Planning Commission

North Augusta
South Carolina's Riverfront

Minutes for the Wednesday, August 17, 2022, Regular Meeting

Members of the Planning Commission

Dr. Christine Crawford
Chair

Bob Bigger
Jesse Elliott
Timothy V. Key, *Vice Chair*
Leonard Carter, Jr.
Rett Harbeson
JoAnn McKie

CITIZEN ASSISTANCE: Individuals requiring special assistance or a sign interpreter to participate in the meeting are asked to please notify the Department of Planning and Development 48 hours prior to the meeting at 803-441-4221.

1. **Call to Order** – 7:00 p.m.

2. **Roll Call** – Members present were Chairman Dr. Christine Crawford, Commissioners JoAnn McKie, Rett Harbeson, Bob Bigger, and Len Carter.

3. **Approval of Minutes** – July 20, 2022 Regular Meeting were approved with the correction of the name of commissioners present.

4. **Confirmation of Agenda** There were no changes to the agenda.

5. **Application RZM22-003 West Five Notch Apartments** – Rezoning – A request by Glynn Bruker to rezone approximately 0.52 acres located along West Five Notch Road, TPN 005-19-06-006 from PD, Planned Development to R-5, Mixed Residential to develop 5 apartment units.

   Mr. Paradise stated this is a request of rezoning of the .52 acres which was an old carwash. This development will have 5 units. It backs up to R-5 zoning which is already

approved for a development plan and it will share existing 28' driveway. This will take it from Planned development to R-5 zoning.

Mr. Bo Slater with James Swift & Associates is present representing Mr. Bruker.

This will have 5 units and will share the existing driveway with the development that is already approved.

a. Public Hearing No comments from the public.
b. Consideration of the Rezoning request by the Planning Commission
   Mr. Harbeson made first motion and Mr. Bigger seconded it. Approved unanimously.
c. Recommendation to City Council
   Unanimously approved to go to City Council.

6. **Application RWN22-002** – Compassion Way Street Naming – A request by the City of North Augusta to give the name Compassion Way to a portion of right of way currently referred to as the Frontage Road adjacent to I-20 at Exit 1 and West Martintown Road.

Mr. Paradises stated this come up due to E911. There are lot of frontage roads already in Aiken County. The area is beginning to be developed so we need to change this road name so that River Falls Apartments can start getting their addresses. So after contacting a business on that road but got no response the road name fell back on the staff at the city. The mayor came up with the name Compassion Way due to having the pain management center on this road.

a. Public Hearing No comments from the public.
b. Consideration of the Street Naming request by the Planning Commission
   Mr. Carter made the first motion and Mr. Bigger made the second motion. It was approved unanimously.

7. **Application PP22-003 Wrenfield at Chanticleer** – Major Subdivision Preliminary Plat – A request by Merit Commercial Holdings for approval of 127 single-family detached homes located on approximately 66.67 ac zoned R-10, Medium Lot, Single-Family Residential. The property is located at the end of Big Pine Road, TPN 002-12-01-002.

Mr. Paradise stated the Mr. Harbeson has recused himself because he works for the firm working on this project.

Mr. Paradise state back in October of 2021 Planning Commission reviewed a concept plan for this subdivision but it was called Big Tree Subdivision. There were a few comments then by Planning Commission. The development went forward but it changed the name to Wrenfield at Chanticleer and it is directly behind Chanticleer and will be accessed thru that neighborhood. It is 66.9 acres zoned R-10 and will have 127 single family detached homes with a density of .52 dwelling units per acre. They are

requesting a waiver for the block length increase from 650 to 1000 ft. The traffic study has been done. Apportion has been annexed of Chanticleer subdivision on March 18, 1991 and at that time property was zoned R-2 which is equivalent to the current R-10.

Ms. Alexander Reynolds with Cranston Engineering came forward to speak about this development. She stated that the sketch plan presented in 2021 is similar to this one. This would be first conservation subdivision in North Augusta and they would make sure they hit all the perimeters. Mr. Bigger is concerned about the entrance being only one. Mrs. McKie discussed the traffic on Martintown Rd. and how we need some red lights. Mr. Paradise stated he had some things that staff are recommending such as the road names. The approval includes certification of the us of the road names Whooping Crane Cove, Warbler Court, Wilton Place, and Wrenfield Way. Also any outstanding comments will be addressed to the satisfaction of City Staff. There are still some outstanding comments related to landscaping, parking, elevations and others.

Mr. Bigger and Mr. Carter are concerned about the traffic and entrance to the development.

Dan Holloway is speaking on the development. It is zoned for R-10 which allows 50ft lots. He discussed that a traffic study was done and that bot everyone is going to come and go at the same time. They also talked to the county at lengths about this property and traffic. Michael Bradham representing JLA who is working on the plan for this property. The plan is very dense. He went to another subdivision with over 300 residents with just one entrance and it does work for them.

a. Consideration of the Major Subdivision Preliminary Plat application by the Planning Commission
Mr. Carter made the first motion for the wavier and conditions and Mrs. McKie made the second motion. But the vote was 2 opposed & 2 approved. Due to the conflict of votes they looked at Roberts Rules of Order and the procedures of how to handle this type of situation. Mr. Carter made the motion to reconsider the previous motion and Mrs. McKie made the second motion which was approved unanimously. Mr. Bigger then made a motion to table the item until the next meeting and that was seconded by Mr. Carter and approved unanimously.

8. **Application SP22-001 Hamrick Farms Multifamily** – Major Site Plan – A request by Panther Residential Management, LLC for approval of a 340-unit apartment complex located in the Hamrick Farms Planned Development, a portion of TPN 005-17-01-012, approximately 25.3 ac.

Mr. Paradise stated this if for a major site plan improvement. It is part of Hamrick Farms which is Development 754 acres at exit 1 at Martintown Rd. The City authorized a traffic study in this area. The area is zoned mixed use. This is appropriate use for this development. The plans show 681 parking spaces and some using garages to account for those. They did get a variance for the height of the buildings. They are using the wetlands for buffers on undeveloped land. Stormwater must approve all sediment erosion control. The approval of road names of Repose Loop, Patriarch Place, Founders Lane and Envisioner Path for internal roads for the development. There is proposed connection at Exit 1 at the red light and Knobcone Ave. That is one of the things the traffic consultant is working on because all the traffic was coming out on Exit 1. The roads should be sufficient for the apartment complex and other developments coming later.

Sean Smith with Cranston Engineering group. To answer some of your questions they are having ongoing conversations and meetings about the Martintown Corridor. The main road for Hamrick Farms is directly off the off ramp. The two main roads going in the development they are trying to approve and construction all of this at the same time.

These are 340 proposed units. They also have two entrances being constructed. The 3 developers are splitting the cost of roads for the projects.

a. Consideration of the Major Site Plan application by the Planning Commission
Mr. Bigger made the first motion to approve with condition to have connectivity to both Knobcone and Martintown Rd. and approval of road names. Mr. Carter seconded the motion. It was approved unanimously.

9. Staff Report

a. July Performance Report
Mr. Paradise stated still working on the development code. The next phase is to get printed and let everyone look it over and get feedback. The kickoff meeting for the Georgia Ave. traffic calming study took place this week.

10. Adjourn Meeting is adjourned at 8:40pm.

Respectfully yours,

Tommy Paradise
Director of Planning and Development

Department of Planning and Development

North Augusta
South Carolina's Riverfront

Project Staff Report
Major Subdivision (Preliminary Plat)
PP22-003 Wrenfield at Chanticleer
Prepared by: Kuleigh Baker
Meeting Date: September 21, 2022

SECTION 1: PROJECT SUMMARY

Project Name	Wrenfield at Chanticleer
Applicant	Merit Commercial Holdings
Engineer	JLA
Address/Location	Termini of Southwood Drive, Big Pine Road, and Greenwood Drive
Parcel Number	002-12-01-002
Total Project Acreage	± 66.9 acres
Zoning	R-10, Medium Lot, Single-Family Residential
Development Pattern	Conservation Subdivision
Traffic Impact Tier	Tier 2
Proposed Use	127 Single-family detached homes
Density	.52 du/ac
Future Land Use	Residential Single Family

SECTION 2: PLANNING COMMISSION CONSIDERATION

The North Augusta Development Code (NADC) § 5.8.3 specifies the procedures for Planning Commission approval of major subdivisions (preliminary plats) that exceed the minor plat threshold requirements of §5.8.3.1.

NADC 5.8.3.1 Applicability

An application is considered a major subdivision (preliminary plat) if:

a. The application does not meet the tests for a minor subdivision as set forth in §5.8.2.1;
b. The application is for property located in a PD District;
c. The application would otherwise require minor subdivision approval, but a waiver is requested pursuant to §5.9; or

d. The application proposes development in two (2) or more phases.

In addition, the code states:

5.8.3.4.4 At the conclusion of the staff review stage, the Department shall report its findings to the Planning Commission as to:

a. Type of subdivision proposed, physical characteristics of the land, relation of the proposed development to surrounding areas and existing and probable future development;
b. Relation to major roads, utilities and other facilities and services;
c. Any proposed agreements, contracts, deed restrictions, sureties, dedications, contributions, guarantees, or other instruments, or the need for such instruments, or for amendments in those proposed; and
d. Compliance of the subdivision application with the provisions of this Chapter, the suitability of plans proposed, and the desirability of conditions on the approval, waivers, or amendments, if any.

5.8.3.4.5 Based on such findings, the report to the Planning Commission on the application shall include a recommendation for approval or denial and any recommended waivers, conditions of approval or modifications to the major subdivision application as submitted, if any, with reasons therefore.

5.8.3.4.6 A majority vote is required for the Planning Commission to approve, approve with conditions, if applicable, or deny a major subdivision application. The decision of the Planning Commission provides the final approval of the application.

5.8.3.5 Scope of Major Subdivision Approval – Preliminary approval of a major subdivision development application shall confer upon the applicant the following rights:

a. The approval of the major subdivision application constitutes approval of the subdivision or land development as to its character, intensity of development, general layout, and the approximate dimensions of streets, lots, and other planned features. Such approval binds the developer to the general scheme of the subdivision or land development and permits the developer to proceed with the installation of site improvements, subject to obtaining other necessary permits.
b. The approval of the major subdivision application does not constitute approval of a final subdivision plat, and accordingly, does not authorize the sale of lots or the occupancy or use of a parcel of land.
c. The applicant may request final approval for the whole, or a section, or sections of the major subdivision application upon completion of the subdivision and approval of the development by the city and state agencies with jurisdiction.
d. A major subdivision application, a site specific development plan for the purposes of this section, approval or conditional approval shall expire two (2) years from said approval unless

a grading permit has been issued and construction has commenced. The applicant may apply for and the Planning Commission may grant extensions on such preliminary approval for additional periods up to one (1) year each but not to exceed five (5) extensions. If an amendment to this Chapter is adopted by the City Council subsequent to the major subdivision development approval that would preclude the initial approval, a request for an extension may not be granted. (Rev. 12-1-08; Ord. 2008-18) (Rev. 8-16-10; Ord. 2010-12)

Planning Commission Action:

Per §5.8.3.4.6, a majority vote is required for the Planning Commission to approve, approve with conditions, if applicable, or deny a major subdivision application.

SECTION 3: PUBLIC NOTICE

A notice of the major subdivision application and scheduled date of the Planning Commission meeting was posted on www.northaugustasc.gov on September 15, 2022.

SECTION 4: SITE HISTORY

A portion of the subject property adjacent to the existing Chanticleer subdivision was annexed on March 18, 1991 by Ordinance No. 91-05. At that time, the property was zoned R-2, Single-Family Residential in conformance with the City's Land Use and Development Plan. The equivalent R-10, Medium Lot, Single-Family Residential zoning district was adopted with the Official Zoning Map of the 2008 North Augusta Development Code.

On October 21, 2021, the Planning Commission reviewed a Concept Plan for the proposed subdivision.

On August 17, 2022 the Planning Commission reviewed the Major Subdivision (Preliminary Plat) for the proposed subdivision. Additional information was requested which will be presented by the applicant to the board.

SECTION 5: EXISTING SITE CONDITIONS

	Existing Land Use	Future Land Use	Zoning
Subject Parcel	Vacant	Residential Single Family	R-10, Medium Lot, Single-Family Residential
North	Residential	Residential Single Family	Outside City Limits/R-10, Medium Lot, Single-Family Residential
South	Residential	Residential Single Family	R-14, Large Lot, Single-Family Residential
East	Residential	Residential Single Family	R-10, Medium Lot, Single-Family Residential/ R-14, Large Lot, Single-Family Residential
West	Vacant/Residential	Residential Single Family	Outside City Limits

Access – The site currently has access to West Martintown Road from Shawnee Drive, Southwood Drive, Big Pine Road, and Greenwood Drive.

Topography – The subject site has variable topography with multiple streams on site.

Utilities – Water and wastewater connections would have to be brought in from neighboring developments.

Floodplain and Environmental Conditions – A small portion of the site is located in Flood Zone X and AE with a 0.2% annual chance of flood hazard. Site located on FEMA FIRM panel 45003C0313F.

Drainage Basin – The proposed development is located in the Pretty Run/Rapids Basin. Pretty Run basin is located in a highly dense residential part of North Augusta. The preliminary physical stream assessments at two reaches of the stream indicate that this stream channel is currently not effective at transporting current loads of stormwater during heavy storm events. A main sewer line runs along and in the stream channel and some of its tributaries. Overtopping of banks is obvious in several locations and manholes present in those locations may overflow if surcharging occurs. High nutrient concentrations have been detected in two samples during the period. The results indicate that urban runoff is impacting the stream channel. Many homes back up to the creek along its way through the city. The high density residential area contains well-maintained lawns in many instances. In addition, animals are

penned at or near the creek along most of its reach. The city will continue to reach out to residents in the area to provide information that may help reduce pollutant loads.

SECTION 6: STAFF EVALUATION AND ANALYSIS

Section §5.8.3.4.4 asks that the Department shall report its findings to the Planning Commission as to:

a. Type of subdivision proposed, physical characteristics of the land, relation of the proposed development to surrounding areas and existing and probable future development;

The applicant is proposing construction of 127 single-family detached homes in a one access subdivision. Single-family detached homes are permitted in the R-10, Medium Lot, Single-Family Residential Zoning District. The proposed development is situated at the rear of the existing Chanticleer subdivision and the proposed development is comparable to the surrounding neighborhoods.

b. Relation to major roads, utilities and other facilities and services;

The proposed utility and infrastructure improvements have been reviewed by the Director of Engineering and Public Works. There are outstanding comments that must be addressed prior to final Staff approval.

West Martintown Road is maintained by SCDOT and will require encroachment and driveway permits issued by SCDOT for any improvements required by the TIA.

The applicant must receive approval for a Stormwater Management Permit and satisfactorily address review comments and modify plans in response to any outstanding Stormwater, Engineering, and Planning comments.

The applicant has proposed the road names Whooping Crane Cove, Warbler Court, Wilton Place, and Wrenfield Way. The names have been reserved by Aiken County E911 Addressing for one year. Final approval of the proposed road names is subject to Planning Commission approval of this application. Road suffixes are subject to the final road layout. The entrance road will remain Big Pine Road.

Per NADC Section 2.3.7, the connectivity ratio does not apply to local streets within a Conservation Subdivision. The applicant is requesting a waiver to the maximum block length.

c. Any proposed agreements, contracts, deed restrictions, sureties, dedications, contributions, guarantees, or other instruments, or the need for such instruments, or for amendments in those proposed; and;

As part of the Final Plat process required for the issuance of individual building permits and Certificates of Occupancy for residential lots, the developer shall submit a Deed of Dedication, Maintenance Guarantee and required guarantees for the acceptance of infrastructure. If needed, the Planning Department will also require a Performance Guarantee with a Letter of Credit for sidewalks and street trees and any other incomplete infrastructure to allow the applicant to construct homes prior to completion of all site improvements. Riparian buffer areas platted on individual lots are to be deed restricted.

d. Compliance of the subdivision application with the provisions of this Chapter, the suitability of plans proposed, and the desirability of conditions on the approval, waivers, or amendments, if any.

Waiver Request

The applicant has requested a waiver from Table 14-2, Maximum Block Length for a Local Street. The request is to increase the maximum block length from 650 ft to 1000 ft in two locations:

1. From the intersection of Road 1 and Road 1A to the terminus of Road 1
2. From the intersection of Road 2 and Road 2A to the terminus of Road 2

The request is pursuant to NADC Section 14.19.2 which states “the permissible length of a cul-de-sac or close may be increased to a maximum of 1000 ft where the Planning Commission finds that natural features, including topography, environmental constraints, or other natural conditions, or parcel dimensions or configuration preclude a connecting street”.

Per §5.9.1 Planning Commission Waivers, the Planning Commission may waive such standards where:

1) After obtaining the recommendation of the Director, the Planning Commission determines that the proposed waiver does not conflict with the goals and policies of the Comprehensive Plan or the purposes underlying the standard; and

The applicant state the waiver does not conflict with the goals and policies of the Comprehensive Plan or the purpose of the standard and that roads were laid out to utilize the existing stream crossing location, minimize grading, and avoid development in steep slopes and sensitive areas. Connection of Road 1 and Road 2 would require additional stream crossings. Shawnee Drive cannot be connected to the site due to topography issues.

Staff notes that Section 6.2.3 of the 2021 Comprehensive Plan states that the use of cul-de-sacs and dead-end streets should be minimized except in cases where sites are physically restrained by natural resources such as bodies of water, elevation changes, or to conserve other natural areas.

2) The applicant demonstrates, through documentation and/or studies, based on generally accepted engineering principles, that adherence to the standard provided by this Chapter would pose a threat to health and safety or would undermine a policy set forth in the Comprehensive Plan or the purposes underlying the standard; and

   The applicant states that the street design is necessitated by the topography, grading, and storm detention requirements. Adherence to the 650 ft block length would result in an increase of conservation area and unusable land for development.

3) The applicant consents to an alternative standard, and the Planning Commission finds that such standard is consistent with the Comprehensive Plan, will protect the public health, safety and general welfare, and is consistent with the purposes underlying the standard; and

   The applicant requests the Planning Commission evoke NADC Section 14.19.12 to allow the maximum block length for cul-de-sacs due to topographic challenges.

4) The economic burden imposed on the applicant to comply with the generally applicable standard outweighs the public purpose for such standard; and

   The applicant states that any alternative would not result in a cohesive design of the site. Staff notes that the economic burden is not the primary purpose of this application through strict adherence to the standard reduces the amount of land that may be profitably developed.

5) Compliance with the generally applicable standard is impracticable due to unique topographical or other site conditions.

   The applicant states that the topography and streams on the site restrict the street layout. The proposed layout considers the topography while avoiding unnecessary impacts to surrounding properties.

SECTION 7: STAFF RECOMMENDATION

Based on the analysis and evaluation of each review criteria outlined above, the Department has determined the application is complete.

A recommendation by the Planning Commission for the approval of the major subdivision preliminary plat for Wrenfield at Chanticleer is appropriate subject to the following waiver and conditions:

Waiver

1) A waiver is granted to allow for cul-de-sacs that exceed the maximum of 650 ft allowed by Table 14-2. A maximum cul-de-sac length of 1000 ft is granted for Road 1 and Road 2.

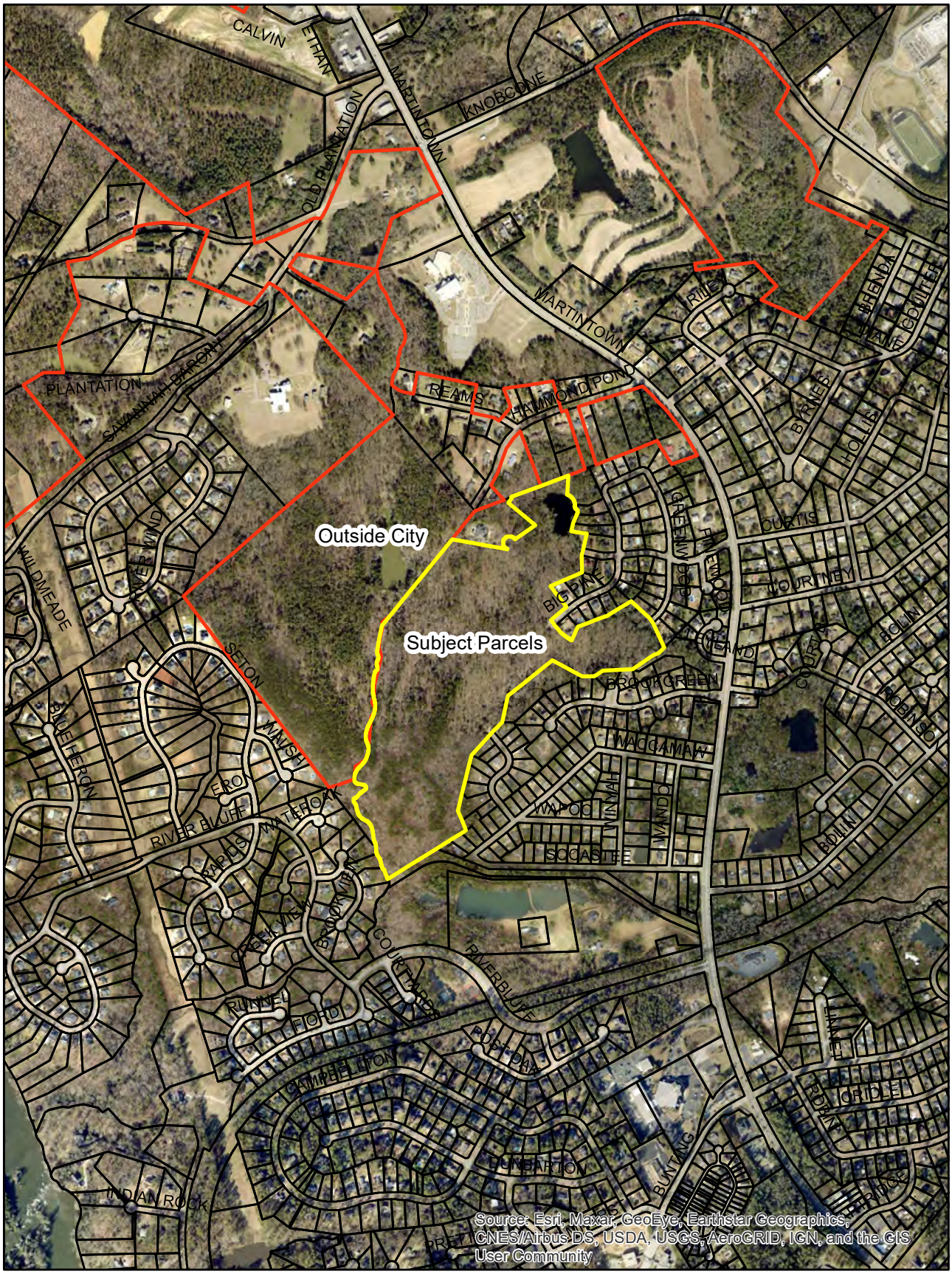
Conditions

1) This approval includes certification of the use of the road names Whooping Crane Cove, Warbler Court, Wilton Place, and Wrenfield Way.
2) Any outstanding comments will be addressed to the satisfaction of City staff.

SECTION 8: ATTACHMENTS

1. Site/Aerial Map
2. Topography Map
3. Current Zoning Map
4. Future Land Use Map
5. Application Documents and Waiver Request
6. Site Plan
7. Traffic Impact Analysis
8. ANX91-05
9. Critical Areas Study Ph II Assessment No. 47
10. FEMA FIRM panel 45003C0313F
11. Signage Plan
12. Shawnee Extension Profile
13. Signal Warrant Assessment
14. CONPL21-002 Staff Report
15. Minutes of the October 21, 2021 Regular Planning Commission Meeting

cc. JLA, via email
Merit Commercial Holdings, via email



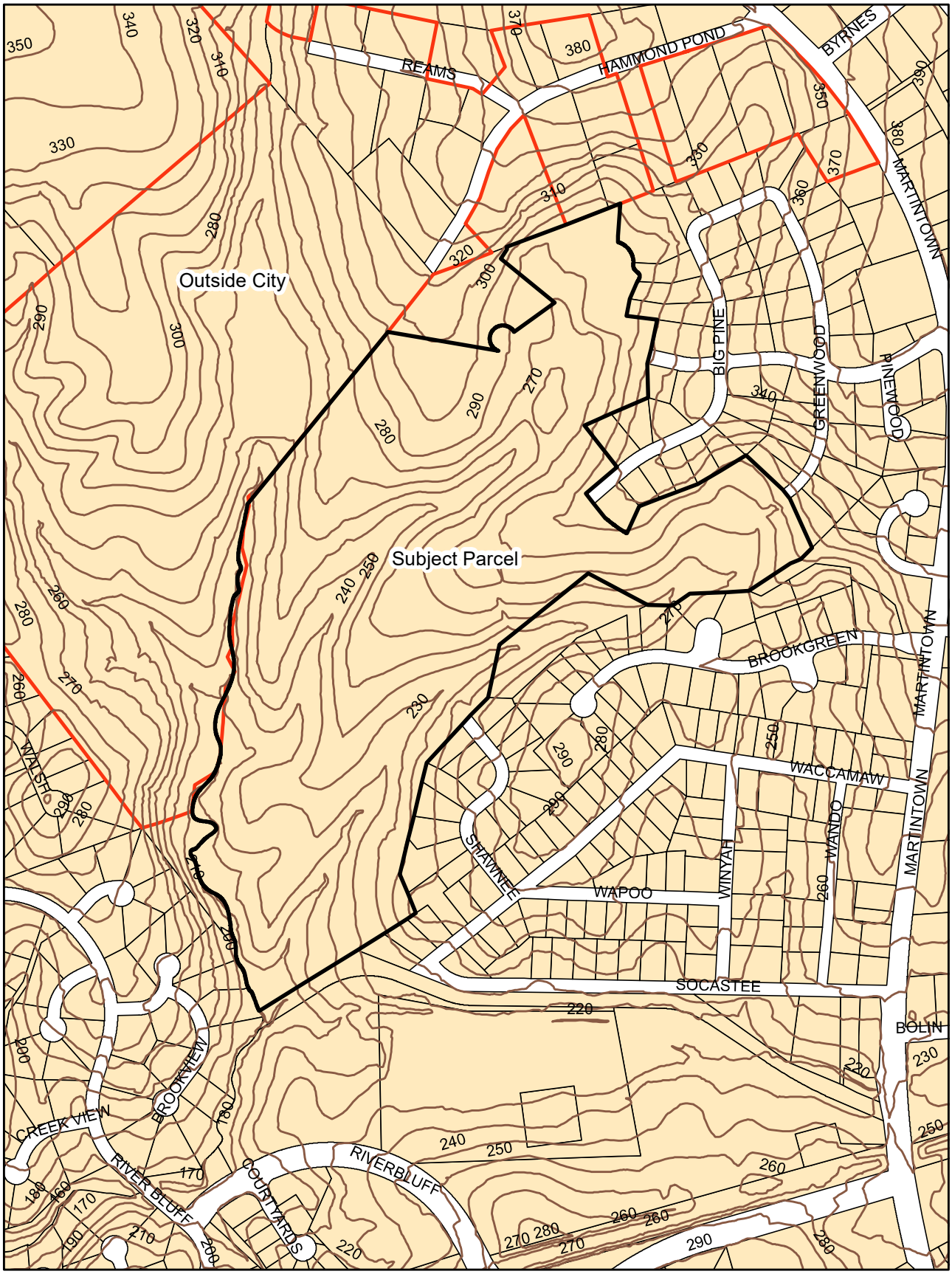
North Augusta
South Carolina's Riverfront

Aerial Map
PP22-003 Wrenfield at Chanticleer
Approx. 66.7 ac
zoned R-10, Medium Lot,
Single-Family Residential

N
W E
S

0 0.05 0.1 0.2 0.3 Miles

Date: 8/4/2022



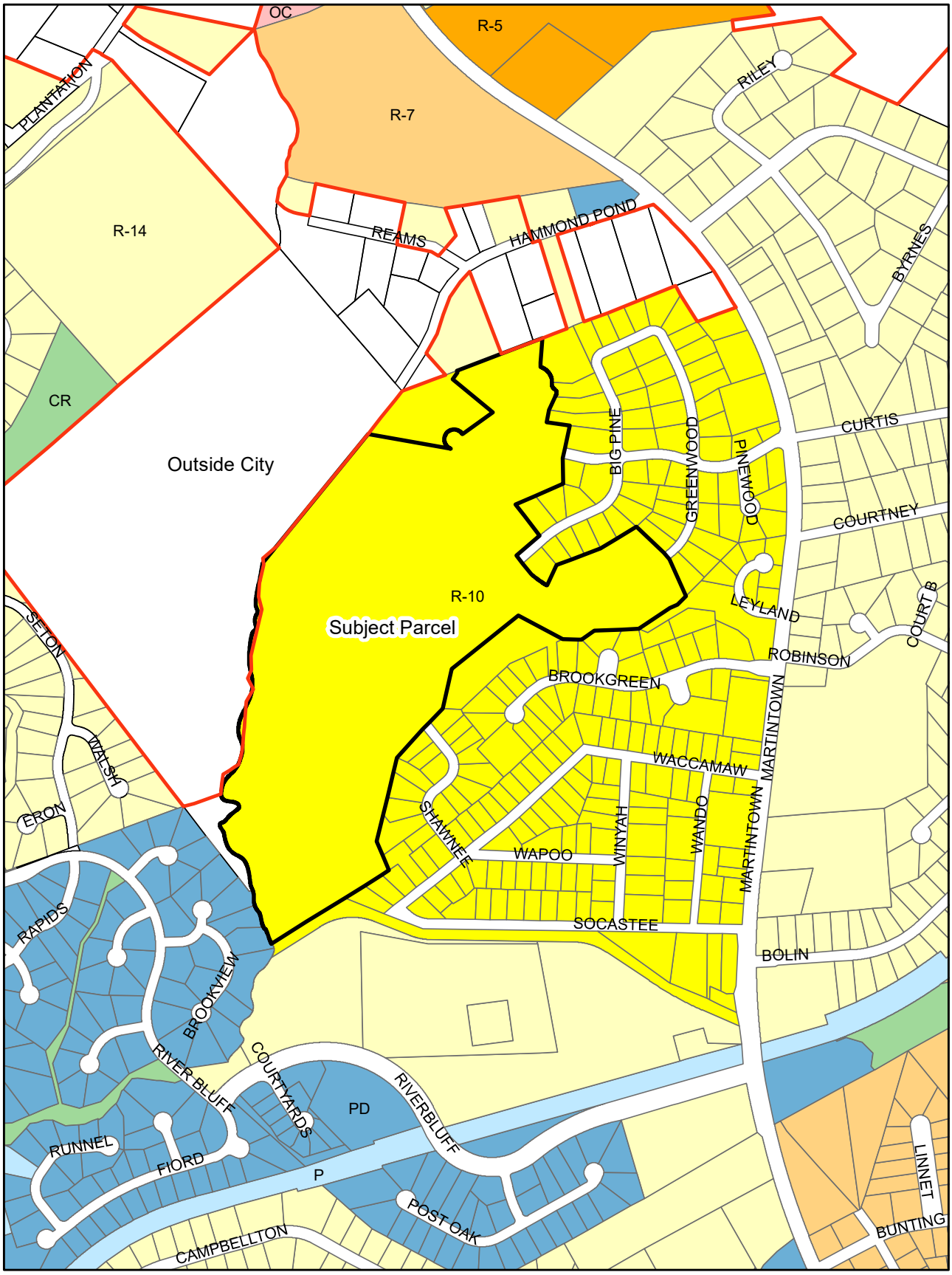
North Augusta
South Carolina's Riverfront

Topography Map
PP22-003 Wrenfield at Chanticleer
Approx. 66.7 ac
zoned R-10, Medium Lot,
Single-Family Residential

