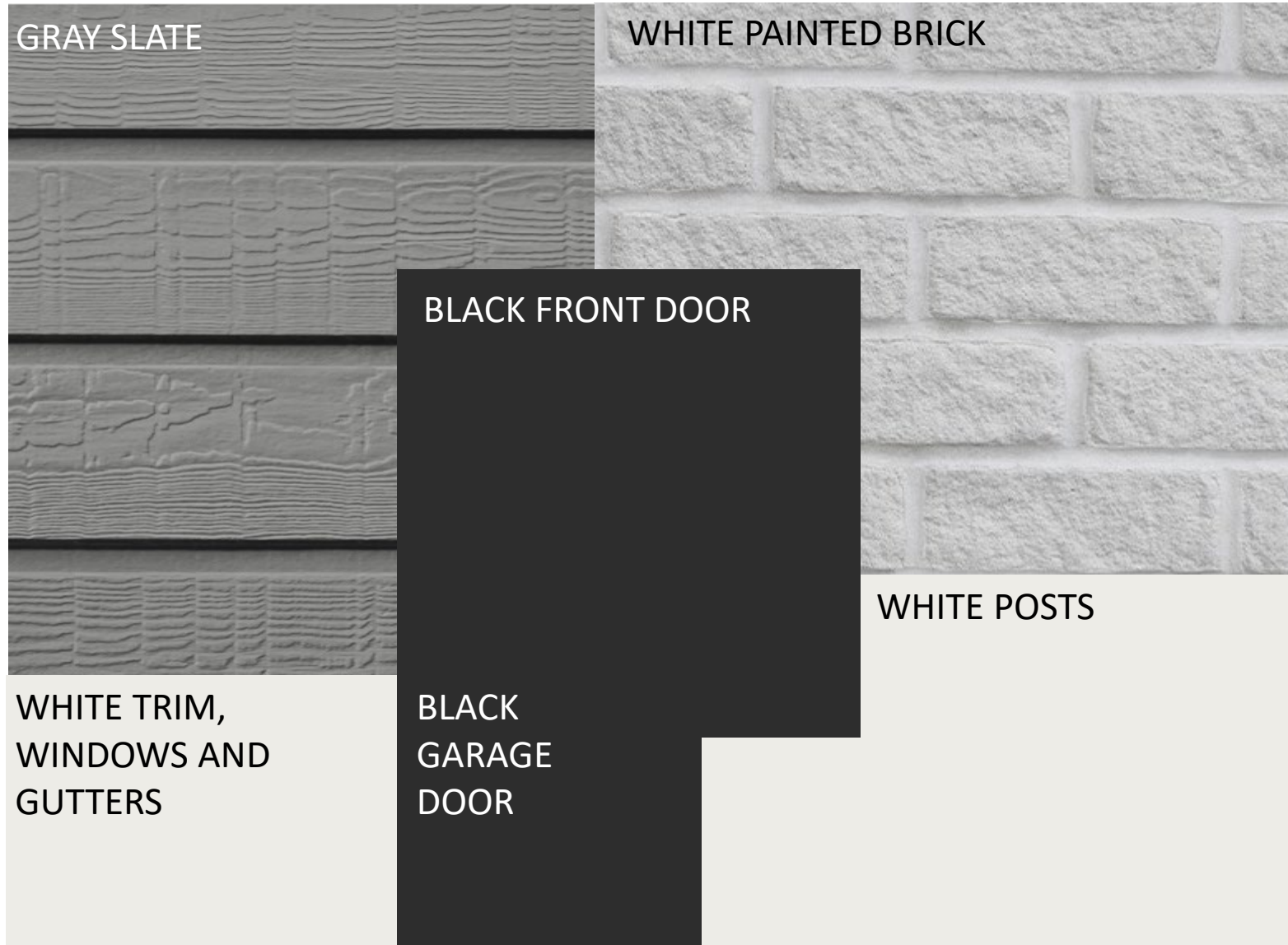


ACCENT DOOR OPTIONS

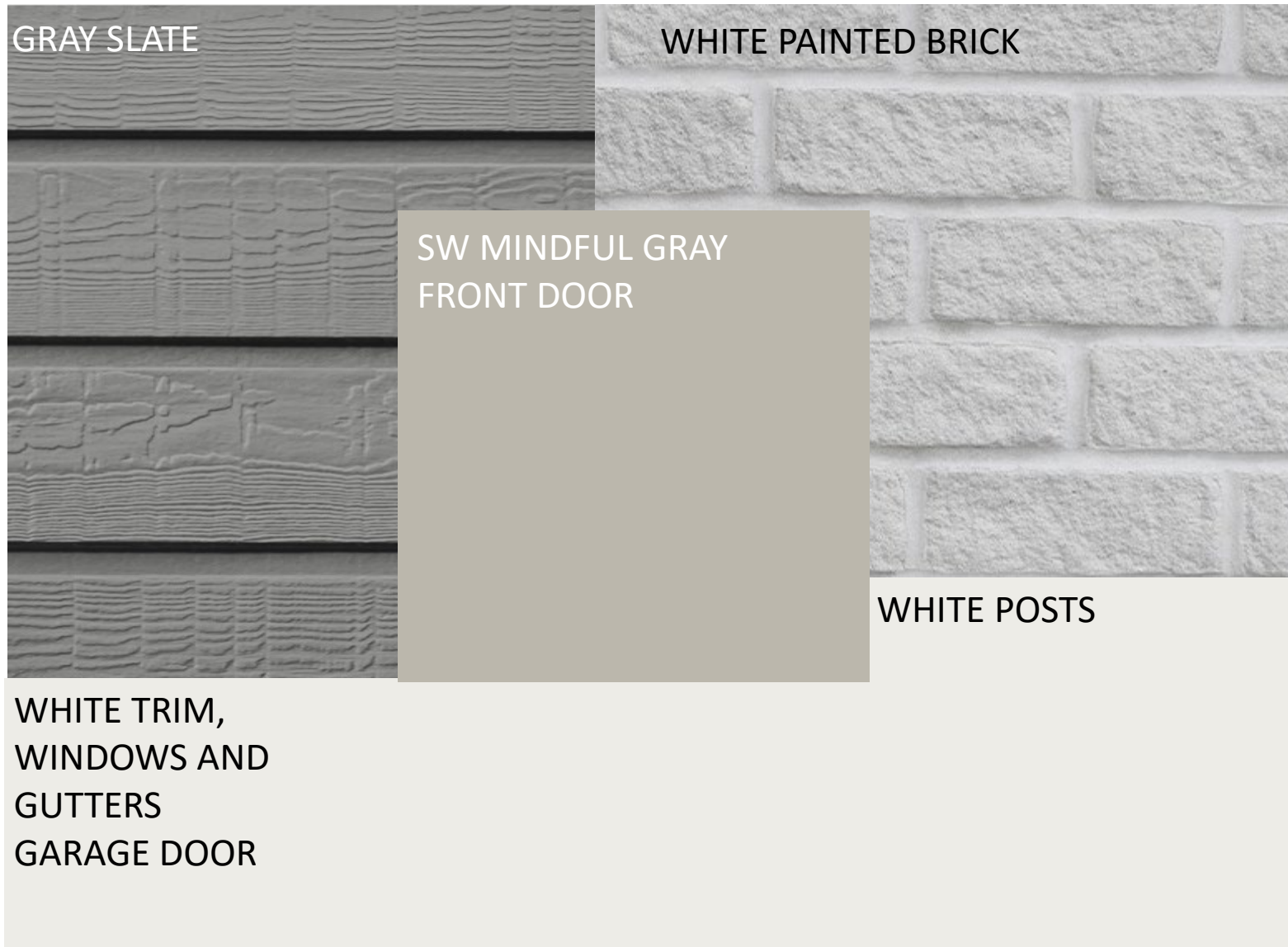
- SW DOWNING SLATE
- SW ROYCROFT PEWTER



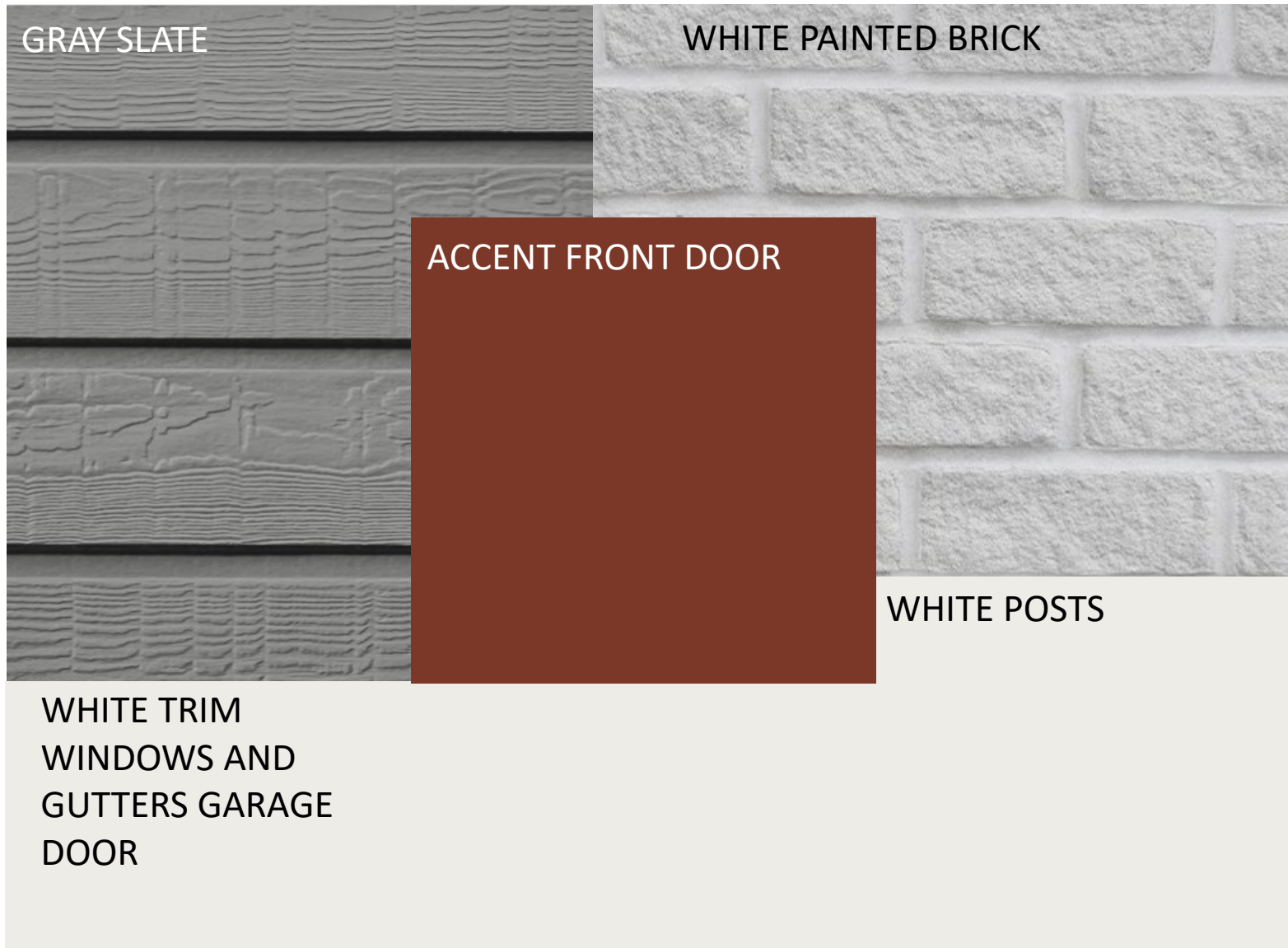
SCHEME 16



SCHEME 17

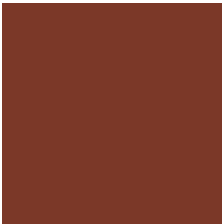


SCHEME 18

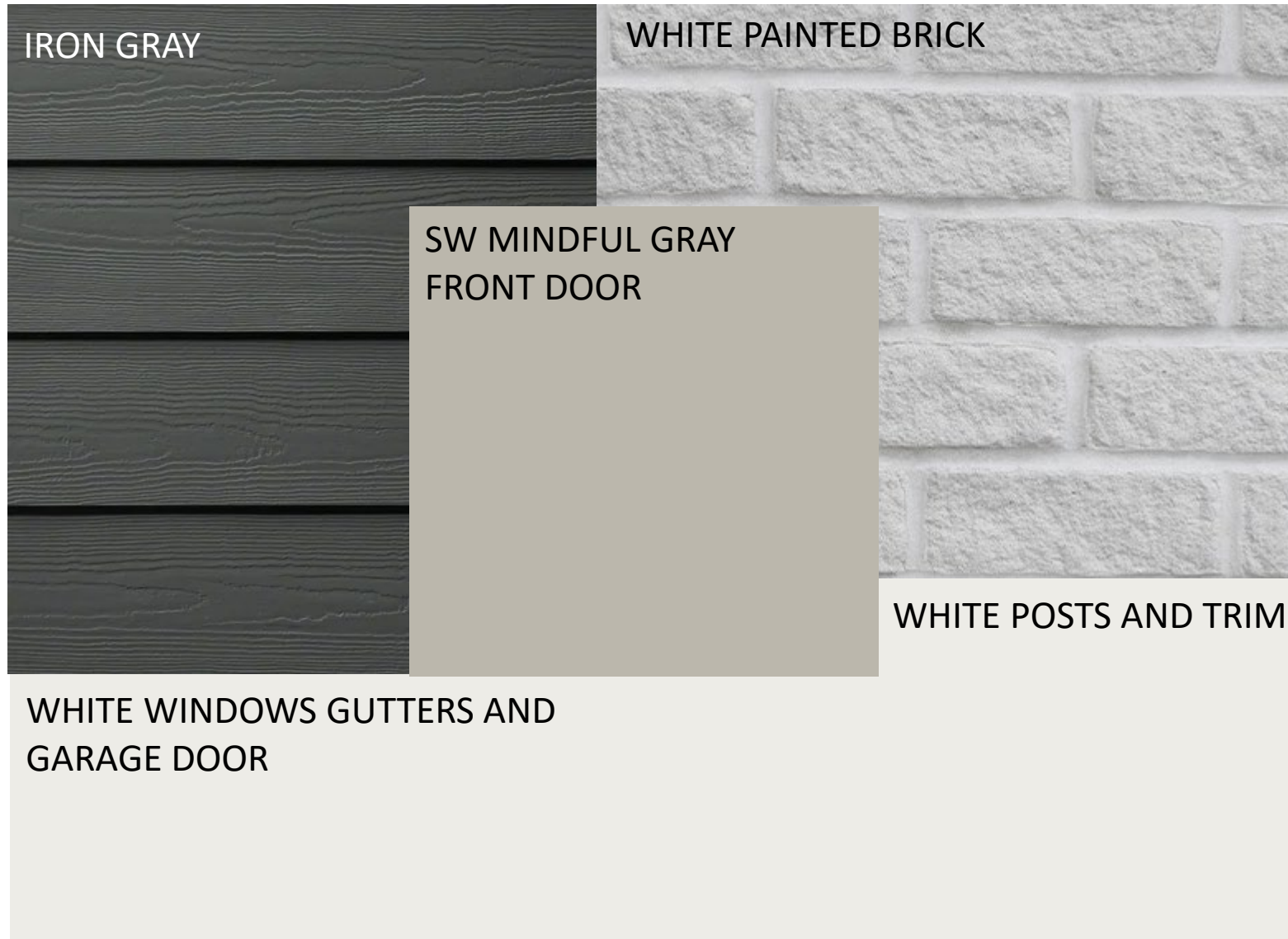


ACCENT DOOR OPTIONS

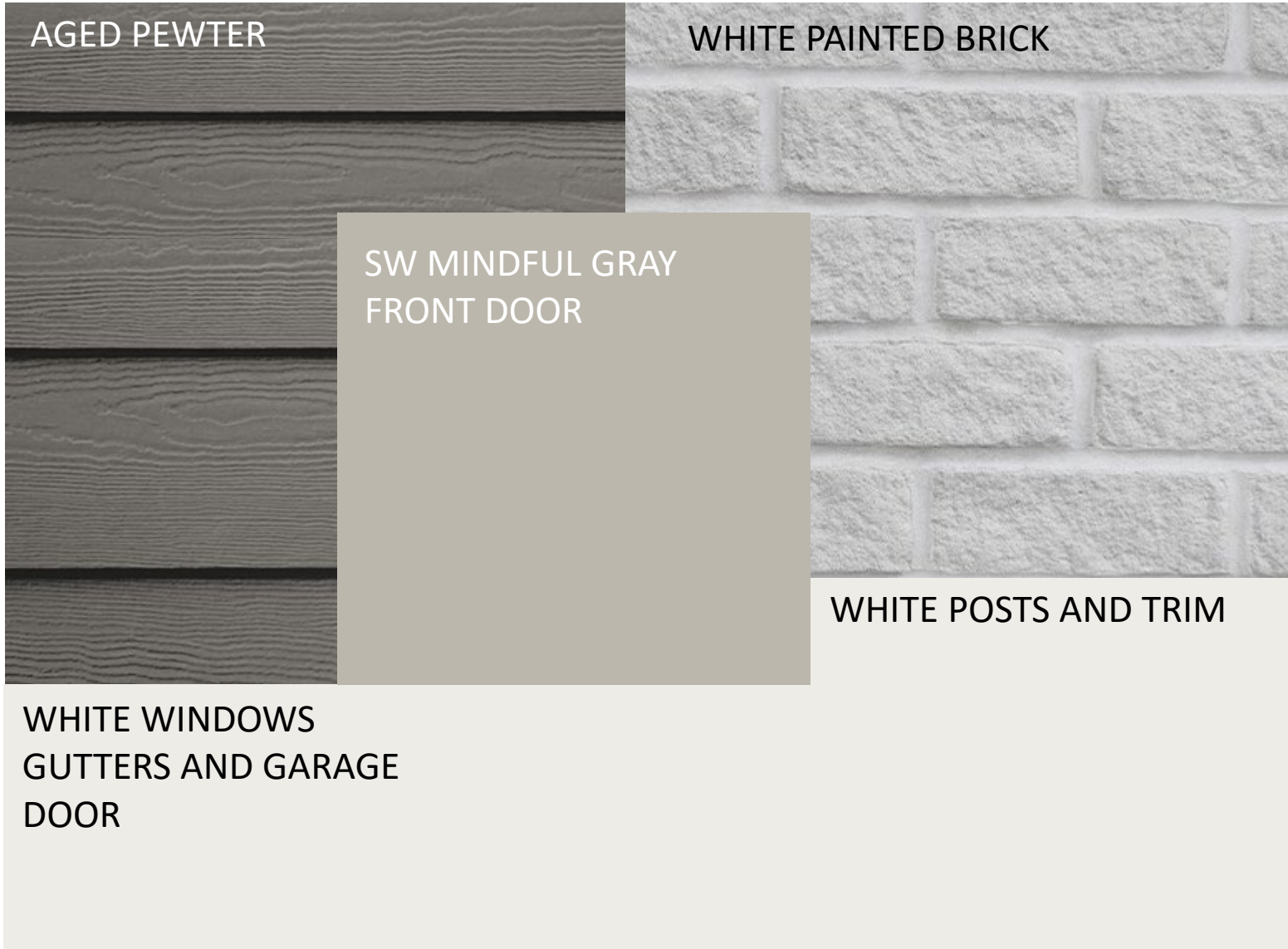
- SW ROYCROFT
COPPER RED



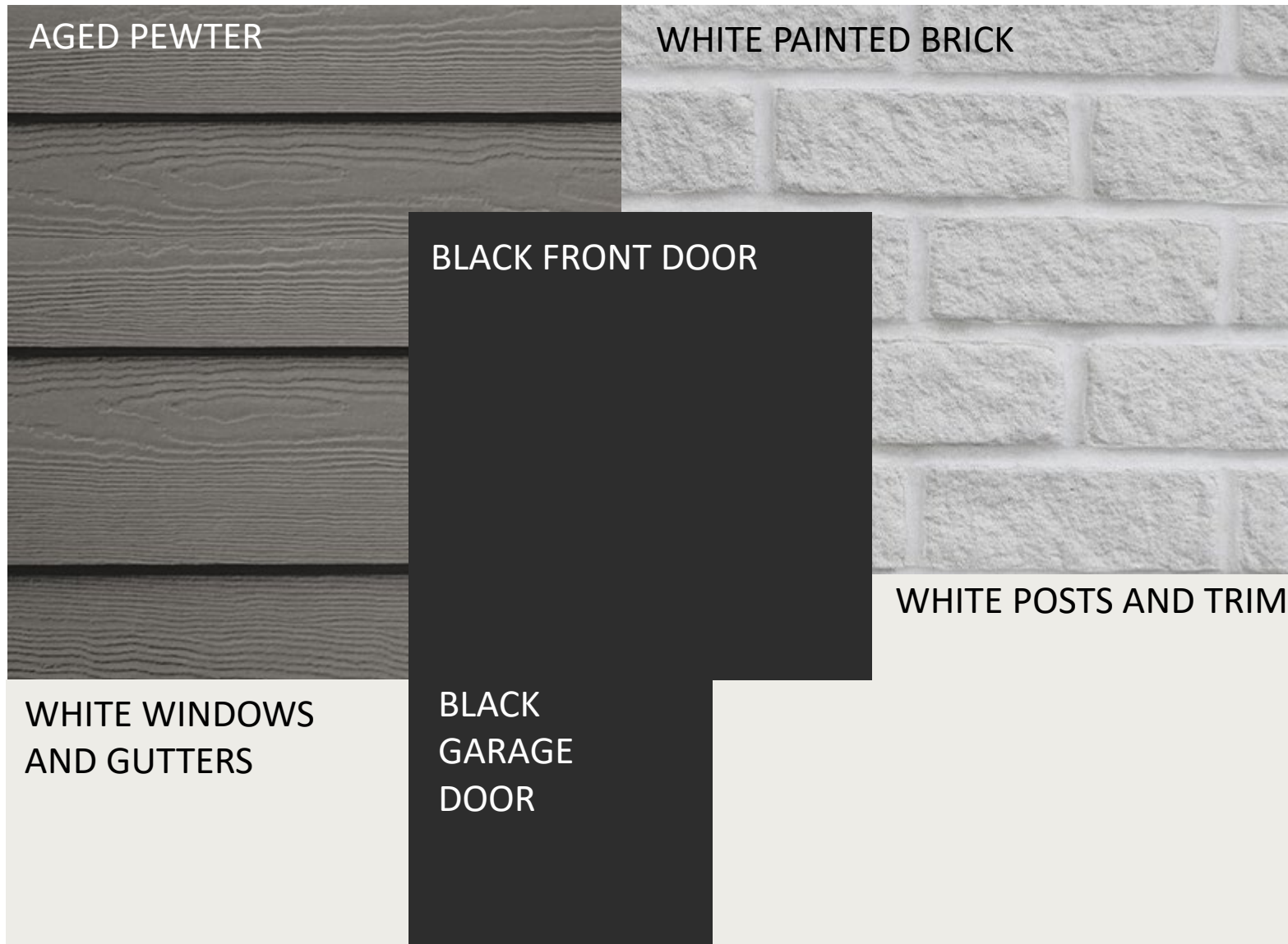
SCHEME 19



SCHEME 20



SCHEME 21

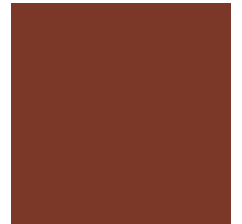


SCHEME 22



ACCENT DOOR OPTIONS

- SW ROYCROFT
COPPER RED



SCHEME 24

TIMBER BARK

WHITE PAINTED BRICK

MINDFUL GRAY
FRONT DOOR

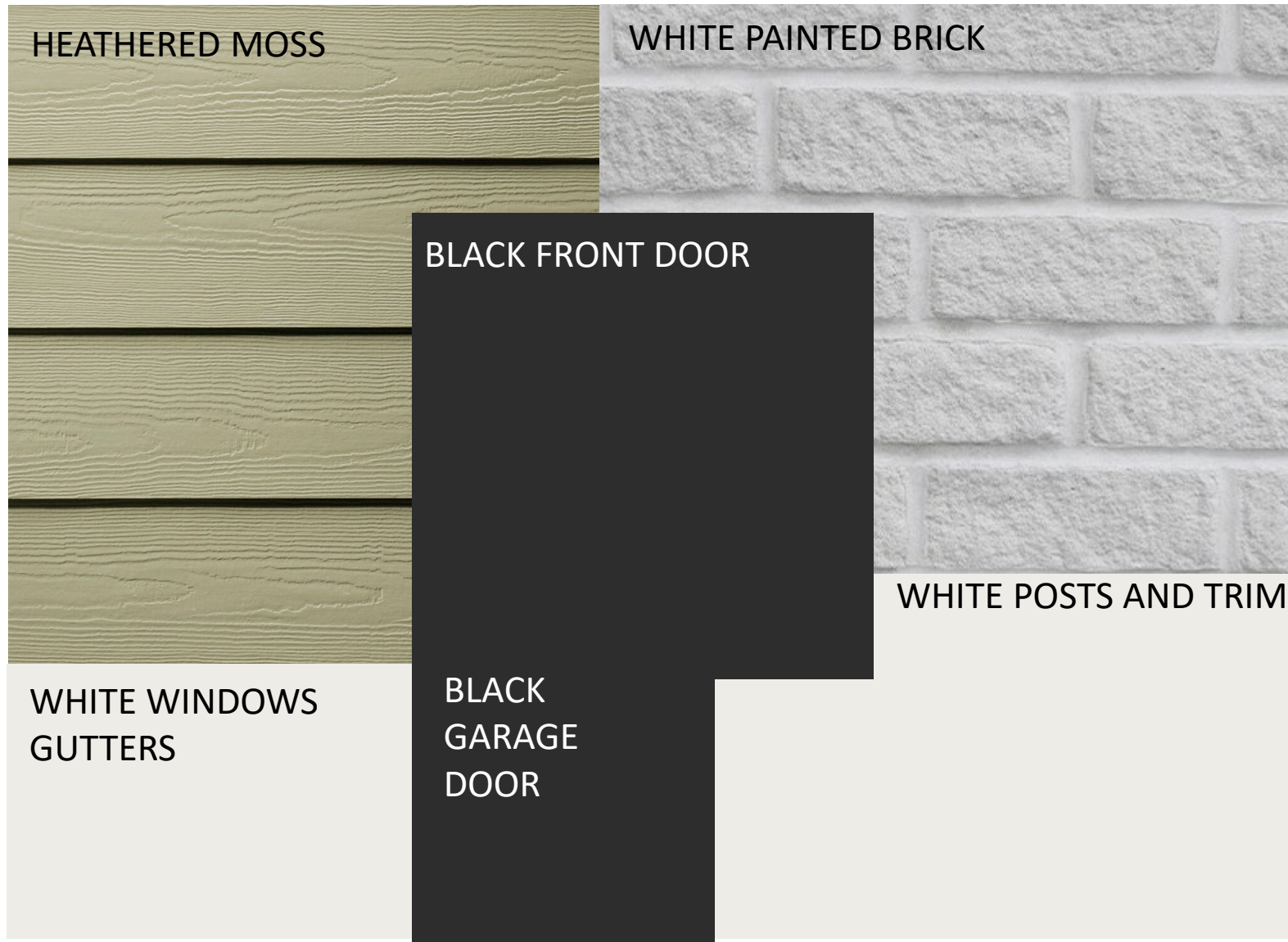
WHITE POSTS AND TRIM

WHITE WINDOWS
GUTTERS AND
GARAGE DOOR

SCHEME 25



SCHEME 25



SCHEME 26

HEATHERED MOSS

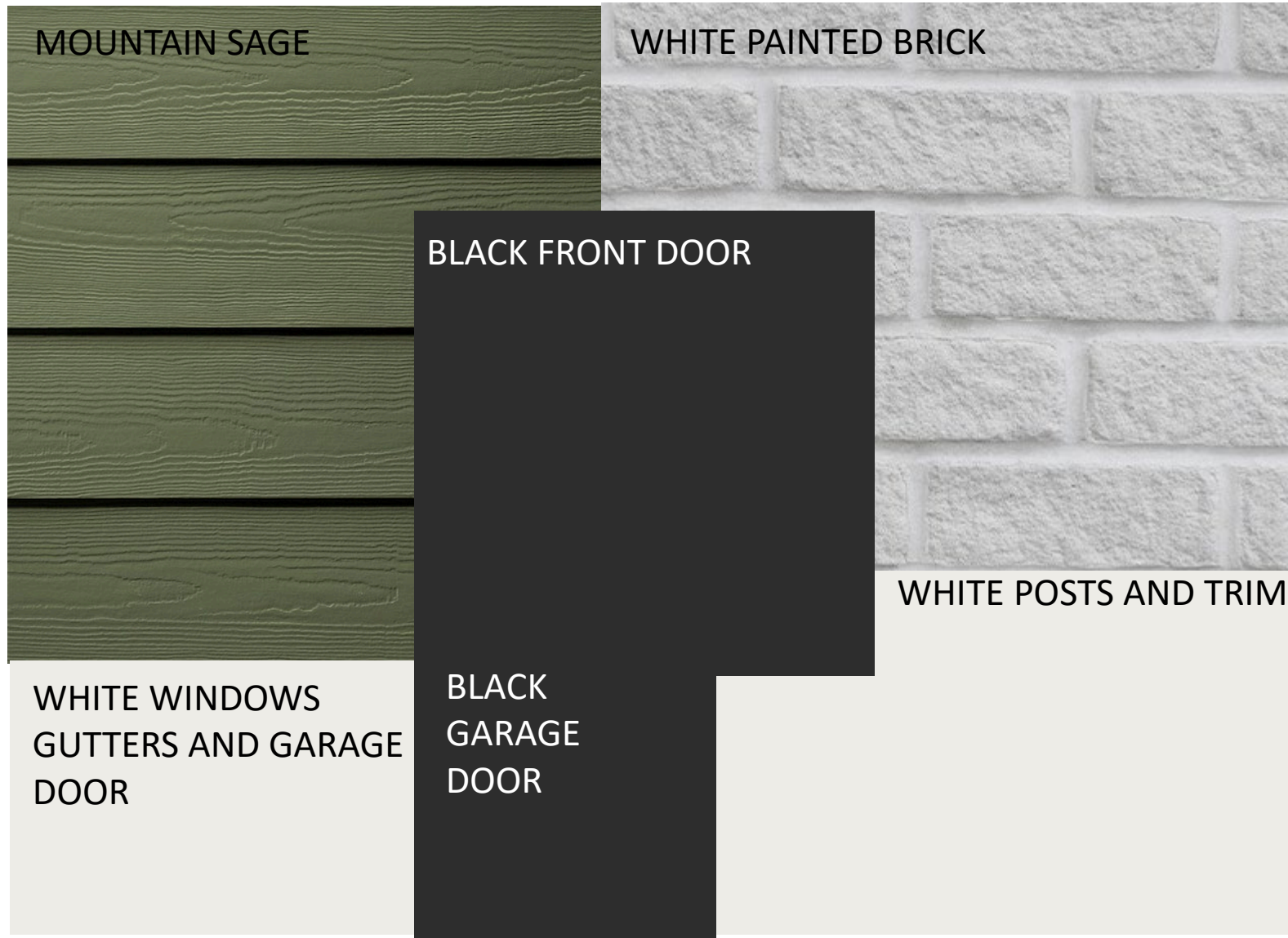
WHITE PAINTED BRICK

WHITE FRONT DOOR

WHITE POSTS AND TRIM

WHITE WINDOWS
GUTTERS

SCHEME 27



SCHEME 28

MOUNTAIN SAGE

WHITE PAINTED BRICK

WHITE FRONT DOOR

WHITE POSTS AND TRIM

WHITE WINDOWS
GUTTERS AND GARAGE
DOOR

PLAN 2B

SCHEME 1

ARCTIC WHITE

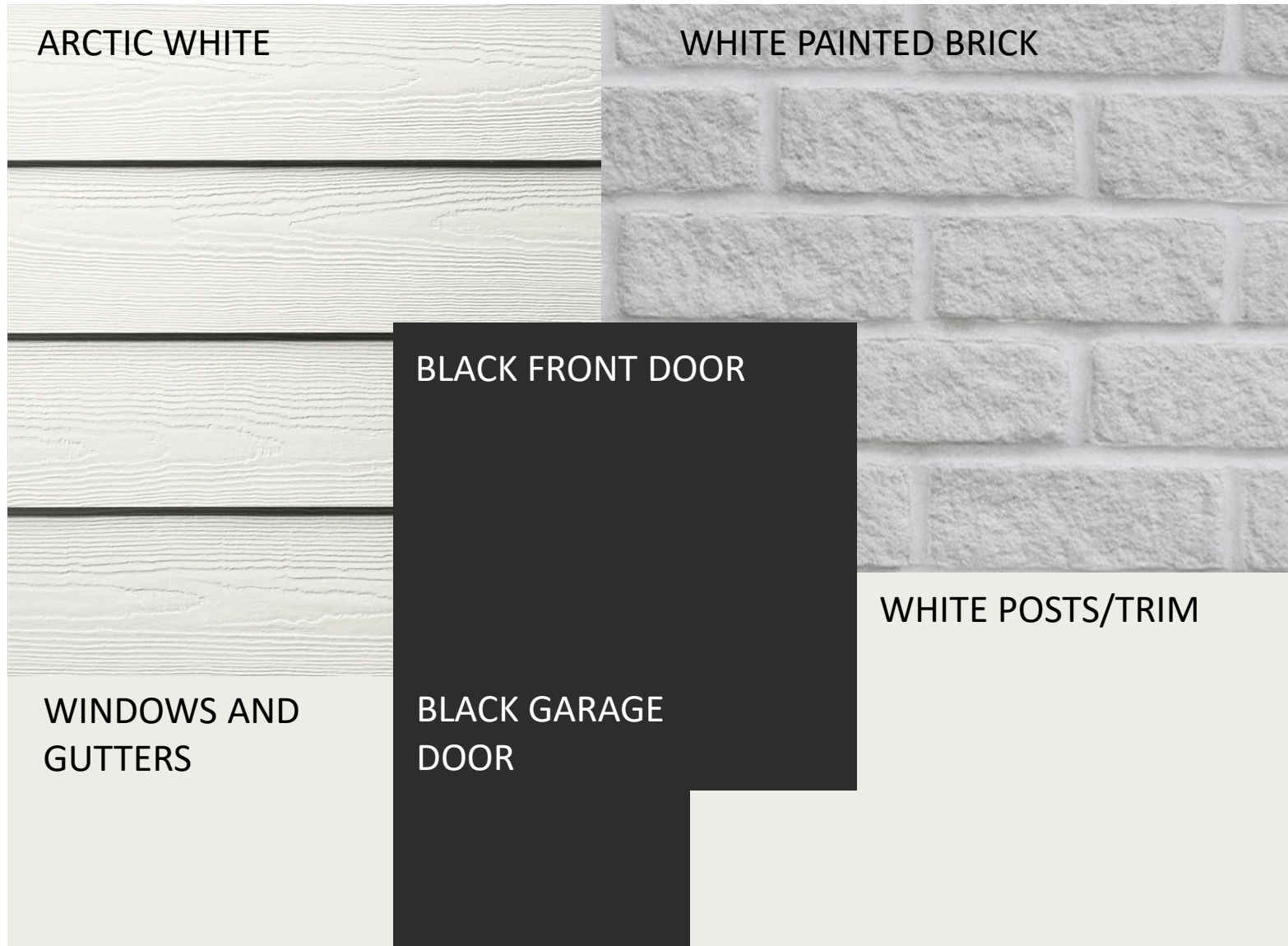
WHITE PAINTED BRICK

BRONZE FRONT DOOR

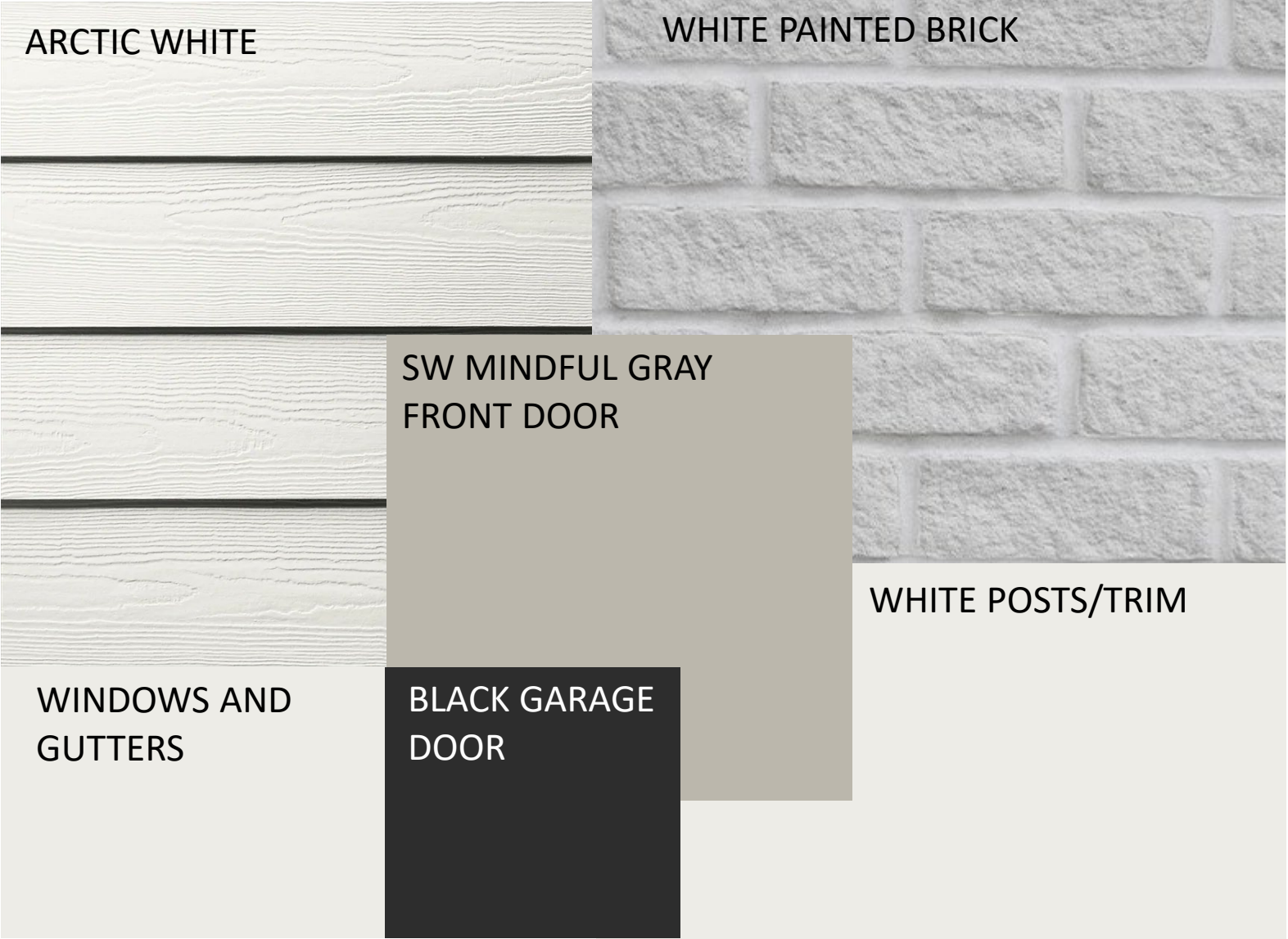
WINDOWS /GUTTERS
GARAGE DOOR

WHITE POSTS/TRIM

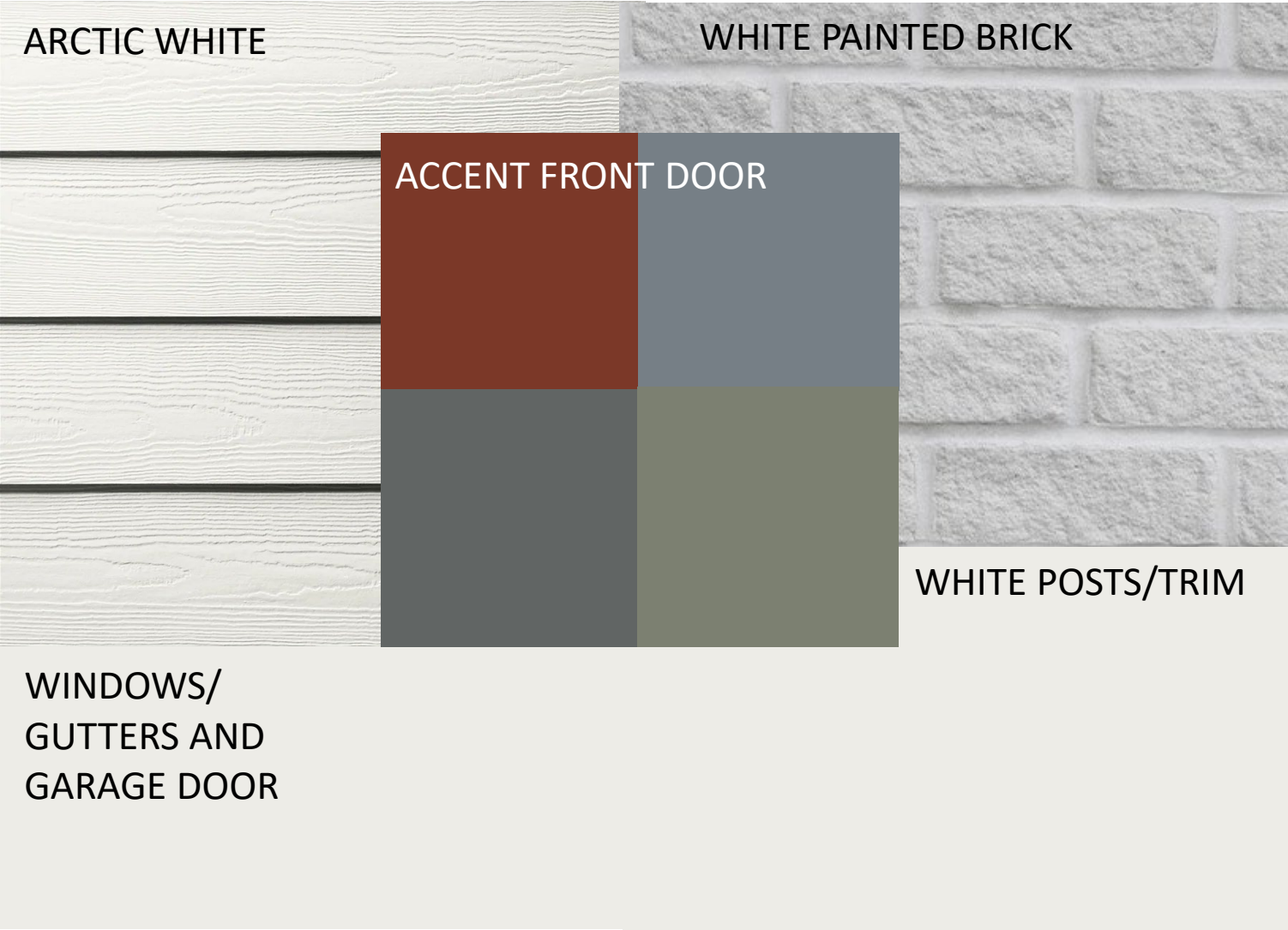
SCHEME 2



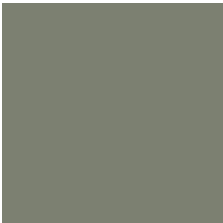
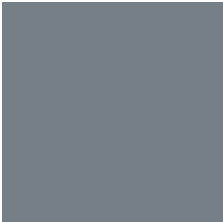
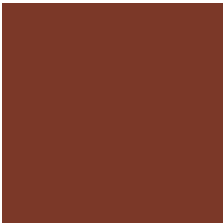
SCHEME 3



SCHEME 4



- ACCENT DOOR OPTIONS
- SW ROYCROFT
COPPER RED
 - SW DOWNING SLATE
 - SW ROYCROFT PEWTER
 - SW DRIED THYME



SCHEME 5

COBBLESTONE

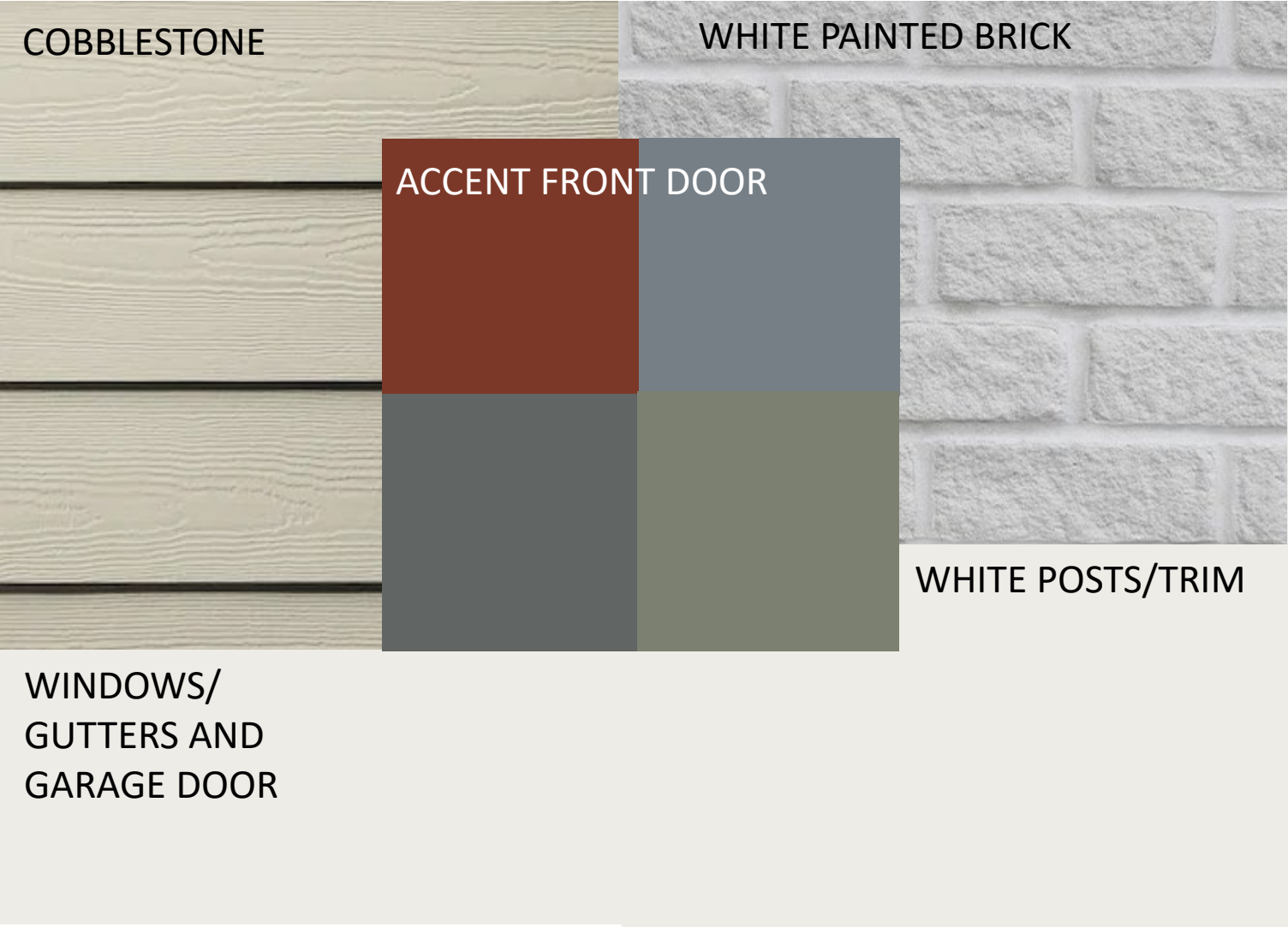
WHITE PAINTED BRICK

BLACK FRONT DOOR

WINDOWS /GUTTERS
GARAGE DOOR

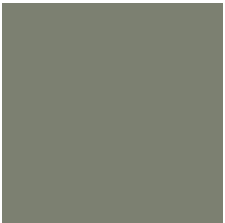
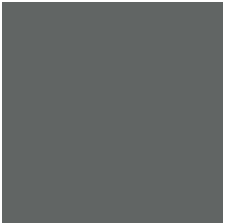
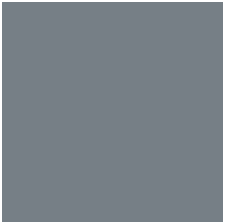
WHITE POSTS/TRIM

SCHEME 6



ACCENT DOOR OPTIONS

- SW ROYCROFT
COPPER RED
- SW DOWNING SLATE
- SW ROYCROFT PEWTER
- SW DRIED THYME



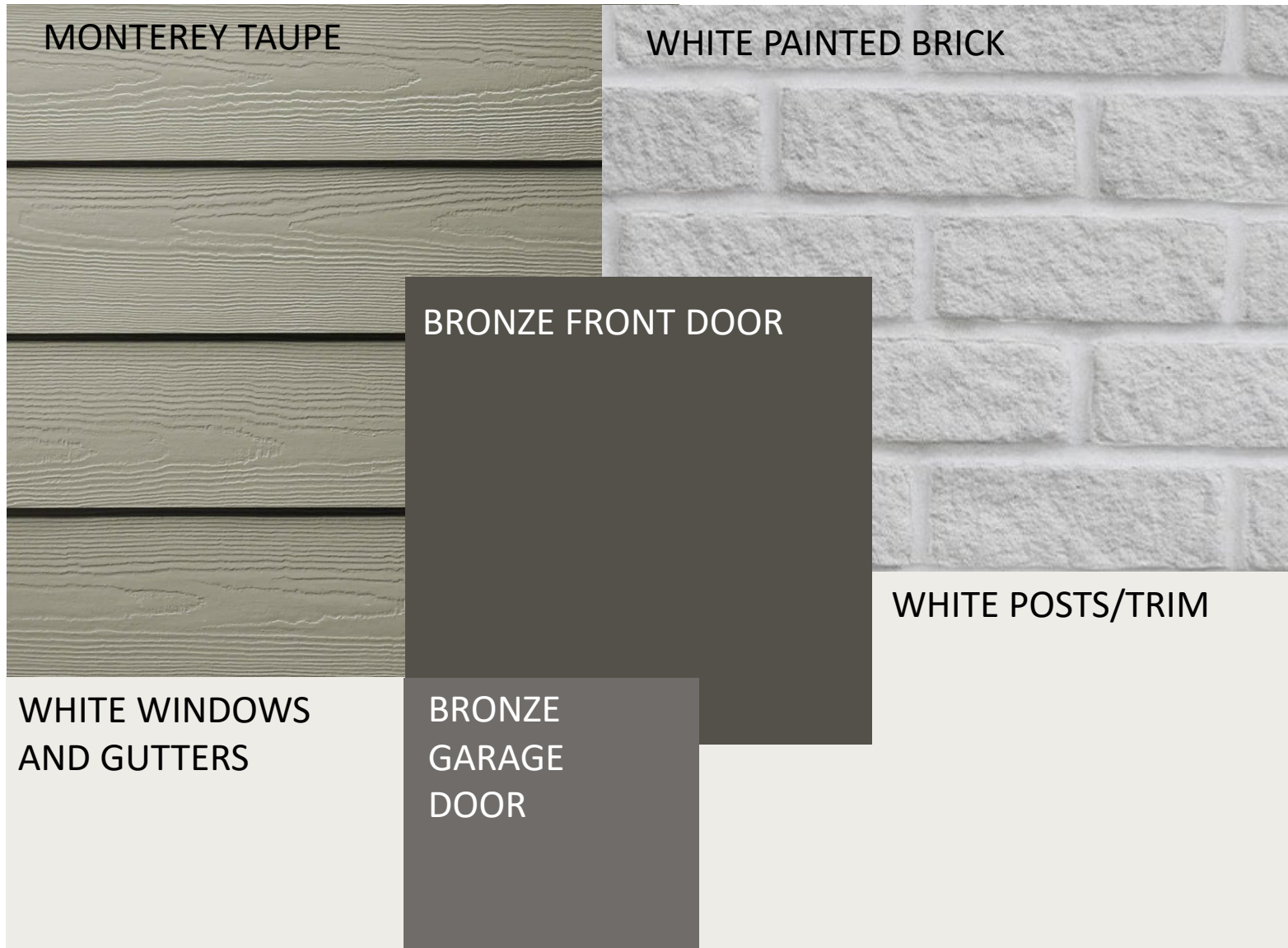
SCHEME 7



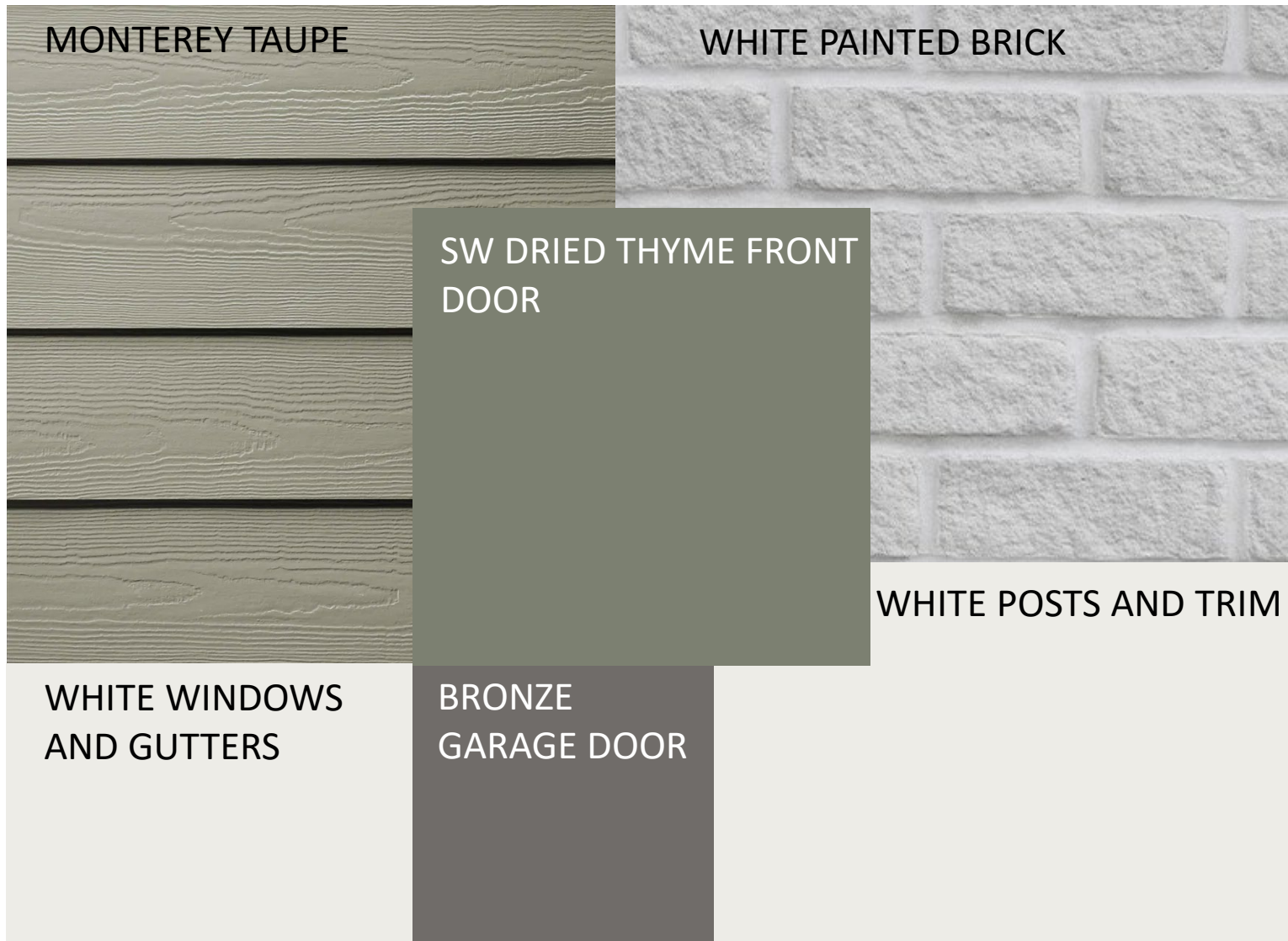
SCHEME 8



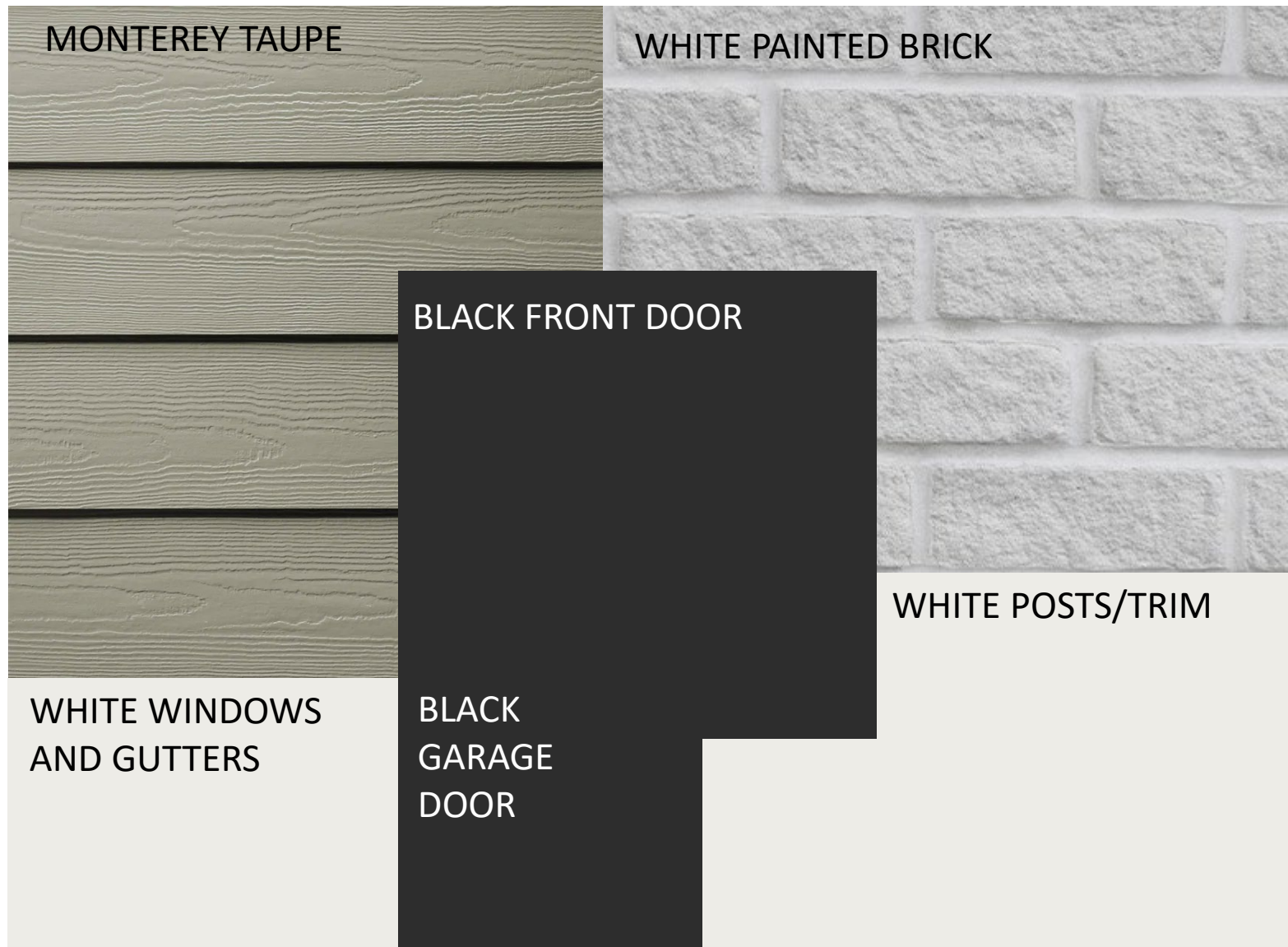
SCHEME 9



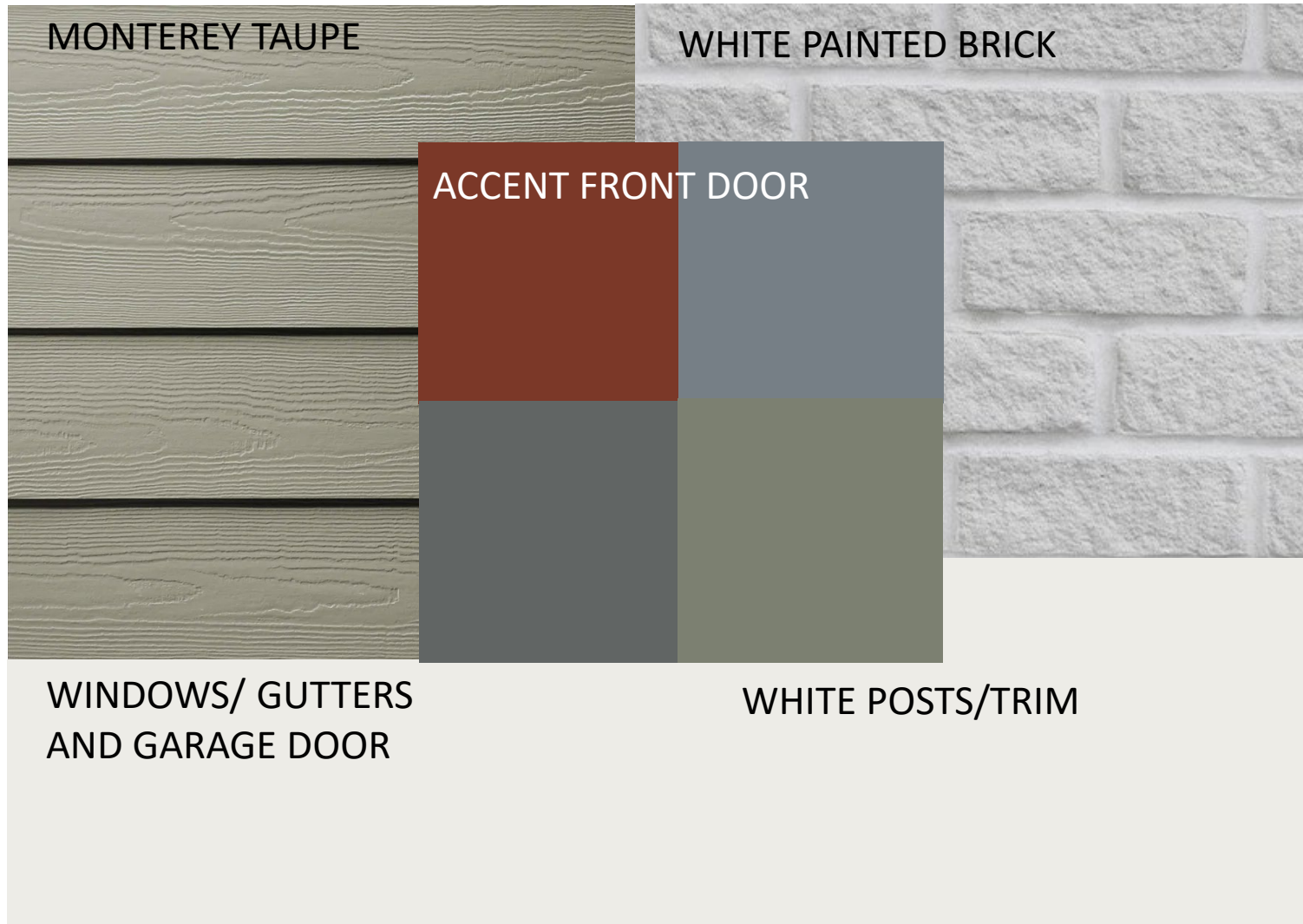
SCHEME 10



SCHEME 11

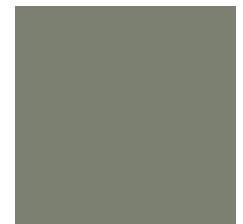
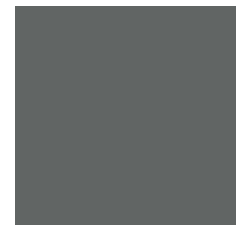
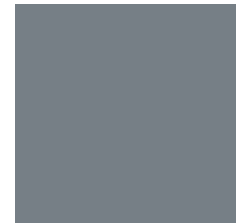
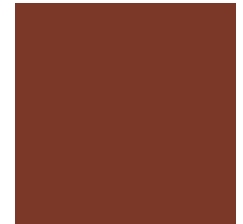


SCHEME 12

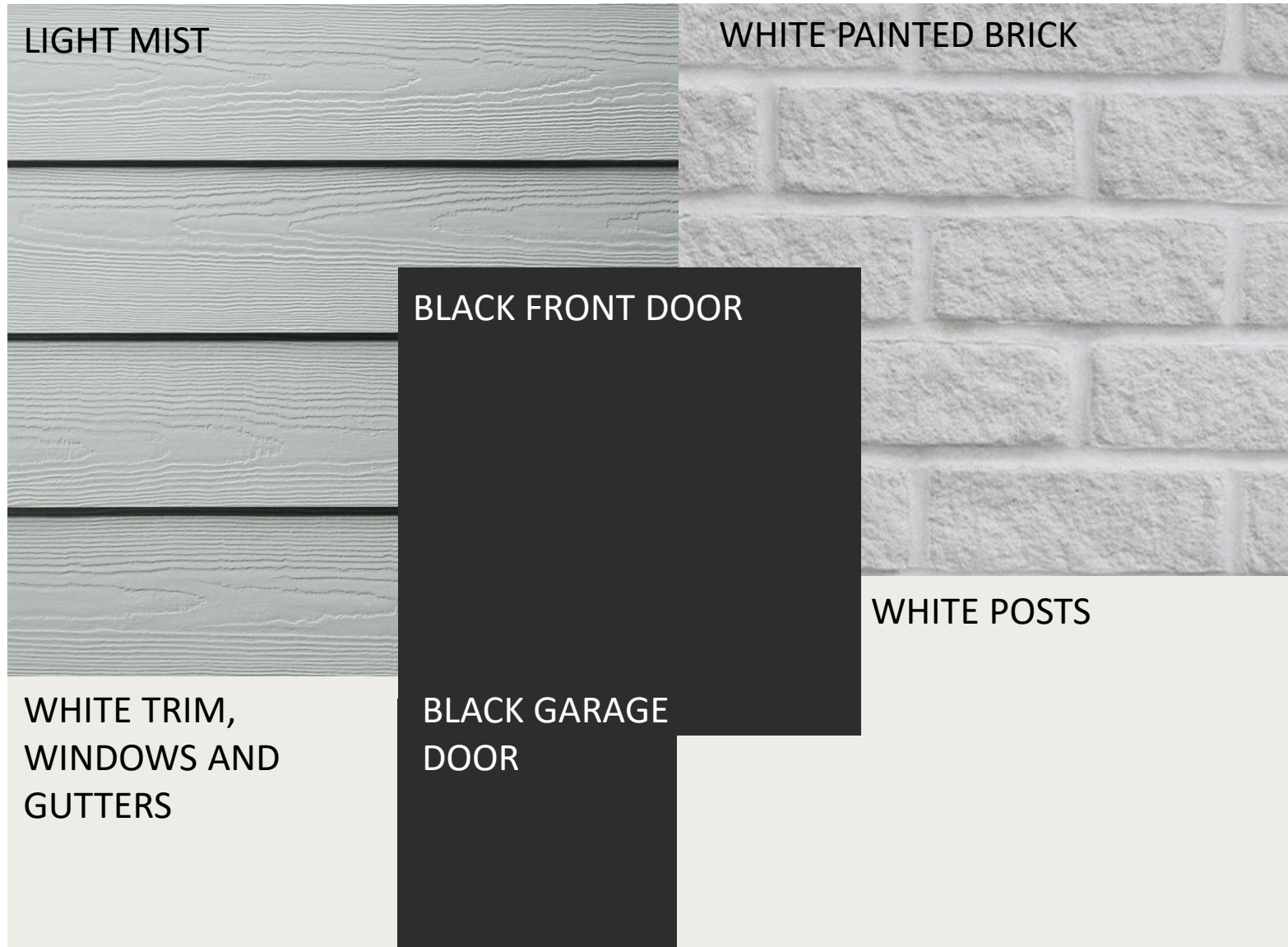


ACCENT DOOR OPTIONS

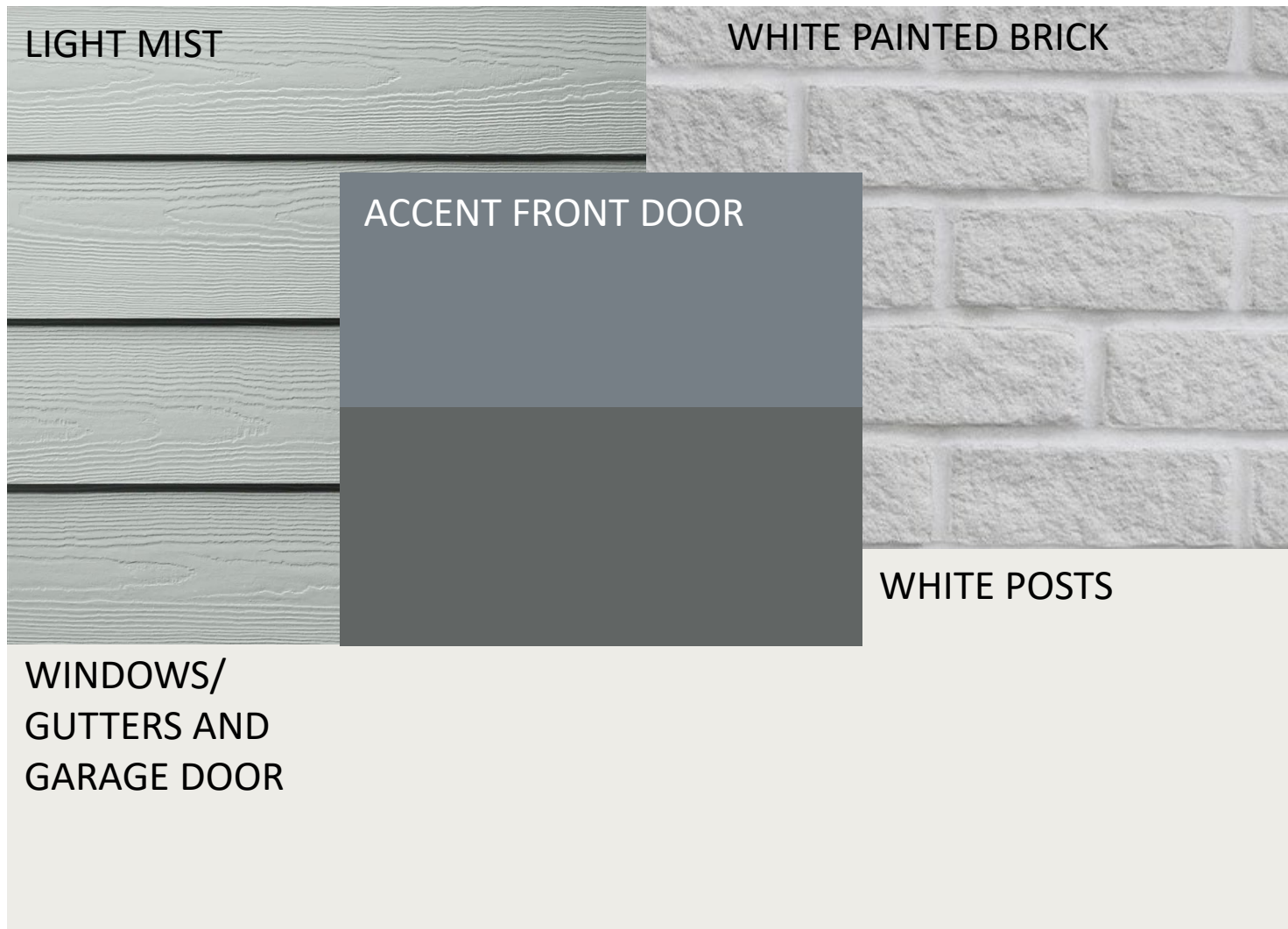
- SW ROYCROFT COPPER RED
- SW DOWNING SLATE
- SW ROYCROFT PEWTER
- SW DRIED THYME



SCHEME 13

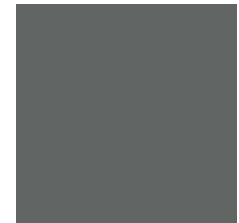
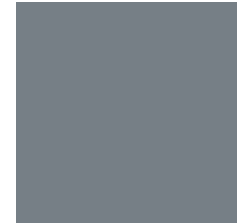


SCHEME 15

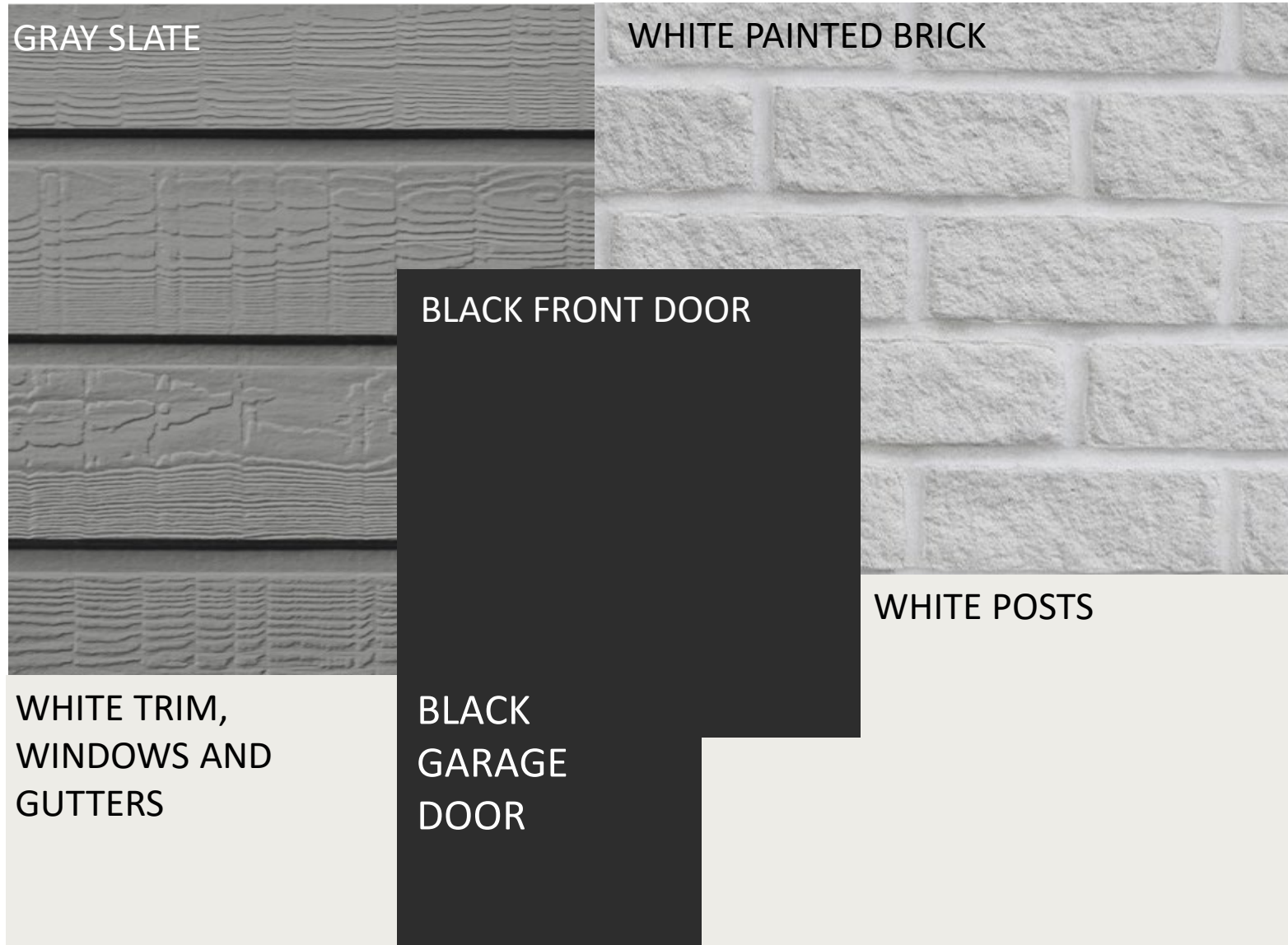


ACCENT DOOR OPTIONS

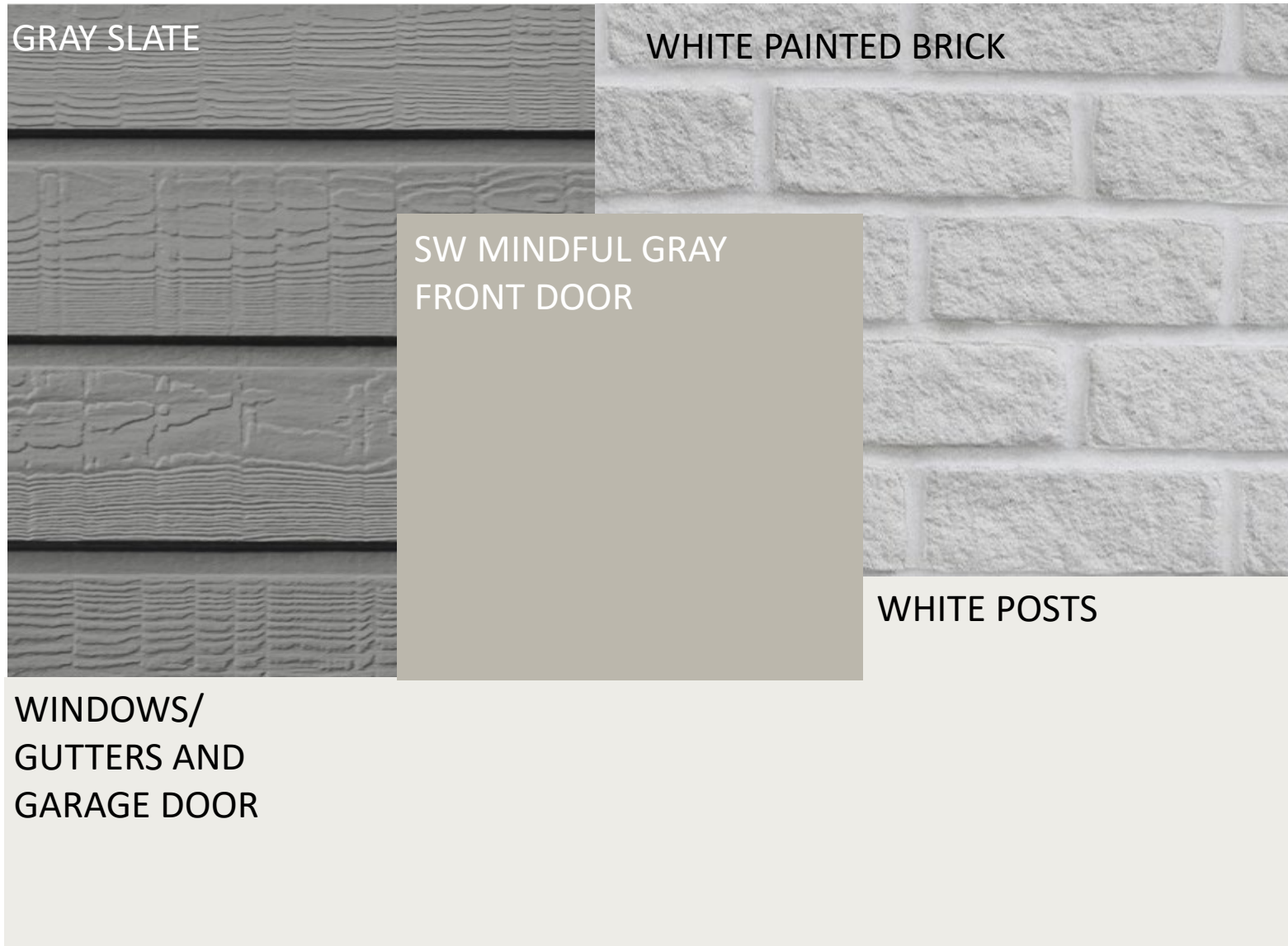
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- SW ROYCROFT PEWTER



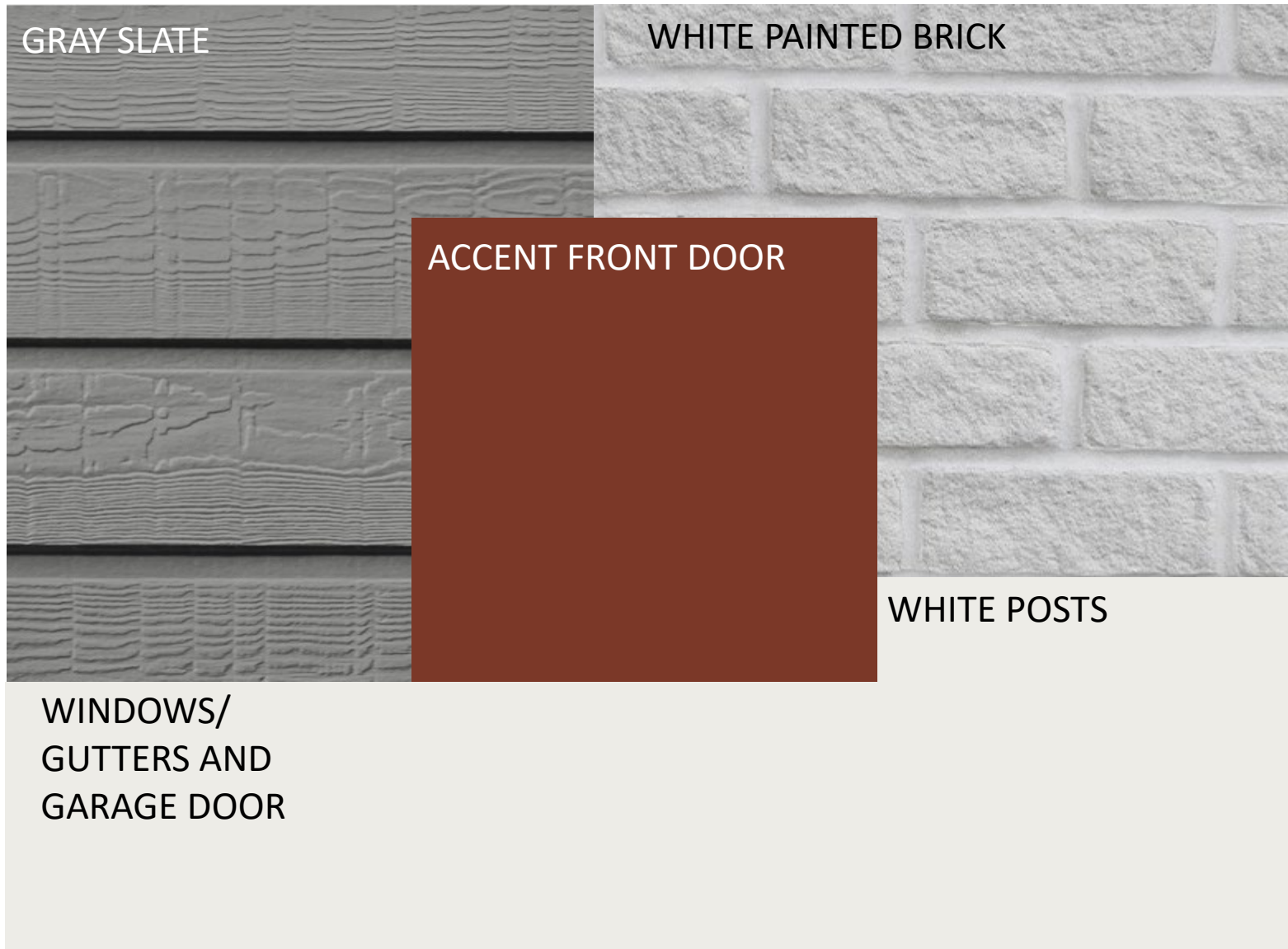
SCHEME 16



SCHEME 17

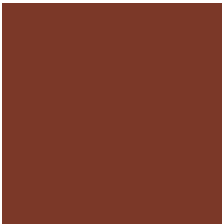


SCHEME 18



ACCENT DOOR OPTIONS

- SW ROYCROFT
COPPER RED



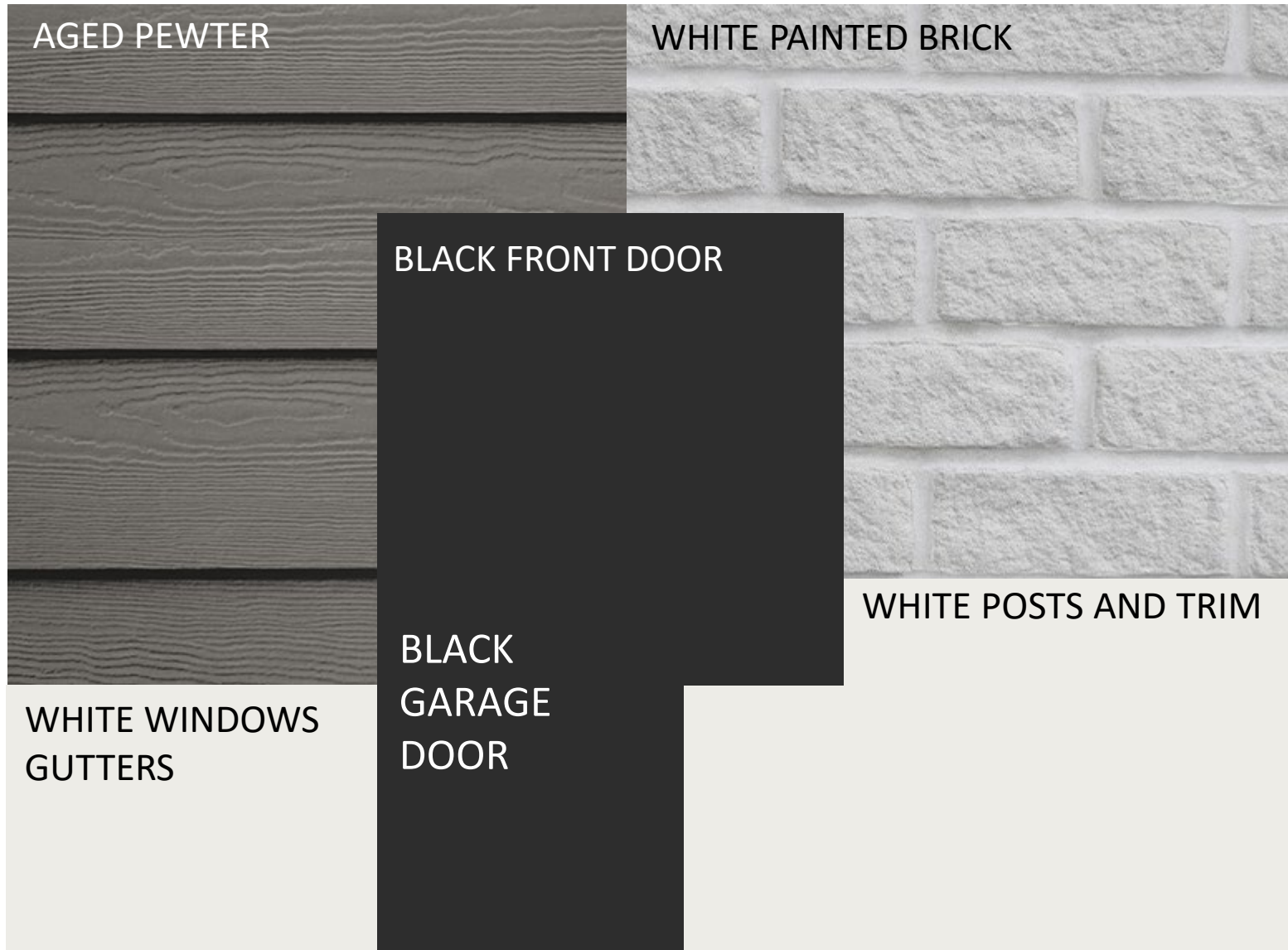
SCHEME 19



SCHEME 20



SCHEME 21

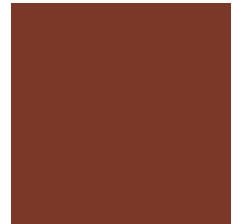


SCHEME 22



ACCENT DOOR OPTIONS

- SW ROYCROFT
COPPER RED



SCHEME 24

TIMBER BARK

WHITE PAINTED BRICK

SW MINDFUL GRAY
FRONT DOOR

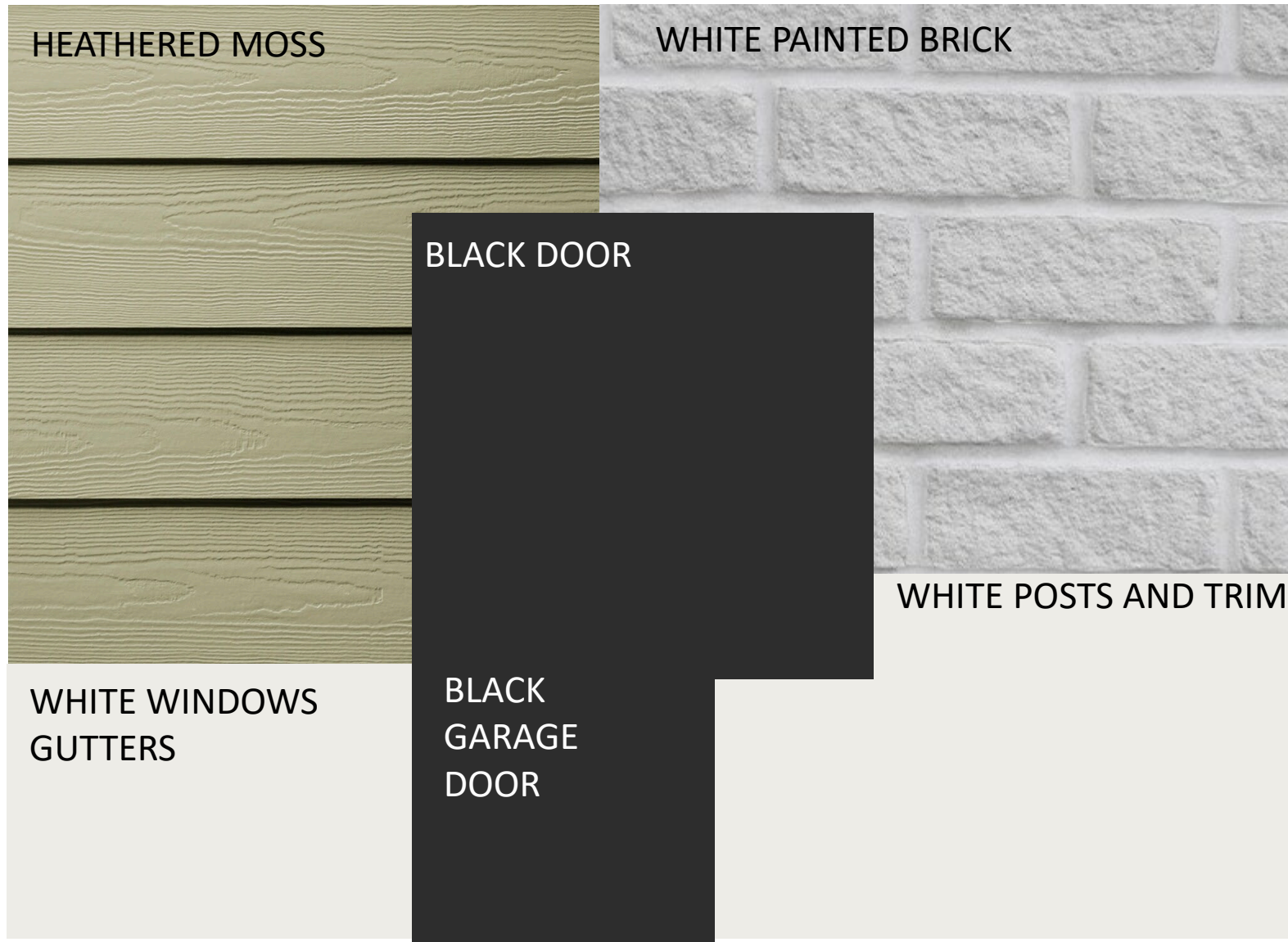
WHITE WINDOWS
GUTTERS AND
GARAGE DOOR

WHITE POSTS AND TRIM

SCHEME 25



SCHEME 25



SCHEME 26

HEATHERED MOSS

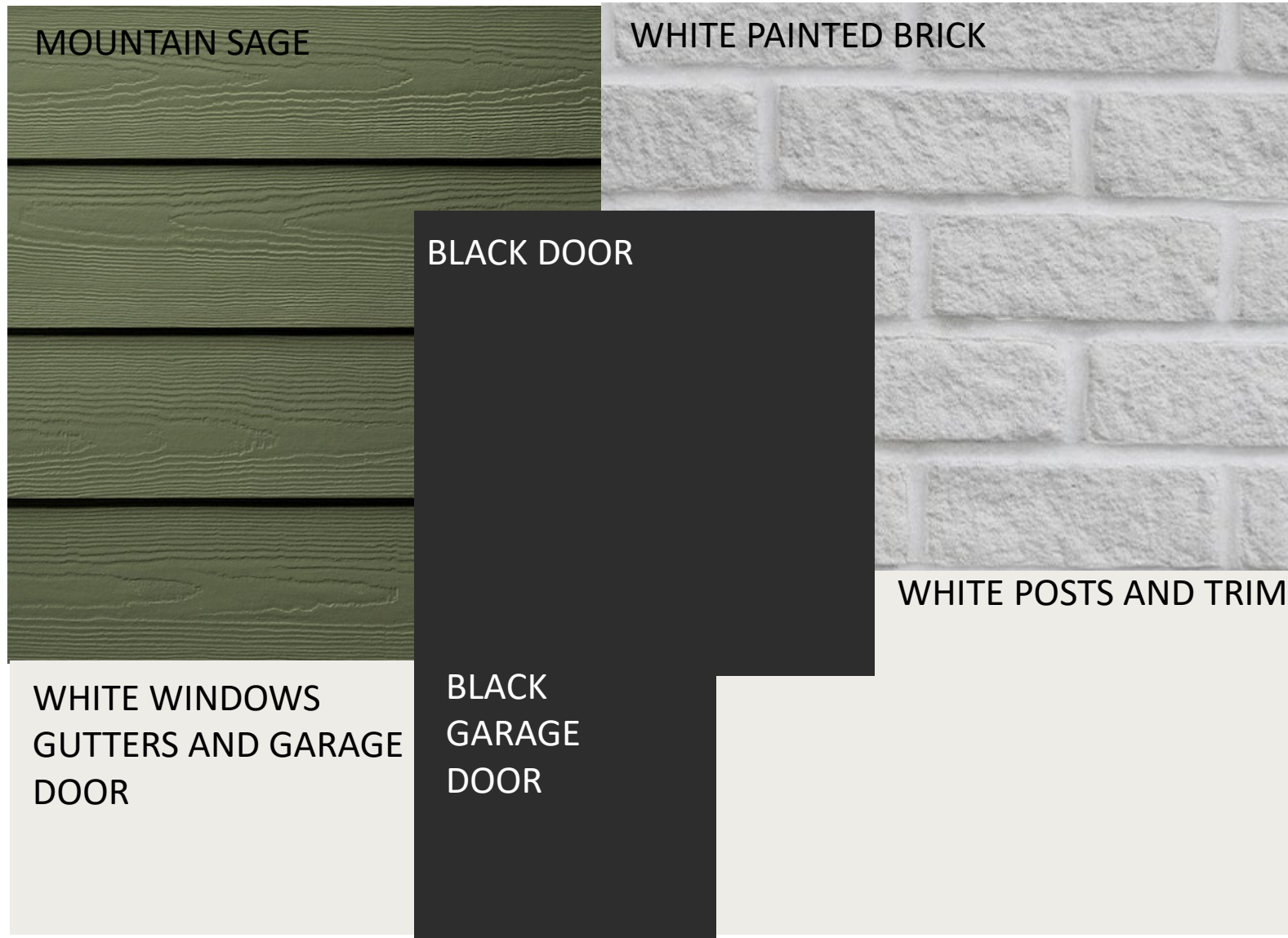
WHITE PAINTED BRICK

WHITE FRONT DOOR

WHITE POSTS AND TRIM

WHITE WINDOWS
GUTTERS

SCHEME 27



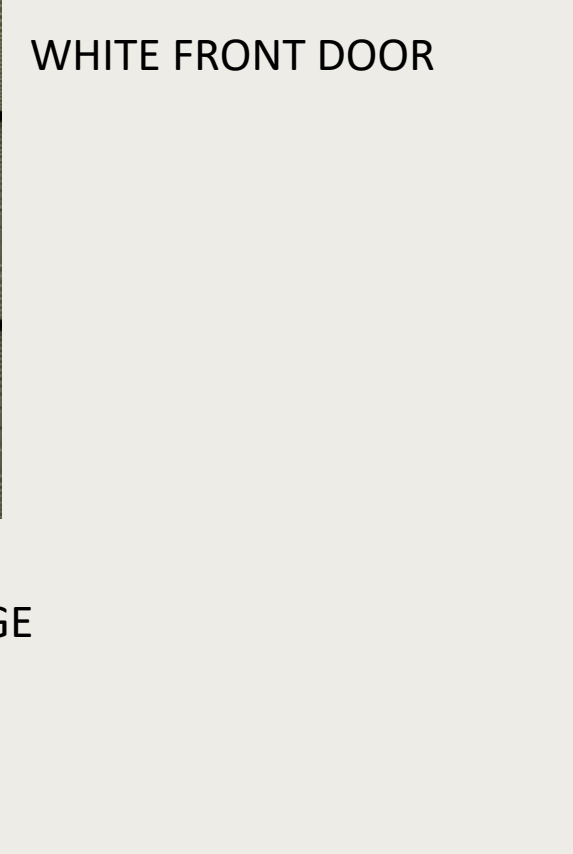
SCHEME 28



MOUNTAIN SAGE



WHITE PAINTED BRICK



WHITE FRONT DOOR

WHITE POSTS AND TRIM

WHITE WINDOWS
GUTTERS AND GARAGE
DOOR

MCCALLIE PLAN

SCHEME 1

ARCTIC WHITE

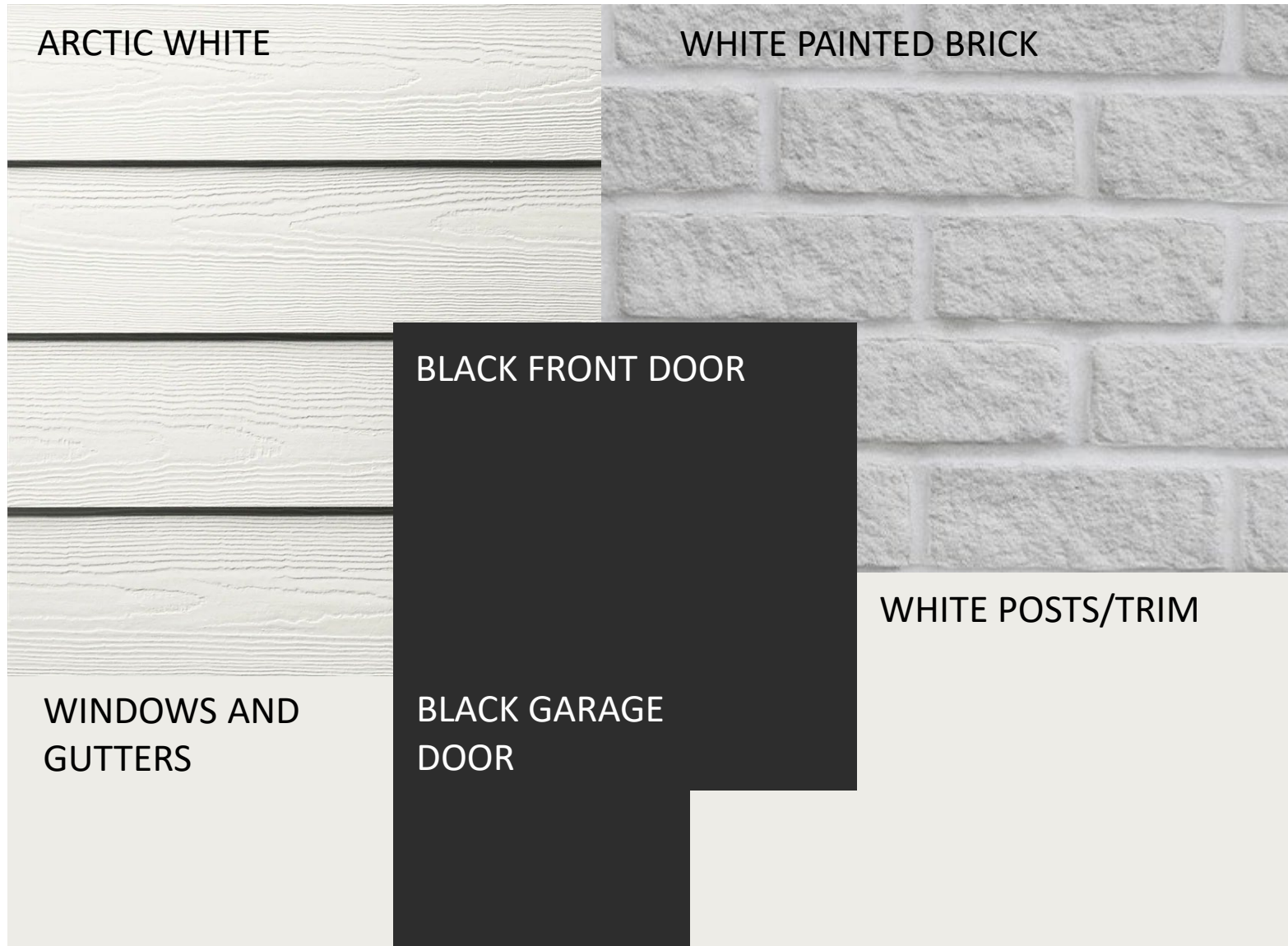
WHITE PAINTED BRICK

BRONZE FRONT DOOR

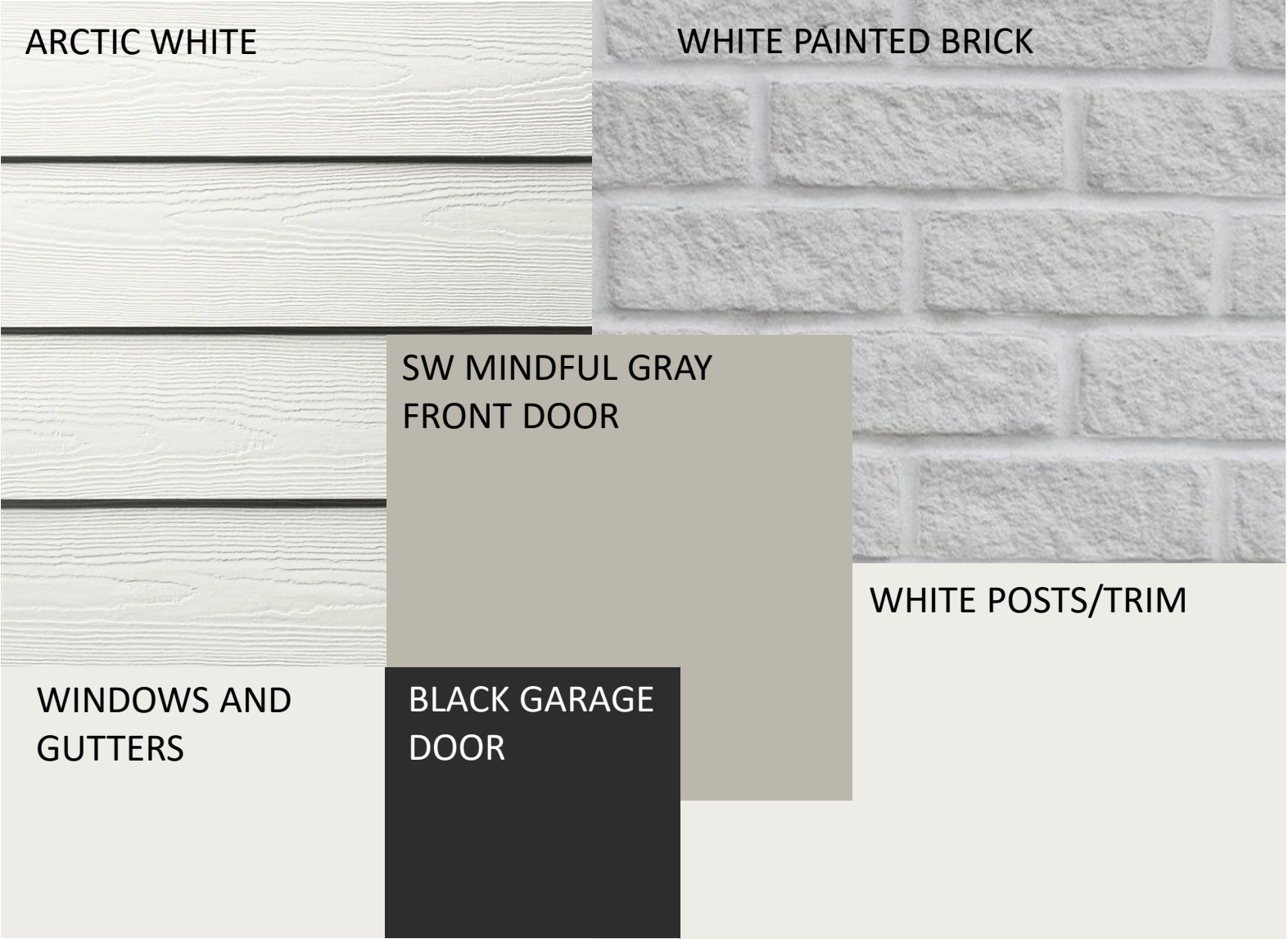
WINDOWS /GUTTERS
GARAGE DOOR

WHITE POSTS/TRIM

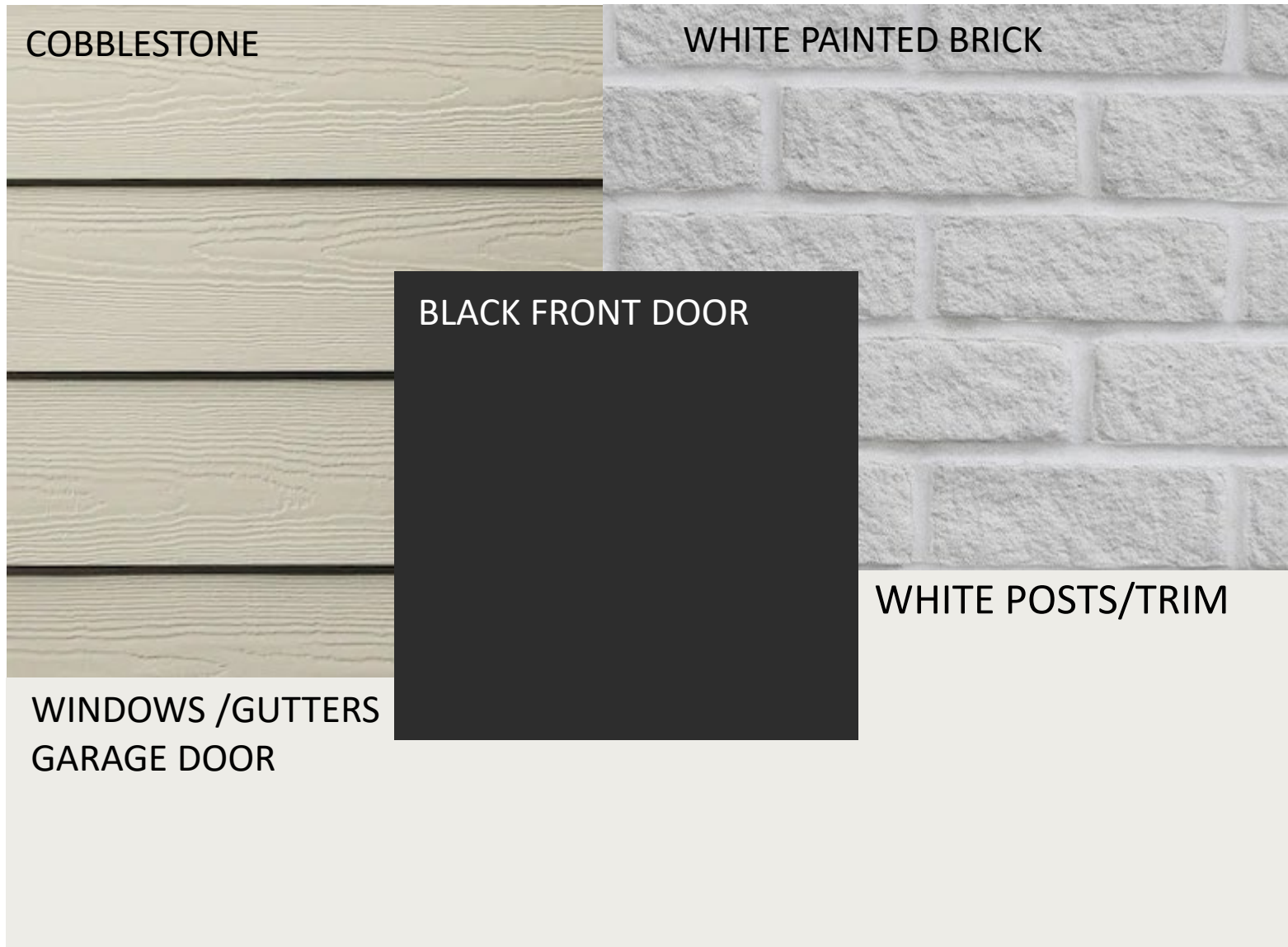
SCHEME 2



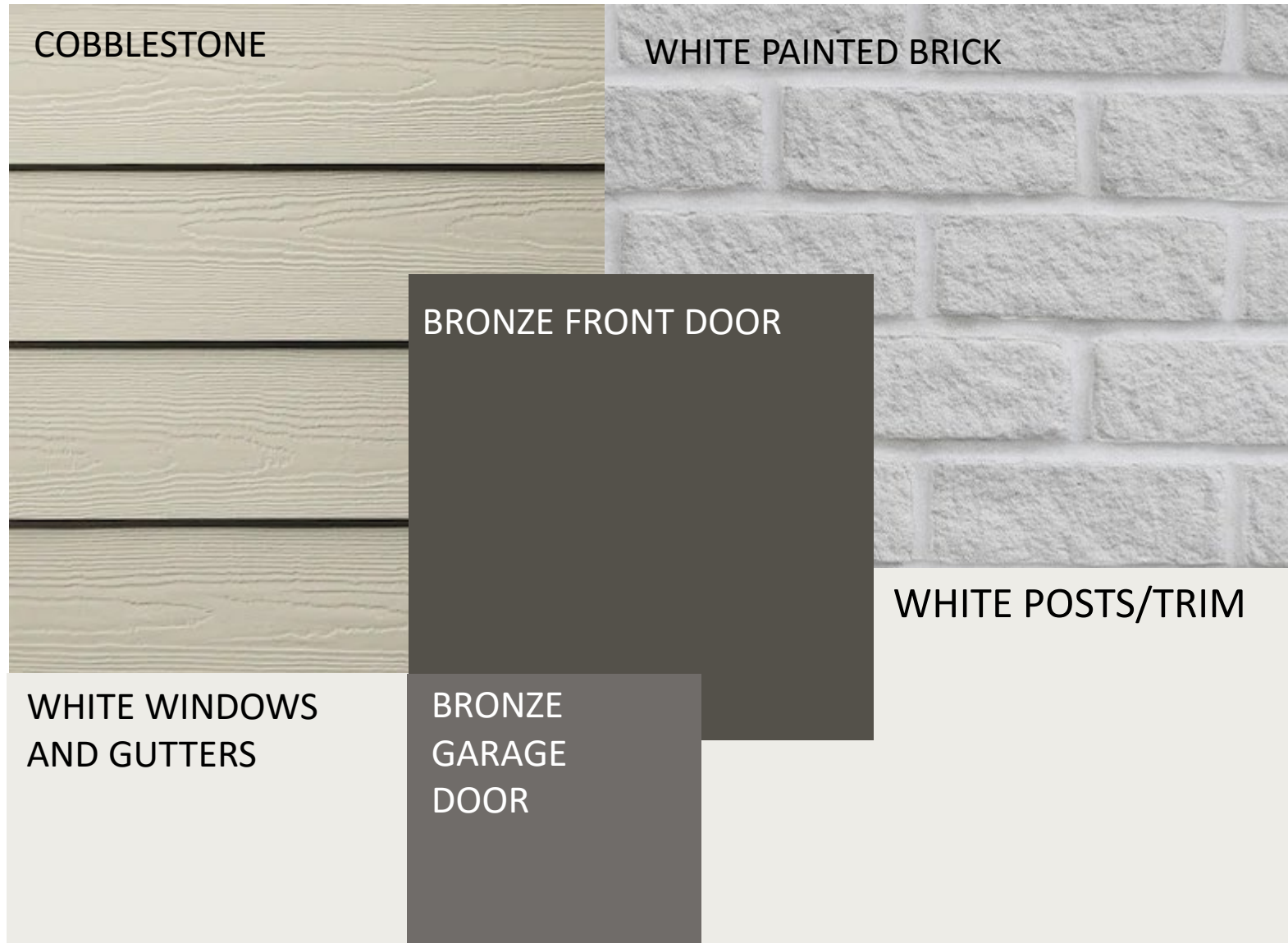
SCHEME 3



SCHEME 4



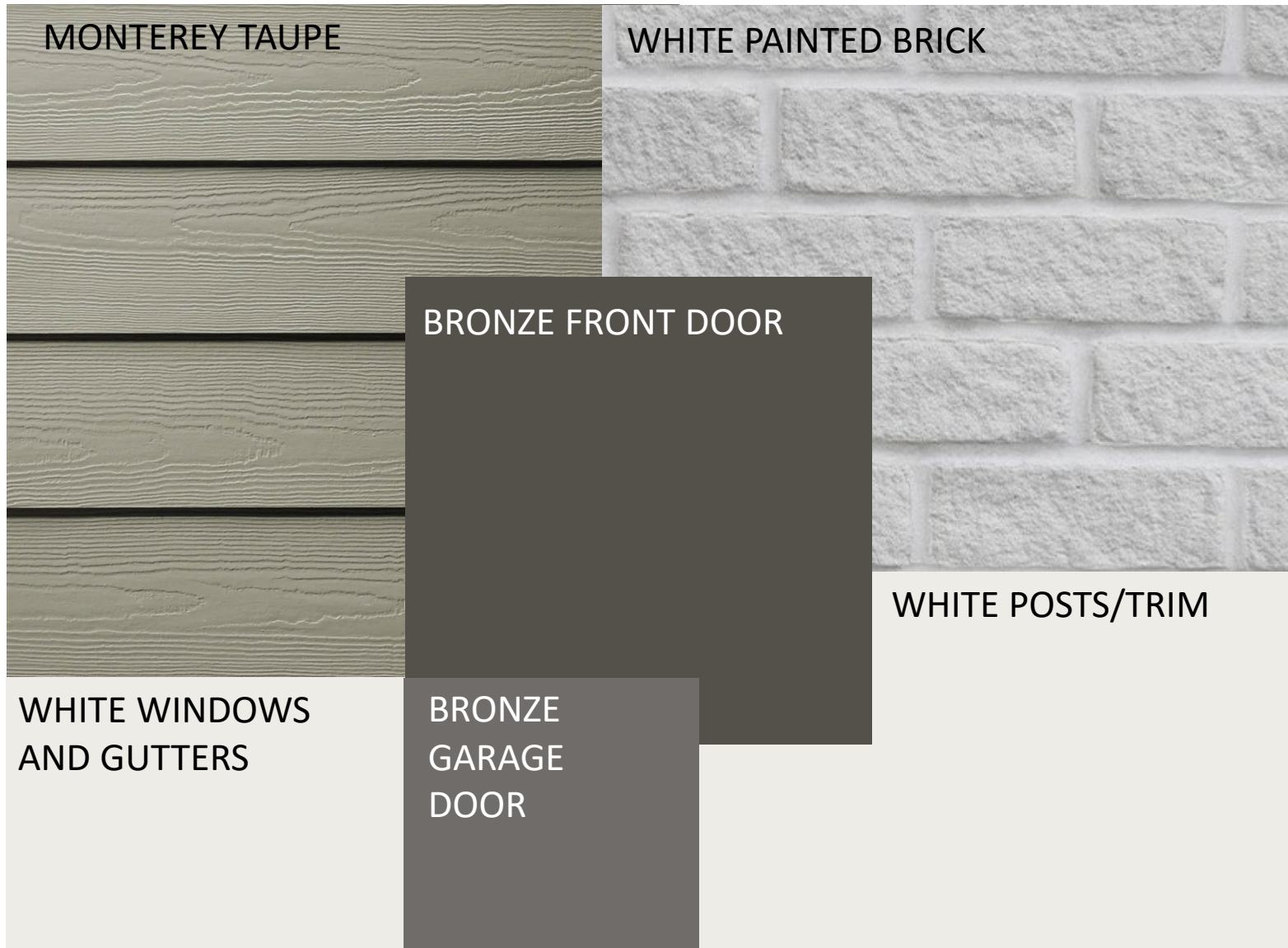
SCHEME 5



SCHEME 6



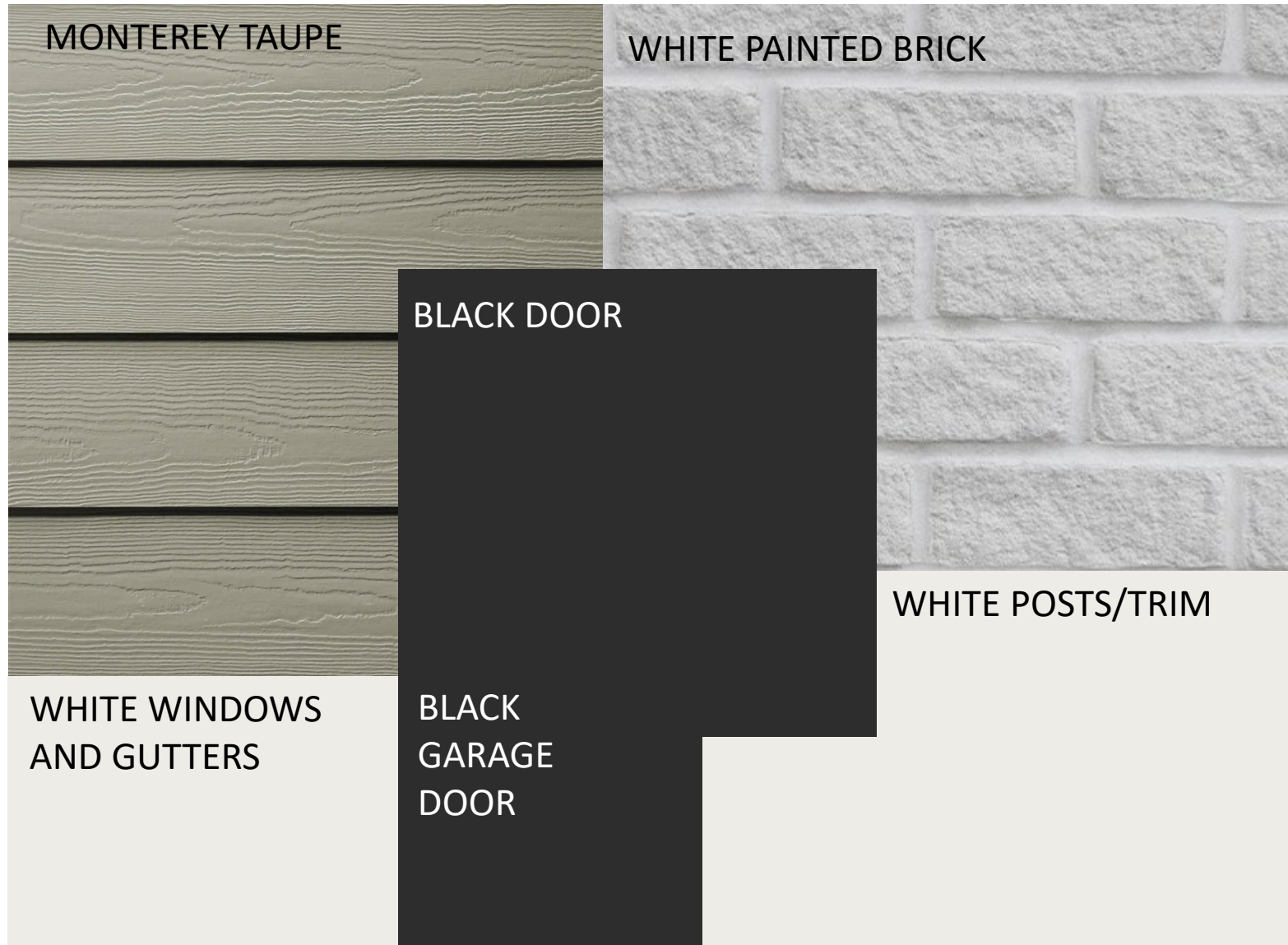
SCHEME 7



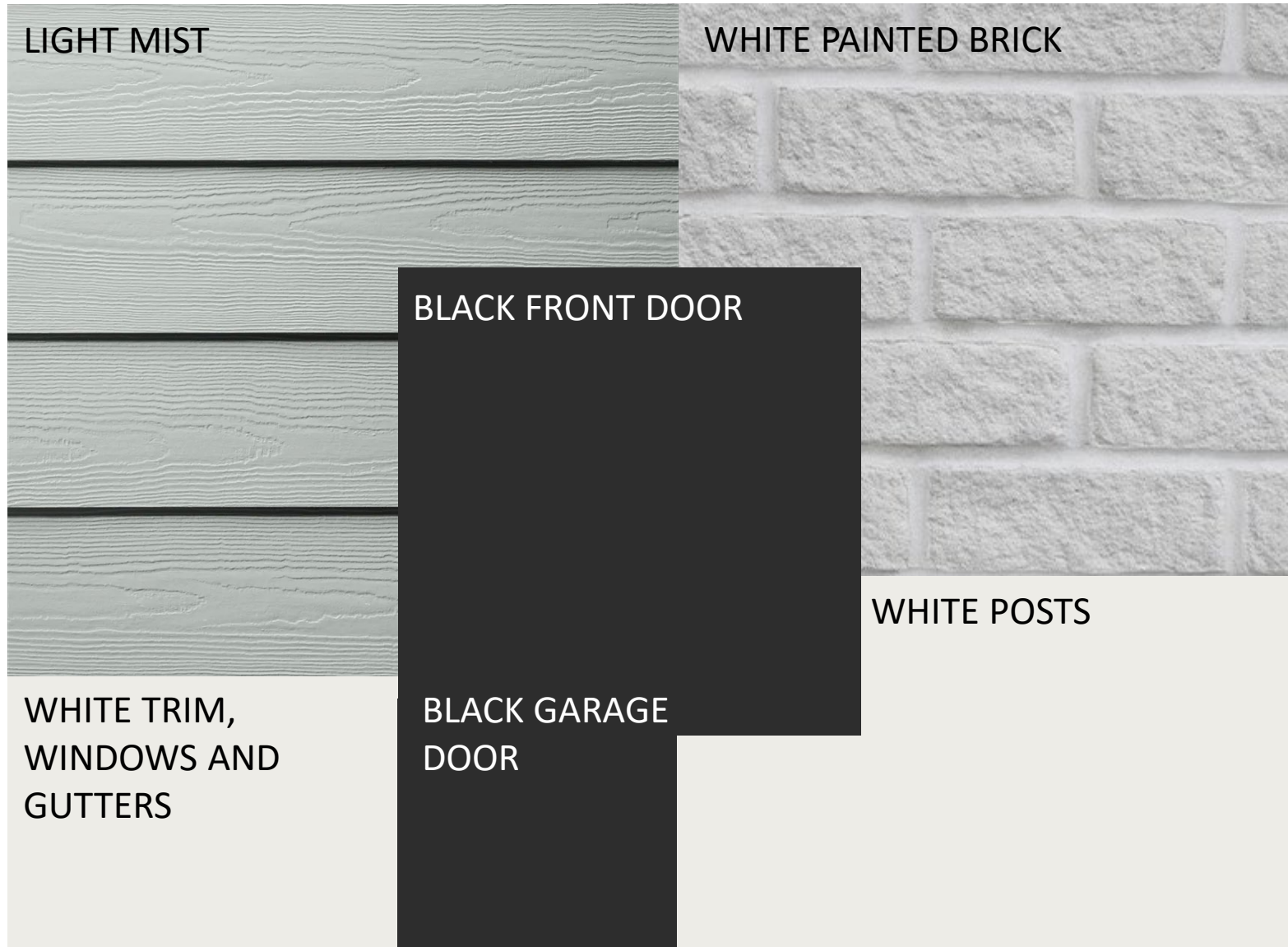
SCHEME 8



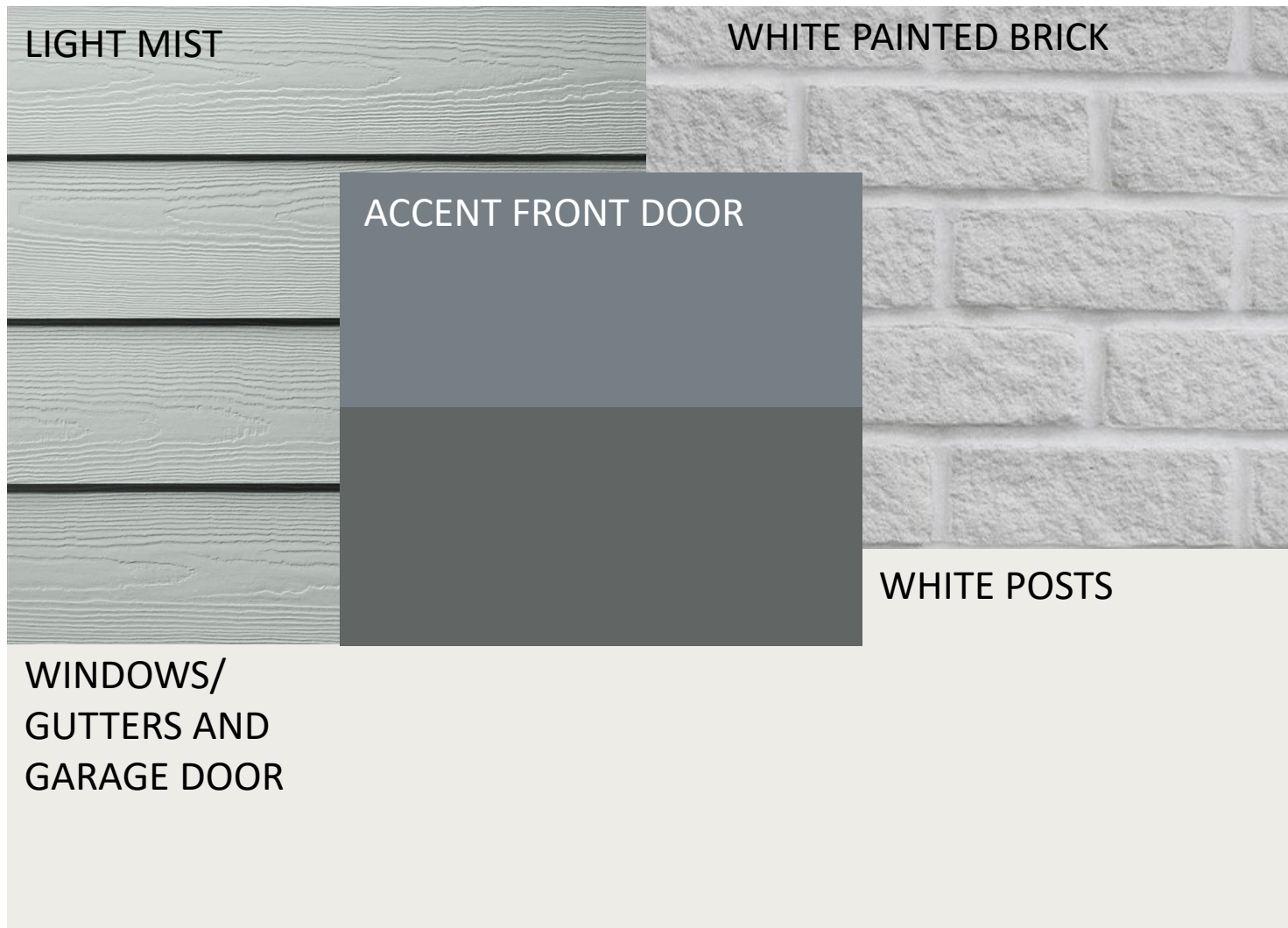
SCHEME 9



SCHEME 10

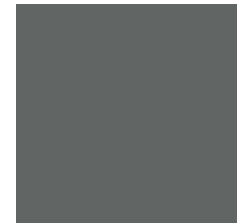
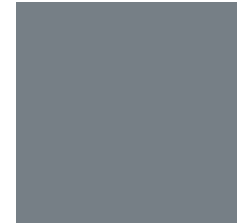