N
W E
S

0 150 300 600 900 Feet

Date: 8/4/2022



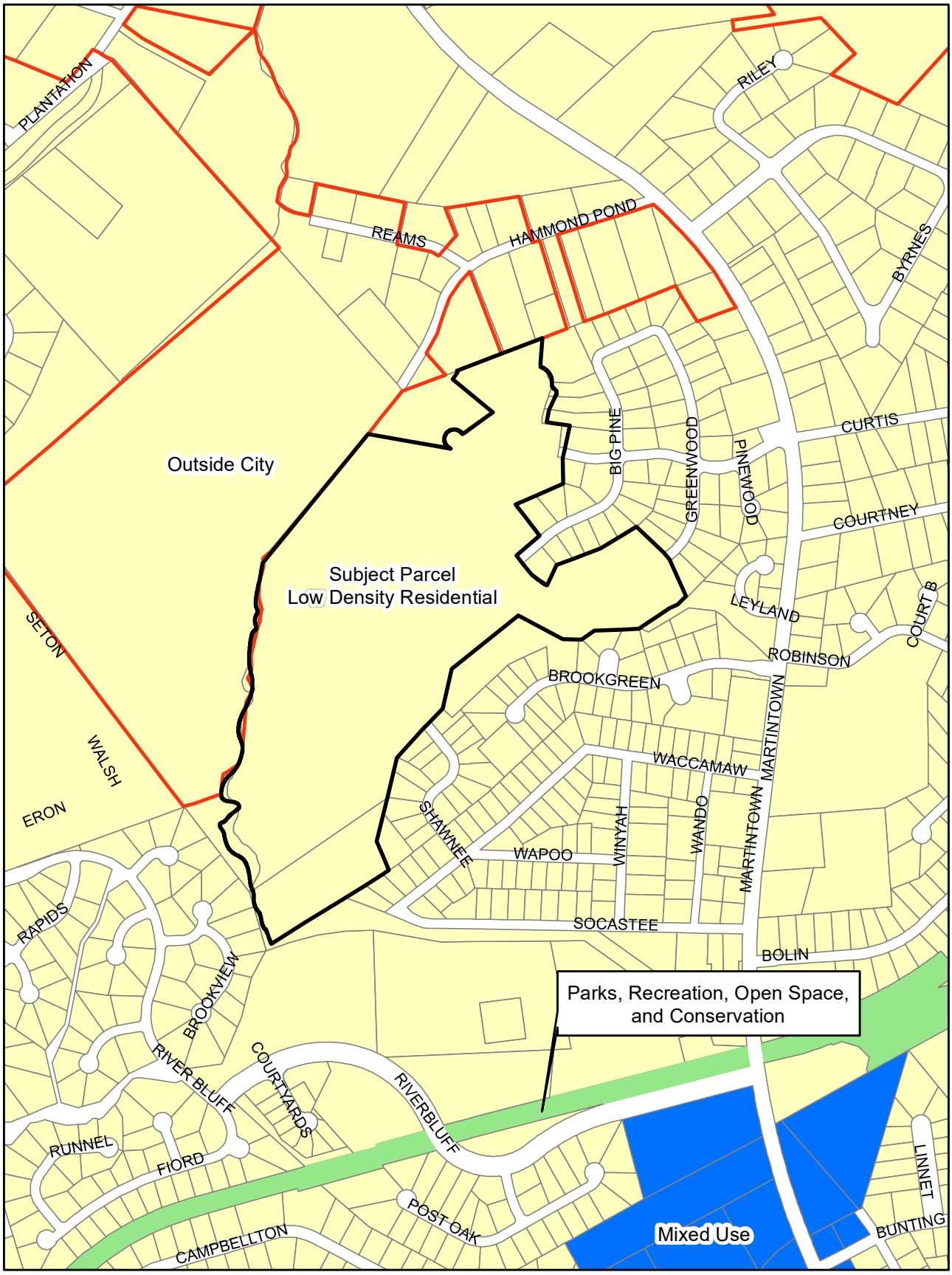
North Augusta
South Carolina's Riverfront

Zoning Map
PP22-003 Wrenfield at Chanticleer
Approx. 66.7 ac
zoned R-10, Medium Lot,
Single-Family Residential

N
W E
S

0 200 400 800 1,200 Feet

Date: 8/4/2022



North Augusta
South Carolina's Riverfront

Future Land Use Map
PP22-003 Wrenfield at Chanticleer
Approx. 66.7 ac
Low Density Residential

N
W E
S

0 200 400 800 1,200 Feet

Date: 8/4/2022

Application for Development Approval

Please type or print all information

North Augusta
South Carolina's Riverfront

Staff Use	
Application Number _____	Date Received _____
Review Fee _____	Date Paid _____

1. Project Name WRENFIELD AT CHANTICLEER (FORMERLY CALLED BIG PINE)

   Project Address/Location BIG PINE ROAD (PARCEL BOUNDARY IS WHERE BIG PINE RD. ENDS)

   Total Project Acreage 66.67 ACRES Current Zoning R-10

   Tax Parcel Number(s) 002-12-01-002

2. Applicant/Owner Name KEVIN HEFNER Applicant Phone 706-831-8157

   Mailing Address P.O. Box 1667

   City EVANS ST GA Zip 30809 Email KHEFNER@MERITFLOOR.COM

3. Is there a Designated Agent for this project? ✓ Yes _____ No
   If Yes, attach a notarized Designation of Agent form. (required if Applicant is not property owner)

4. Engineer/Architect/Surveyor WILLIAM BUCHANAN License No. 28610

   Firm Name JOHNSON LASCHOBER + ASSOCIATES Firm Phone 706-724-5756

   Firm Mailing Address 1296 BROAD STREET

   City AUGUSTA ST GA Zip 30901 Email WBUCHANAN@THEJLAGROUP.COM

   Signature William T. Buchanan Date 6/13/2022

5. Is there any recorded restricted covenant or other private agreement that is contrary to, conflicts with or prohibits the use or activity on the property that is the subject of the application?
   (Check one.) _____ yes ✓ no

6. In accordance with Section 5.1.2.3 of the North Augusta Development Code, I hereby request the City of North Augusta review the attached project plans. The documents required by the City of North Augusta, as outlined in Appendix B of the North Augusta Development Code, are attached for the City's review for completeness. The applicant acknowledges that all required documents must be correct and complete to initiate the compliance review process.

7. Kevin R Hefner 6/13/2022
   Applicant or Designated Agent Signature Date

   Kevin R. Hefner
   Print Applicant or Agent Name

Designation of Agent

Please type or print all information

North Augusta
South Carolina's Riverfront

This form is required if the property owner is not the applicant.

Staff Use Only	
Application Number _____	Date Received _____

1. Project Name WRENFIELD AT CHANTZCLEER (FORMERLY CALLED BIG PINE)

   Project Address/Location BIG PINE ROAD (PARCEL BOUNDARY IS WHERE BIG PINE RD. ENDS)

   Project Parcel Number(s) 002-12-01-002

2. Property Owner Name MARIA S. DITTY Owner Phone 706-829-5553

   Mailing Address 804 BIG PINE ROAD

   City NORTH AUGUSTA ST SC Zip 29841 Email DODWAH2@COMCAST.NET

3. Designated Agent KEVIN HEFNER

   Relationship to Owner Managing Partner of development group

   Firm Name Merit Commercial Holdings Phone 706-831-8157

   Agent's Mailing Address P.O Box 1667

   City Evans ST GA Zip 30809 Email KHEFNER@MERITFLOOR.COM

   Agent's Signature _____ Date 6/15/22

4. I hereby designate the above-named person (Line 3) to serve as my agent and represent me in the referenced application.

   _____ 6/14/22
   Owner Signature Date

5. Sworn and subscribed to before me on this 15 day of June, 20 22.

   KMcNair
   Notary Public

   05.24.2026
   Commission Expiration Date

KRISTIN MCNAIR NOTARY PUBLIC EXPIRES GEORGIA MAY 24, 2026 COLUMBIA COUNTY

August 5, 2022
NA Review #: PP22-003
JLA Job #: 5017.2201

Wrenfield at Chanticleer- Waiver Request Letter

Waiver Request
NADC Table14-2 lists the maximum block length of a local street as 650'.

NADC Sec 14.19.2 states: The permissible length of a cul-de-sac or close may be increased to a maximum of 1,000' where the Planning Commission finds that natural features, including topography, environmental constraints, or other natural conditions, or parcel dimensions or configuration preclude a connecting street design.

A waiver is requested to evoke Sec. 14.19.2 and increase the maximum block length from 650' to 1,000 in two locations:

1. **From the intersection of Road 1 and Road 1A to the terminus of Road 1**
2. **From the intersection of Road 2 and Road 2A to the terminus of Road 2**

Waiver Request Justification
5.9.1.1 After obtaining the recommendation of the Director, the Planning Commission determines that the proposed waiver does not conflict with the goals and policies of the Comprehensive Plan or the purposes underlying the standard; and

- Response to 5.9.1.1: The proposed waiver does not conflict with the goals and policies of the Comprehensive Plan or the purposes underlying the standard. Roads were laid out to utilize the existing stream crossing location, minimize grading and avoid steep slopes and sensitive areas. This resulted in Road 1 and Road 2 ending in cul-de-sacs. These two streets cannot be connected together because it would necessitate another stream crossing. The existing Shawnee Drive cannot be connected to the proposed extension of Big Pine Road (Road 1) because of the significant steep topography at the end of Shawnee Drive.

5.9.1.2 The applicant demonstrates, through documentation and/or studies, based on generally accepted engineering principles, that adherence to the standard provided by this Chapter would pose a threat to health and safety or would undermine a policy set forth in the Comprehensive Plan or the purposes underlying the standard; and

- Response to 5.9.1.2: Strict adherence to the 650' block length instead of being granted the 1,000' block length for the cul-de-sac would result in increased conservation area. This may sound like a good thing but the site is already 49.75% open space, 9.75% more than is required to qualify for a conservation subdivision. This number will unnecessarily increase if the block length waiver is not granted.

5.9.1.3 The applicant consents to an alternative standard, and the Planning Commission finds that such standard is consistent with the Comprehensive Plan, will protect the public health, safety and general welfare, and is consistent with the purposes underlying the standard; and

- Response to 5.9.1.3: Consenting to an alternate standard is not necessary since evoking the permission of the Planning Commission per Sec. 14.19.12 is sought.

5.9.1.4 The economic burden imposed on the applicant to comply with the generally applicable standard outweighs the public purpose for such standard; and

- Response to 5.9.1.4: If the roads cannot be extended from 650 'to 1,000' development of an additional 1,400' (350' x 2 roads x 2 sides of each road) of frontage will not be possible and the property cannot be profitably developed.

5.9.1.5 Compliance with the generally applicable standard is impracticable due to unique topographical or other site conditions.

Response to 5.9.1.5: Same response as to 5.9.1.1. Roads were laid out to utilize the existing stream crossing location, minimize grading and avoid steep slopes and sensitive areas. This resulted in Road 1 and Road 2 ending in cul-de-sacs. These two streets cannot be connected together because it would necessitate another stream crossing. The existing Shawnee Drive cannot be connected to the proposed extension of Big Pine Road (Road 1) because of the significant steep topography at the end of Shawnee Drive.

<u>Supporting Justification Enclosures</u>
Included photographs:

- Picture 1_Existing Stream Crossing
- Picture 2_Existing Stream Crossing
- Picture 3_Slopes near Shawnee Drive

Included plans:

- C-100_RC shows the layout of the roads
- C-101_RC to C-105_RC show the road layout and site topography
- C-106_RC shows the amount of open space provided

STREET DESIGN CRITERIA

REQUIREMENTS ARE PER TABLE 14-2 OF THE NORTH AUGUSTA DEVELOPMENT CODE

DESIGN FACTOR: LOCAL STREET

RIGHT OF WAY ALLOWED: 36-50'
RIGHT OF WAY SHOWN ON PLAN: 50'

TRAVEL LANES: 2

PARKING LANES ALLOWED: 0-1

PAVEMENT WIDTH ALLOWED: 20-30'
PAVEMENT WIDTH SHOWN ON PLAN: 24'

MINIMUM CORNER RADIUS: 15'

MINIMUM CENTERLINE RADIUS: 90'

CURB AND GUTTER REQUIRED

MAXIMUM BLOCK LENGTH: 650'

SIDEWALKS: BOTH SIDES OF STREET, MIN. 5' WIDTH EACH

PLANTING STRIP: 4' MINIMUM
PLANTING STRIP SHOWN ON PLAN: 7.5'
(ALLOWS MAXIMUM ROOT ZONE SPACE WITHIN THE RIGHT-OF-WAY FOR THE REQUIRED STREET TREES)

BIKE LANES: NOT REQUIRED

STREET TREES: REQUIRED

MAXIMUM STREET GRADE: 12%

14.19.2: THE PERMISSIBLE LENGTH OF A CUL-DE-SAC OR CLOSE MAY BE INCREASED TO A MAXIMUM OF 1,000' WHERE THE PLANNING COMMISSION FINDS THAT NATURAL FEATURES, INCLUDING TOPOGRAPHY, ENVIRONMENTAL CONSTRAINTS, OR OTHER NATURAL CONDITIONS, OR PARCEL CONNECTIONS OR CONFIGURATION PRECLUDE A CONNECTING STREET DESIGN.

CONNECTIVITY RATIO

PER NADC 14.19:
THE CONNECTIVITY RATIO IS THE NUMBER OF STREET LINKS DIVIDED BY THE NUMBER OF NODES.

A LINK IS EACH PORTION OF A STREET DEFINED BY A NODE AT BOTH ENDS OR AT ONE END. A NODE IS THE INTERSECTION OF TWO OR MORE STREETS, A CLOSE, OR CUL-DE-SAC HEAD OR A DEAD END. CONNECTIONS WITH EXISTING STREETS AND STUBOUTS FOR FUTURE STREET CONNECTIONS TO ADJACENT PROPERTIES SHOULD NOT BE CONSIDERED NODES.

THIS SECTION SHALL NOT APPLY TO A CONSERVATION SUBDIVISION.

A TRADITIONAL NEIGHBORHOOD SUBDIVISION REQUIRES A CONNECTIVITY RATIO OF 1.8

LINKS: 4
NODES: 6

4 / 6 = 0.67 CONNECTIVITY RATIO

THE CONNECTIVITY RATIO DOES NOT APPLY BECAUSE THE NEIGHBORHOOD CLASSIFIES AS A CONSERVATION SUBDIVISION.

PARKING REQUIREMENTS

HOMES:
NADC SEC. 12, TABLE 12-1, ITEM 1.18 REQUIRES SINGLE FAMILY DETACHED DWELLINGS TO HAVE A MINIMUM OF 2 PARKING SPACES PER UNIT.

EACH UNIT WILL HAVE A DRIVEWAY THAT CAN ACCOMMODATE AT LEAST 2 CARS.

PUBLIC PARK AND MAIL KIOSK:
NADC SEC. 12, TABLE 12-1, ITEM 6.18 REQUIRES OPEN SPACE, PARK OR ACTIVE RECREATIONAL USES OPERATED ON A NON-COMMERCIAL BASIS TO HAVE A MINIMUM OF 1 SPACE PER 5,000 SF LAND.

THE PARK PARCEL IS 41,133 SF

41,133 SF / 5,000 = 9 PARKING SPACES REQUIRED

PROVIDED PARKING
8 REGULAR SPACES
1 ADA ACCESSIBLE SPACE
9 TOTAL PARKING SPACES ARE PROVIDED

PROPERTY SETBACK REQUIREMENTS

REQUIREMENTS ARE PER TABLE 3-3 OF THE NORTH AUGUSTA DEVELOPMENT CODE

PROPERTY ZONING: R-10, MEDIUM LOT SINGLE FAMILY RESIDENTIAL

MINIMUM LOT SIZE: 10,000 SF

MAXIMUM GROSS DENSITY: 4.5 DWELLING UNITS / GROSS ACRE

MAXIMUM IMPERVIOUS SURFACE RATIO: 0.3

MINIMUM LOT FRONTAGE: 40'

MINIMUM LOT WIDTH: 50'

MAXIMUM BUILDING HEIGHT: 35'

MINIMUM FRONT BUILDING SETBACK: 15'

MINIMUM SIDE BUILDING SETBACK: 5'

MINIMUM REAR BUILDING SETBACK: 15'

LOT COUNT

127 TOTAL NUMBER OF LOTS

ROAD LENGTH

ROAD NO. 1	1745'
ROAD NO. 1A	153'
ROAD NO. 2	1960'
ROAD NO. 2A	262'
ROAD NO. 3	384'
TOTAL LENGTH	2544'

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UTILITY WARNING:
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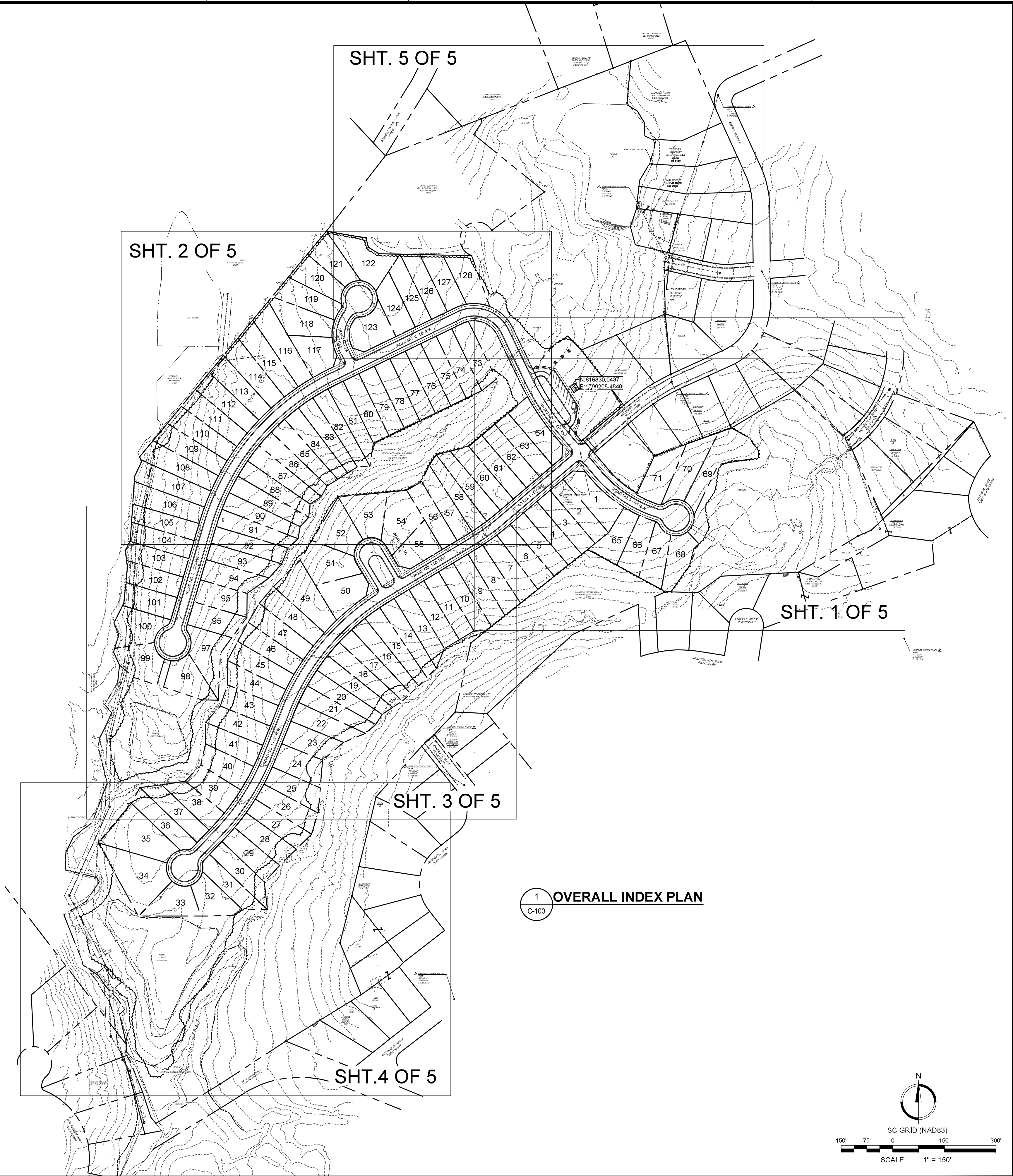

1 C-100 **OVERALL INDEX PLAN**

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CLIENT: MERIT COMMERCIAL HOLDINGS
506 THOMPKINS LANE EVANS, GA 30809

PROJECT NAME: WRENFIELD AT CHANTICLEER

PROJECT LOCATION: BIG PINE ROAD NORTH AUGUSTA, SC 29841

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 29510 WILLIAM TARRANT BUCHANAN

SOUTH CAROLINA JOHNSON, LASCHOBER & ASSOCIATES, PC No. C00790 CERTIFICATE OF AUTHORIZATION

REV	DATE	BY	DESCRIPTION
C	06/20/22	WTB	ISSUED FOR MAJOR SUBDIVISION (PRELIMINARY PLAT)
B	06/02/22	WTB	ISSUED FOR CLIENT REVIEW AND PRELIMINARY PRICING
A	05/04/22	WTB	ISSUED FOR CLIENT REVIEW

PROJECT NO.	5017.2201
DRAWN BY :	AWR
CHECKED BY :	WTB
DATE:	4/11/2022
SHEET TITLE :	DESIGN CRITERIA, NOTES AND OVERALL INDEX PLAN
SCALE:	1" = 150'
DRAWING NO.	C-100
REV.	C

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K:\5017\2201\Civil\C-100.dwg Plotted:6/20/2022 1:13 PM By:Alexandra Reynolds

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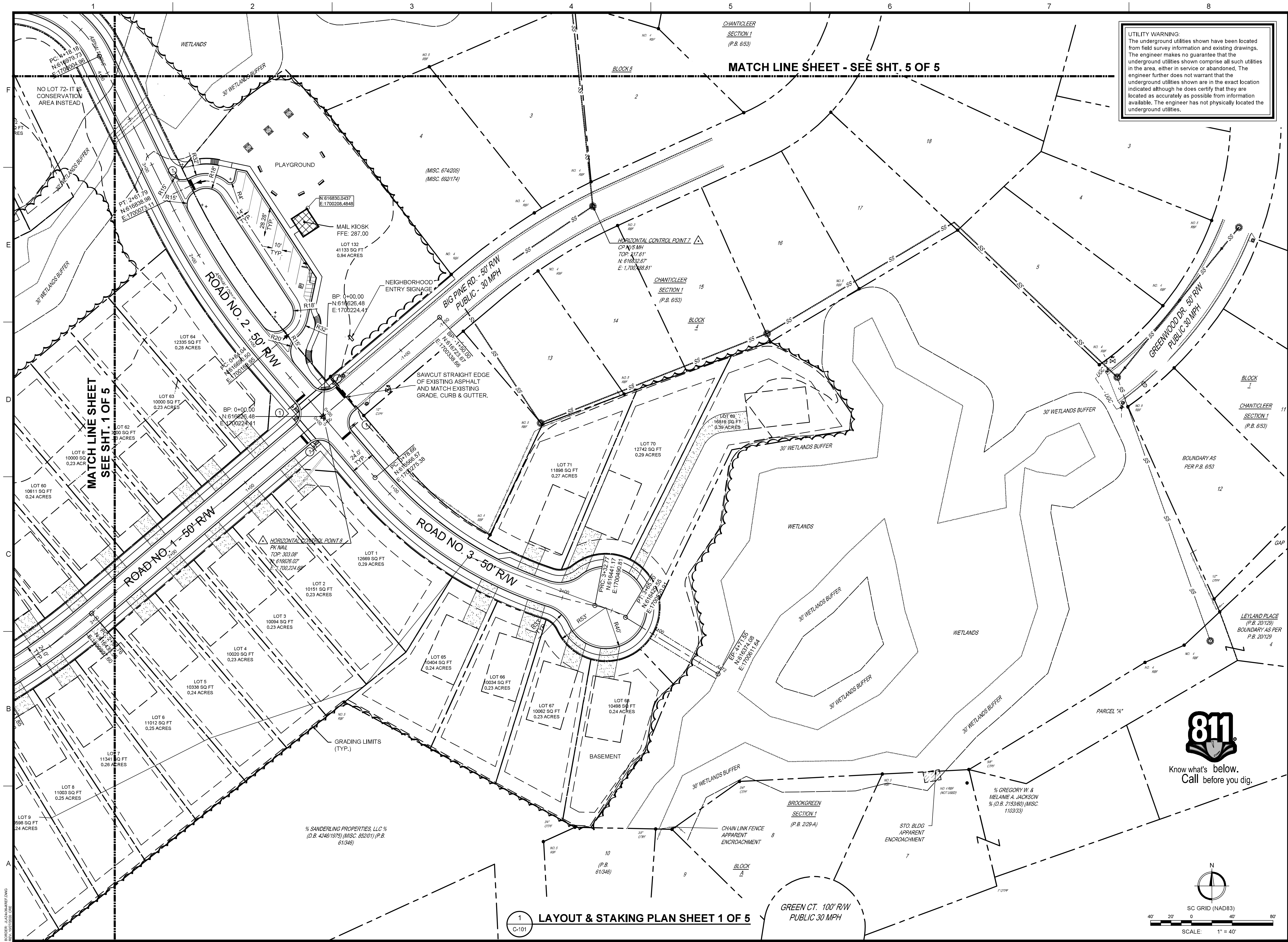

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WRENFIELD AT CHANTICLEER

PROJECT LOCATION:
BIG PINE ROAD NORTH AUGUSTA, SC 29841

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 29510 WILLIAM TARRANT BUCHANAN 06/20/22

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A	05/04/22	WTB	ISSUED FOR CLIENT REVIEW

PROJECT NO.	5017.2201
DRAWN BY :	CRE
CHECKED BY :	WTB
DATE:	4/11/2022

SHEET TITLE :
LAYOUT & STAKING PLAN SHEET 1 OF 5

SCALE: 1" = 40'
DRAWING NO. **C-101** REV. C

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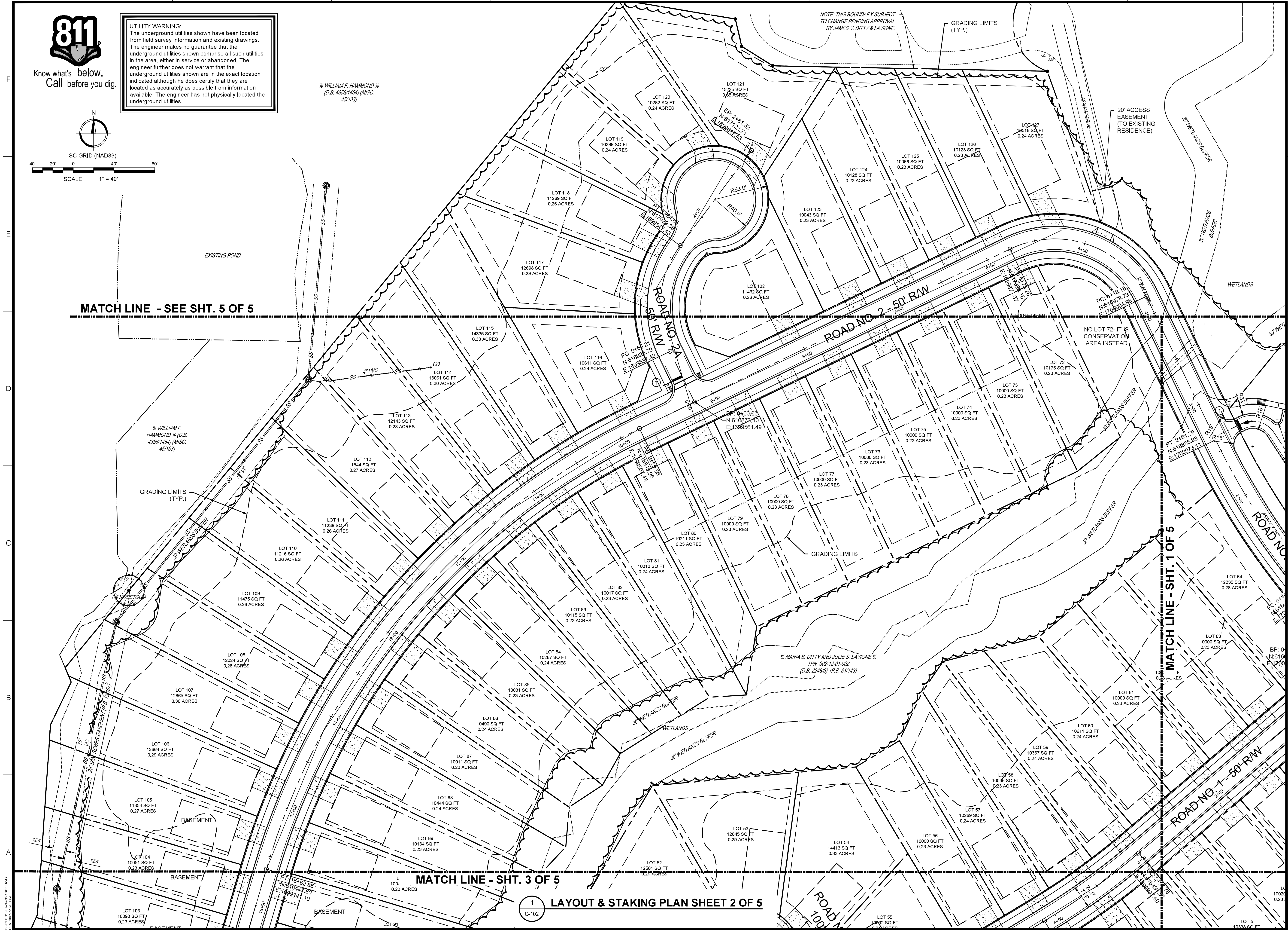

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B	06/02/22	WTB	ISSUED FOR CLIENT REVIEW AND PRELIMINARY PRICING
A	05/04/22	WTB	ISSUED FOR CLIENT REVIEW

PROJECT NO.	5017.2201
DRAWN BY:	CRE
CHECKED BY:	WTB
DATE:	4/11/2022

SHEET TITLE: **LAYOUT & STAKING PLAN SHEET 2 OF 5**

SCALE: 1" = 40'

DRAWING NO. **C-102** REV. C

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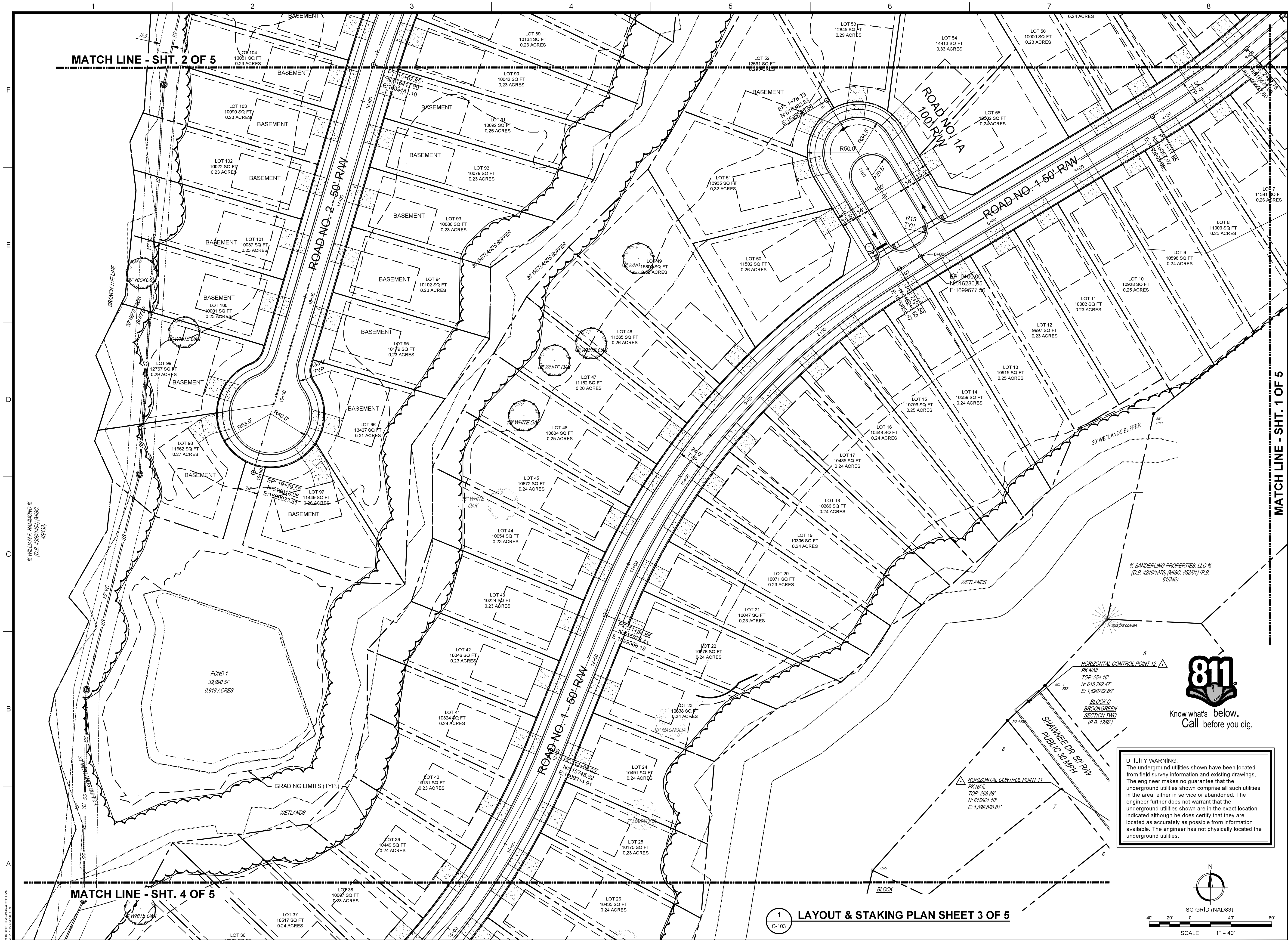