SCHEME 11

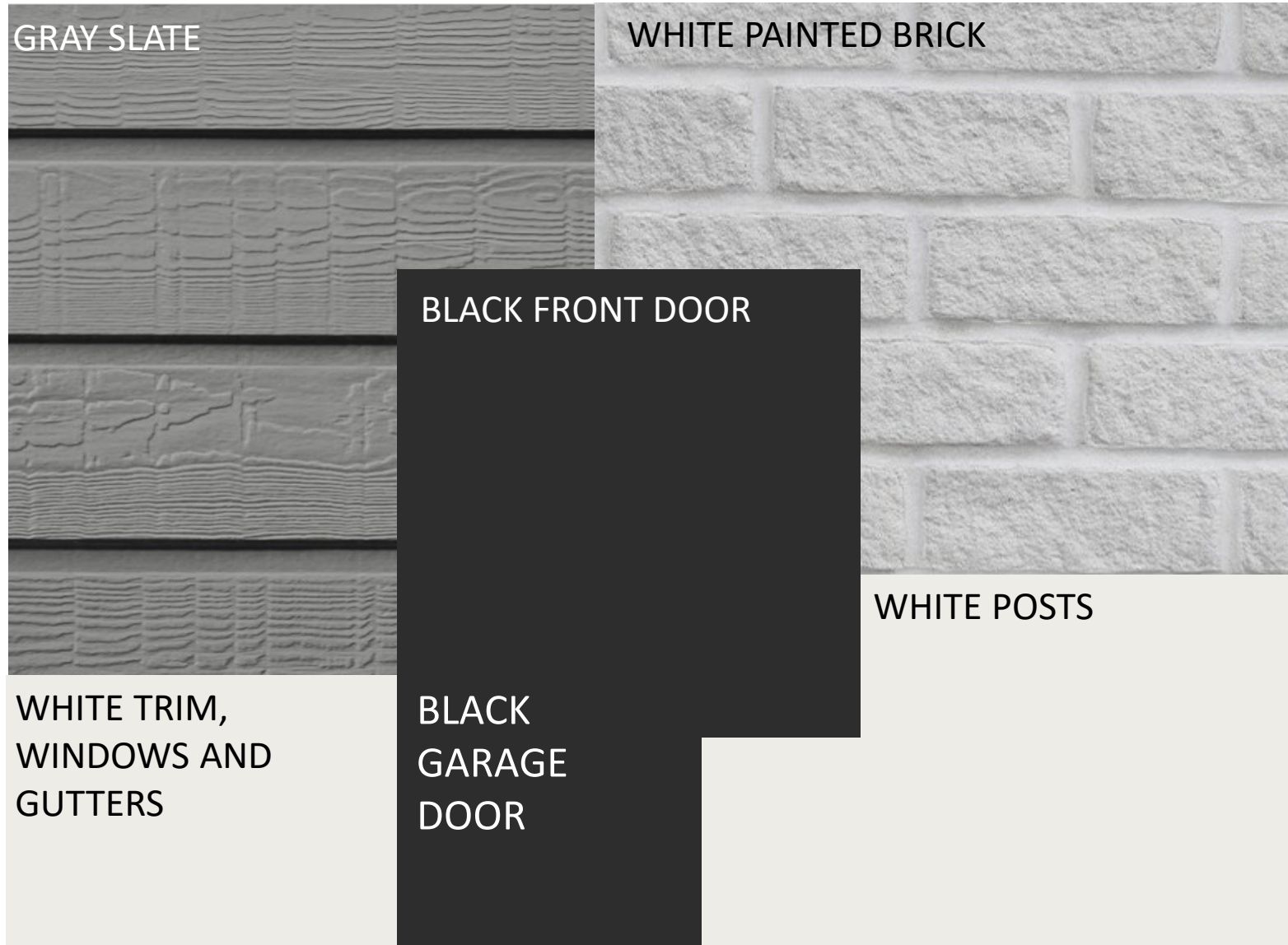


ACCENT DOOR OPTIONS

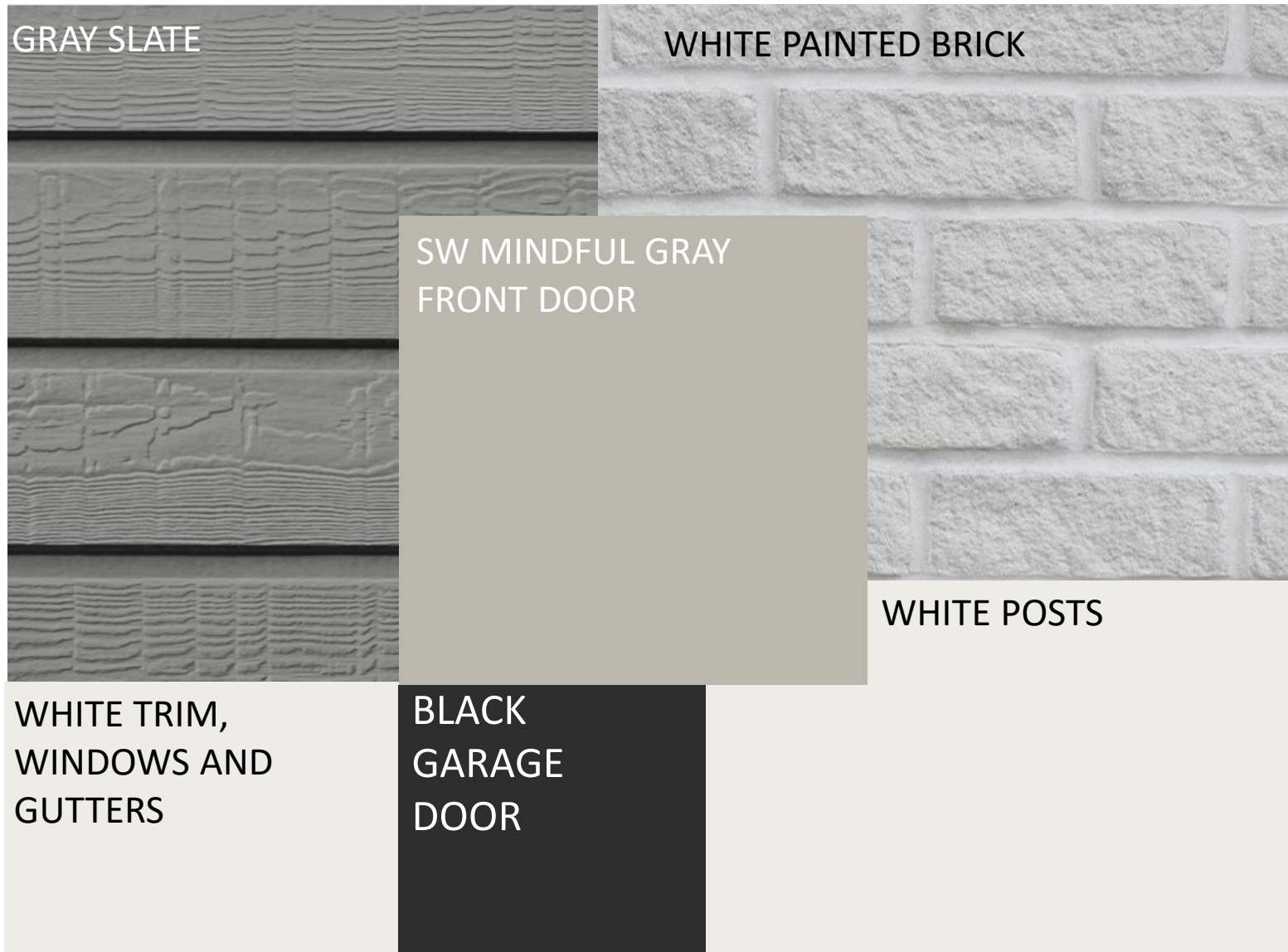
- SW DOWNING SLATE
- SW ROYCROFT PEWTER



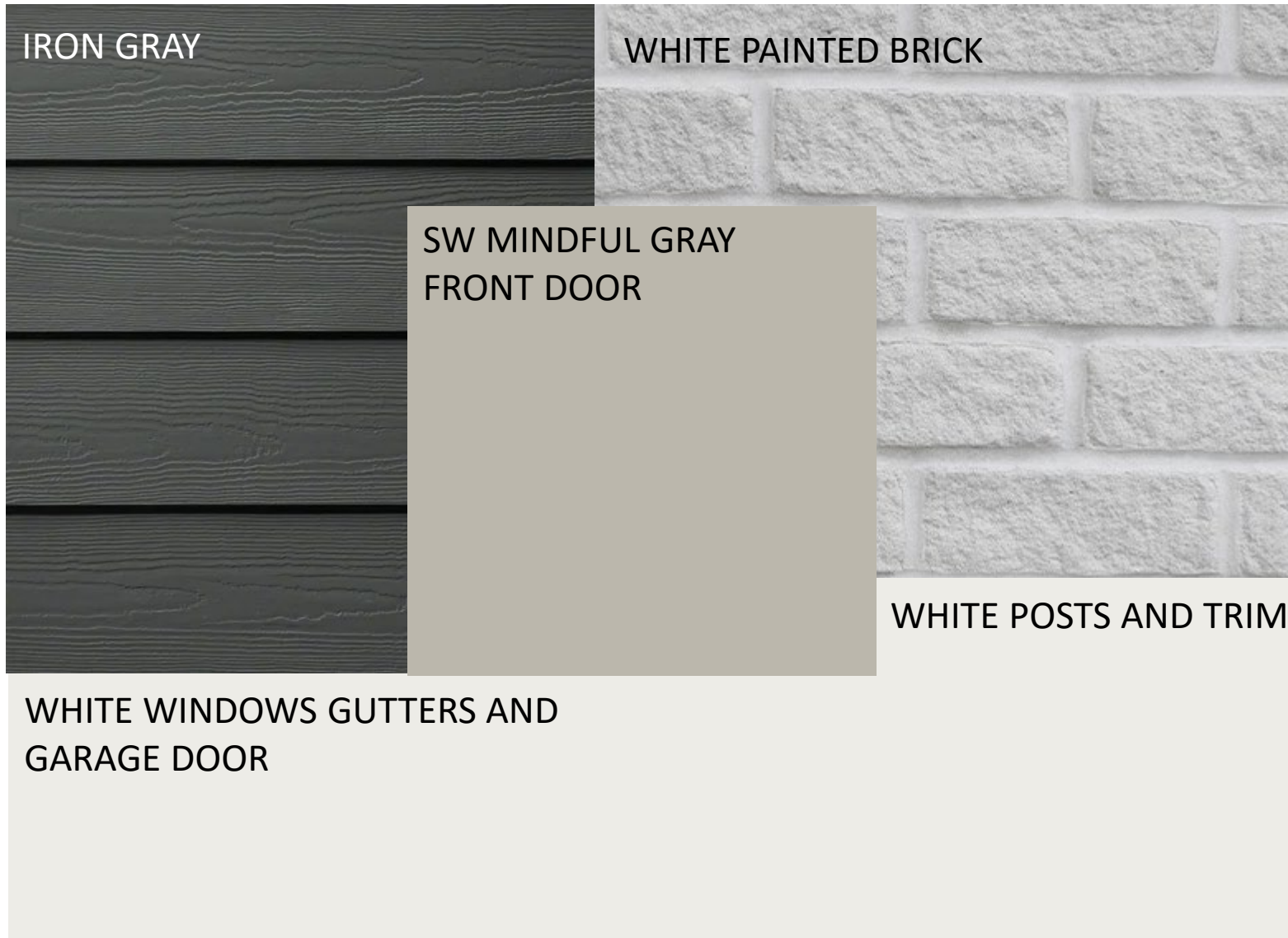
SCHEME 12



SCHEME 13



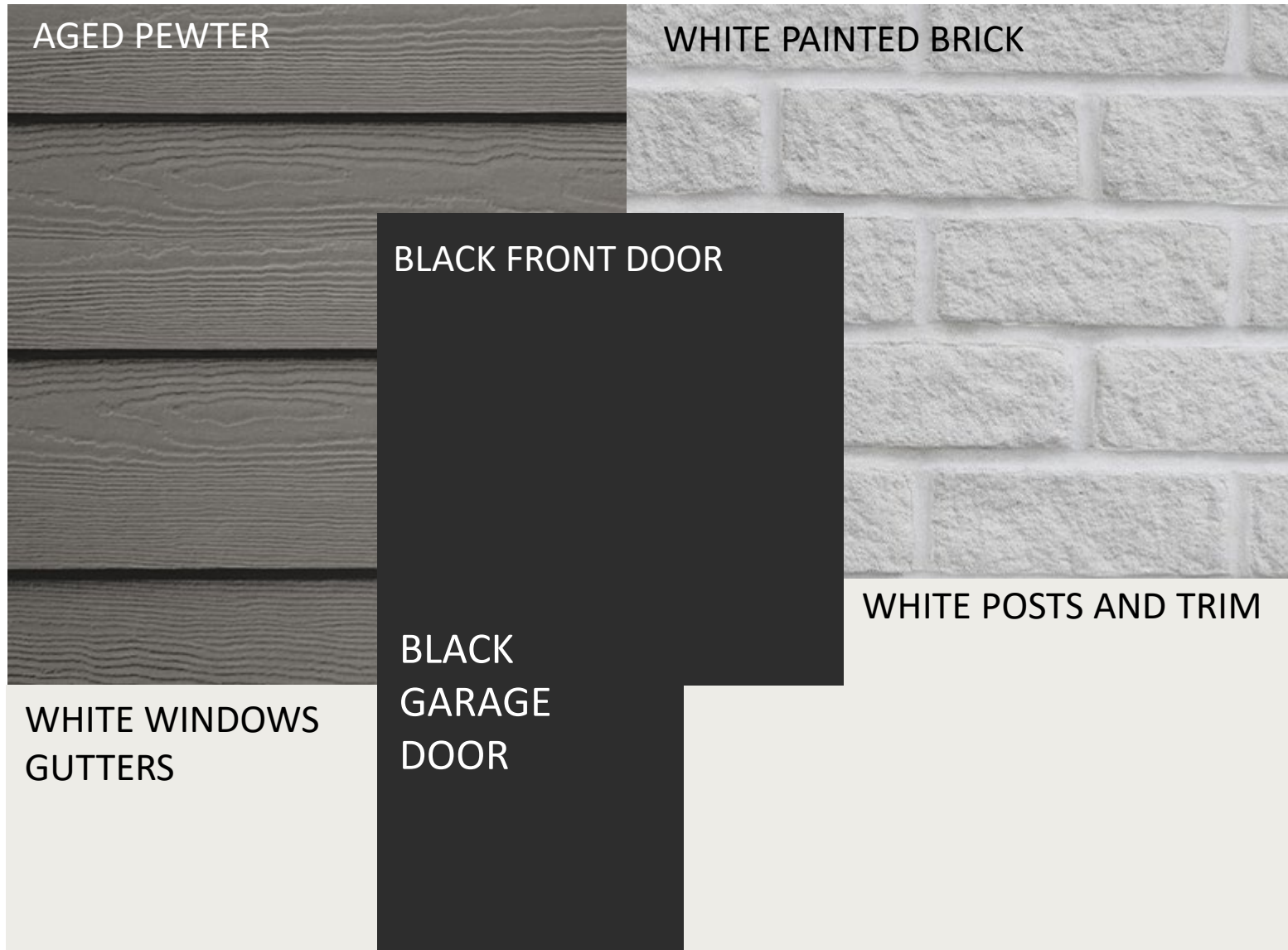
SCHEME 14



SCHEME 15



SCHEME 16



SCHEME 17

TIMBER BARK

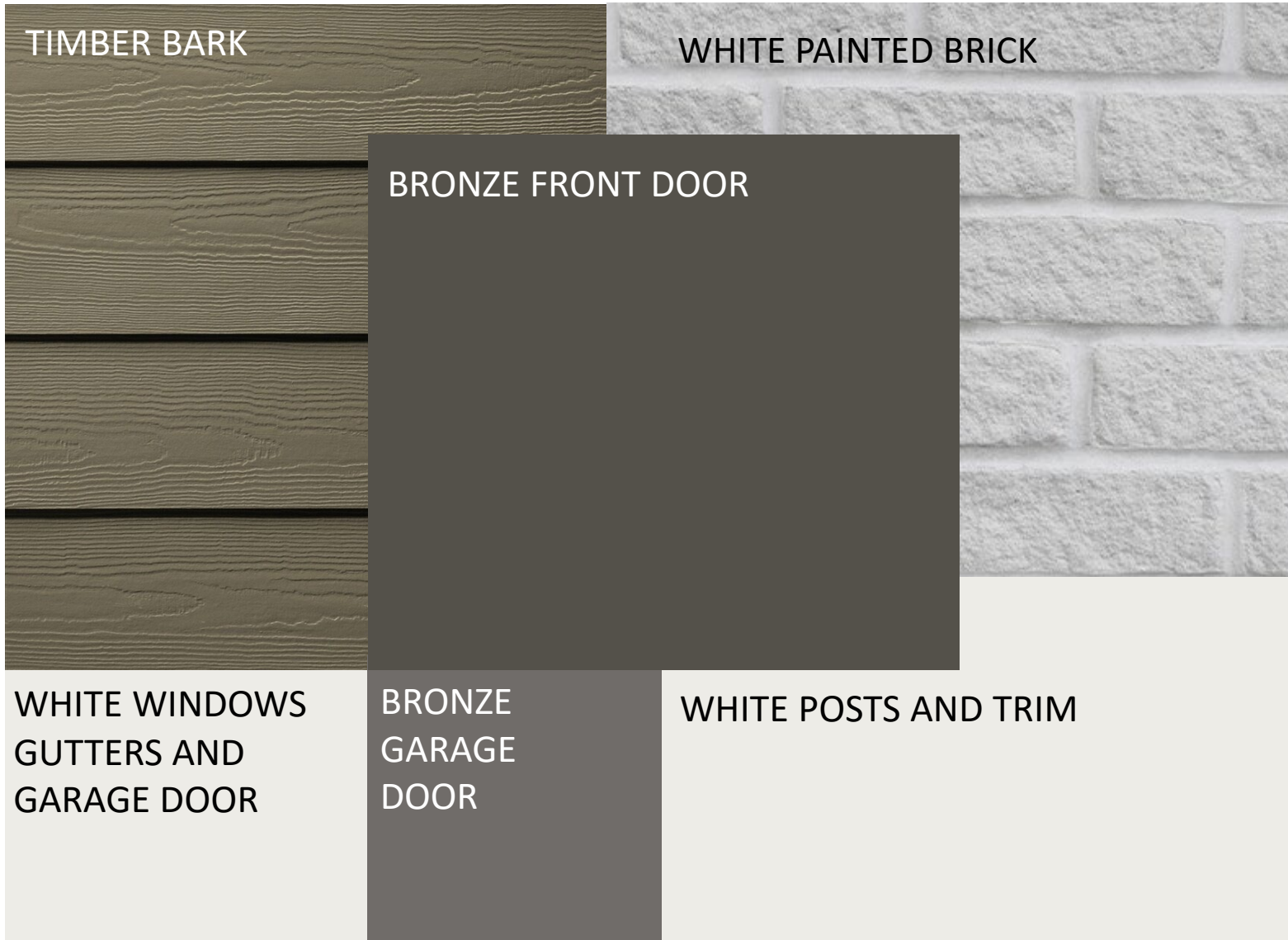
WHITE PAINTED BRICK

SW MINDFUL GRAY
FRONT DOOR

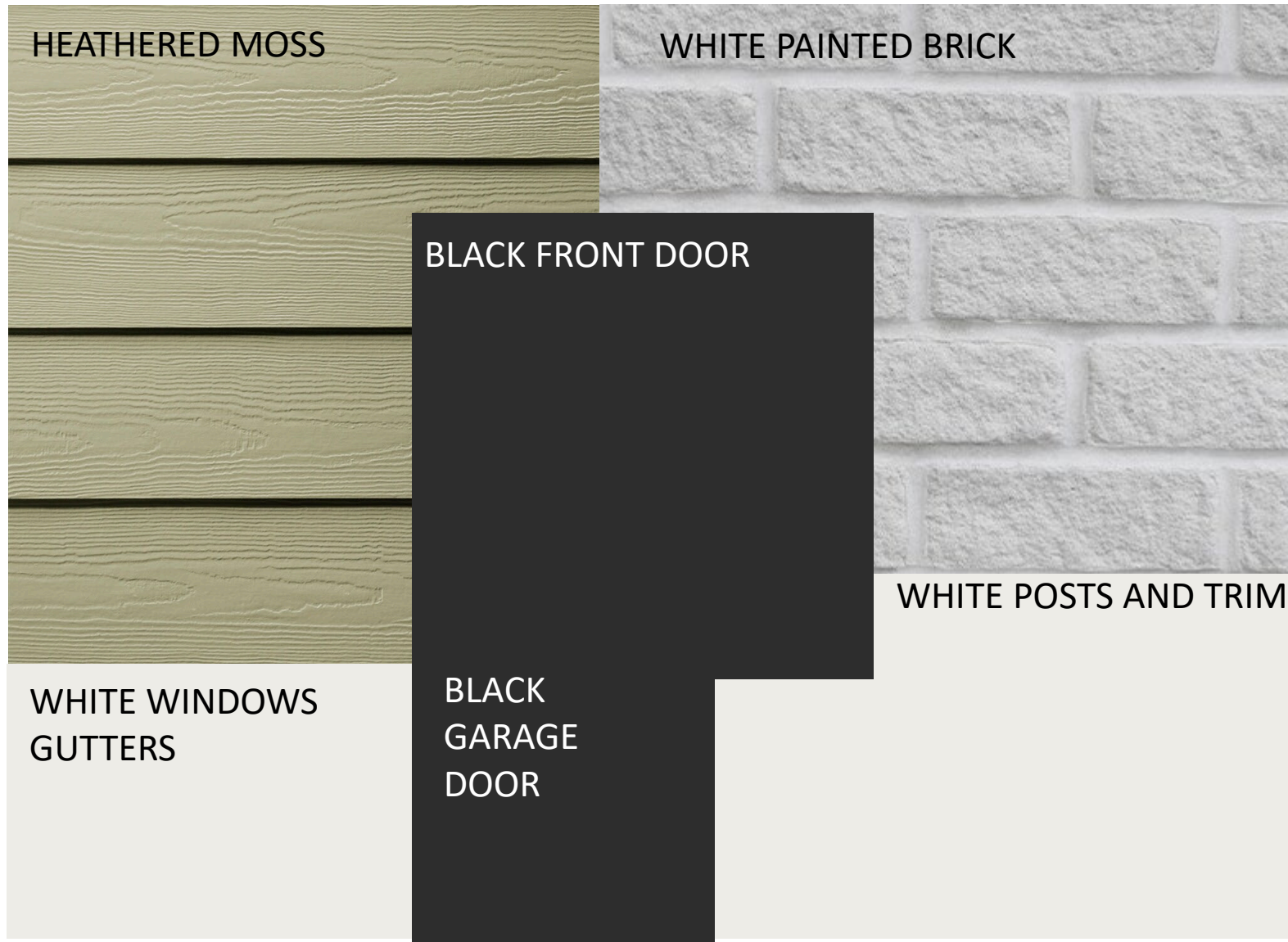
WHITE WINDOWS
GUTTERS AND
GARAGE DOOR

WHITE POSTS AND TRIM

SCHEME 18



SCHEME 19



SCHEME 20

HEATHERED MOSS

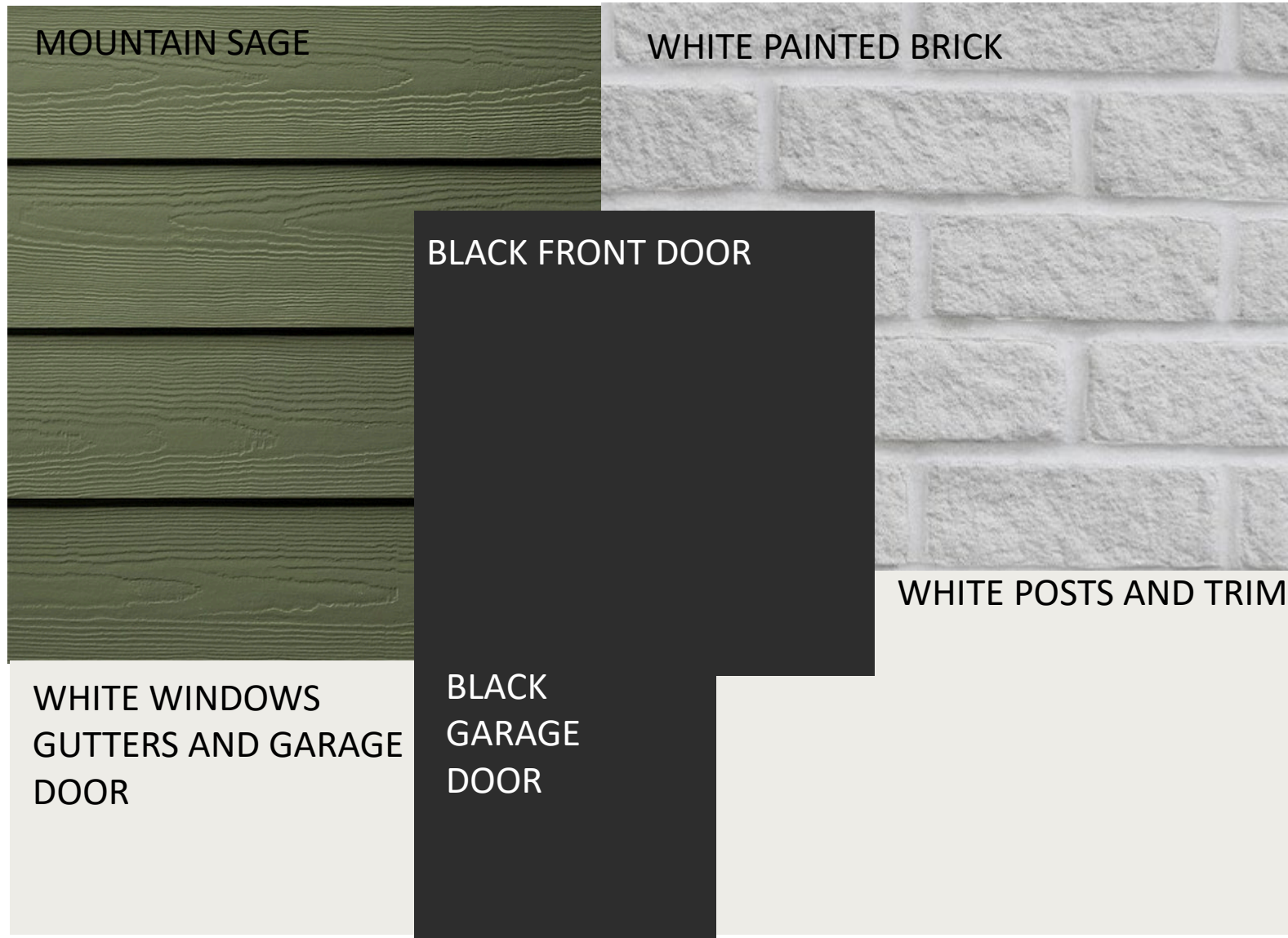
WHITE PAINTED BRICK

WHITE FRONT DOOR

WHITE POSTS AND TRIM

WHITE WINDOWS
GUTTERS

SCHEME 21



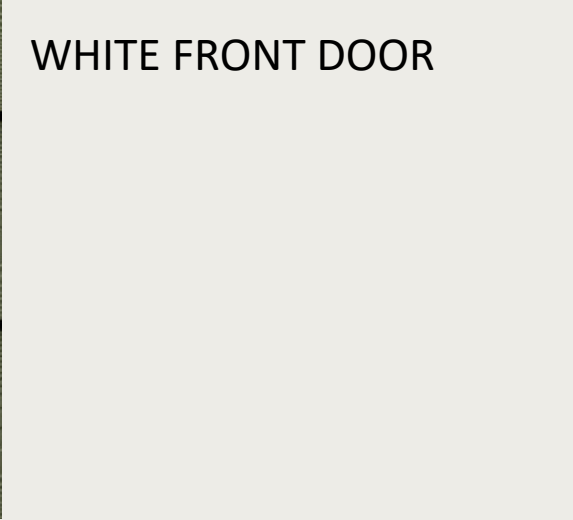
SCHEME 22



MOUNTAIN SAGE



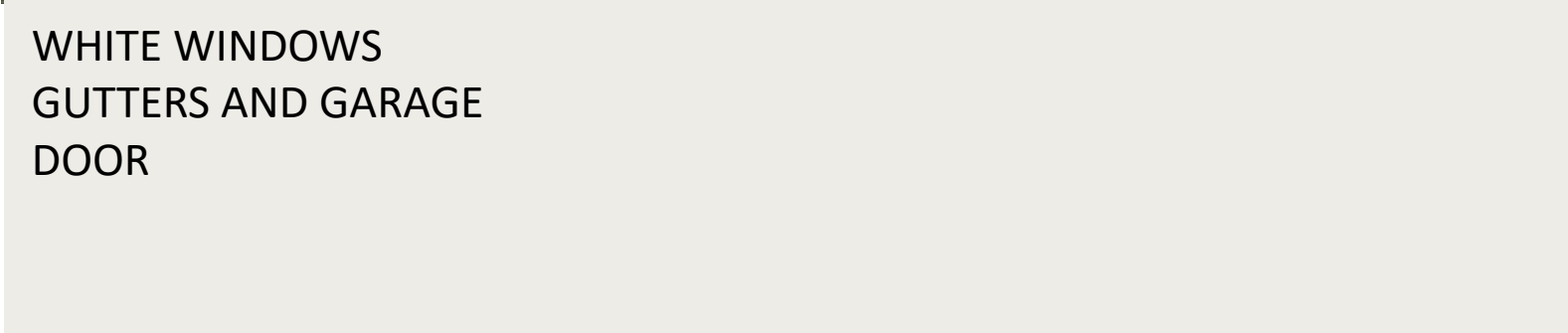
WHITE PAINTED BRICK



WHITE FRONT DOOR



WHITE POSTS AND TRIM



WHITE WINDOWS
GUTTERS AND GARAGE
DOOR



September 15, 2022

Mr. Paul Keltner
Director of Development Services
City of Columbia
700 N Garden Street
Columbia, TN 38401

RE: Honey Farm PUD
2248 Nashville Highway

Dear Mr. Keltner:

As requested by the Development Services staff of the City of Columbia, the letter confirms our commitment to the City of Columbia to pay for the design and installation of a traffic signal and all required turn lanes and road modifications associated with the traffic signal at the intersection of Nashville Highway and Honey Farm Way.

The installation of the traffic signal will be completed prior to the completion of Phase II of the Honey Farm townhome development.

Sincerely,

A handwritten signature in black ink, appearing to read 'Drew Smith', written over a light grey horizontal line.

Drew Smith
Senior Vice President



Honey Farms BFR Specifications

Revised 09/12/2022

Interior

Interior Paint & Drywall:

- Sherwin Williams – One paint color throughout per selections package. Garage, ceilings, closets, trim are all white.
- Sheen: Walls and Ceilings- Flat; Doors and Trim- Semi-gloss.
- Board: ½" drywall
- Finish: Smooth finish on all walls and ceilings

Interior Doors:

- Hollow core Masonite, paintable finish. Style per interior selections package
- All interior doors are 6'8" in height.

Flooring: (unless otherwise noted in selections package)

- Main living area (including powder bath where applicable): LVP. Style per interior selections package
- 1st set of Stairs: Paint grade risers and skirts, LVP treads with metal LVP nosing, and stained oak railings to stair wall.
- 2nd set of Stairs: Paint grade skirt, and carpet risers and treads with stained oak railings to stair wall.
- 2nd Floor: Tier 1, Shaw carpet, 100% polyester carpet. Style per interior selections package
- Bedrooms: Tier 1, Shaw carpet, 100% polyester carpet. Style per interior selections package
- Master Bathroom: LVP flooring per interior selections package, fiberglass shower insert with framed shower door to match plumbing fixtures
- Guest Bathrooms: LVP flooring per interior selections package, fiberglass tub/shower insert (unless dictated otherwise per plan)
- Laundry Room: LVP flooring per interior selections package

Cabinets, Countertops and Vanities: (unless otherwise noted in selections package)

- Standard cabinetry is a polypropylene wrapped HDF with standard overlay doors. Hardware included (per interior selections package).
- Standard cabinet uppers are 36" or 42" (per interior selections package)
- Granite countertop to go in kitchen and guest bathrooms (per interior selections package)
- 4-inch granite backsplash matching countertop selection is standard
- Master Bathroom: Double vanity is standard (unless plan dictates otherwise)
- Guest Bathroom(s): Single vanity is standard.
- Powder Bath: Pedestal sink is standard.

Plumbing:

- 4" fixtures in chrome
- Water lines: Pex with copper stub outs
- All homes on sewer
- Commodes are all elongated in white.
- Standard water heater is a 50-gallon electric heater.
- Garbage disposal standard with kitchen sink.
- Front and rear spigot provided on all units (where possible)

Lighting & Electrical:

- Standard electrical package finish per interior selections package
- Puck lighting location and amount specified in lighting plan specific to floor plan selected.
- Ceiling fans standard in Master Bedroom & Great Room
- Wire specs per code and per standard lighting plan
- Service: 200 Amp
- Low Voltage wiring for HSI, TV, Data per local provider specifications

Door hardware, Closets, and Bath Accessories: (unless otherwise noted in selections package)

- Bedroom closets, bathroom linen closets, pantry, and laundry: White coated wire shelving.
- Interior and exterior door hardware per interior selections package. Hinges will match corresponding door hardware.
- Bath accessories to match the finish selected for plumbing fixtures.
- Plate glass mirrors to be included with all bathrooms.
- Pre-cut oval mirrors to be included in powder baths
- Clear glass framed shower doors are included in the master bathroom shower.

Interior Trim:

- 2 ¼" door trim
- 5 ¼" baseboards with shoe molding
- Window stool and apron

- Openings to all have sheetrock return.

Appliances:

- Electric range, over range microwave, dishwasher, and side-by-side refrigerator

HVAC: (unless engineered drawings dictate otherwise)

- 2, 2.5, 3 or 3.5 ton (depending on heated and cooled area)
- 14 seer AC units
- All electric units
- Digital thermostat is provided for first and second floor control.
- Attic access to HVAC is a scuttle hole if installed in roof system.

Natural Gas:

- No natural gas available

Fireplace:

- No fireplaces

Exterior

Foundation (per development specifications or engineered structural drawings):

- Block stem wall construction consisting of:
 - 24" wide footer 3000 psi concrete reinforced with 2 runs of ½" rebar
 - Concrete block foundation
 - Foundation Veneer: S Type mortar stucco finish
- Mono-slab foundation per structural detail to meet code requirements

Concrete:

- Driveway: 3000 psi concrete, 4" thick
- Front Entry Sidewalk: 3000 psi concrete 4" thick, 4' wide, connecting the driveway to front porch.
- Garage Slab: 3000 psi concrete 4" thick

Termite Treatment:

- Termite bait system around the perimeter of the home. The first year of coverage is included in the 1-year builder warranty.

Water Management:

- Foundations are waterproofed per code.
- All gutter downspouts are directed away from the foundation.

Landscaping:

- Per master landscaping plan as approved by the Land Disturbing Permit

Framing: (Engineered structural drawings precede the following standard spec)

- Exterior Walls: 2x4 walls assembly 16" on center
- Interior Walls: 2x4 and 2x6 wall assembly 16" on center per the plans.

- Pressure treated lumber used when lumber meets masonry or concrete surfaces.
- Floor System: Tongue and groove subfloor glued and fastened to floor system to meet code.
- Roof: engineered roof trusses 24" on center with ½" OSB roof sheathing.
- Ceiling heights are 9' on the main floor and 8' on the second floor.

Insulation:

- Exterior walls: R-13 fiberglass batts
- Ceilings: R-38 blown cellulose

Patios: (Unless otherwise specified per development)

- 3000 psi concrete, 4" thick

Siding: (Unless otherwise specified per development)

- Combinations of 8 ¼" cedar mill or smooth fiber cement primed siding and 16" on center board and batten fiber cement siding per the plans
- Exterior Grade Trim: fiber cement corner boards and frieze boards
- Metal drip edge used above windows and at horizontal siding at trim transitions.
- Posts: fiber cement board or rough-cut wood based on exterior color package selected

Soffit and Fascia:

- Soffit: vented or solid soffit; vinyl
- Fascia: Exterior grade aluminum trim

Roof:

- Roof Shingle: 30 yr. dimensional shingle with a limited lifetime warranty, 15-year wind warranty and a 10-year algae warranty.
- Roof Venting: Soffit vent to ridge vent. Gable vents per the plans.

Exterior Paint:

- Sherwin Williams- Satin

Exterior Ceilings: (Unless otherwise specified per development)

- Fiber cement board porch ceilings

Windows & Exterior Doors: (Unless otherwise specified per development)

- White vinyl single hung windows located per plan.
- Front Door: 6'-8" Door. Smooth fiberglass w/ peep hole
- Rear Entry Door (if applicable): 6'-8" Door. Smooth fiberglass w/ peep hole
- Garage Door (Pedestrian): 6'-8" Door. Smooth fiberglass w/ peep hole
- Garage Door: as dictated by plan

Gutters and downspouts:

- 6" OG gutters with 3"x4" downspouts

Mailbox:

- per USPS requirements



September 15, 2022

Ms. Bridgette Ganter

Bowman

950 North Point Pkwy Suite 200

Alpharetta, GA 30005

Sent via email: bganter@bowman.com

RE: Water Availability Letter
 Honey Comb Farm Townhomes – 250 Units
 Nashville Hwy @ Honey Farm Way
 Tax Map 51, Parcel 58
 Columbia, Maury, TN

Dear Ms. Ganter:

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, provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development consists of 250 townhome units. 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 1,500 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 connections will be made to the existing 12-inch water main located on Honey Farm Way.
- Minimum size 8-inch water mains will be required throughout the development.



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:

- Present the attached fire hydrant curve for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide construction drawings for all public water infrastructure for the proposed development in both CAD and PDF format for CPWS review.
- When applicant has resolved all comments provided by CPWS for the construction drawings, CPWS will provide an approval letter and flow calculations to support TDEC approval of the construction drawings.
- Applicant then submits drawings to TDEC for approval. Upon approval by TDEC, applicant may schedule a pre-construction meeting with CPWS. 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 Mr. Jonathan Hardin or myself at 615-934-7499 or jason.english@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

Sincerely,

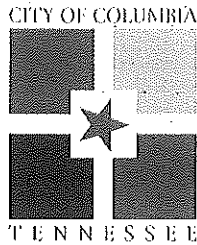
A handwritten signature in blue ink that reads "Jason English".

Jason English, P.E.

Inflo Design Group, LLC

on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 22-085



WASTEWATER DEPARTMENT

16 September 2022

Drew Smith
Equitas Management Group
5525 N MacArthur Blvd, Suite 400
Irving, TX 75038

RE: Honey Farms Parcel ID 051 058.00

Drew,

This letter serves as confirmation that the City of Columbia Wastewater Department has the available capacity to service the above-referenced development. Major or minor improvements to existing infrastructure may or may not be necessary to satisfactorily convey the additional sanitary sewer flow from the above-referenced proposed 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.

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

Donnie Boshers, Director
City of Columbia, TN
Wastewater Department

Something Good Around Every Corner

1244 Treatment Plant Road Columbia, Tennessee 38401 Phone 931.560.1001

Property Line Description
Honey Farm Residential Tract
Maury County, Tennessee

All that tract or parcel of land lying and being in the Third Civil District of Maury County, Tennessee, and being more particularly described as follows:

COMMENCING at a 1/2-inch rebar found at the intersection of the southeasterly right-of-way line of Nashville Highway (variable right-of-way) with the northeasterly right-of-way line of Honey Farm Way (variable right-of-way); Thence along said northeasterly right-of-way line of Honey Farm Way South 53 degrees 26 minutes 48 seconds East for a distance of 44.38 feet to a 1/2-inch rebar found; Thence along the arc of a curve to the left an arc length of 55.71 feet, said curve having a radius of 160.00 feet and being subtended by a chord of 55.43 feet bearing South 63 degrees 22 minutes 30 seconds East to a 1/2-inch rebar found; Thence along the arc of a curve to the right an arc length of 83.46 feet, said curve having a radius of 240.00 feet and being subtended by a chord of 83.04 feet bearing South 63 degrees 11 minutes 32 seconds East to a 1/2-inch rebar found; Thence South 53 degrees 39 minutes 04 seconds East for a distance of 95.90 feet to a 5/8-inch rebar set; Thence South 51 degrees 43 minutes 09 seconds East for a distance of 152.63 feet to a nail set; Thence South 55 degrees 07 minutes 01 seconds East for a distance of 89.78 feet to a 5/8-inch rebar set, said point being the **TRUE POINT OF BEGINNING**; Thence departing said right-of-way line North 36 degrees 32 minutes 46 seconds East for a distance of 616.84 feet to a nail set in the center of a paved lane; Thence with the centerline of said lane South 50 degrees 26 minutes 06 seconds East for a distance of 883.23 feet to a 1/2-inch rebar found to the center of a gravel lane; Thence with the centerline of said lane South 32 degrees 39 minutes 21 seconds East for a distance of 479.97 feet to a 1/2-inch rebar found; Thence South 79 degrees 57 minutes 38 seconds East for a distance of 289.61 feet to a 1/2-inch rebar found; Thence departing said lane South 05 degrees 52 minutes 43 seconds West for a distance of 262.24 feet to a 1/2-inch rebar found; Thence South 82 degrees 33 minutes 59 seconds East for a distance of 14.84 feet to a 5/8-inch rebar set; Thence South 07 degrees 54 minutes 24 seconds West, a distance of 96.17 feet to a 1/2-inch rebar found; Thence South 07 degrees 48 minutes 35 seconds West, a distance of 77.44 feet to a 1/2-inch rebar found; Thence South 07 degrees 42 minutes 38 seconds West for a distance of 107.03 feet to a 1/2-inch rebar found; Thence South 07 degrees 37 minutes 27 seconds West for a distance of 143.40 feet to a 1/2-inch rebar found; Thence South 07 degrees 42 minutes 47 seconds West for a distance of 84.92 feet to a 1/2-inch rebar found; Thence South 05 degrees 44 minutes 16 seconds West for a distance of 41.21 feet to a 1/2-inch rebar found; Thence South 05 degrees 30 minutes 25 seconds West for a distance of 38.38 feet to a 1/2-inch rebar found; Thence South 01 degrees 38 minutes 24 seconds West for a distance of 19.09 feet to a 1/2-inch rebar found; Thence South 01 degrees 27 minutes 54 seconds West for a distance of 105.85 feet to a 5/8-inch rebar set; Thence South 01 degrees 44 minutes 21 seconds West, a distance of 79.62 feet to a 5/8-inch rebar set; Thence South 07 degrees 52 minutes 42 seconds West, a distance of 75.86 feet to a 1/2-inch rebar found on the northeasterly right-of-way line of Honey Farm Way; Thence continuing with said right-of-

way line along the arc of a curve to the right an arc length of 31.03 feet, with a radius of 175.00 feet, being subtended by a chord bearing of North 67 degrees 31 minutes 58 seconds West, for a distance of 30.99 feet to a 1/2-inch rebar found; Thence along the arc of a curve to the right an arc length of 89.74 feet, with a radius of 175.00 feet, being subtended by a chord bearing of North 47 degrees 59 minutes 16 seconds West, for a distance of 88.76 feet to a 1/2-inch rebar found; Thence North 31 degrees 37 minutes 15 seconds West, a distance of 166.27 feet to a 5/8-inch rebar set; Thence North 33 degrees 22 minutes 49 seconds West, a distance of 409.64 feet to a 1/2-inch rebar found; Thence along a curve to the right having an arc length of 83.44 feet, with a radius of 170.00 feet, being subtended by a chord bearing of North 19 degrees 16 minutes 18 seconds West, for a distance of 82.60 feet to a 1/2-inch rebar found; Thence North 05 degrees 12 minutes 29 seconds West, a distance of 147.31 feet to a 5/8-inch rebar set; Thence along a curve to the left having an arc length of 287.52 feet, with a radius of 330.00 feet, being subtended by a chord bearing of North 30 degrees 10 minutes 23 seconds West, for a distance of 278.51 feet to a 1/2-inch rebar found; Thence North 55 degrees 08 minutes 10 seconds West for a distance of 348.87 feet to a 1/2-inch rebar found; Thence along the arc of a curve to the right an arc length of 49.90 feet, said curve having a radius of 65.00 feet and being subtended by a chord of 48.69 feet bearing North 33 degrees 10 minutes 56 seconds West to a 1/2-inch rebar found; Thence along the arc of a curve to the left an arc length of 102.73 feet, said curve having a radius of 67.00 feet and being subtended by a chord of 92.96 feet bearing North 55 degrees 10 minutes 25 seconds West to a 1/2-inch rebar found; Thence along the arc of a curve to the right an arc length of 49.83 feet, said curve having a radius of 65.00 feet and being subtended by a chord of 48.62 feet bearing North 77 degrees 07 minutes 31 seconds West to a 1/2-inch rebar found; Thence North 55 degrees 07 minutes 01 seconds West for a distance of 564.95 feet to a 5/8-inch rebar set, said point being the **TRUE POINT OF BEGINNING**.

Said tract of land contains 25.867 Acres

STATEMENT TO ACCOMPANY PUD APPLICATION

The undersigned, Charles Raines and the Estate of J.D. Eatherly ("**Owners**"), are the fee simple owners of certain property located at 2248 Nashville Highway, Columbia, Maury County, Tennessee, known as tax parcel no. 051 058.00 (the "**Property**"). By their signatures below, Owners concur with the application to amend the Planned Unit Development affecting the Property.

Owners have entered into a purchase agreement with Equitas Management Group, LLC ("**Purchaser**") regarding Property, and by its signature below, Purchaser also concurs with the application to amend the Planned Unit Development affecting the Property.

OWNERS:

DocuSigned by:



EE7D350B4FB1406...
Charles Raines

DocuSigned by:



199BBE6595DC433...
Sandra Cantrell, Executor of the Estate of
J.D. Eatherly

PURCHASER:

Equitas Management Group, LLC

DocuSigned by:

By: 

B2FFACD5161E458...

Drew Smith

Senior Vice President



Preliminary Plat, Site Development Plan, and PUD Checklist

Development: Honey Farm Townhomes Preliminary PUD

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 N/A
- ☒ Traffic Impact Study, as required. Currently undergoing study
- ☒ 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. N/A
- ☒ Existing and intended use of all buildings and structures on site, including the number of dwelling units and density, where applicable
- ☒ Location, type, and size of proposed signs
- ☒ Approximate height, bulk, and the utilization of structures including activities and the number of living units.



Grading, Drainage, and Storm

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

Streets, Parking, and Pedestrian Elements

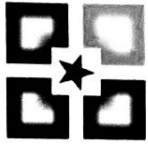
- ☒ Proposed street and alley rights-of-way, typical sections, widths, classification, names, and proposed ownership and maintenance responsibility
- ☒ Proposed connections to existing and proposed streets (including classification) located outside the development
- ☒ Proposed improvements as identified in the Traffic Impact Study, as required *will provide upon completion of TIS*
- ☒ 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

- ☒ Legal Description of Property
- ☒ Owner's Affidavit *N/A*
- ☒ List of all variances requested *N/A*
- ☒ 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:

Patrick Carroll
Print Name


Signature

12/19/22
Date

**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	2248 Nashville Highway, Columbia, TN 38401		
	TAX MAP: 051	GROUP:	PARCEL: 051 05800 000
SUMMARY OF NATURE OF REQUEST AND WORK	PUD Plan for development of 3 story townhomes with accompanying infrastructure improvement such as road work, amenities and utility work.		

DATE OF PRE-APPLICATION CONFERENCE	12/07/2022	<i>Pre-application meetings are scheduled for Wednesdays.</i>
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SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☐ Preliminary Plat ☐ Final Plat ☒ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Multi-Family Site Plan ☐ Other:	<u>Annexations/Rezoning/PUD's:</u> ☐ Written Legal Description copy ☒ Requested Zone Listed ☒ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☒ Plans and/or Plats conforming to City standards with check list completed ☒ Columbia Water System Availability Letter
<i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	<u>Plats/PUDs:</u> ☒ Project Name (include Sections & Phases) <u>Honey Farm Residential Townhomes</u>
	☒ Total Number of Lots <u>1</u>
	☒ Total acreage <u>Gross Acreage - 25.87 acres</u>

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

Any requests to defer or move the item to future 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	Adam Crunk	PHONE	615-873-1795
ADDRESS	7112 Crossroads BLVD Suite 201 Brentwood, TN 37027	EMAIL	adam@crunkeng.com

PROPERTY OWNER NAME	Charles Raines	PHONE	615-456-7098
ADDRESS	P.O. Box 1715, Spring Hill, TN 37174	EMAIL	raines.monica@icloud.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.

Adam Crunk

APPLICANT NAME



APPLICANT SIGNATURE

12-12-2022

DATE

Sandra Cantrell, Executor of the Estate of J.D. Eatherly

PROPERTY OWNER NAME

DocuSigned by:



PROPERTY OWNER SIGNATURE

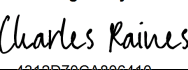
12/16/2022

DATE

Charles Raines

PROPERTY OWNER NAME

DocuSigned by:



PROPERTY OWNER SIGNATURE

12/16/2022

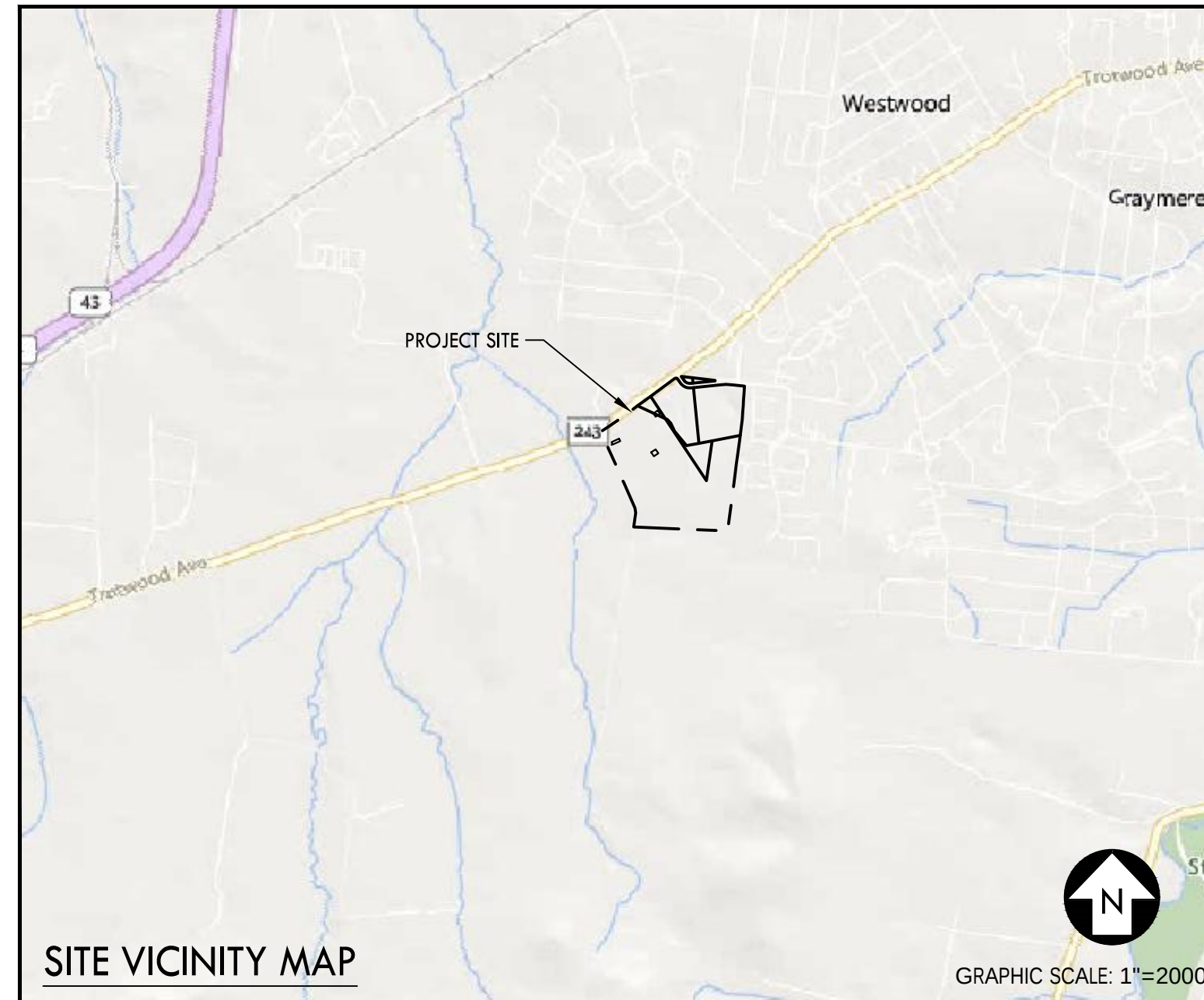
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STAFF USE ONLY

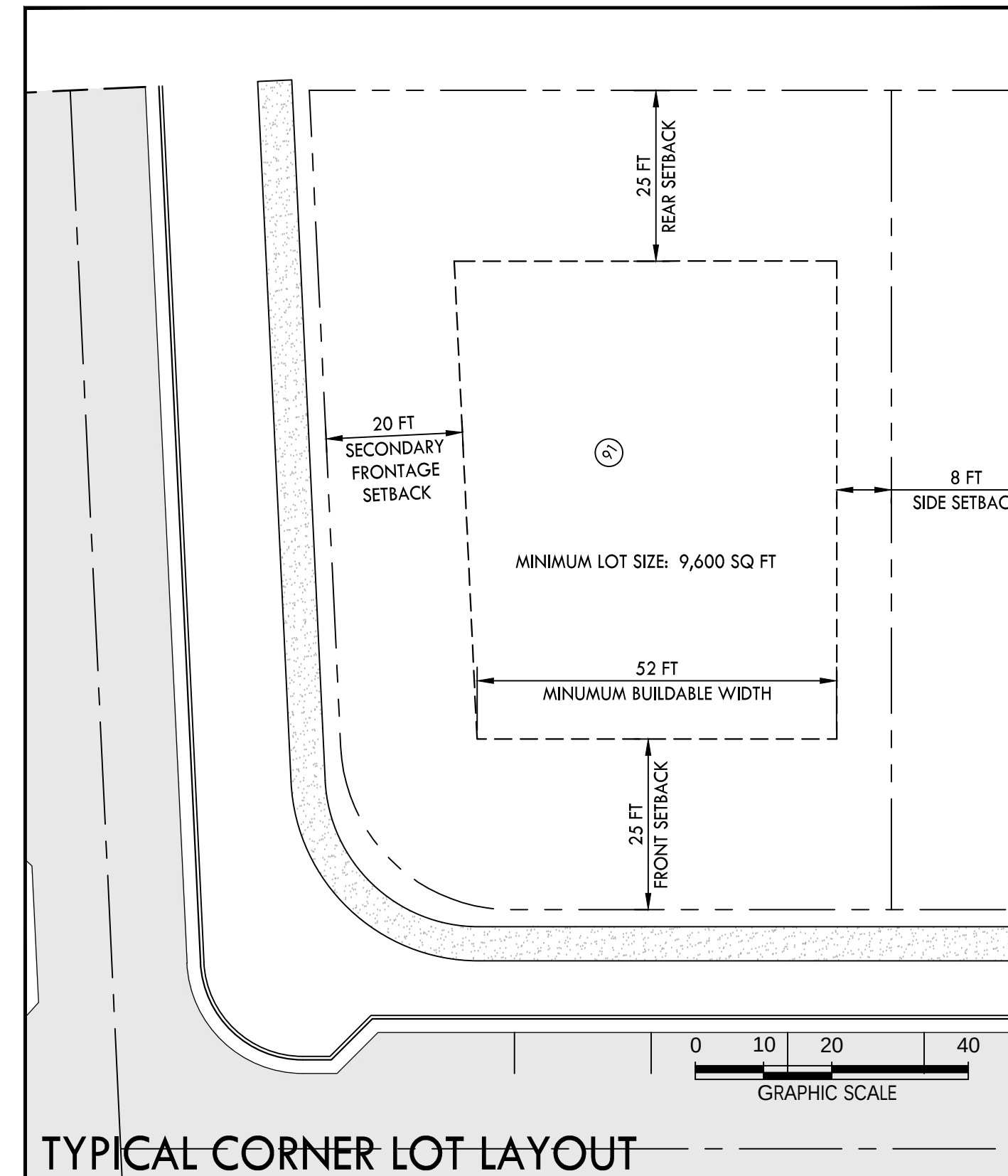
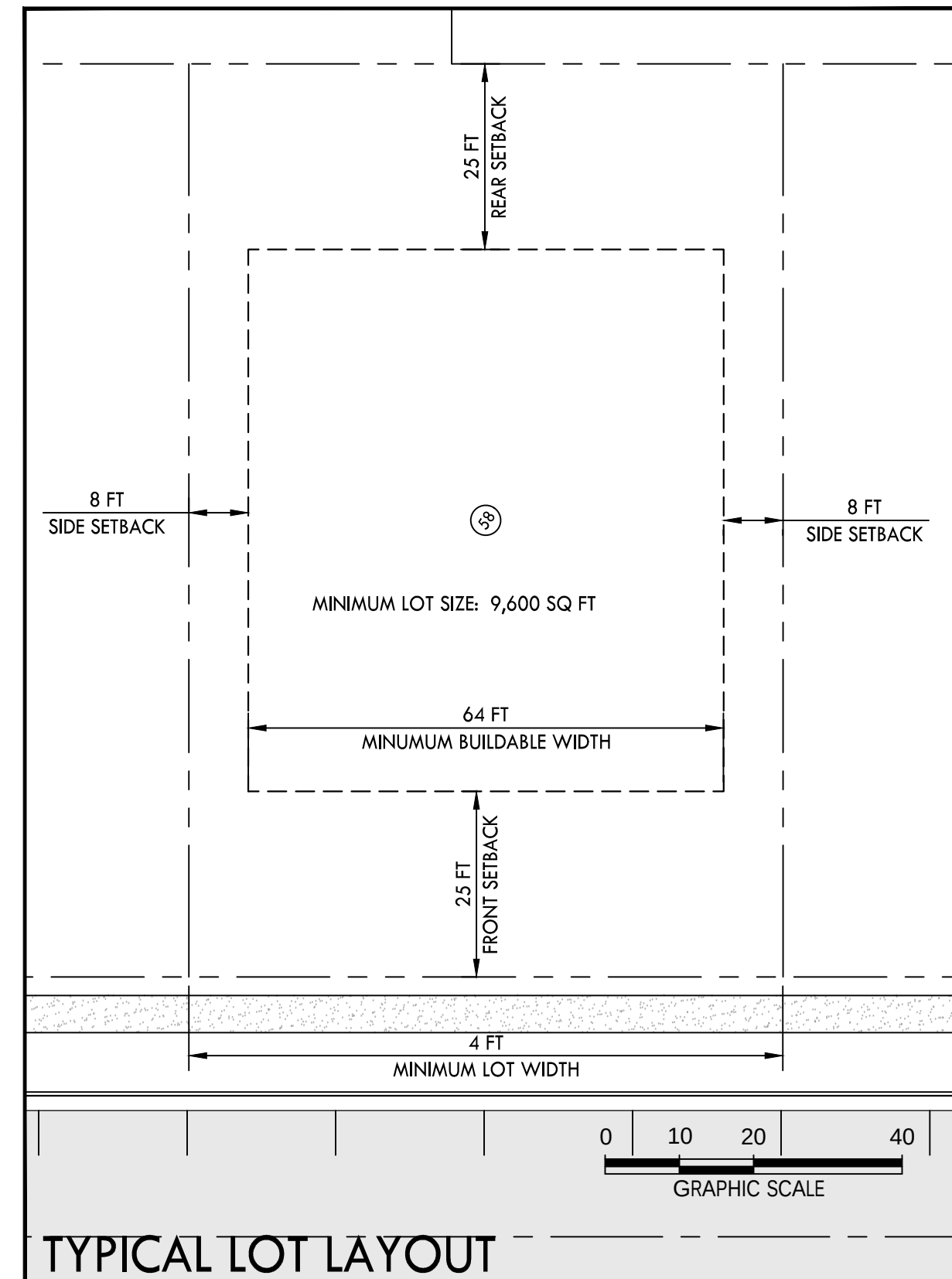
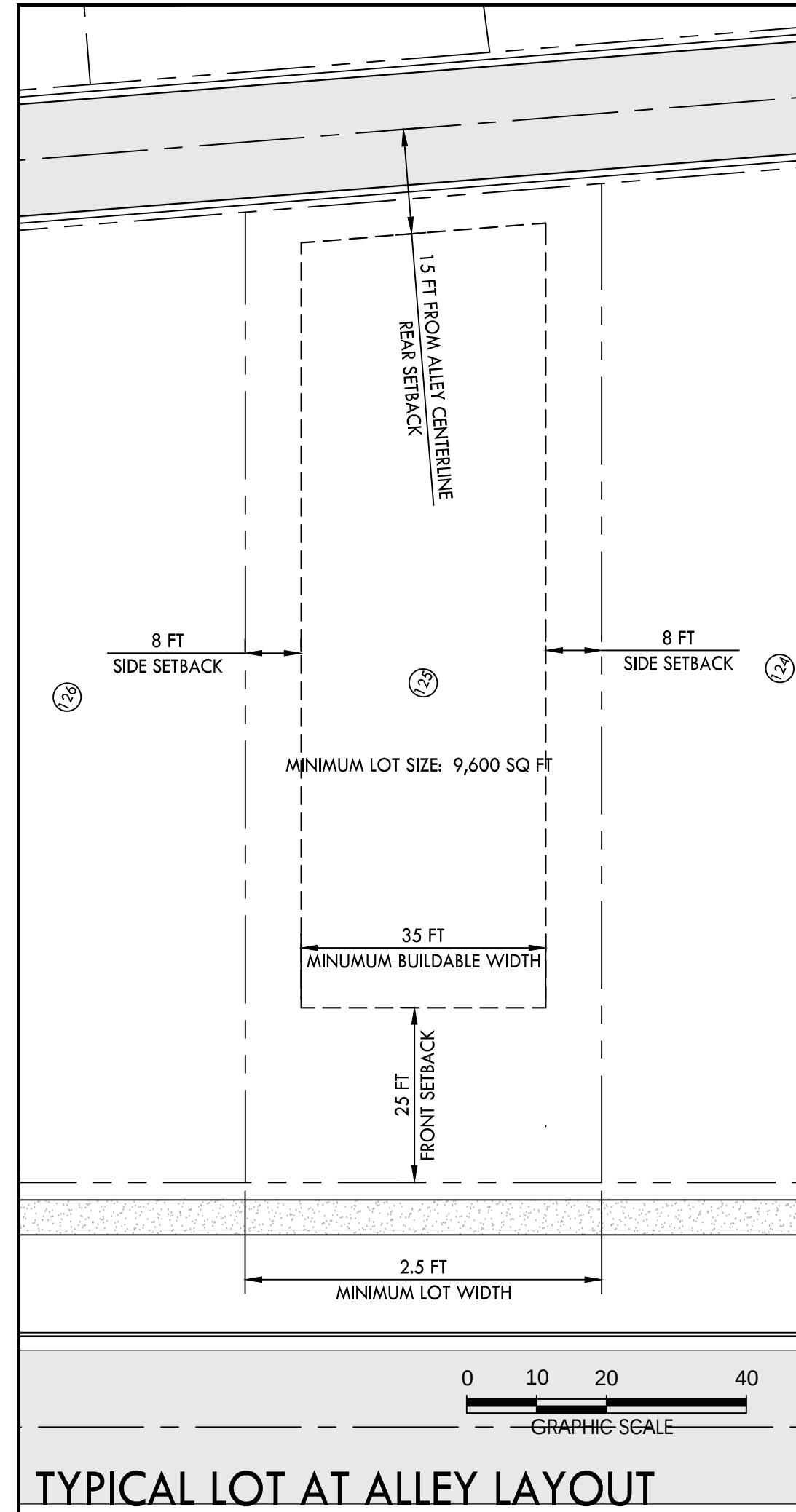
DOCKET NO.		FEE PAID	
RECEIPT NO.		REQUESTED AGENDA	
DATE NOTICES SENT TO ADJACENT PROPERTY OWNERS			
DATE OF PUBLIC NOTICES IN DAILY HERALD			
BOARD ACTION			

PRELIMINARY PLAT SUBMITTAL

<u>SITE DATA TABLE</u>	
PROJECT: TROTWOOD AND FOSTER SUBDIVISION	
ADDRESS: SOUTHEAST CORNER OF TROTWOOD AVE AND FOSTER LANE INTERSECTION	
PARCEL ID: 112 01803 000	
SITE ACREAGE: 49.84 ACRES	
EXISTING ZONING: CD-3	
PROPOSED ZONING: CD-3	
ZONING DISTRICT:	CD-3
AREA:	49.84 AC
PROPOSED LOTS:	127
BUILDING HEIGHT:	35 FT
MIN. LOT WIDTH:	80 FT
FRONT YARD:	
PRIMARY:	25 FT
SECONDARY:	20 FT
SIDE SETBACK:	8 FT
REAR SETBACK:	25 FT
	15 FT FROM CENTER LINE OF REAR ALLEY
REQUIRED CIVIC USE SPACE	5% OF TOTAL AREA
	2.49 AC
PROVIDED CIVIC USE SPACE:	5.4%
	2.68 AC

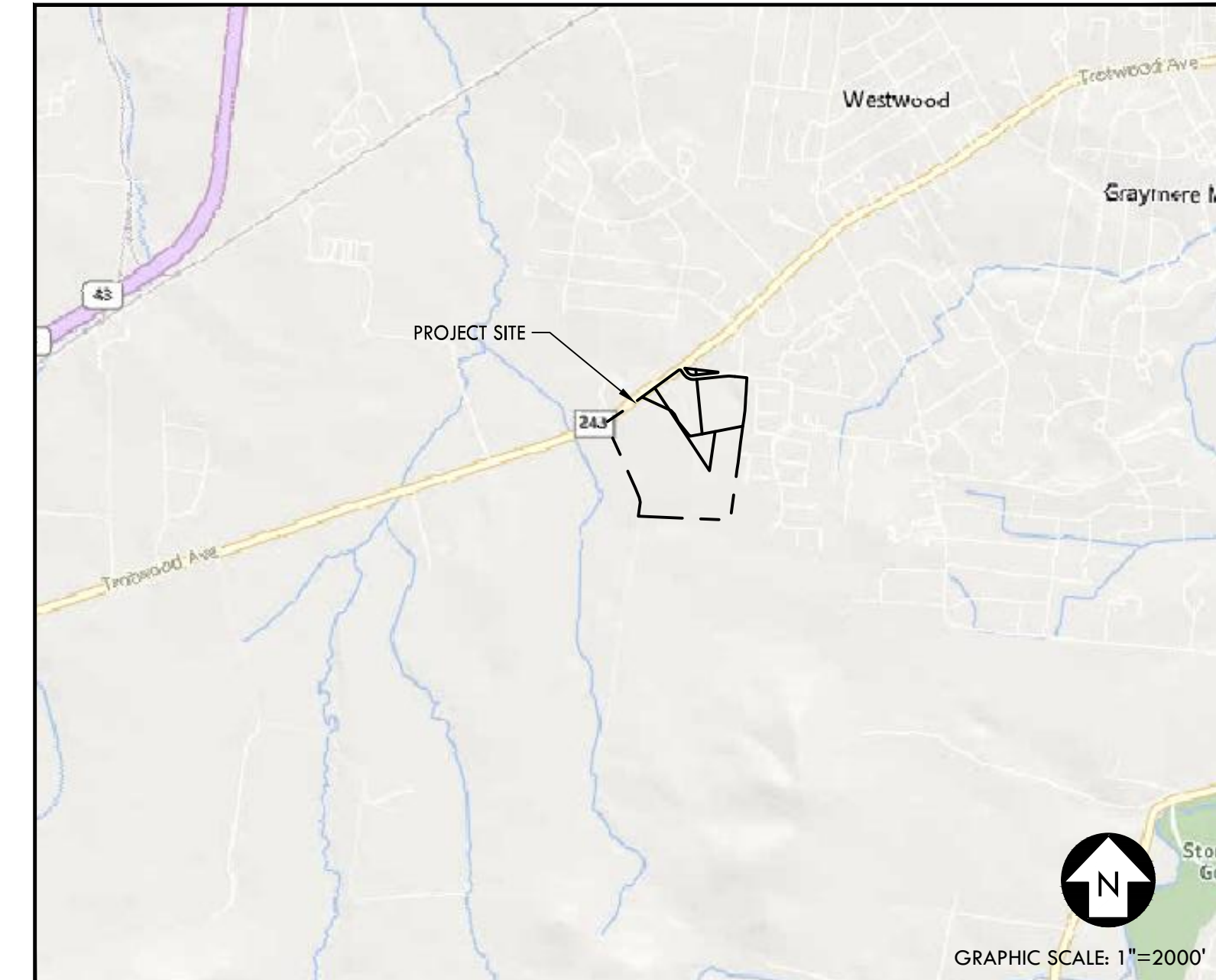
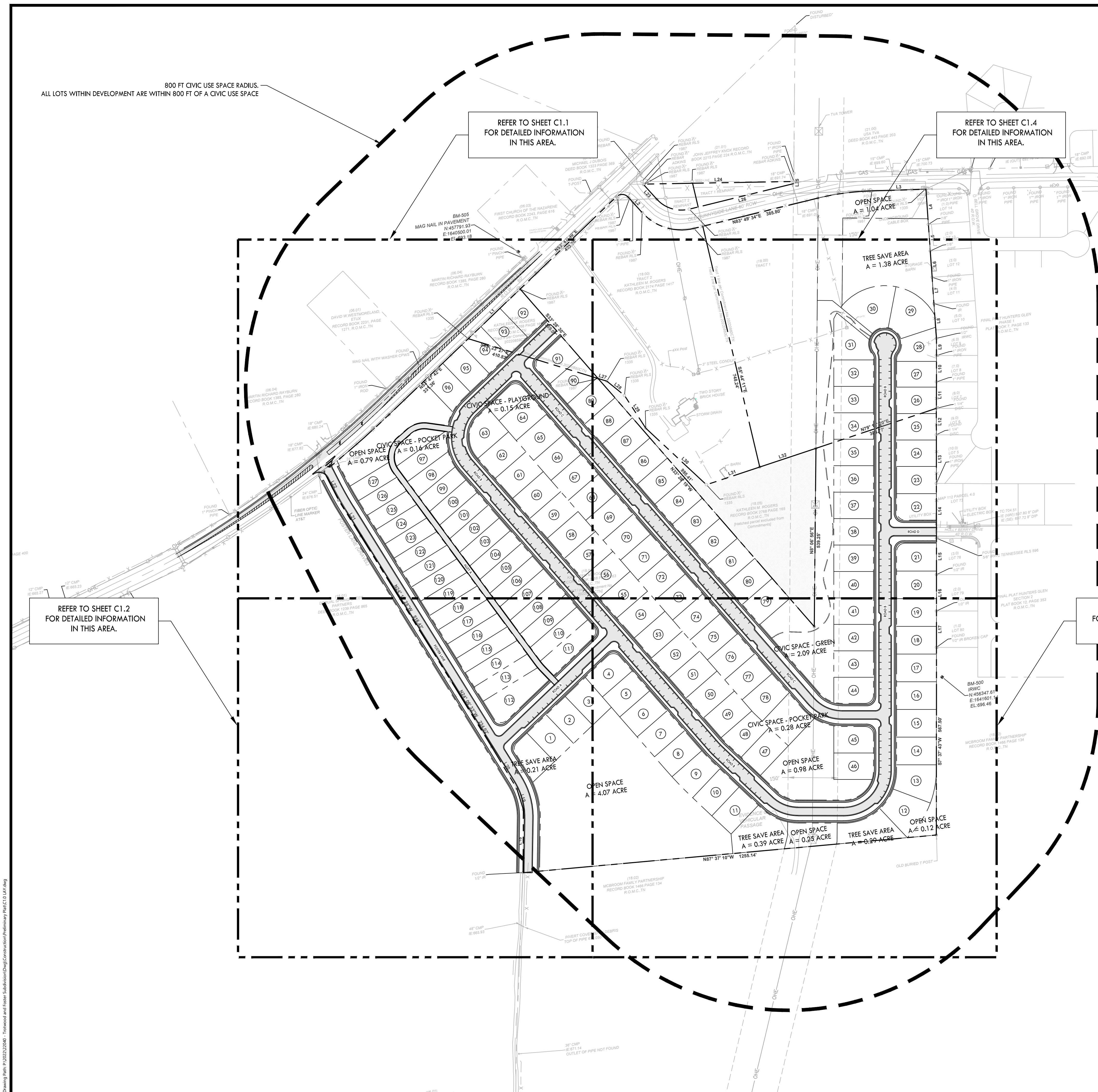


Sheet Number	Sheet Title
C0.0	COVER SHEET
C1.0	OVERALL SITE LAYOUT PLAN
C1.1	SITE LAYOUT PLAN
C1.2	SITE LAYOUT PLAN
C1.3	SITE LAYOUT PLAN
C1.4	SITE LAYOUT PLAN
C1.5	ROADWAY PROFILES
C1.6	ROADWAY PROFILES
C1.7	ROADWAY PROFILES
C1.8	ROADWAY PROFILES
C1.9	ROADWAY PROFILES
C1.10	TREE CANOPY EXHIBIT
C2.0	OVERALL GRADING, DRAINAGE, & UTILITY PLAN
C2.1	GRADING, DRAINAGE, & UTILITY PLAN
C2.2	GRADING, DRAINAGE, & UTILITY PLAN
C2.3	GRADING, DRAINAGE, & UTILITY PLAN
C2.4	GRADING, DRAINAGE, & UTILITY PLAN



REVISIONS	
No.	DATE

09/29/22
22040



SITE VICINITY MAP

GRAPHIC SCALE: 1"=2000'

FLOOD HAZARD NOTE:

1. THE SUBJECT PROPERTY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD ZONE ACCORDING TO PANEL No. 47119CO280E OF THE F.E.M.A. FLOOD INSURANCE RATE MAPS FOR MAURY COUNTY, TENNESSEE, DATED 4/16/2007

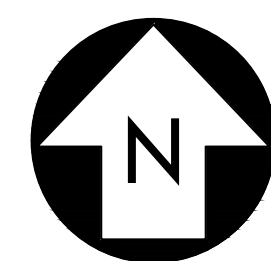
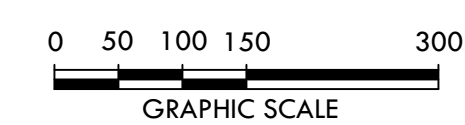
SITE DATA TABLE

PROJECT: TROTWOOD AND FOSTER SUBDIVISION
ADDRESS: SOUTHEAST CORNER OF TROTWOOD AVE AND FOSTER LANE INTERSECTION
PARCEL ID: 112 01803 000
SITE ACREAGE: 49.84 ACRES

EXISTING ZONING: CD-3
PROPOSED ZONING: CD-3

ZONING DISTRICT:	CD-3
AREA:	49.84 AC
PROPOSED LOTS:	127
BUILDING HEIGHT:	35 FT
MIN. LOT WIDTH:	80 FT
FRONT YARD:	
PRIMARY:	25 FT
SECONDARY:	20 FT
SIDE SETBACK:	8 FT
REAR SETBACK:	25 FT
	15 FT FROM CENTER LINE OF REAR ALLEY

REQUIRED CIVIC USE SPACE	5% OF TOTAL AREA
	2.49 AC
PROVIDED CIVIC USE SPACE:	5.4%
	2.68 AC



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



**TROTWOOD AND FOSTER
SUBDIVISION
COLUMBIA TENNESSEE**

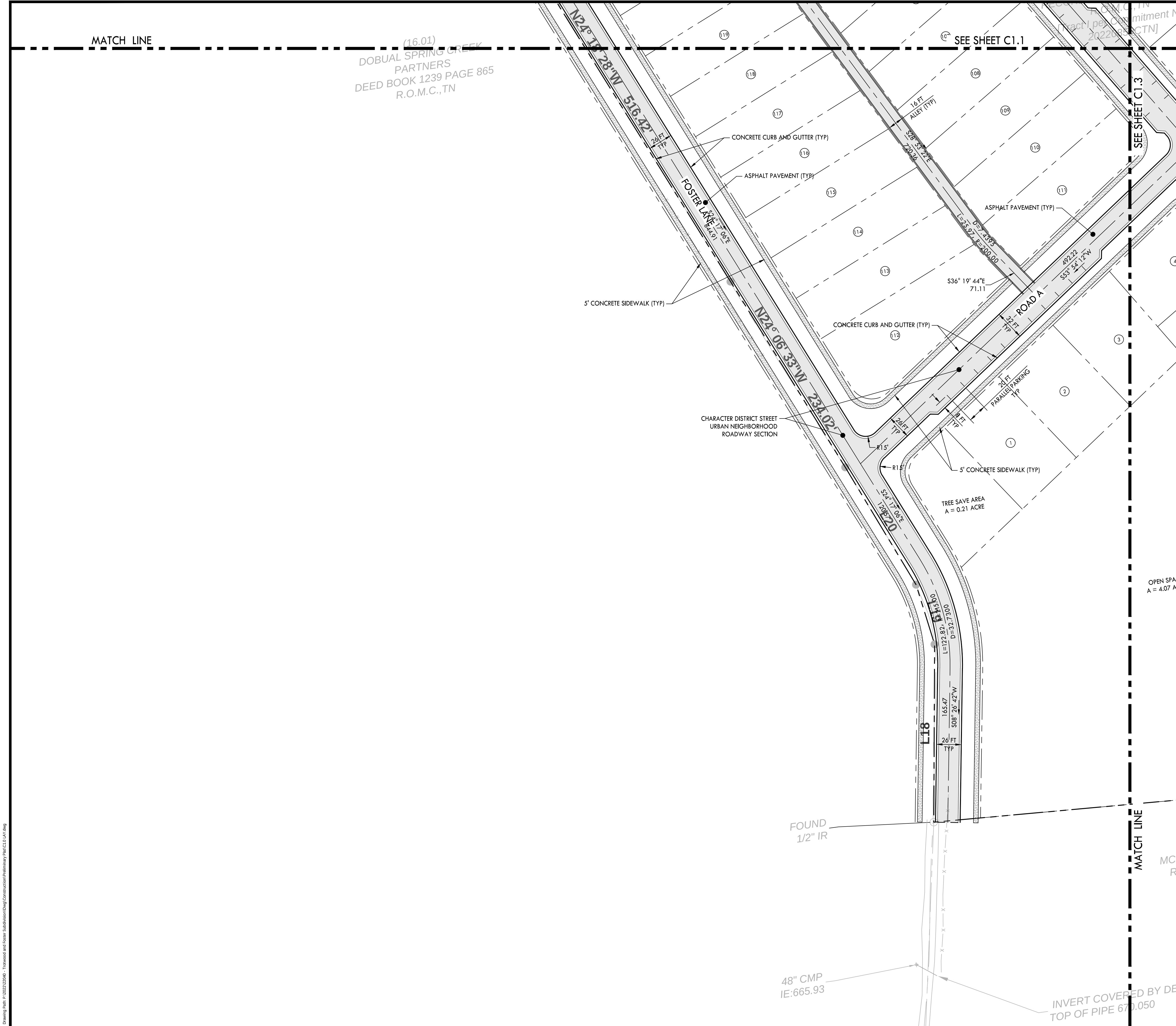
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12/19/22	22040
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C1.0

OVERALL SITE
LAYOUT PLAN

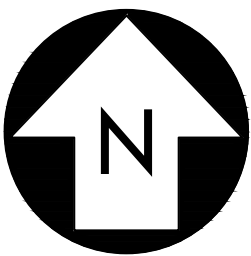
Crunk Engineering LLC 12/19/22 22040 - Trotwood and Foster Subdivision/Construction/Primary Plan C1.1.dwg



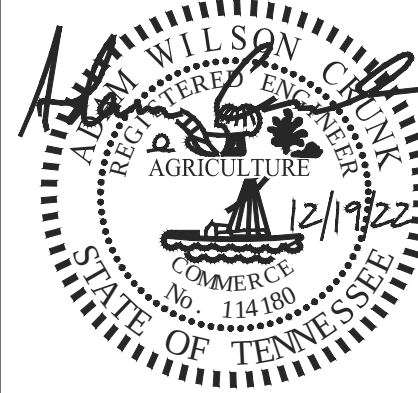
NOTES:
1. REFER TO SHEET CXXXX FOR PARCEL AREA TABLES

PROPOSED LAYOUT LEGEND

- HEAVY DUTY ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- PROPERTY LINE
- EDGE OF NEW PAVEMENT



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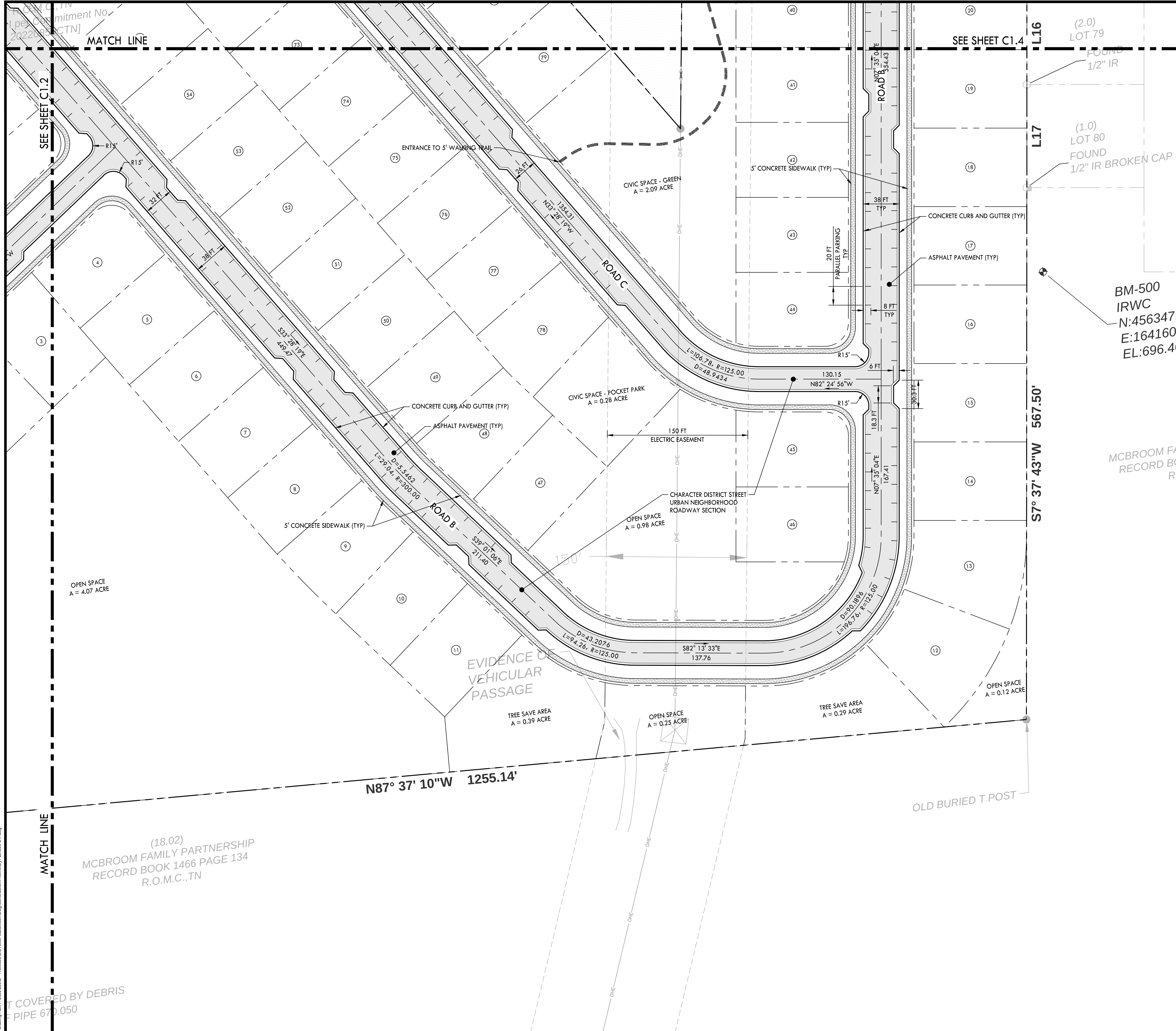


TROTWOOD AND FOSTER
SUBDIVISION
COLUMBIA TENNESSEE

REVISIONS	No.	DATE

12/19/22 22040

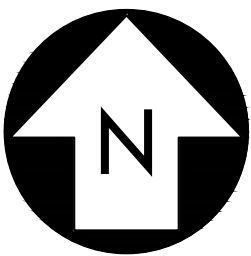
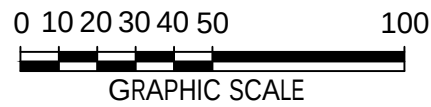
C1.2
SITE LAYOUT PLAN



NOTES:
1. REFER TO SHEET CXXX FOR PARCEL AREA TABLES

PROPOSED LAYOUT LEGEND

- HEAVY DUTY ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- PROPERTY LINE
- EDGE OF NEW PAVEMENT



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TROTWOOD AND FOSTER
SUBDIVISION
COLUMBIA TENNESSEE

REVISIONS	DATE	
	No.	