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PROJECT NAME:
WRENFIELD AT CHANTICLEER

PROJECT LOCATION:
BIG PINE ROAD NORTH AUGUSTA, SC 29841

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 29510 WILLIAM TARRANT BUCHANAN 06/20/22

SOUTH CAROLINA JOHNSON, LASCHOBER & ASSOCIATES, PC No. C00790 CERTIFICATE OF AUTHORIZATION

REV	DATE	BY	DESCRIPTION
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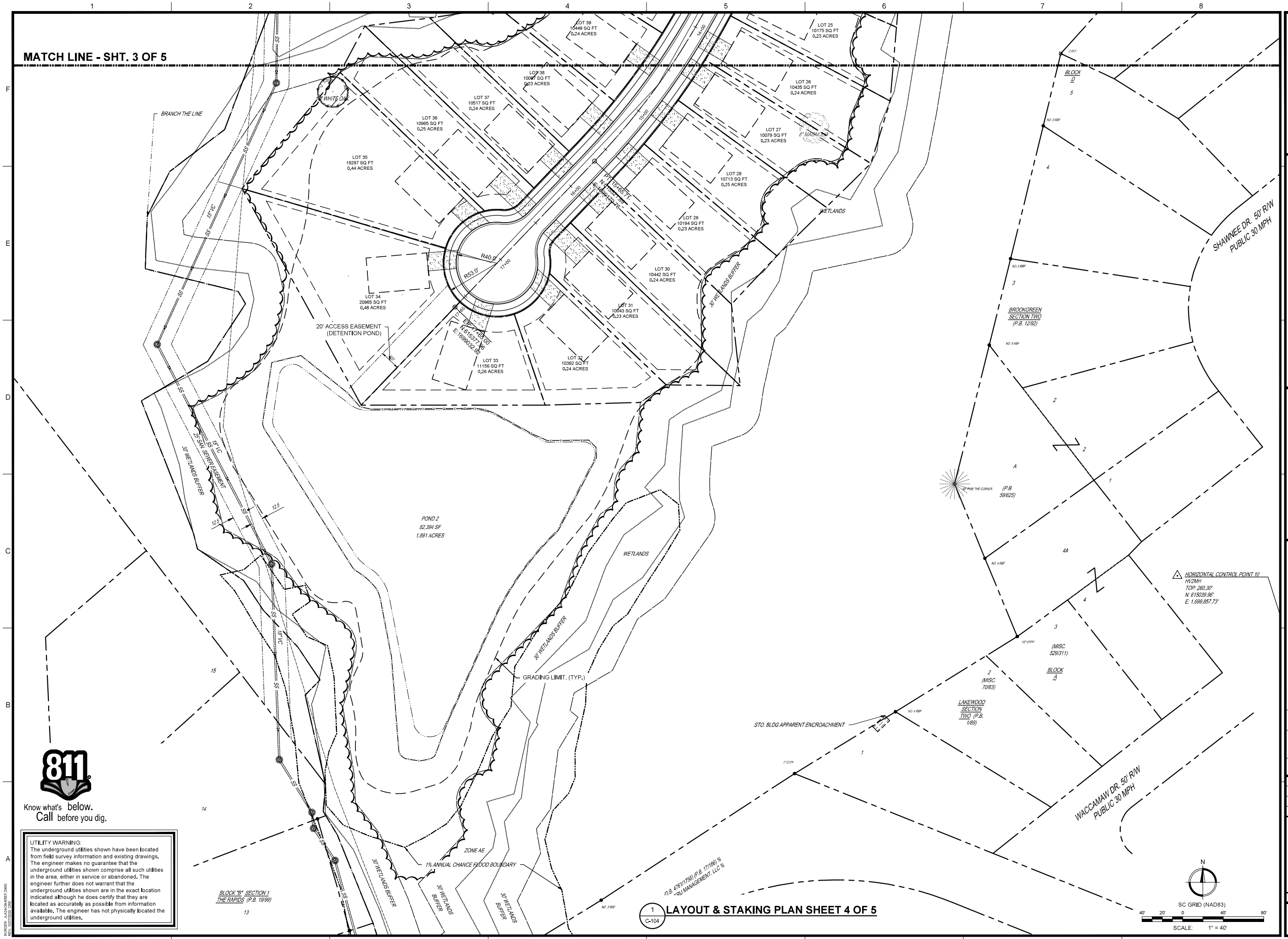
B	06/02/22	WTB	ISSUED FOR CLIENT REVIEW AND PRELIMINARY PRICING
A	05/04/22	WTB	ISSUED FOR CLIENT REVIEW

PROJECT NO.	5017.2201
DRAWN BY :	CRE
CHECKED BY :	WTB
DATE:	4/11/2022

SHEET TITLE :
LAYOUT & STAKING PLAN SHEET 3 OF 5

SCALE: 1" = 40'
DRAWING NO. C-103
REV. C

NOT FOR CONSTRUCTION



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

UTILITY WARNING:
The underground utilities shown have been located from field survey information and existing drawings. The engineer makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The engineer further does not warrant that the underground utilities shown are in the exact location indicated although he does certify that they are located as accurately as possible from information available. The engineer has not physically located the underground utilities.

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PROJECT NAME: **WRENFIELD AT CHANTICLEER**

PROJECT LOCATION: BIG PINE ROAD NORTH AUGUSTA, SC 29841

SOUTH CAROLINA PROFESSIONAL ENGINEER — WILLIAM TARRANT BUCHANAN — No. 29610 — 05/20/22

SOUTH CAROLINA — JOHNSON, LASCHOBER & ASSOCIATES, PC — No. C00790 — CERTIFICATE OF AUTHORIZATION

REV	DATE	BY	DESCRIPTION
A	05/04/22	WTB	ISSUED FOR CLIENT REVIEW
B	05/02/22	WTB	ISSUED FOR CLIENT REVIEW AND PRELIMINARY PRICING
C	06/20/22	WTB	ISSUED FOR MAJOR SUBDIVISION (PRELIMINARY PLAT)

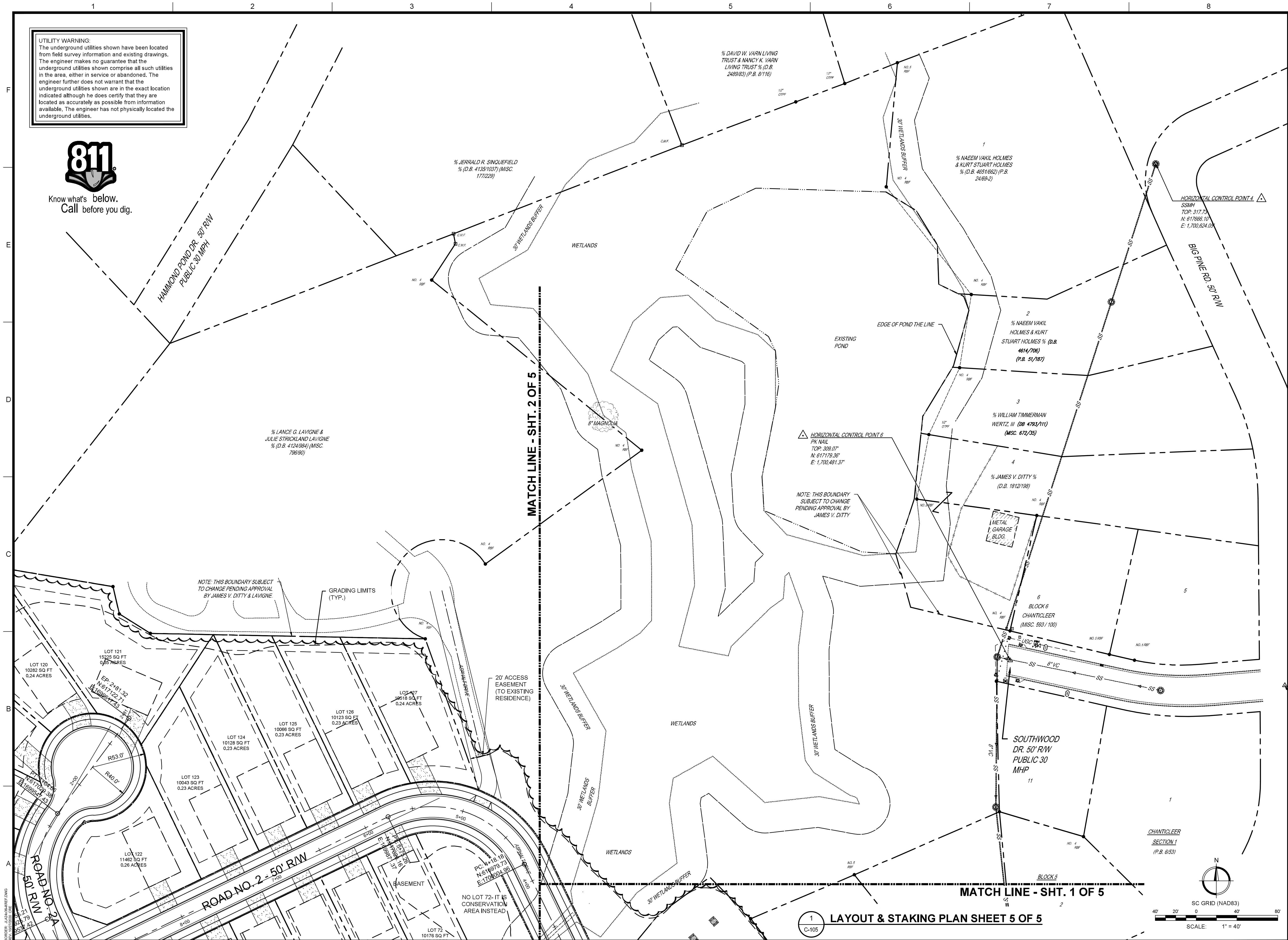
PROJECT NO.	5017.2201
DRAWN BY :	CRE
CHECKED BY :	WTB
DATE:	4/11/2022

SHEET TITLE :
LAYOUT & STAKING PLAN SHEET 4 OF 5

SCALE: 1" = 40'

DRAWING NO. **C-104** REV. **C**

K:\5017.2201\Civil\C-104.dwg Plotted:6/20/2022 1:29 PM By:Alexandra Reynolds
BORDER_JLA24x36ARCH.DWG
REV: 10/22/2020 - CRE


UTILITY WARNING:
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811
Know what's below. Call before you dig.
HAMMOND POND DR. 50' R/W PUBLIC 30 MPH
% JERRALD R. SINQUEFIELD % (D.B. 4135/1037) (MISC. 177/229)
% DAVID W. VARN LIVING TRUST & NANCY K. VARN LIVING TRUST % (D.B. 2489/83) (P.B. 8/116)
1 % NAEEM VAKIL HOLMES & KURT STUART HOLMES % (D.B. 4651/662) (P.B. 24/69-2)
2 % NAEEM VAKIL HOLMES & KURT STUART HOLMES % (D.B. 4614/706) (P.B. 51/187)
3 % WILLIAM TIMMERMAN WERTZ, III (DB 4793/111) (MISC. 672/35)
4 % JAMES V. DITTY % (D.B. 1812/198)
% LANCE G. LAVIGNE & JULIE STRICKLAND LAVIGNE % (D.B. 4124/984) (MISC. 796/90)
HORIZONTAL CONTROL POINT 4 SSMH TOP: 317.73' N: 617666.10' E: 1,700,624.05'
HORIZONTAL CONTROL POINT 6 PK NAIL TOP: 309.07' N: 617179.36' E: 1,700,481.37'
BIG PINE RD. 50' R/W
EDGE OF POND THE LINE
EXISTING POND
WETLANDS
30' WETLANDS BUFFER
8" MAGNOLIA
NOTE: THIS BOUNDARY SUBJECT TO CHANGE PENDING APPROVAL BY JAMES V. DITTY
METAL GARAGE BLDG.
6 BLOCK 6 CHANTICLEER (MISC. 593 / 100)
5
SOUTHWOOD DR. 50' R/W PUBLIC 30 MHP
11
1
CHANTICLEER SECTION 1 (P.B. 6/53)
BLOCK 5
2
MATCH LINE - SHT. 2 OF 5
MATCH LINE - SHT. 1 OF 5
NOTE: THIS BOUNDARY SUBJECT TO CHANGE PENDING APPROVAL BY JAMES V. DITTY & LAVIGNE.
GRADING LIMITS (TYP.)
20' ACCESS EASEMENT (TO EXISTING RESIDENCE)
ASPHALT DRIVE
LOT 120 10282 SQ FT 0.24 ACRES
LOT 121 15225 SQ FT 0.35 ACRES
LOT 122 11462 SQ FT 0.26 ACRES
LOT 123 10043 SQ FT 0.23 ACRES
LOT 124 10128 SQ FT 0.23 ACRES
LOT 125 10066 SQ FT 0.23 ACRES
LOT 126 10123 SQ FT 0.23 ACRES
LOT 127 10518 SQ FT 0.24 ACRES
LOT 72 10176 SQ FT
R53.0'
R40.0'
ROAD NO. 2 - 50' R/W
ROAD NO. 2A 50' R/W
EASEMENT
NO LOT 72- IT IS CONSERVATION AREA INSTEAD
PC: 4+18.18 N:616979.73 E:1700004.96
SC GRID (NAD83)
SCALE: 1" = 40'

1 C-105 LAYOUT & STAKING PLAN SHEET 5 OF 5

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CLIENT: MERIT COMMERCIAL HOLDINGS
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PROJECT NAME: WRENFIELD AT CHANTICLEER

PROJECT LOCATION: BIG PINE ROAD NORTH AUGUSTA, SC 29841

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 29510 WILLIAM TARRANT BUCHANAN 06/20/22

SOUTH CAROLINA JOHNSON, LASCHOBER & ASSOCIATES, PC No. C00790 CERTIFICATE OF AUTHORIZATION

REV	DATE	BY	DESCRIPTION
C	06/20/22	WTB	ISSUED FOR MAJOR SUBDIVISION (PRELIMINARY PLAT)
B	06/02/22	WTB	ISSUED FOR CLIENT REVIEW AND PRELIMINARY PRICING
A	05/04/22	WTB	ISSUED FOR CLIENT REVIEW

PROJECT NO.	5017.2201
DRAWN BY :	CRE
CHECKED BY :	WTB
DATE:	4/11/2022

SHEET TITLE : LAYOUT & STAKING PLAN SHEET 5 OF 5

SCALE: 1" = 40'

DRAWING NO. C-105 REV. C

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K:\5017\2201\Civil\C-101 TO C-105.dwg Plotted:6/20/2022 1:30 PM By:Alexandra Reynolds

CONSERVATION SUBDIVISION REQUIREMENTS

THE FOLLOWING APPLICABLE STANDARDS AND REQUIREMENTS ARE PER ARTICLE 2.3 OF THE NORTH AUGUSTA DEVELOPMENT CODE

2.3.5.2: IN ORDER TO PROVIDE UNDIVIDED OPEN SPACE, DIRECT VIEWS AND ACCESS, NOT LESS THAN 40% OF THE LOTS WITHIN A CONSERVATION SUBDIVISION SHALL ABUT A CONSERVATION AREA

2.3.7: THE CONNECTIVITY INDEX FOR INTERNAL STREETS AS SET FORTH IN ARTICLE 14 SHALL NOT APPLY TO LOCAL STREETS WITHIN A CONSERVATION SUBDIVISION

2.3.7.2: STREETS SHALL NOT CROSS WETLANDS OR EXISTING SLOPES EXCEEDING 15%*
*THIS PLAN INCLUDES ONE STREAM CROSSING. THIS CROSSING IS ALREADY IN EXISTENCE AND IS ALONG THE CURRENT PAVED DRIVEWAY TO 750 BIG PINE ROAD.

2.3.10.3: A MINIMUM OF 40% OF THE TOTAL TRACT AREA SHALL BE DESIGNATED AS CONSERVATION AREAS

2.3.10.4: STORMWATER DETENTION PONDS MAY BE INCLUDED AS PART OF A CONSERVATION AREA

2.3.11.1:
NO CONSERVATION AREA SHALL BE CLEARED, GRADED, FILLED, OR SUBJECT TO CONSTRUCTION.

HOWEVER RIGHTS OF WAY FOR GREENEWAYS, ARTICLE 14, STREETS, ANY STREETS NEEDED TO PROVIDE ACCESS TO THE PROPOSED SUBDIVISION, AND WATER, SEWER, ELECTRIC, OR CABLE LINES MAY BE CLEARED.

THE WIDTH OF RIGHTS OF WAY FOR STREETS OR GREENEWAYS SHALL BE RESTRICTED TO THE MINIMUM AS DESIGNATED IN ARTICLE 14.4*
*50' R/W WAS UTILIZED TO PROVIDE A LARGER PLANTING MEDIAN TO BETTER ACCOMMODATE THE REQUIREED STREET TREES

2.3.11.2: NO LOT MAY BE PLATTED WITHIN WOODLANDS LOCATED ON HIGHLY ERODIBLE SOILS WITH SLOPES EXCEEDING 10%

HOMES ABUTTING CONSERVATION AREAS

48 LOTS: ROAD 1
4 LOTS: ROAD 1A
27 LOTS: ROAD 2
0 LOTS: ROAD 2A
2 LOTS: ROAD 3
81 / 127 LOTS TOTAL ABUT A CONSERVATION AREA

81 x 100 = 8100 / 127 = 63.78% OF LOTS ABUT A CONSERVATION AREA

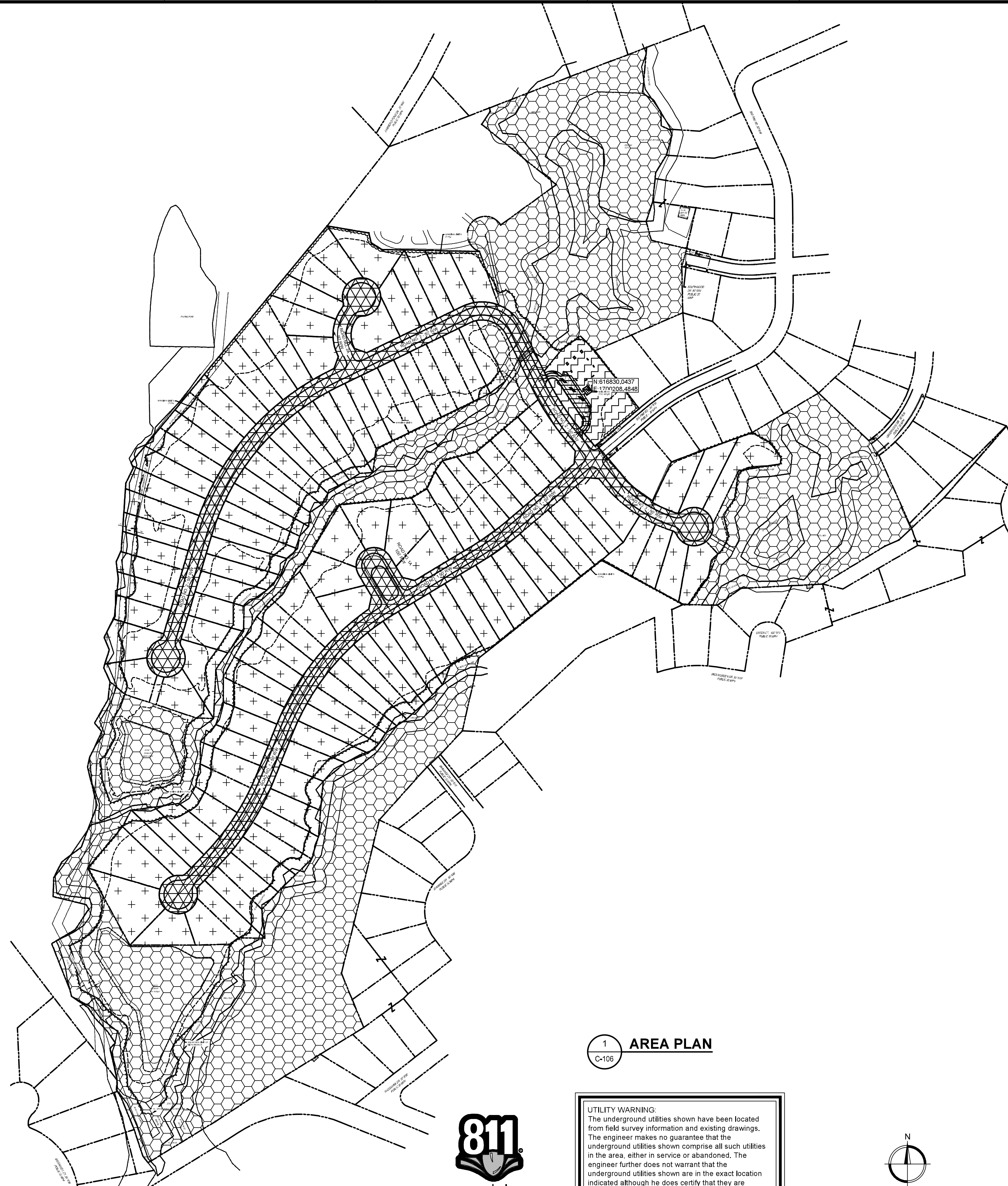
PER 2.3.5.2 A MINIMUM OF 40% OF LOTS WITHIN A CONSERVATION SUBDIVISION SHALL ABUT A CONSERVATION AREA. THIS REQUIREMENT IS EXCEEDED.

TRACT AREA

27.830 ACRES: CONSERVATION AREA (41.74%)
0.780 ACRES: PUBLIC OPEN SPACE (PARK AT ENTRY) (1.17%)
0.164 ACRES: PUBLIC MAIL KIOSK (0.24%)
5.704 ACRES: PUBLIC RIGHT-OF-WAY (8.56%)
32.202 ACRES: PRIVATE PROPERTY (48.29%)
66.68 ACRES: TOTAL TRACT (100%)

AREA LEGEND

- CONSERVATION AREA
- PUBLIC OPEN SPACE (PARK)
- PUBLIC MAIK KIOSK
- PUBLIC R/W
- PRIVATE PROPERTY



1 / C-106 **AREA PLAN**

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SC GRID (NAD83)
150' 75' 0 150' 300'
SCALE: 1" = 150'

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CLIENT: MERIT COMMERCIAL HOLDINGS
506 THOMPKINS LANE EVANS, GA 30809

PROJECT NAME: **WRENFIELD AT CHANTICLEER**

PROJECT LOCATION: BIG PINE ROAD NORTH AUGUSTA, SC 29841

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 28810 WILLIAM TARRANT BUCHANAN 06/20/22

SOUTH CAROLINA JOHNSON, LASCHOBER & ASSOCIATES, PC No. C00790 CERTIFICATE OF AUTHORIZATION

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B	06/02/22	WTB	ISSUED FOR CLIENT REVIEW AND PRELIMINARY PRICING
A	05/04/22	WTB	ISSUED FOR CLIENT REVIEW

PROJECT NO.: 5017.2201
DRAWN BY: AWR
CHECKED BY: WTB
DATE: 4/11/2022
SHEET TITLE: **AREA PLAN**
SCALE: 1" = 150'
DRAWING NO.: **C-106**
REV.: C

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K:\5017\2201\Civil\C-106.dwg Plotted 6/20/2022 1:12 PM By:Alexandra Reynolds

BORDER: JLAGA36x24REF.DWG REV. 10/27/2020 ORE

Wrenfield at Chanticleer
June 20, 2022
JLA Job #: 5017.2201
N.A. Prelim. Plat App. Item H

Site Analysis and Protection Recommendations Per NADC Sec. 6.1.1

Site Location:
The site is located at the dead end of Big Pine Road in North Augusta's Chanticleer neighborhood.

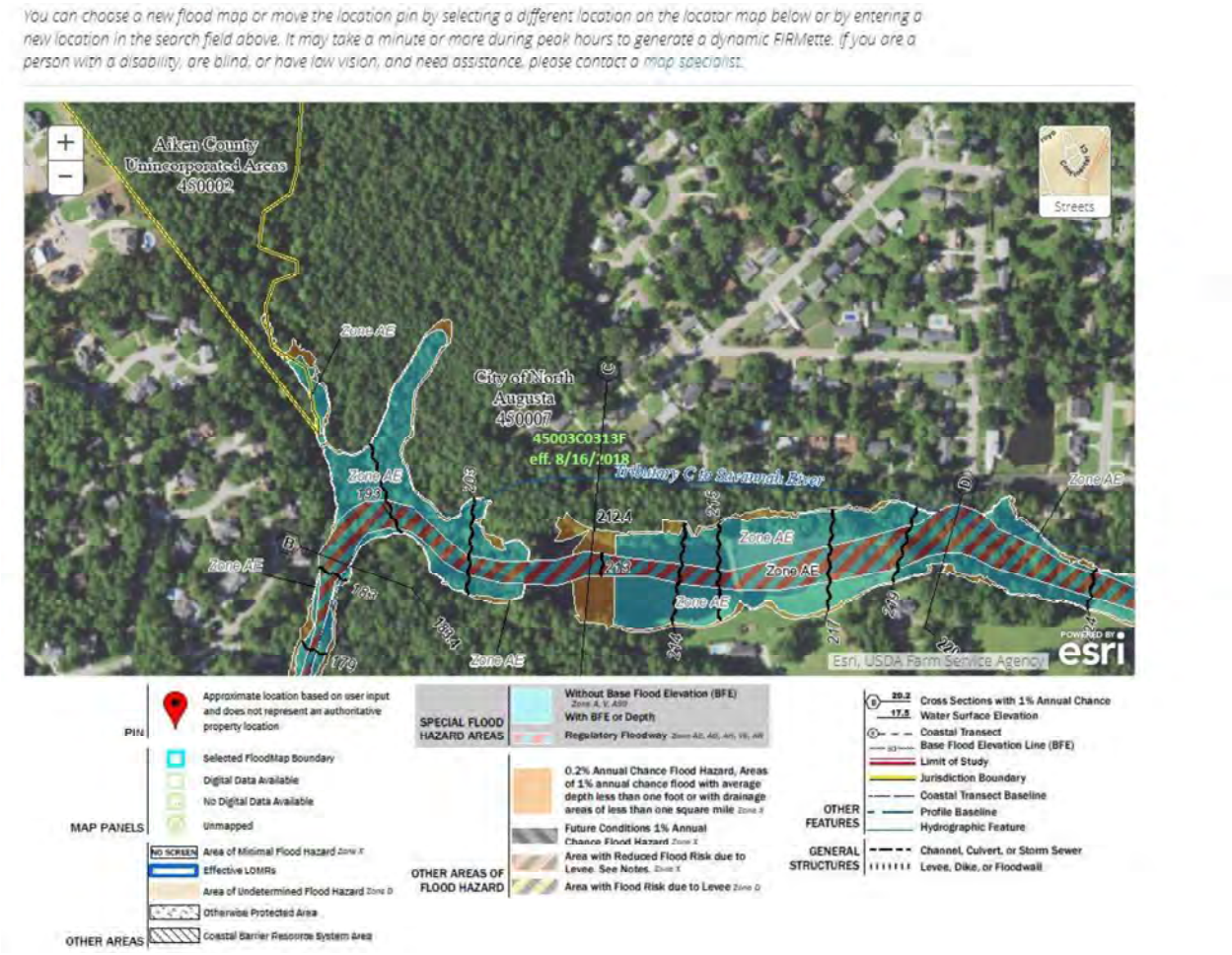
Geology and Soils:

According to the above Aiken County GIS soils map there are three types of soils present on the property: Hiawassee (pink), Troup (green), and Vaucluse (blue). USDA Soil classifications are as follows: Hiawassee soils are well drained with medium to rapid surface run off and moderate permeability. Troup soils are very deep somewhat excessively drained and have moderate to rapid permeability. Vaucluse soils are well drained with high to very high surface runoff and moderate to slow permeability.

Topography:
Slopes on the site range from 0-24%. The steepest slopes have been avoided as much as is practical in accordance with Sec. 6.1.3.2.

Wetland and Water Features:
Two wetlands and three streams are present on the site. A 30' buffer is shown surrounding each wetland and on each side of each stream. No land disturbance will occur within this

buffer. The FEMA firmette maps (below) show a floodplain at the south of the property. There are no homes planned to be near the flood plain. The only development near the floodplain is the 1.891 acre detention pond which is located outside of the limits of the floodplain.



Existing Vegetation:
The site is wooded with a mix of pine and hardwoods.

Structures:
No existing structures are present on the property. Planned structures are 127 single family homes around 2,100 sf (35' x 60') each.

Visual and View Features:
The neighborhood will be a conservation subdivision. 81 of the 127 the properties (63.78%) abut a conservation area and have direct views and access. All residents have access to the public park near the entrance that abuts a conservation area and has direct views into it.

Other Environmental Characteristics:
There are none known.

Road Networks:
Existing Roads- the property currently has an existing driveway from the end of existing Big Pine Road to parcel 002-12-01-032. This driveway crosses one of the streams. The location of this stream crossing is planned to be improved and used as the crossing location for the proposed Road 2.

Proposed Roads- Roads were laid out to minimize grading and avoid steep slopes and sensitive areas. This resulted in Road 1 and Road 2 ending in cul-de-sacs. These two streets cannot be connected together because it would necessitate another stream crossing. The existing Shawnee Drive cannot be connected to the proposed extension of Big Pine Road (Road 1) because of the significant steep topography at the end of Shawnee Drive. Road names will be coordinated with North Augusta and the owner as the project progresses.

Past, Present, and Proposed Uses of the Site:
Past- Undeveloped woodland
Present- Undeveloped woodland
Future- Conservation Subdivision with 27.830 acres (41.74%) of undisturbed conservation area, 0.780 acres of public park, and 38.08 acres developed area

WRENFIELD AT CHANTICLEER NEIGHBORHOOD
NORTH AUGUSTA, SOUTH CAROLINA

TRAFFIC ENGINEERING STUDY

Prepared for:

JOHNSON, LASCHOBER, AND ASSOCIATES

Prepared by:

Infrastructure Systems Management, LLC

SPECIALIZED CONSULTING SERVICES

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AUGUSTA, GA 30904
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JUNE 17, 2022

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INTRODUCTION

This report analyzes the traffic impact of the proposed Wrenfield at Chanticleer neighborhood (WCN) which will include 123 single-family homes to be located on a 66.9-acre tract located at the existing "stub-out" of Big Pine Road in the existing Chanticleer neighborhood in North Augusta, South Carolina. Full Build-out is expected by 2026.

The location of the proposed development is shown in Figure 1.

Access for the additional homes will be provided via Southwood Road, which is the existing main access fort the Chanticleer neighborhood at Martintown Road.