12/19/22 22040

C1.3
SITE LAYOUT PLAN

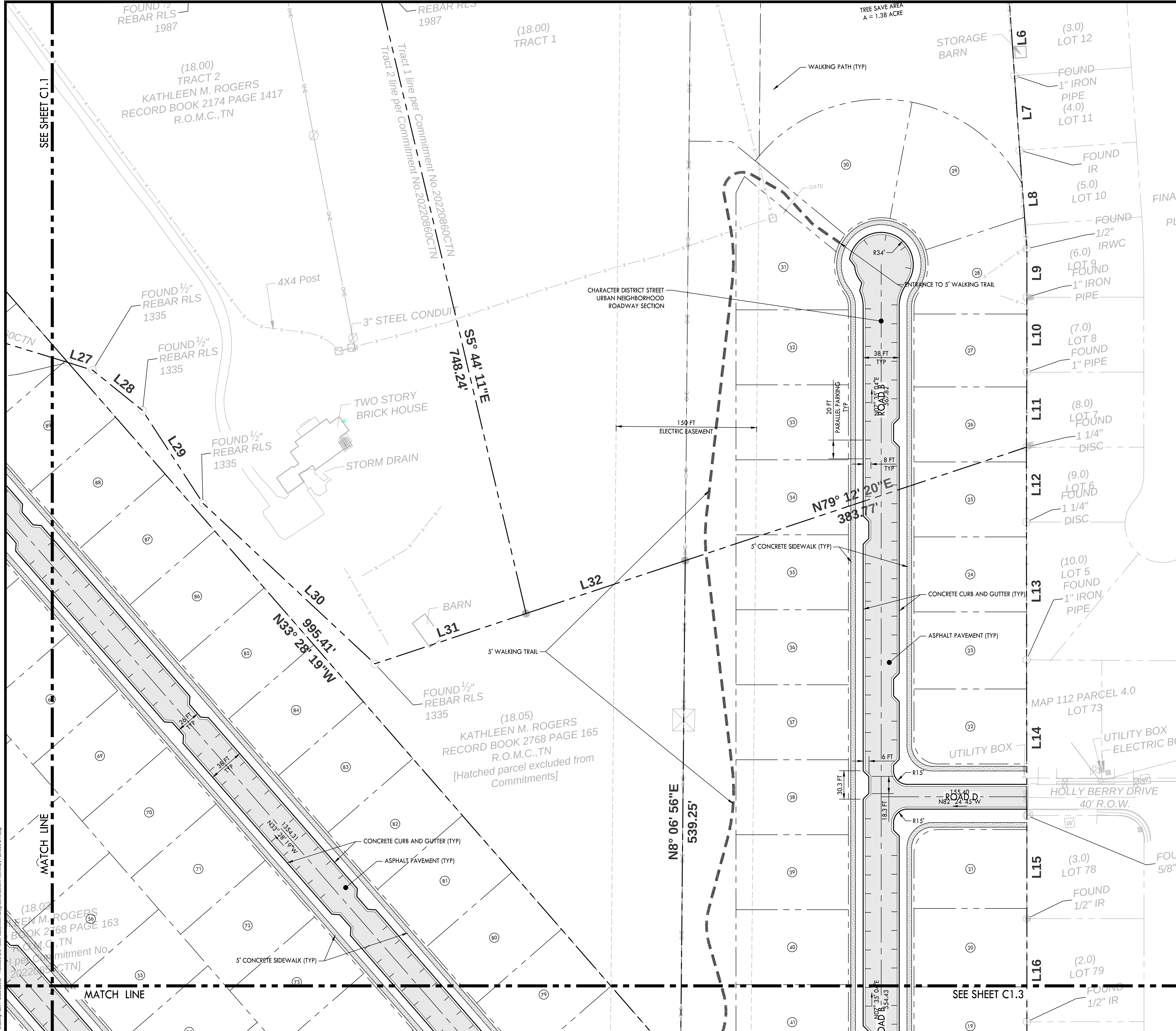
Drawn by: JRP 12/22/2024. Reviewed and Approved: Subdivision Design/Construction/Utility Plan/C1.3.dwg

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PIPE 670.050

(18.02)
MCBROOM FAMILY PARTNERSHIP
RECORD BOOK 1466 PAGE 134
R.O.M.C., TN

BM-500
IRWC
N:456347
E:164160
EL:696.41

MCBROOM F&
RECORD BOOK
R



NOTES:
1. REFER TO SHEET CXXX FOR PARCEL AREA TABLES

PROPOSED LAYOUT LEGEND

- HEAVY DUTY ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- PROPERTY LINE
- EDGE OF NEW PAVEMENT

CRUNK ENGINEERING LLC
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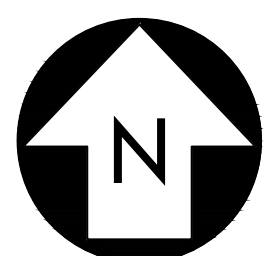
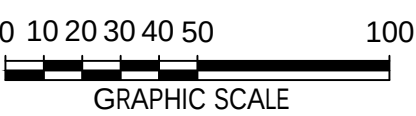


TROTWOOD AND FOSTER
SUBDIVISION
COLUMBIA TENNESSEE

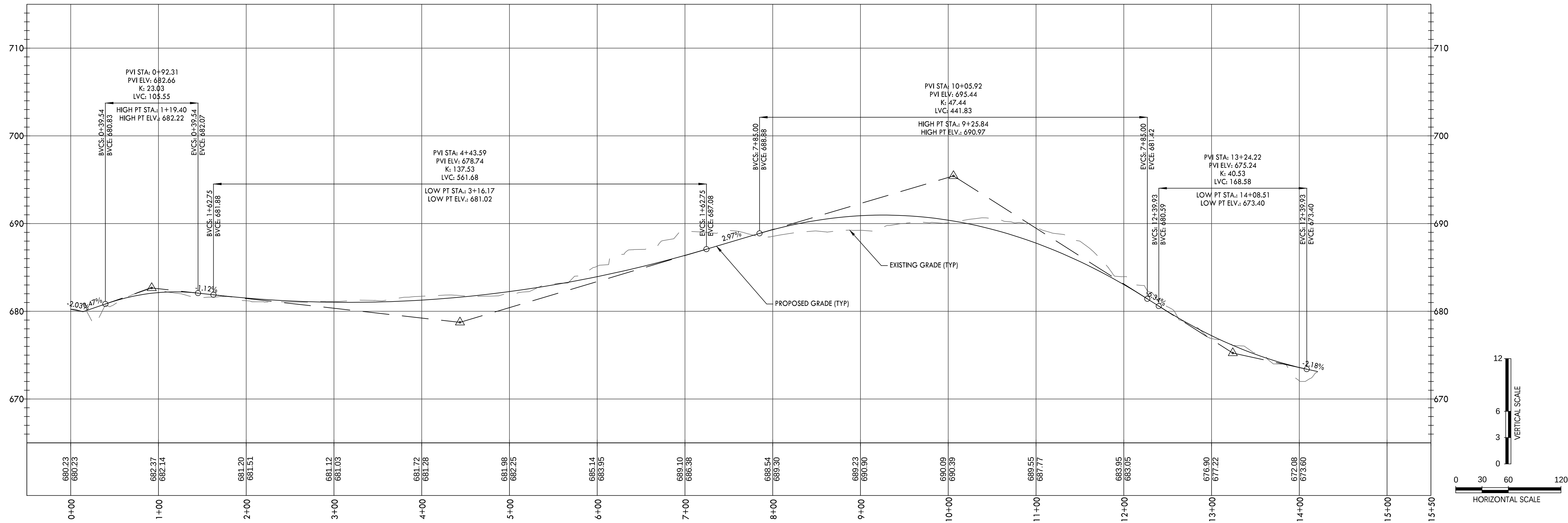
REVISIONS	No.	DATE

12/19/22 22040

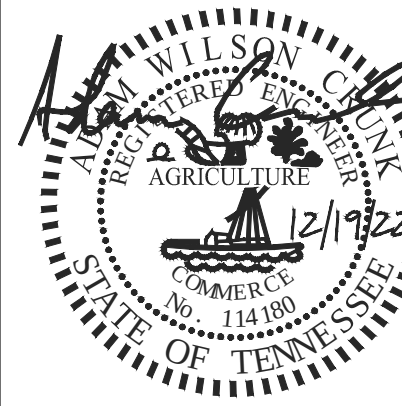
C1.4
SITE LAYOUT PLAN



CrunkEng.dwg 12/19/22 2:28 PM - Trotwood and Foster Subdivision/Design/Construction/Highway Profile/CL5 Profile.dwg



CRUNK ENGINEERING LLC
7112 CROSSROADS BOULEVARD
SUITE 201
BRENTWOOD, TN 37027
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TROTWOOD AND FOSTER SUBDIVISION

COLUMBIA TENNESSEE

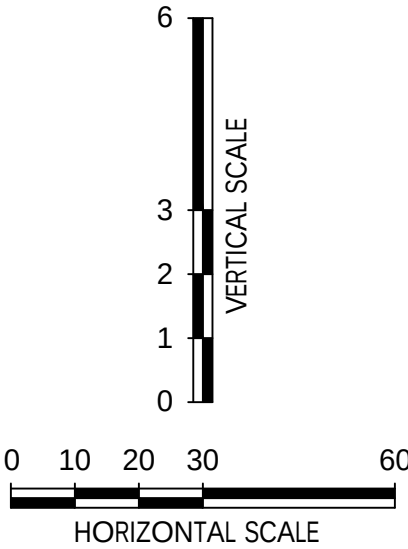
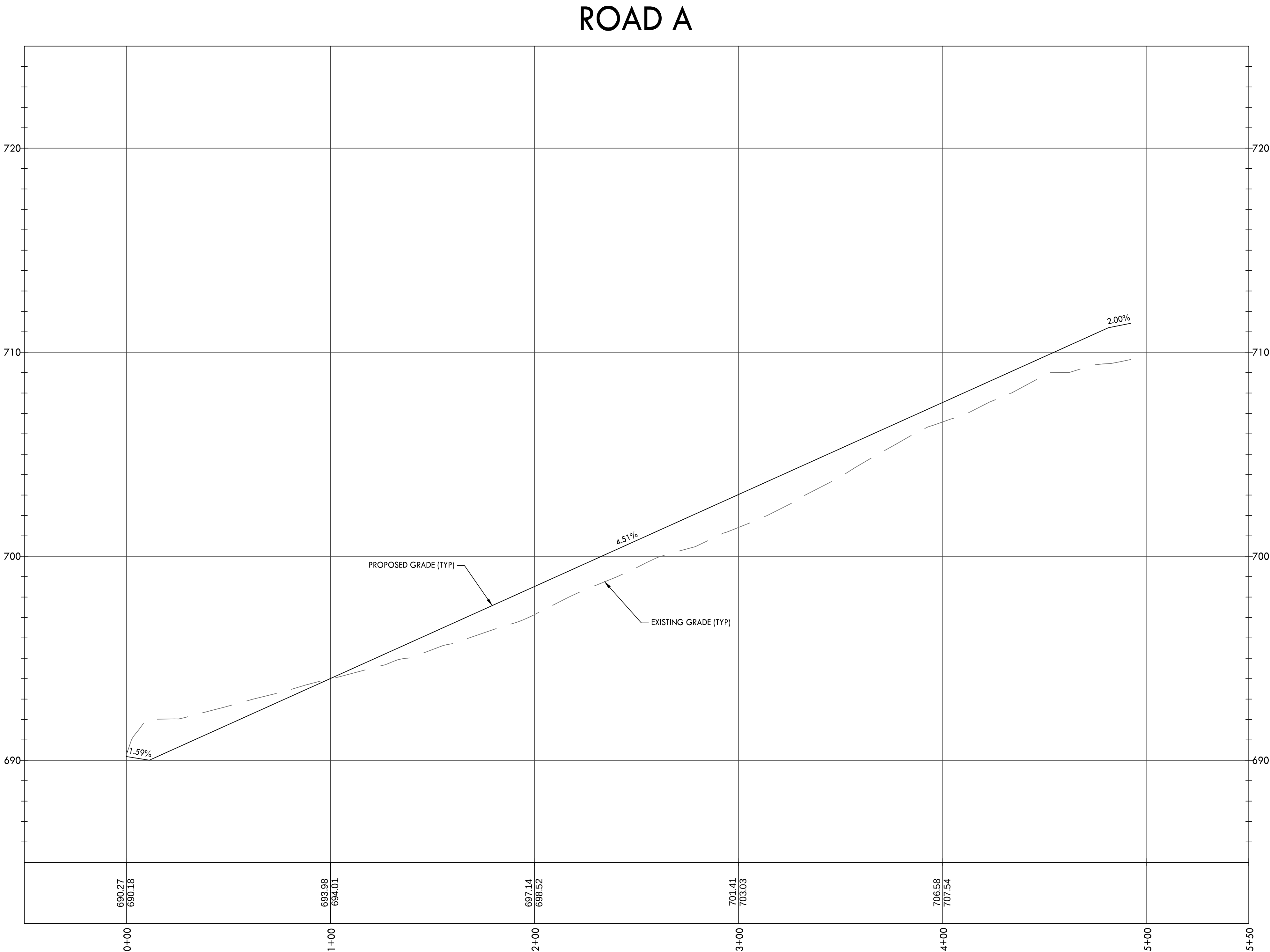
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ROADWAY PROFILES

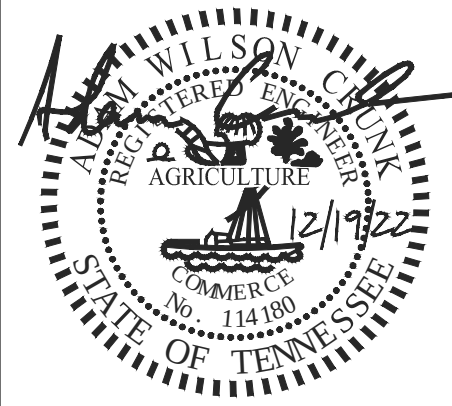
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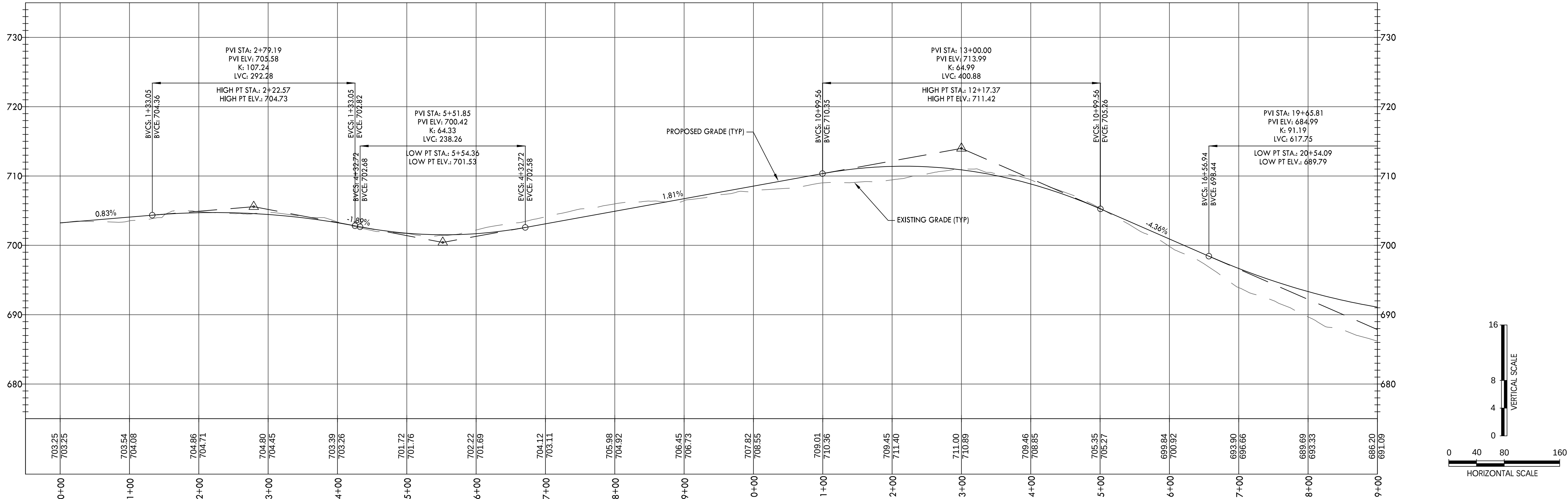
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ROADWAY PROFILES



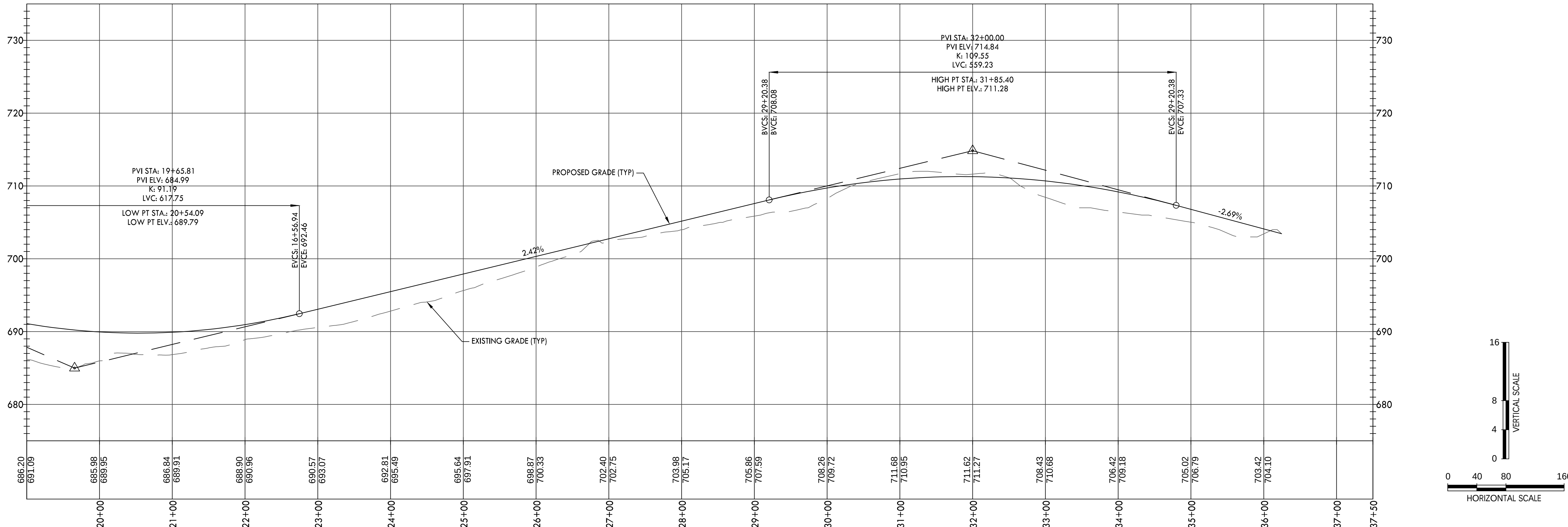
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ROAD B



ROAD B



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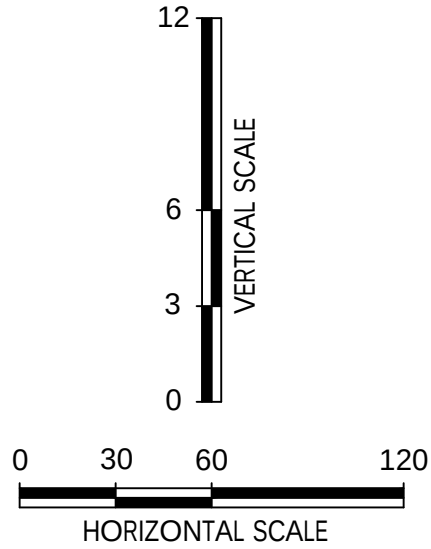
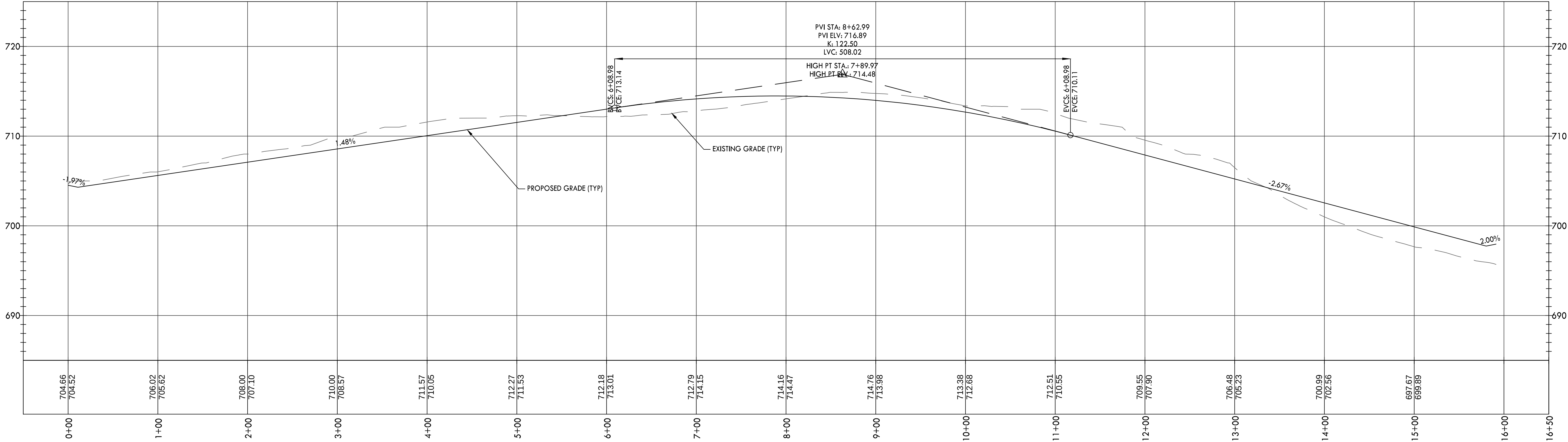
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ADWAY PROFILE

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ROAD C



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ROADWAY PROFILES

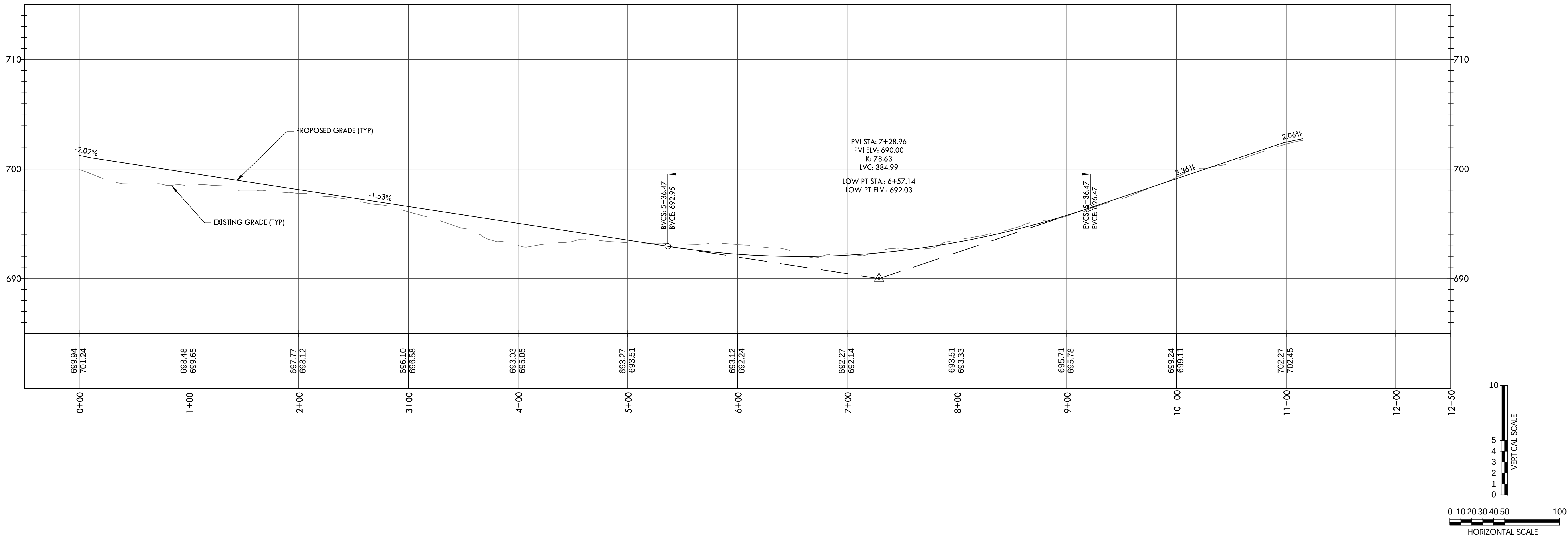


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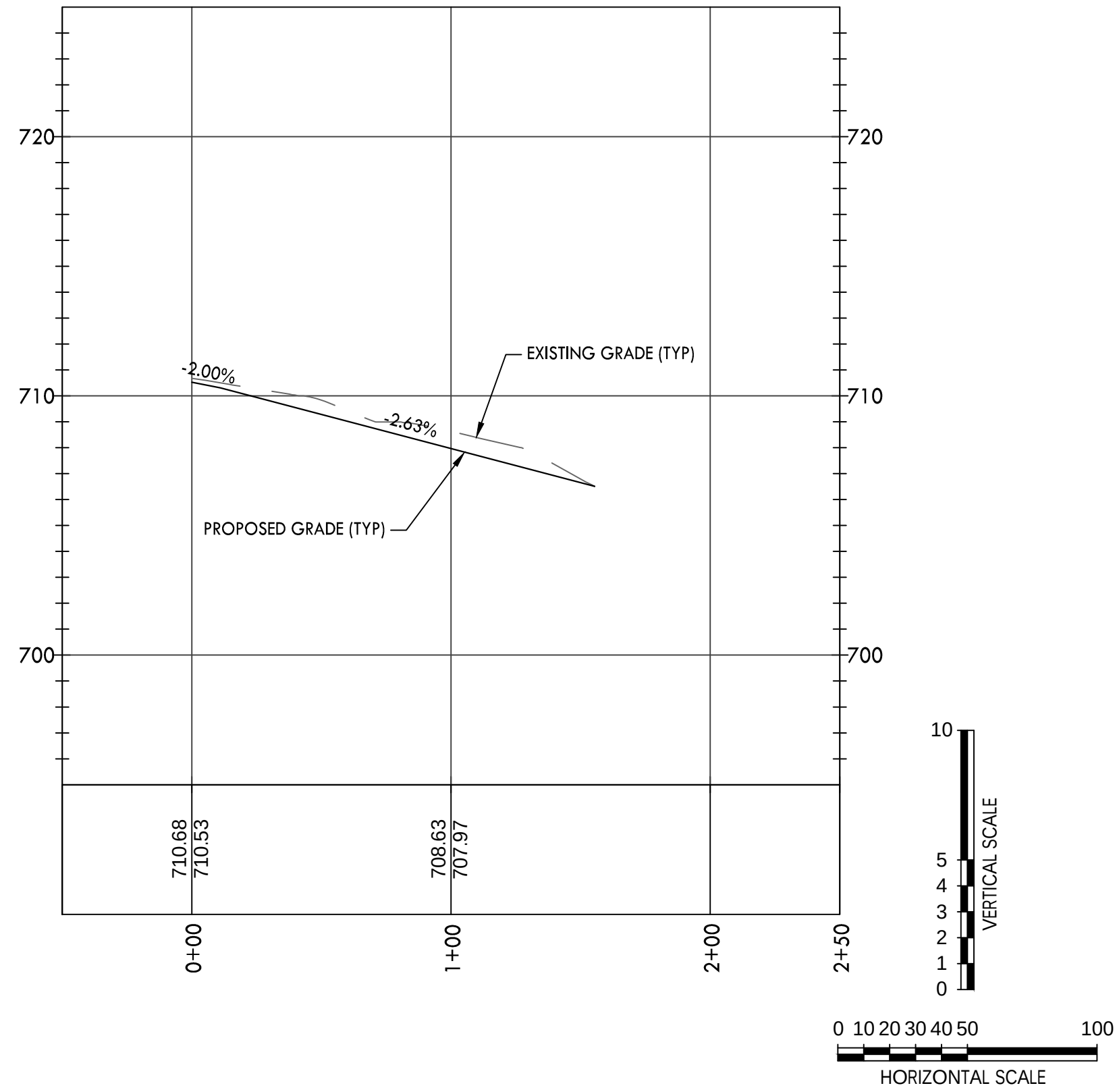
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ALLEY A



ROAD D

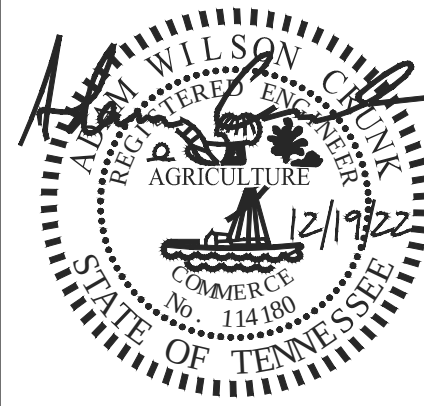


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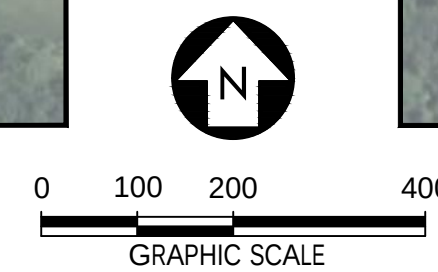
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TOTAL SITE AREA:	49.84 AC
EXISTING TREE CANOPY AREA:	3.87 AC
TREE CANOPY PERCENTAGE (OF TOTAL AREA):	7.8%
REQUIRED TREE CANOPY RETENTION:	54%
	2.09 AC
PROVIDE TREE CANOPY RETENTION:	2.27 AC



EXISTING TREE CANOPY EXHIBIT



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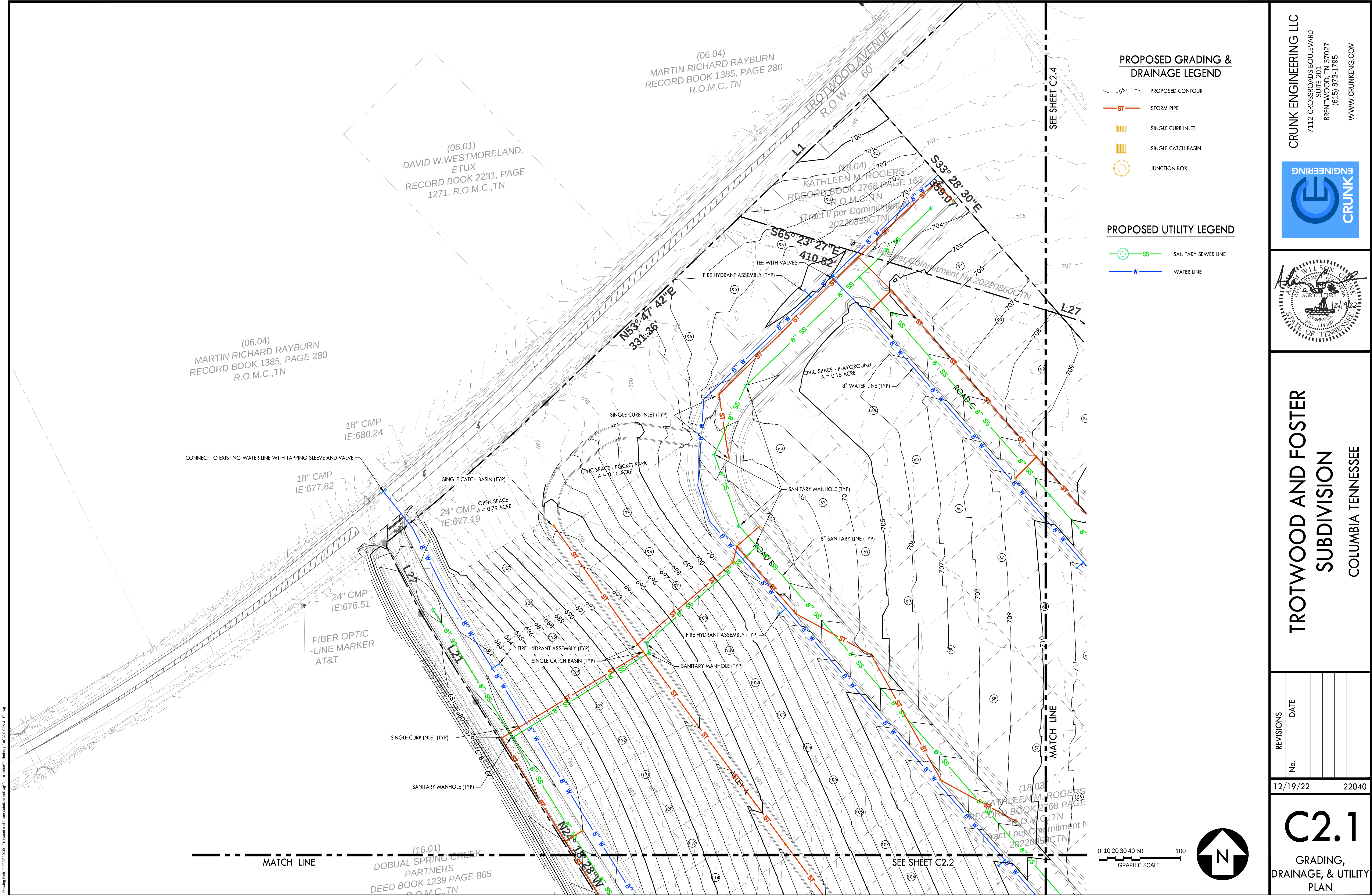


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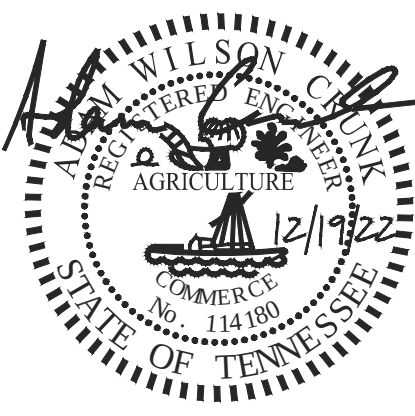
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TREE CANOPY
EXHIBIT



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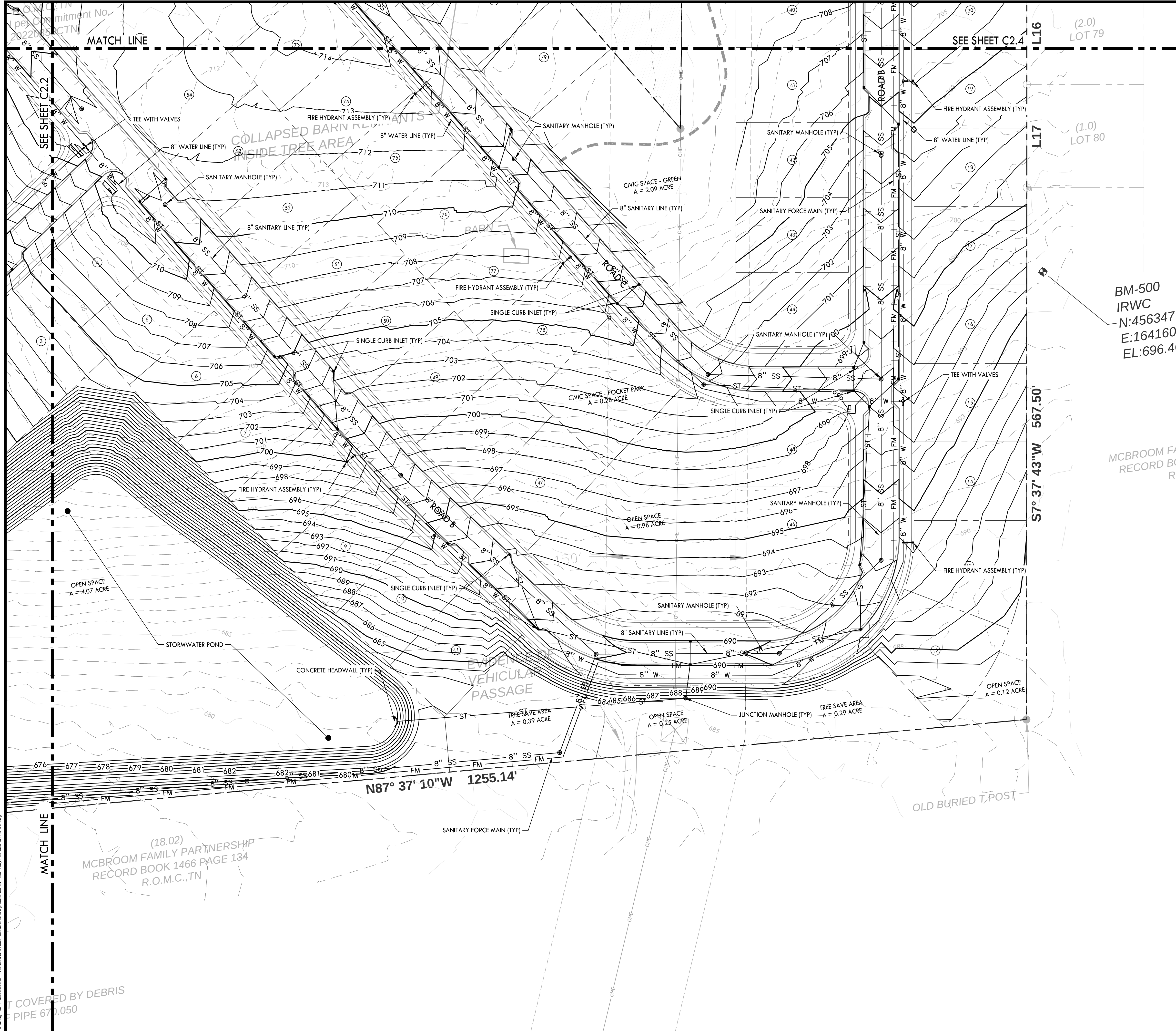
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2/19/22 22040

C2.2

GRADING,
RAINAGE, & UTILITY
PLAN



PROPOSED GRADING & DRAINAGE LEGEND

- SS PROPOSED CONTOUR
- ST STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

PROPOSED UTILITY LEGEND

- SS SANITARY SEWER LINE
- W WATER LINE

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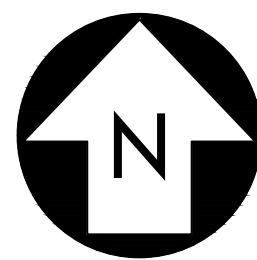


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C2.3
GRADING,
DRAINAGE, & UTILITY
PLAN



Grading Plan 12/19/22 22040 - Trotwood and Foster Subdivision/Grading/Drainage/Utility Plan C2.3 (2022) 11/19/22

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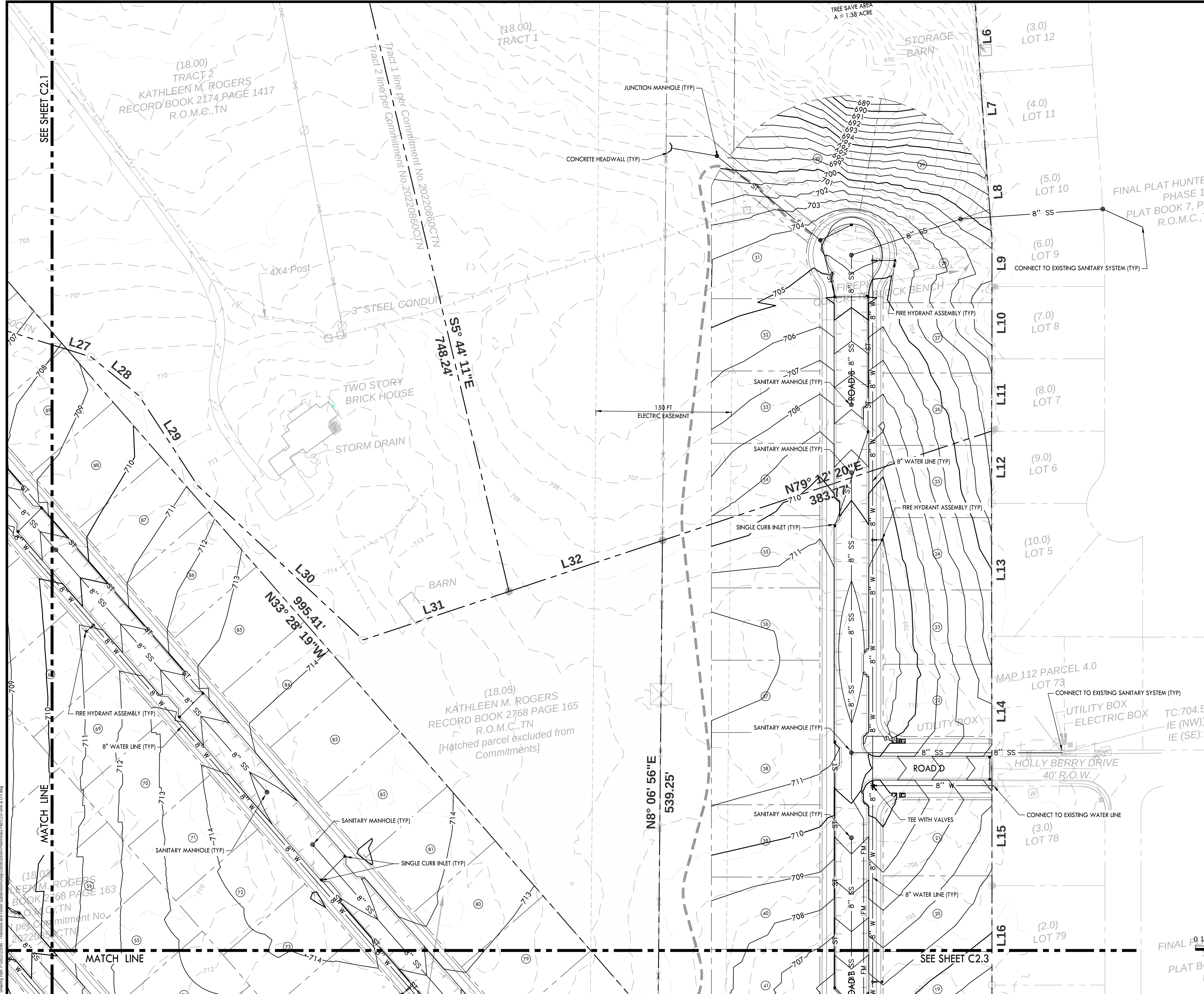
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SEE SHEET C2.2

MATCH LINE

MATCH LINE



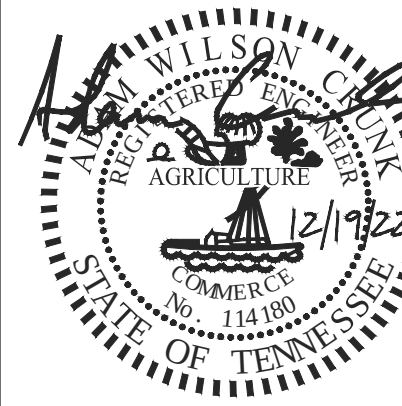
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- SS PROPOSED CONTOUR
- ST STORM PIPE
- SINGLE CURB INLET
- SINGLE CATCH BASIN
- JUNCTION BOX

PROPOSED UTILITY LEGEND

- SS SANITARY SEWER LINE
- W WATER LINE

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C2.4
GRADING,
DRAINAGE, & UTILITY
PLAN



Traffic Impact Study

Trotwood & Foster Subdivision

December 2022

FOR SUBMITTAL TO:

City of Columbia, Tennessee

PREPARED FOR:

NoMau Partners

Kimley»Horn

Traffic Impact Study

Trotwood & Foster Subdivision

FOR SUBMITTAL TO:

City of Columbia, Tennessee

PREPARED FOR:

NoMau Partners, Inc.

PREPARED BY:

Kimley»Horn

10 Lea Avenue, Suite 400

Nashville, Tennessee 37210

615.564.2701

December 2022

Project Number 118919000

KENNEDY BROOKE

Kennedy Adams

STATE OF TENNESSEE

12/19/2022

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Appendix C:	Volume Development
Appendix D:	<i>Synchro</i> Reports
Appendix E:	Turn Lane Warrants

1.0 EXECUTIVE SUMMARY

This traffic study evaluated the anticipated traffic impacts associated with the *Trotwood & Foster Subdivision* development, which is expected to be completed in 2025 (referred to herein as build-out year). As currently envisioned, the development will consist of approximately 126 single family detached dwelling units. The approximate 53.13-acre site is located south of Trotwood Avenue and west of Old Sunnyside Lane within the City of Columbia, Tennessee.

The following scenarios were considered in this analysis:

- Existing 2022 Conditions
- Projected 2025 No-Build Conditions
- Projected 2025 Build Conditions

The study network for this analysis includes the following intersections:

1. Trotwood Avenue at Cayce Lane/Sunnyside Lane
2. Trotwood Avenue at Rutherford Lane
3. Trotwood Avenue at Old Sunnyside Lane
4. Trotwood Avenue at Foster Lane

The proposed development will be served by two driveways. Site Driveway A is a proposed full-movement, side street stop controlled driveway along Foster Lane. Site Driveway B is an extension of Holly Berry Drive.

The results of the analyses show that all study intersections currently operate at an acceptable overall LOS during the AM and PM peak hours. Under the projected 2025 No-Build and Build conditions, all study intersections are projected to continue to operate at an acceptable overall LOS during the AM and PM peak hours.

1.1 DEVELOPMENT IMPROVEMENT RECOMMENDATIONS

The following site-access improvements are recommended to serve the Projected 2025 Build traffic conditions (Note: this would be the improvements needed to serve the traffic associated with the *Trotwood & Foster Subdivision* development).

- Foster Lane
 - o Provide a paved two-lane roadway with one (1) lane in each direction between Trotwood Avenue and Site Driveway A.
- Intersection 4 – Trotwood Avenue at Foster Lane
 - o Construct an exclusive left-turn lane along the westbound approach of Trotwood Avenue (210' of full-width left-turn lane, and 180' of bay taper).
- Intersection 5 – Foster Lane at Site Driveway A
 - o Construct one (1) ingress lane entering the site and one (1) egress lane exiting the site.
 - o Provide stop-control for westbound approach along Site Driveway A.
- Intersection 6 – Holly Berry Drive Extension at Site Driveway B
 - o Construct one (1) ingress lane entering the site and one (1) egress lane exiting the site.

2.0 INTRODUCTION

This report presents the analysis of the anticipated traffic impacts associated with the *Trotwood & Foster Subdivision* development, which is expected to be completed in 2025 (referred to herein as build-out year). As currently envisioned, the development will consist of approximately 126 single family detached dwelling units. The approximate 53.13-acre site is located south of Trotwood Avenue and west of Old Sunnyside Lane within the City of Columbia, Tennessee.

This report will summarize the analyses of the following scenarios:

- Existing 2022 Conditions
- Projected 2025 No-Build Conditions
- Projected 2025 Build Conditions

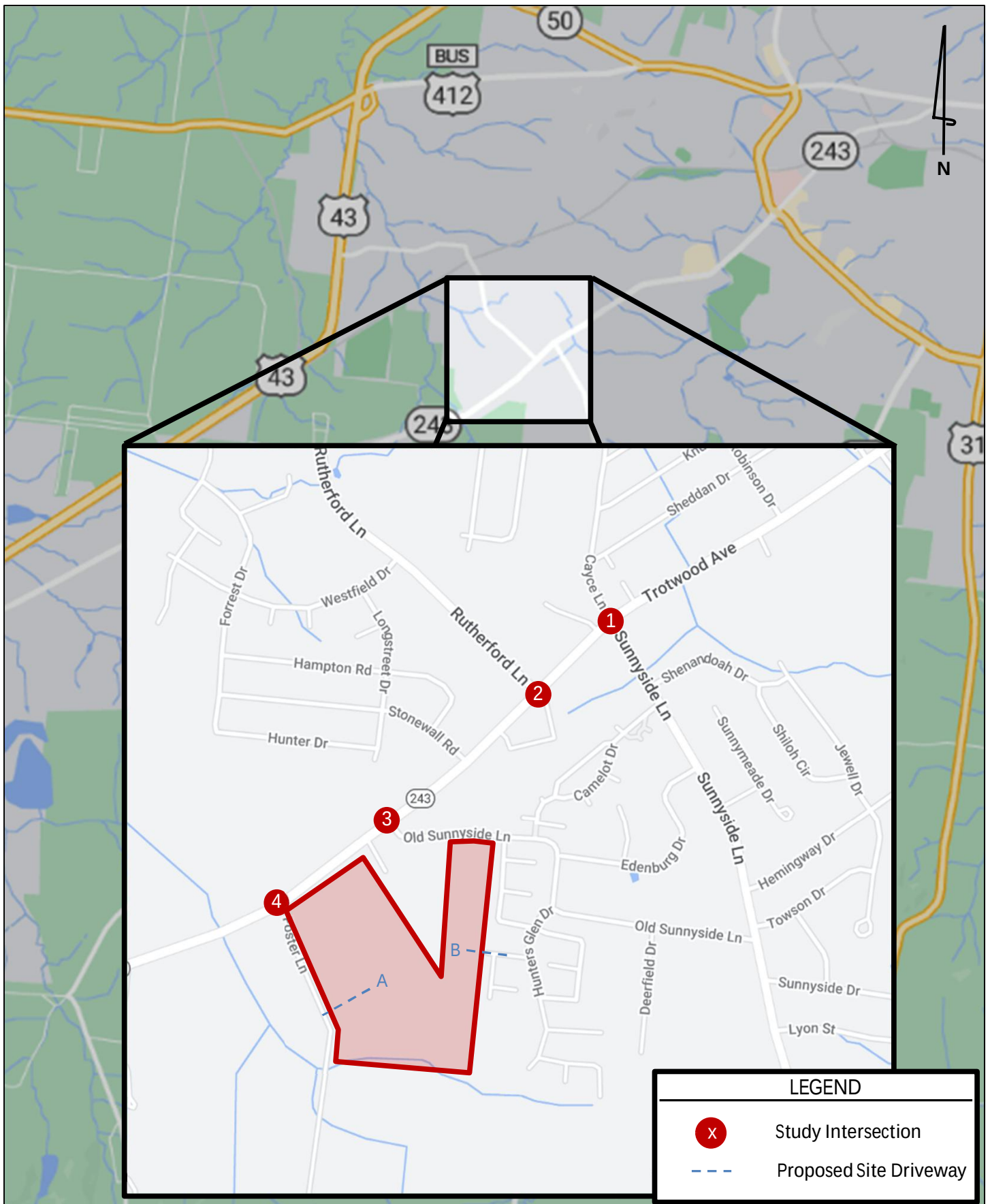
The study network for this analysis includes the following intersections:

1. Trotwood Avenue at Cayce Lane/Sunnyside Lane
2. Trotwood Avenue at Rutherford Lane
3. Trotwood Avenue at Old Sunnyside Lane
4. Trotwood Avenue at Foster Lane

For the purposes of this traffic impact study, Trotwood Avenue, Site Driveway A, Site Driveway B, and the Holly Berry Drive Extension are considered to have an east-west orientation. Cayce Lane, Sunnyside Lane, Rutherford Lane, Old Sunnyside Lane, and Foster Lane are considered to have a north-south orientation.

Figure 1 provides a location map of the project site. **Figure 2** provides an aerial image of the project site.

A site plan is also included in **Appendix A**.





3.0 EXISTING CONDITIONS

3.1 VEHICULAR NETWORK

Characteristics for the roadways within the study are summarized in **Table 1**.

Table 1: Roadway Network				
Roadway	Number of Lanes	Posted Speed Limit (mph)	TDOT Classification	2021 TDOT AADT
Trotwood Avenue	2	45	Minor Collector	14,100
Cayce Lane/Sunnyside Lane	2	35	Major Collector	4,200
Rutherford Lane	2	35	Major Collector	3,400
Old Sunnyside Lane	2	25	NA	N/A
Foster Lane	Unpaved Roadway	N/A	N/A	N/A

The existing road geometry is illustrated in **Figure 3**.

3.2 VEHICULAR VOLUMES

Vehicle peak hour turning movement counts (TMCs) were performed at each study intersection. The TMCs were collected during the AM period (7:00 AM – 9:00 AM) and the PM period (4:00 PM – 6:00 PM) on Thursday, July 14, 2022. Peak hours for the study intersection are shown in **Table 2**.

Table 2: Intersection Peak Hours		
Intersection	AM Peak Hour	PM Peak Hour
1. Trotwood Avenue at Cayce Lane/Sunnyside Lane	7:30 AM – 8:30 AM	4:15 PM – 5:15 PM
2. Trotwood Avenue at Rutherford Lane	7:15 AM – 8:15 AM	4:15 PM – 5:15 PM
3. Trotwood Avenue at Old Sunnyside Lane	7:15 AM – 8:15 AM	4:30 PM – 5:30 PM
4. Trotwood Avenue at Foster Lane	7:15 AM – 8:15 AM	4:00 PM – 5:00 PM

In addition to the TMCs, a 24-hour average daily traffic (ADT) count was also collected at the following location:

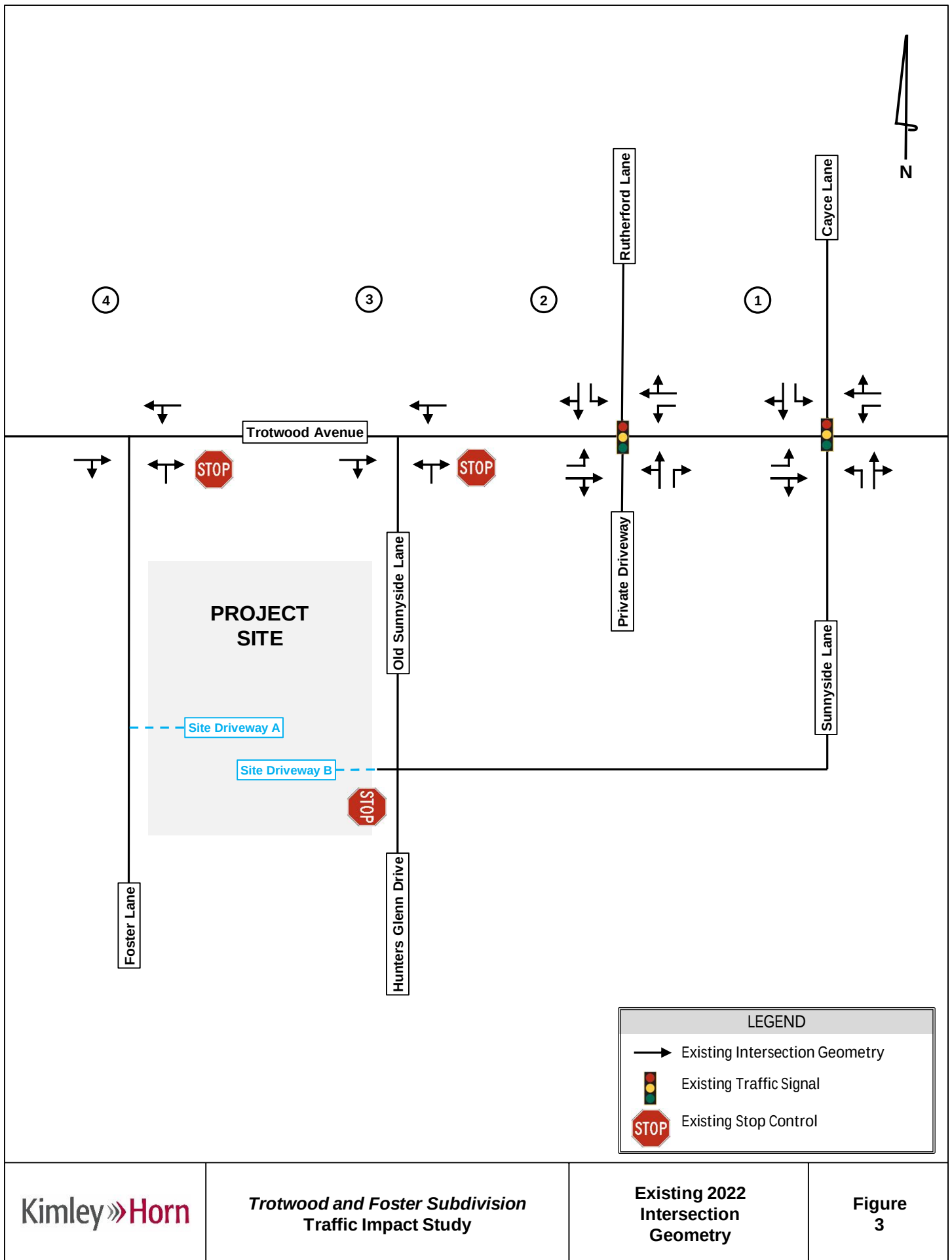
- Trotwood Avenue west of Rutherford Lane (13,700 daily vehicles – 6,600 EB, 7,100 WB)

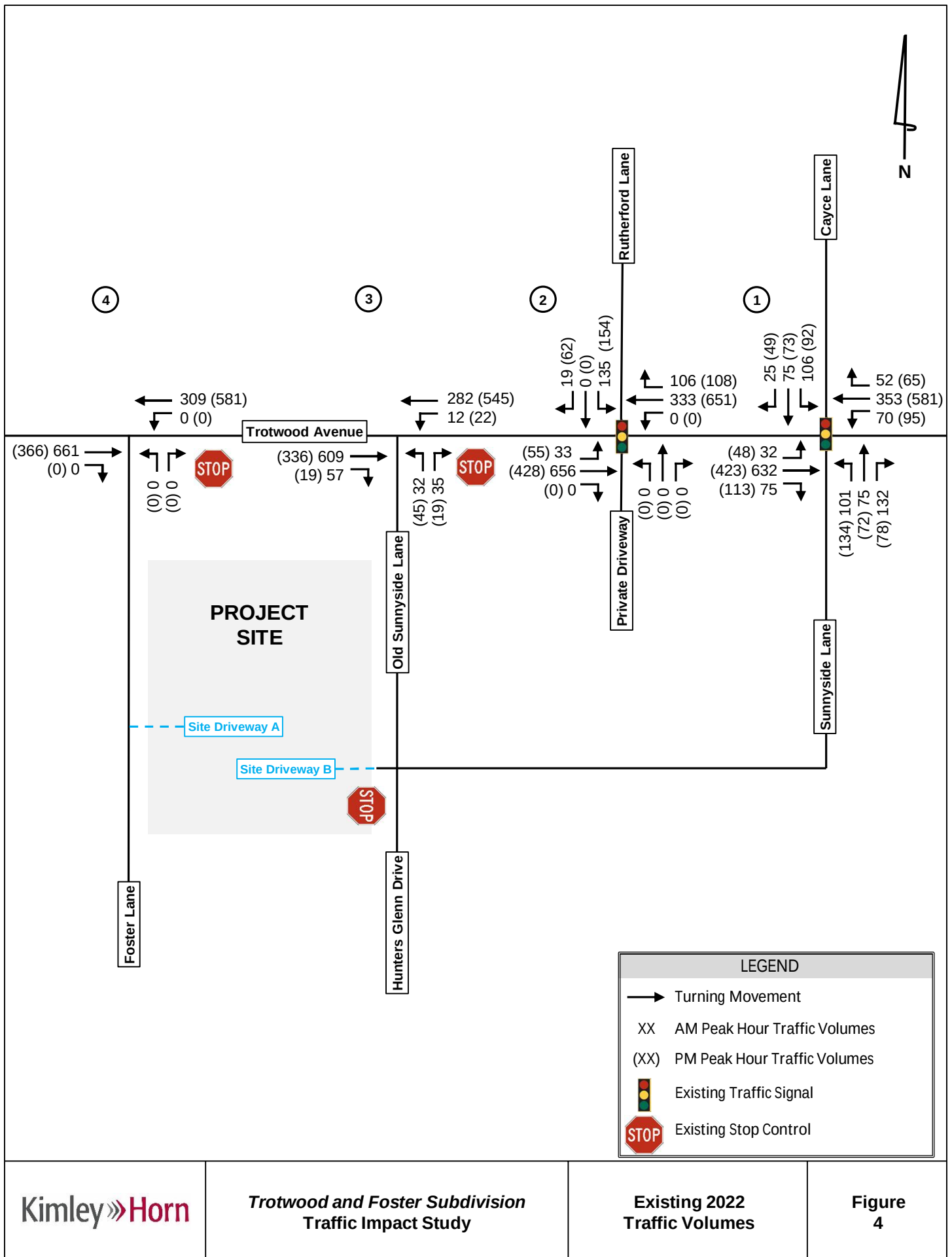
It should be noted that at the time that counts were performed, the northbound leg of Intersection 2 (Trotwood Avenue at Rutherford Lane) was closed for construction.

The Existing 2022 turning movement counts were collected while schools were not in session. To account for any reduction in volumes attributed to school traffic, the Existing 2022 counts collected at Trotwood Avenue at Cayce Lane/Sunnyside Lane (Intersection 1) were compared to the Existing 2022 counts collected for the *Sunnyside Gas Station* background development to determine AM and PM adjustment factors. The peak hour adjustment factors were applied to the existing peak hour TMCs at each of the study intersections. The adjustment factors are shown below:

- AM Peak Adjustment Factor – 1.38
- PM Peak Adjustment Factor – 1.07

The Adjusted Existing 2022 peak hour traffic volumes are shown in **Figure 4**. The complete traffic count data is provided in **Appendix B**. The adjustment calculations are provided in **Appendix C**.





4.0 NO-BUILD CONDITIONS

Background traffic is defined as expected traffic on the roadway in future year(s) absent the construction and opening of the proposed project. Background traffic can include a base growth rate based on historical count data as well as population growth data and estimates.