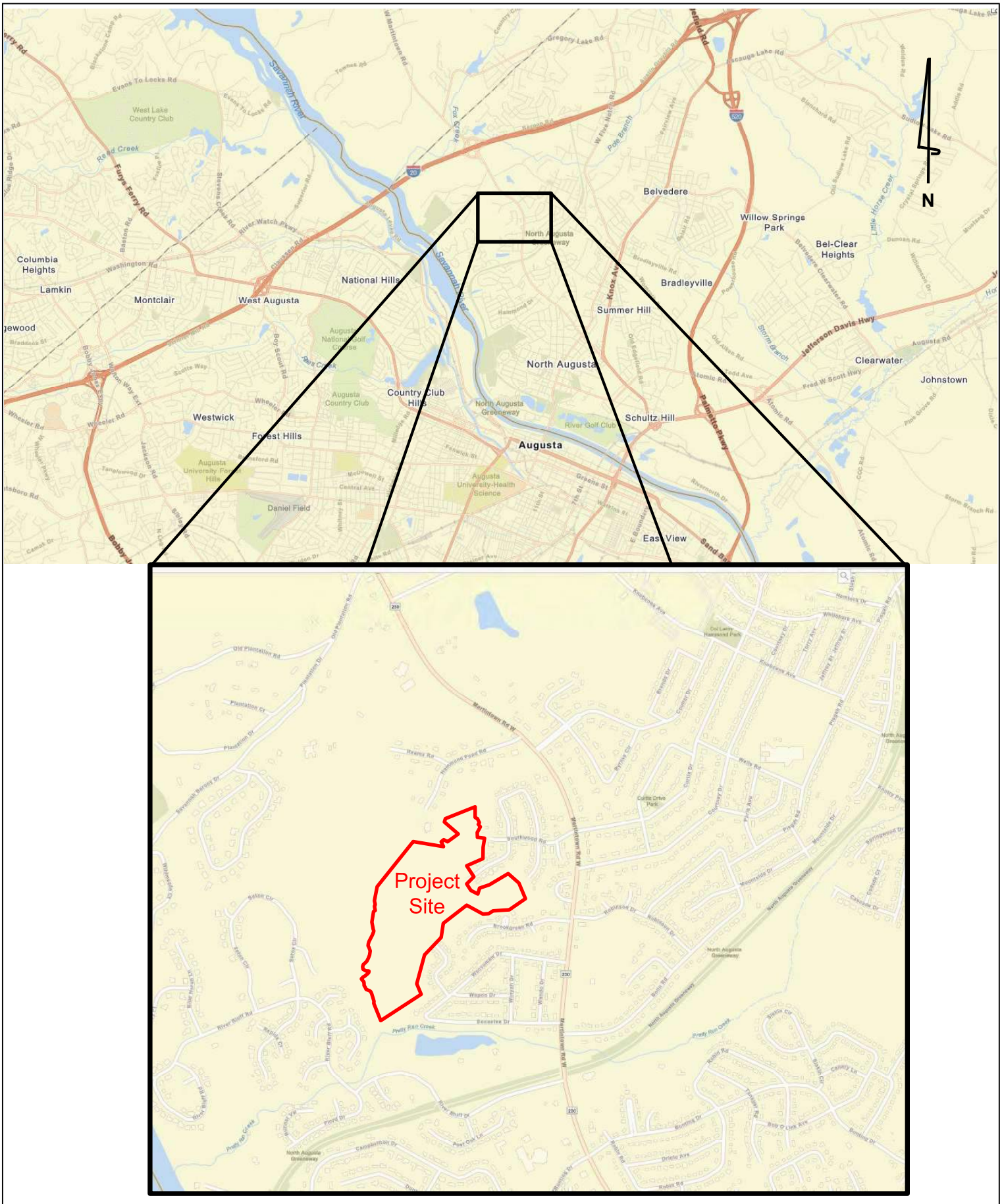
The impact of WCN to traffic operations of the surrounding roadway network was determined in accordance with "Appendix B – Application Documents" of the North Augusta Development Code (NADC) and as well as the South Carolina Department of Transportation's Access and Roadside Management Standards (ARMS) and includes existing, future no-build, and future build traffic conditions at the following intersections:

- Martintown Road (SC-230) at Southwood Road/Curtis Drive and
- Martintown road (SC-230) at Courtney Drive

Each intersection was analyzed for the existing, future no-build, and future build traffic conditions to determine any mitigation necessary to alleviate existing or projected deficiencies. Additionally, each driveway will be analyzed to provide recommendations for driveway configuration and traffic control to provide safe, efficient ingress and egress to the site.

In addition to traffic from RCL, both the future no-build and future build conditions will account for traffic from several approved developments in the area.

The methodology to assess operations and the study findings are summarized in the sections that follow.



Infrastructure Systems Management, LLC	***Wrenfield at Chanticleer Traffic Impact Analysis***	**Site Location Map**	**Figure 1**
			Page 2

CAPACITY ANALYSIS METHODOLOGY

Synchro 11 software were used to perform capacity analysis at each intersection within the study network in accordance with criteria set forth in the Transportation Research Board's Highway Capacity Manual, 2010 Edition (HCM).

In general, the LOS may be defined as a measure of operations conditions within a traffic stream and the perception of the condition by the general motoring public. The six levels of service are briefly described, as follows:

- LOS A – Little or no traffic delays;
- LOS B – Minimal to short traffic delays;
- LOS C – Average traffic delays;
- LOS D – Relatively long traffic delays;
- LOS E – Intersections are at or near the maximum capacity and traffic experiences long delays; and
- LOS F – Intersections are operating above their maximum capacity and traffic delays are long and unstable.

For signalized intersections, one overall intersection LOS is reported. At unsignalized intersections, the LOS for each controlled approach or movement (side-streets and main-street left-turns) is reported. Table 1 presents LOS criteria for signalized and unsignalized intersections.

Table 1
Level of Service Criteria

LOS	Average Control Delay (sec / veh)	
	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: 2000 Highway Capacity Manual

For signalized intersections, a volume-to-capacity ratio (v/c) is also computed. The capacity of the intersection is calculated based on the geometry and signal green-time allocation. Intersection capacity is then compared to the volumes entering the intersection. A v/c ratio of less than 1.0 indicates that there is sufficient capacity for the traffic demand. A v/c ratio of more than 1.0 generally indicates the need for intersection improvements.

EXISTING ROADWAY FACILITIES

A site visit was performed to develop an inventory and observations of the existing roadways within the study network, which are described in the sections that follow.

Martintown Road (SC-230)

In the vicinity of the site, Martintown Road is designated SC-230 and is essentially a north-south, state-maintained with a functional classification as an Urban Arterial and a posted speed limit of 40 miles-per-hour (mph). Land uses along Martintown Road are a mix of commercial, residential, industrial, and institutional.

At it's both unsignalized intersections with Southwood Road/Curtis Drive and Courtney Drive, Martintown Road is uncontrolled with an exclusive left-turn lane, one through lane, and one shared through/right-turn lane both its northbound and southbound approaches.

In 2021, SCDOT reported an annual average daily traffic volume (AADT) of 18,300 vehicles per day (vpd) along Martintown Road, just north of the site. A 24-hour bi-directional count performed for this study showed a 24-hour volume of 16,488vpd between Southwood Road and Courtney Drive.

Southwood Road/Curtis Road (S-537)

Southwood Road is a two-lane, east-west local road with a 30-mph speed limit. Southwood Road serves as the main entrance and only access for the Chanticleer subdivision and only serves residential land uses.

Curtis Drive is a two-lane, east-west state-maintained secondary road classified as an urban local road with a 25-mph speed limit. Curtis Drive serves as one of the main entrance for the Smithfield subdivision with connectivity via Pinehurst subdivision to West Five Notch Road.

At it's unsignalized intersection with Martintown Road, Southwood Road and Curtis Drive are both stop-controlled with a single exiting lane and a single entrance lane.

SCDOT does not maintain a count station along Southwood Road, but a 24-hour, bi-directional count performed along Southwood Rod for this study showed a 24-hour volume of 782 vpd.

In 2021, SCDOT recorded an AADT along Curtis Drive, east of Martintown Road of 650 vpd.

Courtney Drive (S-506)

Courtney Drive is a two-lane, east-west state-maintained secondary road classified as an urban local road with a 25-mph speed limit. Courtney Drive serves as one of the main entrances for the Smithfield subdivision with connectivity via Pinehurst subdivision to West Five Notch Road.

At it's unsignalized intersection with Martintown Road, Courtney Drive is stop-controlled with a single exiting lane and a single entrance lane.

In 2021, SCDOT recorded an AADT along Curtis Drive, east of Martintown Road of 800 vpd.

EXISTING CONDITIONS

Existing Traffic Volumes

Peak hour turning movement counts were collected at both intersections in the study network on Tuesday, March 8, 2022. From these data, the peak hour volumes for the intersections were found to occur between 7:15 am and 8:15 am for the morning peak hour and between 4:45 pm and 5:45 pm for the evening peak hour.

Existing morning and peak hour volumes as well as lane configurations are shown in Figure 2.

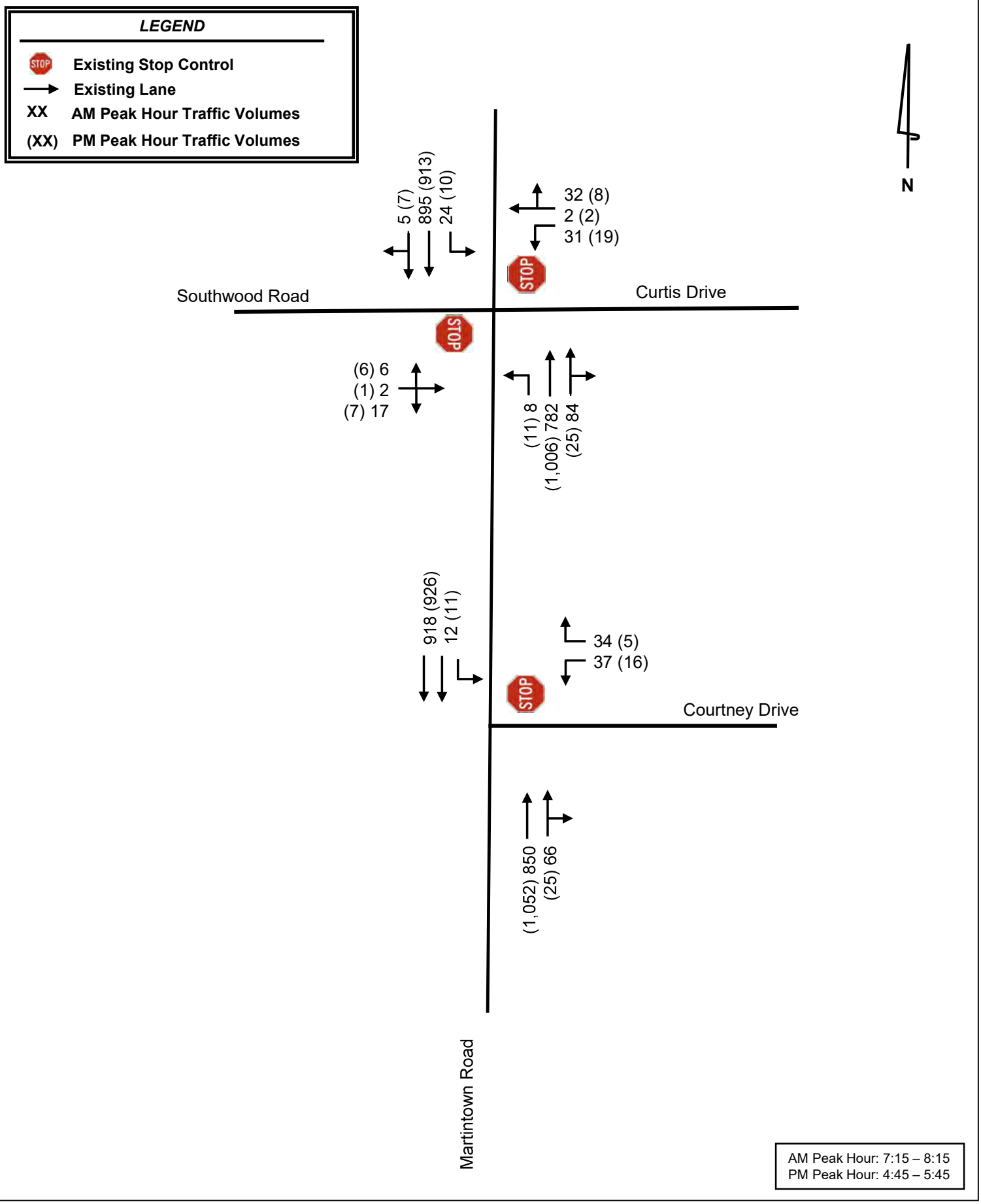
Existing Operations

Existing intersection operations were analyzed to determine current traffic conditions and identify existing deficiencies that should be addressed. Peak hour intersection traffic volumes and existing intersection geometries were used in the analysis and the results are presented in Table 2.

Table 2
Existing Intersection Operations

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)
Martintown Rd at Southwood Rd/Curtis Dr	**A**	**1.5**	**A**	**0.9**
- eastbound approach	C	18.2	C	21.6
- westbound approach	C	23.6	D	30.9
- northbound left-turn	B	10.3	B	10.7
- southbound left-turn	B	10.2	B	10.9
Martintown Rd at Courtney Dr	**A**	**0.8**	**A**	**0.4**
- westbound approach	C	19.8	D	30.4
- southbound left-turn	B	10.3	B	13.1

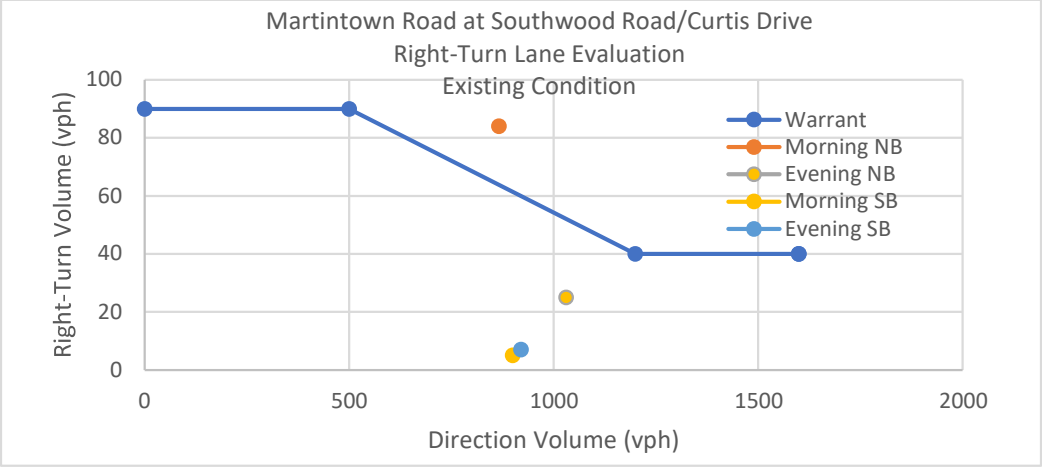
As shown by the results in Table 2, while overall operations for each intersection is within the LOS Standard in the Existing Condition, delay along the westbound side street approaches are operating at LOS D during the evening peak hour at both intersections. This is due to the relatively heavy volume of traffic along Martintown Road that is limiting gaps for the side street exiting movements which is not uncommon or outside of driver expectations in an urban area accessing an arterial roadway during peak hours.

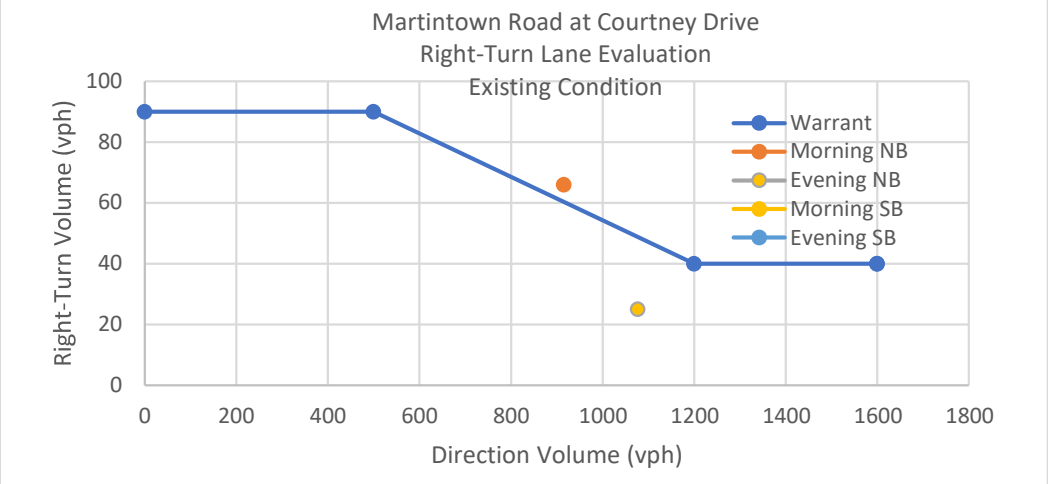

LEGEND
Existing Stop Control
Existing Lane
XX AM Peak Hour Traffic Volumes
(XX) PM Peak Hour Traffic Volumes
N
5 (7)
895 (913)
24 (10)
32 (8)
2 (2)
31 (19)
STOP
Southwood Road
Curtis Drive
STOP
(6) 6
(1) 2
(7) 17
(11) 8
(1,006) 782
(25) 84
918 (926)
12 (11)
34 (5)
37 (16)
STOP
Courtney Drive
(1,052) 850
(25) 66
Martintown Road
AM Peak Hour: 7:15 – 8:15
PM Peak Hour: 4:45 – 5:45

Existing Condition Auxiliary Lane Analyses

The need for auxiliary lanes at the intersections of Martintown Road at Southwood Road/Curtis Drive and Martintown Road at Courtney Drive in the Existing Condition was evaluated in accordance with section *9.5 Auxiliary Turn Lanes* of the SC DOT Roadway Design Manual (February 2021) which provides volume guidelines and criteria for the installation of right-turn and left-turn lanes at unsignalized intersections. As noted previously, the geometry of this intersection currently includes a left-turn lane in each direction, therefore, warrant analyses were only performed for right-turn lanes.

The right-turn lane analysis relies on the peak hour right turn volume versus the total peak hour traffic volume in the same direction and this analysis is shown below:





As shown by the above evaluations, a right-turn lane is currently warranted for the northbound approach at both intersections. Because this improvement is necessary to address existing deficiencies, it is considered a "system" improvement. "System" improvements are those required to mitigate existing deficiencies not associated with traffic generated by the proposed development not typically considered to be the whole responsibility of the developer.

Analysis was performed for the Existing Condition with the warranted right-turn lane is presented in Table 3.

Table 3
Existing Intersection Operations with System Improvements

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)
Martintown Rd at Southwood Rd/Curtis Dr	**A**	**1.5**	**A**	**0.9**
- eastbound approach	C	18.1	C	21.6
- westbound approach	C	22.3	D	30.4
- northbound left-turn	B	10.3	B	10.7
- southbound left-turn	B	10.2	B	10.9
Martintown Rd at Courtney Dr	**A**	**0.8**	**A**	**0.4**
- westbound approach	C	19.0	D	29.7
- southbound left-turn	B	10.3	B	13.1

As shown by the above analyses, the addition of a northbound right-turn lane at both intersections does not result in a significant improvement of overall operation of either intersection. Therefore, careful consideration should be given to adding these lanes to determine if the benefit justifies this level of investment.

BACKGROUND GROWTH

Background growth estimates include were performed using a combination of historic traffic volumes and census data for the area. This methodology is shown in the paragraphs that follow.

South Carolina DOT maintains several count stations in the vicinity of the site with data available between 2015 and 2020. The 2020 daily traffic volumes and calculated growth rates are presented in Table 4 for the count stations closest to the site.

Table 4
Traffic Growth in the Study Area

Route	Location	2021 AADT	10-year Average Annual Growth	5-year Average Annual Growth	2-year Average Annual Growth
SC 230	South of site	22,600	0.88%	2.37%	-0.66%
SC 230	North of site	18,300	1.87%	2.98%	-0.54%
SC 230	North of I-20	13,300	2.10%	3.13%	-0.37%
S- 1905	NE of site	2,400	-1.11%	-3.04%	-19.46%
S- 537	East of site	650	0.00%	-4.07%	-3.64%
S- 506	East of Site	800	0.96%	2.71%	0.00%
Overall Average			**1.37%**	**2.38%**	**1.64%**

As shown by the data in Table 4, traffic growth in the immediate vicinity of the site has been fairly aggressive over the past 10-years. More data shows signs leveling off or decline, but this is a function of the CoVid-19 pandemic's impact as opposed to a slowing in development in the area

In addition to traffic growth, estimated census data from the South Carolina Revenue and Fiscal Affairs Office were obtained for both Edgefield and Aiken County and reviewed. These data, as well as calculated average annual growth rates, are shown in Table 5.

Table 5
Population Projection Trends for Edgefield and Aiken County

Year	Population Projections			% Change	Average Annual Growth
	Edgefield County	Aiken County	Total		
2020	27,150	171,320	198,470	–	–
2025	27,370	175,635	203,005	2.3%	0.5%
2030	27,475	178,735	206,210	3.9%	0.4%
2035	27,425	180,550	207,975	4.8%	0.3%

Similar to traffic trends shown previously, the annual growth in population for the county is also projected to stabilize over the long term as well, with annual growth falling below 1% in the next twenty years.

Finally, a review of the West Martintown Road Corridor Study done by AECOM and adopted by North Augusta City Council in 2021 was performed and revealed that a 2.0% annual growth rate was utilized in the study.

Therefore, taking all of the above factors into consideration, a 2.0% annual growth factor was utilized to estimate background conditions.

Background Development Traffic

Review of background developments included in the West Martintown Road Corridor Study was performed along with recently-approved developments in the area to determine if any approved developments were of close enough proximity to the WCN development that their impact would be greater than what was either captured in the traffic counts or captured within the 2.0% annual growth rate and completed by 2026.

Based on this review, two developments were identified and included:

- River Falls Apartments – 220 Apartments proposed approximately one mile to the north between Frontage Road and Plantation Drive.
- Hamrick Farms Planned Development – Mixed-Use including single-family, multi-family, and large commercial uses.

For the purposes of this study, it was assumed that the River Falls Apartments would be completed and that Hamrick Farms Phase I would be 50% complete by 2026.

Volumes from these developments were obtained from the West Martintown Road Corridor Study and added to the background growth.

2026 No-Build Condition

WCN is expected to be completed in 2026, therefore, an estimate was made for the 2026 No-Build Condition which represents the traffic operations of the study network in 2026 without traffic from the proposed development.

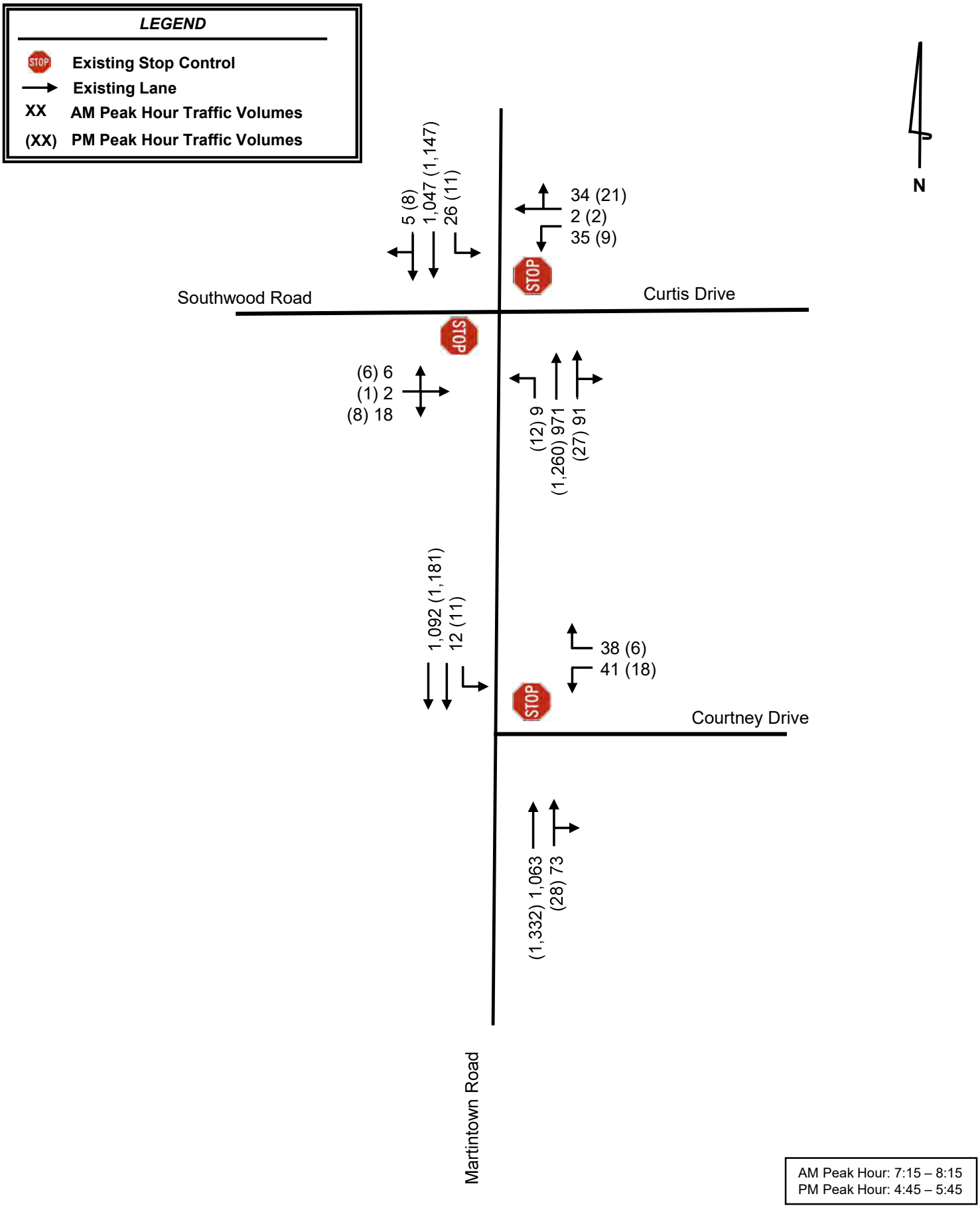
To project traffic volumes for the 2026 No-Build Condition, the background growth rate, which was calculated previously at 2.0%, was applied to the adjusted existing traffic volumes for five years. Projected traffic volumes from the proposed River Falls Apartments and Hamrick Farms developments were then added to this growth to establish the 2026 No-Build Traffic Volumes which are shown in Figure 3.

These volumes were used to analyze the 2026 No-Build traffic conditions surrounding the site with existing intersection geometry. The results of this analysis are presented in Table 6.

Table 6
2026 No-Build Intersection Operations

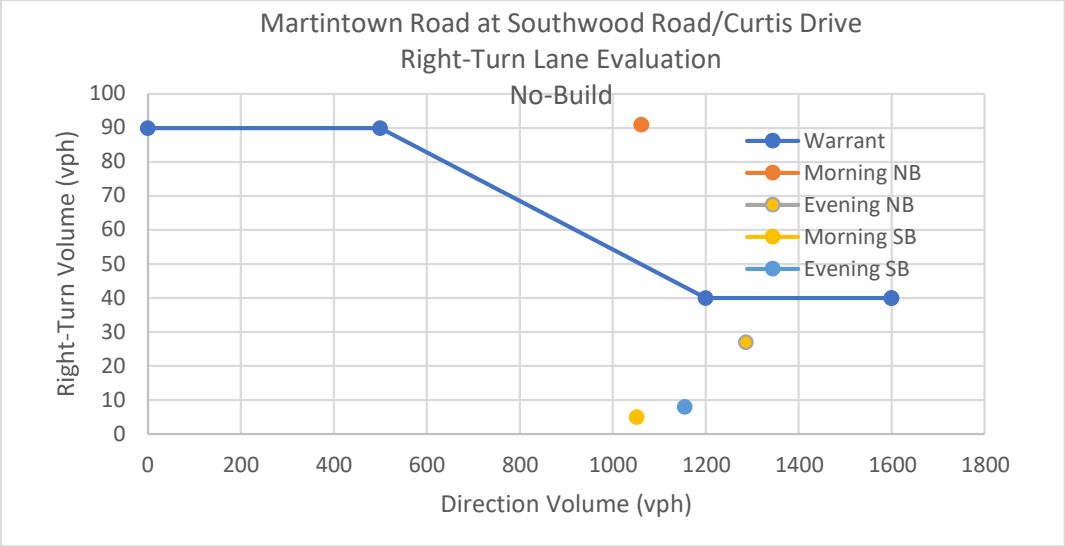
Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)
Martintown Rd at Southwood Rd/Curtis Dr	**A**	**1.9**	**A**	**1.3**
- eastbound approach	C	21.8	D	28.9
- westbound approach	D	34.6	F	52.1
- northbound left-turn	B	11.2	B	12.3
- southbound left-turn	B	11.3	B	12.6
Martintown Rd at Courtney Dr	**A**	**1.0**	**A**	**0.5**
- westbound approach	D	27.4	F	50.2
- southbound left-turn	B	11.6	C	16.6

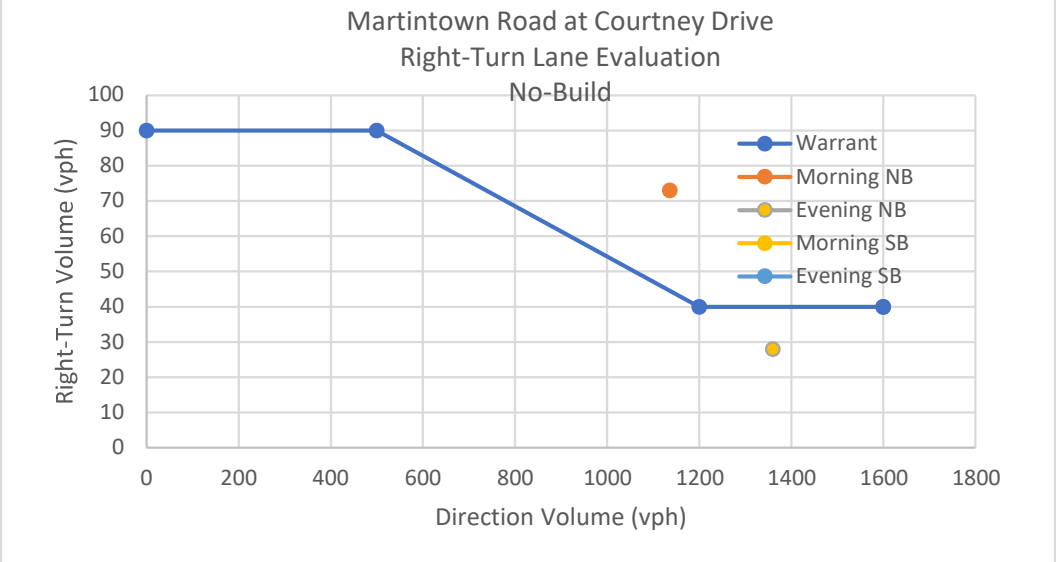
As shown by the results in Table 6, while overall operations for each intersection is within the LOS Standard in the No-Build Condition, delay along the westbound side street approaches are operating at LOS F during the evening peak hour at both intersections. This is due to the relatively heavy volume of traffic along Martintown Road that limit gaps for the side street exiting movements which is not uncommon or outside of driver expectations in an urban area accessing an arterial roadway during peak hours.


LEGEND
Existing Stop Control
Existing Lane
XX AM Peak Hour Traffic Volumes
(XX) PM Peak Hour Traffic Volumes
N
5 (8)
1,047 (1,147)
26 (11)
34 (21)
2 (2)
35 (9)
STOP
Southwood Road
Curtis Drive
STOP
(6) 6
(1) 2
(8) 18
(12) 9
(1,260) 971
(27) 91
1,092 (1,181)
12 (11)
38 (6)
41 (18)
STOP
Courtney Drive
(1,332) 1,063
(28) 73
Martintown Road
AM Peak Hour: 7:15 – 8:15
PM Peak Hour: 4:45 – 5:45

No Build Auxiliary Lane Analyses

As with the Existing Conditions, the intersections of Martintown Road at Southwood Road/Curtis Drive and Martintown Road at Courtney Drive in the No-Build Condition was evaluated in accordance with section *9.5 Auxiliary Turn Lanes* of the SC DOT Roadway Design Manual (March 2021) and is shown below:





As would be expected with the increased traffic from background growth, a right-turn lane continues to be warranted for the northbound approach at both intersections. Initial analysis with the inclusion of the northbound right-turn lane showed slight improvement of the overall intersection operations, but continued LOS F operation for the westbound approach.

Outside of a change in traffic control, such as signalization which would likely be warranted, the only way to improve the side street operations would be to restripe the westbound approaches to provide separate left-turn and right-turn lanes.

Analysis was performed for the No-Build Condition with the above system improvements and is presented in Table 6.

Table 6
2026 No-Build Intersection Operations with System Improvements

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)
Martintown Rd at Southwood Rd/Curtis Dr	**A**	**1.6**	**A**	**1.1**
- eastbound approach	C	21.7	D	28.9
- westbound left-turn	E	38.9	F	56.2
- westbound right-turn	B	14.4	C	20.2
- northbound left-turn	B	11.2	B	12.3
- southbound left-turn	B	11.3	B	12.6
Martintown Rd at Courtney Dr	**A**	**0.8**	**A**	**0.5**
- westbound left-turn	D	31.1	F	56.2
- westbound right-turn	B	13.6	C	18.1
- southbound left-turn	B	11.6	C	16.6

As shown by the above analyses, the addition of a northbound right-turn lane at both intersections does not result in significant improvement of overall operation of either intersection. The delays are improved somewhat for the westbound right-turns, but operations of the left-turns still fall in the LOS F range.

To improve the left-turn delays below LOS F, would require signalization, which is not likely to be warranted due to the low side-street volumes, which account for less than 5% of the total traffic at the intersection. Therefore, careful consideration should be given prior to implementing any improvements to determine if the benefit justifies this level of investment.

Because these improvements are necessary to address background deficiencies, they are considered "system" improvements. "System" improvements are those required to mitigate existing deficiencies not associated with traffic generated by the proposed development not typically considered to be the whole responsibility of the developer.

PROJECT TRAFFIC PROJECTIONS

WCN is proposed to include 123-unit single family homes located on an a 66.9-acre tract located at the existing "stub-out" of Big Pine Road in the existing Chanticleer neighborhood in North Augusta, South Carolina. Full Build-out is expected by 2026.