To account for background traffic, the Adjusted Existing 2022 traffic volumes were increased by 3.0% per year for three years to account for the expected background growth through year 2025. Additionally, project trips associated with the following developments were included in the Projected 2025 No-Build Traffic volumes:

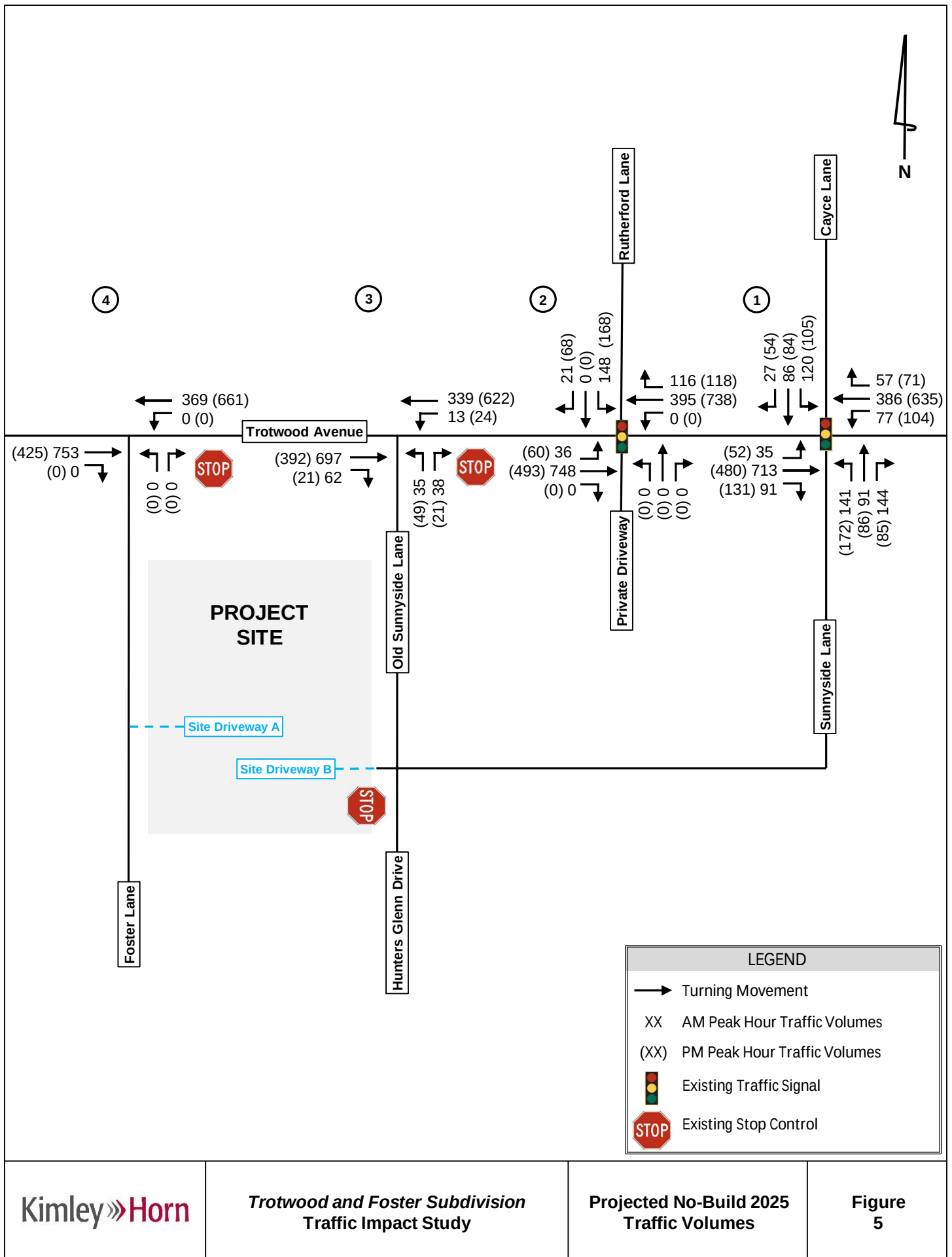
- *Sunnyside Gas Station* development

Figure 5 illustrates the Projected 2025 No-Build traffic volumes.

4.1 FUTURE TRANSPORTATION INFRASTRUCTURE IMPROVEMENTS

The City of Columbia Annual Budget and Tennessee Department of Transportation (TDOT) transportation projects were researched for currently planned/programmed transportation projects within the vicinity of the study area.

No improvements were identified to be included in the capacity analyses.



5.0 BUILD CONDITIONS

5.1 SITE ACCESS AND CIRCULATION

Access to the proposed site will be provided at two locations. A brief description of the site access is as follows:

- Site Driveway A
 - o Proposed full-movement, unsignalized driveway along Foster Lane approximately 1,000' south of Trotwood Avenue. The intersection is proposed to operate under sidestreet stop control and have one (1) ingress lane entering the site and one (1) egress lane exiting the site.
- Site Driveway B
 - o Proposed extension of Holly Berry Drive approximately 450' west of Hunters Glen Drive. The extension is proposed have one (1) ingress lane entering the site and one (1) egress lane exiting the site.

Refer to the site plan in **Appendix A** for a visual representation of vehicular access and circulation throughout the proposed development.

5.2 TRIP GENERATION

Traffic for the proposed development was calculated using equations contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*, using equations where available.

Internal capture (or mixed-use) reductions represent the concept that trips generated by individual land uses within a site may remain internal to the site. Mixed-use vehicle trip reductions are calculated using guidance from the *ITE Trip Generation Handbook, 3rd Edition*.

Alternative modes of transportation include pedestrians, bicyclists, and transit users. Alternate mode reductions account for the notion that some site-generated trips will occur by a means other than automobile.

A pass-by trip occurs when a proposed development diverts traffic that is already traveling on a street adjacent to the site. Pass-by reductions are calculated using guidance from the *ITE Trip Generation Handbook, 3rd Edition*.

The trip generation for the site was performed with no reductions to gross trips as the proposed site is not likely to generate significant mixed-use, alternative mode, or pass-by trips.

Table 3 summarizes the project trip generation. **Appendix C** provides a detailed trip generation worksheet for the proposed development.

Table 3: Trip Generation								
ITE Code	Land Use	Density	Daily		AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit	Enter	Exit
210	Single-Family Detached Housing	126 d.u.	624	624	24	68	77	46
Gross Trips			624	624	24	68	77	46

5.3 TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution and assignment of new project trips was based on a review of land uses and population densities in the area and the existing peak hour turning movement counts. **Figure 6** provides the directional distribution and assignment of new project trips. **Figure 7** illustrates the assignment of project trips to the study network. The Projected 2025 Build peak hour volumes are shown in **Figure 8**. **Appendix C** provides intersection volume worksheets for all intersections and driveways within the study network.

5.4 TURN LANE EVALUATION

TDOT HSAM Vol 3 Geometric Design Criteria was used to evaluate if left-turn and right-turn lanes should be implemented along the major road at a two-way stop-controlled intersection. From within the TDOT HSAM, the following methodologies were applied to perform these evaluations:

- Figure 3-15 (“Left-Turn Lane Warrant for Urban and Suburban Arterials (Unsignalized)”)
- Figure 3-18 (“Right-Turn Lane Warrant Along Two-Lane Roadway (Unsignalized Intersection with Two-Way Stop-Control”)

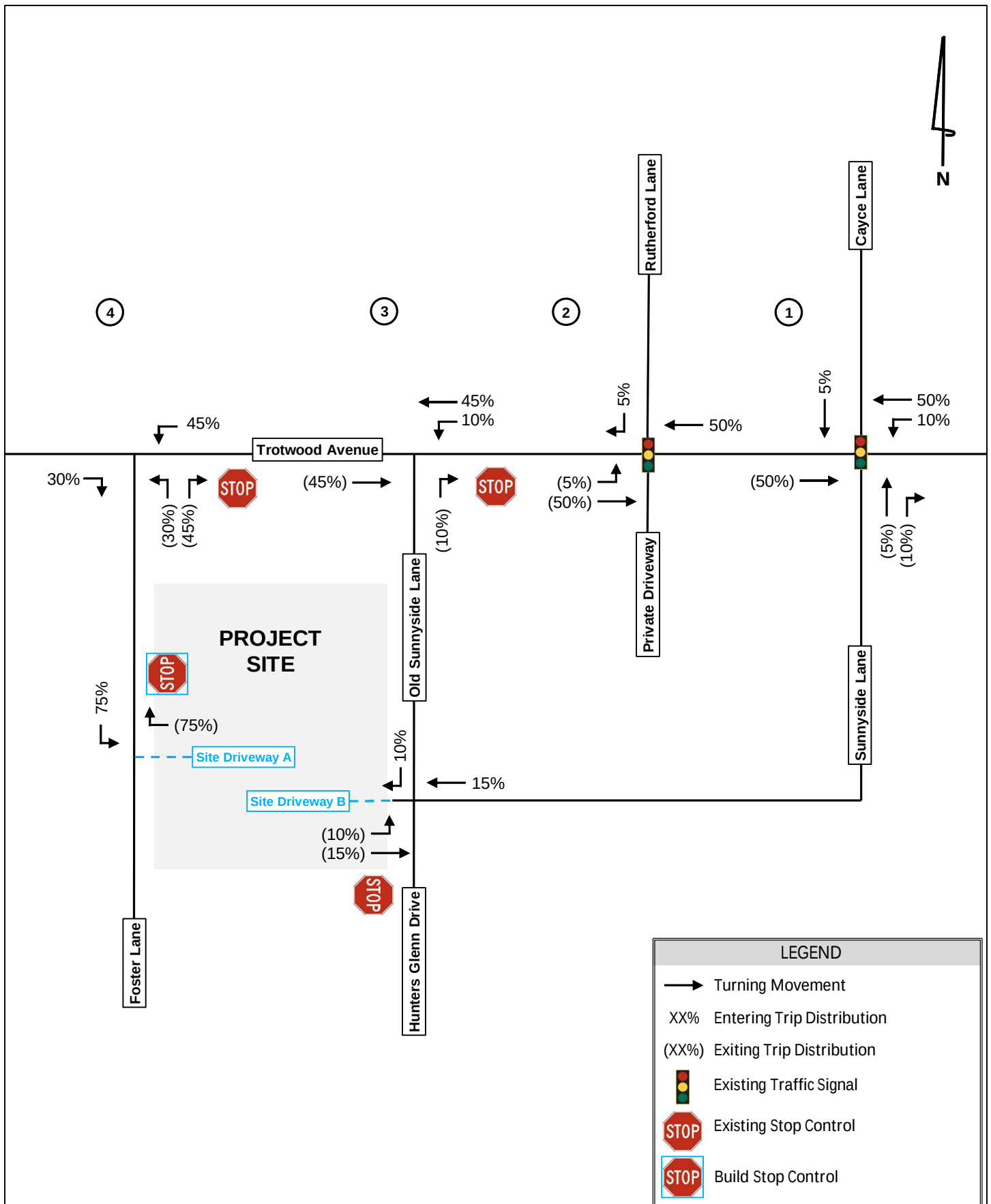
Turn lane evaluations were performed for:

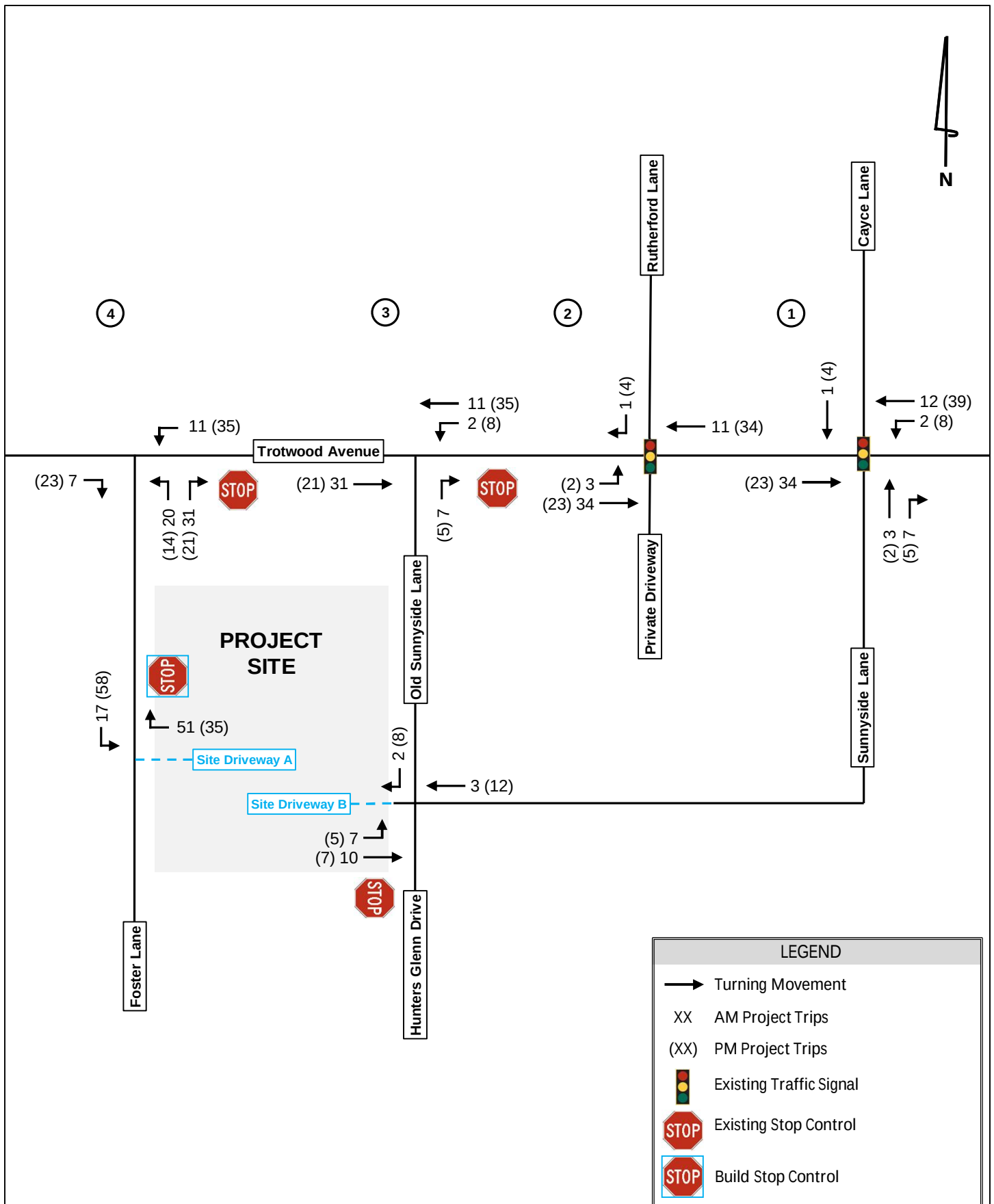
- Trotwood Avenue at Foster Lane
- Foster Lane at Site Driveway A

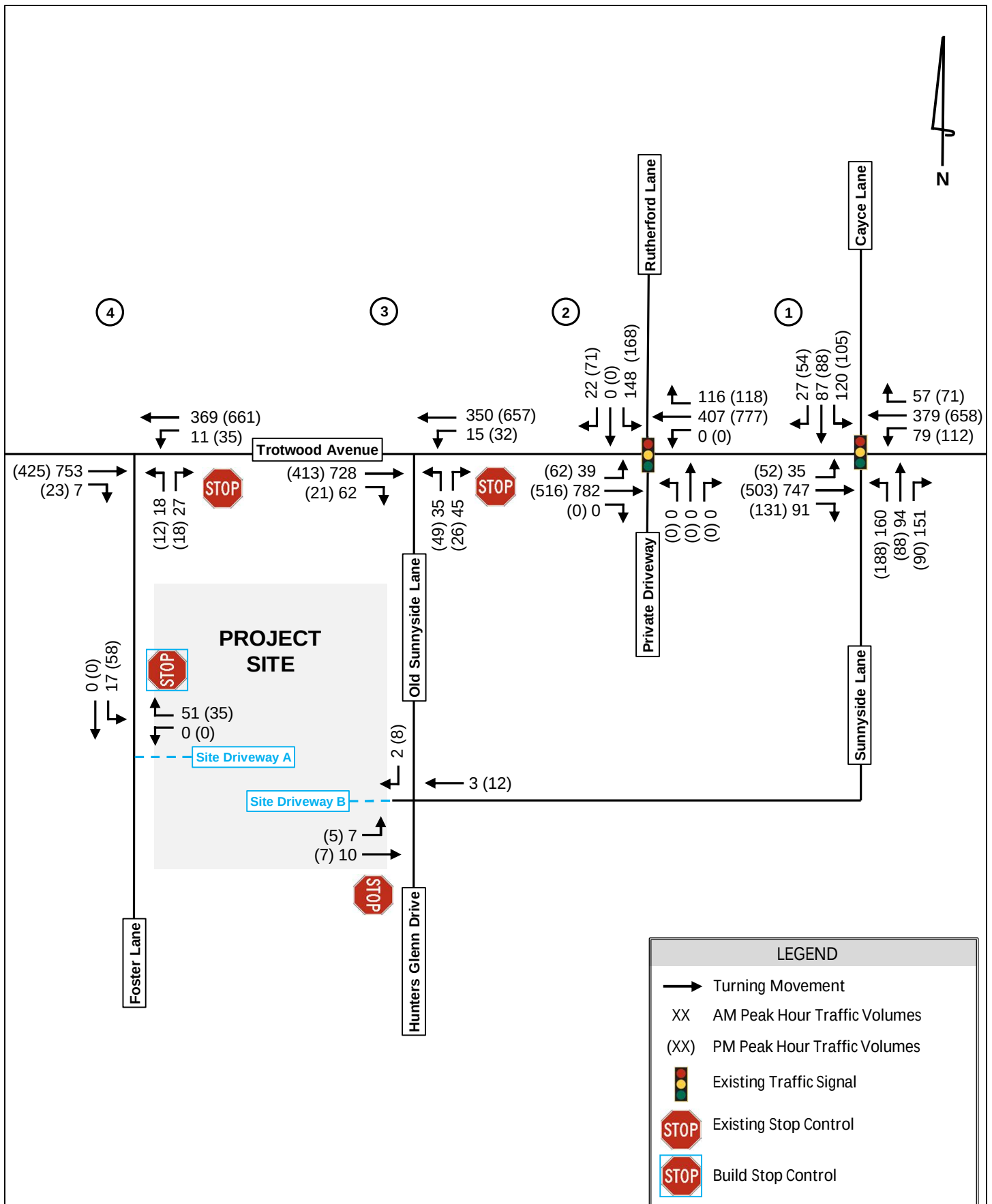
The results of the turn lane warrants are summarized in **Table 4. Appendix E** provides the TDOT Turn Lane Warrant charts used for the analysis.

Table 4: Turn Lane Evaluation				
Intersection	Movement	Analysis Scenario	AM Peak Hour	PM Peak Hour
4. Trotwood Avenue at Foster Lane	EBR Turn Lane	Build 2025	Not Warranted	Not Warranted
	WBL Turn Lane		WARRANTED	WARRANTED
5. Foster Lane at Site Driveway A	NBR Turn Lane	Build 2025	Not Warranted	Not Warranted
	SBL Turn Lane		Not Warranted	Not Warranted

Based on TDOT Geometric Design Criteria, an exclusive left-turn lane along the westbound approach of Trotwood Avenue would require 210' of full-width left-turn lane, and 180' of bay taper.







6.0 CAPACITY ANALYSES

6.1 LEVEL-OF-SERVICE ANALYSES

Level-of-service (LOS) determinations were made for the weekday AM and PM peak hours for the study network intersections using *Synchro, Version 11.0*. *Synchro* software uses methodologies contained in the *Highway Capacity Manual, 6th Edition* to determine the operating characteristics of an intersection. Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a specified period under prevailing roadway, traffic, and control conditions.

LOS is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists' perceptions of a traffic stream. The *Highway Capacity Manual* defines six levels of service, LOS A through LOS F, with A being the best and F the worst.

Levels-of-service for unsignalized intersections, with stop control on the minor street only, are reported for the side-street approaches and major street left-turns. Low levels-of-service for side street approaches are not uncommon, as vehicles may experience significant delay turning onto a major roadway.

Levels-of-service for signalized and all-way stop controlled (AWSC) intersections are reported for the intersection as a whole. One or more movements at an intersection may experience a low level-of-service, while the intersection as a whole may operate acceptably.

Capacity analyses were performed for the AM and PM peak hours under the Existing 2022, Projected 2025 No-Build, and Projected 2025 Build traffic conditions. The results of the capacity analyses are summarized in **Table 5**. The *Synchro* analyses reports are included in **Appendix D**.

Table 5: Level-of-Service Summary LOS (Delay in Seconds)							
Intersection	Approach/ Movement	Existing 2022		Projected 2025 No-Build		Projected 2025 Build	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1. Trotwood Avenue at Cayce Lane/ Sunnyside Lane	Overall	C (25.0)	B (19.8)	D (45.3)	C (22.0)	D (54.2)	C (22.6)
2. Trotwood Avenue at Rutherford Lane	Overall	A (9.2)	A (9.5)	A (9.8)	A (9.9)	A (10.0)	A (10.0)
3. Trotwood Avenue at Old Sunnyside Lane	NB	C (20.7)	C (18.4)	D (26.6)	C (22.3)	D (29.0)	C (24.5)
	WBL	A (9.3)	A (8.1)	A (9.7)	A (8.2)	A (9.9)	A (8.3)
4. Trotwood Avenue at Foster Lane	NB	--	--	--	--	C (23.5)	C (17.2)
	WBL	--	--	--	--	A (9.7)	A (8.4)
5. Foster Lane at Site Driveway A	WB	--	--	--	--	*	*
	SBL	--	--	--	--	*	*

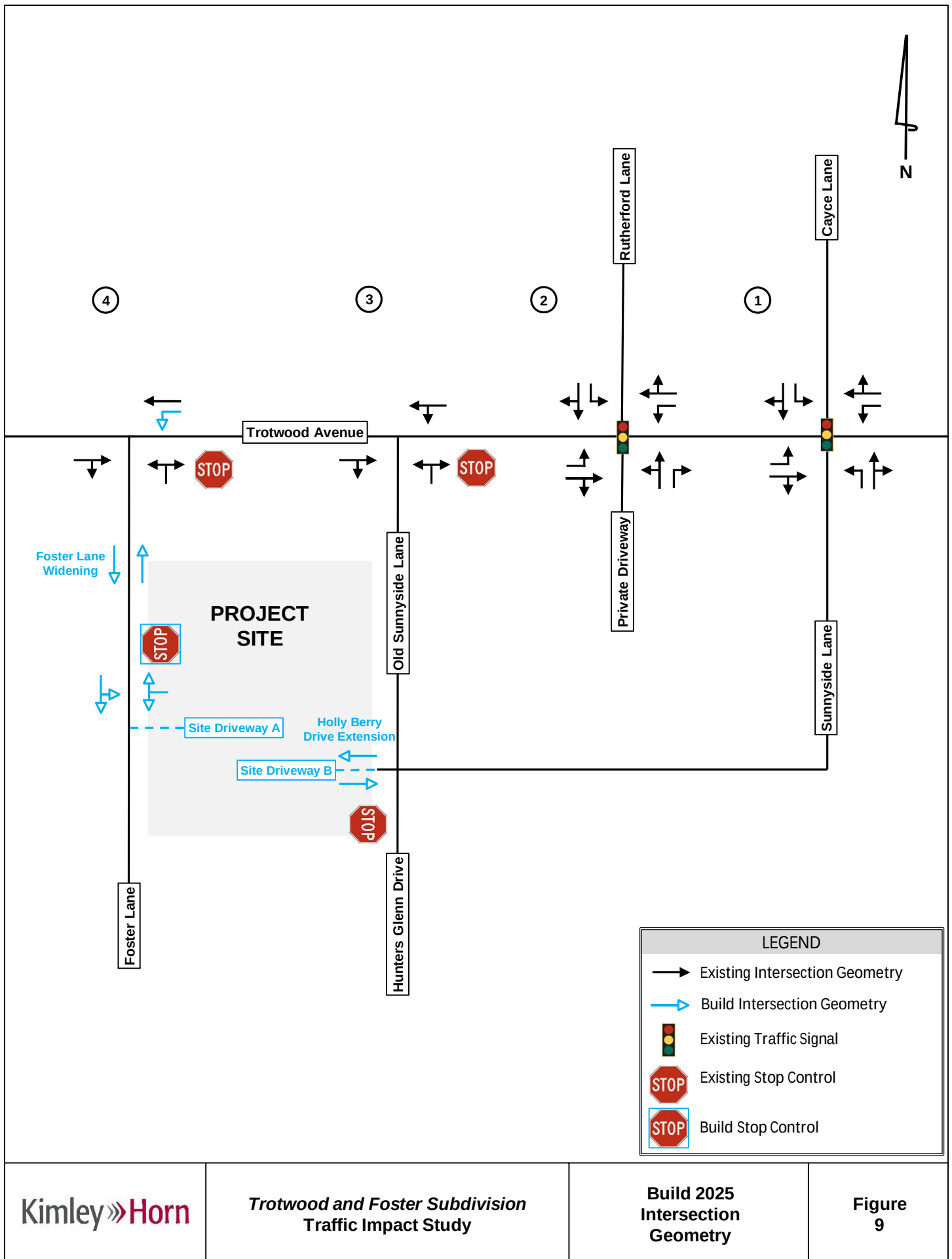
*Negligible delay – no opposing traffic

All of the study intersections currently operate and are projected to operate at an acceptable overall LOS during both the AM and PM peak hours. It should be noted that low LOS for side street approaches are not uncommon, as vehicles may experience significant delay turning onto a major roadway.

Although all approaches are projected to operate acceptably under all studied scenarios, an exclusive westbound left-turn lane is warranted at the intersection of Trotwood Avenue at Foster Lane (Intersection 4) based on TDOT Geometric Design Criteria. A capacity analysis of the improved conditions at Intersection 4 are shown in **Table 6**.

Table 6: Improved Level-of-Service Summary LOS (Delay in Seconds)			
Intersection	Approach/ Movement	Projected 2025 Build	
		AM Peak	PM Peak
4. Trotwood Avenue at Foster Lane	NB	C (23.5)	C (17.0)
	WBL	A (9.7)	A (8.4)

The recommended improvements and lane configuration for site driveways is shown visually in **Figure 9**.



7.0 CONCLUSION

This traffic study evaluated the traffic impacts associated with the Trotwood & Foster Subdivision development located south of Trotwood Avenue and west of Old Sunnyside Lane within City of Columbia, Tennessee. The development, which is approximately 53.13-acres in size, will include approximately 126 single family detached dwelling units.

The study network, which consists of four (4) intersections, was analyzed for the weekday AM and PM peak hours under Existing 2022 conditions, Projected 2025 No-Build conditions (three years of background traffic growth plus project traffic associated with the *Sunnyside Gas Station* development), and Projected 2025 Build conditions (Projected 2025 No-Build conditions plus traffic generated by the proposed *Trotwood & Foster Subdivision* development).

Based on the results of this study, all study intersections currently operate at an acceptable overall LOS during the AM and PM peak hours. Under the projected 2025 No-Build and Build conditions, all study intersections are projected to continue to operate at an acceptable overall LOS during the AM and PM peak hours.

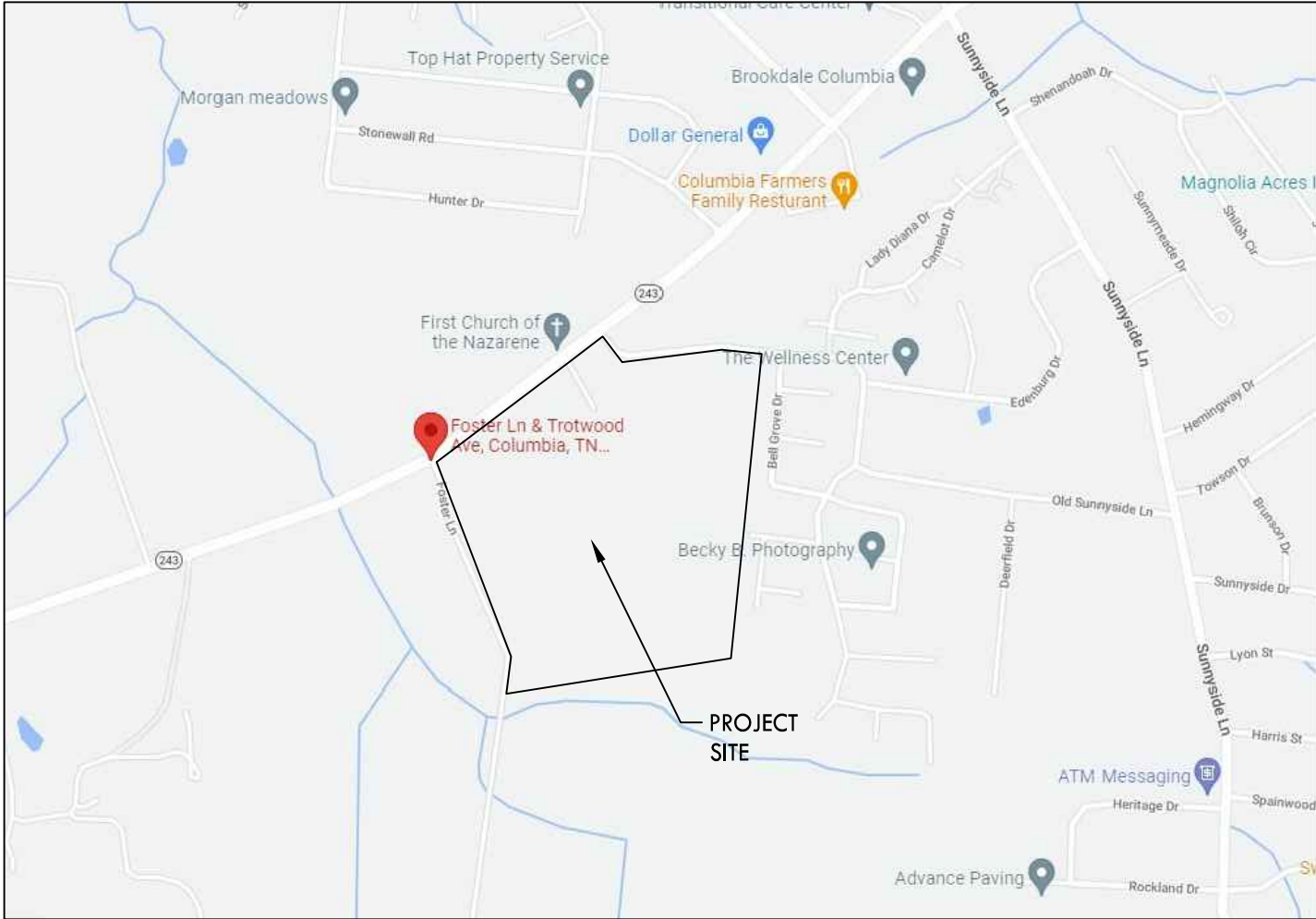
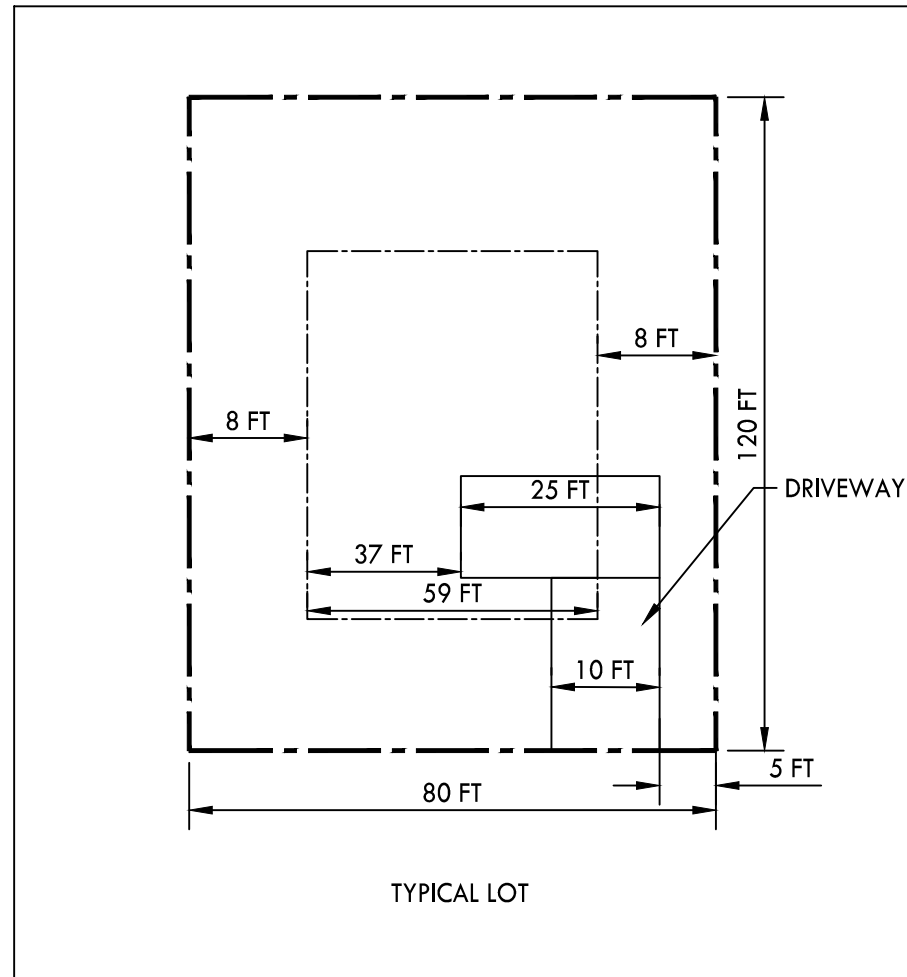
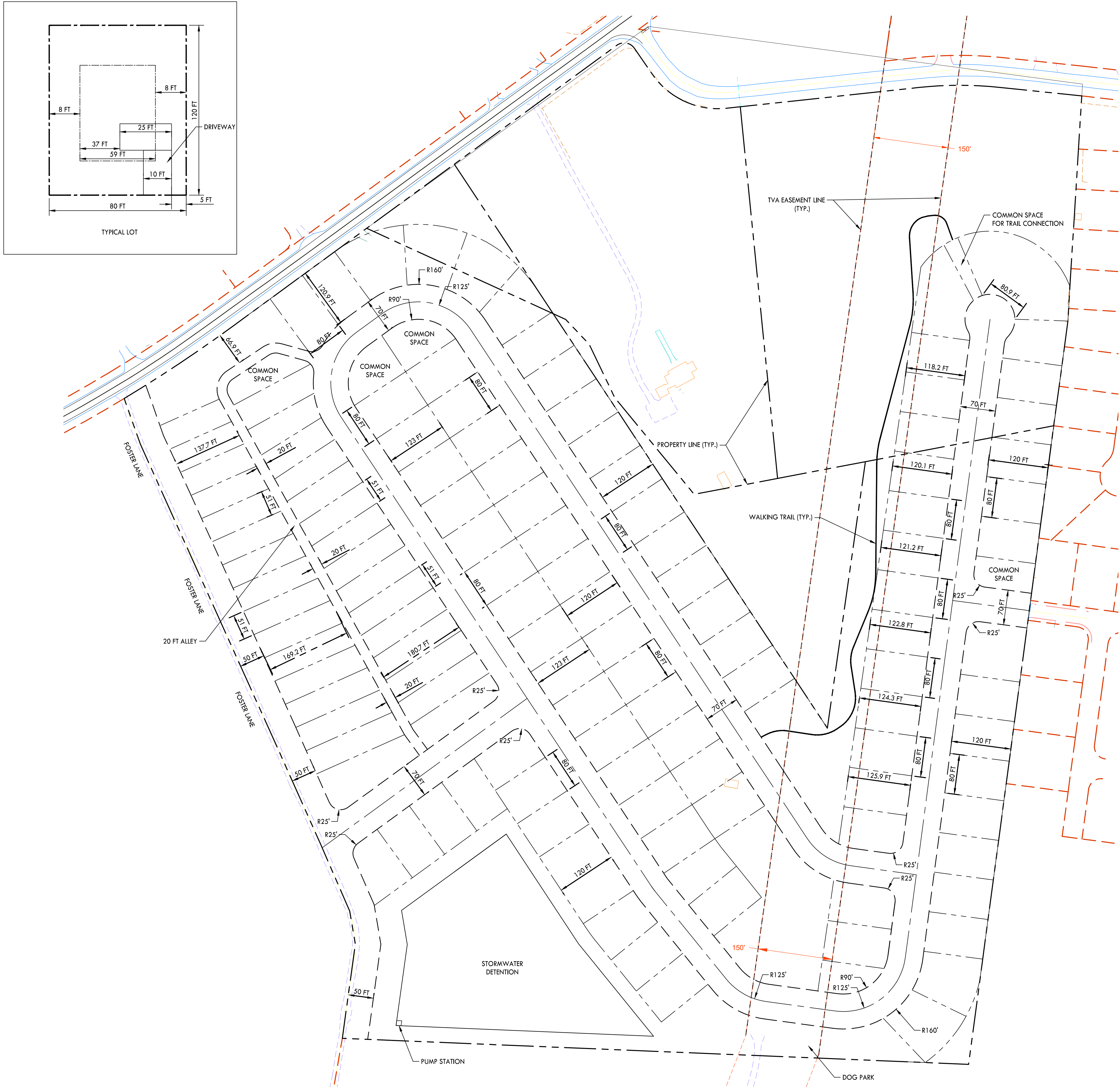
7.1 DEVELOPMENT IMPROVEMENT RECOMMENDATIONS

Based on the results of this traffic impact study, Kimley-Horn and Associates, Inc. recommends the following site-access improvements to serve the Projected 2025 Build traffic conditions (Note: this would be the improvements needed to serve the traffic associated with the *Trotwood & Foster Subdivision* development).

- Foster Lane
 - o Provide a paved two-lane roadway with one (1) lane in each direction between Trotwood Avenue and Site Driveway A.
- Intersection 4 – Trotwood Avenue at Foster Lane
 - o Construct an exclusive left-turn lane along the westbound approach of Trotwood Avenue (210' of full-width left-turn lane, and 180' of bay taper).
- Intersection 5 – Foster Lane at Site Driveway A
 - o Construct one (1) ingress lane entering the site and one (1) egress lane exiting the site.
 - o Provide stop-control for westbound approach along Site Driveway A.
- Intersection 6 – Holly Berry Drive Extension at Site Driveway B
 - o Construct one (1) ingress lane entering the site and one (1) egress lane exiting the site.

Site Plan

Drawn by: C:\P\AN\PROJECTS\Trotwood And Foster\Drawings\22040\DWG.C5.0.dwg

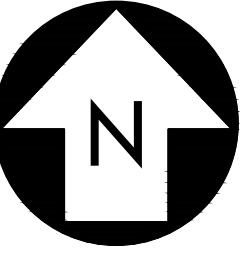
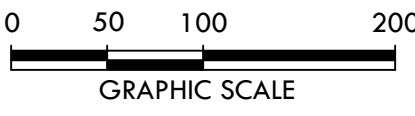


SITE DATA TABLE	
PROJECT, TROTWOOD AND FOSTER	
ADDRESS, COLUMBIA TENNESSEE	
PARCEL ID :	
EXISTING ZONING:	CD-3
PROPOSED ZONING:	CD-3
ZONING DISTRICT	
TOTAL SITE AREA:	53.13 ACRES
PROPOSED LOTS	126
BUILDING HEIGHT	3 STORIES MAX
MIN. LOT SIZE	7800 SF
MIN. LOT WIDTH	51 FT
FRONT YARD	25 FT PRIMARY, 20 FT SECONDARY
SIDE SETBACK	8 FT
REAR SETBACK	25 FT
OPEN SETBACK REQ.	##
OPEN SPACE PROVIDED	##
USABLE OPEN SPACE	##
REQ	##
USABLE OPEN SPACE	##
PROVIDED	##

NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED LAYOUT LEGEND

- PROPOSED BUILDING
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- PROPERTY LINE
- EDGE OF NEW PAVEMENT



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



**TROTWOOD AND FOSTER
SUBDIVISION**
COLUMBIA TENNESSEE

REVISONS	DATE	
	No.	

09/29/22 22040

C5.0
SITE LAYOUT

Traffic Count Data

Bi-Directional Class Count || Volume Summary 15min

Columbia, TN



www.marrtraffic.com

Site 5

TN-243 Trotwood Ave,
west of Rutherford Ln

Date

Thursday, July 14, 2022

Weather

Partly Cloudy
81°F

Lat/Long

35.589107°, -87.098139°

0000 - 2400 (24h Session) (07-14-2022)

Volume Summary 15min

TIME	Volume Summary 15min		15min	60min
	EB	WB	Total	Total
0000 - 0015	8	14	22	60
0015 - 0030	2	3	5	
0030 - 0045	2	17	19	
0045 - 0100	2	12	14	
0100 - 0115	2	7	9	28
0115 - 0130	2	2	4	
0130 - 0145	4	4	8	
0145 - 0200	2	5	7	
0200 - 0215	3	12	15	42
0215 - 0230	7	6	13	
0230 - 0245	7	3	10	
0245 - 0300	1	3	4	
0300 - 0315	2	6	8	49
0315 - 0330	6	6	12	
0330 - 0345	12	4	16	
0345 - 0400	10	3	13	
0400 - 0415	9	6	15	100
0415 - 0430	12	6	18	
0430 - 0445	18	7	25	
0445 - 0500	32	10	42	
0500 - 0515	28	13	41	247
0515 - 0530	47	21	68	
0530 - 0545	38	18	56	
0545 - 0600	55	27	82	
0600 - 0615	49	38	87	510
0615 - 0630	86	43	129	
0630 - 0645	108	46	154	
0645 - 0700	103	37	140	
0700 - 0715	87	64	151	747
0715 - 0730	121	62	183	
0730 - 0745	136	71	207	
0745 - 0800	130	76	206	
0800 - 0815	112	46	158	681
0815 - 0830	91	86	177	
0830 - 0845	109	64	173	
0845 - 0900	105	68	173	
0900 - 0915	96	72	168	749
0915 - 0930	105	102	207	
0930 - 0945	99	84	183	
0945 - 1000	114	77	191	
1000 - 1015	96	77	173	782
1015 - 1030	103	84	187	
1030 - 1045	108	108	216	
1045 - 1100	105	101	206	
1100 - 1115	105	92	197	
1115 - 1130	105	102	207	
1130 - 1145	109	144	253	
1145 - 1200	89	122	211	

Time	Volume Summary 15min		15min	60min
	EB	WB	Total	Total
1200 - 1215	108	117	225	940
1215 - 1230	98	119	217	
1230 - 1245	129	106	235	
1245 - 1300	136	127	263	
1300 - 1315	91	116	207	926
1315 - 1330	100	122	222	
1330 - 1345	118	126	244	
1345 - 1400	128	125	253	
1400 - 1415	106	104	210	956
1415 - 1430	96	133	229	
1430 - 1445	111	150	261	
1445 - 1500	109	147	256	
1500 - 1515	94	130	224	979
1515 - 1530	110	150	260	
1530 - 1545	119	150	269	
1545 - 1600	93	133	226	
1600 - 1615	111	149	260	1109
1615 - 1630	113	163	276	
1630 - 1645	125	175	300	
1645 - 1700	107	166	273	
1700 - 1715	106	162	268	1062
1715 - 1730	99	172	271	
1730 - 1745	95	164	259	
1745 - 1800	95	169	264	
1800 - 1815	107	158	265	919
1815 - 1830	95	140	235	
1830 - 1845	82	129	211	
1845 - 1900	82	126	208	
1900 - 1915	75	114	189	714
1915 - 1930	86	129	215	
1930 - 1945	73	87	160	
1945 - 2000	55	95	150	
2000 - 2015	101	86	187	563
2015 - 2030	67	78	145	
2030 - 2045	45	66	111	
2045 - 2100	57	63	120	
2100 - 2115	58	61	119	378
2115 - 2130	42	47	89	
2130 - 2145	29	57	86	
2145 - 2200	33	51	84	
2200 - 2215	20	43	63	187
2215 - 2230	13	30	43	
2230 - 2245	14	26	40	
2245 - 2300	19	22	41	
2300 - 2315	8	14	22	
2315 - 2330	16	13	29	
2330 - 2345	8	11	19	
2345 - 0000	2	7	9	

Session Total	6566	7109	13675
Session Average	68.40	74.05	142.45
Session Percentage	48.01	51.99	

Bi-Directional Class Count || Volume Summary 60min

Columbia, TN

Site 5

TN-243 Trotwood Ave,
west of Rutherford Ln

Date

Thursday, July 14, 2022

Weather

Partly Cloudy
81°F

Lat/Long

35.589107°, -87.098139°

0000 - 2400 (24h Session) (07-14-2022)

Volume Summary 60min

Volume Summary 60min			
TIME	EB	WB	Total
0000 - 0100	14	46	60
0100 - 0200	10	18	28
0200 - 0300	18	24	42
0300 - 0400	30	19	49
0400 - 0500	71	29	100
0500 - 0600	168	79	247
0600 - 0700	346	164	510
0700 - 0800	474	273	747
0800 - 0900	417	264	681
0900 - 1000	414	335	749
1000 - 1100	412	370	782
1100 - 1200	408	460	868

Session Total	6566	7109	13675
Session Average	273.58	296.21	569.79
Session Percentage	48.01	51.99	

Volume Summary 60min			
Time	EB	WB	Total
1200 - 1300	471	469	940
1300 - 1400	437	489	926
1400 - 1500	422	534	956
1500 - 1600	416	563	979
1600 - 1700	456	653	1109
1700 - 1800	395	667	1062
1800 - 1900	366	553	919
1900 - 2000	289	425	714
2000 - 2100	270	293	563
2100 - 2200	162	216	378
2200 - 2300	66	121	187
2300 - 2400	34	45	79



[Click here for Map](#)

Peak Hour Turning Movement Count

Columbia, TN



www.marrtraffic.com

Thursday, July 14, 2022	
Period	0700 - 0900
Peak Hour	0730 - 0830

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



All vehicles

Time	Northbound					Southbound					Eastbound					Westbound					Int
	Sunnyside Ln					Cayce Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	
0730 - 0745	19	13	30	0	62	29	18	7	0	54	7	129	16	0	152	9	71	8	0	88	
0745 - 0800	27	15	26	0	68	25	10	5	0	40	7	137	19	0	163	16	71	7	0	94	
0800 - 0815	10	12	22	0	44	8	16	2	0	26	5	98	11	0	114	9	50	7	0	66	
0815 - 0830	17	14	18	0	49	15	10	4	0	29	4	94	8	0	106	17	64	16	0	97	
Total	73	54	96	0	223	77	54	18	0	149	23	458	54	0	535	51	256	38	0	345	
Approach %	32.74	24.22	43.05	0.00	-	51.68	36.24	12.08	0.00	-	4.30	85.61	10.09	0.00	-	14.78	74.20	11.01	0.00	-	
PHF	0.68	0.90	0.80	0.00	0.82	0.66	0.75	0.64	0.00	0.69	0.82	0.84	0.71	0.00	0.82	0.75	0.90	0.59	0.00	0.89	

Bikes

Time	Northbound					Southbound					Eastbound					Westbound					Int Total
	Sunnyside Ln					Cayce Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 3.1	Thru 3.2	Right 3.3	U-Turn 3.4	App Total	Left 3.5	Thru 3.6	Right 3.7	U-Turn 3.8	App Total	Left 3.9	Thru 3.10	Right 3.11	U-Turn 3.12	App Total	Left 3.13	Thru 3.14	Right 3.15	U-Turn 3.16	App Total	
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0815 - 0830	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Passenger Vehicles (1-3)

Time	Northbound					Southbound					Eastbound					Westbound					Int Total
	Sunnyside Ln					Cayce Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
	3.1	3.2	3.3	3.4		3.5	3.6	3.7	3.8		3.9	3.10	3.11	3.12		3.13	3.14	3.15	3.16		
0730 - 0745	19	13	30	0	62	28	18	7	0	53	6	124	15	0	145	9	64	8	0	81	341
0745 - 0800	26	13	26	0	65	25	10	5	0	40	6	132	19	0	157	13	65	7	0	85	347
0800 - 0815	9	11	22	0	42	8	14	2	0	24	5	90	9	0	104	9	47	7	0	63	233
0815 - 0830	15	14	18	0	47	15	10	4	0	29	4	86	8	0	98	17	58	15	0	90	264
Total	69	51	96	0	216	76	52	18	0	146	21	432	51	0	504	48	234	37	0	319	1185
Approach %	31.94	23.61	44.44	0.00	-	52.05	35.62	12.33	0.00	-	4.17	85.71	10.12	0.00	-	15.05	73.35	11.60	0.00	-	-
PHF	0.66	0.91	0.80	0.00	0.83	0.68	0.72	0.64	0.00	0.69	0.88	0.82	0.67	0.00	0.80	0.71	0.90	0.62	0.00	0.89	0.85

Single Unit Trucks (4-7)

Time	Northbound					Southbound					Eastbound					Westbound					Int
	Sunnyside Ln					Cayce Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 3.1	Thru 3.2	Right 3.3	U-Turn 3.4	App Total	Left 3.5	Thru 3.6	Right 3.7	U-Turn 3.8	App Total	Left 3.9	Thru 3.10	Right 3.11	U-Turn 3.12	App Total	Left 3.13	Thru 3.14	Right 3.15	U-Turn 3.16	App Total	
0730 - 0745	0	0	0	0	0	1	0	0	0	1	1	4	1	0	6	0	4	0	0	4	11
0745 - 0800	1	2	0	0	3	0	0	0	0	0	1	4	0	0	5	3	5	0	0	8	16
0800 - 0815	1	1	0	0	2	0	2	0	0	2	0	5	2	0	7	0	2	0	0	2	13
0815 - 0830	2	0	0	0	2	0	0	0	0	0	0	3	0	0	3	0	2	1	0	3	8
Total	4	3	0	0	7	1	2	0	0	3	2	16	3	0	21	3	13	1	0	17	48
Approach %	57.14	42.86	0.00	0.00	-	33.33	66.67	0.00	0.00	-	9.52	76.19	14.29	0.00	-	17.65	76.47	5.88	0.00	-	-
PHF	0.50	0.38	0.00	0.00	0.58	0.25	0.25	0.00	0.00	0.38	0.50	0.80	0.38	0.00	0.75	0.25	0.65	0.25	0.00	0.53	0.75

Combination Trucks (8-13)

Time	Northbound					Southbound					Eastbound					Westbound					Int
	Sunnyside Ln					Cayce Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 3.1	Thru 3.2	Right 3.3	U-Turn 3.4	App Total	Left 3.5	Thru 3.6	Right 3.7	U-Turn 3.8	App Total	Left 3.9	Thru 3.10	Right 3.11	U-Turn 3.12	App Total	Left 3.13	Thru 3.14	Right 3.15	U-Turn 3.16	App Total	
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	4
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	4
0815 - 0830	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	4	0	0	4	9
Total	0	0	0	0	0	0	0	0	0	0	0	10	0	0	10	0	9	0	0	9	19
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	-
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.50	0.00	0.56	0.00	0.00	0.56	0.53



[Click here for Map](#)

Peak Hour Turning Movement Count

Columbia, TN



www.marrtraffic.com

Thursday, July 14, 2022	
Period	1600 - 1800
Peak Hour	1615 - 1715

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



All vehicles

Time	Northbound					Southbound					Eastbound					Westbound					Int
	Sunnyside Ln					Cayce Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	Left	Thru	Right	U-Turn	App Total	
1615 - 1630	25	12	19	0	56	15	14	13	0	42	9	100	29	0	138	31	147	22	0	200	
1630 - 1645	26	17	14	0	57	19	12	13	0	44	12	117	32	0	161	22	133	18	0	173	
1645 - 1700	37	21	24	0	82	23	18	12	0	53	9	89	22	0	120	15	130	12	0	157	
1700 - 1715	37	17	16	0	70	29	24	8	0	61	15	89	23	0	127	21	133	9	0	163	
Total	125	67	73	0	265	86	68	46	0	200	45	395	106	0	546	89	543	61	0	693	
Approach %	47.17	25.28	27.55	0.00	-	43.00	34.00	23.00	0.00	-	8.24	72.34	19.41	0.00	-	12.84	78.35	8.80	0.00	-	
PHF	0.84	0.80	0.76	0.00	0.81	0.74	0.71	0.88	0.00	0.82	0.75	0.84	0.83	0.00	0.85	0.72	0.92	0.69	0.00	0.87	

Bikes

Time	Northbound					Southbound					Eastbound					Westbound					Int Total
	Sunnyside Ln					Cayce Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 3.1	Thru 3.2	Right 3.3	U-Turn 3.4	App Total	Left 3.5	Thru 3.6	Right 3.7	U-Turn 3.8	App Total	Left 3.9	Thru 3.10	Right 3.11	U-Turn 3.12	App Total	Left 3.13	Thru 3.14	Right 3.15	U-Turn 3.16	App Total	
1615 - 1630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1630 - 1645	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Passenger Vehicles (1-3)

Time	Northbound					Southbound					Eastbound					Westbound					Int
	Sunnyside Ln					Cayce Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
	3.1	3.2	3.3	3.4		3.1	3.6	3.7	3.8		3.9	3.10	3.11	3.12		3.13	3.14	3.15	3.16		
1615 - 1630	24	12	18	0	54	15	13	12	0	40	8	98	27	0	133	31	144	22	0	197	424
1630 - 1645	26	16	13	0	55	17	12	11	0	40	12	116	31	0	159	22	131	17	0	170	424
1645 - 1700	37	21	24	0	82	23	18	12	0	53	8	86	21	0	115	15	126	12	0	153	403
1700 - 1715	37	17	15	0	69	28	24	8	0	60	15	88	23	0	126	21	131	9	0	161	416
Total	124	66	70	0	260	83	67	43	0	193	43	388	102	0	533	89	532	60	0	681	1667
Approach %	47.69	25.38	26.92	0.00	-	43.01	34.72	22.28	0.00	-	8.07	72.80	19.14	0.00	-	13.07	78.12	8.81	0.00	-	-
PHF	0.84	0.79	0.73	0.00	0.79	0.74	0.70	0.90	0.00	0.80	0.72	0.84	0.82	0.00	0.84	0.72	0.92	0.68	0.00	0.86	0.98

Single Unit Trucks (4-7)

Time	Northbound					Southbound					Eastbound					Westbound					Int Total
	Sunnyside Ln					Cayce Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 3.1	Thru 3.2	Right 3.3	U-Turn 3.4	App Total	Left 3.5	Thru 3.6	Right 3.7	U-Turn 3.8	App Total	Left 3.9	Thru 3.10	Right 3.11	U-Turn 3.12	App Total	Left 3.13	Thru 3.14	Right 3.15	U-Turn 3.16	App Total	
1615 - 1630	1	0	1	0	2	0	1	0	0	1	1	1	2	0	4	0	3	0	0	3	10
1630 - 1645	0	1	1	0	2	2	0	1	0	3	0	1	1	0	2	0	2	1	0	3	10
1645 - 1700	0	0	0	0	0	0	0	0	0	0	1	2	1	0	4	0	4	0	0	4	8
1700 - 1715	0	0	1	0	1	1	0	0	0	1	0	1	0	0	1	0	1	0	0	1	4
Total	1	1	3	0	5	3	1	1	0	5	2	5	4	0	11	0	10	1	0	11	32
Approach %	20.00	20.00	60.00	0.00	-	60.00	20.00	20.00	0.00	-	18.18	45.45	36.36	0.00	-	0.00	90.91	9.09	0.00	-	-
PHF	0.25	0.25	0.75	0.00	0.63	0.38	0.25	0.25	0.00	0.42	0.50	0.63	0.50	0.00	0.69	0.00	0.63	0.25	0.00	0.69	0.80

Combination Trucks (8-13)

Time		Northbound					Southbound					Eastbound					Westbound					Int Total
		Sunnyside Ln					Cayce Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
		Left 3.1	Thru 3.2	Right 3.3	U-Turn 3.4	App Total	Left 3.5	Thru 3.6	Right 3.7	U-Turn 3.8	App Total	Left 3.9	Thru 3.10	Right 3.11	U-Turn 3.12	App Total	Left 3.13	Thru 3.14	Right 3.15	U-Turn 3.16	App Total	
1615 - 1630	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2	
1630 - 1645	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	
Total		0	0	0	0	0	0	2	0	2	0	2	0	0	2	0	1	0	0	1	5	
Approach %		0.00	0.00	0.00	0.00	-	0.00	0.00	100.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	
PHF		0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.50	0.00	0.50	0.00	0.00	0.50	0.00	0.25	0.00	0.00	0.25	0.63	



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Peak Hour Turning Movement Count

Columbia, TN



www.marrtraffic.com

Thursday, July 14, 2022	
Period	0700 - 0900
Peak Hour	0715 - 0815

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



All vehicles

Time	Northbound					Southbound					Eastbound					Westbound					Int	Total
	Driveway					Rutherford Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)						
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total		
0715 - 0730	0	0	0	0	0	19	0	4	0	23	9	112	0	0	121	0	58	14	0	72	216	
0730 - 0745	0	0	0	0	0	31	0	1	0	32	8	128	0	0	136	0	70	23	0	93	261	
0745 - 0800	0	0	0	0	0	33	0	5	0	38	0	130	0	0	130	0	71	30	0	101	269	
0800 - 0815	0	0	0	0	0	15	0	4	0	19	7	105	0	0	112	0	42	10	0	52	183	
Total	0	0	0	0	0	98	0	14	0	112	24	475	0	0	499	0	241	77	0	318	929	
Approach %	0.00	0.00	0.00	0.00	-	87.50	0.00	12.50	0.00	-	4.81	95.19	0.00	0.00	-	0.00	75.79	24.21	0.00	-	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.70	0.00	0.74	0.67	0.91	0.00	0.00	0.92	0.00	0.85	0.64	0.00	0.79	0.86	

Bikes

Time	Northbound					Southbound					Eastbound					Westbound					Int	Total
	Driveway					Rutherford Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)						
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total		
0715 - 0730	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0745 - 0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0800 - 0815	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Passenger Vehicles (1-3)

Passenger Vehicles (P.V.)	Northbound					Southbound					Eastbound					Westbound					Int
	Driveway					Rutherford Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total	
Time	0	0	0	0	0	16	0	4	0	20	9	104	0	0	113	0	55	14	0	69	202
0715 - 0730	0	0	0	0	0	28	0	1	0	29	8	124	0	0	132	0	64	22	0	86	247
0730 - 0745	0	0	0	0	0	30	0	5	0	35	0	126	0	0	126	0	64	29	0	93	254
0745 - 0800	0	0	0	0	0	13	0	4	0	17	7	97	0	0	104	0	40	10	0	50	171
0800 - 0815																					
Total	0	0	0	0	0	87	0	14	0	101	24	451	0	0	475	0	223	75	0	298	874
Approach %	0.00	0.00	0.00	0.00	-	86.14	0.00	13.86	0.00	-	5.05	94.95	0.00	0.00	-	0.00	74.83	25.17	0.00	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.73	0.00	0.70	0.00	0.72	0.67	0.89	0.00	0.00	0.90	0.00	0.87	0.65	0.00	0.80	0.86

Single Unit Trucks (4-7)

Time	Northbound					Southbound					Eastbound					Westbound					Int	Total
	Driveway					Rutherford Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)						
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total		
0715 - 0730	0	0	0	0	0	2	0	0	0	2	0	5	0	0	5	0	1	0	0	1	8	
0730 - 0745	0	0	0	0	0	3	0	0	0	3	0	3	0	0	3	0	4	0	0	4	10	
0745 - 0800	0	0	0	0	0	3	0	0	0	3	0	4	0	0	4	0	6	1	0	7	14	
0800 - 0815	0	0	0	0	0	1	0	0	0	1	0	5	0	0	5	0	1	0	0	1	7	
Total	0	0	0	0	0	9	0	0	0	9	0	17	0	0	17	0	12	1	0	13	39	
Approach %	0.00	0.00	0.00	0.00	-	100.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	92.31	7.69	0.00	-	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.00	0.75	0.00	0.85	0.00	0.00	0.85	0.00	0.50	0.25	0.00	0.46	0.70	

Combination Trucks (8-13)

Time		Northbound					Southbound					Eastbound					Westbound					Int	Total
		Driveway					Rutherford Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)						
		Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total		
0715 - 0730		0	0	0	0	0	1	0	0	0	1	0	3	0	0	3	0	2	0	0	2	6	
0730 - 0745		0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	1	0	3	4	
0745 - 0800		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	
0800 - 0815		0	0	0	0	0	1	0	0	0	1	0	3	0	0	3	0	1	0	0	1	5	
Total		0	0	0	0	0	2	0	0	0	2	0	7	0	0	7	0	6	1	0	7	16	
Approach %		0.00	0.00	0.00	0.00	-	100.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	85.71	14.29	0.00	-	-	
PHF		0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.50	0.00	0.58	0.00	0.00	0.58	0.00	0.75	0.25	0.00	0.58	0.67	



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Peak Hour Turning Movement Count

Columbia, TN



www.marrtraffic.com

Thursday, July 14, 2022	
Period	1600 - 1800
Peak Hour	1615 - 1715

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



All vehicles

Time	Northbound					Southbound					Eastbound					Westbound					Int Total
	Driveway					Rutherford Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total	
1615 - 1630	0	0	0	0	0	28	0	13	0	41	12	101	0	0	113	0	150	27	0	177	331
1630 - 1645	0	0	0	0	0	57	0	16	0	73	12	113	0	0	125	0	159	21	0	180	378
1645 - 1700	0	0	0	0	0	22	0	16	0	38	13	94	0	0	107	0	150	23	0	173	318
1700 - 1715	0	0	0	0	0	37	0	14	0	51	14	92	0	0	106	0	149	30	0	179	336
Total	0	0	0	0	0	144	0	59	0	203	51	400	0	0	451	0	608	101	0	709	1363
Approach %	0.00	0.00	0.00	0.00	-	70.94	0.00	29.06	0.00	-	11.31	88.69	0.00	0.00	-	0.00	85.75	14.25	0.00	-	-
PHF	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.92	0.00	0.70	0.91	0.88	0.00	0.00	0.90	0.00	0.96	0.84	0.00	0.98	0.90

Bikes

Time	Northbound					Southbound					Eastbound					Westbound					Int Total
	Driveway					Rutherford Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total	
1615 - 1630	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1630 - 1645	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1700 - 1715	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	100.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	

Passenger Vehicles (1-3)

Time	Northbound					Southbound					Eastbound					Westbound					Int
	Driveway					Rutherford Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total	
1615 - 1630	0	0	0	0	0	27	0	13	0	40	12	97	0	0	109	0	143	27	0	170	319
1630 - 1645	0	0	0	0	0	57	0	16	0	73	12	112	0	0	124	0	157	21	0	178	375
1645 - 1700	0	0	0	0	0	22	0	16	0	38	13	89	0	0	102	0	146	22	0	168	308
1700 - 1715	0	0	0	0	0	37	0	12	0	49	14	90	0	0	104	0	147	29	0	176	329
Total	0	0	0	0	0	143	0	57	0	200	51	388	0	0	439	0	593	99	0	692	1331
Approach %	0.00	0.00	0.00	0.00	-	71.50	0.00	28.50	0.00	-	11.62	88.38	0.00	0.00	-	0.00	85.69	14.31	0.00	-	-
PHF	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.89	0.00	0.68	0.91	0.87	0.00	0.00	0.89	0.00	0.94	0.85	0.00	0.97	0.89

Single Unit Trucks (4-7)

Time	Northbound					Southbound					Eastbound					Westbound					Int Total
	Driveway					Rutherford Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total	
1615 - 1630	0	0	0	0	0	1	0	0	0	1	0	3	0	0	3	0	5	0	0	5	9
1630 - 1645	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	3
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	4	1	0	5	9
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	1	1	0	2	4
Total	0	0	0	0	0	1	0	0	0	1	0	10	0	0	10	0	12	2	0	14	25
Approach %	0.00	0.00	0.00	0.00	-	100.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	85.71	14.29	0.00	-	-
PHF	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.25	0.00	0.63	0.00	0.00	0.63	0.00	0.60	0.50	0.00	0.70	0.69

Combination Trucks (8-13)

Time		Northbound					Southbound					Eastbound					Westbound					Int
		Driveway					Rutherford Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
		Left 4.1	Thru 4.2	Right 4.3	U-Turn 4.4	App Total	Left 4.5	Thru 4.6	Right 4.7	U-Turn 4.8	App Total	Left 4.9	Thru 4.10	Right 4.11	U-Turn 4.12	App Total	Left 4.13	Thru 4.14	Right 4.15	U-Turn 4.16	App Total	
1615 - 1630		0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	3	
1630 - 1645		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1645 - 1700		0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	
1700 - 1715		0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	2	
Total		0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	0	3	0	0	3	6
Approach %		0.00	0.00	0.00	0.00	-	0.00	0.00	100.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	-
PHF		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25	0.00	0.50	0.00	0.00	0.50	0.00	0.38	0.00	0.00	0.38	0.50



[Click here for Map](#)

Peak Hour Turning Movement Count

Columbia, TN



www.marrtraffic.com

Thursday, July 14, 2022	
Period	0700 - 0900
Peak Hour	0715 - 0815

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



All vehicles

Time	Northbound					Eastbound					Westbound					Int Total				
	Old Sunnyside Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)									
	Left 2.1	Right 2.2	U-Turn 2.3	App Total		Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Thru 2.8	U-Turn 2.9	App Total							
0715 - 0730	7	-	6	0	13	-	-	-	0	-	121	6	0	127	3	49	-	0	52	192
0730 - 0745	6	-	11	0	17	-	-	-	0	-	116	15	0	131	0	66	-	0	66	214
0745 - 0800	8	-	6	0	14	-	-	-	0	-	120	13	0	133	4	54	-	0	58	205
0800 - 0815	2	-	2	0	4	-	-	-	0	-	84	7	0	91	2	35	-	0	37	132
Total	23	0	25	0	48	0	0	0	0	0	441	41	0	482	9	204	0	0	213	743
Approach %	47.92	0.00	52.08	0.00	-	0.00	0.00	0.00	0.00	-	0.00	91.49	8.51	0.00	-	4.23	95.77	0.00	0.00	-
PHF	0.72	0.00	0.57	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.91	0.68	0.00	0.91	0.56	0.77	0.00	0.00	0.81	0.87

Bikes

Time	Northbound					Eastbound					Westbound					Int Total				
	Old Sunnyside Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)									
	Left 2.1		Right 2.2	U-Turn 2.3	App Total					App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7		Thru 2.8		U-Turn 2.9	App Total
0715 - 0730	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	-	0	0	0
0730 - 0745	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
0745 - 0800	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
0800 - 0815	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Passenger Vehicles (1-3)

Time	Northbound										Eastbound					Westbound					Int Total
	Old Sunnyside Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 2.1		Right 2.2	U-Turn 2.3	App Total					App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Thru 2.8		U-Turn 2.9	App Total		
0715 - 0730	7	-	6	0	13	-	-	-	-	0	-	111	6	0	117	3	47	-	0	50	180
0730 - 0745	6	-	11	0	17	-	-	-	-	0	-	114	15	0	129	0	60	-	0	60	206
0745 - 0800	8	-	6	0	14	-	-	-	-	0	-	115	12	0	127	4	47	-	0	51	192
0800 - 0815	2	-	2	0	4	-	-	-	-	0	-	78	7	0	85	2	32	-	0	34	123
Total	23	0	25	0	48	0	0	0	0	0	0	418	40	0	458	9	186	0	0	195	701
Approach %	47.92	0.00	52.08	0.00	-	0.00	0.00	0.00	0.00	-	0.00	91.27	8.73	0.00	-	4.62	95.38	0.00	0.00	-	
PHF	0.72	0.00	0.57	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.67	0.00	0.89	0.56	0.78	0.00	0.00	0.81	0.85

Single Unit Trucks (4-7)

Single Unit Trucks (477)	Northbound										Eastbound					Westbound					Int Total
	Old Sunnyside Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 2.1	Right 2.2	U-Turn 2.3	App Total					App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Thru 2.8	U-Turn 2.9	App Total				
Time	0	-	0	0	0	-	-	-	-	0	-	7	0	0	7	0	1	-	0	1	8
0715 - 0730	0	-	0	0	0	-	-	-	-	0	-	1	0	0	1	0	4	-	0	4	5
0730 - 0745	0	-	0	0	0	-	-	-	-	0	-	5	1	0	6	0	5	-	0	5	11
0745 - 0800	0	-	0	0	0	-	-	-	-	0	-	3	0	0	3	0	2	-	0	2	5
0800 - 0815	0	-	0	0	0	-	-	-	-	0	-	3	0	0	3	0	2	-	0	2	5
	0	0	0	0	0	0	0	0	0	0	0	16	1	0	17	0	12	0	0	12	29
Total	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	94.12	5.88	0.00	-	0.00	100.00	0.00	0.00	-	
Approach %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.25	0.00	0.61	0.00	0.60	0.00	0.00	0.60	0.66
PHF																					

Combination Trucks (8-13)

Time		Northbound					Eastbound					Westbound					Int Total				
		Old Sunnyside Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)									
		Left 2.1	Right 2.2	U-Turn 2.3	App Total					App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Thru 2.8		U-Turn 2.9	App Total		
0715 - 0730	0	-	0	0	0	-	-	-	-	0	-	3	0	0	3	0	1	-	0	1	4
0730 - 0745	0	-	0	0	0	-	-	-	-	0	-	1	0	0	1	0	2	-	0	2	3
0745 - 0800	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	2	-	0	2	2
0800 - 0815	0	-	0	0	0	-	-	-	-	0	-	3	0	0	3	0	1	-	0	1	4
Total		0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	6	0	0	6	13
Approach %		0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-
PHF		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.58	0.00	0.75	0.00	0.00	0.75	0.81



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Peak Hour Turning Movement Count

Columbia, TN



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Thursday, July 14, 2022	
Period	1600 - 1800
Peak Hour	1630 - 1730

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



All vehicles

Time	Northbound										Eastbound					Westbound					Int Total
	Old Sunnyside Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 2.1		Right 2.2	U-Turn 2.3	App Total					App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Thru 2.8		U-Turn 2.9	App Total		
1630 - 1645	4	-	3	0	7	-	-	-	-	0	-	84	4	0	88	6	129	-	0	135	230
1645 - 1700	13	-	2	0	15	-	-	-	-	0	-	69	7	0	76	8	122	-	0	130	221
1700 - 1715	11	-	6	0	17	-	-	-	-	0	-	79	6	0	85	5	130	-	0	135	237
1715 - 1730	14	-	7	0	21	-	-	-	-	0	-	82	1	0	83	2	128	-	0	130	234
Total	42	0	18	0	60	0	0	0	0	0	0	314	18	0	332	21	509	0	0	530	922
Approach %	70.00	0.00	30.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	94.58	5.42	0.00	-	3.96	96.04	0.00	0.00	-	
PHF	0.75	0.00	0.64	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.64	0.00	0.94	0.66	0.98	0.00	0.00	0.98	0.97

Bikes

Time	Northbound					Eastbound					Westbound					Int Total				
	Old Sunnyside Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)									
	Left 2.1		Right 2.2	U-Turn 2.3	App Total					App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7		Thru 2.8		U-Turn 2.9	App Total
1630 - 1645	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	-	0	0	0
1645 - 1700	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
1700 - 1715	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
1715 - 1730	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Passenger Vehicles (1-3)

Time	Northbound					Eastbound					Westbound					Int Total					
	Old Sunnyside Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)										
	Left 2.1	Right 2.2	U-Turn 2.3	App Total		Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Thru 2.8	U-Turn 2.9	App Total								
1630 - 1645	4	-	3	0	7	-	-	-	-	0	-	83	4	0	87	6	127	-	0	133	227
1645 - 1700	13	-	2	0	15	-	-	-	-	0	-	66	7	0	73	8	119	-	0	127	215
1700 - 1715	11	-	6	0	17	-	-	-	-	0	-	77	6	0	83	5	127	-	0	132	232
1715 - 1730	14	-	7	0	21	-	-	-	-	0	-	81	1	0	82	2	127	-	0	129	232
Total	42	0	18	0	60	0	0	0	0	0	0	307	18	0	325	21	500	0	0	521	906
Approach %	70.00	0.00	30.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	94.46	5.54	0.00	-	4.03	95.97	0.00	0.00	-	
PHF	0.75	0.00	0.64	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.64	0.00	0.93	0.66	0.98	0.00	0.00	0.98	0.98

Single Unit Trucks (4-7)

Time	Northbound					Eastbound					Westbound					Int Total					
	Old Sunnyside Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)										
	Left 2.1	Right 2.2	U-Turn 2.3	App Total					App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Thru 2.8		U-Turn 2.9	App Total			
1630 - 1645	0	-	0	0	0	-	-	-	-	0	-	1	0	0	1	0	2	-	0	2	3
1645 - 1700	0	-	0	0	0	-	-	-	-	0	-	3	0	0	3	0	3	-	0	3	6
1700 - 1715	0	-	0	0	0	-	-	-	-	0	-	2	0	0	2	0	1	-	0	1	3
1715 - 1730	0	-	0	0	0	-	-	-	-	0	-	1	0	0	1	0	1	-	0	1	2
Total	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	7	0	0	7	14
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.58	0.00	0.58	0.00	0.00	0.58	0.58

Combination Trucks (8-13)

Time	Northbound					Eastbound					Westbound					Int Total				
	Old Sunnyside Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)									
	Left 2.1	Right 2.2	U-Turn 2.3	App Total					App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Thru 2.8		U-Turn 2.9	App Total		
1630 - 1645	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	-	0	0	0
1645 - 1700	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
1700 - 1715	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	2	-	0	2
1715 - 1730	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.25	0.25



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Peak Hour Turning Movement Count

Columbia, TN



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Thursday, July 14, 2022	
Period	0700 - 0900
Peak Hour	0715 - 0815

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



All vehicles

Time	Northbound										Eastbound					Westbound					Int Total
	Foster Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 1.1		Right 1.2	U-Turn 1.3	App Total					App Total		Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8		U-Turn 1.9	App Total	
0715 - 0730	0	-	0	0	0	-	-	-	-	0	-	127	0	0	127	0	52	-	0	52	
0730 - 0745	0	-	0	0	0	-	-	-	-	0	-	131	0	0	131	0	70	-	0	70	
0745 - 0800	0	-	0	0	0	-	-	-	-	0	-	131	0	0	131	0	66	-	0	66	
0800 - 0815	0	-	0	0	0	-	-	-	-	0	-	91	0	0	91	0	36	-	0	36	
Total	0	0	0	0	0	0	0	0	0	0	0	480	0	0	480	0	224	0	0	224	
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00	0.92	0.00	0.80	0.00	0.00	0.80	

Bikes

Time	Northbound										Eastbound					Westbound					Int Total
	Foster Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 1.1		Right 1.2	U-Turn 1.3	App Total					App Total		Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8	U-Turn 1.9	App Total		
0715 - 0730	0	-	0	0	0	-	-	-	-	0	-	1	0	0	1	0	0	-	0	1	
0730 - 0745	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0	
0745 - 0800	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0	
0800 - 0815	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.25	

Passenger Vehicles (1-3)

Passenger Vehicles (1-3)		Northbound										Eastbound					Westbound					Int Total
		Foster Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
		Left 1.1	Right 1.2	U-Turn 1.3	App Total					App Total		Thru 1.4	Right 1.5	U-Turn 1.6	App Total		Left 1.7	Thru 1.8	U-Turn 1.9	App Total		
Time																						
0715 - 0730	0	-	0	0	0	-	-	-	-	0	-	115	0	0	115	0	50	-	0	50	165	
0730 - 0745	0	-	0	0	0	-	-	-	-	0	-	128	0	0	128	0	64	-	0	64	192	
0745 - 0800	0	-	0	0	0	-	-	-	-	0	-	127	0	0	127	0	59	-	0	59	186	
0800 - 0815	0	-	0	0	0	-	-	-	-	0	-	85	0	0	85	0	33	-	0	33	118	
Total	0	0	0	0	0	0	0	0	0	0	0	455	0	0	455	0	206	0	0	206	661	
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-		
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89	0.00	0.00	0.89	0.00	0.80	0.00	0.00	0.80	0.86	

Single Unit Trucks (4-7)

Time	Northbound										Eastbound					Westbound					Int Total
	Foster Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 1.1	Right 1.2	U-Turn 1.3	App Total					App Total		Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8	U-Turn 1.9	App Total			
0715 - 0730	0	-	0	0	0	-	-	-	-	0	-	8	0	0	8	0	1	-	0	1	9
0730 - 0745	0	-	0	0	0	-	-	-	-	0	-	2	0	0	2	0	4	-	0	4	6
0745 - 0800	0	-	0	0	0	-	-	-	-	0	-	4	0	0	4	0	5	-	0	5	9
0800 - 0815	0	-	0	0	0	-	-	-	-	0	-	2	0	0	2	0	2	-	0	2	4
Total	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	0	12	0	0	12	28
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.50	0.00	0.60	0.00	0.00	0.60	0.78

Combination Trucks (8-13)

Time		Northbound										Eastbound					Westbound					Int
		Foster Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
		Left 1.1	Right 1.2	U-Turn 1.3	App Total					App Total	Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8	U-Turn 1.9	App Total				
0715 - 0730	0	-	0	0	0	-	-	-	-	0	-	3	0	0	3	0	1	-	0	1	4	
0730 - 0745	0	-	0	0	0	-	-	-	-	0	-	1	0	0	1	0	2	-	0	2	3	
0745 - 0800	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	2	-	0	2	2	
0800 - 0815	0	-	0	0	0	-	-	-	-	0	-	4	0	0	4	0	1	-	0	1	5	
Total		0	0	0	0	0	0	0	0	0	0	8	0	0	8	0	6	0	0	6	14	
Approach %		0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	
PHF		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.50	0.00	0.75	0.00	0.00	0.75	0.70	



[Click here for Map](#)

Peak Hour Turning Movement Count

Columbia, TN



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Thursday, July 14, 2022	
Period	1600 - 1800
Peak Hour	1600 - 1700

* the Peak Hour Diagram does not include Bikes

Session Parameters

(Drop Down Menu)

Peak Hour

Volume



All vehicles

Time	Northbound										Eastbound					Westbound					Int Total
	Foster Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 1.1		Right 1.2	U-Turn 1.3	App Total					App Total		Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8		U-Turn 1.9	App Total	
1600 - 1615	0	-	0	0	0	-	-	-	-	0	-	89	0	0	89	0	137	-	0	137	226
1615 - 1630	0	-	0	0	0	-	-	-	-	0	-	88	0	0	88	0	138	-	0	138	226
1630 - 1645	0	-	0	0	0	-	-	-	-	0	-	88	0	0	88	0	132	-	0	132	220
1645 - 1700	0	-	0	0	0	-	-	-	-	0	-	77	0	0	77	0	136	-	0	136	213
Total	0	0	0	0	0	0	0	0	0	0	0	342	0	0	342	0	543	0	0	543	885
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	-
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.00	0.96	0.00	0.98	0.00	0.00	0.98	0.98

Bikes

Time	Northbound										Eastbound					Westbound				
	Foster Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)				
	Left 1.1		Right 1.2	U-Turn 1.3	App Total					App Total	Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8	U-Turn 1.9	App Total	Int Total	
1600 - 1615	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
1615 - 1630	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
1630 - 1645	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
1645 - 1700	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	0	-	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Passenger Vehicles (1-3)

Time	Northbound										Eastbound					Westbound					Int Total
	Foster Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
	Left 1.1	Right 1.2	U-Turn 1.3	App Total					App Total		Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8	U-Turn 1.9	App Total			
1600 - 1615	0	-	0	0	0	-	-	-	-	0	-	86	0	0	86	0	135	-	0	135	221
1615 - 1630	0	-	0	0	0	-	-	-	-	0	-	86	0	0	86	0	133	-	0	133	219
1630 - 1645	0	-	0	0	0	-	-	-	-	0	-	87	0	0	87	0	130	-	0	130	217
1645 - 1700	0	-	0	0	0	-	-	-	-	0	-	72	0	0	72	0	133	-	0	133	205
Total	0	0	0	0	0	0	0	0	0	0	0	331	0	0	331	0	531	0	0	531	862
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	-
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.00	0.95	0.00	0.98	0.00	0.00	0.98	0.98

Single Unit Trucks (4-7)

Time	Northbound										Eastbound					Westbound					Int Total
	Foster Ln					TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)										
	Left 1.1	Right 1.2	U-Turn 1.3	App Total		Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8	U-Turn 1.9	App Total								
1600 - 1615	0	-	0	0	0	-	-	-	-	0	-	1	0	0	1	0	1	-	0	1	2
1615 - 1630	0	-	0	0	0	-	-	-	-	0	-	2	0	0	2	0	4	-	0	4	6
1630 - 1645	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	2	-	0	2	2
1645 - 1700	0	-	0	0	0	-	-	-	-	0	-	4	0	0	4	0	3	-	0	3	7
Total	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	10	0	0	10	17
Approach %	0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	-
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.44	0.00	0.63	0.00	0.00	0.63	0.61

Combination Trucks (8-13)

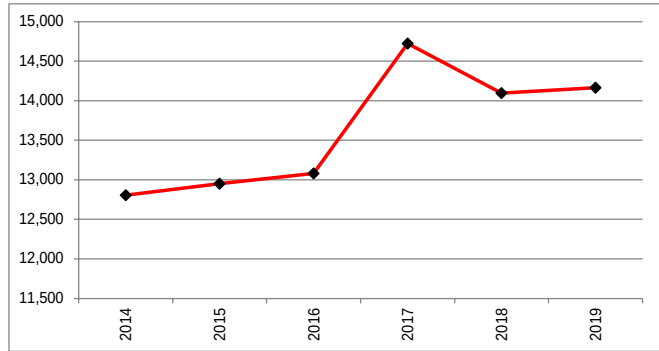
Time		Northbound										Eastbound					Westbound					Int Total
		Foster Ln										TN-243 Trotwood Ave (West)					TN-243 Trotwood Ave (East)					
		Left 1.1	Right 1.2	U-Turn 1.3	App Total					App Total		Thru 1.4	Right 1.5	U-Turn 1.6	App Total	Left 1.7	Thru 1.8	U-Turn 1.9	App Total			
1600 - 1615	0	-	0	0	0	-	-	-	-	0	-	2	0	0	2	0	1	-	0	1	3	
1615 - 1630	0	-	0	0	0	-	-	-	-	0	-	0	0	0	0	0	1	-	0	1	1	
1630 - 1645	0	-	0	0	0	-	-	-	-	0	-	1	0	0	1	0	0	-	0	0	1	
1645 - 1700	0	-	0	0	0	-	-	-	-	0	-	1	0	0	1	0	0	-	0	0	1	
Total		0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	2	0	0	2	6	
Approach %		0.00	0.00	0.00	0.00	-	0.00	0.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	0.00	100.00	0.00	0.00	-	
PHF		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.50	0.00	0.50	0.00	0.00	0.50	0.50	

Volume Development

Growth Rate Calculations - Trotwood & Foster Subdivision

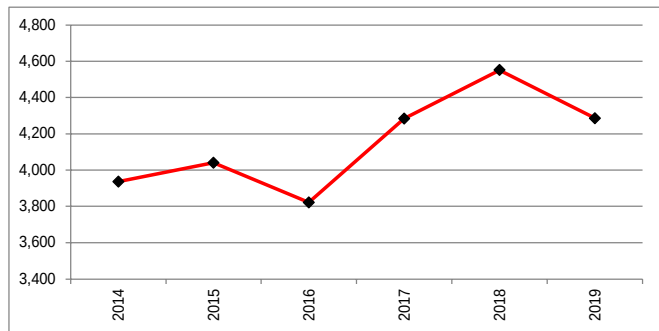
Station	60000167		
Route	Trotwood Avenue		
Location	SW of Sunnyside Lane		
Count Type	Count Year	AADT	Annual Growth Rate
Estimated	2014	12,804	
Actual	2015	12,949	1.1%
Estimated	2016	13,078	1.0%
Actual	2017	14,724	12.6%
Actual	2018	14,095	-4.3%
Actual	2019	14,164	0.5%

	AADT
5 Year Growth Rate	2.0%
Average 1 Year Growth Rate	2.2%
Most Recent Actual Count Growth Rate	0.5%



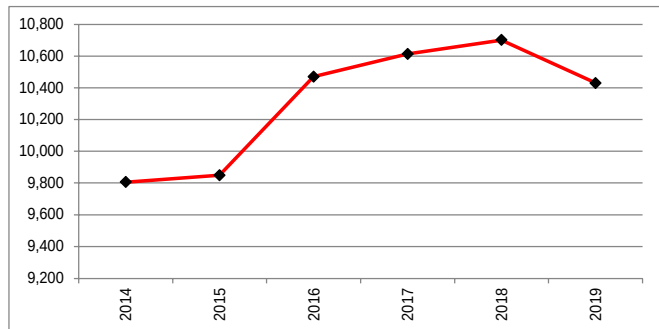
Station	6000019441		
Route	Sunnyside Lane		
Location	N of Harris Street		
Count Type	Count Year	AADT	Annual Growth Rate
Actual	2014	3,936	
Actual	2015	4,040	2.6%
Estimated	2016	3,822	-5.4%
Actual	2017	4,284	12.1%
Actual	2018	4,552	6.3%
Actual	2019	4,286	-5.8%

	AADT
5 Year Growth Rate	1.7%
Average 1 Year Growth Rate	1.9%
Most Recent Actual Count Growth Rate	-5.8%



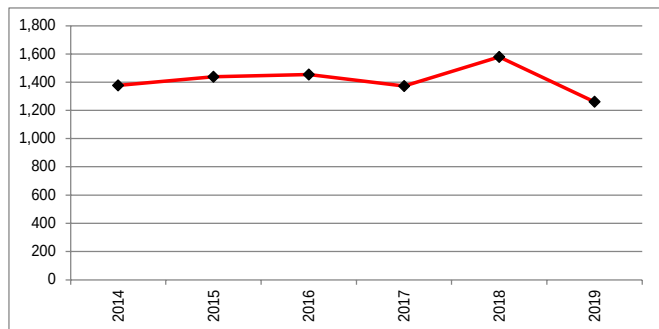
Station	60000234		
Route	Trotwood Avenue		
Location	S of Foster Lane		
Count Type	Count Year	AADT	Annual Growth Rate
Actual	2014	9,806	
Actual	2015	9,849	0.4%
Actual	2016	10,470	6.3%
Actual	2017	10,613	1.4%
Actual	2018	10,702	0.8%
Actual	2019	10,431	-2.5%

	AADT
5 Year Growth Rate	1.2%
Average 1 Year Growth Rate	1.3%
Most Recent Actual Count Growth Rate	-2.5%



Station	60000190		
Route	Greymere Manor Road		
Location	N of Mere Drive		
Count Type	Count Year	AADT	Annual Growth Rate
Actual	2014	1,377	
Actual	2015	1,438	4.4%
Estimated	2016	1,453	1.0%
Estimated	2017	1,373	-5.5%
Actual	2018	1,579	15.0%
Actual	2019	1,261	-20.1%

	AADT
5 Year Growth Rate	-1.7%
Average 1 Year Growth Rate	-1.0%
Most Recent Actual Count Growth Rate	-20.1%



Trip Generation - Trotwood & Foster Subdivision											
ITE Code	Land Use	Setting/Location	Density	Daily	AM Peak Hour			PM Peak Hour			
					Total	Enter	Exit	Total	Enter	Exit	
210	Single-Family Detached Housing	General Urban/Suburban	126	d.u.	1,248	92	24	68	123	77	46
NEW TRIPS					1,248	92	24	68	123	77	46

INTERSECTION VOLUME WORKSHEET

INTERSECTION 1
Trotwood Avenue at Cayce Lane / Sunnyside Lane
AM PEAK HOUR

	Trotwood Avenue Eastbound				Trotwood Avenue Westbound				Sunnyside Lane Northbound				Cayce Lane Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes	0	23	458	54	0	51	256	38	0	73	54	96	0	77	54	18	1252
Summer AM Adjustment Factor	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	
Adjusted 2022 AM Volumes	0	32	632	75	0	70	353	52	0	101	75	132	0	106	75	25	1728
Existing Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Conflicting Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Heavy Vehicles	0	2	26	3	0	3	22	1	0	4	3	0	0	1	2	0	
Heavy Vehicle %	2	9	6	6	2	6	9	3	2	5	6	2	2	2	4	2	
Background Traffic																	
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	
Growth Trips	0	3	59	7	0	7	33	5	0	9	7	12	0	10	7	2	161
Sunnyside Gas Station	0	0	22	9	0	0	-19	0	0	50	9	0	0	4	4	0	79
No-Build 2025 AM Volumes	0	35	713	91	0	77	367	57	0	160	91	144	0	120	86	27	1968
Project Traffic																	
Trip Distribution IN						10%	50%								5%		
Trip Distribution OUT			50%								5%	10%					
Project Trips	0	0	34	0	0	2	12	0	0	0	3	7	0	0	1	0	59
Project Trips (unbalanced)	0	0	34	0	0	2	12	0	0	0	3	7	0	0	1	0	59
Balancing Adjustment																	
Pass-By Adjustment																	
Project Trips	0	0	34	0	0	2	12	0	0	0	3	7	0	0	1	0	59
Build 2025 AM Volumes	0	35	747	91	0	79	379	57	0	160	94	151	0	120	87	27	2027
% from Existing	0.0%	66.2%	61.3%	59.7%	0.0%	64.2%	67.5%	66.2%	0.0%	45.7%	57.7%	63.4%	0.0%	64.0%	62.4%	67.1%	61.8%
% from Background Growth	0.0%	33.8%	34.1%	40.3%	0.0%	33.2%	29.3%	33.8%	0.0%	54.3%	39.1%	32.0%	0.0%	36.0%	36.4%	32.9%	35.3%
% from Project Trips	0.0%	0.0%	4.6%	0.0%	0.0%	2.5%	3.2%	0.0%	0.0%	0.0%	3.2%	4.6%	0.0%	0.0%	1.2%	0.0%	2.9%

PM PEAK HOUR

	Trotwood Avenue Eastbound				Trotwood Avenue Westbound				Sunnyside Lane Northbound				Cayce Lane Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes	0	45	395	106	0	89	543	61	0	125	67	73	0	86	68	46	1704
Summer PM Adjustment Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Adjusted 2022 PM Volumes	0	48	423	113	0	95	581	65	0	134	72	78	0	92	73	49	1823
Existing Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Conflicting Pedestrians	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	
Heavy Vehicles	0	2	7	4	0	0	11	1	0	1	1	3	0	3	1	3	
Heavy Vehicle %	2	4	2	4	2	2	2	2	2	2	2	4	2	3	2	7	
Background Traffic																	
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	
Growth Trips	0	4	39	11	0	9	54	6	0	12	7	7	0	9	7	5	170
Sunnyside Gas Station	0	0	18	7	0	0	-16	0	0	42	7	0	0	4	4	0	66
No-Build 2025 PM Volumes	0	52	480	131	0	104	619	71	0	188	86	85	0	105	84	54	2059
Project Traffic																	
Trip Distribution IN						10%	50%								5%		
Trip Distribution OUT			50%								5%	10%					
Project Trips	0	0	23	0	0	8	39	0	0	0	2	5	0	0	4	0	81
Project Trips (unbalanced)	0	0	23	0	0	8	39	0	0	0	2	5	0	0	4	0	81
Balancing Adjustment																	
Pass-By Adjustment																	
Project Trips	0	0	23	0	0	8	39	0	0	0	2	5	0	0	4	0	81
Build 2025 PM Volumes	0	52	503	131	0	112	658	71	0	188	88	90	0	105	88	54	2140
% from Existing	0.0%	86.3%	78.6%	80.7%	0.0%	79.3%	82.5%	85.6%	0.0%	66.6%	76.4%	81.0%	0.0%	81.9%	77.5%	84.8%	79.6%
% from Background Growth	0.0%	13.7%	16.8%	19.3%	0.0%	13.6%	11.6%	14.4%	0.0%	33.4%	21.3%	13.4%	0.0%	18.1%	18.0%	15.2%	16.6%
% from Project Trips	0.0%	0.0%	4.6%	0.0%	0.0%	7.1%	5.9%	0.0%	0.0%	0.0%	2.3%	5.5%	0.0%	0.0%	4.6%	0.0%	3.8%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 2
Trotwood Avenue at Rutherford Lane
AM PEAK HOUR

	Trotwood Avenue Eastbound				Trotwood Avenue Westbound				Driveway Northbound				Rutherford Lane Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes	0	24	475	0	0	0	241	77	0	0	0	0	0	98	0	14	929
Summer AM Adjustment Factor	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	
Adjusted 2022 AM Volumes	0	33	656	0	0	0	333	106	0	0	0	0	0	135	0	19	1282
Existing Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Conflicting Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Heavy Vehicles	0	0	24	0	0	0	18	2	0	0	0	0	0	11	0	0	
Heavy Vehicle %	2	2	5	2	2	2	7	3	2	2	2	2	2	11	2	2	
Background Traffic																	
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	
Growth Trips	0	3	61	0	0	0	31	10	0	0	0	0	0	13	0	2	120
Sunnyside Gas Station	0	0	31	0	0	0	31	0	0	0	0	0	0	0	0	0	62
No-Build 2025 AM Volumes	0	36	748	0	0	0	395	116	0	0	0	0	0	148	0	21	1464
Project Traffic																	
Trip Distribution IN							50%									5%	
Trip Distribution OUT		5%	50%														
Project Trips	0	3	34	0	0	0	12	0	0	0	0	0	0	0	0	1	50
Project Trips (unbalanced)	0	3	34	0	0	0	12	0	0	0	0	0	0	0	0	1	50
Balancing Adjustment																	
Pass-By Adjustment																	
Project Trips	0	3	34	0	0	0	12	0	0	0	0	0	0	0	0	1	50
Build 2025 AM Volumes	0	39	782	0	0	0	407	116	0	0	0	0	0	148	0	22	1514
% from Existing	0.0%	61.3%	60.8%	0.0%	0.0%	0.0%	59.3%	66.2%	0.0%	0.0%	0.0%	0.0%	0.0%	66.1%	0.0%	62.7%	61.4%
% from Background Growth	0.0%	31.0%	34.9%	0.0%	0.0%	0.0%	37.8%	33.8%	0.0%	0.0%	0.0%	0.0%	0.0%	33.9%	0.0%	32.8%	35.3%
% from Project Trips	0.0%	7.7%	4.4%	0.0%	0.0%	0.0%	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.5%	3.3%

PM PEAK HOUR

	Trotwood Avenue Eastbound				Trotwood Avenue Westbound				Driveway Northbound				Rutherford Lane Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes	0	51	400	0	0	0	608	101	0	0	0	0	0	144	0	58	1362
Summer PM Adjustment Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Adjusted 2022 PM Volumes	0	55	428	0	0	0	651	108	0	0	0	0	0	154	0	62	1457
Existing 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	0.90	0.90	0.90	0.90	
Conflicting Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Heavy Vehicles	0	0	12	0	0	0	15	2	0	0	0	0	0	1	0	1	
Heavy Vehicle %	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	
Growth Trips	0	5	40	0	0	0	61	10	0	0	0	0	0	14	0	6	136
Sunnyside Gas Station	0	0	25	0	0	0	26	0	0	0	0	0	0	0	0	0	51
No-Build 2025 PM Volumes	0	60	493	0	0	0	738	118	0	0	0	0	0	168	0	68	1644
Project Traffic																	
Trip Distribution IN							50%									5%	
Trip Distribution OUT		5%	50%														
Project Trips	0	2	23	0	0	0	39	0	0	0	0	0	0	0	0	4	68
Project Trips (unbalanced)	0	2	23	0	0	0	39	0	0	0	0	0	0	0	0	4	68
Balancing Adjustment																	
Pass-By Adjustment																	
Project Trips	0	2	23	0	0	0	39	0	0	0	0	0	0	0	0	4	68
Build 2025 PM Volumes	0	62	516	0	0	0	777	118	0	0	0	0	0	168	0	72	1712
% from Existing	0.0%	82.8%	77.5%	0.0%	0.0%	0.0%	78.3%	85.5%	0.0%	0.0%	0.0%	0.0%	0.0%	85.7%	0.0%	80.5%	79.5%
% from Background Growth	0.0%	13.9%	18.0%	0.0%	0.0%	0.0%	16.7%	14.5%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	0.0%	14.0%	16.5%
% from Project Trips	0.0%	3.2%	4.5%	0.0%	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.6%	4.0%

INTERSECTION VOLUME WORKSHEET

INTERSECTION 3
Trotwood Avenue at Old Sunnyside Lane
AM PEAK HOUR

	Trotwood Avenue Eastbound				Trotwood Avenue Westbound				Old Sunnyside Lane Northbound				- Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes	0	0	441	41	0	9	204	0	0	23	0	25					743
Summer AM Adjustment Factor	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	
Adjusted 2022 AM Volumes	0	0	609	57	0	12	282	0	0	32	0	35	0	0	0	0	1025
Existing Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	
Conflicting Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0					
Heavy Vehicles	0	0	23	1	0	0	18	0	0	0	0	0					
Heavy Vehicle %	2	2	5	2	2	2	9	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	
Growth Trips	0	0	57	5	0	1	26	0	0	3	0	3	0	0	0	0	95
Sunnyside Gas Station	0	0	31	0	0	0	31	0	0	0	0	0					62
No-Build 2025 AM Volumes	0	0	697	62	0	13	339	0	0	35	0	38	0	0	0	0	1182
Project Traffic																	
Trip Distribution IN						10%	45%										
Trip Distribution OUT			45%										10%				
Project Trips	0	0	31	0	0	2	11	0	0	0	0	7	0	0	0	0	51
Project Trips (unbalanced)	0	0	31	0	0	2	11	0	0	0	0	7	0	0	0	0	51
Balancing Adjustment																	
Pass-By Adjustment																	
Project Trips	0	0	31	0	0	2	11	0	0	0	0	7	0	0	0	0	51
Build 2025 AM Volumes	0	0	728	62	0	15	350	0	0	35	0	45	0	0	0	0	1233
% from Existing	0.0%	0.0%	60.6%	66.6%	0.0%	58.4%	58.4%	0.0%	0.0%	66.2%	0.0%	56.2%	0.0%	0.0%	0.0%	0.0%	60.2%
% from Background Growth	0.0%	0.0%	35.1%	33.4%	0.0%	28.7%	38.5%	0.0%	0.0%	33.8%	0.0%	28.1%	0.0%	0.0%	0.0%	0.0%	35.6%
% from Project Trips	0.0%	0.0%	4.3%	0.0%	0.0%	13.0%	3.1%	0.0%	0.0%	0.0%	0.0%	15.7%	0.0%	0.0%	0.0%	0.0%	4.1%

PM PEAK HOUR

	Trotwood Avenue Eastbound				Trotwood Avenue Westbound				Old Sunnyside Lane Northbound				- Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes	0	0	314	18	0	21	509	0	0	42	0	18					922
Summer PM Adjustment Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Adjusted 2022 PM Volumes	0	0	336	19	0	22	545	0	0	45	0	19	0	0	0	0	987
Existing Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Conflicting Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0					
Heavy Vehicles	0	0	7	0	0	0	9	0	0	0	0	0					
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	
Growth Trips	0	0	31	2	0	2	51	0	0	4	0	2	0	0	0	0	92
Sunnyside Gas Station	0	0	25	0	0	0	26	0	0	0	0	0					51
No-Build 2025 PM Volumes	0	0	392	21	0	24	622	0	0	49	0	21	0	0	0	0	1130
Project Traffic																	
Trip Distribution IN						10%	45%										
Trip Distribution OUT			45%										10%				
Project Trips	0	0	21	0	0	8	35	0	0	0	0	5	0	0	0	0	69
Project Trips (unbalanced)	0	0	21	0	0	8	35	0	0	0	0	5	0	0	0	0	69
Balancing Adjustment																	
Pass-By Adjustment																	
Project Trips	0	0	21	0	0	8	35	0	0	0	0	5	0	0	0	0	69
Build 2025 PM Volumes	0	0	413	21	0	32	657	0	0	49	0	26	0	0	0	0	1199
% from Existing	0.0%	0.0%	76.0%	84.7%	0.0%	64.7%	77.5%	0.0%	0.0%	85.8%	0.0%	68.5%	0.0%	0.0%	0.0%	0.0%	76.9%
% from Background Growth	0.0%	0.0%	18.9%	15.3%	0.0%	10.7%	17.2%	0.0%	0.0%	14.2%	0.0%	12.4%	0.0%	0.0%	0.0%	0.0%	17.3%
% from Project Trips	0.0%	0.0%	5.1%	0.0%	0.0%	24.6%	5.3%	0.0%	0.0%	0.0%	0.0%	19.0%	0.0%	0.0%	0.0%	0.0%	5.8%

INTERSECTION VOLUME WORKSHEET

**INTERSECTION 4
Trotwood Avenue at Foster Lane
AM PEAK HOUR**

	Trotwood Avenue Eastbound				Trotwood Avenue Westbound				Foster Lane Northbound				Foster Lane Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes	0	0	479	0	0	0	224	0	0	0	0	0					703
Summer AM Adjustment Factor	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	
Adjusted 2022 AM Volumes	0	0	661	0	0	0	309	0	0	0	0	0	0	0	0	0	970
Existing Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	
Conflicting Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0					
Heavy Vehicles	0	0	24	0	0	0	18	0	0	0	0	0					
Heavy Vehicle %	2	2	5	2	2	2	8	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	
Growth Trips	0	0	61	0	0	0	29	0	0	0	0	0	0	0	0	0	90
Sunnyside Gas Station	0	0	31	0	0	0	31	0	0	0	0	0					62
No-Build 2025 AM Volumes	0	0	753	0	0	0	369	0	0	0	0	0	0	0	0	0	1122
Project Traffic																	
Trip Distribution IN				30%		45%											
Trip Distribution OUT										30%		45%					
Project Trips	0	0	0	7	0	11	0	0	0	20	0	31	0	0	0	0	69
Project Trips (unbalanced)	0	0	0	7	0	11	0	0	0	20	0	31	0	0	0	0	69
Balancing Adjustment																	
Pass-By Adjustment																	
Project Trips	0	0	0	7	0	11	0	0	0	20	0	31	0	0	0	0	69
Build 2025 AM Volumes	0	0	753	7	0	11	369	0	0	20	0	31	0	0	0	0	1191
% from Existing	0.0%	0.0%	63.6%	0.0%	0.0%	0.0%	60.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	59.0%
% from Background Growth	0.0%	0.0%	36.4%	0.0%	0.0%	0.0%	39.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	35.2%
% from Project Trips	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	5.8%

PM PEAK HOUR

	Trotwood Avenue Eastbound				Trotwood Avenue Westbound				Foster Lane Northbound				Foster Lane Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes	0	0	342	0	0	0	543	0	0	0	0	0					885
Summer PM Adjustment Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Adjusted 2022 PM Volumes	0	0	366	0	0	0	581	0	0	0	0	0	0	0	0	0	947
Existing Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Conflicting Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0					
Heavy Vehicles	0	0	11	0	0	0	12	0	0	0	0	0					
Heavy Vehicle %	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	
Growth Trips	0	0	34	0	0	0	54	0	0	0	0	0	0	0	0	0	88
Sunnyside Gas Station	0	0	25	0	0	0	26	0	0	0	0	0					51
No-Build 2025 PM Volumes	0	0	425	0	0	0	661	0	0	0	0	0	0	0	0	0	1086
Project Traffic																	
Trip Distribution IN				30%		45%											
Trip Distribution OUT										30%		45%					
Project Trips	0	0	0	23	0	35	0	0	0	14	0	21	0	0	0	0	93
Project Trips (unbalanced)	0	0	0	23	0	35	0	0	0	14	0	21	0	0	0	0	93
Balancing Adjustment																	
Pass-By Adjustment																	
Project Trips	0	0	0	23	0	35	0	0	0	14	0	21	0	0	0	0	93
Build 2025 PM Volumes	0	0	425	23	0	35	661	0	0	14	0	21	0	0	0	0	1179
% from Existing	0.0%	0.0%	80.5%	0.0%	0.0%	0.0%	82.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	75.1%
% from Background Growth	0.0%	0.0%	19.5%	0.0%	0.0%	0.0%	17.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	17.0%
% from Project Trips	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	7.9%

INTERSECTION VOLUME WORKSHEET

**INTERSECTION 5
Foster Lane at Driveway A
AM PEAK HOUR**

	- Eastbound				Driveway A Westbound				Foster Lane Northbound				Foster Lane Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes																	0
Summer AM Adjustment Factor	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	
Adjusted 2022 AM Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing 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	0.90	0.90	0.90	0.90	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	
Growth Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunnyside Gas Station	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2025 AM Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic																	
Trip Distribution IN																75%	
Trip Distribution OUT								75%									
Project Trips	0	0	0	0	0	0	0	51	0	0	0	0	0	18	0	0	69
Project Trips (unbalanced)	0	0	0	0	0	0	0	51	0	0	0	0	0	18	0	0	69
Balancing Adjustment																	
Pass-By Adjustment																	
Project Trips	0	0	0	0	0	0	0	51	0	0	0	0	0	18	0	0	69
Build 2025 AM Volumes	0	0	0	0	0	0	0	51	0	0	0	0	0	18	0	0	69
% from Existing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% from Background Growth	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% from Project Trips	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%

PM PEAK HOUR

	- Eastbound				Driveway A Westbound				Foster Lane Northbound				Foster Lane Southbound				Total Intersection
	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	U-Turn	Left	Through	Right	
Existing Traffic																	
Existing 2022 AM Volumes																	0
Summer PM Adjustment Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
Adjusted 2022 PM Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing 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	0.90	0.90	0.90	0.90	
Conflicting Pedestrians																	
Heavy Vehicles																	
Heavy Vehicle %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Background Traffic																	
Annual Growth Rate	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Growth Factor	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	1.093	
Growth Trips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sunnyside Gas Station	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
No-Build 2025 PM Volumes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Project Traffic																	
Trip Distribution IN																75%	
Trip Distribution OUT								75%									
Project Trips	0	0	0	0	0	0	0	35	0	0	0	0	0	58	0	0	93
Project Trips (unbalanced)	0	0	0	0	0	0	0	35	0	0	0	0	0	58	0	0	93
Balancing Adjustment																	
Pass-By Adjustment																	
Project Trips	0	0	0	0	0	0	0	35	0	0	0	0	0	58	0	0	93
Build 2025 PM Volumes	0	0	0	0	0	0	0	35	0	0	0	0	0	58	0	0	93
% from Existing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% from Background Growth	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% from Project Trips	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%

Synchro Reports

HCM 6th Signalized Intersection Summary

1: Sunnyside Lane/Cayce Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Existing 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	632	75	70	353	52	101	75	132	106	75	25
Future Volume (veh/h)	32	632	75	70	353	52	101	75	132	106	75	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1767	1811	1811	1811	1767	1856	1826	1811	1870	1870	1841	1870
Adj Flow Rate, veh/h	37	735	87	81	410	60	117	87	153	123	87	29
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	9	6	6	6	9	3	5	6	2	2	4	2
Cap, veh/h	444	806	95	464	821	120	324	97	170	218	219	73
Arrive On Green	0.06	1.00	1.00	0.04	0.55	0.55	0.07	0.16	0.16	0.07	0.17	0.17
Sat Flow, veh/h	1682	1589	188	1725	1506	220	1739	589	1036	1781	1321	440
Grp Volume(v), veh/h	37	0	822	81	0	470	117	0	240	123	0	116
Grp Sat Flow(s),veh/h/ln	1682	0	1777	1725	0	1727	1739	0	1625	1781	0	1761
Q Serve(g_s), s	1.1	0.0	0.0	2.4	0.0	18.7	6.1	0.0	15.9	6.2	0.0	6.5
Cycle Q Clear(g_c), s	1.1	0.0	0.0	2.4	0.0	18.7	6.1	0.0	15.9	6.2	0.0	6.5
Prop In Lane	1.00		0.11	1.00		0.13	1.00		0.64	1.00		0.25
Lane Grp Cap(c), veh/h	444	0	901	464	0	942	324	0	267	218	0	293
V/C Ratio(X)	0.08	0.00	0.91	0.17	0.00	0.50	0.36	0.00	0.90	0.56	0.00	0.40
Avail Cap(c_a), veh/h	599	0	901	557	0	942	397	0	288	290	0	312
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)	0.76	0.00	0.76	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	0.0	11.8	0.0	15.6	34.6	0.0	45.1	35.6	0.0	40.9
Incr Delay (d2), s/veh	0.0	0.0	12.1	0.1	0.0	1.9	0.3	0.0	26.3	0.8	0.0	0.3
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	0.4	0.0	3.0	0.9	0.0	7.2	2.6	0.0	8.3	2.7	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.6	0.0	12.1	11.8	0.0	17.5	34.9	0.0	71.4	36.5	0.0	41.3
LnGrp LOS	B	A	B	B	A	B	C	A	E	D	A	D
Approach Vol, veh/h	859			551			357			239		
Approach Delay, s/veh	12.1			16.7			59.4			38.8		
Approach LOS	B			B			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.1	61.8	12.6	23.6	7.9	66.0	12.4	23.8				
Change Period (Y+Rc), s	7.5	6.0	4.5	5.5	4.5	6.0	4.5	5.5				
Max Green Setting (Gmax), s	10.5	44.0	12.5	19.5	13.5	44.0	12.5	19.5				
Max Q Clear Time (g_c+I1), s	4.4	2.0	8.2	17.9	3.1	20.7	8.1	8.5				
Green Ext Time (p_c), s	0.0	14.4	0.0	0.1	0.0	5.3	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	25.0											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary

2: Private Driveway/Rutherford Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Existing 2022 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	656	0	0	333	106	0	0	0	135	0	19
Future Volume (veh/h)	33	656	0	0	333	106	0	0	0	135	0	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1870	1826	1870	1870	1796	1856	1870	1870	1870	1737	1870	1870
Adj Flow Rate, veh/h	38	763	0	0	387	123	0	0	0	157	0	22
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	5	2	2	7	3	2	2	2	11	2	2
Cap, veh/h	753	1429	0	508	928	295	0	211	179	252	0	179
Arrive On Green	0.03	0.78	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.11	0.00	0.11
Sat Flow, veh/h	1781	1826	0	1781	1306	415	0	1870	1585	1654	0	1585
Grp Volume(v), veh/h	38	763	0	0	0	510	0	0	0	157	0	22
Grp Sat Flow(s),veh/h/ln	1781	1826	0	1781	0	1722	0	1870	1585	1654	0	1585
Q Serve(g_s), s	0.6	17.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	1.4
Cycle Q Clear(g_c), s	0.6	17.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	1.4
Prop In Lane	1.00		0.00	1.00		0.24	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	753	1429	0	508	0	1223	0	211	179	252	0	179
V/C Ratio(X)	0.05	0.53	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.62	0.00	0.12
Avail Cap(c_a), veh/h	981	1429	0	790	0	1223	0	553	468	554	0	468
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.89	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.3	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.8	0.0	43.9
Incr Delay (d2), s/veh	0.0	1.4	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.9	0.0	0.1
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	0.1	4.6	0.0	0.0	0.0	0.3	0.0	0.0	0.0	4.2	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.3	5.9	0.0	0.0	0.0	0.9	0.0	0.0	0.0	48.8	0.0	44.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	D	A	D
Approach Vol, veh/h	801			510			0			179		
Approach Delay, s/veh	5.8			0.9			0.0			48.2		
Approach LOS	A			A						D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	84.1		17.9	0.0	92.1		17.9				
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5				
Max Green Setting (Gmax), s	44.0	44.0		32.5	17.5	44.0		32.5				
Max Q Clear Time (g_c+I), s	12.6	2.0		0.0	0.0	19.2		12.2				
Green Ext Time (p_c), s	0.0	7.1		0.0	0.0	10.2		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				9.2								
HCM 6th LOS				A								

HCM 6th TWSC
3: Old Sunnyside Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Existing 2022 AM Peak Hour

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	609	57	12	282	32	35
Future Vol, veh/h	609	57	12	282	32	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	2	2	9	2	2
Mvmt Flow	700	66	14	324	37	40
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	766	0	1085	733
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	352	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	847	-	240	421
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	712	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	847	-	235	421
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	475	-
Stage 2	-	-	-	-	698	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.4		20.7		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	306	-	-	847	-	
HCM Lane V/C Ratio	0.252	-	-	0.016	-	
HCM Control Delay (s)	20.7	-	-	9.3	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	1	-	-	0.1	-	

HCM 6th Signalized Intersection Summary

1: Sunnyside Lane/Cayce Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Existing 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	423	113	95	581	65	134	72	78	92	73	49
Future Volume (veh/h)	48	423	113	95	581	65	134	72	78	92	73	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1841	1870	1841	1870	1870	1870	1870	1870	1841	1856	1870	1796
Adj Flow Rate, veh/h	49	432	115	97	593	66	137	73	80	94	74	50
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	4	2	4	2	2	2	2	2	4	3	2	7
Cap, veh/h	417	807	215	630	996	111	244	93	101	208	94	63
Arrive On Green	0.07	1.00	1.00	0.04	0.60	0.60	0.09	0.11	0.11	0.06	0.09	0.09
Sat Flow, veh/h	1753	1423	379	1781	1653	184	1781	816	894	1767	1041	703
Grp Volume(v), veh/h	49	0	547	97	0	659	137	0	153	94	0	124
Grp Sat Flow(s),veh/h/ln	1753	0	1802	1781	0	1837	1781	0	1709	1767	0	1744
Q Serve(g_s), s	1.2	0.0	0.0	2.5	0.0	24.5	7.5	0.0	9.6	5.2	0.0	7.7
Cycle Q Clear(g_c), s	1.2	0.0	0.0	2.5	0.0	24.5	7.5	0.0	9.6	5.2	0.0	7.7
Prop In Lane	1.00		0.21	1.00		0.10	1.00		0.52	1.00		0.40
Lane Grp Cap(c), veh/h	417	0	1022	630	0	1107	244	0	194	208	0	157
V/C Ratio(X)	0.12	0.00	0.53	0.15	0.00	0.60	0.56	0.00	0.79	0.45	0.00	0.79
Avail Cap(c_a), veh/h	571	0	1022	723	0	1107	294	0	303	299	0	309
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)	0.89	0.00	0.89	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.6	0.0	0.0	8.8	0.0	13.5	40.7	0.0	47.5	42.0	0.0	49.0
Incr Delay (d2), s/veh	0.0	0.0	1.8	0.0	0.0	2.4	0.8	0.0	3.0	0.6	0.0	3.3
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	0.4	0.0	0.5	0.9	0.0	9.5	3.3	0.0	4.2	2.3	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	0.0	1.8	8.9	0.0	15.9	41.5	0.0	50.5	42.6	0.0	52.4
LnGrp LOS	B	A	A	A	A	B	D	A	D	D	A	D
Approach Vol, veh/h	596			756			290			218		
Approach Delay, s/veh	2.5			15.0			46.2			48.1		
Approach LOS	A			B			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	68.4	11.4	18.0	8.4	72.3	13.9	15.4				
Change Period (Y+Rc), s	7.5	6.0	4.5	5.5	4.5	6.0	4.5	5.5				
Max Green Setting (Gmax), s	10.5	44.0	12.5	19.5	13.5	44.0	12.5	19.5				
Max Q Clear Time (g_c+l1), s	4.5	2.0	7.2	11.6	3.2	26.5	9.5	9.7				
Green Ext Time (p_c), s	0.0	7.8	0.0	0.3	0.0	7.0	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay	19.8											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Private Driveway/Rutherford Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Existing 2022 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	428	0	0	651	108	0	0	0	154	0	62
Future Volume (veh/h)	55	428	0	0	651	108	0	0	0	154	0	62
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1870	1856	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	476	0	0	723	120	0	0	0	171	0	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, %	2	3	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	591	1447	0	710	1095	182	0	217	184	272	0	184
Arrive On Green	0.04	0.78	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.12	0.00	0.12
Sat Flow, veh/h	1781	1856	0	1781	1564	260	0	1870	1585	1781	0	1585
Grp Volume(v), veh/h	61	476	0	0	0	843	0	0	0	171	0	69
Grp Sat Flow(s), veh/h/ln	1781	1856	0	1781	0	1824	0	1870	1585	1781	0	1585
Q Serve(g_s), s	0.9	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.0	4.4
Cycle Q Clear(g_c), s	0.9	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.0	4.4
Prop In Lane	1.00		0.00	1.00		0.14	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	591	1447	0	710	0	1277	0	217	184	272	0	184
V/C Ratio(X)	0.10	0.33	0.00	0.00	0.00	0.66	0.00	0.00	0.00	0.63	0.00	0.38
Avail Cap(c_a), veh/h	806	1447	0	992	0	1277	0	553	468	592	0	468
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.78	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.4	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.6	0.0	45.0
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.9	0.0	0.5
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	0.2	2.3	0.0	0.0	0.0	0.7	0.0	0.0	0.0	4.6	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	3.4	4.2	0.0	0.0	0.0	2.1	0.0	0.0	0.0	48.5	0.0	45.4
LnGrp LOS	A	A	A	A	A	A	A	A	A	D	A	D
Approach Vol, veh/h	537			843			0			240		
Approach Delay, s/veh	4.1			2.1			0.0			47.6		
Approach LOS	A			A						D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	83.0		18.2	0.0	91.8		18.2				
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5				
Max Green Setting (G_max), s	47.5	44.0		32.5	17.5	44.0		32.5				
Max Q Clear Time (g_c+I), s	12.9	2.0		0.0	0.0	10.4		12.3				
Green Ext Time (p_c), s	0.0	15.0		0.0	0.0	6.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				9.5								
HCM 6th LOS				A								

HCM 6th TWSC
3: Old Sunnyside Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Existing 2022 PM Peak Hour

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	336	19	22	545	45	19
Future Vol, veh/h	336	19	22	545	45	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	346	20	23	562	46	20

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	366	0	964
Stage 1	-	-	-	-	356
Stage 2	-	-	-	-	608
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1193	-	283
Stage 1	-	-	-	-	709
Stage 2	-	-	-	-	543
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1193	-	275
Mov Cap-2 Maneuver	-	-	-	-	275
Stage 1	-	-	-	-	709
Stage 2	-	-	-	-	528

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	18.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	335	-	-	1193	-
HCM Lane V/C Ratio	0.197	-	-	0.019	-
HCM Control Delay (s)	18.4	-	-	8.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-

HCM 6th Signalized Intersection Summary

1: Sunnyside Lane/Cayce Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 No-Build AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	713	91	77	367	57	160	91	144	120	86	27
Future Volume (veh/h)	35	713	91	77	367	57	160	91	144	120	86	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1767	1811	1811	1811	1767	1856	1826	1811	1870	1870	1841	1870
Adj Flow Rate, veh/h	41	829	106	90	427	66	186	106	167	140	100	31
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	9	6	6	6	9	3	5	6	2	2	4	2
Cap, veh/h	402	762	97	139	779	120	356	112	177	226	207	64
Arrive On Green	0.06	0.97	0.97	0.04	0.52	0.52	0.11	0.18	0.18	0.08	0.15	0.15
Sat Flow, veh/h	1682	1574	201	1725	1494	231	1739	633	998	1781	1348	418
Grp Volume(v), veh/h	41	0	935	90	0	493	186	0	273	140	0	131
Grp Sat Flow(s),veh/h/ln	1682	0	1775	1725	0	1725	1739	0	1631	1781	0	1766
Q Serve(g_s), s	1.3	0.0	53.2	2.9	0.0	21.1	9.7	0.0	18.2	7.2	0.0	7.5
Cycle Q Clear(g_c), s	1.3	0.0	53.2	2.9	0.0	21.1	9.7	0.0	18.2	7.2	0.0	7.5
Prop In Lane	1.00		0.11	1.00		0.13	1.00		0.61	1.00		0.24
Lane Grp Cap(c), veh/h	402	0	859	139	0	899	356	0	289	226	0	271
V/C Ratio(X)	0.10	0.00	1.09	0.65	0.00	0.55	0.52	0.00	0.94	0.62	0.00	0.48
Avail Cap(c_a), veh/h	554	0	859	230	0	899	368	0	289	281	0	313
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)	0.67	0.00	0.67	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	1.8	25.9	0.0	17.6	33.9	0.0	44.7	36.1	0.0	42.6
Incr Delay (d2), s/veh	0.0	0.0	52.8	1.9	0.0	2.4	0.5	0.0	37.7	1.0	0.0	0.5
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	0.5	0.0	13.3	1.1	0.0	8.2	4.1	0.0	10.2	3.1	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	0.0	54.5	27.8	0.0	20.0	34.4	0.0	82.4	37.1	0.0	43.1
LnGrp LOS	B	A	F	C	A	C	C	A	F	D	A	D
Approach Vol, veh/h	976			583			459			271		
Approach Delay, s/veh	52.8			21.2			63.0			40.0		
Approach LOS	D			C			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	59.2	13.6	25.0	8.1	63.4	16.2	22.4				
Change Period (Y+Rc), s	7.5	6.0	4.5	5.5	4.5	6.0	4.5	5.5				
Max Green Setting (Gmax), s	10.5	44.0	12.5	19.5	13.5	44.0	12.5	19.5				
Max Q Clear Time (g_c+l1), s	4.9	55.2	9.2	20.2	3.3	23.1	11.7	9.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	45.3											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary

2: Private Driveway/Rutherford Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 No-Build AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	748	0	0	395	116	0	0	0	148	0	21
Future Volume (veh/h)	36	748	0	0	395	116	0	0	0	148	0	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1870	1826	1870	1870	1796	1856	1870	1870	1870	1737	1870	1870
Adj Flow Rate, veh/h	42	870	0	0	459	135	0	0	0	172	0	24
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	5	2	2	7	3	2	2	2	11	2	2
Cap, veh/h	700	1412	0	428	933	274	0	229	194	268	0	194
Arrive On Green	0.03	0.77	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.12	0.00	0.12
Sat Flow, veh/h	1781	1826	0	1781	1333	392	0	1870	1585	1654	0	1585
Grp Volume(v), veh/h	42	870	0	0	0	594	0	0	0	172	0	24
Grp Sat Flow(s),veh/h/ln	1781	1826	0	1781	0	1726	0	1870	1585	1654	0	1585
Q Serve(g_s), s	0.7	22.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.0	1.5
Cycle Q Clear(g_c), s	0.7	22.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.0	1.5
Prop In Lane	1.00		0.00	1.00		0.23	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	700	1412	0	428	0	1207	0	229	194	268	0	194
V/C Ratio(X)	0.06	0.62	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.64	0.00	0.12
Avail Cap(c_a), veh/h	925	1412	0	710	0	1207	0	553	468	554	0	468
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.84	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.5	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.3	0.0	43.0
Incr Delay (d2), s/veh	0.0	2.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	1.0	0.0	0.1
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	0.2	6.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	4.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.5	7.4	0.0	0.0	0.0	1.2	0.0	0.0	0.0	48.3	0.0	43.1
LnGrp LOS	A	A	A	A	A	A	A	A	A	D	A	D
Approach Vol, veh/h	912			594			0			196		
Approach Delay, s/veh	7.2			1.2			0.0			47.6		
Approach LOS	A			A						D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	82.9		18.9	0.0	91.1		18.9				
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5				
Max Green Setting (Gmax), s	47.5	44.0		32.5	17.5	44.0		32.5				
Max Q Clear Time (g_c+I), s	12.7	2.0		0.0	0.0	24.7		13.2				
Green Ext Time (p_c), s	0.0	8.8		0.0	0.0	10.4		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				9.8								
HCM 6th LOS				A								

HCM 6th TWSC
3: Old Sunnyside Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 No-Build AM Peak Hour

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	697	62	13	339	35	38
Future Vol, veh/h	697	62	13	339	35	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	2	2	9	2	2
Mvmt Flow	801	71	15	390	40	44
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	872	0	1257	837
Stage 1	-	-	-	-	837	-
Stage 2	-	-	-	-	420	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	773	-	189	367
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	663	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	773	-	184	367
Mov Cap-2 Maneuver	-	-	-	-	184	-
Stage 1	-	-	-	-	425	-
Stage 2	-	-	-	-	646	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		26.6	
HCM LOS					D	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	249	-	-	773	-	
HCM Lane V/C Ratio	0.337	-	-	0.019	-	
HCM Control Delay (s)	26.6	-	-	9.7	0	
HCM Lane LOS	D	-	-	A	A	
HCM 95th %tile Q(veh)	1.4	-	-	0.1	-	

HCM 6th Signalized Intersection Summary

1: Sunnyside Lane/Cayce Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 No-Build PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	480	131	104	619	71	188	86	85	105	84	54
Future Volume (veh/h)	52	480	131	104	619	71	188	86	85	105	84	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1841	1870	1841	1870	1870	1870	1870	1870	1841	1856	1870	1796
Adj Flow Rate, veh/h	53	490	134	106	632	72	192	88	87	107	86	55
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	4	2	4	2	2	2	2	2	4	3	2	7
Cap, veh/h	347	752	206	569	934	106	289	122	121	241	106	68
Arrive On Green	0.07	1.00	1.00	0.04	0.57	0.57	0.11	0.14	0.14	0.07	0.10	0.10
Sat Flow, veh/h	1753	1414	387	1781	1649	188	1781	863	853	1767	1066	682
Grp Volume(v), veh/h	53	0	624	106	0	704	192	0	175	107	0	141
Grp Sat Flow(s),veh/h/ln	1753	0	1800	1781	0	1836	1781	0	1717	1767	0	1748
Q Serve(g_s), s	1.5	0.0	0.0	3.0	0.0	29.6	10.2	0.0	10.7	5.9	0.0	8.7
Cycle Q Clear(g_c), s	1.5	0.0	0.0	3.0	0.0	29.6	10.2	0.0	10.7	5.9	0.0	8.7
Prop In Lane	1.00		0.21	1.00		0.10	1.00		0.50	1.00		0.39
Lane Grp Cap(c), veh/h	347	0	958	569	0	1040	289	0	243	241	0	174
V/C Ratio(X)	0.15	0.00	0.65	0.19	0.00	0.68	0.66	0.00	0.72	0.44	0.00	0.81
Avail Cap(c_a), veh/h	498	0	958	661	0	1040	294	0	304	319	0	310
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)	0.86	0.00	0.86	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.3	0.0	0.0	10.5	0.0	16.8	37.3	0.0	45.1	40.6	0.0	48.5
Incr Delay (d2), s/veh	0.1	0.0	3.0	0.1	0.0	3.5	4.3	0.0	4.0	0.5	0.0	3.4
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	0.5	0.0	0.8	1.1	0.0	12.1	4.7	0.0	4.8	2.6	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.0	3.0	10.6	0.0	20.3	41.6	0.0	49.2	41.1	0.0	51.9
LnGrp LOS	B	A	A	B	A	C	D	A	D	D	A	D
Approach Vol, veh/h	677			810			367			248		
Approach Delay, s/veh	3.8			19.0			45.2			47.2		
Approach LOS	A			B			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	64.5	12.1	21.1	8.5	68.3	16.7	16.5				
Change Period (Y+Rc), s	7.5	6.0	4.5	5.5	4.5	6.0	4.5	5.5				
Max Green Setting (Gmax), s	10.5	44.0	12.5	19.5	13.5	44.0	12.5	19.5				
Max Q Clear Time (g_c+I1), s	5.0	2.0	7.9	12.7	3.5	31.6	12.2	10.7				
Green Ext Time (p_c), s	0.0	9.4	0.0	0.3	0.0	6.0	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	22.0											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary

2: Private Driveway/Rutherford Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 No-Build PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	493	0	0	738	118	0	0	0	168	0	68
Future Volume (veh/h)	60	493	0	0	738	118	0	0	0	168	0	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1870	1856	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	67	548	0	0	820	131	0	0	0	187	0	76
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, %	2	3	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	543	1430	0	646	1086	173	0	234	198	288	0	198
Arrive On Green	0.04	0.77	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.12	0.00	0.12
Sat Flow, veh/h	1781	1856	0	1781	1574	251	0	1870	1585	1781	0	1585
Grp Volume(v), veh/h	67	548	0	0	0	951	0	0	0	187	0	76
Grp Sat Flow(s),veh/h/ln	1781	1856	0	1781	0	1825	0	1870	1585	1781	0	1585
Q Serve(g_s), s	1.1	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	0.0	4.8
Cycle Q Clear(g_c), s	1.1	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	0.0	4.8
Prop In Lane	1.00		0.00	1.00		0.14	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	543	1430	0	646	0	1259	0	234	198	288	0	198
V/C Ratio(X)	0.12	0.38	0.00	0.00	0.00	0.76	0.00	0.00	0.00	0.65	0.00	0.38
Avail Cap(c_a), veh/h	756	1430	0	928	0	1259	0	553	468	592	0	468
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.68	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.1	0.0	44.2
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.9	0.0	0.5
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	0.3	3.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	5.0	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.7	4.9	0.0	0.0	0.0	2.9	0.0	0.0	0.0	48.0	0.0	44.7
LnGrp LOS	A	A	A	A	A	A	A	A	A	D	A	D
Approach Vol, veh/h	615				951				0			
Approach Delay, s/veh	4.8				2.9				0.0			
Approach LOS	A				A				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	81.9		19.2	0.0	90.8		19.2				
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5				
Max Green Setting (G_max), s	44.0	44.0		32.5	17.5	44.0		32.5				
Max Q Clear Time (g_c+I), s	2.0	2.0		0.0	0.0	12.6		13.3				
Green Ext Time (p_c), s	0.0	18.5		0.0	0.0	7.1		0.5				

Intersection Summary

HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

HCM 6th TWSC
3: Old Sunnyside Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 No-Build PM Peak Hour

Intersection

Int Delay, s/veh 1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	392	21	24	622	49	21
Future Vol, veh/h	392	21	24	622	49	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	404	22	25	641	51	22

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	426
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1133
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1133
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	22.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	279	-	-	1133	-
HCM Lane V/C Ratio	0.259	-	-	0.022	-
HCM Control Delay (s)	22.3	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1	-	-	0.1	-

HCM 6th Signalized Intersection Summary

1: Sunnyside Lane/Cayce Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 Build AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	747	91	79	379	57	160	94	151	120	87	27
Future Volume (veh/h)	35	747	91	79	379	57	160	94	151	120	87	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1767	1811	1811	1811	1767	1856	1826	1811	1870	1870	1841	1870
Adj Flow Rate, veh/h	41	869	106	92	441	66	186	109	176	140	101	31
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	9	6	6	6	9	3	5	6	2	2	4	2
Cap, veh/h	392	766	93	139	783	117	355	111	178	216	207	64
Arrive On Green	0.06	0.97	0.97	0.04	0.52	0.52	0.11	0.18	0.18	0.08	0.15	0.15
Sat Flow, veh/h	1682	1583	193	1725	1501	225	1739	623	1007	1781	1351	415
Grp Volume(v), veh/h	41	0	975	92	0	507	186	0	285	140	0	132
Grp Sat Flow(s),veh/h/ln	1682	0	1776	1725	0	1726	1739	0	1630	1781	0	1766
Q Serve(g_s), s	1.3	0.0	53.2	2.9	0.0	21.9	9.7	0.0	19.2	7.2	0.0	7.5
Cycle Q Clear(g_c), s	1.3	0.0	53.2	2.9	0.0	21.9	9.7	0.0	19.2	7.2	0.0	7.5
Prop In Lane	1.00		0.11	1.00		0.13	1.00		0.62	1.00		0.23
Lane Grp Cap(c), veh/h	392	0	859	139	0	900	355	0	289	216	0	271
V/C Ratio(X)	0.10	0.00	1.13	0.66	0.00	0.56	0.52	0.00	0.99	0.65	0.00	0.49
Avail Cap(c_a), veh/h	544	0	859	230	0	900	367	0	289	271	0	313
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)	0.64	0.00	0.64	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	0.0	1.8	25.9	0.0	17.8	33.9	0.0	45.1	36.1	0.0	42.6
Incr Delay (d2), s/veh	0.0	0.0	70.2	2.0	0.0	2.5	0.5	0.0	48.9	1.7	0.0	0.5
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	0.5	0.0	17.4	1.1	0.0	8.6	4.1	0.0	11.5	3.2	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	0.0	72.0	27.9	0.0	20.4	34.5	0.0	94.1	37.8	0.0	43.1
LnGrp LOS	B	A	F	C	A	C	C	A	F	D	A	D
Approach Vol, veh/h	1016			599			471			272		
Approach Delay, s/veh	69.7			21.5			70.5			40.4		
Approach LOS	E			C			E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	59.2	13.6	25.0	8.1	63.4	16.2	22.4				
Change Period (Y+Rc), s	7.5	6.0	4.5	5.5	4.5	6.0	4.5	5.5				
Max Green Setting (Gmax), s	10.5	44.0	12.5	19.5	13.5	44.0	12.5	19.5				
Max Q Clear Time (g_c+l1), s	4.9	55.2	9.2	21.2	3.3	23.9	11.7	9.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	54.2											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary

2: Private Driveway/Rutherford Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 Build AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	782	0	0	407	116	0	0	0	148	0	22
Future Volume (veh/h)	39	782	0	0	407	116	0	0	0	148	0	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1870	1826	1870	1870	1796	1856	1870	1870	1870	1737	1870	1870
Adj Flow Rate, veh/h	45	909	0	0	473	135	0	0	0	172	0	26
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	5	2	2	7	3	2	2	2	11	2	2
Cap, veh/h	693	1412	0	404	938	268	0	229	194	268	0	194
Arrive On Green	0.03	0.77	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.12	0.00	0.12
Sat Flow, veh/h	1781	1826	0	1781	1344	384	0	1870	1585	1654	0	1585
Grp Volume(v), veh/h	45	909	0	0	0	608	0	0	0	172	0	26
Grp Sat Flow(s),veh/h/ln	1781	1826	0	1781	0	1727	0	1870	1585	1654	0	1585
Q Serve(g_s), s	0.7	24.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.0	1.6
Cycle Q Clear(g_c), s	0.7	24.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.2	0.0	1.6
Prop In Lane	1.00		0.00	1.00		0.22	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	693	1412	0	404	0	1206	0	229	194	268	0	194
V/C Ratio(X)	0.06	0.64	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.64	0.00	0.13
Avail Cap(c_a), veh/h	916	1412	0	685	0	1206	0	553	468	554	0	468
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.83	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.5	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.3	0.0	43.1
Incr Delay (d2), s/veh	0.0	2.3	0.0	0.0	0.0	1.3	0.0	0.0	0.0	1.0	0.0	0.1
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	0.2	7.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	4.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.5	7.9	0.0	0.0	0.0	1.3	0.0	0.0	0.0	48.3	0.0	43.2
LnGrp LOS	A	A	A	A	A	A	A	A	A	D	A	D
Approach Vol, veh/h	954			608			0			198		
Approach Delay, s/veh	7.7			1.3			0.0			47.6		
Approach LOS	A			A						D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	82.8			18.9	0.0	91.1		18.9				
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5				
Max Green Setting (G_max), s	44.0			32.5	17.5	44.0		32.5				
Max Q Clear Time (g_c+I_2), s	2.0			0.0	0.0	26.7		13.2				
Green Ext Time (p_c), s	0.0	9.1		0.0	0.0	10.2		0.3				
Intersection Summary												
HCM 6th Ctrl Delay	10.0											
HCM 6th LOS	A											

HCM 6th TWSC
3: Old Sunnyside Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 Build AM Peak Hour

Intersection

Int Delay, s/veh 2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	728	62	15	350	35	45
Future Vol, veh/h	728	62	15	350	35	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	5	2	2	9	2	2
Mvmt Flow	837	71	17	402	40	52

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	908
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	750
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	750
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	29
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	240	-	-	750	-
HCM Lane V/C Ratio	0.383	-	-	0.023	-
HCM Control Delay (s)	29	-	-	9.9	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.7	-	-	0.1	-

HCM 6th TWSC
4: Foster Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 Build AM Peak Hour

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	753	7	11	369	20	31
Future Vol, veh/h	753	7	11	369	20	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	5	2	2	8	2	2
Mvmt Flow	856	8	13	419	23	35
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	864	0	1305	860
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	445	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	779	-	177	356
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	646	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	779	-	173	356
Mov Cap-2 Maneuver	-	-	-	-	173	-
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	632	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		23.5	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	252	-	-	779	-	
HCM Lane V/C Ratio	0.23	-	-	0.016	-	
HCM Control Delay (s)	23.5	-	-	9.7	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.9	-	-	0	-	

HCM 6th TWSC
5: Foster Lane & Site Driveway A

Trotwood & Foster Subdivision
Proposed 2025 Build AM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	51	0	0	18	0
Future Vol, veh/h	0	51	0	0	18	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	57	0	0	20	0
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	40	0	0	0	0	0
Stage 1	0	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	972	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %		-	-	-	-	-
Mov Cap-1 Maneuver	972	-	-	-	-	-
Mov Cap-2 Maneuver	972	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s		0				
HCM LOS	-					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	-		
HCM Lane V/C Ratio	-	-	-	-		
HCM Control Delay (s)	-	-	-	-		
HCM Lane LOS	-	-	-	-		
HCM 95th %tile Q(veh)	-	-	-	-		

HCM 6th Signalized Intersection Summary

1: Sunnyside Lane/Cayce Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 Build PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	503	131	112	658	71	188	88	90	105	88	54
Future Volume (veh/h)	52	503	131	112	658	71	188	88	90	105	88	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1841	1870	1841	1870	1870	1870	1870	1870	1841	1856	1870	1796
Adj Flow Rate, veh/h	53	513	134	114	671	72	192	90	92	107	90	55
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	4	2	4	2	2	2	2	2	4	3	2	7
Cap, veh/h	319	754	197	561	937	101	289	122	124	237	111	68
Arrive On Green	0.07	1.00	1.00	0.05	0.56	0.56	0.11	0.14	0.14	0.07	0.10	0.10
Sat Flow, veh/h	1753	1429	373	1781	1660	178	1781	848	867	1767	1087	664
Grp Volume(v), veh/h	53	0	647	114	0	743	192	0	182	107	0	145
Grp Sat Flow(s),veh/h/ln	1753	0	1803	1781	0	1838	1781	0	1714	1767	0	1751
Q Serve(g_s), s	1.5	0.0	0.0	3.2	0.0	32.5	10.2	0.0	11.2	5.9	0.0	8.9
Cycle Q Clear(g_c), s	1.5	0.0	0.0	3.2	0.0	32.5	10.2	0.0	11.2	5.9	0.0	8.9
Prop In Lane	1.00		0.21	1.00		0.10	1.00		0.51	1.00		0.38
Lane Grp Cap(c), veh/h	319	0	951	561	0	1038	289	0	246	237	0	178
V/C Ratio(X)	0.17	0.00	0.68	0.20	0.00	0.72	0.67	0.00	0.74	0.45	0.00	0.81
Avail Cap(c_a), veh/h	470	0	951	649	0	1038	294	0	304	316	0	310
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)	0.85	0.00	0.85	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.2	0.0	0.0	10.7	0.0	17.5	37.1	0.0	45.1	40.5	0.0	48.4
Incr Delay (d2), s/veh	0.1	0.0	3.3	0.1	0.0	4.2	4.4	0.0	5.2	0.5	0.0	3.4
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	0.5	0.0	0.9	1.2	0.0	13.4	4.7	0.0	5.1	2.6	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.3	0.0	3.3	10.7	0.0	21.7	41.5	0.0	50.4	41.0	0.0	51.8
LnGrp LOS	B	A	A	B	A	C	D	A	D	D	A	D
Approach Vol, veh/h	700			857			374			252		
Approach Delay, s/veh	4.2			20.3			45.8			47.2		
Approach LOS	A			C			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.6	64.0	12.1	21.3	8.5	68.1	16.7	16.7				
Change Period (Y+Rc), s	7.5	6.0	4.5	5.5	4.5	6.0	4.5	5.5				
Max Green Setting (Gmax), s	10.5	44.0	12.5	19.5	13.5	44.0	12.5	19.5				
Max Q Clear Time (g_c+l1), s	5.2	2.0	7.9	13.2	3.5	34.5	12.2	10.9				
Green Ext Time (p_c), s	0.0	9.9	0.0	0.3	0.0	5.2	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay	22.6											
HCM 6th LOS	C											