Trip Generation

An estimate of traffic that will be generated by WCN was made based on trip generation characteristics for similar land uses nationwide. The trip generation rates used in this study were taken from the 11th edition of the Institute of Transportation Engineers' (ITE) Trip Generation report utilizing the following land-uses: *ITE Land Use 210 – Single-Family Detached Housing*.

Table 7 presents a summary of the projected trip generation Deerfield Pines.

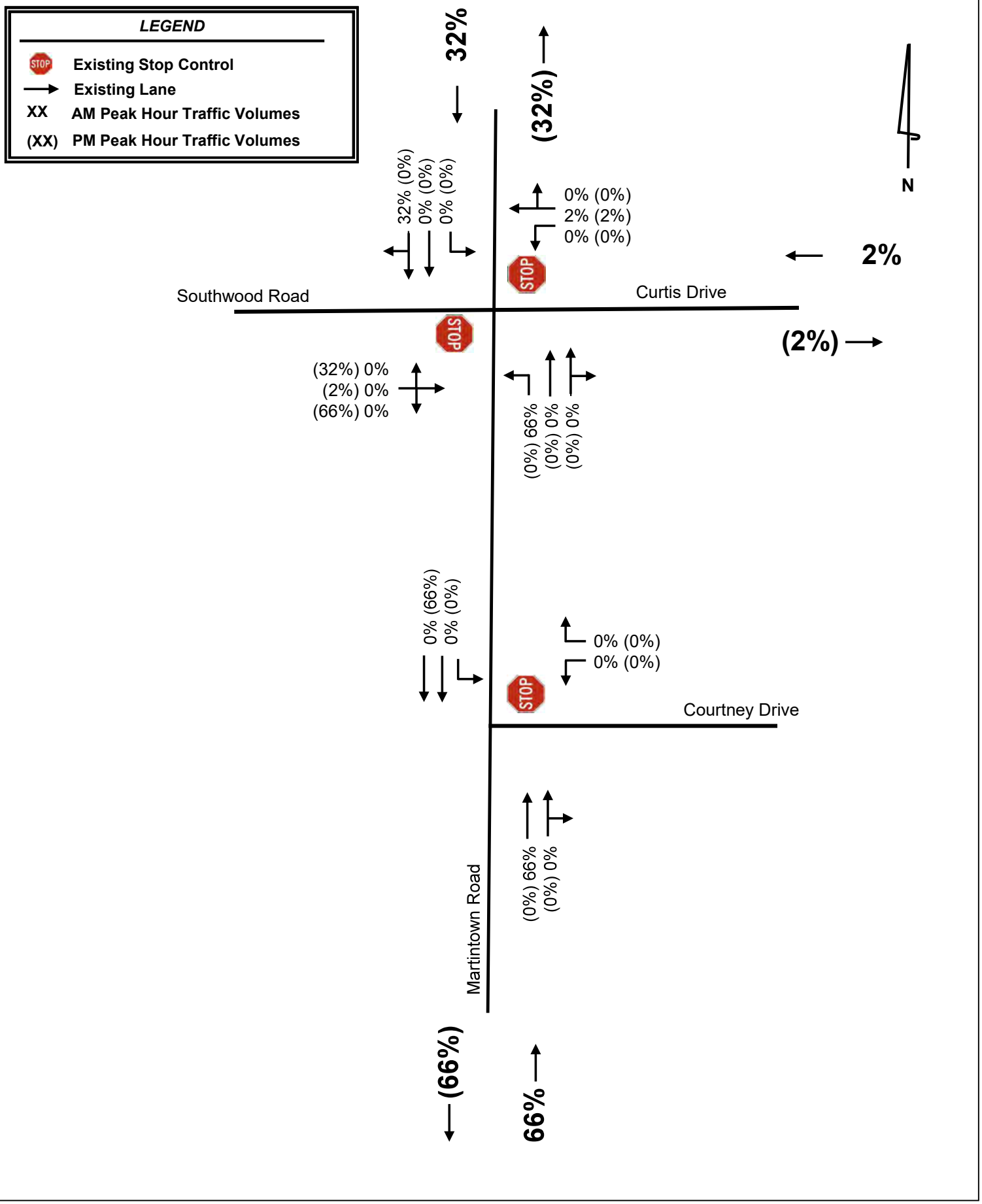
Table 7
Trip Generation

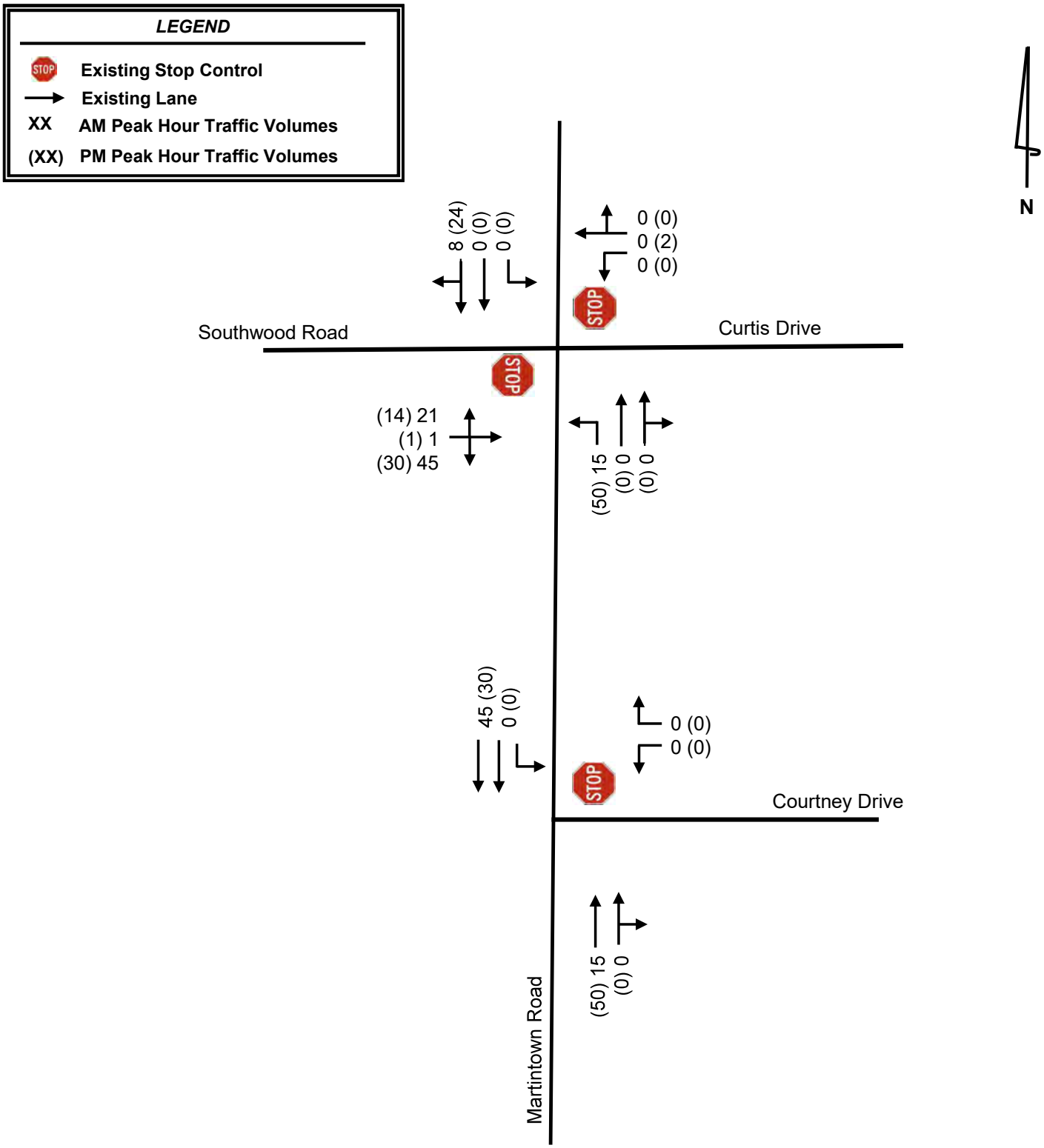
Land Use	Size	A.M. Peak Hour			P.M. Peak Hour			24-hour
		Enter	Exit	Total	Enter	Exit	Total	2-way
220 – Single-Family Detached	123	23	67	90	76	45	121	1,221

Trip Distribution and Traffic Assignment

Trip distribution describes the direction drivers will be going to and coming from when they turn into and depart from the development. Typically, this type of development draws from the local area, and therefore, it is believed that using the existing travel patterns in the area will most closely approximate the trip distribution for this site.

This trip distribution developed for WCN is shown in Figure 4. The projected traffic that will be generated by this project was assigned to the study area based on this distribution is shown in Figure 5.


LEGEND
Existing Stop Control
Existing Lane
XX AM Peak Hour Traffic Volumes
(XX) PM Peak Hour Traffic Volumes
32%
(32%)
N
32% (0%)
0% (0%)
0% (0%)
0% (0%)
2% (2%)
0% (0%)
2%
Southwood Road
Curtis Drive
(2%)
(32%) 0%
(2%) 0%
(66%) 0%
(0%) 66%
(0%) 0%
(0%) 0%
0% (66%)
0% (0%)
0% (0%)
0% (0%)
Courtney Drive
Martintown Road
(0%) 66%
(0%) 0%
(66%)
66%


LEGEND
Existing Stop Control
Existing Lane
XX AM Peak Hour Traffic Volumes
(XX) PM Peak Hour Traffic Volumes
N
8 (24)
0 (0)
0 (0)
0 (0)
0 (2)
0 (0)
STOP
Southwood Road
Curtis Drive
STOP
(14) 21
(1) 1
(30) 45
(50) 15
(0) 0
(0) 0
45 (30)
0 (0)
0 (0)
0 (0)
STOP
Courtney Drive
(50) 15
(0) 0
Martintown Road

FUTURE CONDITIONS

Future Traffic Volumes

Future Conditions represents traffic conditions at full build-out of WCN. Future traffic volumes are made up of the 2026 No-Build Traffic volumes, presented previously in Figure 3, plus the site generated volumes shown in Figures 5. Figure 6 shows the future traffic volumes for after completion WCN.

These volumes were used to analyze the 2026 Future traffic conditions surrounding the site with existing intersection geometry. The results of this analysis are presented in Table 8.

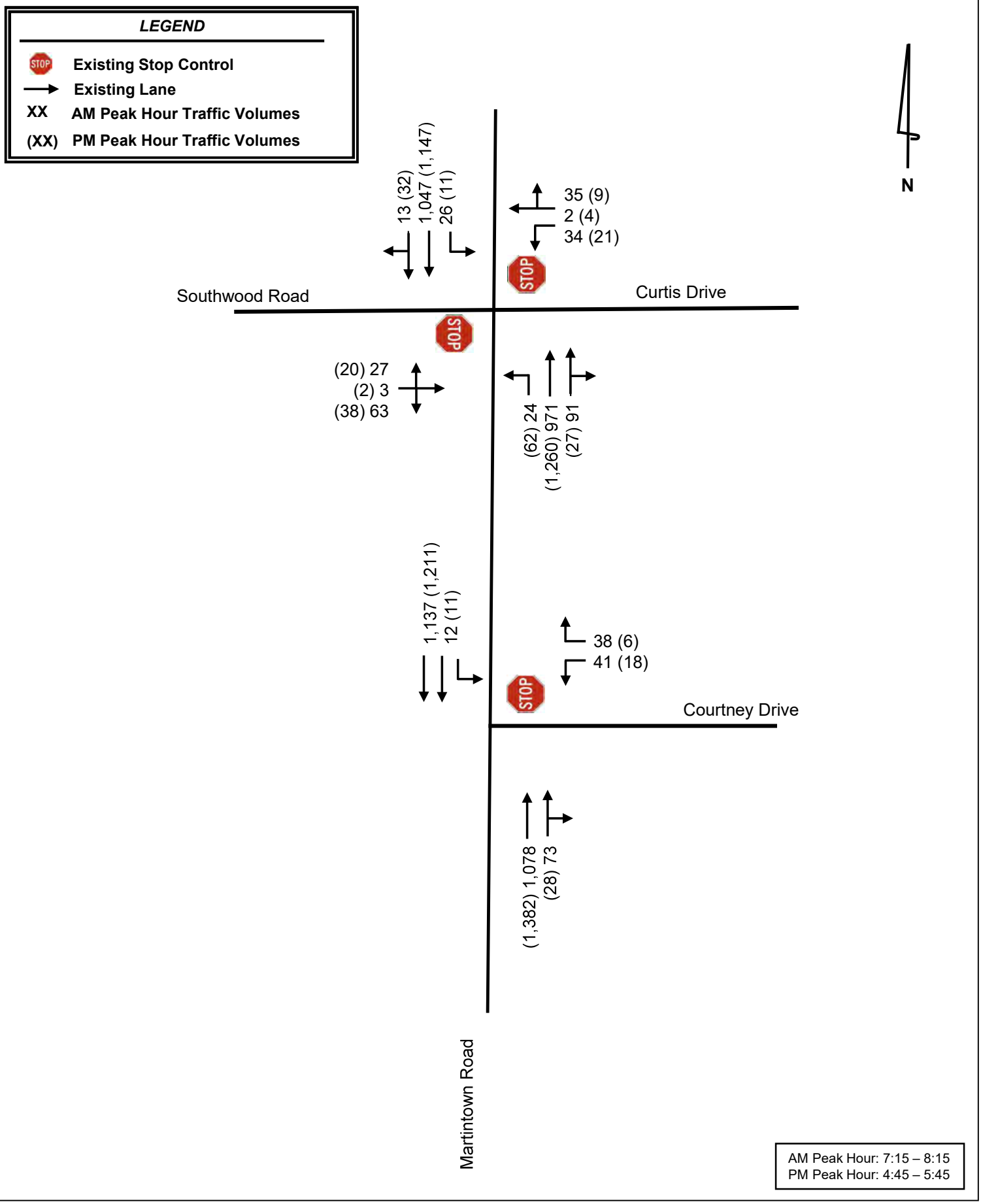
Table 8
2026 Future Intersection Operations

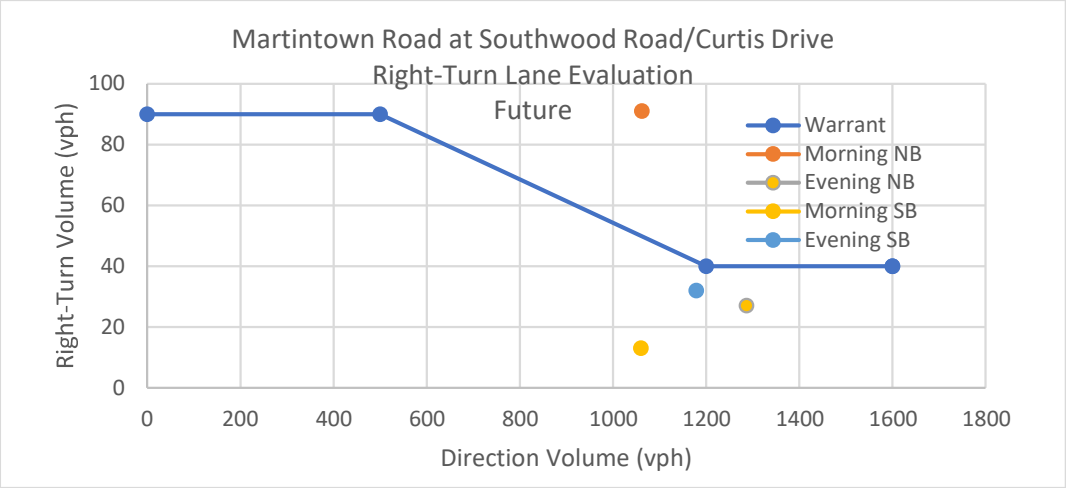
Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)
Martintown Rd at Southwood Rd/Curtis Dr	**A**	**4.0**	**A**	**1.3**
- eastbound approach	E	39.7	E	45.2
- westbound approach	E	41.1	F	79.6
- northbound left-turn	B	11.4	B	13.4
- southbound left-turn	B	11.3	B	12.6
Martintown Rd at Courtney Dr	**A**	**1.0**	**A**	**0.5**
- westbound approach	D	28.0	F	50.2
- southbound left-turn	B	11.7	C	16.6

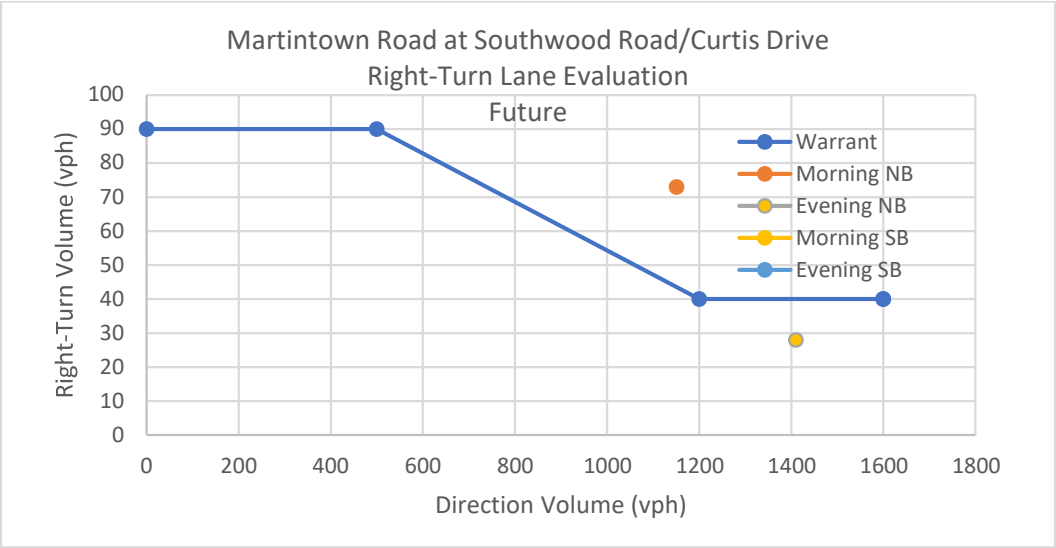
As shown by the results in Table 8, as with previous conditions, while overall operations for each intersection is within the LOS Standard in the Future Conditions, however delay along the westbound side street approaches are operating at LOS E and LOS F during the evening peak hour at both intersections. This is due to the relatively heavy volume of traffic along Martintown Road that limit gaps for the side street exiting movements which is not uncommon or outside of driver expectations in an urban area accessing an arterial roadway during peak hours.

Auxiliary Lane Analyses

As with the Existing Conditions and No-Build, the intersections of Martintown Road at Southwood Road/Curtis Drive and Martintown Road at Courtney Drive in the No-Build Condition was evaluated in accordance with section *9.5 Auxiliary Turn Lanes* of the SC DOT Roadway Design Manual (March 2021) and is shown below:


LEGEND
Existing Stop Control
Existing Lane
XX AM Peak Hour Traffic Volumes
(XX) PM Peak Hour Traffic Volumes
N
13 (32)
1,047 (1,147)
26 (11)
35 (9)
2 (4)
34 (21)
STOP
Southwood Road
Curtis Drive
STOP
(20) 27
(2) 3
(38) 63
(62) 24
(1,260) 971
(27) 91
1,137 (1,211)
12 (11)
38 (6)
41 (18)
STOP
Courtney Drive
(1,382) 1,078
(28) 73
Martintown Road
AM Peak Hour: 7:15 – 8:15
PM Peak Hour: 4:45 – 5:45





As would be expected with the increased traffic from background growth, a right-turn lane continues to be warranted for the northbound approach at both intersections. Initial analysis with the inclusion of the northbound right-turn lanes showed slight improvement of the overall intersection operations, but continued LOS F operation for the westbound approach.

Outside of a change in traffic control, such as signalization which would likely be warranted, the only way to improve the side street operations would be to restripe the westbound approaches to provide separate left-turn and right-turn lanes.

Because these improvements are necessary to address background deficiencies, they are considered "system" improvements. "System" improvements are those required to mitigate existing deficiencies not associated with traffic generated by the proposed development not typically considered to be the whole responsibility of the developer.

With addition of project traffic, it was found that, in addition to the system improvements identified above that modification of the eastbound approach of Southwood Road to include separate left-turn and right-turn lanes will improve operations of the approach as well.

Analysis was performed for the Future Condition with the above system improvements and is presented in Table 9.

Table 9
2026 Future Intersection Operations with Improvements

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay (s)	LOS	Delay (s)
Martintown Rd at Southwood Rd/Curtis Dr	**A**	**2.9**	**A**	**2.5**
- eastbound left-turn	E	47.8	F	65..6
- eastbound right-turn	C	16.6	C	17.1
- westbound left-turn	E	47.6	F	86.0
- westbound right-turn	B	14.6	C	23.1
- northbound left-turn	B	11.4	B	13.4
- southbound left-turn	B	11.3	B	12.6
Martintown Rd at Courtney Dr	**A**	**0.8**	**A**	**0.5**
- westbound left-turn	D	31.7	F	61.8
- westbound right-turn	B	13.7	C	18.8
- southbound left-turn	B	11.7	C	17.3

As shown by the above analyses, the addition of a northbound right-turn lane at both intersections does not result in significant improvement of overall operation of either intersection. Restriping the westbound approaches to the intersections offers some improvement for all movements except left-turns which are projected to continue to operate at LOS F.

Additionally, the addition of a right-turn lane eastbound right-turn lane to Southwood Road would require some widening to the south of approximately five-feet that may require acquisition of right-of-way.

Therefore, careful consideration should be given to adding these lanes to determine if the benefit justifies this level of investment.

STUDY FINDINGS

This report analyzes the traffic impact of the proposed Wrenfield at Chanticleer neighborhood (WCN) which will include 123 single-family homes to be located on a 66.9-acre tract located at the existing "stub-out" of Big Pine Road in the existing Chanticleer neighborhood in North Augusta, South Carolina. Full Build-out is expected by 2026.

The location of the proposed development is shown in Figure 1.

Access for the additional homes will be provided via Southwood Road, which is the existing main access fort the Chanticleer neighborhood at Martintown Road.

Analyses were performed for the morning and evening peak hours under three scenarios: existing, future no-build, and future build conditions for the following intersections:

- Martintown Road (SC-230) at Southwood Road/Curtis Drive and
- Martintown Road (SC-230) at Courtney Drive

Historic growth rates and proposed developments in the area to be accounted for were determined through a combination of historic traffic volume data, population projections for the surrounding area, and review of the West Martintown Road Corridor Study (performed by AECOM and adopted by North Augusta City Council in 2021). Based on this methodology, a 2.0% annual growth rate was projected and applied to the existing traffic volumes for a period of five years. Projected traffic volumes for the proposed River Falls Apartments and Hamrick Farms developments were added this growth to establish the 2026 No-Build traffic volumes for the intersection.

Analysis of the existing and no-build conditions showed that there are delays along the side-street approaches of Curtis Drive and Courtney Drive were in the LOS F range. These delays are primarily due to the relatively heavy volume of traffic along Martintown Road and can be improved somewhat by restriping these approaches to separate left-turns and right-turns to allow the right-turns to go around the queued left-turning vehicles. However, this will still result in LOS F operations for the left-turns. To improve the left-turn delays below LOS F, would require signalization, which is not likely to be warranted due to the low side-street volumes, which represent less than 5% of the total traffic at the intersections.

Whiles these improvements are considered a "system" improvement that not typically considered to be the whole responsibility of the developer, careful consideration should be given prior to implementing any improvements to determine if the benefit justifies this level of investment.

Traffic generated by WCN was estimated using the 11th Edition of the ITE Trip Generation report, *Land Use 220 – Single-Family Attached Housing.* Based on this methodology, the development is expected to generate 1,221 daily trips with 90 occurring during the morning peak hour and 121 occurring during the evening peak hour.

These volumes were distributed to the study network based existing travel patterns added to the 2026 No-Build traffic volumes to estimate the Future traffic volumes after the completion of the WCN.

Based on analyses of the future condition, in addition to deficiencies identified for existing and background deficiencies, the westbound approach of Southwood Drive is projected to operate at LOS F with its existing configuration.

As stated for the other approaches in the existing and background conditions, delays are due to the relatively heavy volume of traffic along Martintown Road and can be improved somewhat by with limited widening and restriping to separate left-turns and right-turns to allow the right-turns to go around the queued left-turning vehicles. While this will allow the right-turns to flow more efficiently, it will still result in LOS F operations for the left-turns., which could on be improved through signalization. However, a change in traffic control at this intersection is not likely to be warranted due to the low side-street volumes, which represent less than 5% of the total traffic at the intersection.

Moreover, careful consideration should be given prior to implementing any improvements to determine if the benefit justifies this level of investment.

APPENDIX

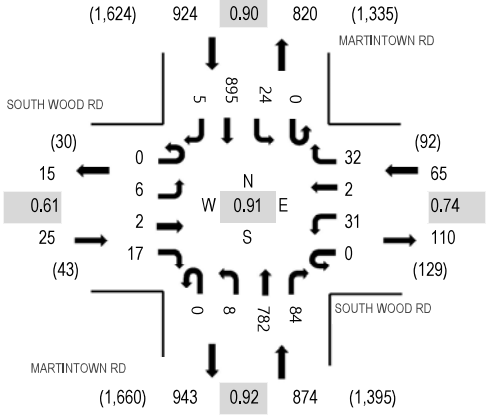
TRAFFIC DATA

Infrastructure Systems Management, LLC
Tel 706-836-5160
1557 Broad Street
Augusta, GA 30904
www.ismllc-engr.com
scassell@ismllc-engr.com
ISM

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

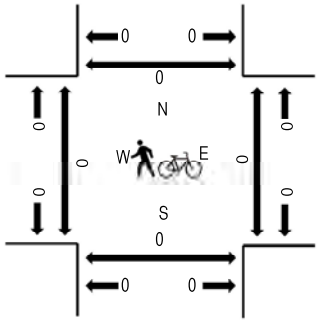
Location: #1 MARTINTOWN RD & SOUTH WOOD RD AM
Date: Tuesday, March 8, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	SOUTH WOOD RD Eastbound				SOUTH WOOD RD Westbound				MARTINTOWN RD Northbound				MARTINTOWN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	3	0	4	0	4	1	2	0	1	128	4	0	3	192	0	342	1,804	0	0	0	0
7:15 AM	0	0	0	5	0	4	0	5	0	3	183	12	0	5	226	0	443	1,888	0	0	0	0
7:30 AM	0	1	2	1	0	6	0	12	0	0	222	16	0	5	251	0	516	1,778	0	0	0	0
7:45 AM	0	3	0	8	0	9	2	11	0	1	206	27	0	13	221	2	503	1,549	0	0	0	0
8:00 AM	0	2	0	3	0	12	0	4	0	4	171	29	0	1	197	3	426	1,350	0	0	0	0
8:15 AM	0	1	0	3	0	6	0	3	0	3	114	4	1	2	194	2	333		0	0	0	0
8:30 AM	0	1	0	5	0	3	1	1	0	4	125	2	0	1	143	1	287		0	0	0	0
8:45 AM	0	0	0	1	0	2	0	4	0	2	132	2	0	1	160	0	304		0	0	0	0

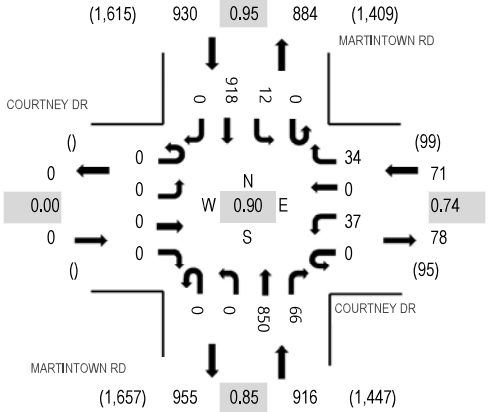
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	6
Lights	0	6	2	17	0	31	2	32	0	8	776	84	0	24	886	5	1,873
Mediums	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5	0	9
Total	0	6	2	17	0	31	2	32	0	8	782	84	0	24	895	5	1,888

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

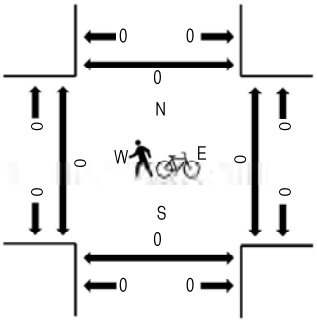
Location: #2 MARTINTOWN RD & COURTNEY DR AM
Date: Tuesday, March 8, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	COURTNEY DR Eastbound				COURTNEY DR Westbound				MARTINTOWN RD Northbound				MARTINTOWN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	9	0	4	0	0	118	6	0	0	192	0	329	1,805	0	0	0	0
7:15 AM	0	0	0	0	0	12	0	2	0	0	191	14	0	2	221	0	442	1,917	0	0	0	0
7:30 AM	0	0	0	0	0	9	0	9	0	0	236	35	0	2	241	0	532	1,798	0	0	0	0
7:45 AM	0	0	0	0	0	5	0	10	0	0	228	13	0	6	240	0	502	1,557	0	0	0	0
8:00 AM	0	0	0	0	0	11	0	13	0	0	195	4	0	2	216	0	441	1,356	0	0	0	0
8:15 AM	0	0	0	0	0	5	0	1	0	0	136	4	0	1	176	0	323		0	0	0	0
8:30 AM	0	0	0	0	0	4	0	0	0	0	127	2	0	2	156	0	291		0	0	0	0
8:45 AM	0	0	0	0	0	3	0	2	0	0	137	1	0	1	157	0	301		0	0	0	0

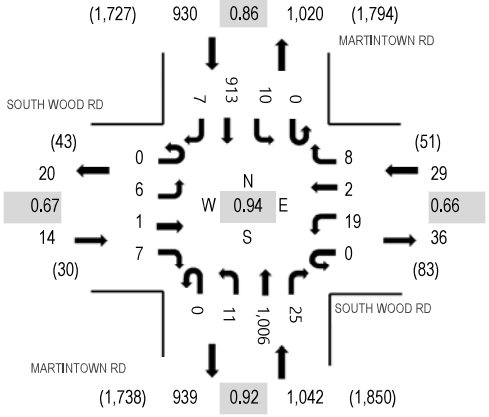
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	3	0	0	0	6	0	9
Lights	0	0	0	0	0	37	0	34	0	0	843	66	0	12	908	0	1,900
Mediums	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	8
Total	0	0	0	0	0	37	0	34	0	0	850	66	0	12	918	0	1,917

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

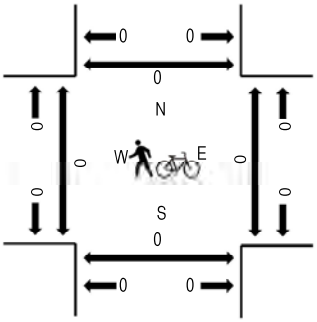
Location: #1 MARTINTOWN RD & SOUTH WOOD RD PM
Date: Tuesday, March 8, 2022
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	SOUTH WOOD RD Eastbound				SOUTH WOOD RD Westbound				MARTINTOWN RD Northbound				MARTINTOWN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	3	0	2	0	4	0	3	0	2	198	7	0	3	181	6	409	1,713	0	0	0	0
4:15 PM	0	0	1	0	0	1	0	1	0	2	176	9	0	2	196	2	390	1,811	0	0	0	0
4:30 PM	0	0	0	5	0	5	1	1	0	3	207	12	0	3	202	2	441	1,959	0	0	0	0
4:45 PM	0	2	0	1	0	6	1	4	0	4	238	5	0	1	211	0	473	2,015	0	0	0	0
5:00 PM	0	1	0	2	0	4	0	2	0	2	273	7	0	4	210	2	507	1,945	0	0	0	0
5:15 PM	0	1	0	1	0	4	0	1	0	4	254	4	0	4	263	2	538		0	0	0	0
5:30 PM	0	2	1	3	0	5	1	1	0	1	241	9	0	1	229	3	497		0	0	0	0
5:45 PM	0	1	1	3	0	4	1	1	0	3	183	6	0	3	196	1	403		0	1	0	0

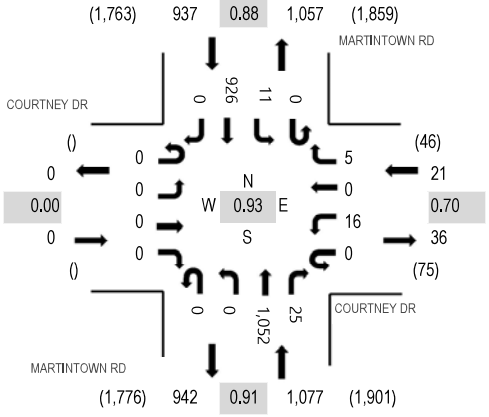
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	7
Lights	0	6	1	7	0	19	2	8	0	11	1,003	25	0	10	907	7	2,006
Mediums	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2
Total	0	6	1	7	0	19	2	8	0	11	1,006	25	0	10	913	7	2,015

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

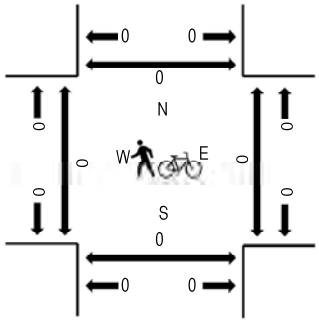
Location: #2 MARTINTOWN RD & COURTNEY DR PM
Date: Tuesday, March 8, 2022
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	COURTNEY DR Eastbound				COURTNEY DR Westbound				MARTINTOWN RD Northbound				MARTINTOWN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	8	0	2	0	0	205	2	0	2	197	0	416	1,724	0	0	0	0
4:15 PM	0	0	0	0	0	4	0	1	0	0	186	6	0	1	182	0	380	1,825	0	0	0	0
4:30 PM	0	0	0	0	0	5	0	1	0	0	224	14	0	6	218	0	468	1,993	0	0	0	0
4:45 PM	0	0	0	0	0	5	0	2	0	0	235	4	0	1	213	0	460	2,035	0	0	0	0
5:00 PM	0	0	0	0	0	2	0	1	0	0	285	11	0	4	214	0	517	1,986	0	0	0	0
5:15 PM	0	0	0	0	0	4	0	1	0	0	269	6	0	2	266	0	548		0	0	0	0
5:30 PM	0	0	0	0	0	5	0	1	0	0	263	4	0	4	233	0	510		0	0	0	0
5:45 PM	0	0	0	0	0	3	0	1	0	0	182	5	0	3	217	0	411		0	1	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	7
Lights	0	0	0	0	0	16	0	5	0	0	1,049	25	0	11	919	0	2,025
Mediums	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3
Total	0	0	0	0	0	16	0	5	0	0	1,052	25	0	11	926	0	2,035

All Traffic Data Services

www.alltrafficdata.net

Site Code: 1
Station ID: 1
MARTINTOWN RD SOUTH OF SOUTHWOOD RD

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

Start Time	08-Mar-22 Tue	NB	SB	Total
12:00 AM		8	14	22
12:15		12	8	20
12:30		10	4	14
12:45		6	3	9
01:00		2	8	10
01:15		5	3	8
01:30		1	6	7
01:45		1	2	3
02:00		3	0	3
02:15		2	1	3
02:30		3	5	8
02:45		9	3	12
03:00		5	3	8
03:15		2	6	8
03:30		6	5	11
03:45		4	8	12
04:00		8	12	20
04:15		11	18	29
04:30		9	20	29
04:45		21	39	60
05:00		15	44	59
05:15		25	54	79
05:30		34	47	81
05:45		44	63	107
06:00		38	63	101
06:15		59	72	131
06:30		74	97	171
06:45		81	115	196
07:00		92	141	233
07:15		**141**	**182**	**323**
07:30		**176**	**192**	**368**
07:45		**162**	**214**	**376**
08:00		**175**	**181**	**356**
08:15		118	168	286
08:30		101	145	246
08:45		125	146	271
09:00		104	107	211
09:15		100	110	210
09:30		87	98	185
09:45		87	123	210
10:00		92	114	206
10:15		116	113	229
10:30		97	125	222
10:45		114	121	235
11:00		107	110	217
11:15		101	125	226
11:30		99	143	242
11:45		108	129	237
Total		2800	3510	6310
Percent		44.4%	55.6%	
Peak	-	07:15	07:15	07:15
Vol.	-	654	769	1423
P.H.F.		0.929	0.898	0.946

All Traffic Data Services

www.alltrafficdata.net

Site Code: 1
Station ID: 1
MARTINTOWN RD SOUTH OF SOUTHWOOD RD

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

Start Time	08-Mar-22 Tue	NB	SB	Total
12:00 PM		130	131	261
12:15		118	111	229
12:30		100	142	242
12:45		101	136	237
01:00		109	140	249
01:15		142	124	266
01:30		117	141	258
01:45		115	144	259
02:00		106	137	243
02:15		102	150	252
02:30		160	151	311
02:45		134	151	285
03:00		161	151	312
03:15		176	147	323
03:30		149	196	345
03:45		129	181	310
04:00		137	162	299
04:15		148	138	286
04:30		**171**	**179**	**350**
04:45		**164**	**185**	**349**
05:00		**180**	**170**	**350**
05:15		**181**	**229**	**410**
05:30		158	168	326
05:45		120	179	299
06:00		146	184	330
06:15		130	188	318
06:30		118	156	274
06:45		106	121	227
07:00		111	110	221
07:15		78	89	167
07:30		82	75	157
07:45		91	88	179
08:00		70	64	134
08:15		70	65	135
08:30		62	42	104
08:45		64	66	130
09:00		67	46	113
09:15		53	49	102
09:30		45	33	78
09:45		59	24	83
10:00		47	24	71
10:15		43	34	77
10:30		31	25	56
10:45		27	21	48
11:00		18	23	41
11:15		8	14	22
11:30		6	22	28
11:45		17	15	32
Total		4857	5321	10178
Percent		47.7%	52.3%	
Peak	-	16:30	16:30	16:30
Vol.	-	696	763	1459
P.H.F.		0.961	0.833	0.890
Grand Total		7657	8831	16488
Percent		46.4%	53.6%	

All Traffic Data Services

www.alltrafficdata.net

Site Code: 2
Station ID: 2
SOUTHWOOD RD WEST OF MARTINTOWN RD

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

Start Time	08-Mar-22 Tue	EB	WB							Total
12:00 AM		0	0							0
12:15		0	0							0
12:30		0	2							2
12:45		0	2							2
01:00		2	0							2
01:15		0	0							0
01:30		0	0							0
01:45		0	0							0
02:00		0	0							0
02:15		0	0							0
02:30		0	0							0
02:45		0	0							0
03:00		0	0							0
03:15		0	1							1
03:30		1	0							1
03:45		0	0							0
04:00		0	0							0
04:15		0	0							0
04:30		0	0							0
04:45		0	2							2
05:00		1	0							1
05:15		2	2							4
05:30		2	0							2
05:45		2	0							2
06:00		9	1							10
06:15		5	1							6
06:30		8	1							9
06:45		**10**	3							13
07:00		**6**	6							12
07:15		**4**	2							6
07:30		**16**	7							**23**
07:45		4	**10**							**14**
08:00		4	**13**							**17**
08:15		11	**7**							**18**
08:30		5	**11**							16
08:45		2	5							7
09:00		6	11							17
09:15		2	2							4
09:30		8	3							11
09:45		2	2							4
10:00		4	1							5
10:15		7	6							13
10:30		1	4							5
10:45		3	13							16
11:00		9	7							16
11:15		6	5							11
11:30		10	8							18
11:45		4	6							10
Total		156	144							300
Percent		52.0%	48.0%							
Peak	-	06:45	07:45	-	-	-	-	-	-	07:30
Vol.	-	36	41	-	-	-	-	-	-	72
P.H.F.		0.563	0.788							0.783

All Traffic Data Services

www.alltrafficdata.net

Site Code: 2
Station ID: 2
SOUTHWOOD RD WEST OF MARTINTOWN RD

Latitude: 0' 0.0000 Undefined
Longitude: 0' 0.0000 Undefined

Start Time	08-Mar-22 Tue	EB	WB							Total
12:00 PM		3	4							7
12:15		9	5							14
12:30		5	8							13
12:45		2	5							7
01:00		9	10							19
01:15		7	8							15
01:30		6	10							16
01:45		7	10							**17**
02:00		6	7							**13**
02:15		8	11							**19**
02:30		8	16							**24**
02:45		6	4							10
03:00		5	8							13
03:15		4	7							11
03:30		4	**15**							19
03:45		9	**13**							22
04:00		0	**10**							10
04:15		6	**9**							15
04:30		8	10							18
04:45		5	4							9
05:00		5	10							15
05:15		7	12							19
05:30		5	7							12
05:45		2	8							10
06:00		**4**	11							15
06:15		**9**	6							15
06:30		**7**	12							19
06:45		**10**	13							23
07:00		3	10							13
07:15		0	4							4
07:30		3	1							4
07:45		3	0							3
08:00		0	4							4
08:15		2	1							3
08:30		2	3							5
08:45		0	3							3
09:00		2	2							4
09:15		2	1							3
09:30		1	2							3
09:45		1	2							3
10:00		0	0							0
10:15		1	2							3
10:30		0	6							6
10:45		0	0							0
11:00		0	2							2
11:15		0	0							0
11:30		0	0							0
11:45		0	0							0
Total		186	296							482
Percent		38.6%	61.4%							
Peak	-	18:00	15:30	-	-	-	-	-	-	13:45
Vol.	-	30	47	-	-	-	-	-	-	73
P.H.F.		0.750	0.783							0.760
Grand Total		342	440							782
Percent		43.7%	56.3%							

TRAFFIC VOLUME WORKSHEETS

Infrastructure Systems Management, LLC
1557 Broad Street, Augusta, GA 30903
(706) 250-3288
www.ismllc-engr.com

Martintown Road at Southwood Drive/Curtis Drive

Aiken County,SC
3/9/2022

AM Peak

	Eastbound				Westbound				Northbound				Southbound				Intersection
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
Existing	**6**	**2**	**17**	**25**	**31**	**2**	**32**	**65**	**8**	**782**	**84**	**874**	**24**	**895**	**5**	**924**	**1888**
D Factor																	
PHF	0.61	0.61	0.61	0.61	0.74	0.74	0.74	0.74	0.92	0.92	0.92	0.92	0.90	0.90	0.90	0.90	
BG Growth Rate	2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		
Years Growth	4	4	4		4	4	4		4	4	4		4	4	4		
Background Growth	6	2	18	**26**	34	2	35	**71**	9	846	91	**946**	26	969	5	**1000**	**2,043**
River Falls		0	0		0	0	0	**0**	0	8	0	**8**	0	24	0	**24**	**32**
Hamrick Phase 1		0	0		0	0	0	**0**	0	117	0	**117**	0	54	0	**54**	**171**
Total Background	**6**	**2**	**18**	**26**	**34**	**2**	**35**	**71**	**9**	**971**	**91**	**1,071**	**26**	**1,047**	**5**	**1,078**	**2,246**
Site Generated	**21**	**0**	**45**	**66**	**0**	**0**	**0**	**0**	**15**	**0**	**0**	**15**	**0**	**0**	**8**	**8**	**89**
Future	**27**	**2**	**63**	**92**	**34**	**2**	**35**	**71**	**24**	**971**	**91**	**1,086**	**26**	**1,047**	**13**	**1,086**	**2,335**

PM Peak

	Eastbound				Westbound				Northbound				Southbound				Intersection
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
Existing	**6**	**1**	**7**	**14**	**19**	**2**	**8**	**29**	**11**	**1,006**	**25**	**1,042**	**10**	**913**	**7**	**930**	**2,015**
D Factor																	
PHF	0.67	0.67	0.67	0.67	0.66	0.66	0.66	0.66	0.92	0.92	0.92	0.92	0.86	0.86	0.86	0.86	
				.													
Growth	2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		
Years Growth	4	4	4		4	4	4		4	4	4		4	4	4		
Background Growth	6	1	8	**15**	21	2	9	**32**	12	1089	27	**1128**	11	988	8	**1007**	**2,182**
River Falls		0	0		0	0	0	**0**	0	25	0	**25**	0	15	0	**15**	**40**
Hamrick Phase 1		0	0		0	0	0	**0**	0	146	0	**146**	0	144	0	**144**	**290**
Total Background	**6**	**1**	**8**	**15**	**21**	**2**	**9**	**32**	**12**	**1,260**	**27**	**1,299**	**11**	**1,147**	**8**	**1,166**	**2,512**
Site Generated	**14**	**0**	**30**	**44**	**0**	**0**	**0**	**0**	**50**	**0**	**0**	**50**	**0**	**0**	**24**	**24**	**118**
													5				
Future	**20**	**1**	**38**	**59**	**21**	**2**	**9**	**32**	**62**	**1,260**	**27**	**1,349**	**11**	**1,147**	**32**	**1,190**	**2,630**

Martintown Road at Courtney Drive

Aiken County, SC
3/9/2022

AM Peak

	Eastbound				Westbound				Northbound				Southbound				Intersection
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
Existing	**0**	**0**	**0**	**0**	**37**	**0**	**34**	**71**	**0**	**850**	**66**	**916**	**12**	**918**	**0**	**930**	**1917**
D Factor																	
PHF	0.00	0.00	0.00	0.00	0.74	0.00	0.74	0.74	0.00	0.74	0.74	0.74	0.95	0.95	0.00	0.95	
BG Growth Rate	2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		
Years Growth	5	5	5		5	5	5		5	5	5		5	5	5		
Background Growth	0	0	0	**0**	41	0	38	**79**	0	938	73	**1011**	13	1014	0	**1027**	**2,117**
River Falls	0	0	0	**0**	0	0	0	**0**	0	8	0	**8**	0	24	0	**24**	**32**
Hamrick Phase 1	0	0	0	**0**	0	0	0	**0**	0	117	0	**117**	0	54	0	**54**	**171**
Total Background	**0**	**0**	**0**	**0**	**41**	**0**	**38**	**79**	**0**	**1063**	**73**	**1,136**	**13**	**1092**	**0**	**1,105**	**2,320**
Site Generated	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**15**	**0**	**45**	**0**	**45**	**60**
Future	**0**	**0**	**0**	**0**	**41**	**0**	**38**	**79**	**0**	**1,078**	**73**	**1,151**	**0**	**1,137**	**0**	**1,137**	**2,367**

PM Peak

	Eastbound				Westbound				Northbound				Southbound				Intersection
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	Total
Existing	**0**	**0**	**0**	**0**	**16**	**0**	**5**	**21**	**0**	**1,052**	**25**	**1,077**	**11**	**926**	**0**	**937**	**2035**
D Factor																	
PHF	0.83	0.83	0.83	0.83	0.89	0.89	0.89	0.89	0.74	0.74	0.74	0.74	0.86	0.86	0.86	0.86	
Growth	2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		2.00%	2.00%	2.00%		
Years Growth	5	5	5		5	5	5		5	5	5		5	5	5		
Background Growth	0	0	0	**0**	18	0	6	**24**	0	1161	28	**1189**	12	1022	0	**1034**	**2,247**
River Falls	0	0	0	**0**	0	0	0	**0**	0	25	0	**25**	0	15	0	**15**	**40**
Hamrick Phase 1	0	0	0	**0**	0	0	0	**0**	0	146	0	**146**	0	144	0	**144**	**290**
Total Background	**0**	**0**	**0**	**0**	**18**	**0**	**6**	**24**	**0**	**1332**	**28**	**1,360**	**12**	**1181**	**0**	**1,193**	**2,577**
Site Generated	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**50**	**0**	**50**	**0**	**30**	**0**	**0**	**50**
Future	**0**	**0**	**0**	**0**	**18**	**0**	**6**	**24**	**0**	**1,382**	**28**	**1,410**	**0**	**1,211**	**0**	**1,211**	**2,645**

EXISTING INTERSECTION OPERATIONS

Infrastructure Systems Management, LLC
1557 Broad Street, Augusta, GA 30903
(706) 250-3288
www.ismllc-engr.com

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	2	17	31	2	32	8	782	84	24	895	5
Future Vol, veh/h	6	2	17	31	2	32	8	782	84	24	895	5
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	-	-	-	-	-	-	250	-	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	74	74	74	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	3	28	42	3	43	9	850	91	27	994	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1496	2010	500	1467	1968	471	1000	0	0	941	0	0
Stage 1	1051	1051	-	914	914	-	-	-	-	-	-	-
Stage 2	445	959	-	553	1054	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	85	58	516	89	62	539	688	-	-	724	-	-
Stage 1	243	302	-	294	350	-	-	-	-	-	-	-
Stage 2	562	334	-	485	301	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	74	55	516	80	59	539	688	-	-	724	-	-
Mov Cap-2 Maneuver	175	161	-	193	168	-	-	-	-	-	-	-
Stage 1	240	291	-	290	345	-	-	-	-	-	-	-
Stage 2	506	330	-	437	290	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.2	23.6	0.1	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	688	-	-	314	280	724	-	-
HCM Lane V/C Ratio	0.013	-	-	0.131	0.314	0.037	-	-
HCM Control Delay (s)	10.3	-	-	18.2	23.6	10.2	-	-
HCM Lane LOS	B	-	-	C	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	1.3	0.1	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	2	17	31	2	32	8	782	84	24	895	5
Future Vol, veh/h	6	2	17	31	2	32	8	782	84	24	895	5
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	-	-	-	-	-	-	250	-	150	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	74	74	74	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	3	28	42	3	43	9	850	91	27	994	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1496	2010	500	1421	1922	425	1000	0	0	941	0	0
Stage 1	1051	1051	-	868	868	-	-	-	-	-	-	-
Stage 2	445	959	-	553	1054	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	85	58	516	97	66	578	688	-	-	724	-	-
Stage 1	243	302	-	314	368	-	-	-	-	-	-	-
Stage 2	562	334	-	485	301	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	75	55	516	87	63	578	688	-	-	724	-	-
Mov Cap-2 Maneuver	176	161	-	202	173	-	-	-	-	-	-	-
Stage 1	240	291	-	310	363	-	-	-	-	-	-	-
Stage 2	509	330	-	437	290	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.1	22.3	0.1	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	688	-	-	315	295	724	-	-
HCM Lane V/C Ratio	0.013	-	-	0.13	0.298	0.037	-	-
HCM Control Delay (s)	10.3	-	-	18.1	22.3	10.2	-	-
HCM Lane LOS	B	-	-	C	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	1.2	0.1	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	34	850	66	12	918
Future Vol, veh/h	37	34	850	66	12	918
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	-	-	150	200	-
Veh in Median Storage, #	1	-	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	40	37	924	72	13	998

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1449	462	0	0	996	0
Stage 1	924	-	-	-	-	-
Stage 2	525	-	-	-	-	-
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	122	547	-	-	690	-
Stage 1	347	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	120	547	-	-	690	-
Mov Cap-2 Maneuver	245	-	-	-	-	-
Stage 1	347	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	333	690	-
HCM Lane V/C Ratio	-	-	0.232	0.019	-
HCM Control Delay (s)	-	-	19	10.3	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1	7	19	2	8	11	1006	25	10	913	7
Future Vol, veh/h	6	1	7	19	2	8	11	1006	25	10	913	7
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	-	-	-	-	-	-	250	-	150	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	60	66	66	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	1	10	32	3	12	12	1093	27	12	1062	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1662	2234	535	1673	2211	547	1070	0	0	1120	0	0
Stage 1	1090	1090	-	1117	1117	-	-	-	-	-	-	-
Stage 2	572	1144	-	556	1094	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	64	42	490	62	44	481	647	-	-	619	-	-
Stage 1	230	289	-	221	281	-	-	-	-	-	-	-
Stage 2	472	273	-	483	288	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	40	490	58	42	481	647	-	-	619	-	-
Mov Cap-2 Maneuver	160	141	-	156	144	-	-	-	-	-	-	-
Stage 1	226	284	-	217	276	-	-	-	-	-	-	-
Stage 2	447	268	-	461	283	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.6	30.4	0.1	0.1
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	647	-	-	238	188	619	-	-
HCM Lane V/C Ratio	0.018	-	-	0.088	0.249	0.019	-	-
HCM Control Delay (s)	10.7	-	-	21.6	30.4	10.9	-	-
HCM Lane LOS	B	-	-	C	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.9	0.1	-	-

EXISTING INTERSECTION OPERATIONS WITH SYSTEM IMPROVEMENTS

Infrastructure Systems Management, LLC
1557 Broad Street, Augusta, GA 30903
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Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	5	1052	25	11	926
Future Vol, veh/h	16	5	1052	25	11	926
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	-	-	150	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	74	74	76	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	6	1422	34	14	1077

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1989	711	0	0	1456	0
Stage 1	1422	-	-	-	-	-
Stage 2	567	-	-	-	-	-
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	53	375	-	-	461	-
Stage 1	189	-	-	-	-	-
Stage 2	531	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	51	375	-	-	461	-
Mov Cap-2 Maneuver	144	-	-	-	-	-
Stage 1	189	-	-	-	-	-
Stage 2	515	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.7	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	169	461	-
HCM Lane V/C Ratio	-	-	0.14	0.031	-
HCM Control Delay (s)	-	-	29.7	13.1	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	34	850	66	12	918
Future Vol, veh/h	37	34	850	66	12	918
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	-	-	-	200	-
Veh in Median Storage, #	1	-	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	40	37	924	72	13	998

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1485	498	0	0	996	0
Stage 1	960	-	-	-	-	-
Stage 2	525	-	-	-	-	-
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	115	518	-	-	690	-
Stage 1	332	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	113	518	-	-	690	-
Mov Cap-2 Maneuver	236	-	-	-	-	-
Stage 1	332	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	319	690	-
HCM Lane V/C Ratio	-	-	0.242	0.019	-
HCM Control Delay (s)	-	-	19.8	10.3	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1	7	19	2	8	11	1006	25	10	913	7
Future Vol, veh/h	6	1	7	19	2	8	11	1006	25	10	913	7
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	-	-	-	-	-	-	250	-	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	60	66	66	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	1	10	32	3	12	12	1093	27	12	1062	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1662	2234	535	1687	2225	560	1070	0	0	1120	0	0
Stage 1	1090	1090	-	1131	1131	-	-	-	-	-	-	-
Stage 2	572	1144	-	556	1094	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	64	42	490	61	43	472	647	-	-	619	-	-
Stage 1	230	289	-	217	277	-	-	-	-	-	-	-
Stage 2	472	273	-	483	288	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	40	490	58	41	472	647	-	-	619	-	-
Mov Cap-2 Maneuver	160	141	-	154	143	-	-	-	-	-	-	-
Stage 1	226	284	-	213	272	-	-	-	-	-	-	-
Stage 2	446	268	-	461	283	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.6	30.9	0.1	0.1
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	647	-	-	238	185	619	-	-
HCM Lane V/C Ratio	0.018	-	-	0.088	0.253	0.019	-	-
HCM Control Delay (s)	10.7	-	-	21.6	30.9	10.9	-	-
HCM Lane LOS	B	-	-	C	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1	0.1	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	5	1052	25	11	926
Future Vol, veh/h	16	5	1052	25	11	926
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	-	-	-	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	74	74	76	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	6	1422	34	14	1077

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2006	728	0	0	1456	0
Stage 1	1439	-	-	-	-	-
Stage 2	567	-	-	-	-	-
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	52	366	-	-	461	-
Stage 1	185	-	-	-	-	-
Stage 2	531	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	50	366	-	-	461	-
Mov Cap-2 Maneuver	141	-	-	-	-	-
Stage 1	185	-	-	-	-	-
Stage 2	515	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.4	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	165	461	-
HCM Lane V/C Ratio	-	-	0.143	0.031	-
HCM Control Delay (s)	-	-	30.4	13.1	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

2026 No-Build Intersection Operations

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Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	2	18	34	2	35	9	971	91	26	1047	5
Future Vol, veh/h	6	2	18	34	2	35	9	971	91	26	1047	5
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	-	-	-	-	-	-	250	-	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	74	74	74	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	3	30	46	3	47	10	1055	99	29	1163	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1773	2398	585	1766	2352	577	1169	0	0	1154	0	0
Stage 1	1224	1224	-	1125	1125	-	-	-	-	-	-	-
Stage 2	549	1174	-	641	1227	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	53	33	454	53	35	460	593	-	-	601	-	-
Stage 1	190	250	-	218	278	-	-	-	-	-	-	-
Stage 2	488	264	-	430	249	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	44	31	454	46	33	460	593	-	-	601	-	-
Mov Cap-2 Maneuver	133	121	-	143	128	-	-	-	-	-	-	-
Stage 1	187	238	-	214	273	-	-	-	-	-	-	-
Stage 2	426	260	-	377	237	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.8	34.6	0.1	0.3
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	593	-	-	257	215	601	-	-
HCM Lane V/C Ratio	0.016	-	-	0.166	0.446	0.048	-	-
HCM Control Delay (s)	11.2	-	-	21.8	34.6	11.3	-	-
HCM Lane LOS	B	-	-	C	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	2.1	0.2	-	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	38	1063	73	13	1137
Future Vol, veh/h	41	38	1063	73	13	1137
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	-	-	-	200	-
Veh in Median Storage, #	1	-	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	45	41	1155	79	14	1236

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1841	617	0	0	1234	0
Stage 1	1195	-	-	-	-	-
Stage 2	646	-	-	-	-	-
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	67	433	-	-	560	-
Stage 1	250	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	65	433	-	-	560	-
Mov Cap-2 Maneuver	175	-	-	-	-	-
Stage 1	250	-	-	-	-	-
Stage 2	472	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.4	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	245	560	-
HCM Lane V/C Ratio	-	-	0.35	0.025	-
HCM Control Delay (s)	-	-	27.4	11.6	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.5	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1	8	21	2	9	12	1260	27	11	1147	8
Future Vol, veh/h	6	1	8	21	2	9	12	1260	27	11	1147	8
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	-	-	-	-	-	-	250	-	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	60	66	66	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	1	12	35	3	14	13	1370	29	13	1334	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2078	2790	672	2105	2780	700	1343	0	0	1399	0	0
Stage 1	1365	1365	-	1411	1411	-	-	-	-	-	-	-
Stage 2	713	1425	-	694	1369	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	31	18	398	~ 29	19	382	509	-	-	484	-	-
Stage 1	155	214	-	145	203	-	-	-	-	-	-	-
Stage 2	389	200	-	399	213	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	28	17	398	~ 27	18	382	509	-	-	484	-	-
Mov Cap-2 Maneuver	107	96	-	102	98	-	-	-	-	-	-	-
Stage 1	151	208	-	141	198	-	-	-	-	-	-	-
Stage 2	360	195	-	374	207	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.9	52.1	0.1	0.1
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	509	-	-	173	126	484	-	-
HCM Lane V/C Ratio	0.026	-	-	0.129	0.41	0.026	-	-
HCM Control Delay (s)	12.3	-	-	28.9	52.1	12.6	-	-
HCM Lane LOS	B	-	-	D	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	1.8	0.1	-	-

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

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	6	1332	28	12	1181
Future Vol, veh/h	18	6	1332	28	12	1181
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	-	-	-	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	74	74	76	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	7	1800	38	16	1373

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2538	919	0	0	1838	0
Stage 1	1819	-	-	-	-	-
Stage 2	719	-	-	-	-	-
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	22	273	-	-	327	-
Stage 1	114	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	21	273	-	-	327	-
Mov Cap-2 Maneuver	88	-	-	-	-	-
Stage 1	114	-	-	-	-	-
Stage 2	422	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	50.2	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	106	327	-
HCM Lane V/C Ratio	-	-	0.254	0.048	-
HCM Control Delay (s)	-	-	50.2	16.6	-
HCM Lane LOS	-	-	F	C	-
HCM 95th %tile Q(veh)	-	-	0.9	0.2	-

2026 No-Build Intersection Operations with System Improvements

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1557 Broad Street, Augusta, GA 30903
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Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	2	18	34	2	35	9	971	91	26	1047	5
Future Vol, veh/h	6	2	18	34	2	35	9	971	91	26	1047	5
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	-	-	250	-	150	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	74	74	74	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	3	30	46	3	47	10	1055	99	29	1163	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1773	2398	585	1716	2302	528	1169	0	0	1154	0	0
Stage 1	1224	1224	-	1075	1075	-	-	-	-	-	-	-
Stage 2	549	1174	-	641	1227	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	53	33	454	58	38	495	593	-	-	601	-	-
Stage 1	190	250	-	234	294	-	-	-	-	-	-	-
Stage 2	488	264	-	430	249	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	45	31	454	51	36	495	593	-	-	601	-	-
Mov Cap-2 Maneuver	134	121	-	151	132	-	-	-	-	-	-	-
Stage 1	187	238	-	230	289	-	-	-	-	-	-	-
Stage 2	430	260	-	377	237	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.7	26.1	0.1	0.3
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	593	-	-	258	151	431	601	-	-
HCM Lane V/C Ratio	0.016	-	-	0.165	0.304	0.116	0.048	-	-
HCM Control Delay (s)	11.2	-	-	21.7	38.9	14.4	11.3	-	-
HCM Lane LOS	B	-	-	C	E	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	1.2	0.4	0.2	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	38	1063	73	13	1137
Future Vol, veh/h	41	38	1063	73	13	1137
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	-	150	200	-
Veh in Median Storage, #	1	-	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	45	41	1155	79	14	1236

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1801	578	0	0	1234	0
Stage 1	1155	-	-	-	-	-
Stage 2	646	-	-	-	-	-
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	71	459	-	-	560	-
Stage 1	262	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	69	459	-	-	560	-
Mov Cap-2 Maneuver	182	-	-	-	-	-
Stage 1	262	-	-	-	-	-
Stage 2	472	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.7	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	182	459	560	-
HCM Lane V/C Ratio	-	-	0.245	0.09	0.025	-
HCM Control Delay (s)	-	-	31.1	13.6	11.6	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.3	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	1	8	21	2	9	12	1260	27	11	1147	8
Future Vol, veh/h	6	1	8	21	2	9	12	1260	27	11	1147	8
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	-	-	250	-	150	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	60	66	66	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	1	12	35	3	14	13	1370	29	13	1334	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2078	2790	672	2090	2765	685	1343	0	0	1399	0	0
Stage 1	1365	1365	-	1396	1396	-	-	-	-	-	-	-
Stage 2	713	1425	-	694	1369	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	31	18	398	~ 30	19	391	509	-	-	484	-	-
Stage 1	155	214	-	148	206	-	-	-	-	-	-	-
Stage 2	389	200	-	399	213	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	28	17	398	~ 28	18	391	509	-	-	484	-	-
Mov Cap-2 Maneuver	107	96	-	104	98	-	-	-	-	-	-	-
Stage 1	151	208	-	144	201	-	-	-	-	-	-	-
Stage 2	360	195	-	374	207	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.9	44.6	0.1	0.1
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	509	-	-	173	104	253	484	-	-
HCM Lane V/C Ratio	0.026	-	-	0.129	0.337	0.066	0.026	-	-
HCM Control Delay (s)	12.3	-	-	28.9	56.2	20.2	12.6	-	-
HCM Lane LOS	B	-	-	D	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	1.3	0.2	0.1	-	-

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

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	6	1332	28	12	1181
Future Vol, veh/h	18	6	1332	28	12	1181
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	-	150	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	74	74	76	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	7	1800	38	16	1373

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2519	900	0	0	1838	0
Stage 1	1800	-	-	-	-	-
Stage 2	719	-	-	-	-	-
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	23	282	-	-	327	-
Stage 1	117	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	22	282	-	-	327	-
Mov Cap-2 Maneuver	90	-	-	-	-	-
Stage 1	117	-	-	-	-	-
Stage 2	422	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	46.7	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	90	282	327	-
HCM Lane V/C Ratio	-	-	0.225	0.024	0.048	-
HCM Control Delay (s)	-	-	56.2	18.1	16.6	-
HCM Lane LOS	-	-	F	C	C	-
HCM 95th %tile Q(veh)	-	-	0.8	0.1	0.2	-

FUTURE CONDITION INTERSECTION OPERATIONS

Infrastructure Systems Management, LLC
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Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	2	63	34	2	35	24	971	91	26	1047	13
Future Vol, veh/h	27	2	63	34	2	35	24	971	91	26	1047	13
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	-	-	-	-	-	-	250	-	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	74	74	74	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	3	103	46	3	47	26	1055	99	29	1163	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1809	2434	589	1798	2392	577	1177	0	0	1154	0	0
Stage 1	1228	1228	-	1157	1157	-	-	-	-	-	-	-
Stage 2	581	1206	-	641	1235	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	49	31	452	50	33	460	589	-	-	601	-	-
Stage 1	189	249	-	209	269	-	-	-	-	-	-	-
Stage 2	467	255	-	430	247	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 40	28	452	~ 35	30	460	589	-	-	601	-	-
Mov Cap-2 Maneuver	126	116	-	123	119	-	-	-	-	-	-	-
Stage 1	181	237	-	200	257	-	-	-	-	-	-	-
Stage 2	396	244	-	311	235	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	39.7	41.1	0.3	0.3
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	589	-	-	248	192	601	-	-
HCM Lane V/C Ratio	0.044	-	-	0.608	0.5	0.048	-	-
HCM Control Delay (s)	11.4	-	-	39.7	41.1	11.3	-	-
HCM Lane LOS	B	-	-	E	E	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	3.6	2.5	0.2	-	-