HCM 6th Signalized Intersection Summary

2: Private Driveway/Rutherford Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 Build PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	516	0	0	777	118	0	0	0	168	0	72
Future Volume (veh/h)	62	516	0	0	777	118	0	0	0	168	0	72
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
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	1870	1856	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	573	0	0	863	131	0	0	0	187	0	80
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, %	2	3	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	527	1429	0	628	1094	166	0	234	198	288	0	198
Arrive On Green	0.04	0.77	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.13	0.00	0.13
Sat Flow, veh/h	1781	1856	0	1781	1586	241	0	1870	1585	1781	0	1585
Grp Volume(v), veh/h	69	573	0	0	0	994	0	0	0	187	0	80
Grp Sat Flow(s),veh/h/ln	1781	1856	0	1781	0	1827	0	1870	1585	1781	0	1585
Q Serve(g_s), s	1.1	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	0.0	5.1
Cycle Q Clear(g_c), s	1.1	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	0.0	5.1
Prop In Lane	1.00		0.00	1.00		0.13	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	527	1429	0	628	0	1260	0	234	198	288	0	198
V/C Ratio(X)	0.13	0.40	0.00	0.00	0.00	0.79	0.00	0.00	0.00	0.65	0.00	0.40
Avail Cap(c_a), veh/h	739	1429	0	909	0	1260	0	553	468	592	0	468
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.64	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.7	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.0	0.0	44.3
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.9	0.0	0.5
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	0.3	3.2	0.0	0.0	0.0	1.2	0.0	0.0	0.0	5.0	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.7	5.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	48.0	0.0	44.8
LnGrp LOS	A	A	A	A	A	A	A	A	A	D	A	D
Approach Vol, veh/h	642				994				0			
Approach Delay, s/veh	4.9				3.3				0.0			
Approach LOS	A				A				D			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	81.8		19.3	0.0	90.7		19.3				
Change Period (Y+Rc), s	4.5	6.0		5.5	4.5	6.0		5.5				
Max Green Setting (G_max), s	44.0	44.0		32.5	17.5	44.0		32.5				
Max Q Clear Time (g_c+I), s	2.0	2.0		0.0	0.0	13.3		13.3				
Green Ext Time (p_c), s	0.0	20.0		0.0	0.0	7.5		0.5				

Intersection Summary

HCM 6th Ctrl Delay	10.0
HCM 6th LOS	A

HCM 6th TWSC
3: Old Sunnyside Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 Build PM Peak Hour

Intersection

Int Delay, s/veh 1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	413	21	32	657	49	26
Future Vol, veh/h	413	21	32	657	49	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	426	22	33	677	51	27

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	448
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1112
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1112
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	24.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	261	-	-	1112	-
HCM Lane V/C Ratio	0.296	-	-	0.03	-
HCM Control Delay (s)	24.5	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.1	-

HCM 6th TWSC
4: Foster Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 Build PM Peak Hour

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	425	23	35	661	14	21
Future Vol, veh/h	425	23	35	661	14	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	3	2	2	2	2	2
Mvmt Flow	434	23	36	674	14	21
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	457	0	1192	446
Stage 1	-	-	-	-	446	-
Stage 2	-	-	-	-	746	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1104	-	207	612
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	469	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1104	-	196	612
Mov Cap-2 Maneuver	-	-	-	-	196	-
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	445	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.4		17.2		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	331	-	-	1104	-	
HCM Lane V/C Ratio	0.108	-	-	0.032	-	
HCM Control Delay (s)	17.2	-	-	8.4	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-	

HCM 6th TWSC
5: Foster Lane & Site Driveway A

Trotwood & Foster Subdivision
Proposed 2025 Build PM Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	35	0	0	58	0
Future Vol, veh/h	0	35	0	0	58	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	39	0	0	64	0
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	128	0	0	0	0	0
Stage 1	0	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	866	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Platoon blocked, %		-	-	-	-	-
Mov Cap-1 Maneuver	866	-	-	-	-	-
Mov Cap-2 Maneuver	866	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	898	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s		0				
HCM LOS	-					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	-	-		
HCM Lane V/C Ratio	-	-	-	-		
HCM Control Delay (s)	-	-	-	-		
HCM Lane LOS	-	-	-	-		
HCM 95th %tile Q(veh)	-	-	-	-		

HCM 6th TWSC
4: Foster Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 Build Improved AM Peak Hour

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	753	7	11	369	20	31
Future Vol, veh/h	753	7	11	369	20	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	240	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	5	2	2	8	2	2
Mvmt Flow	856	8	13	419	23	35
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	864	0	1305	860
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	445	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	779	-	177	356
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	646	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	779	-	174	356
Mov Cap-2 Maneuver	-	-	-	-	174	-
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	635	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		23.5	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	252	-	-	779	-	
HCM Lane V/C Ratio	0.23	-	-	0.016	-	
HCM Control Delay (s)	23.5	-	-	9.7	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.9	-	-	0	-	

HCM 6th TWSC
4: Foster Lane & Trotwood Avenue

Trotwood & Foster Subdivision
Proposed 2025 Build Improved PM Peak Hour

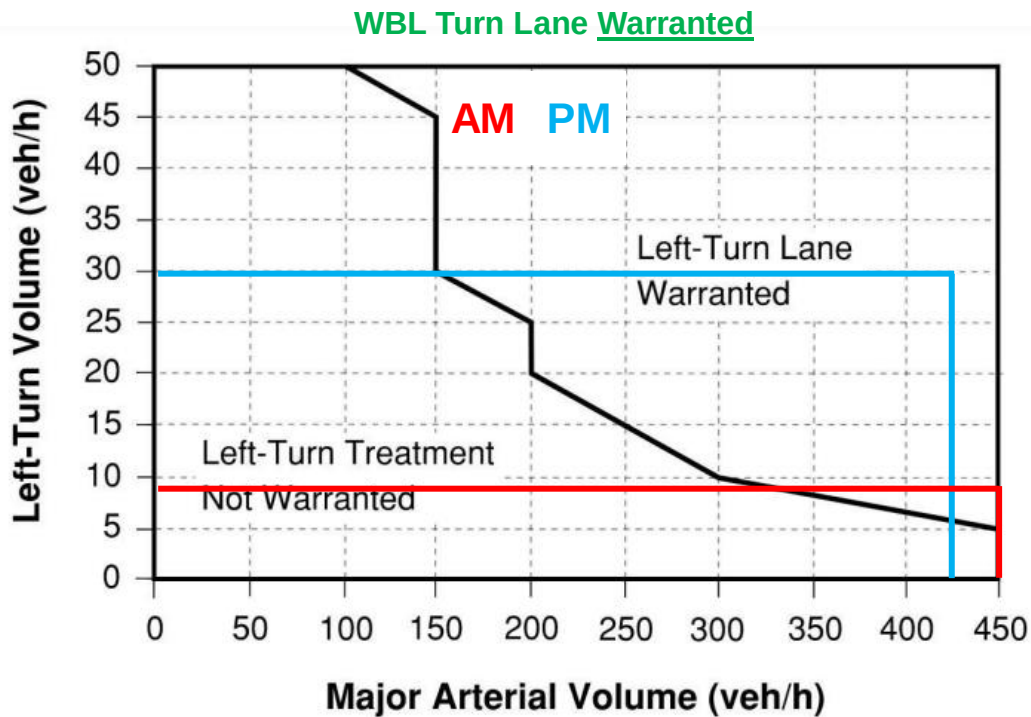
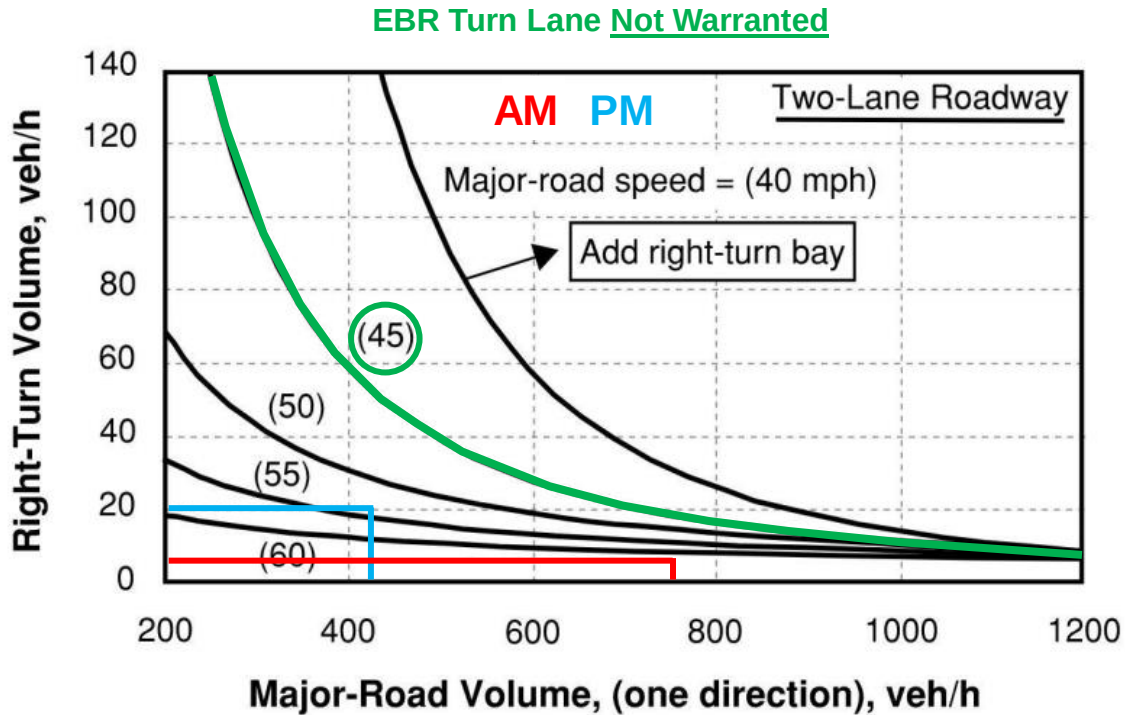
Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	425	23	35	661	14	21
Future Vol, veh/h	425	23	35	661	14	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	240	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	3	2	2	2	2	2
Mvmt Flow	434	23	36	674	14	21
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	457	0	1192	446
Stage 1	-	-	-	-	446	-
Stage 2	-	-	-	-	746	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1104	-	207	612
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	469	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1104	-	200	612
Mov Cap-2 Maneuver	-	-	-	-	200	-
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	454	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		17	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	336	-	-	1104	-	
HCM Lane V/C Ratio	0.106	-	-	0.032	-	
HCM Control Delay (s)	17	-	-	8.4	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-	

Turn Lane Warrants

TDOT Geometric Design Criteria

Trotwood Avenue at Foster Lane (Intersection 4)

Build 2025 Conditions



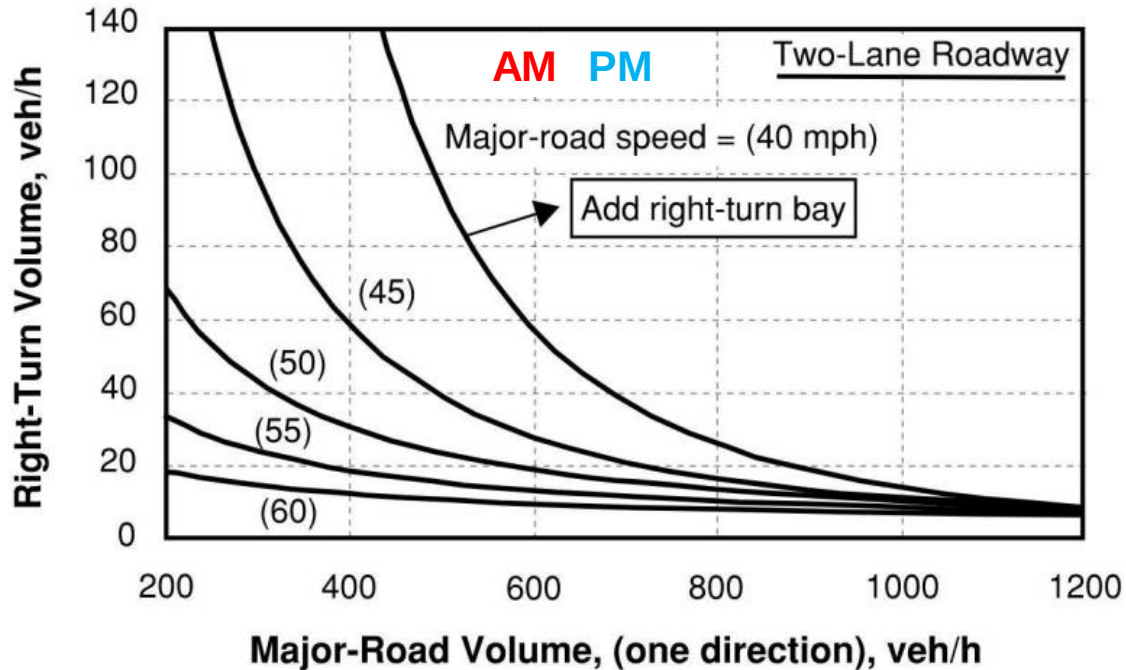
(a) Three-Leg Intersections

TDOT Geometric Design Criteria

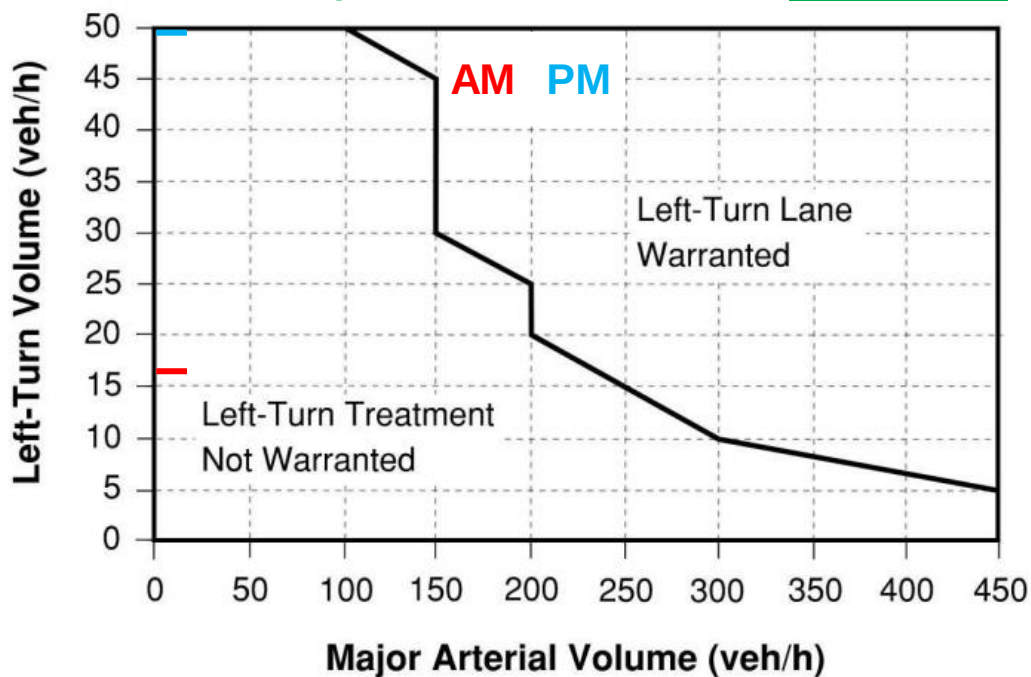
Foster Lane at Site Driveway A (Intersection 5)

Build 2025 Conditions

No NBR Turn Volume – NBR Turn Lane Not Warranted



No conflicting NB Volume - SBL Turn Lane Not Warranted



(a) Three-Leg Intersections

CITY OF COLUMBIA – DEVELOPMENT SERVICES

TRAFFIC IMPACT STUDY (TIS) MEMORANDUM OF UNDERSTANDING (MOU) & AGREEMENT

CONTACT INFO (Identify primary point of contact)	
DEVELOPER/OWNER ☐ PRIMARY CONTACT	CIVIL CONSULTANT ☐ PRIMARY CONTACT
Contact Name: Nelson Crowe	Contact Name: Adam Crunk
Company: NoMau Partners	Company: Crunk Engineering LLC
Address: 1269 Lewisburg Pike Franklin, TN 37064	Address: 7112 Crossroads Boulevard, Suite 201 Brentwood, TN 37027
Email: nelson@fortunallc.net	Email: adam@crunkeng.com
Phone: 615-969-6080	Phone: 615-873-1795
DEVELOPERS TIS CONSULTANT CONTACT INFO: <i>complete if study was completed by Developer's consultant.</i> ☒ PRIMARY CONTACT	
Contact Name: Kennedy Adams	Company: Kimley-Horn & Associates
Address: 10 Lea Avenue, Suite 400, Nashville, TN 37210	
Email: Kennedy.Adams@kimley-horn.com	Phone: 615.314.5662

INDICATE THE LEVEL OF TIS REVIEW TO BE PERFORMED BY 3RD PARTY CONSULTANT AND CORRESPONDING FEE (SUBJECT TO STAFF CONFIRMATION):

* Level of TIS determined by the number of Daily & Peak Hour Trips per estimated trip generation calculation.

☐ Traffic Access Study (\$2,800)
 ☒ Level I TIS (\$3,700)
 ☐ Level II TIS (\$4,800)
 ☐ Level III TIS (Fee TBD)

TRANSPORTATION IMPACT STUDY – MEMORANDUM OF UNDERSTANDING (MOU)	
This MOU acknowledges that the transportation impact study for the following project will be prepared in accordance with the latest version of the City of Columbia Land Development Regulations.	
PROJECT INFORMATION:	
Name:	Trotwood & Foster Subdivision
Address:	Southeast quadrant at the intersection of Trotwood Avenue at Foster Lane
Description:	Single family detached dwelling units
Existing Land Use (be specific):	RS-10 and Unzoned
Proposed Land Use (be specific):	RS-10
Reason for Request: (Planned Unit Development, Site Plan, Rezoning)	Site Plan
Potential Development Yield (number of residential units; building square footage, projected number of employees, hours of operations):	126 single family detached dwelling units
☒	Attach a site map and a trip generation table with a description of the proposed land uses, ITE rates, estimated daily, morning, midday and afternoon peak hour volumes (ins/outs/totals), proposed trip credits, etc.
☒	Attach a conceptual development plan showing all access points and adjacent streets.

Project Buildout Year: 2025		Ambient or CMP Growth Rate (% Per Year): 3%	
STUDY INTERSECTIONS: *use additional pages as necessary			
1. Trotwood Avenue at Foster Lane	9.		
2. Trotwood Avenue at Old Sunnyside Lane	10.		
3. Trotwood Avenue at Sunnyside Lane	11.		
4. Trotwood Avenue at Rutherford Lane	12.		
5. Foster Lane at Proposed Site Access	13.		
6.	14.		
7.	15.		
8.	16.		
TRIP CREDITS (EXACT AMOUNT OF CREDIT SUBJECT TO APPROVAL BY CITY OF COLUMBIA):			
	YES (indicate ___% of total trips)	NO	
Transit Usage	☐ %	☒	
Existing Active Land Use	☐ %	☒	
Previous Land Use	☐ %	☒	
Internal Trip	☐ %	☒	
Pass-By Trip	☐ %	☒	

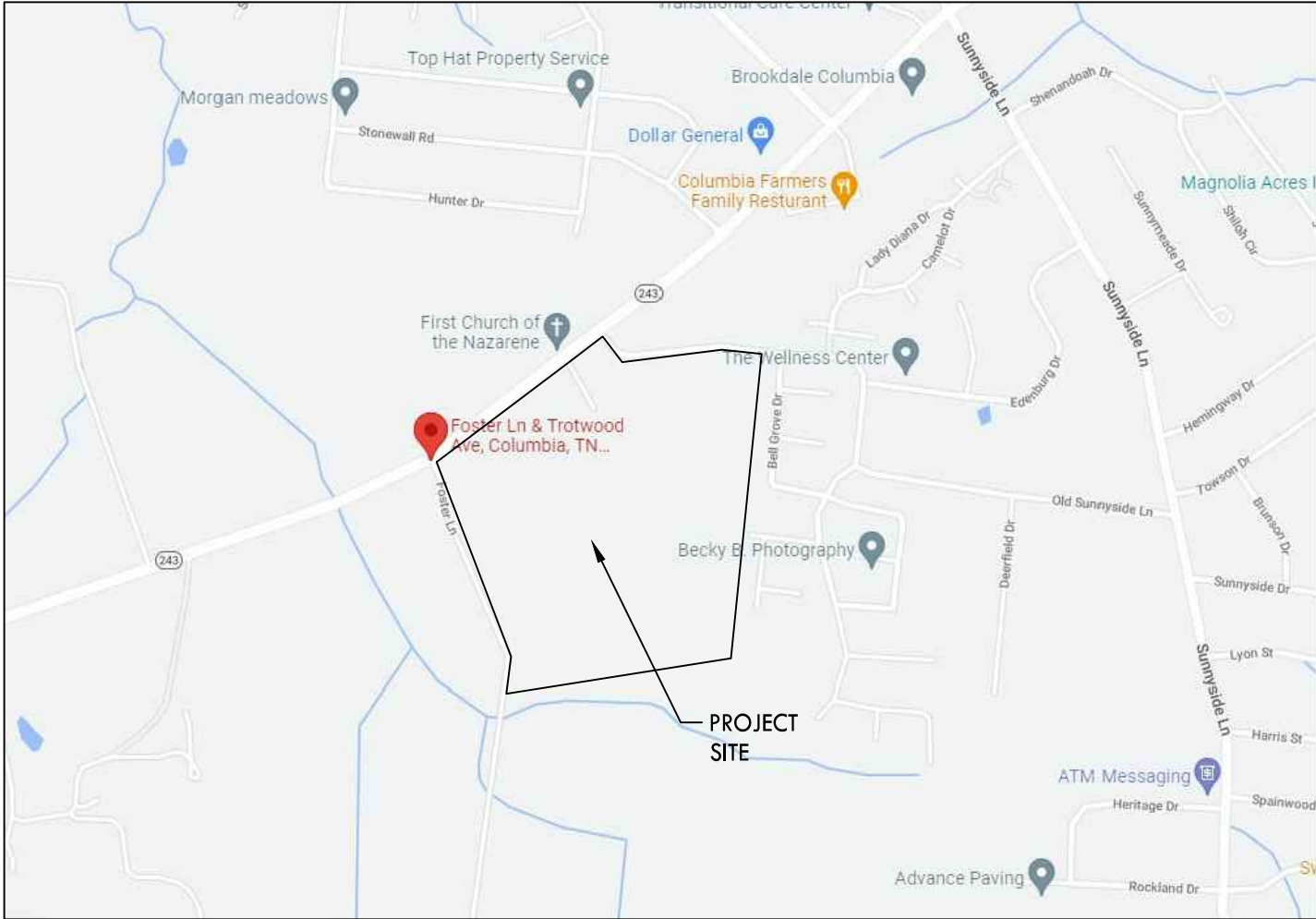
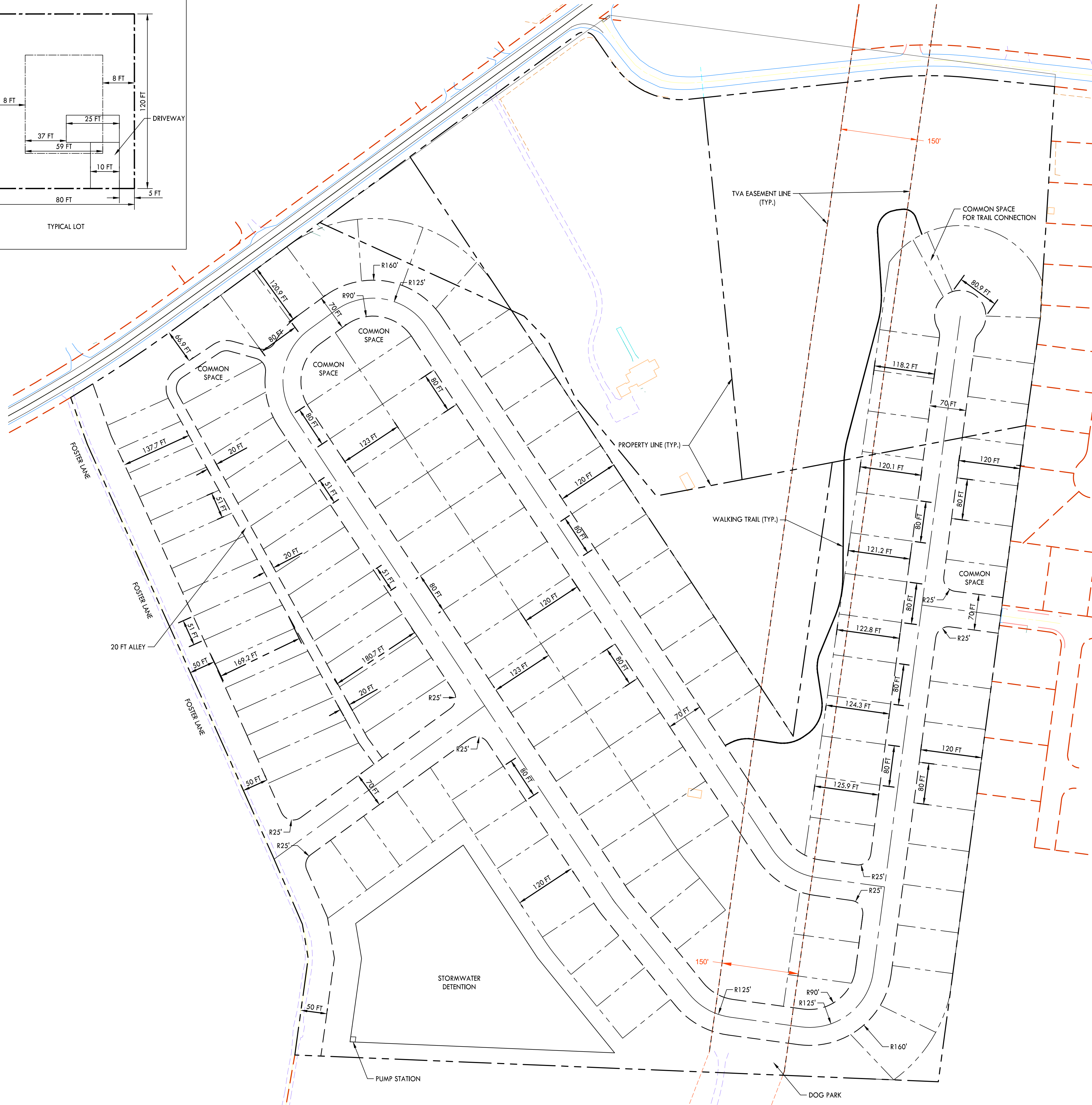
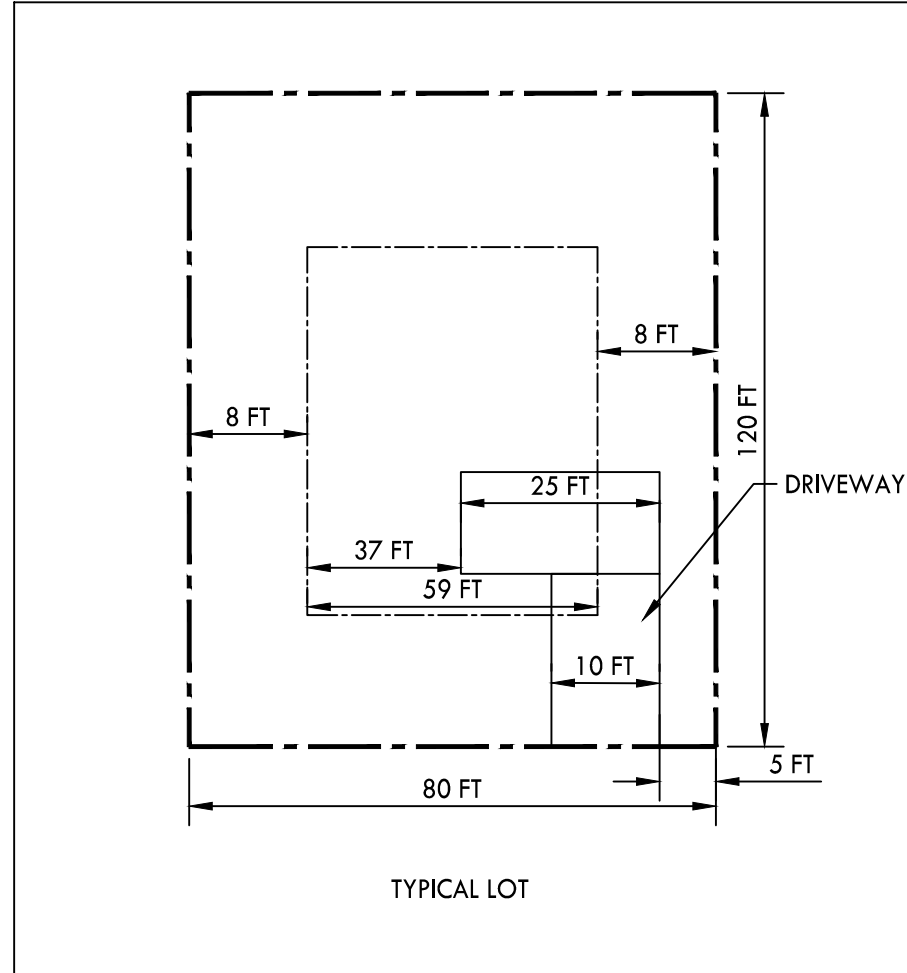
3RD PARTY TRAFFIC CONSULTANT CONTACT INFO:			
☐ NEEL SCHAFER		☒ VOLKERT	
NEEL SCHAFER - GREG JUDY		VOLKERT - DYAN DAMRON	
201 E. Main Street, Suite 325 Murfreesboro, TN 37130		302 Innovation Drive, Suite 100 Franklin, TN 37067	
greg.judy@neel-schaffer.com	615-217-0500	dyan.damron@volkert.com	615-656-1845

MEMORANDUM OF UNDERSTANDING SIGN OFF:			
APPLICANT: Adam Crunk		 Digitally signed by Adam Crunk Date: 2022.12.19 09:25:31-06'00'	
Name		Signature	
		Date	
*As applicant, I agree to pay 100% of the review fee. <i>Paid to the City of Columbia.</i> I understand that no work will commence until FULL payment is received and that it is NON-REFUNDABLE.			
3 RD PARTY TRAFFIC CONSULTANT:			
Name		Signature	
		Date	
CITY ENGINEER:			
Name		Signature	
		Date	
DIRECTOR OF DEVELOPMENT SERVICES:			
Name		Signature	
		Date	

Questions may be submitted and the completed form shall be emailed for review to: Glenn Harper, City Engineer
gharper@columbiatn.com.

Trip Generation - Trotwood & Foster Subdivision											
ITE Code	Land Use	Setting/Location	Density	Daily	AM Peak Hour			PM Peak Hour			
					Total	Enter	Exit	Total	Enter	Exit	
210	Single-Family Detached Housing	General Urban/Suburban	126	d.u.	1,248	92	24	68	123	77	46
NEW TRIPS					1,248	92	24	68	123	77	46

Drawn by: C:\P\AN\PROJECTS\Trotwood And Foster\Trotwood And Foster.dwg
Date: 09/29/22
Project: Trotwood And Foster
Sheet: C5.0



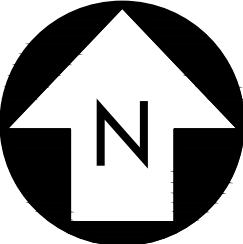
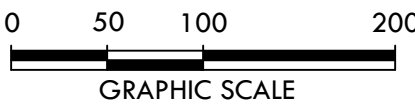
SITE VICINITY MAP

SITE DATA TABLE	
PROJECT, TROTWOOD AND FOSTER	
ADDRESS, COLUMBIA TENNESSEE	
PARCEL ID :	
EXISTING ZONING:	CD-3
PROPOSED ZONING:	CD-3
ZONING DISTRICT	
TOTAL SITE AREA:	53.13 ACRES
PROPOSED LOTS:	126
BUILDING HEIGHT:	3 STORIES MAX.
MIN. LOT SIZE:	7800 SF
MIN. LOT WIDTH:	51 FT
FRONT YARD:	25 FT PRIMARY, 20 FT SECONDARY
SIDE SETBACK:	8 FT
REAR SETBACK:	25 FT
OPEN SETBACK REQ.:	##
OPEN SPACE PROVIDED:	##
USABLE OPEN SPACE REQ.:	##
USABLE OPEN SPACE PROVIDED:	##

NOTES:
1. REFER TO SHEET C2.0 FOR NOTES.

PROPOSED LAYOUT LEGEND

- PROPOSED BUILDING
- HEAVY DUTY ASPHALT PAVEMENT
- LIGHT DUTY ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE SIDEWALK
- PROPERTY LINE
- EDGE OF NEW PAVEMENT



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

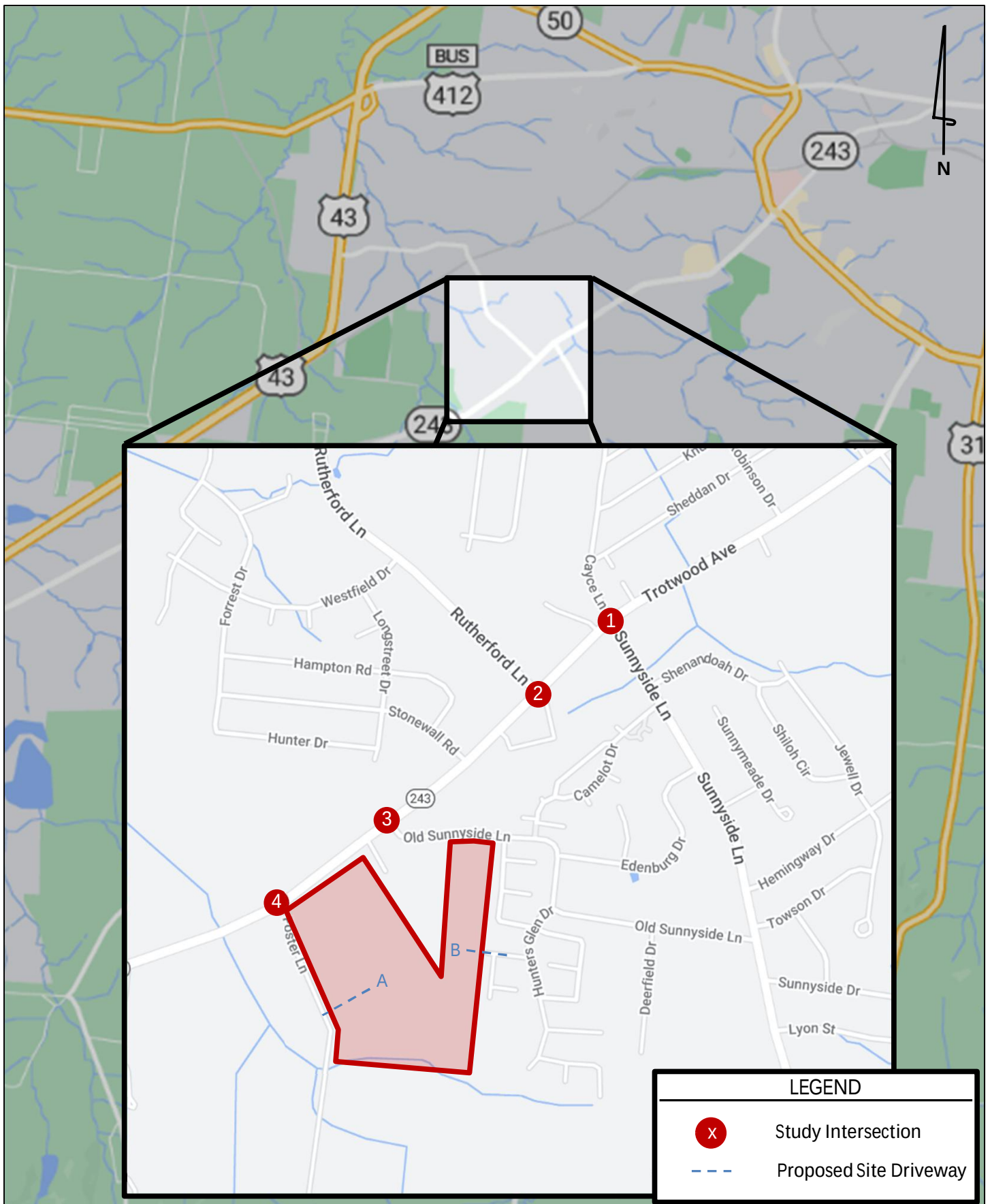


TROTWOOD AND FOSTER
SUBDIVISION
COLUMBIA TENNESSEE

REVISONS	DATE	
	No.	

09/29/22 22040

C5.0
SITE LAYOUT



Kimley»Horn	Trotwood and Foster Subdivision Traffic Impact Study	Site Location Map	Figure 1
--------------------	---	--------------------------	---------------------



June 7, 2022

Mr. Adam Crunk P.E.

Crunk Engineering, LLC

7112 Crossroads Blvd, Suite 201

Brentwood, TN 37027

Sent via email: adam@crunkeng.com

RE: Water Availability Letter

Trotwood-Foster Subdivision – 124 Units

Foster Lane

Tax Map 112, Parcel 18.00, 18.03, 18.04

Columbia, Maury, TN

Dear Mr. Crunk:

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, provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development consists of 124 units. 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 on Trotwood and the existing 8-inch water main on Holly Berry Drive.



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:

- Present the attached fire hydrant curve for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide construction drawings for all public water infrastructure for the proposed development in both CAD and PDF format for CPWS review.
- When applicant has resolved all comments provided by CPWS for the construction drawings, CPWS will provide an approval letter and flow calculations to support TDEC approval of the construction drawings.
- Applicant then submits drawings to TDEC for approval. Upon approval by TDEC, applicant may schedule a pre-construction meeting with CPWS. 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 Mr. Jonathan Hardin or myself at 615-934-7499 or jason.english@inflodesign.com. This letter is valid for one-hundred twenty (120) days from the date of this letter.

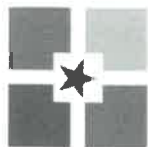
Sincerely,

Jason English, P.E.

Inflo Design Group, LLC

on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS
File 22-043



Preliminary Plat, Site Development Plan, and PUD Checklist

Development: Trotwood and Foster Preliminary Plat

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

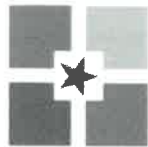
- ☒ Name of development
- ☒ Contact info for the owner and licensed design professional(s) preparing plan: name, address, email, phone
- ☒ Plan sealed by a Design Professional licensed in the State of Tennessee.
- ☒ North Arrow, legend, and site vicinity map
- ☒ Graphic Scale: between 1 in. = 10 ft. 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. ~~with professional seal~~
- ☐ 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 N/A
- ☒ Traffic Impact Study, as required.
- ☒ The substance of all existing and proposed covenants, easements, or other restrictions.

Lots and Land-Use

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

Structures

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



Grading, Drainage, and Storm

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

Streets, Parking, and Pedestrian Elements

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

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 *N/A*
- ☒ Tree Canopy retention

Utilities

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



PUD Specific Items

- ☒ Legal Description of Property
- ☒ Owner's Affidavit *N/A*
- ☒ List of all variances requested *N/A*
- ☒ 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 *N/A*

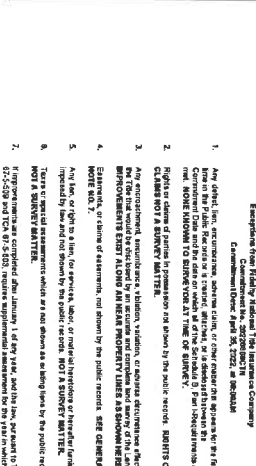
If the application is deemed incomplete by the Zoning Administrator, a written request shall be made within ten days after the original submittal, for further information. In such case the application shall be held in abeyance until deemed complete for final review. No plan shall be formally presented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

Checklist Completed By:

Patrick Carroll
Print Name


Signature

12/19/22
Date



SCHEDULE B, PART II

- [illegible]

18.

[illegible][illegible][illegible]

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**PRELIMINARY FOR
REVIEW ONLY**

Enrollment Mo., 20220509C TM
Enrollment Date May 04, 2022, at 09:59A M

- [illegible]

10

- 
- TROTWOOD**
-
- BEING PARCELS 18.00, 18.03
-
- 9TH CIVIL**
COLUMBIA, MAUDY

© 2005 Blackwell Publishing Ltd, *Journal of Internal Medicine* 258: 399–406

**PRELIMINARY FOR
REVIEW ONLY**

ALTANSPS LAND TITLE SURVEY

L



Page 532 of 565



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	Portion of 6031 Trotwood Avenue and a portion of the parcel at the corner of Trotwood and Foster Ln.		
	TAX MAP: 112	GROUP:	PARCEL: 18.00 & 18.03/18.04
SUMMARY OF NATURE OF REQUEST AND WORK	Request for Preliminary Plat approval of 126 residential units in CD-3		

DATE OF PRE-APPLICATION CONFERENCE	10/26/2022	<i>Pre-application meetings are scheduled for Wednesdays.</i>
------------------------------------	------------	---

SELECT REQUEST	SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO:
☐ Annexation ☐ Rezoning ☒ Preliminary Plat ☐ Final Plat ☐ PUD Preliminary Master Plan ☐ PUD Final Site Plan ☐ Multi-Family Site Plan ☐ Other:	<u>Annexations/Rezoning/PUD's:</u> ☐ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards with check list completed ☐ Columbia Water System Availability Letter
<i>*File naming nomenclature examples:</i> <i>Freedom Point Site Plan</i> <i>Freedom Point Master Plan</i> <i>Freedom Point Final Plat</i>	<u>Plats/PUDs:</u> ☒ Project Name (include Sections & Phases) Trotwood & Foster Subdivision ☒ Total Number of Lots 127 lots ☒ Total acreage 51.5 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.

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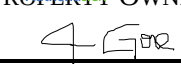
APPLICANT

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

NAME	Crunk Engineering LLC, Adam Crunk, PE	PHONE	615-873-1795
ADDRESS	7112 Crossroads Blvd. Ste 201 Brentwood, TN 37027	EMAIL	adam@crunkeng.com

PROPERTY OWNER NAME	James & Stacy Gore	PHONE	615-347-2698
ADDRESS	2101 Key Dr., Brentwood, TN 37027	EMAIL	jimegore@gmail.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.

Adam Crunk, PE		12/15/2022
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Stacy Gore		12/16/22
PROPERTY OWNER NAME	PROPERTY OWNER SIGNATURE	DATE
John Gore James Gore		12/16/22
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			



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

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APPLICANT

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

NAME	Crunk Engineering LLC, Adam Crunk, PE	PHONE	615-873-1795
ADDRESS	7112 Crossroads Blvd. Ste 201 Brentwood, TN 37027	EMAIL	adam@crunkeng.com

PROPERTY OWNER NAME	Kathleen Rogers	PHONE	615-218-3796
ADDRESS	6031 Trotwood Ave Columbia, TN 38401	EMAIL	km_rogers@bellsouth.net

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		12/15/2022
APPLICANT NAME	APPLICANT SIGNATURE	DATE
Kathleen Rogers		12/16/22
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			

PRELIMINARY CONCEPT SKETCH

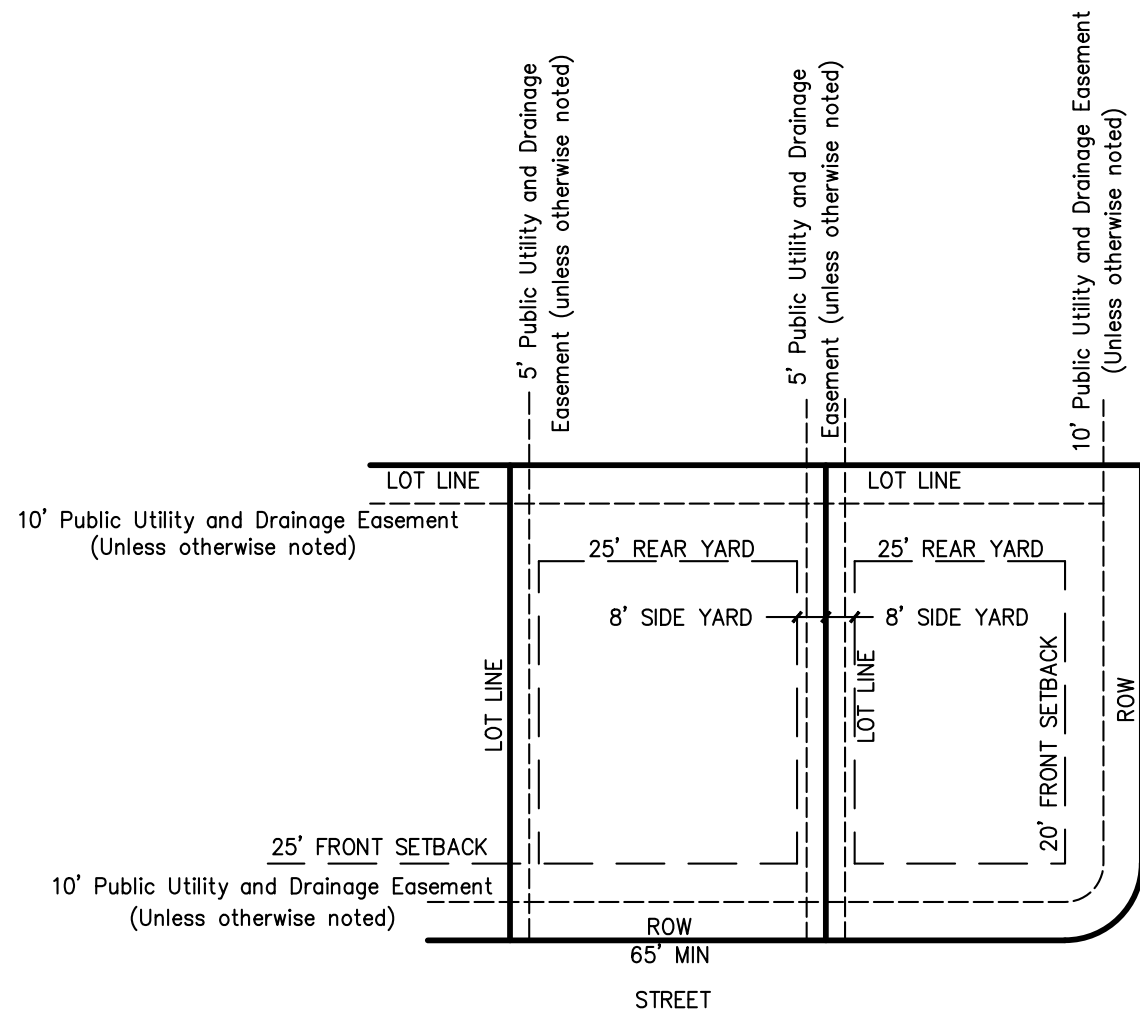
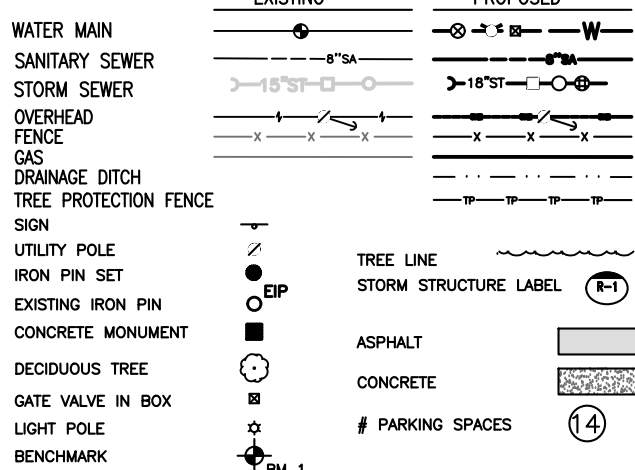


BENCHMARK
BENCHMARK #1
EXIST IRON PIN
ELEV = 691.10'
N = 464,418.94
E = 1,643,263.05
TN STATE PLANE
COORDINATE SYSTEM,
NAD 83 DATUM

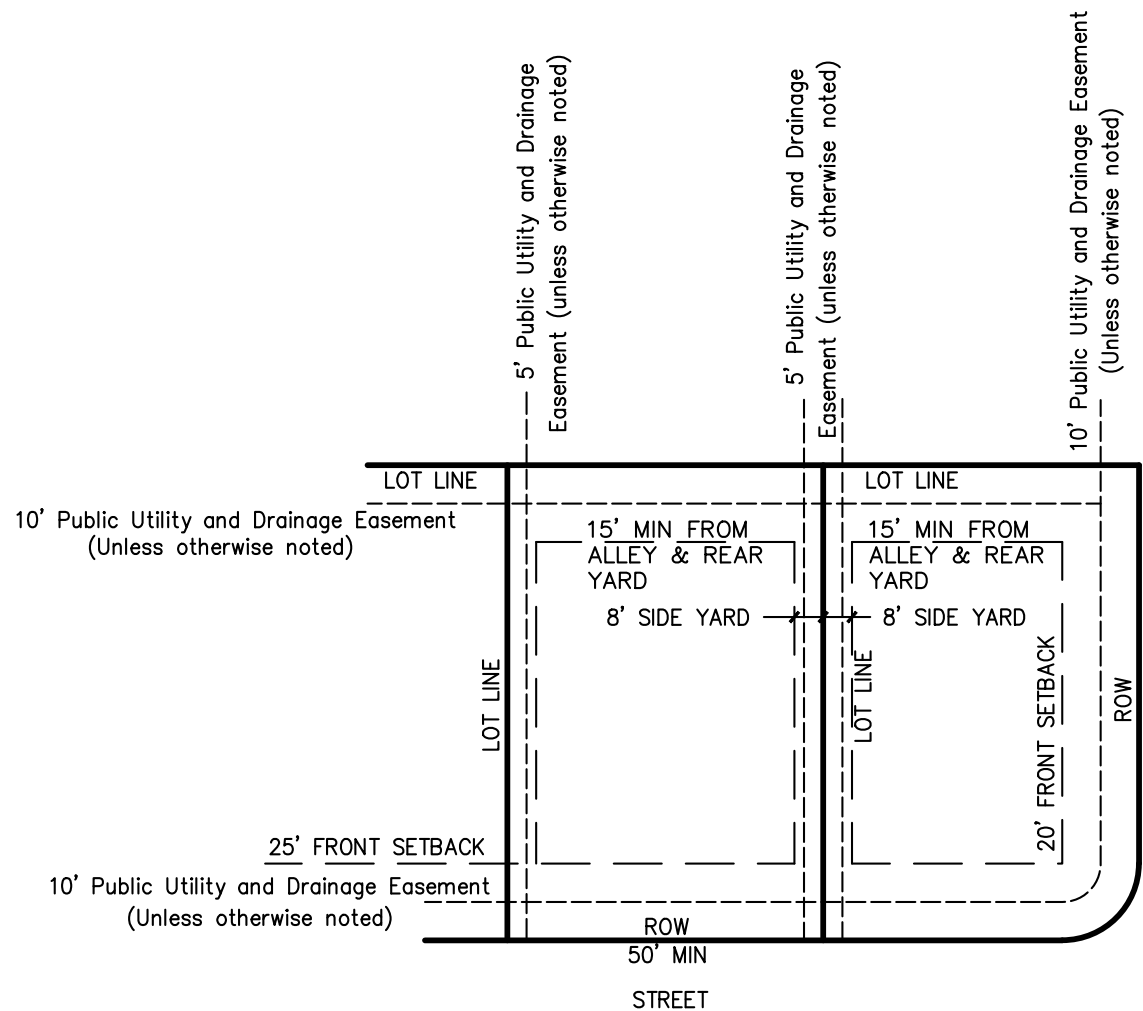
WARNING! UTILITY LINES!

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.

LEGEND

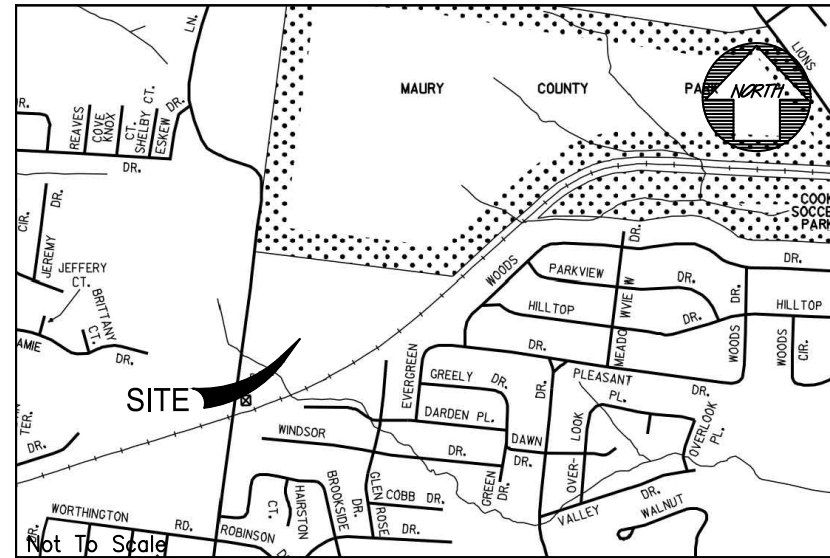


**SUBDIVISION
TYPICAL LOT LAYOUT**



**SUBDIVISION
TYPICAL LOT LAYOUT
ALLEY LOADED**

Location Map



SITE DATA:

OWNER: KCS PROPERTY, LLC
1985 RIDGECREST DRIVE
COLUMBIA, TN 38401

PARCEL NUMBER: TAX MAP 101 PARCEL 039.00
DEED BOOK: R2877, PG 600

SUBJECT PARCEL ZONING: CURRENT ZONING CD-2
PROPOSED ZONING CD-3

ACREAGE OF SITE: 30.76 ACRES
(PROPOSED 310,468.30 S.F. - 7.12 Ac.
RIGHT OF WAY DEDICATION)

MINIMUM REQUIRED BUILDING SETBACKS:
25' FRONT
25' REAR OR 15' REAR IF ALLEY LOADED
8' SIDE
20' SIDE SETBACK FOR CORNER LOTS

UTILITY SERVICES:
WATER SERVICE
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TENNESSEE 38401
(931) 388-4833
ELECTRIC SERVICE
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TENNESSEE 38401
(931) 388-4833

PURPOSE NOTE: CONSTRUCT 4,359.12 L.F. OF ROADWAY AND
PROVIDE 104 RESIDENTIAL LOTS.

NOTES:
1. INSTALLATION OF HVAC EQUIPMENT IN P.U.D.E.'s WITH
BURIED PIPES IS PROHIBITED.
2. ALL DRAINAGE SWALES AND BERMS TO BE MAINTAINED BY
INDIVIDUAL HOMEOWNERS.

GEOTECHNICAL NOTE:

CONTRACTOR TO COMPLETE A GEOTECHNICAL STUDY CONDUCTED ON THIS SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE DESIGN FOR THE SITE IMPROVEMENTS SHOWN ON THIS PLAN HAVE RELIED ON GENERAL INFORMATION FROM FIELD REVIEW OF EXISTING TERRAIN. IF, IN THE PURSUIT OF THIS WORK BY THE CONTRACTOR, CONDITIONS OR CIRCUMSTANCES ARE ENCOUNTERED THAT ARE DIFFERENT THAN REFLECTED IN THESE PLANS OR THAT APPEAR TO IMPACT THE SCOPE OF THE WORK, THE CONTRACTOR WILL IMMEDIATELY NOTIFY THE CIVIL ENGINEER, THE GEOTECHNICAL ENGINEER AND THE OWNER/DEVELOPER. BEFORE ANY REMEDIAL COURSE OF ACTION OR DESIGN CHANGE IS INITIATED. ALL PARTIES TO THE PROCESS (OWNER, CIVIL ENGINEER, GEOTECHNICAL ENGINEER, AND CONTRACTOR) MUST BE IN AGREEMENT AND THE MAGNITUDE OF THE COST/TIME REQUIRED FOR THE MEASURES ESTABLISHED.

SITE BENCHMARK NOTE:

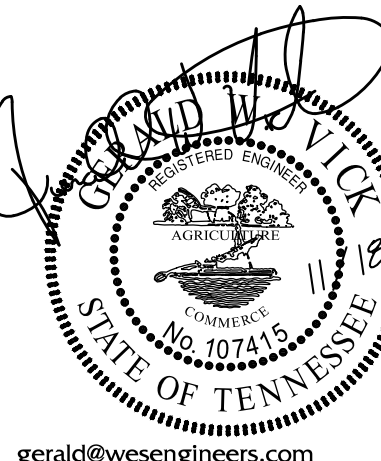
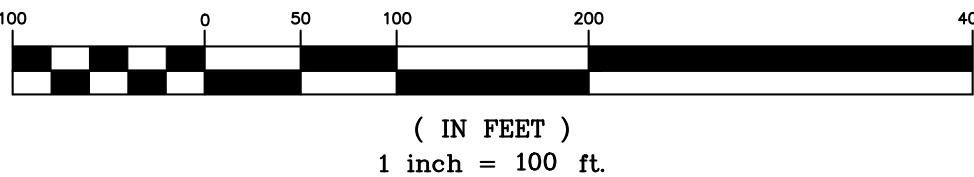
CONTRACTOR SHALL ESTABLISH A BENCHMARK PRIOR TO CONSTRUCTION. EXISTING BENCHMARK MUST BE RE-VERIFIED AND APPROVED BY THE ENGINEER/SURVEYOR PRIOR TO USE.

BOUNDARY & TOPOGRAPHIC SURVEY PROVIDED BY:
WES E ENGINEERS & SURVEYORS
2486 NASHVILLE HWY
COLUMBIA, TENNESSEE 38401
(931) 388-2329

FLOOD STUDY NOTE:

THIS PROPERTY IS NOT LOCATED WITHIN A FLOOD HAZARD AREA AS PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAPS (FIRM's) MAP NUMBER 47117C0280E DATED APRIL 16, 2007.

GRAPHIC SCALE



gerald@wesengineers.com

SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION

© 2022

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

WES E ENGINEERS & SURVEYORS

Client
KCS PROPERTY, LLC
1985 Ridgcrest Drive
Columbia, TN 38401

DATE

REVISIONS

CAYCE LANE

6218 CAYCE LANE
COLUMBIA, MAURY COUNTY, TENNESSEE

PRELIMINARY CONCEPT SKETCH

Drawn: RP
Checked: GV
Approved: GV
Date: Nov. 21, 2022

Job. no. 22569

Scale: Vertical: 1"=100'
Horizontal:

MP-1



PRELIMINARY CONCEPT SKETCH

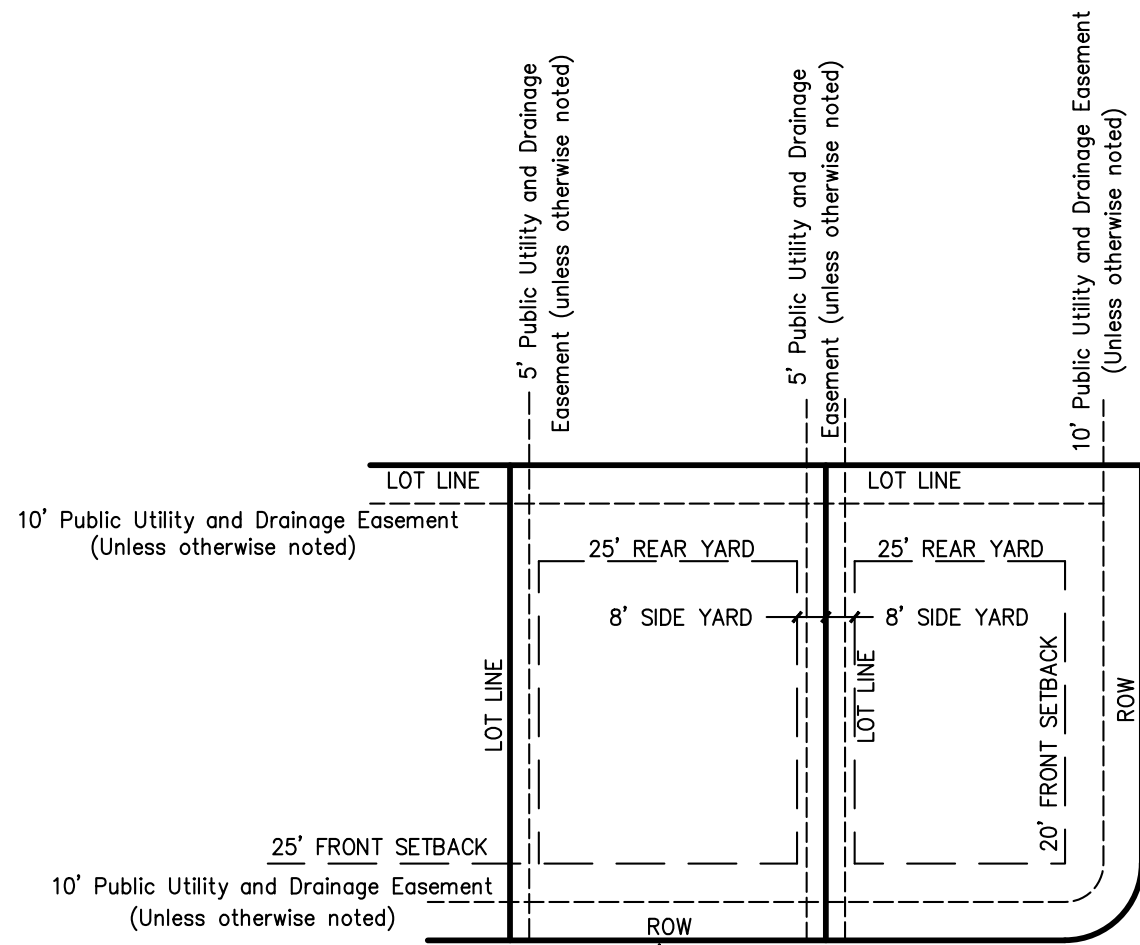
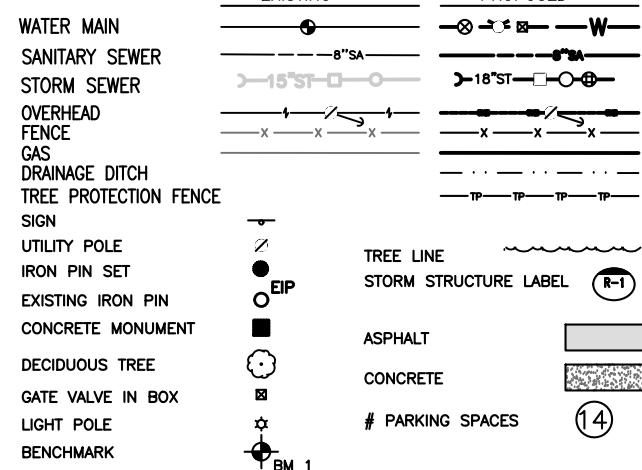


BENCHMARK
BENCHMARK #1
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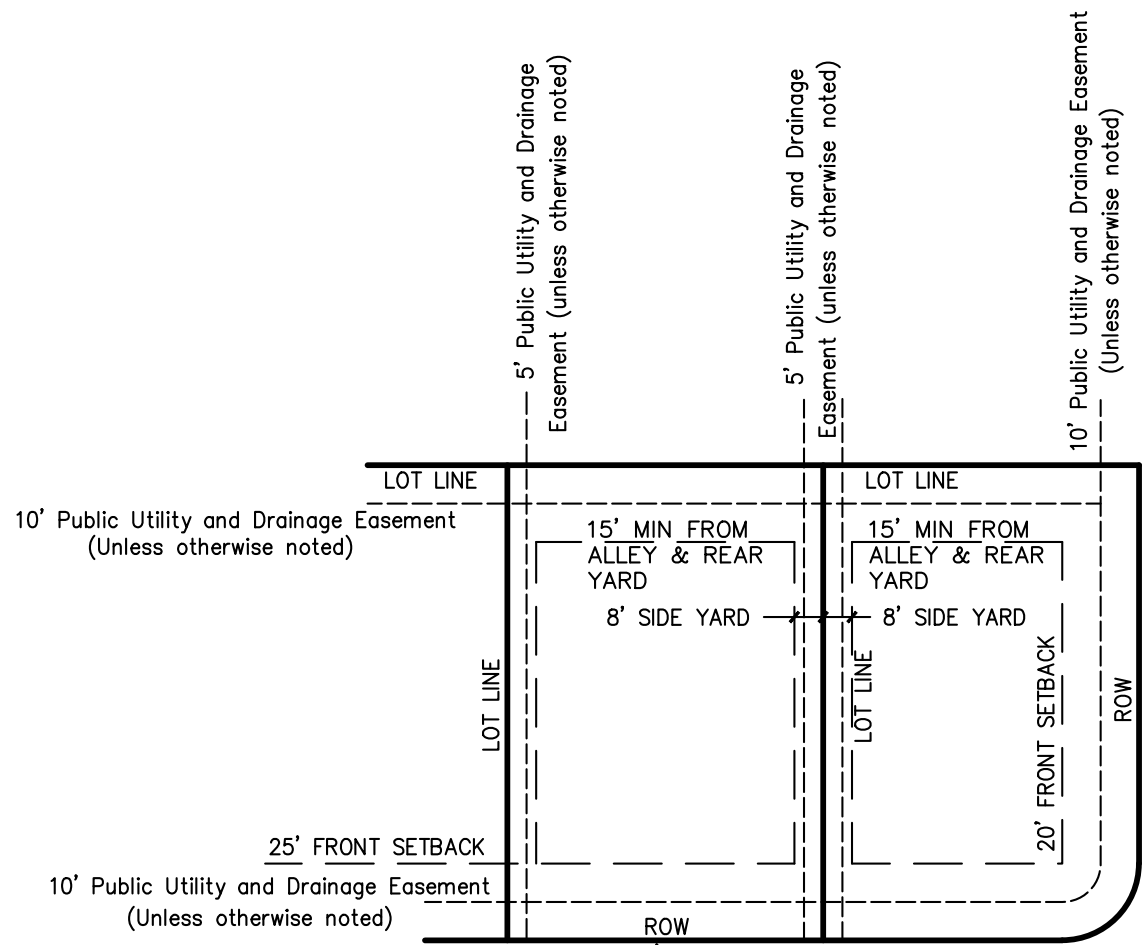
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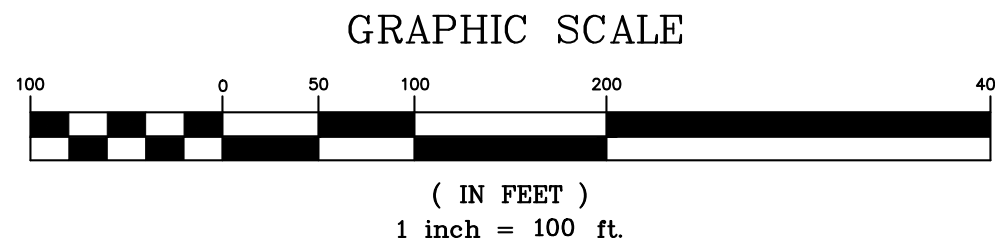
LEGEND



**SUBDIVISION
TYPICAL LOT LAYOUT**



**SUBDIVISION
TYPICAL LOT LAYOUT
ALLEY LOADED**



GEOTECHNICAL NOTE:

CONTRACTOR TO COMPLETE A GEOTECHNICAL STUDY CONDUCTED ON THIS SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE DESIGN FOR THE SITE IMPROVEMENTS SHOWN ON THIS PLAN HAVE RELIED ON GENERAL INFORMATION FROM FIELD REVIEW OF EXISTING TERRAIN. IF, IN THE PURSUIT OF THIS WORK BY THE CONTRACTOR, CONDITIONS OR CIRCUMSTANCES ARE ENCOUNTERED THAT ARE DIFFERENT THAN REFLECTED IN THESE PLANS OR THAT APPEAR TO IMPACT THE SCOPE OF THE WORK, THE CONTRACTOR WILL IMMEDIATELY NOTIFY THE CIVIL ENGINEER, THE GEOTECHNICAL ENGINEER AND THE OWNER/DEVELOPER. BEFORE ANY REMEDIAL COURSE OF ACTION OR DESIGN CHANGE IS INITIATED, ALL PARTIES TO THE PROCESS (OWNER, CIVIL ENGINEER, GEOTECHNICAL ENGINEER, AND CONTRACTOR) MUST BE IN AGREEMENT AND THE MAGNITUDE OF THE COST/TIME REQUIRED FOR THE MEASURES ESTABLISHED.

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
2488 NASHVILLE HWY.
COLUMBIA, TENNESSEE 38401
(931) 388-2329

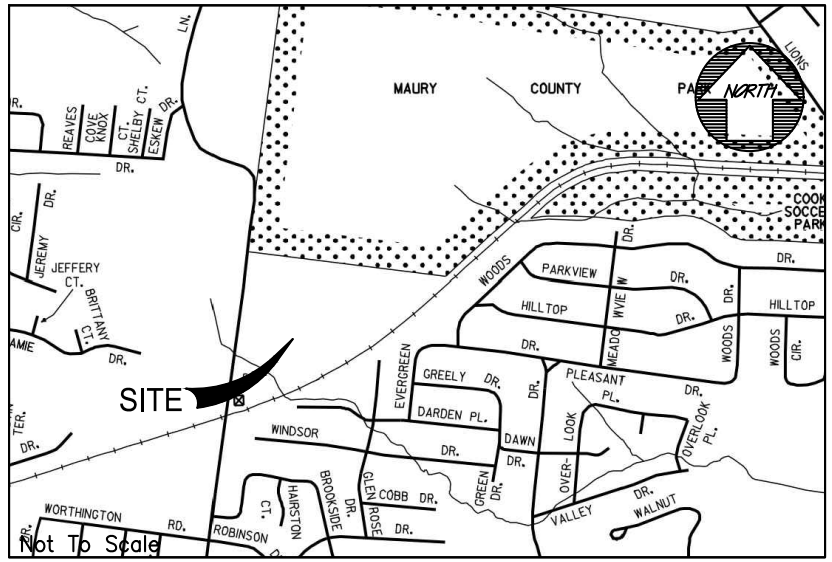
FLOOD STUDY NOTE:

A PORTION OF THE PROPERTY IS LOCATED WITHIN A FLOOD HAZARD AREA AS PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAPS (FIRM'S) MAP NUMBER 47117C0280E DATED APRIL 16, 2007.



SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION

Location Map



SITE DATA:

OWNER: KCS PROPERTY, LLC
1985 RIDGECREST DRIVE
COLUMBIA, TN 38401

PARCEL NUMBER: TAX MAP 101 PARCEL 039.00
DEED BOOK: R2877, PG 600

SUBJECT PARCEL ZONING: CURRENT ZONING CD-2
PROPOSED ZONING CD-3

ACREAGE OF SITE: 30.76 ACRES
(PROPOSED 310,468.30 S.F. - 7.12 Ac.
RIGHT OF WAY DEDICATION)

MINIMUM REQUIRED BUILDING SETBACKS:
25' FRONT
25' REAR OR 15' REAR IF ALLEY LOADED
8' SIDE
20' SIDE SETBACK FOR CORNER LOTS

UTILITY SERVICES:
WATER SERVICE
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TENNESSEE 38401
(931) 388-4833
ELECTRIC SERVICE
COLUMBIA POWER & WATER SYSTEMS
201 PICKENS LANE
COLUMBIA, TENNESSEE 38401
(931) 388-4833

PURPOSE NOTE: CONSTRUCT 4,359.12 L.F. OF ROADWAY AND PROVIDE 107 RESIDENTIAL LOTS.

NOTES:
1. INSTALLATION OF HVAC EQUIPMENT IN P.U.D.E.'s WITH BURIED PIPES IS PROHIBITED.
2. ALL DRAINAGE SWALES AND BERMS TO BE MAINTAINED BY INDIVIDUAL HOMEOWNERS.

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WES E ENGINEERS & SURVEYORS
CIVIL ENGINEERS & LAND SURVEYORS
2488 NASHVILLE HIGHWAY
COLUMBIA, TN 38401
PHONE: (931) 388-2329
www.wesengineers.com

WES E ENGINEERS & SURVEYORS

Client
KCS PROPERTY, LLC
1985 Ridgcrest Drive
Columbia, TN 38401

DATE

REVISIONS

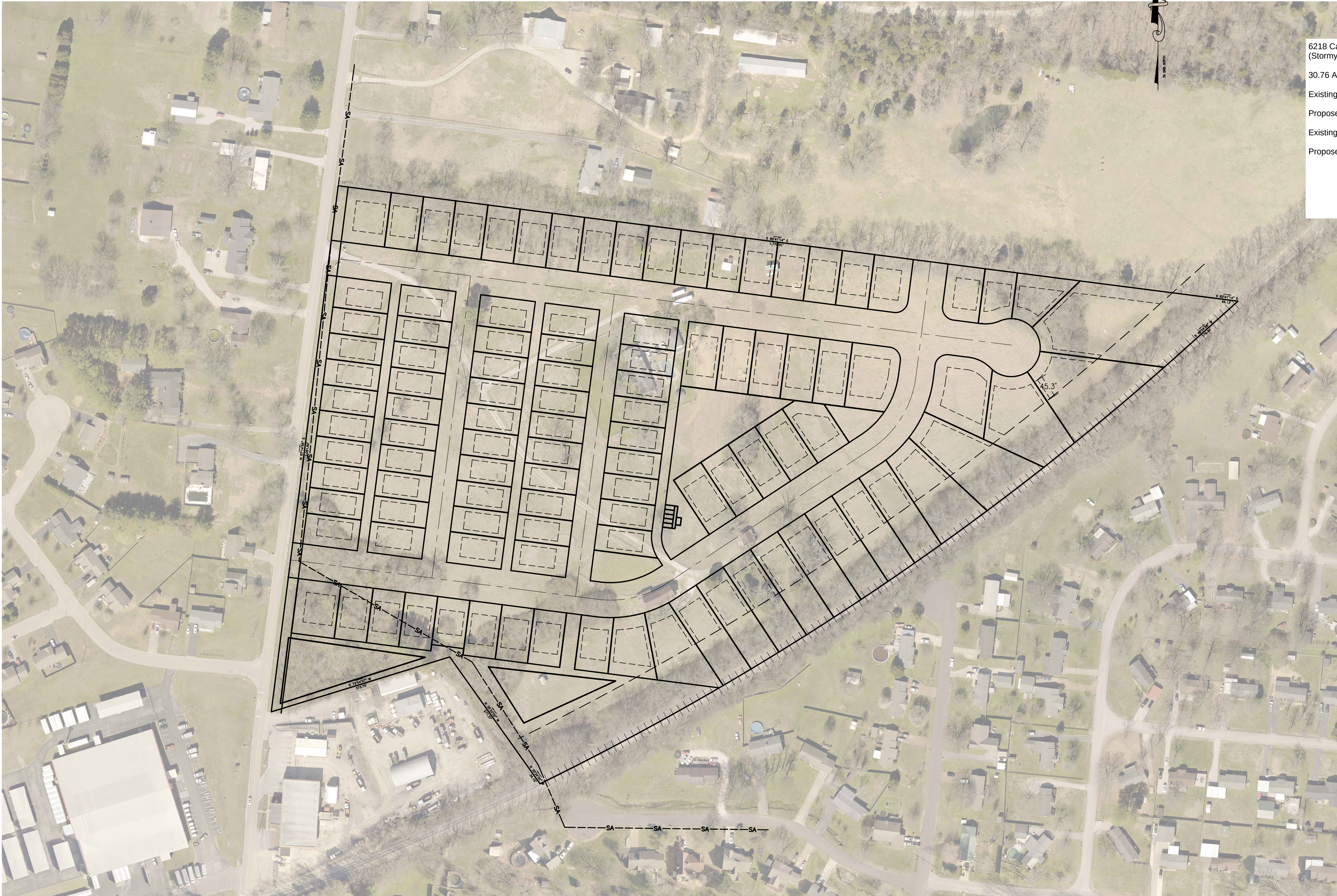
CAYCE LANE
6218 CAYCE LANE

COLUMBIA, MAURY COUNTY, TENNESSEE
PRELIMINARY CONCEPT SKETCH

Drawn: RP
Checked: GV
Approved: GV
Date: Nov. 21, 2022
Scale: Vertical: 1"=100'
Horizontal: 1"=100'

MP-1

PRELIMINARY CONCEPT SKETCH



6218 Cayce Lane, Columbia, TN
(Stormy Walker Property)

30.76 Acres per Survey 9/12/2016 By Others

Existing Zoning CD-2

Proposed Zoning CD-3

Existing Suburban Neighborhood

Proposed Concept presents 109 Lots

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

WES E NGINEERS & SURVEYORS

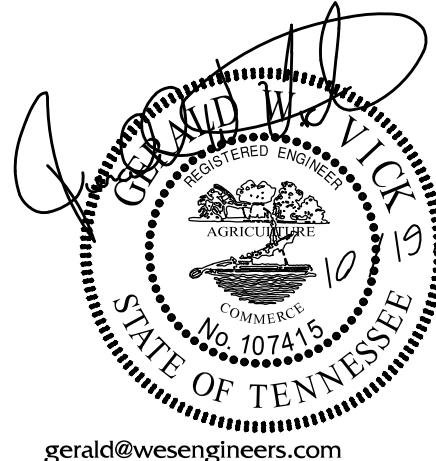
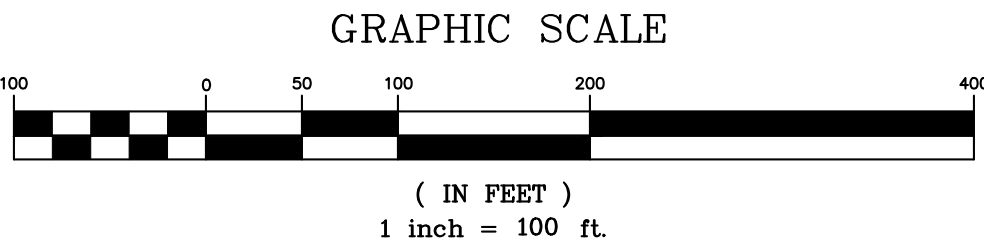
Client
Wade Kincaid
1985 Ridgcrest Drive
Columbia, TN 38401

REVISIONS	DATE

CAYCE LANE
6218 CAYCE LANE
COLUMBIA, MAURY COUNTY, TENNESSEE
PRELIMINARY CONCEPT SKETCH

Drawn: RP	Checked: JG	Approved: GV	Date: Oct. 19, 2022
Job No. 22569	Scale: Vertical: 1"=100'	Horizontal: 1"=100'	

MP-2



gerald@wesengineers.com

SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION



December 16, 2022

Mr. Gerald W. Vick P.E.

WES Engineers & Surveyors

2486 Nashville Hwy

Columbia, TN 38401

Sent via email: gerald@wesengineers.com

RE: Water Availability Letter

6218 Cayce Lane – 107 Lots

Tax Map 101, Parcel 39

Columbia, Maury County, TN

Dear Mr. Vick:

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, provided the applicant complies with all rules and regulations of CPWS and conditions set out herein.

The proposed development consists of 107 units. 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 connection will be made to the existing 12-inch water main located on Cayce Lane.
- Minimum size 8-inch, looped water mains will be required throughout the development.



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:

- Present the attached fire hydrant curve for coordination and approval of development from the Columbia Fire & Rescue Fire Marshall.
- Provide site base CAD files in DWG format, including roads, lot lines, existing and proposed contours, and other existing and proposed utilities, for use in development of water construction drawings.
- Remit to CPWS new water service fees:

New Water Service Fee: \$1500 + \$370 per SFU (107 SFUs)	\$41,090.00
--	-------------

- CPWS will then develop water construction drawings and submit to TDEC for approval. Upon approval by TDEC and payment of meter and capacity 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. Final meter and capacity fees are subject to change based on final design and meter size determination.

Meter Fee: \$540 per ¾" meter (70 meters)	\$57,780.00
Capacity Fee: \$875 per ¾" meter (70 meters)	\$93,625.00
Total Meter and Capacity Fees Due =	\$151,405.00

- 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 Mr. Jonathan Hardin or myself 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,

A handwritten signature in blue ink that reads "Eric King". The signature is written in a cursive, flowing style.

Eric King, P.E.

Inflo Design Group, LLC

on behalf of Columbia Power and Water Systems

cc: Jonathan Hardin, CPWS

File 22-096



Columbia Fire & Rescue

Fire Flow Requirements



Water Purveyor: Columbia Power & Water System

Date: 11/15/22
Name: Gerald W. Vick, PE
Phone: 931-388-2329
Email: gerald@wesengineers.com
Address/Parcel ID: 6218 Cayce Lane - Tax Map 101 Parcel 39.00
Property Type: ☒ Residential
☐ Commercial
☐ Industrial
Construction Type: Wood Frame V-B
Enclosed Area (ft²): Single Family <3,600

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: 11-18-2022

PRELIMINARY CONCEPT SKETCH

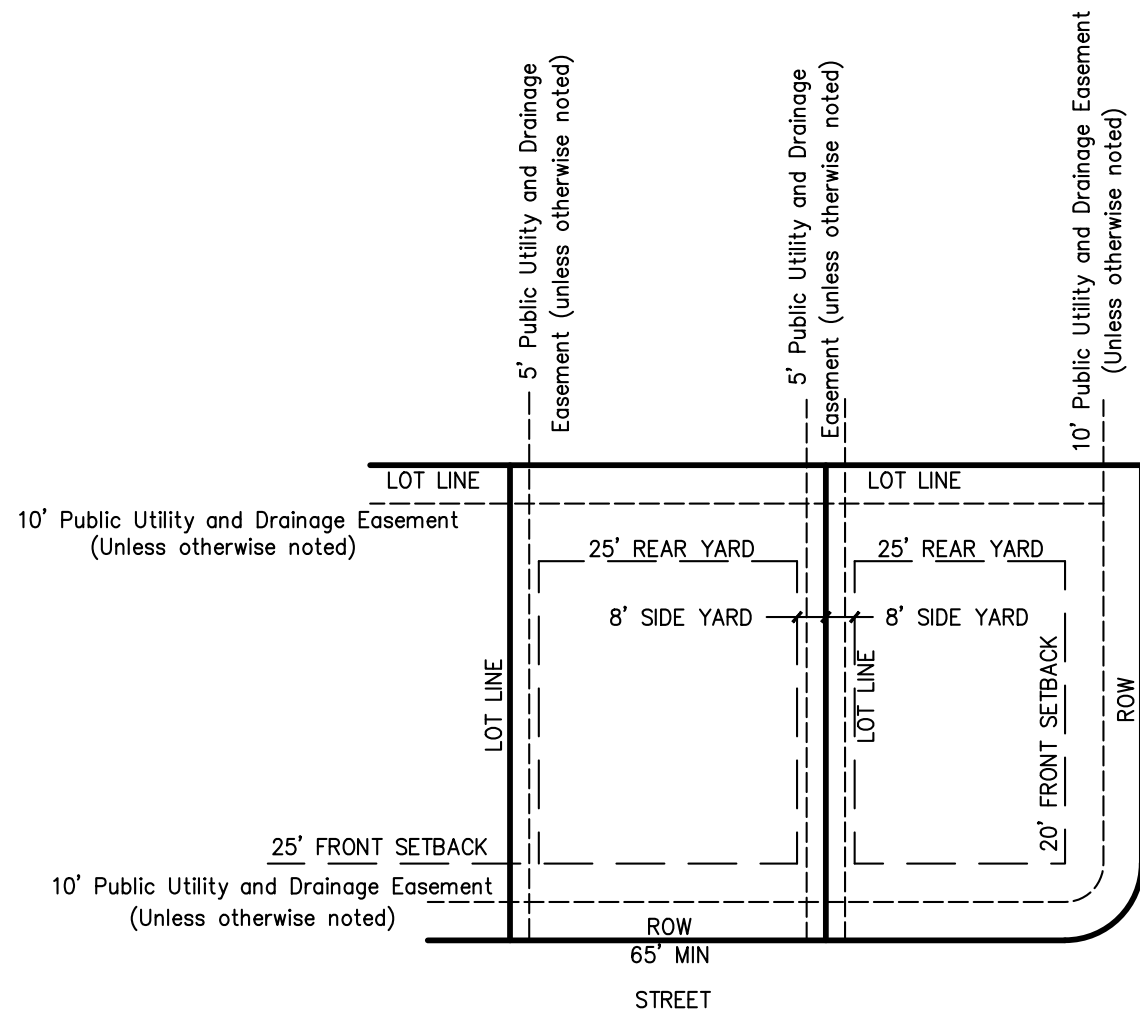
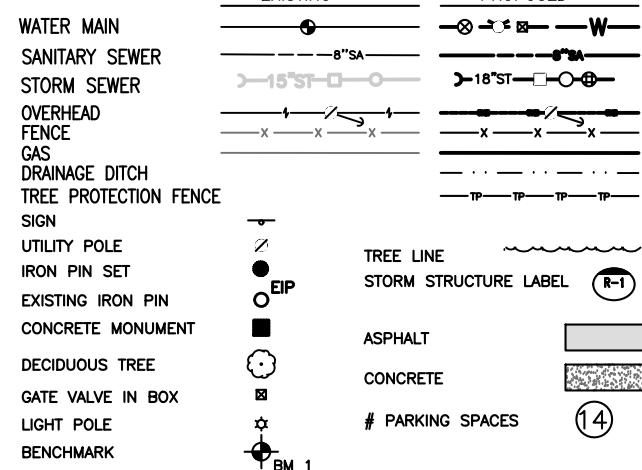


BENCHMARK
BENCHMARK #1
EXIST IRON PIN
ELEV = 691.10'
N = 464,418.94
E = 1,643,263.05
TN STATE PLANE
COORDINATE SYSTEM,
NAD 83 DATUM

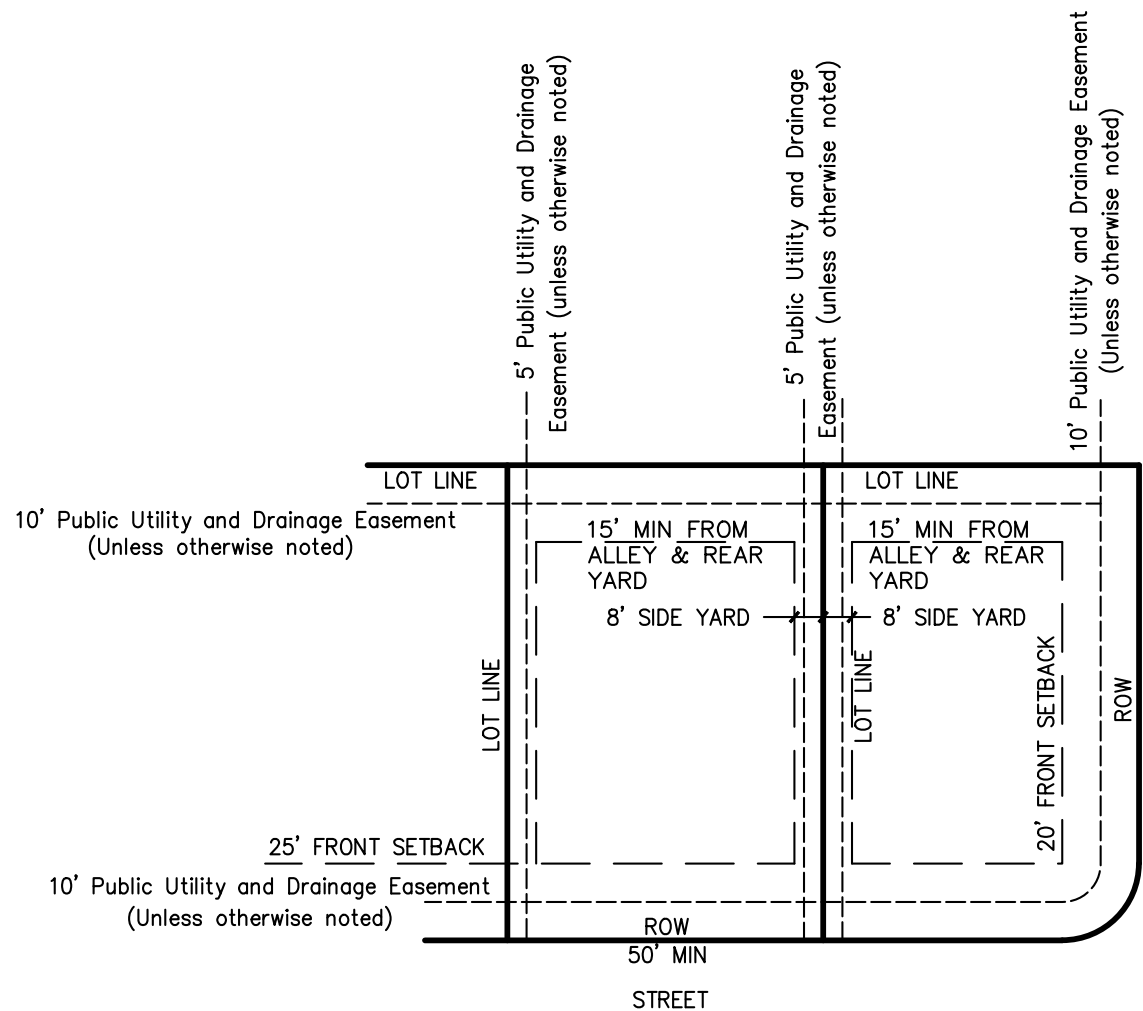
WARNING! UTILITY LINES!

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.

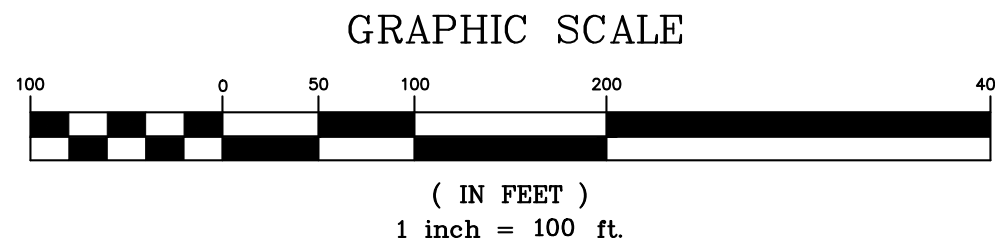
LEGEND



**SUBDIVISION
TYPICAL LOT LAYOUT**



**SUBDIVISION
TYPICAL LOT LAYOUT
ALLEY LOADED**



GEOTECHNICAL NOTE:

CONTRACTOR TO COMPLETE A GEOTECHNICAL STUDY CONDUCTED ON THIS SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE DESIGN FOR THE SITE IMPROVEMENTS SHOWN ON THIS PLAN HAVE RELIED ON GENERAL INFORMATION FROM FIELD REVIEW OF EXISTING TERRAIN. IF, IN THE PURSUIT OF THIS WORK BY THE CONTRACTOR, CONDITIONS OR CIRCUMSTANCES ARE ENCOUNTERED THAT ARE DIFFERENT THAN REFLECTED IN THESE PLANS OR THAT APPEAR TO IMPACT THE SCOPE OF THE WORK, THE CONTRACTOR WILL IMMEDIATELY NOTIFY THE CIVIL ENGINEER, THE GEOTECHNICAL ENGINEER AND THE OWNER/DEVELOPER. BEFORE ANY REMEDIAL COURSE OF ACTION OR DESIGN CHANGE IS INITIATED, ALL PARTIES TO THE PROCESS (OWNER, CIVIL ENGINEER, GEOTECHNICAL ENGINEER, AND CONTRACTOR) MUST BE IN AGREEMENT AND THE MAGNITUDE OF THE COST/TIME REQUIRED FOR THE MEASURES ESTABLISHED.

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2486 NASHVILLE HWY.
COLUMBIA, TENNESSEE 38401
(931) 388-2329

FLOOD STUDY NOTE:

A PORTION OF THE PROPERTY IS LOCATED WITHIN A FLOOD HAZARD AREA AS PER FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAPS (FIRM'S) MAP NUMBER 47117C0280E DATED APRIL 16, 2007.



SUBMITTED FOR MUNICIPAL APPROVAL
NOT FOR CONSTRUCTION

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2486 NASHVILLE HIGHWAY
COLUMBIA, TN 38401
PHONE: (931) 388-2329
www.wesengineers.com

WES E ENGINEERS & SURVEYORS

Client
KCS PROPERTY, LLC
1985 RIDGECREST DRIVE
Columbia, TN 38401

DATE

REVISIONS

CAYCE LANE
6218 CAYCE LANE
COLUMBIA, MAURY COUNTY, TENNESSEE
PRELIMINARY CONCEPT SKETCH

Drawn: RP
Checked: GV
Approved: GV
Date: Nov. 21, 2022

Scale: 1"=100'
Vertical: 1"=100'
Horizontal: 1"=100'

22569

MP-1



HYDRANT FLOW ANALYSIS



HYDRANT # & LOCATION: 892 6201 Cayce Ln

DATE: _____

MODEL BY: Inflo Design Group, LLC SYS. DEMAND Max Day

DURATION: 1 hrs.

WATER SUPPLIED BY: Columbia Power and Water Systems

PURPOSE OF TEST: 6218 Cayce Ln

MODEL DATA

FLOW HYDRANT(S) 892 n/a n/a
GPM: 850 0 0
TOTAL FLOW DURING SIMULATION: 850 GPM

GAUGE HYDRANT

HYDRANT # & LOCATION: 601 6221 Cayce Ln

CONDITION 1

STATIC 54 PSI

RESIDUAL: 47 PSI

CONDITION 2

STATIC _____ PSI

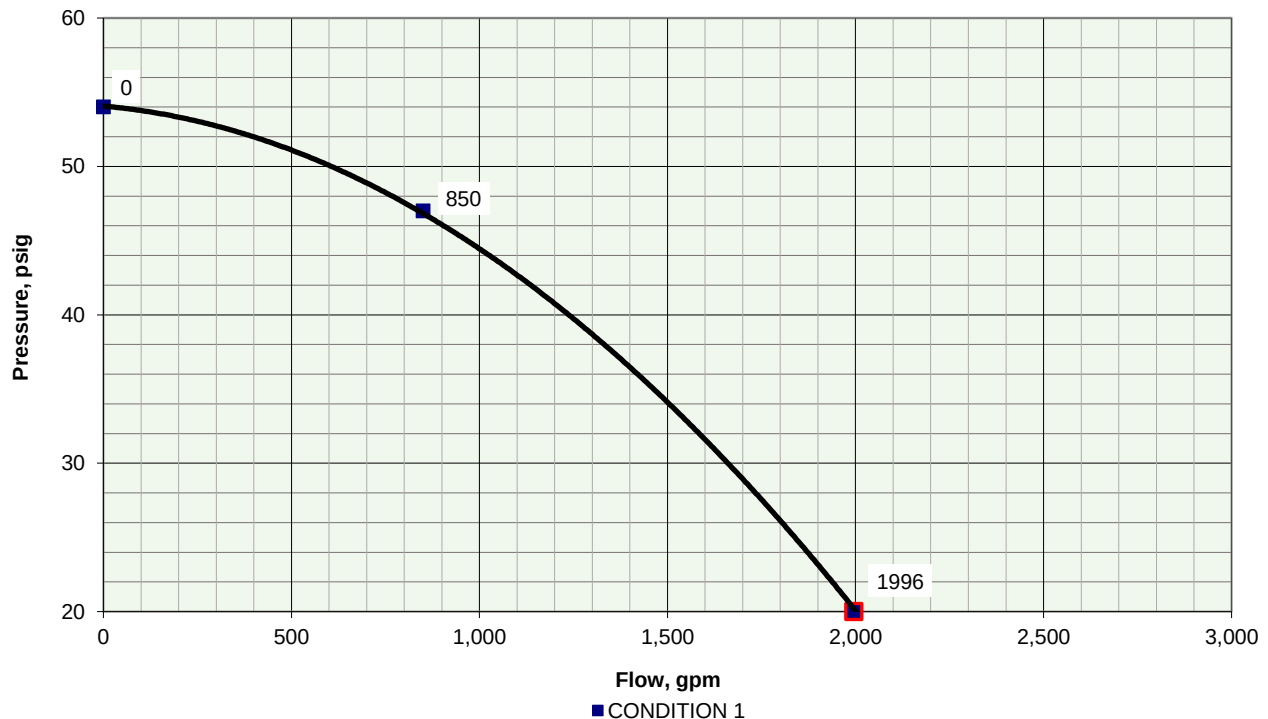
RESIDUAL: _____ PSI

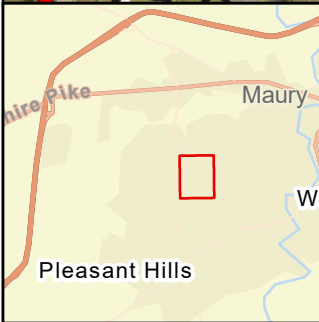
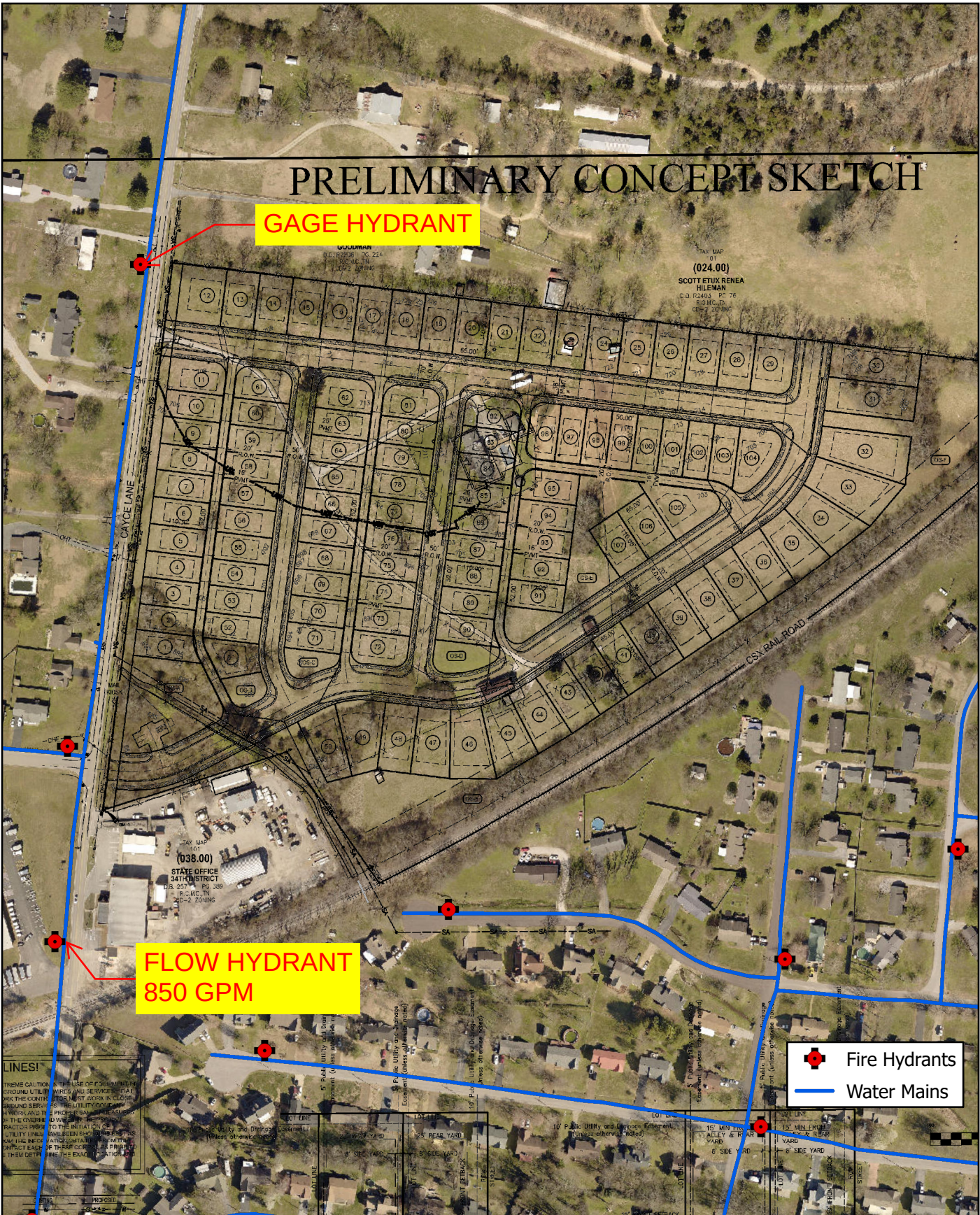
RESULTS: AT 20 PSI RESIDUAL

CONDITION 1 1996 GPM

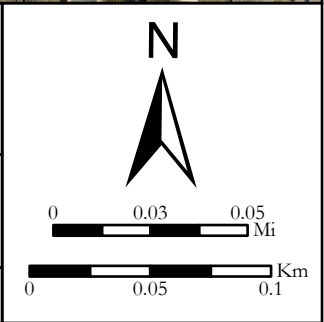
CONDITION 2 --- GPM

REMARKS: Performance based on service elevation of 710' and current CPWS water infrastructure and do not account for additional losses associated with development piping.





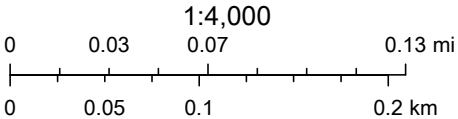
Hydrant Analysis Location Map 6218 Cayce Lane Tax Map 101, Parcel 039.00	
Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA	2022
Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet	



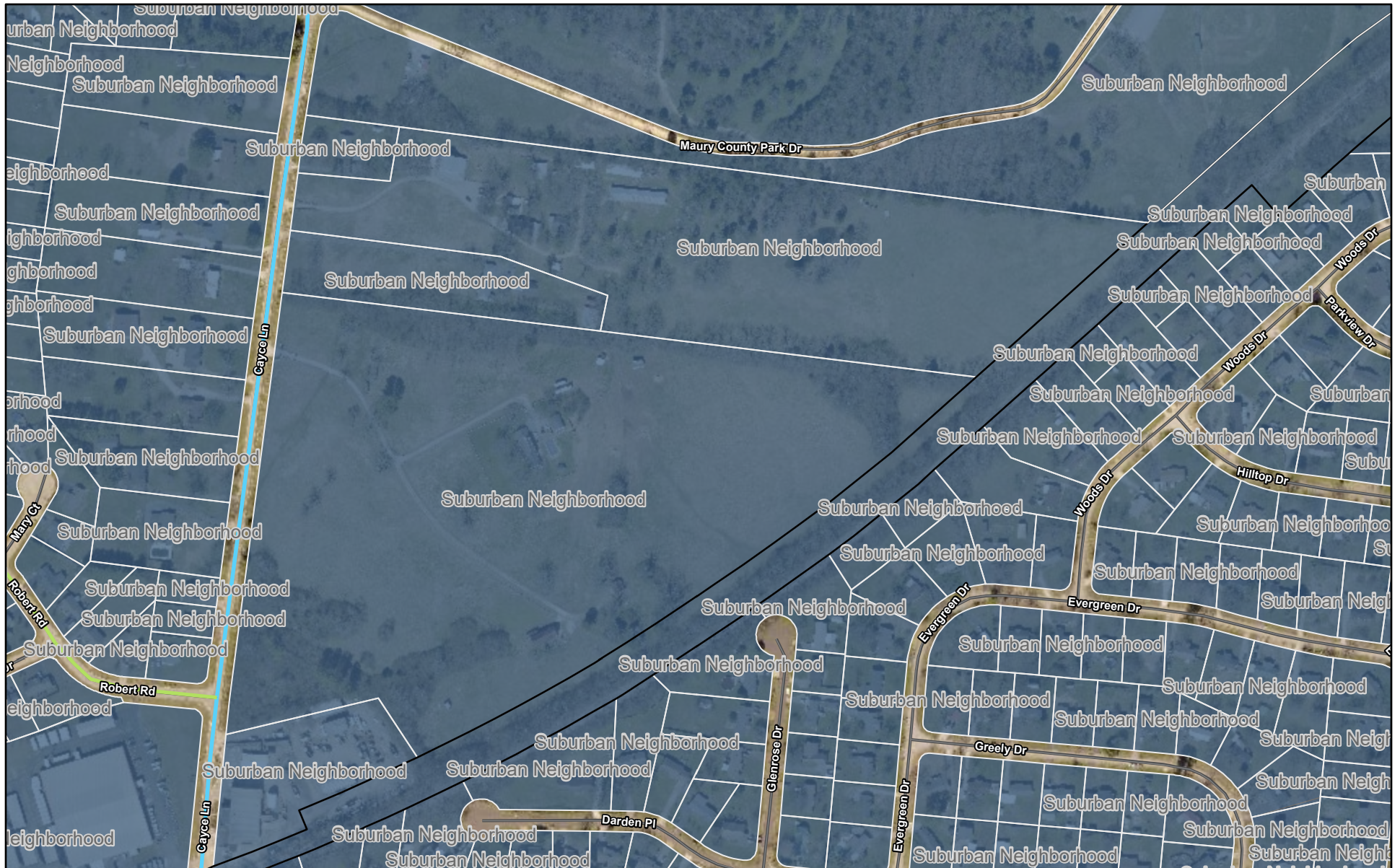
6218 Cayce Lane - CD-2



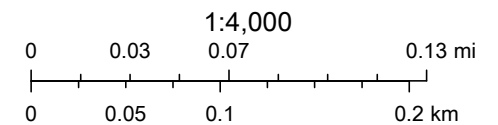
October 19, 2022



6218 Cayce Lane - Suburban Neighborhood



October 19, 2022



**BK/PG:R2877/600-603
22018670**

4 PGS : WARRANTY DEED

NANCY MCMEEN 289567 - 22018670

09/30/2022 - 10:42 AM

VALUE 1480000.00

MORTGAGE TAX 0.00

TRANSFER TAX 5476.00

RECORDING FEE 20.00

DP FEE 2.00

REGISTER'S FEE 1.00

TOTAL AMOUNT 5499.00

STATE OF TENNESSEE, MAURY COUNTY

**JOHN FLEMING
REGISTER OF DEEDS**

This Instrument Prepared By:
Thomas M. Hutto Esq.
Dale, Hutto & Lyle, PLLC
805 South Garden Street
P.O. Box 1017
Columbia, TN 38402-1017

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, this indenture entered into between **STORMY A. WALKER**, FIRST PARTY, which expression shall include heirs, assigns and personal representatives, and, **KCS PROPERTY LLC, A TENNESSEE LIMITED LIABILITY COMPANY**, SECOND PARTY, which expression shall include heirs, assigns and personal representatives.

WITNESSETH:

For the consideration of TEN DOLLARS (\$10.00), and other good and valuable considerations, the receipt of all of which is hereby acknowledged, FIRST PARTY conveys to SECOND PARTY the following described property:

Being in the Ninth (9th) Civil District of Maury County Tennessee in the city limits of Columbia Tennessee.

Beginning at a point in the center of the CSX Railroad, said point is located S 40°41'33" W a distance of 115.2" from an old concrete mile marker post (235).

Thence with the center of the railroad S 48°04'58" W a distance of 176.44; Thence with a curve with an arc length of 1528.36 with a radius of 5674.41 with a chord bearing of S 56°08'55" W with a chord length of 1523.75 to a point in the center of the railroad; Thence leaving the railroad and running with the land of the TDOT 34th District N 35° 24'00" W a distance of 34.15 to a iron pin set in an old fence running parallel to the railroad; Thence N 35°24'00" W a distance of 277.37 to a 1 1/2" pipe; Thence S 72°54'07" W a distance of 373.75 to a iron pin set in the East line of Cayce Lane; Thence running with the east line of Cayce Lane N 07°14'55" E a distance of 1061.62 to a iron pin set. Thence leaving Cayce Lane and running with the line of Goodman S 82°42'14" E a distance of 1770.04 to a iron pin set at an old Wood Fence Post; Thence S 82°42'14"E a distance of 45.13 to the point of beginning having an area of 30.76.

Being the same property conveyed to Stormy A. Walker by deed recorded on September 23, 2016 in Book R2392, Page 1408, in the Maury County Register of Deeds

101-039.00

WARRANTY DEED

Legal description obtained from prior deed.

TO HAVE AND TO HOLD said real estate unto SECOND PARTY, together with all rights, titles, easements and appurtenances thereunto belonging, forever.

FIRST PARTY COVENANTS that it is lawfully seized and possessed of said real estate and that FIRST PARTY has a good and lawful right to convey the same, and that it is unencumbered, except for current year's property taxes; easement for private sewer line described in Deed Book 379, Page 427, Register's Office of Maury County, Tennessee; easements described in Deed Book 359, Page 205, Register's Office of Maury County, Tennessee; subject to charter right of way for CSX railroad; and any other matters of record.

FIRST PARTY FURTHER COVENANTS to forever warrant and defend the title to the above described property unto SECOND PARTY against the lawful claims of all persons whomsoever.

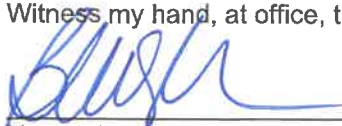
IN WITNESS WHEREOF, this conveyance has been executed on this 30th day of September, 2022.


Stormy A. Walker

STATE OF TENNESSEE
COUNTY OF MAURY

On this 30 day of September, 2022, before me personally appeared **STORMY A. WALKER**, to me known to be the person (or persons) described in and who executed the foregoing instrument, and acknowledged that such person (or persons) executed the same as such person's (or persons') free act and deed.

Witness my hand, at office, this 30 day of September, 2022.



Notary Signature

My commission expires: June 26, 2023



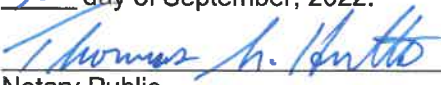
STATE OF TENNESSEE - MAURY COUNTY

I hereby affirm that the actual consideration for this transfer or value of the property transferred, whichever is greater is **\$1,480,000.00**.


Affiant

Sworn and subscribed to before me,

30th day of September, 2022.


Notary Public

My commission expires: 6/25/25



**PERSON OR AGENCY
RESPONSIBLE FOR TAXES:**

KCS PROPERTY LLC

1985 Ridgecrest Drive

Columbia, TN 38401

**NAME AND ADDRESS
OF PROPERTY OWNERS:**

KCS PROPERTY LLC

1985 Ridgecrest Drive

Columbia, TN 38401

**THIS DOCUMENT WAS
E-RECORDED**

COUNTY Maury
BOOK R2817
PAGE 600



**MAURY COUNTY
TITLE COMPANY, INC.**

Real Estate. Real Attorneys. Real Simple.

805 South Garden Street
P.O. Box 2012
Columbia, TN 38402-2012
Phone (931) 388-4487
Fax (931) 381-3748
www.maurycountytile.com

Tennessee Certification of Electronic Document

I, Brittany Brewer, do hereby make oath that I am a
licensed attorney and/or the custodian of the original version of the electronic document tendered
for registration herewith and that this electronic document is a true and exact copy of the original
document executed and authenticated according to law on 09-30-2022 (date of
document).

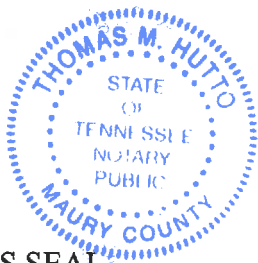
(Brittany Brewer)
Affiant Signature

09-30-2022

Date

State of Tennessee
County of Maury

Sworn to and subscribed before me this 30th day of September, 2022.



NOTARY'S SEAL

Thomas M. Hutto

Notary's Signature

My commission expires: 6/25/25



Preliminary Plat, Site Development Plan, and PUD Checklist

Development: _____

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

General

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

Lots and Land-Use

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

Structures

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



Grading, Drainage, and Storm

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

Streets, Parking, and Pedestrian Elements

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

Landscaping, Open Space, and Amenities

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

Utilities

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



PUD Specific Items

- ☐ 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

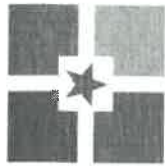
If the application is deemed incomplete by the Zoning Administrator, a written request shall be made within ten days after the original submittal, for further information. In such case the application shall be held in abeyance until deemed complete for final review. No plan shall be formally presented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

** 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"

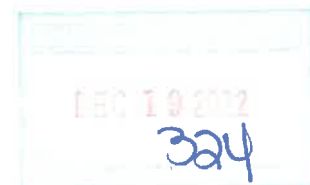
ADDRESS/LOCATION	6218 Cayce Lane		
	TAX MAP: 101	GROUP:	PARCEL: 39.00
SUMMARY OF NATURE OF REQUEST AND WORK	Request re-zoning from CD-2 to CD-3. Project will construct 4,359 linear feet of public roadway and provide 107 residential lots.		

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:	<u>Annexations/Rezoning/PUD's:</u> ☒ Written Legal Description copy ☒ Requested Zone Listed ☒ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards with check list completed ☐ Columbia Water System Availability Letter <u>Plats/PUDs:</u> ☐ Project Name (include Sections & Phases) ☒ Total Number of Lots 104 ☒ Total acreage 30.76

**File naming nomenclature examples:*

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



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	Wade Kincaid	PHONE	615-642-3478
ADDRESS	1985 Ridgecrest Drive Columbia, TN 38401	EMAIL	wade@kcsllc.com

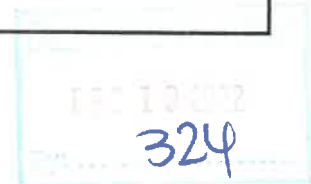
PROPERTY OWNER NAME	KCS Property, LLC	PHONE	615-642-3478
ADDRESS	1985 Ridgecrest Drive Columbia, TN 38401	EMAIL	wade@kcsllc.com

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.

Wade Kincaid _____ APPLICANT NAME	 _____ APPLICANT SIGNATURE	11/18/2022 _____ DATE
KCS Property, LLC _____ PROPERTY OWNER NAME	 _____ PROPERTY OWNER SIGNATURE	11/18/2022 _____ 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			



ZERO INDUSTRIAL PARK ROAD

SITE DEVELOPMENT PLAN

0 Industrial Park Road
City of Columbia, Tennessee

Tax Map 089, Parcels 046.00, 46.59 Acres

Developer: Kure Properties LLC
4817 Murfreesboro Road
Arrington, TN 37014
ryan@kureconstruction.com
(630)306-700

Surveyor: Carroll Land Surveying
495 East Main Street, Suite 1
Hohenwald, TN 38462
csurvey@bellsouth.net
(931)796-1654

Landscape Engineer:

 **T-SQUARE ENGINEERING**
Consulting Civil Engineering
1329 West Main St., Franklin, TN, 37064
(615)370-1443 * Email: curtis.stewart@t2-eng.com

Engineer:

 **T-SQUARE ENGINEERING**
Consulting Civil Engineering
1329 West Main St., Franklin, TN, 37064
(615)370-1443 * Email cole.gaumnitz@t2-eng.com



VICINITY MAP

GRAPHIC SCALE



SCALE: 1" = 200'

Sheet Schedule

- C-0.0 Cover Sheet
- C-1.0 Existing Conditions
- C-2.0 Site Plan
- C-2.1 Grading and Drainage Plan
- C-2.2 Utility Plan

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AREA DESIGNATED AS "ZONE X" AND ZONE "AE" AS EVIDENCED ON FEMA PANEL # 47119C0165E OF COLUMBIA, MAURRY COUNTY, TN, DATED 04/18/2007.

OWNER OF RECORD

Kure Properties LLC
J&T Land Holdings LLC
Tax 089 and Parcel Number 046.0

APPLICANT

T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212

615.678.8212

REVISIONS

DATE _____

2

DATE: 12/19/22

SCALE:

AS SHOWN

T-SQUARE

REVIEWER: FCG

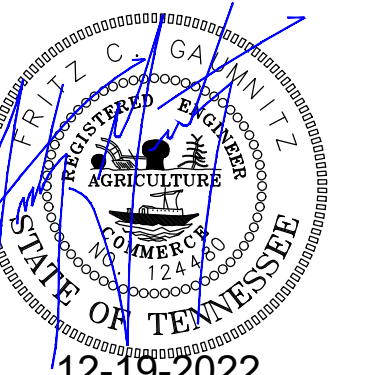
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MAP 89, PARCEL 046.00

COLUMBIA, TENNESSEE

ZERO INDUSTRIAL PARK ROAD



2-19-2022

PROJECT

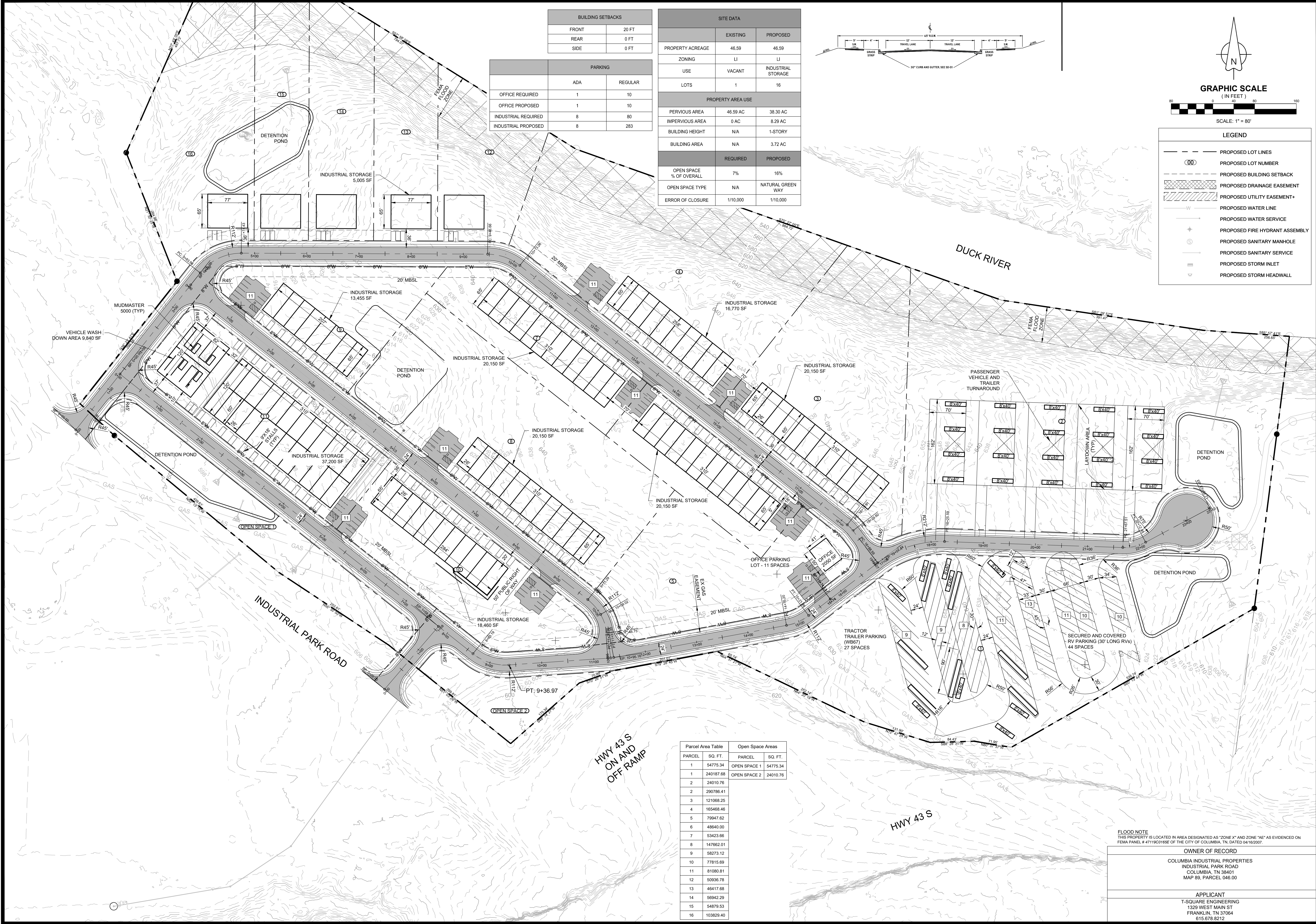
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HEET

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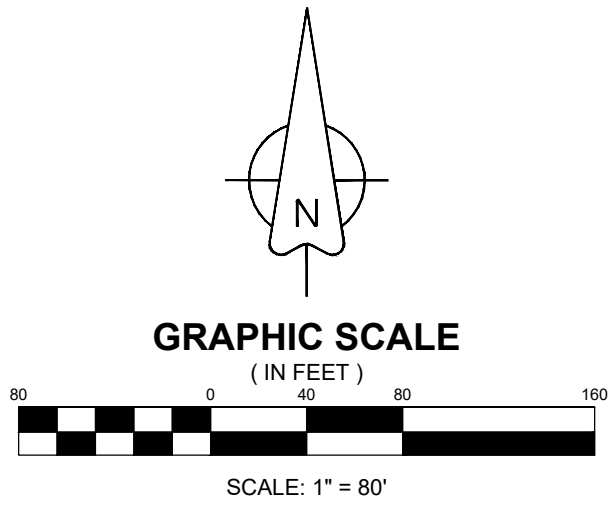
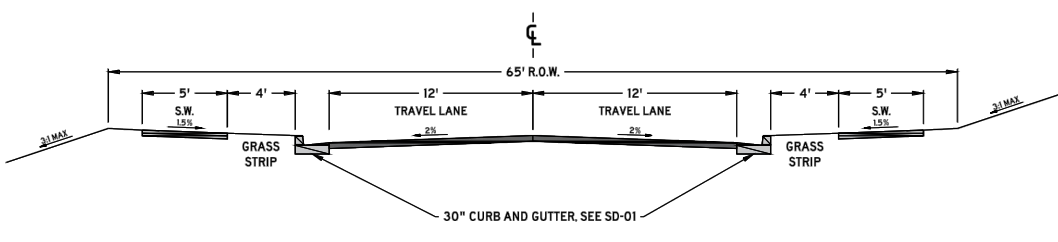
T-SQUARE ENGINEERING



BUILDING SETBACKS	
FRONT	20 FT
REAR	0 FT
SIDE	0 FT

	PARKING	
	ADA	REGULAR
OFFICE REQUIRED	1	10
OFFICE PROPOSED	1	10
INDUSTRIAL REQUIRED	8	80
INDUSTRIAL PROPOSED	8	283

SITE DATA		
	EXISTING	PROPOSED
PROPERTY ACREAGE	46.59	46.59
ZONING	LI	LI
USE	VACANT	INDUSTRIAL STORAGE
LOTS	1	16
PROPERTY AREA USE		
PERVIOUS AREA	46.59 AC	38.30 AC
IMPERVIOUS AREA	0 AC	8.29 AC
BUILDING HEIGHT	N/A	1-STORY
BUILDING AREA	N/A	3.72 AC
	REQUIRED	PROPOSED
OPEN SPACE % OF OVERALL	7%	16%
OPEN SPACE TYPE	N/A	NATURAL GREEN WAY
ERROR OF CLOSURE	1/10,000	1/10,000



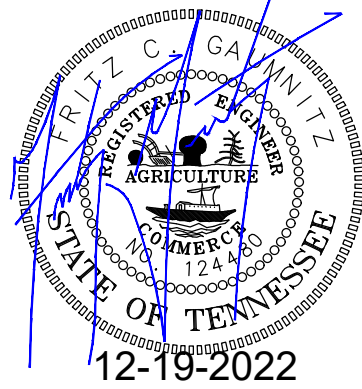
LEGEND	
---	PROPOSED LOT LINES
00	PROPOSED LOT NUMBER
---	PROPOSED BUILDING SETBACK
---	PROPOSED DRAINAGE EASEMENT
---	PROPOSED UTILITY EASEMENT*
---	PROPOSED WATER LINE
---	PROPOSED WATER SERVICE
---	PROPOSED FIRE HYDRANT ASSEMBLY
---	PROPOSED SANITARY MANHOLE
---	PROPOSED SANITARY SERVICE
---	PROPOSED STORM INLET
---	PROPOSED STORM HEADWALL

Parcel Area Table		Open Space Areas	
PARCEL	SQ. FT.	PARCEL	SQ. FT.
1	54775.34	OPEN SPACE 1	54775.34
2	240187.68	OPEN SPACE 2	240187.68
3	24010.76		
4	290786.41		
5	121068.25		
6	165468.46		
7	79947.62		
8	48640.00		
9	53423.96		
10	147662.01		
11	58273.12		
12	77815.69		
13	81080.81		
14	50936.78		
15	46417.68		
16	56942.29		
	54879.53		
	103829.40		

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AREA DESIGNATED AS "ZONE X" AND "ZONE AE" AS EVIDENCED ON FEMA PANEL # 47119C0195E OF THE CITY OF COLUMBIA, TN, DATED 04/16/2007.

OWNER OF RECORD	
COLUMBIA INDUSTRIAL PROPERTIES INDUSTRIAL PARK ROAD COLUMBIA, TN 38401 MAP 89, PARCEL 046.00	
APPLICANT	
T-SQUARE ENGINEERING 1329 WEST MAIN ST FRANKLIN, TN 37064 615.678.8212	

SITE PLAN
SITE DEVELOPMENT PLAN
TAX MAP 89, PARCEL 046.00
COLUMBIA, TENNESSEE

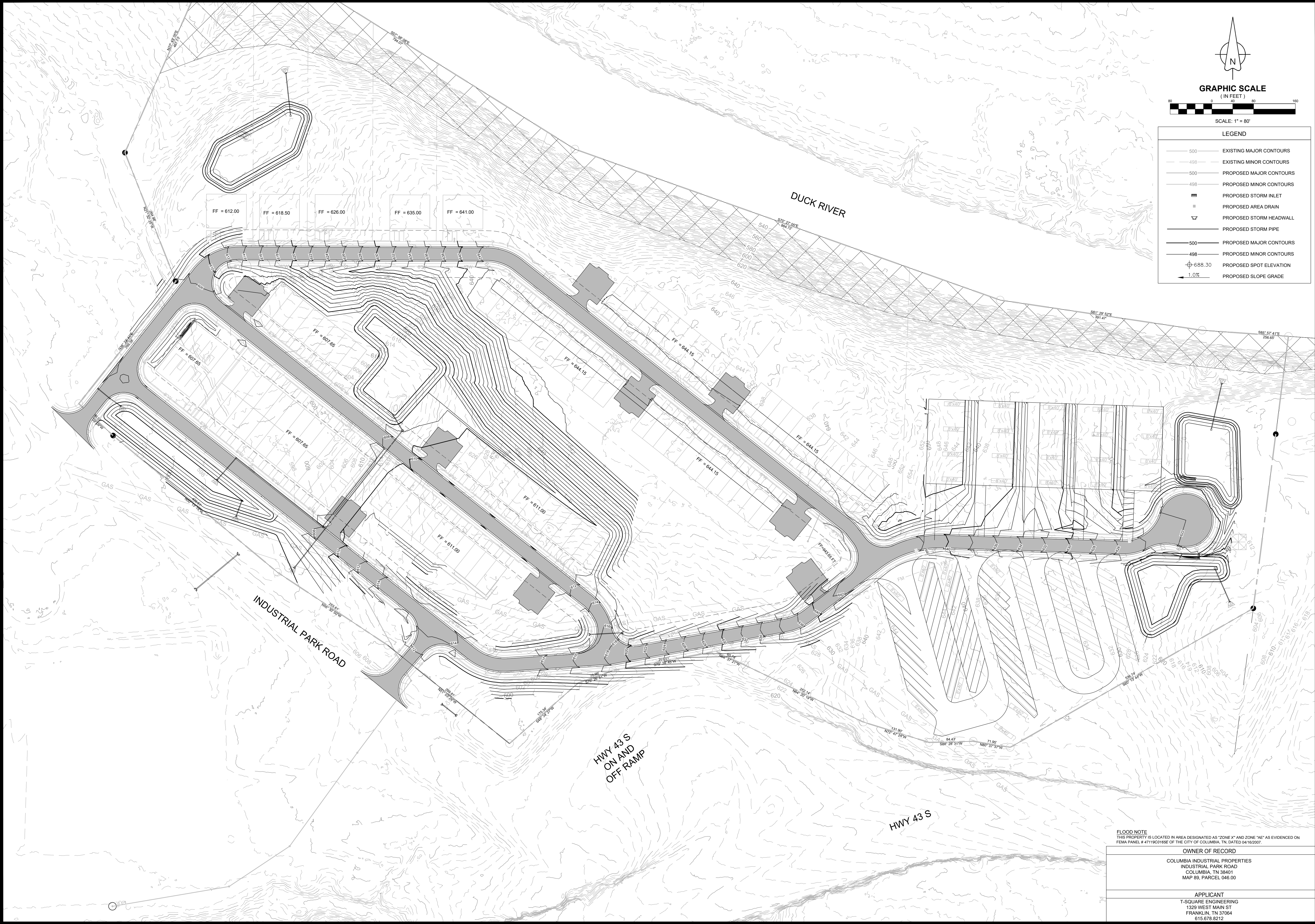


PROJECT
22-0431

SHEET
C-2.0

T-SQUARE ENGINEERING

ZERO INDUSTRIAL PARK ROAD



N

GRAPHIC SCALE
(IN FEET)
0 40 80 160
SCALE: 1" = 80'

LEGEND

500

EXISTING MAJOR CONTOURS

498

EXISTING MINOR CONTOURS

500

PROPOSED MAJOR CONTOURS

498

PROPOSED MINOR CONTOURS

PROPOSED STORM INLET

PROPOSED AREA DRAIN

PROPOSED STORM HEADWALL

PROPOSED STORM PIPE

500

PROPOSED MAJOR CONTOURS

498

PROPOSED MINOR CONTOURS

PROPOSED SPOT ELEVATION

PROPOSED SLOPE GRADE

FLOOD NOTE
THIS PROPERTY IS LOCATED IN AREA DESIGNATED AS "ZONE X" AND "ZONE AE" AS EVIDENCED ON FEMA PANEL 4-4719C(2)185E OF THE CITY OF COLUMBIA, TN, DATED 04/16/2007.

OWNER OF RECORD
COLUMBIA INDUSTRIAL PROPERTIES
INDUSTRIAL PARK ROAD
COLUMBIA, TN 38401
MAP 89, PARCEL 046.00

APPLICANT
T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212

T

T-SQUARE ENGINEERING

NO.

DATE

DATE: 12/08/22

SCALE: AS SHOWN

DRAWN BY: T-SQUARE

REVIEWER: FCB

REVISIONS

GRADING AND DRAINAGE PLAN
SITE DEVELOPMENT PLAN
TAX MAP 89, PARCEL 046.00
COLUMBIA, TENNESSEE

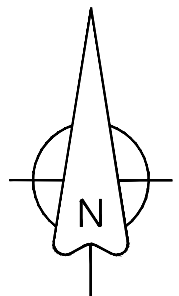
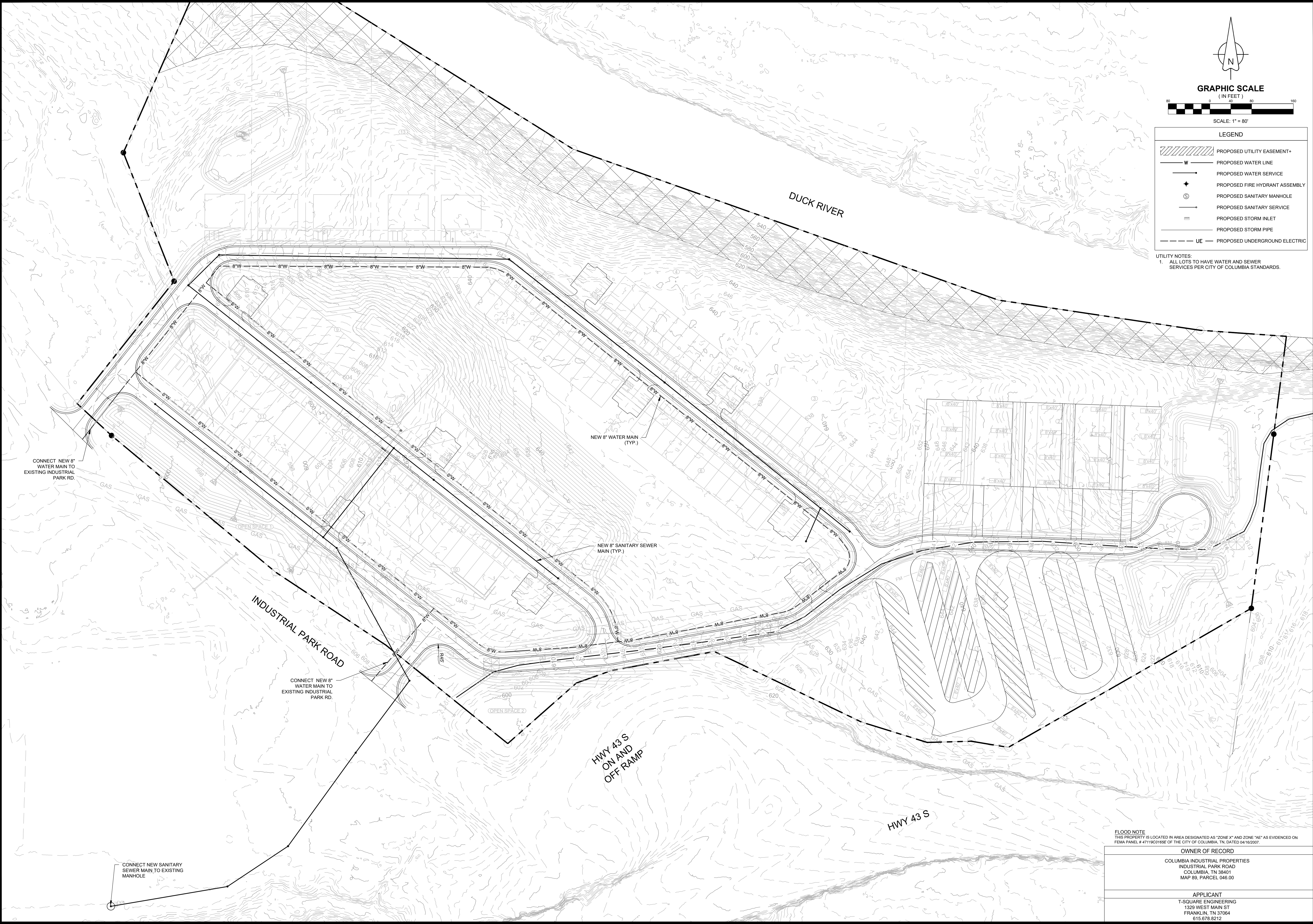
12-19-2022

PROJECT
22-0431

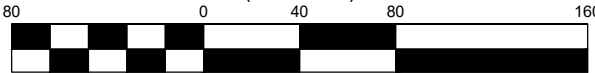
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ZERO INDUSTRIAL PARK ROAD

Page 561 of 565



GRAPHIC SCALE
(IN FEET)



SCALE: 1" = 80'

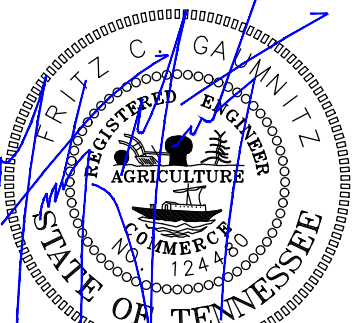
LEGEND

- PROPOSED UTILITY EASEMENT+
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE
- PROPOSED FIRE HYDRANT ASSEMBLY
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY SERVICE
- PROPOSED STORM INLET
- PROPOSED STORM PIPE
- PROPOSED UNDERGROUND ELECTRIC

UTILITY NOTES:
1. ALL LOTS TO HAVE WATER AND SEWER SERVICES PER CITY OF COLUMBIA STANDARDS.

UTILITY PLAN

SITE DEVELOPMENT PLAN
TAX MAP 89, PARCEL 046.00
COLUMBIA, TENNESSEE



12-19-2022

PROJECT
22-0431

SHEET
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FLOOD NOTE
THIS PROPERTY IS LOCATED IN AREA DESIGNATED AS "ZONE X" AND ZONE "AE" AS EVIDENCED ON FEMA PANEL # 47119C0195E OF THE CITY OF COLUMBIA, TN, DATED 04/16/2007.

OWNER OF RECORD

COLUMBIA INDUSTRIAL PROPERTIES
INDUSTRIAL PARK ROAD
COLUMBIA, TN 38401
MAP 89, PARCEL 046.00

APPLICANT

T-SQUARE ENGINEERING
1329 WEST MAIN ST
FRANKLIN, TN 37064
615.678.8212



T-SQUARE ENGINEERING



12/19/2022

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

RE: Zero Industrial Park Road
Map 089, Parcel 46.00
Cul-De-Sac Justification

Dear City of Columbia,

As requested in the Pre-App meeting on December 7, 2022, I am providing this letter of justification for our proposed cul-de-sac improvement.

Due to access needs to the eastern side of the property a road is required. However, due to topography, vegetation, and proximity to the Duck River a looped road is not feasible. Therefore, to provide access to the property proper turnaround for large trucks and fire engines, a city standard cul-de-sac is proposed.

Respectfully,

Cole Gaumnitz, PE
Project Manager
T-Square Engineering



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	Ø INDUSTRIAL PARK ROAD		
	TAX MAP: 089	GROUP:	PARCEL: 46.00
SUMMARY OF NATURE OF REQUEST AND WORK	NEW INDUSTRIAL PARK ON APPROXIMATELY 46.59 ACRES. PARCEL TO SUBDIVIDE INTO 16 LOTS AND 2 COMMON SPACE LOTS. 16 LOTS TO CONSIST OF "LAYDOWN" STORAGE, RV-TRAILER STORAGE, AND WAREHOUSES. A PARK OFFICE BUILDING AND PARKING LOT IS ALSO PROPOSED		

DATE OF PRE-APPLICATION CONFERENCE	12/7/22	Pre-application meetings are scheduled for Wednesdays.
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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: INDUSTRIAL PARK ROAD SITE DEVELOPMENT PLAN	<u>Annexations/Rezoning/PUD's:</u> ☐ Written Legal Description copy ☐ Requested Zone Listed ☐ Compliance with Comprehensive Plan ☐ Annexation Permission Form ☐ Plans and/or Plats conforming to City standards with check list completed ☐ Columbia Water System Availability Letter <u>Plats/PUDs:</u> ☐ Project Name (include Sections & Phases) ☐ Total Number of Lots ☐ Total acreage

**File naming nomenclature examples:*

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

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	COLE GAUMNITZ	PHONE	(615) 678-8212
ADDRESS	1329 W. MAIN ST. FRANKLIN, TN	EMAIL	cole.gaumnitz@t2-eng.com

PROPERTY OWNER NAME	KURE PROPERTIES LLC & JET LAND HOLDINGS LLC	PHONE	(630) 306-7000
ADDRESS	4817 MURFREESBORO RD. ARRINGTOWN, TN 37014	EMAIL	ryan@kureconstruction.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.

<u>Cole Gaumnitz</u> APPLICANT NAME	<u>[Signature]</u> APPLICANT SIGNATURE	<u>12/19/2022</u> DATE
<u>Ryan Kure</u> PROPERTY OWNER NAME	<u>[Signature]</u> PROPERTY OWNER SIGNATURE	<u>12/19/2022</u> DATE

STAFF USE ONLY

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