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

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	38	1078	73	13	1137
Future Vol, veh/h	41	38	1078	73	13	1137
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	-	-	-	200	-
Veh in Median Storage, #	1	-	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	45	41	1172	79	14	1236

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1858	626	0	0	1251	0
Stage 1	1212	-	-	-	-	-
Stage 2	646	-	-	-	-	-
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	65	427	-	-	552	-
Stage 1	244	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	63	427	-	-	552	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	244	-	-	-	-	-
Stage 2	472	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	241	552	-
HCM Lane V/C Ratio	-	-	0.356	0.026	-
HCM Control Delay (s)	-	-	28	11.7	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	1.5	0.1	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↰	↑↑↱		↰	↑↑↱	
Traffic Vol, veh/h	20	1	38	21	2	9	63	1260	27	11	1147	33
Future Vol, veh/h	20	1	38	21	2	9	63	1260	27	11	1147	33
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	-	-	-	-	-	-	250	-	-	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	60	66	66	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	1	57	35	3	14	68	1370	29	13	1334	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2202	2914	686	2215	2919	700	1372	0	0	1399	0	0
Stage 1	1379	1379	-	1521	1521	-	-	-	-	-	-	-
Stage 2	823	1535	-	694	1398	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 25	15	390	~ 24	15	382	496	-	-	484	-	-
Stage 1	152	210	-	124	179	-	-	-	-	-	-	-
Stage 2	334	176	-	399	206	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 20	13	390	~ 18	13	382	496	-	-	484	-	-
Mov Cap-2 Maneuver	87	81	-	76	71	-	-	-	-	-	-	-
Stage 1	131	204	-	107	154	-	-	-	-	-	-	-
Stage 2	272	152	-	329	200	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	45.2	79.6	0.6	0.1
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	496	-	-	174	96	484	-	-
HCM Lane V/C Ratio	0.138	-	-	0.506	0.538	0.026	-	-
HCM Control Delay (s)	13.4	-	-	45.2	79.6	12.6	-	-
HCM Lane LOS	B	-	-	E	F	B	-	-
HCM 95th %tile Q(veh)	0.5	-	-	2.5	2.4	0.1	-	-

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

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	6	1383	28	12	1211
Future Vol, veh/h	18	6	1383	28	12	1211
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	-	-	-	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	74	74	76	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	7	1869	38	16	1408

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2624	954	0	0	1907	0
Stage 1	1888	-	-	-	-	-
Stage 2	736	-	-	-	-	-
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	~ 19	259	-	-	308	-
Stage 1	105	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 18	259	-	-	308	-
Mov Cap-2 Maneuver	81	-	-	-	-	-
Stage 1	105	-	-	-	-	-
Stage 2	412	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	55.1	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	98	308	-
HCM Lane V/C Ratio	-	-	0.275	0.051	-
HCM Control Delay (s)	-	-	55.1	17.3	-
HCM Lane LOS	-	-	F	C	-
HCM 95th %tile Q(veh)	-	-	1	0.2	-

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

FUTURE CONDITION INTERSECTION OPERATIONS WITH IMPROVEMENTS

Infrastructure Systems Management, LLC
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Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	2	63	34	2	35	24	971	91	26	1047	13
Future Vol, veh/h	27	2	63	34	2	35	24	971	91	26	1047	13
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	-	-	250	-	150	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	74	74	74	92	92	92	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	3	103	46	3	47	26	1055	99	29	1163	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1809	2434	589	1748	2342	528	1177	0	0	1154	0	0
Stage 1	1228	1228	-	1107	1107	-	-	-	-	-	-	-
Stage 2	581	1206	-	641	1235	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	49	31	452	55	36	495	589	-	-	601	-	-
Stage 1	189	249	-	224	284	-	-	-	-	-	-	-
Stage 2	467	255	-	430	247	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 41	28	452	~ 39	33	495	589	-	-	601	-	-
Mov Cap-2 Maneuver	127	116	-	129	123	-	-	-	-	-	-	-
Stage 1	181	237	-	214	272	-	-	-	-	-	-	-
Stage 2	400	244	-	311	235	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.8	30.4	0.3	0.3
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	589	-	-	127	415	129	425	601	-	-
HCM Lane V/C Ratio	0.044	-	-	0.349	0.257	0.356	0.118	0.048	-	-
HCM Control Delay (s)	11.4	-	-	47.8	16.6	47.6	14.6	11.3	-	-
HCM Lane LOS	B	-	-	E	C	E	B	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.4	1	1.5	0.4	0.2	-	-

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

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	41	38	1078	73	13	1137
Future Vol, veh/h	41	38	1078	73	13	1137
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	-	150	200	-
Veh in Median Storage, #	1	-	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	45	41	1172	79	14	1236

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1818	586	0	0	1251	0
Stage 1	1172	-	-	-	-	-
Stage 2	646	-	-	-	-	-
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	69	454	-	-	552	-
Stage 1	257	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	67	454	-	-	552	-
Mov Cap-2 Maneuver	179	-	-	-	-	-
Stage 1	257	-	-	-	-	-
Stage 2	472	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	179	454	552	-
HCM Lane V/C Ratio	-	-	0.249	0.091	0.026	-
HCM Control Delay (s)	-	-	31.7	13.7	11.7	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.9	0.3	0.1	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	1	38	21	2	9	63	1260	27	11	1147	33
Future Vol, veh/h	20	1	38	21	2	9	63	1260	27	11	1147	33
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	-	-	250	-	150	250	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	60	66	66	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	30	1	57	35	3	14	68	1370	29	13	1334	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2202	2914	686	2200	2904	685	1372	0	0	1399	0	0
Stage 1	1379	1379	-	1506	1506	-	-	-	-	-	-	-
Stage 2	823	1535	-	694	1398	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 25	15	390	~ 25	15	391	496	-	-	484	-	-
Stage 1	152	210	-	127	182	-	-	-	-	-	-	-
Stage 2	334	176	-	399	206	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 21	13	390	~ 18	13	391	496	-	-	484	-	-
Mov Cap-2 Maneuver	88	81	-	77	71	-	-	-	-	-	-	-
Stage 1	131	204	-	110	157	-	-	-	-	-	-	-
Stage 2	273	152	-	329	200	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	33.5	65.7	0.6	0.1
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	496	-	-	88	355	77	215	484	-	-
HCM Lane V/C Ratio	0.138	-	-	0.339	0.164	0.455	0.078	0.026	-	-
HCM Control Delay (s)	13.4	-	-	65.6	17.1	86	23.1	12.6	-	-
HCM Lane LOS	B	-	-	F	C	F	C	B	-	-
HCM 95th %tile Q(veh)	0.5	-	-	1.3	0.6	1.8	0.2	0.1	-	-

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

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	6	1383	28	12	1211
Future Vol, veh/h	18	6	1383	28	12	1211
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	-	150	200	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	74	74	76	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	7	1869	38	16	1408

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2605	935	0	0	1907	0
Stage 1	1869	-	-	-	-	-
Stage 2	736	-	-	-	-	-
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	267	-	-	308	-
Stage 1	107	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 19	267	-	-	308	-
Mov Cap-2 Maneuver	83	-	-	-	-	-
Stage 1	107	-	-	-	-	-
Stage 2	412	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	51.1	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	83	267	308	-
HCM Lane V/C Ratio	-	-	0.244	0.025	0.051	-
HCM Control Delay (s)	-	-	61.8	18.8	17.3	-
HCM Lane LOS	-	-	F	C	C	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	0.2	-

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

Infrastructure Systems Management, LLC
P.O. Box 277, Augusta, Georgia 30903
Tel (706) 250-3228
Fax (706) 397-3523
Website www.ismllc-engr.com
Email scassell@ismllc-engr.com

"Civil & Construction Engineering Services"

MEMORANDUM

TO: Ms. Alexandra Reynolds, PE

FROM: Steven J. Cassell, PE

DATE: June 17, 2022

SUBJECT: Wrenfield at Chanticleer Neighborhood Traffic Engineering Study Addendum

---

The purpose of this memorandum is to provide an addendum to the Wrenfield at Chanticleer Neighborhood Traffic Engineering Study dated June 17, 2022 based on a request from North Augusta staff with regard to existing sight distance at the intersection of Southwood Drive and Martintown Road.

To that end, a field visit was made to the intersection on June 15, 2022 and it was observed that existing vegetation on both sides of the intersection was obscuring the clear line of sight for exiting traffic. Photographs taken are provide as attached figures.

Based on rough field measurements, existing sight distances exiting Southwood Drive were approximately 450-feet to the left (north) and 550-feet to the right (south).

Recommended sight distances were determined using the methodology in *Section 4.4 – Intersection Sight Distance* for "Case B – Intersections with Stop-Control on the Minor Road", required intersection sight-distances were calculated. Sight distances were calculated for all three potential movements at the intersection:

- Case B1 – Left-Turn from Minor Road
- Case B2 – Right-Turn from Minor Road
- Case B3 – Crossing from Minor Road

The following formula was used to calculate the recommended sight distance for each Case:

$$ISD = 1.47 \times V_{major} \times t_g$$

Where:
ISD = length of sight line along major road
V_{major} = Speed limit along major road (mph)
T_g = gap acceptance for entering major road (seconds)

For each Case, sight distance was calculated for passenger cars and single unit trucks and are shown below.

Case B1 – Left-Turn from the Minor Road

For a two-lane road, the time gap is 7.5 seconds for passenger cars and 9.5 seconds for single-unit trucks to perform left-turns.

For a multi-lane roads, like Martintown Road, the methodology recommends adding 0.5 seconds and 0.7 seconds for each additional lane required to cross for passenger cars and single-unit trucks, respectively.

For left-turns, vehicles would have to cross one additional through lane and the center left-turn lane (2 lanes). Therefore, the time gap was increased by 1.0 second for passenger cars and 1.4 seconds for single-unit trucks. Table 1 presents a summary of the recommended sight distances for left-turns.

Table 1
Recommended Sight-Distance for Left-turns

	Base Time gap (s)	Time Gap Adjustment (2 add'l lanes)	Calculated Left-turn minimum Sight Distance	Left-turn minimum
Passenger Car	6.5	1.0	499.8	500
Single Unit	8.5	1.4	640.92	645

As shown by the results in Table 1, existing sight distance is below the calculated recommended sight distance for left-turns at the intersection.

Case B2 – Right-Turn from the Minor Road

The time gap for right-turns is 6.5 seconds for passenger cars and 8.5 seconds for single-unit trucks, irrespective of the width of the main road. Table 2 presents a summary of the recommended sight distances for right-turns.

Table 2
Recommended Sight-Distance for Right-turns

	Time gap (s)	Calculated Left-turn minimum Sight Distance	Right-turn minimum
Passenger Car	6.5	382.2	385
Single Unit	8.5	499.8	500

As shown by the results in Table 1, existing sight distance is sufficient for passenger cars to below the calculated recommended sight distance for single-unit trucks to perform right-turns at the intersection.

Case B3 – Crossing Maneuvers from the Minor Road

For a two-lane road, the time gap is 6.5 seconds for passenger cars and 8.5 seconds for single-unit trucks to cross over.

As stated previously, for a multi-lane roads the methodology recommends adding 0.5 seconds and 0.7 seconds for each additional lane required to cross for passenger cars and single-unit trucks, respectively.

For crossing, vehicles would have to cross two additional through lanes and the center left-turn lane (3 lanes). Therefore, the time gap was increased by 1.5 seconds for passenger cars and 2.1 seconds for single-unit trucks. Table 3 presents a summary of the recommended sight distances for crossing manuevers.

Table 3
Recommended Sight-Distance for Crossing Manuevers

	Base Time gap (s)	Time Gap Adjustment (3 add'l lanes)	Calculated crossing minimum Sight Distance	Left-turn minimum
Passenger Car	6.5	1.5	470.4	475
Single Unit	8.5	2.1	623.3	625

As shown by the results in Table 3, existing sight distance is below the calculated recommended sight distance for crossing maneuvers at the intersection.

Findings

Based on field observations existing sight distances at the intersection of Martintown Road and Southwood Drive are less than recommended values. These limitations are caused by existing vegetation on the parcels on both sides of the intersection. The solution would be to work the property owners of these two parcels to clear the vegetation to the extent of providing at least 650-feet of clear sight distance.

FIGURES

Exiting sight distance to the north.

Exiting sight distance to the south.

Approaching sight distance from the north.

Infrastructure Systems Management, LLC
1557 Broad Street, Augusta, GA 30903
(706) 250-3288
www.ismllc-engr.com

Approaching from the south.

Infrastructure Systems Management, LLC
1557 Broad Street, Augusta, GA 30903
(706) 250-3288
www.ismllc-engr.com

Tony

ORDINANCE NO. 91-05
TO CHANGE THE CORPORATE LIMITS OF THE CITY OF NORTH AUGUSTA
BY ANNEXING PROPERTY LOCATED ADJACENT TO
CHANTICLEER SUBDIVISION
OWNED BY BISHOP F. STRICKLAND

WHEREAS, Section 5-3-150 of the Code of Laws of the State of South Carolina provides that: "Any area or property which is contiguous to a city or town may be annexed to the city or town by filing with the municipal governing body a petition signed by seventy-five percent or more of the freeholders owning seventy-five percent or more of the assessed valuation of the real property in the area requesting annexation. Upon the agreement of the governing body to accept the petition and annex the area, and the enactment of an ordinance declaring the area annexed to the city or town, the annexation shall be complete;" and

WHEREAS, the Mayor and City Council of the City of North Augusta, by adoption of Resolution No. 91-03, dated March 4, 1991, wish to annex the below described property.

NOW, THEREFORE, BE IT ORDAINED by the Mayor and City Council of the City of North Augusta, South Carolina, in meeting duly assembled and by the authority thereof that:

I. The corporate limits of the City of North Augusta, South Carolina, shall be expanded by annexing the following property:

All those pieces, parcels, or tracts of land with improvements thereon, situate, lying and being in the County of Aiken, State of South Carolina, adjacent to the present City limits of North Augusta, containing 41.4 +/- acres, beginning at a point of intersection of the western right-of-way line of Big Pine Road and the present City limits, thence S 35° 39' W 2,750 +/- feet along said City limits line, thence N 50° 23' W 80 +/- feet, thence N 41° 51' E 161 +/- feet, thence N 7° 6' E 181.2 +/- feet, thence N 0° 40' E 287.7 +/- feet, thence N 5° 46' E 222.10 +/- feet, thence N 11° 9' E 122.3 +/- feet, thence N 0° 17' W 147.4 +/- feet, thence N 23° 32' E 175.1 +/- feet, thence N 38° 49' E 900.9 +/- feet, thence N 38° 49' E 129.6 +/- feet, thence N 68° 27' E 298.1 +/- feet, thence N 68° 27' E 240.41 +/- feet, thence N 68° 50' E 380.0 +/- feet, thence S 24° 44' E 236.02 +/- feet, thence S 24° 44' E approximately 230.0 +/- feet along the western right-of-way line of Big Pine Road to the point of beginning.

Said property is shown on a plat identified as Exhibit "A", entitled "Plat of Property Sought to be Annexed to the City of North Augusta, South Carolina," dated February, 1991. Said property is further identified on a plat entitled "Property Located in Northwest Section of North Augusta" prepared by Joe L. Grant, dated March, 1970, from which a more complete and accurate description of the metes, bounds, and location of the property can be determined.

Said property is identified by the following Tax Map Parcel Numbers and Plat Reference Numbers.

Plat Reference No.	Tax Map Parcel No.
1	00-008-01-918
2	00-008-01-024

II. In conformance with the City's Land Use & Development Plan, the property shall be zoned R-2, Single-Family Residential, under the official Zoning Ordinance of the City of North Augusta and shown on the official Zoning Map as same, as shown on a plat attached hereto marked Exhibit "B" entitled "Zoning of Property Sought to be Annexed to the City of North Augusta, South Carolina," dated February, 1991.

III. This Ordinance shall become effective immediately upon its adoption on third reading.

IV. All ordinances or parts of Ordinances in conflict herewith are, to the extent of such conflict, hereby repealed.

DONE, RATIFIED AND ADOPTED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF NORTH AUGUSTA, SOUTH CAROLINA, ON THIS 18th DAY OF March, 1991.

First Reading 3-4-91

Second Reading 3-4-91

Third Reading 3-18-91

Thomas W. Greene

Thomas W. Greene, Mayor

ATTEST:

Leona J. Lewis

Leona J. Lewis, City Clerk

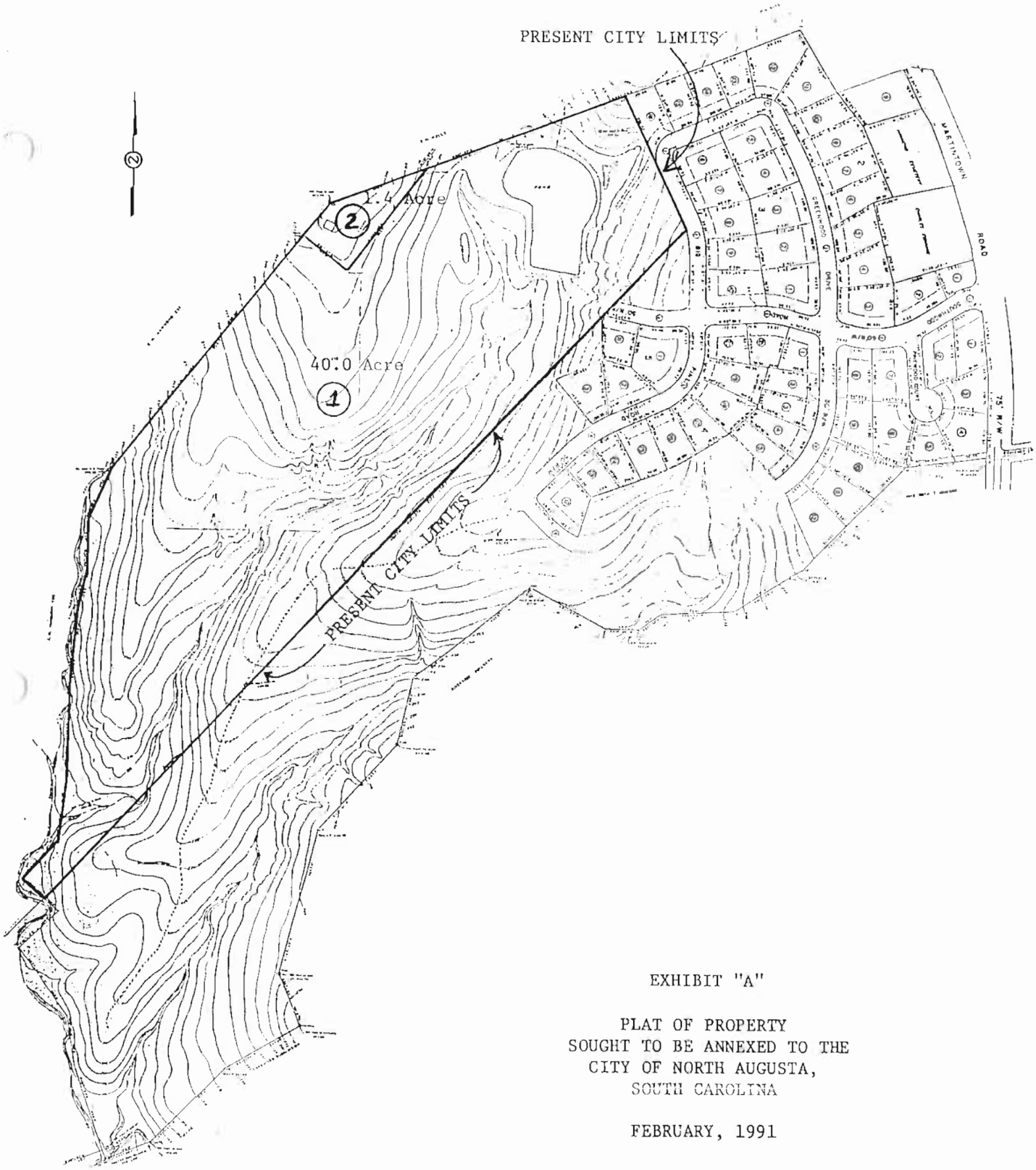


EXHIBIT "A"

PLAT OF PROPERTY
SOUGHT TO BE ANNEXED TO THE
CITY OF NORTH AUGUSTA,
SOUTH CAROLINA

FEBRUARY, 1991

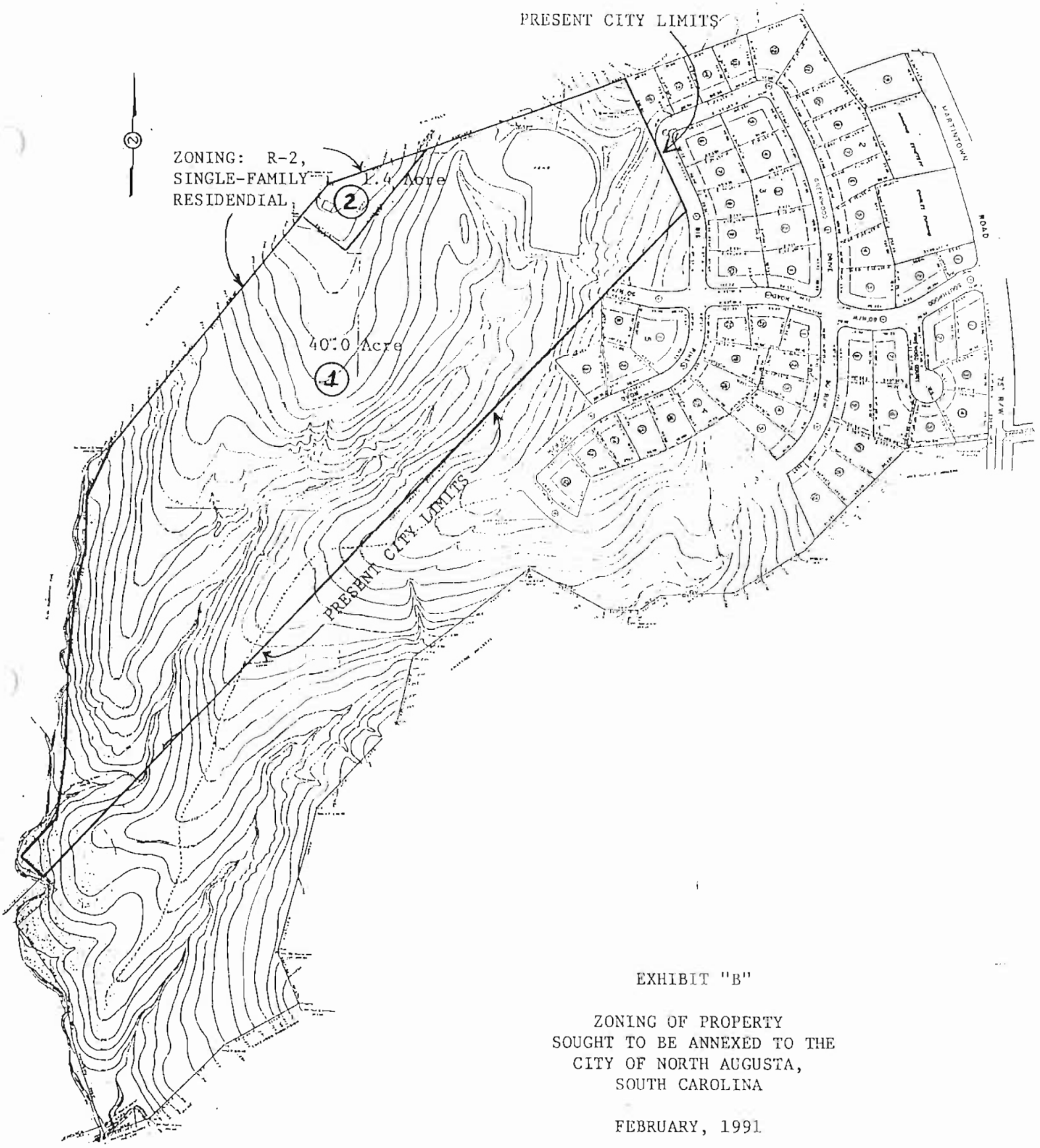


EXHIBIT "B"

ZONING OF PROPERTY
SOUGHT TO BE ANNEXED TO THE
CITY OF NORTH AUGUSTA,
SOUTH CAROLINA

FEBRUARY, 1991

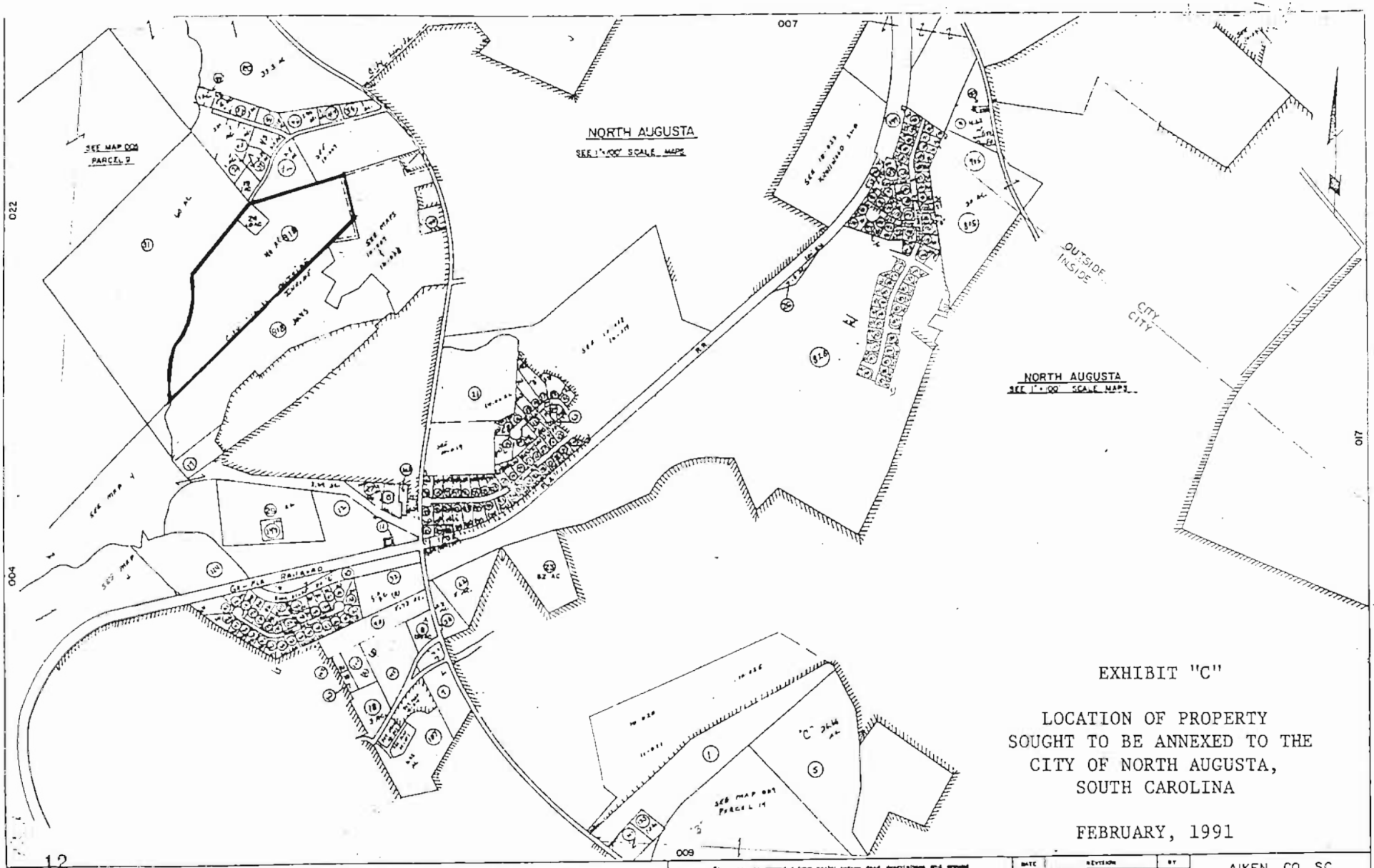
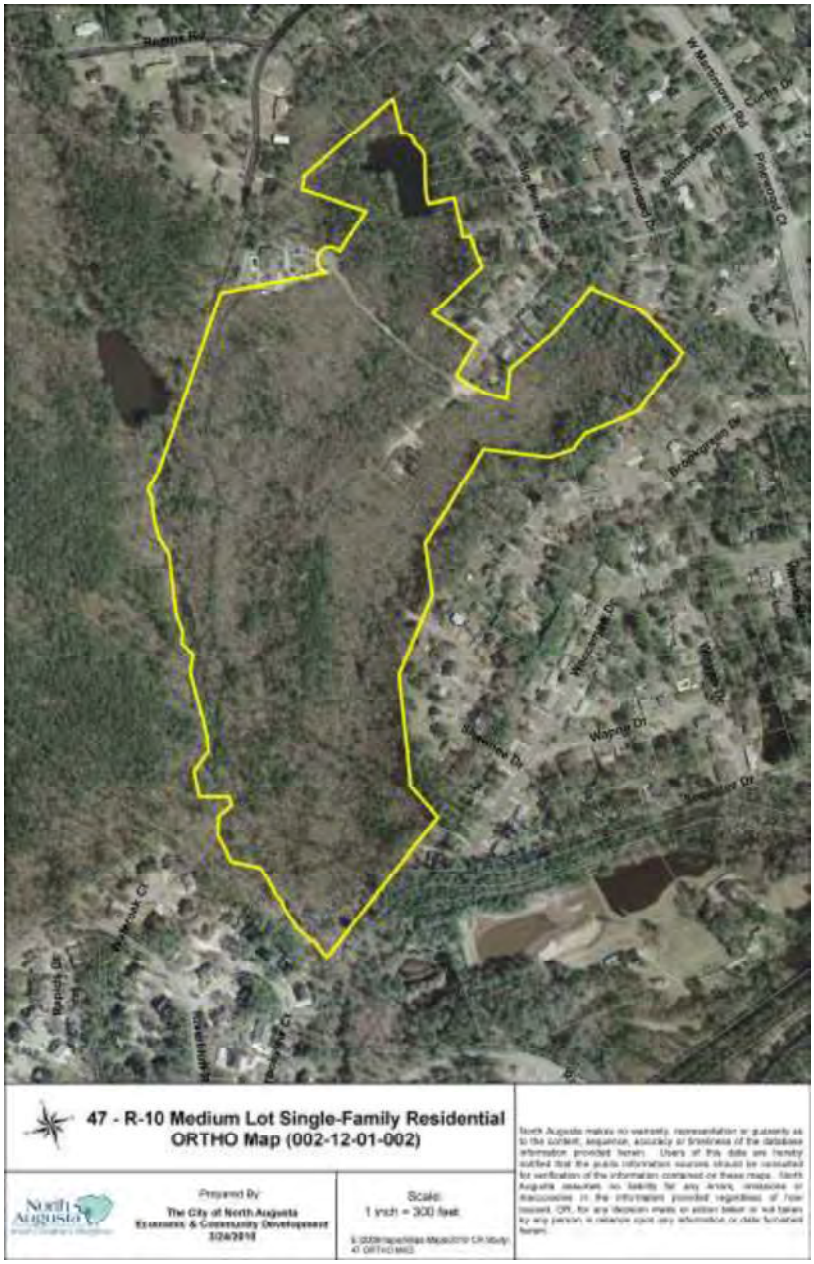


EXHIBIT "C"

LOCATION OF PROPERTY
SOUGHT TO BE ANNEXED TO THE
CITY OF NORTH AUGUSTA,
SOUTH CAROLINA

FEBRUARY, 1991



Parcel Number: 002-12-01-002

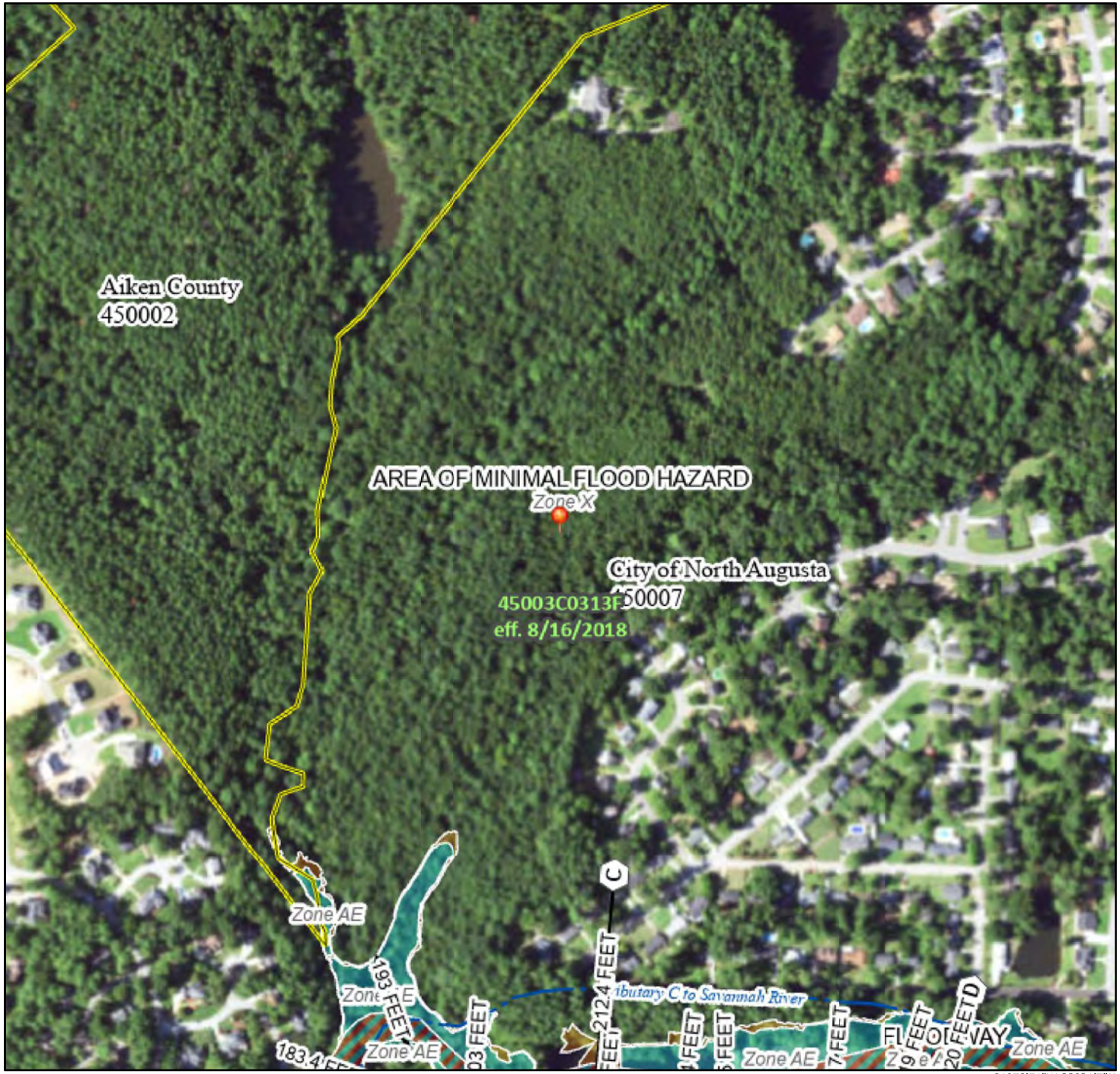
Description: This 61-acre parcel is zoned Medium Lot Single-Family Residential, and it is located southwest of the Chanticleer subdivision and northeast of The Rapids subdivision. There is a pond and associated wetland on the northeastern section of the property which receives seepage, as well as drainage from homes and streets in Chanticleer. The pond drains into a streambed which crosses under Big Pine Road and flows to the south to merge with two other streams that flow along the eastern and western boundaries (see figure). The stream along the east originates with a spring that is located near the end of Greenwood Drive. The stream along the west is drainage from Hammond Pond, which is located on the adjacent parcel (#002-12-01-001). The area provides critical habitat for bottlebrush buckeye (*Aesculus parviflora*) and relict trillium (*Trillium reliquum*). Both of these are protected plant species mentioned in the Natural Resources section of the City's Comprehensive Plan for growth and development (see section 8.7, page 8-3). Portions of this parcel are also listed on the U.S. Fish and Wildlife Service's National Wetlands Inventory.

Recommendation: Development of this parcel is not recommended due to due to issues with drainage and critical wetland habitat.

National Flood Hazard Layer FIRMette

FEMA

81°59'28"W 33°31'37"N



81°58'51"W 33°31'7"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

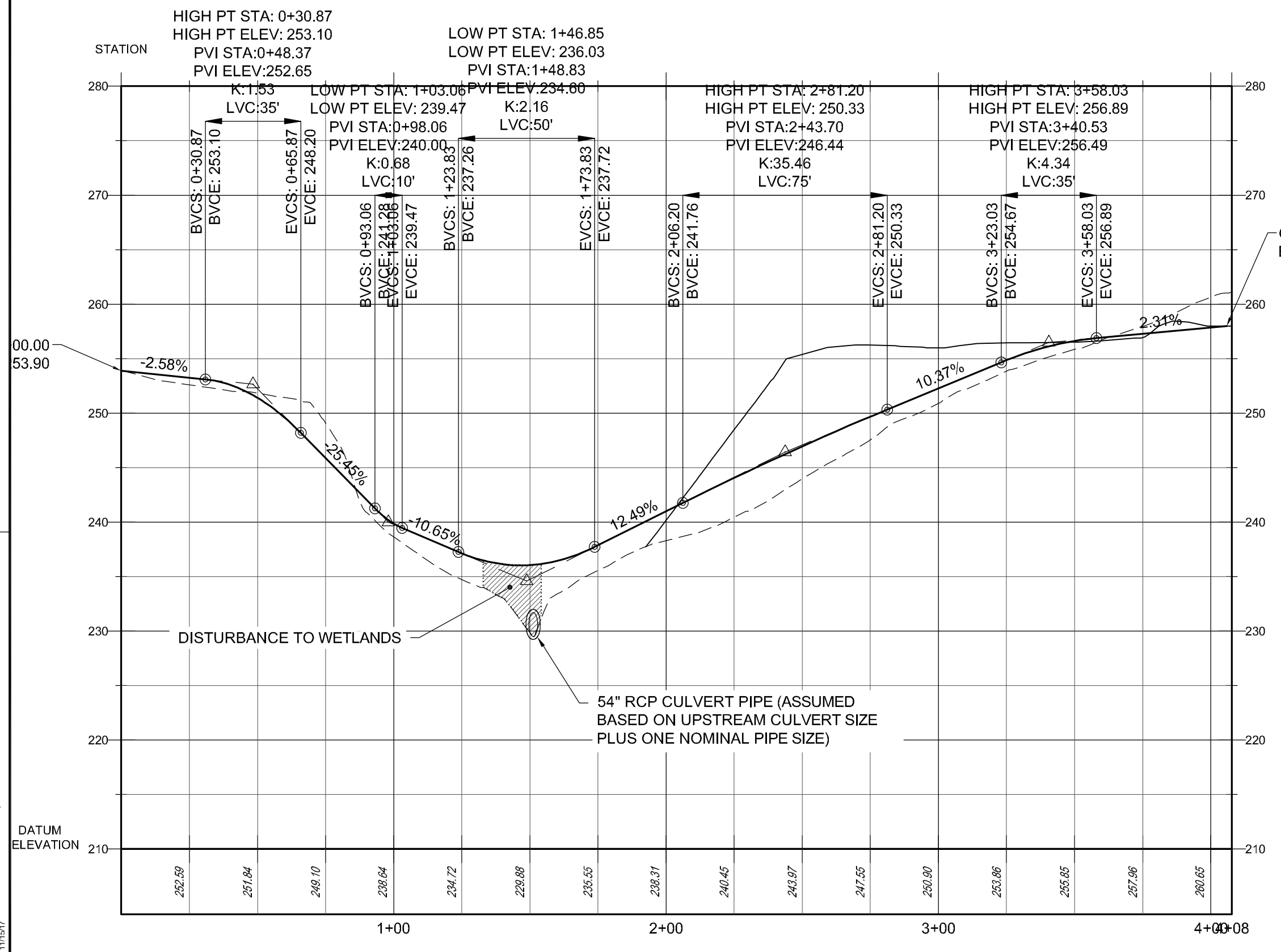
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/8/2022 at 4:47 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.


W
WRENFIELD
at chanticleer


Chanticleer



C/L SHAWNEE EXTENSION PROFILE

SCALE: HOR: 1" = 40'
VER: 1" = 10'

NOTES:

1. THIS VERTICAL GEOMETRY IS BASED ON MIMICKING THE NATURAL TERRAIN THROUGH THIS AREA. THIS DESIGN DOES NOT MEET NA STANDARDS OR SCDOT STANDARDS FOR MAXIMUM GRADE REQUIREMENTS OR VERTICAL CURVE DESIGN STANDARDS.
2. A DESIGN MEETING THE GUIDELINES WOULD RESULT IN COST PROHIBITIVE AMOUNTS OF FILL IN THE WETLANDS.

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CLIENT:
PROJECT NAME: WRENFIELD AT CHANTICLEER
PROJECT LOCATION: NORTH AUGUSTA, SC

PROJECT NO.	5017.2201
DRAWN BY :	WTB
CHECKED BY :	N/A
DATE:	
SHEET TITLE :	
SCALE:	1" = 40'
DRAWING NO.	CSK-1
REV.	A

CADFILE: JLA17x11.DWG REV. 11/15/17
K:\5017.2201\Civil\JLA-PROPOSED-temp-WTB-2022-08-30.dwg Plotted:8/31/2022 10:09 AM By:William T. Buchanan, P.E.

Infrastructure Systems Management, LLC
P.O. Box 277, Augusta, Georgia 30903
Tel (706) 250-3228
Fax (706) 397-3523
Website www.ismllc-engr.com
Email scassell@ismllc-engr.com

"Civil & Construction Engineering Services"

Infrastructure Systems Management, LLC
SPECIALIZED CONSULTING SERVICES

MEMORANDUM

TO: Ms. Alexandra Reynolds, PE

FROM: Steven J. Cassell, PE

DATE: August 26, 2022

SUBJECT: Wrenfield at Chanticleer Neighborhood Signal Warrant Assessment

The purpose of this memorandum is to provide an assessment of the need of a traffic signal being at the intersection of Martintown Road and Southwood Road/Curtis Drive as part of the Wrenfield at Chanticleer Neighborhood.

As presented in the study, the addition of projected traffic from the Wrenfield at Chanticleer Neighborhood will no doubt have an impact on the operations of the intersection and could be expected to increase delay during the morning and evening peak hours as was noted in the traffic study and a traffic signal could improve this situation from a delay standpoint for exiting traffic only.

However, taking into account the overall impact to delay along Martintown Road corridor as well as the fact that the projected volumes at the intersection would not likely meet signal warrants, I would not recommend pursuing installation of a traffic signal at this point.

Department of Planning and Development

Project Staff Report
CONPL21-002 Big Pine Subdivision
Prepared by: Kuleigh Baker
Meeting Date: October 21, 2021

SECTION 1: PROJECT SUMMARY

Project Name	Big Pine Subdivision
Applicant	JLA
Address/Location	Termini of Southwood Drive, Big Pine Road, and Greenwood Drive
Parcel Numbers	002-12-01-002
Total Development Size	± 66.9 ac
Zoning	R-10, Medium Lot, Single-Family Residential
Use Pattern	Conservation Subdivision
Traffic Impact Tier	2
Proposed Use	122 Single-Family Residential detached dwellings
Future Land Use	Low Density Residential

SECTION 2: PLANNING COMMISSION CONSIDERATION

The plans have been submitted for review by the Planning Commission based on the following portions of the Development Code:

NADC § 5.1.2.2 Sketch Plan

a. In addition to the pre-application conference, at the request of the applicant subsequent to the pre-application conference, the Planning Commission may grant an informal review of a sketch or concept plan for a development for which the applicant intends to prepare and submit an application for development. The purpose of the sketch plan review process is to provide the Planning Commission input in the formative stages of a development plan.

b. Applicants seeking sketch plan review shall submit the items stipulated in Appendix B, Application Documents, ten (10) days before the Planning Commission meeting at which the sketch plan will be reviewed. These items provide the applicant and Planning Commission with an opportunity to discuss the development proposal in its formative stages.

c. A brief written summary of the sketch plan review shall be provided within ten (10) working days of the sketch plan review meeting.

d. The applicant may be charged reasonable fees for the sketch plan review.

e. The Planning Commission may make specific recommendations regarding the proposed development including the implementation of a citizen participation process (§5.1.7) prior to submitting the development application.

f. The applicant shall not be bound by any sketch plan for which review is requested, nor shall the Planning Commission be bound by any such review.

SECTION 3: PUBLIC NOTICE

Per NADC Table 5-1, no notice of the request is required.

SECTION 4: SITE HISTORY

A portion of the subject property adjacent to the existing Chanticleer subdivision was annexed on March 18, 1991 by Ordinance No. 91-05. At that time, the property was zoned R-2, Single-Family Residential in conformance with the City's Land Use and Development Plan. The equivalent R-10, Medium Lot, Single-Family Residential zoning district was adopted with the Official Zoning Map of the 2008 North Augusta Development Code.

SECTION 5: EXISTING SITE CONDITIONS

	Existing Land Use	Future Land Use	Zoning
Subject Parcel	Vacant	Low Density Residential	R-10, Medium Lot, Single-Family Residential
North	Residential	Low Density Residential	Outside City Limits/R-10, Medium Lot, Single-Family Residential
South	Residential	Low Density Residential	R-14, Large Lot, Single-Family Residential
East	Residential	Low Density Residential	R-10, Medium Lot, Single-Family Residential/ R-14, Large Lot, Single-Family Residential
West	Vacant/Residential	Low Density Residential	Outside City Limits

Access – The site currently has access to West Martintown Road from Shawnee Drive, Southwood Drive, Big Pine Road, and Greenwood Drive.

Topography – The subject site has variable topography. The property does have streams on site, and would need to be properly delineated.

Utilities – Water and wastewater connections would have to be brought in from neighboring developments.

Floodplain and Environmental Conditions – A small portion of the site is located in Flood Zone X and AE with a 0.2% annual chance of flood hazard. Site located on FEMA FIRM panel 45003C.

Drainage Basin – The proposed development is located in the Pretty Run/Rapids Basin. Pretty Run basin is located in a highly dense residential part of North Augusta. The preliminary physical stream assessments at two reaches of the stream indicate that this stream channel is currently not effective at transporting current loads of stormwater during heavy storm events. A main sewer line runs along and in the stream channel and some of its tributaries. Overtopping of banks is obvious in several locations and manholes present in those locations may overflow if surcharging occurs. High nutrient concentrations have been detected in two samples during the period. The results indicate that urban runoff is impacting the stream channel. Many homes back up to the creek along its way through the city. The high density residential area contains well-maintained lawns in many instances. In addition, animals are penned at or near the creek along most of its reach. The city will continue to reach out to residents in the area to provide information that may help reduce pollutant loads.

SECTION 6: STAFF EVALUATION AND ANALYSIS

Applicable sections of the North Augusta Development Code have been provided for Planning Commission review and consideration. Staff commentary is provided in *italics*. Items of particular importance are highlighted in **bold**.

1) Purpose and Zoning Districts

   The concept plan proposes 122 single-family residential detached dwellings developed in the R-10, Medium Lot, Single-Family Residential Zoning District using a Conservation Subdivision Use Pattern.

   The purpose of these R-10, Medium Lot, Single-Family Residential District is to recognize and promote the character of particular areas in North Augusta where single-family residential development is the predominant living environment. Also, changing patterns of work and home environments create incentives to view the single-family dwelling as a place of work and residential living activities.

The Use Patterns established in the development code are not zoning districts. Instead, they are forms of development that may be permitted in the various zoning districts established by this Chapter, where indicated in this Article or Article 3, Zoning Districts, or both. Use Patterns are specific land use activities involving specific land uses and design controls which produce a discrete pattern of development. Article 2, Use Patterns of the NADC applies to any application for development approval where the applicant chooses to develop pursuant to the standards and procedures of a Use Pattern described in this Article. These provisions are optional, in that a decision to develop pursuant to the regulations established herein is subject to the discretion of the applicant. However, the improvement standards, parking requirements, and other regulations may vary depending upon whether an applicant chooses to develop pursuant to a Use Pattern established in the Article.

The purpose of this section is to provide flexibility in site design in order to allow developers to preserve common open space and natural resources in Conservation Areas within a subdivision. The specific purposes of this section are:

a. To protect the public health, safety and general welfare by avoiding surface and ground water pollution, contaminated runoff, air quality contamination and urban heat islands which result from pavement and the clearing of natural vegetation;

b. To protect and preserve natural resources such as wetlands, streams, lakes, steep slopes, woodlands and water recharge areas;

c. To reduce infrastructure and housing costs by reducing the engineering and construction costs produced by conventional subdivision design, which requires more pavement, wetland crossings, grading of trees and natural areas, and lawn and landscaping maintenance;

d. To protect property values by allowing open space design features which enhance the marketability of development;

e. To provide design flexibility; and

f. To promote development on soils which are most suitable for urban densities, while preserving soils that are primarily adaptable to other uses such as woodlands, wildlife habitat and agricultural uses

2.3.4.2 There is no minimum or maximum size for a Conservation Subdivision provided, however, that the minimum open space requirements may limit the availability of this option for some landowners. Parcels that cannot demonstrate compliance with the minimum open space standards on-site shall dedicate and maintain an open space system that is connected to an open space system on an adjacent site in accordance

with Article 11, Open Space and Parks.

2.3.4.3 Platted lots located within subdivisions and PDs shall be located outside of the Conservation Areas, which constitute the total required open space. Conservation Areas shall be placed in undivided preserves, although they are not required to be contiguous.

Conservation subdivisions are permitted as a use pattern in the R-10, Medium Lot, Single-Family Residential Zoning District by Table 3-2, Use Matrix of the North Augusta Development Code. Single-family detached dwellings are also permitted as a use in the R-10, Medium Lot, Single-Family Residential Zoning District by Table 3-2, Use Matrix of the North Augusta Development Code.

The R-10, Medium Lot, Single-Family Residential Zoning District has dimensional standards outlined in Table 3-3 of the NADC.

A		B	C	D	E	F	G	H	I	J	K	L
Zoning District and Use Types		Minimum Lot Size (sq. ft)	Maximum Gross Density (du/ga)	Floor Area Ratio	Impervious Surface Ratio	Minimum Lot Frontage (ft)	Minimum Lot Width (ft)	Maximum Building	Minimum Front Setback (ft)	Maximum Front Setback (ft)	Minimum Side Setback (ft)	Minimum Rear Setback (ft)
3.	R-10, Medium Lot, Single-Family Residential	10,000	4.5	—	0.3	40	50	35	15	—	5	15

Note: 2.3.6.2 Lots within a Conservation Subdivision are not subject to the minimum lot size, minimum frontage or minimum lot width requirements of the Use Matrix, Table 3-2.

2) Landscaping

Landscape plans were not included as part of the concept plan review. Landscape plans are required per Section 10.4.1, and plans would be reviewed for conformance the article including street trees, entry landscaping, and any parking areas. Final landscaping on individual lots would be evaluated prior to final home certificates of occupancy.

Based on table 10-10, Street Tree Landscaping Requirements, the single-family detached development will require 1 large tree plus 1 per 40 feet of frontage or 1 small tree plus 1 per 30 feet of frontage.

Subdivision Entrance Landscaping will be reviewed per Article 10.8.

Individual residential lot landscaping specifications are not typically included at the time of major subdivision preliminary plat submittal. A sample detail based on the average lot and house size may be presented. Individual residential lot landscaping must pass inspection prior to issuance of a Certificate of Occupancy.

2.3.5.2 In order to provide undivided open space, direct views and access, not less than forty percent (40%) of the lots within a Conservation Subdivision shall abut a Conservation Area. Direct pedestrian access to the open space from all lots not adjoining the open space shall be provided through a continuous system of sidewalks and Greeneways.

Approximately 83%, 101 of the 122 planned lots will abut a conservation area.

3) Open Space

2.3.10.1 Lands designated as permanent open space including Conservation Areas:

a. Are not to be further subdivided; and

b. Shall be protected through a conservation easement or fee simple title held by the city or by an approved land trust or conservancy. The conservation easement or fee simple title shall prohibit further development of the open space.

2.3.10.2 Article 11, Open Space and Parks, relating to maintenance, shall apply to a Conservation Subdivision. No other requirements of the Open Space and Parks standards shall apply to a Conservation Subdivision.

2.3.10.3 Conservation Areas – A minimum of forty percent (40%) of the total tract area shall be designated as Conservation Areas. The following areas may be designated as Conservation Areas:

a. Wetlands;

b. Woodlands;

c. Sensitive aquifer recharge features, including areas with highly permeable, excessively drained, soil;

d. All of the floodway and flood fringe within the 100-year floodplain, as shown on official Federal Emergency Management Association (FEMA) maps;

e. All areas within one hundred (100) feet of the edge of the 100-year floodplain as delineated on the FEMA maps and any Letter of Map Revision;

f. All areas within one hundred (100) feet of the banks of any stream shown as a blue line on the United States Geological Survey (USGS) 1:24,000 (7.5 minute) scale topographic maps for Aiken County;

g. Slopes exceeding twenty five percent (25%);

h. Soils subject to slumping, as indicated on the medium-intensity maps contained in the county soil survey published by the United States Department of Agriculture (USDA) Natural Resources Conservation Service;
i. Significant wildlife habitat areas;
j. Historic, archaeological or cultural features listed, or eligible to be listed, on national, state or county registers or inventories; and
k. Scenic views into the property from existing public roads.

Approximately 51.76% of the proposed neighborhood will be provided as open space.

2.3.10.4 Stormwater detention ponds or basins and land within the rights of way for underground pipelines may be included as part of a Conservation Area. Not more than fifty percent (50%) of the land within the right of way of high-tension power lines shall be included within a Conservation Area.

2.3.10.5 Conservation Areas shall abut existing open space land on adjacent parcels, including the North Augusta Greeneway, passive open space located in other subdivisions, public parks or properties owned by or leased to private land conservation organizations.

2.3.11 Natural Resource Protection-- A Conservation Subdivision shall comply with Article 9, Floodplain Management, and Article 10, Landscaping. In addition, the Conservation Subdivision shall comply with the following standards:

2.3.11.1 No Conservation Area shall be cleared, graded, filled or subject to construction. However, rights of way for Greeneways, Article 14, Streets, any streets needed to provide access to the proposed subdivision, and water, sewer, electric, or cable lines may be cleared. The width of rights of way for streets or Greeneways shall be restricted to the minimum as designated in §14.4.

2.3.11.2 No lot may be platted within woodlands located on highly erodible soils with slopes exceeding ten percent (10%).

The parcel area provides critical habitat for bottlebrush buckeye (Aesculus parviflora) and relict trillium (Trillium reliquum). Both of these are protected plant species mentioned in the Natural Resources section of the City's Comprehensive Plan (Chapter 8). The proposed development does not reach the boundary of this habitat as illustrated in the Critical Areas Assessment No. 47 completed in 2011 and attached to this staff report.

4) Parking

2.3.13 In order to encourage design flexibility, to preserve open space and to minimize impervious surfaces, a Conservation Subdivision shall not be subject to the minimum parking requirements of Article 12, Parking. A Conservation Subdivision shall be subject to the maximum parking requirements of Article 12. Table 12-1 Parking Requirements by Use does not assign a maximum number of vehicle spaces for single-family detached dwellings.

Parking will be accomplished through garages and driveways on individual lots. Further information regarding parking for any potential postal cluster boxes (if applicable) will be required for staff review of the preliminary plat.

5) Signage

Signage information is not required at Preliminary Plat, but is recommended. Signage will be reviewed per Section 13.8.2 by Staff.

13.8.2.c.i. Subdivision Entrance Signs
a. Applicability: this section applies to signage identifying a development and is located internal to and visible from the initial point of entry to the neighborhood.
b. The size, location and design of subdivision entrance signs shall be included on the approved preliminary plat. If a subdivision sign is requested after the plat has been approved it may be approved in accordance with this section.
c. If a Subdivision/Project Identification Sign is preferred within an existing subdivision or as part of a phased development, a "Master Signage Plan" shall be required.
d. Subdivision Identification Signs must meet the following:
   i. Not more than one (1) subdivision entrance sign shall be located at the entry to any subdivision as identified on the preliminary plat.
   ii. Shall be a monument sign not to exceed 32 sq. ft. or 5' in height.
   iii. If two (2) identical monument signs are used, they may not exceed sixteen (16) square feet each in size and four (4) feet in height and must be placed symmetrically on each side of an entry road.
   iv. Subdivision entrance signs may be located in the right of way within a required median but must be outside of the paved section of the roadway.
   v. Shall not be internally illuminated.

6) Street Design

Street types should be indicated on the preliminary and final subdivision plats, with the developer's Traffic Impact Analysis (TIA) serving as a guide for the number of trips.

Table 14-1 Street Design Criteria (Rev. 12-1-08; Ord. 2008-18)

		Local				Subcollector			Collector		Arterial	
	A	B	C	D	E	F	G	H	I	J	K	L
	Design Factor	Alley	Lane	Small Street	Street	Large Street	Rural Street	Boulevard Street	Collector 1	Collector 2	Arterial 1	Arterial 2
1.	Right of Way (ft)	20	17-23	24-40	36-50	42-52	38	50-156	56-78	62-100	62-180	80-200
2.	Travel Lanes	1	1	2	2	2	2	2-4	2-4	4-6	4-6	4-7
3.	Parking Lanes	0	0	0-1	0-1	0-2	0	2	2	0-2	0	0
4.	Pavement Width (ft)	12	16-18	18-24	20-30	30-36	22	30-56	38-60	44-82	44-66	44-80
5.	Corner Radius (ft)	10	10	10	15	15	15	15	15	25	25	25
6.	Centerline Radius (ft)	50	90	90	90	100	100	250	600	500	1,000	1,000
7.	Drainage	SH	CG (SH) (SW)	CG (SH) (SW)	CG	CG	CG (SH) (SW)	CG	CG	CG	CG or SH	CG or SH
8.	Median	-	-	-	-	-	-	Yes	Yes	Yes	Yes	Yes
9.	Block Length (ft)	400	200	500	650	750	-	750	850	1,000	-	-
10.	Sidewalks	-	-	2	2	2	-	2	2	2	2	2
11.	Planting Strip (ft)	-	4	4	5	5	-	-	6	8	10	10
12.	Bike Lanes	-	-	-	-	-	Yes	-	Yes	Yes	Yes	Yes

13.	Trees	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14.	Grade (%)	6	8	12	12	12	15	8	8	8	8	8

The maximum block length permitted on a local street is 650 ft. The total road length for the proposed Big Pine Road extension is 1786 ft and Sommerhouse Branch Road is 1925 ft. Big Pine Road from the cul-de-sac to the intersection of Pinus Taeda Court is 988 ft. Sommerhouse Brand Road from the cul-de-sac to the intersection of Creek Court is 999 ft. ***The proposed block lengths will require a Planning Commission waiver****. Section 14.19.2 gives the Planning Commission permission to increase the length of a cul-de-sac to 1000 ft where natural features including topography, environmental constraints, and natural conditions preclude a connecting street design.*

Table 14-2, Street Design Criteria also requires 2 sidewalks (one on each side of the street) for local streets. With a 5 ft planting strip and street trees. The project Engineer has proposed a 7.5 ft planting strip to allow root zone space within the right-of-way for proper tree growth.

Street lighting will be reviewed per Section 14.16. in conjunction with Dominion Energy.

2.3.6.3 Lots within one-hundred (100) feet of a Conservation Area shall front on a Local Street, as defined in Article 14, Streets. Lots shall not front on a Collector or higher order street.

2.3.7 A Conservation Subdivision shall comply with Article 14, Streets, unless otherwise provided, and this subsection. The design of local streets shall comply with the standards for rural streets, as set forth in Article 14. The Connectivity Index for internal streets as set forth in Article 14 shall not apply to local streets within a Conservation Subdivision. The Connectivity Ratio is exempt for Conservation Subdivisions by Table 14-8 and does not require a waiver.

2.3.7.1 The Conservation Subdivision shall include a pedestrian circulation system designed to assure that pedestrians can walk safely and easily on the site, between properties and activities or special features within the neighborhood open space system, by complying with the standards set forth herein. All sidewalks shall connect to other sidewalks or with Greeneways, which in turn shall connect to potential areas qualifying as Conservation Areas on adjoining undeveloped parcels or with existing open space on adjoining developed parcels, where applicable.

2.3.7.2 Streets shall not cross wetlands or existing slopes exceeding fifteen percent (15%).

The proposed street design was laid out to minimize grading and avoid slopes to the extent practical. The two cul-de-sac design avoids additional stream crossings. The Shawnee Drive stubout has not been extended to the property due to the steep topography.

Final street name reservations will be required at the time of Planning Commission review of the Major Subdivision Preliminary Plat application.

7) Summary of Waivers

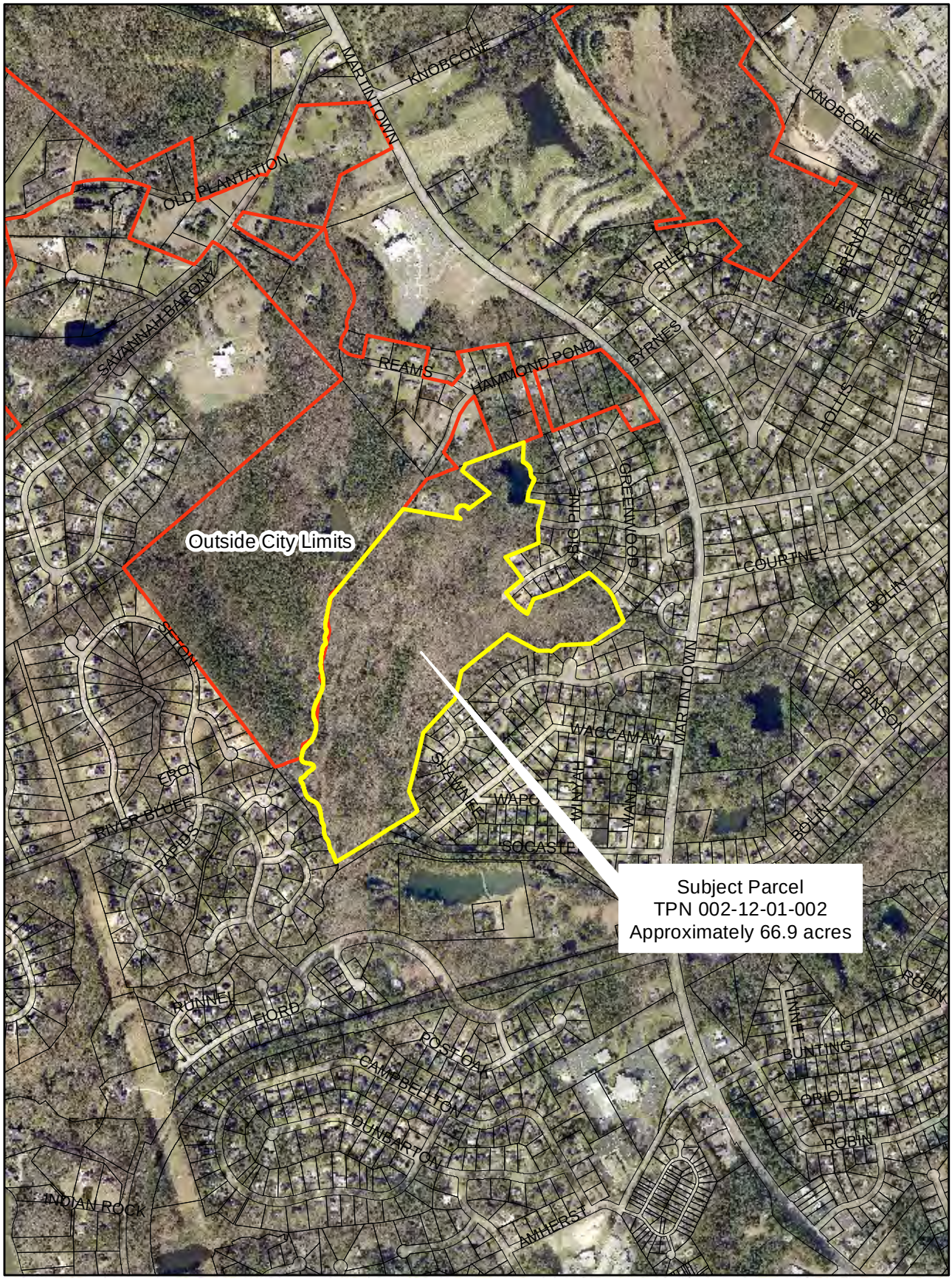
This list is of anticipated waivers required based on a preliminary review of the plans submitted for this Sketch Plan review. Additional waivers may be identified as more complete plans are developed. Waivers will be considered by the Planning Commission at the time of site plan approval.

- *Block Length*

SECTION 8: ATTACHMENTS

Site/Aerial Map
Topography Map
Current Zoning Map
Future Land Use Map
Application Documents
Sketch Plan
ANX91-05
Critical Areas Study Ph II Assessment No. 47

cc. Alexandra Reynolds, Johnson Laschober & Associates, via email
Jonathan Crawford, Southeastern Company, via email



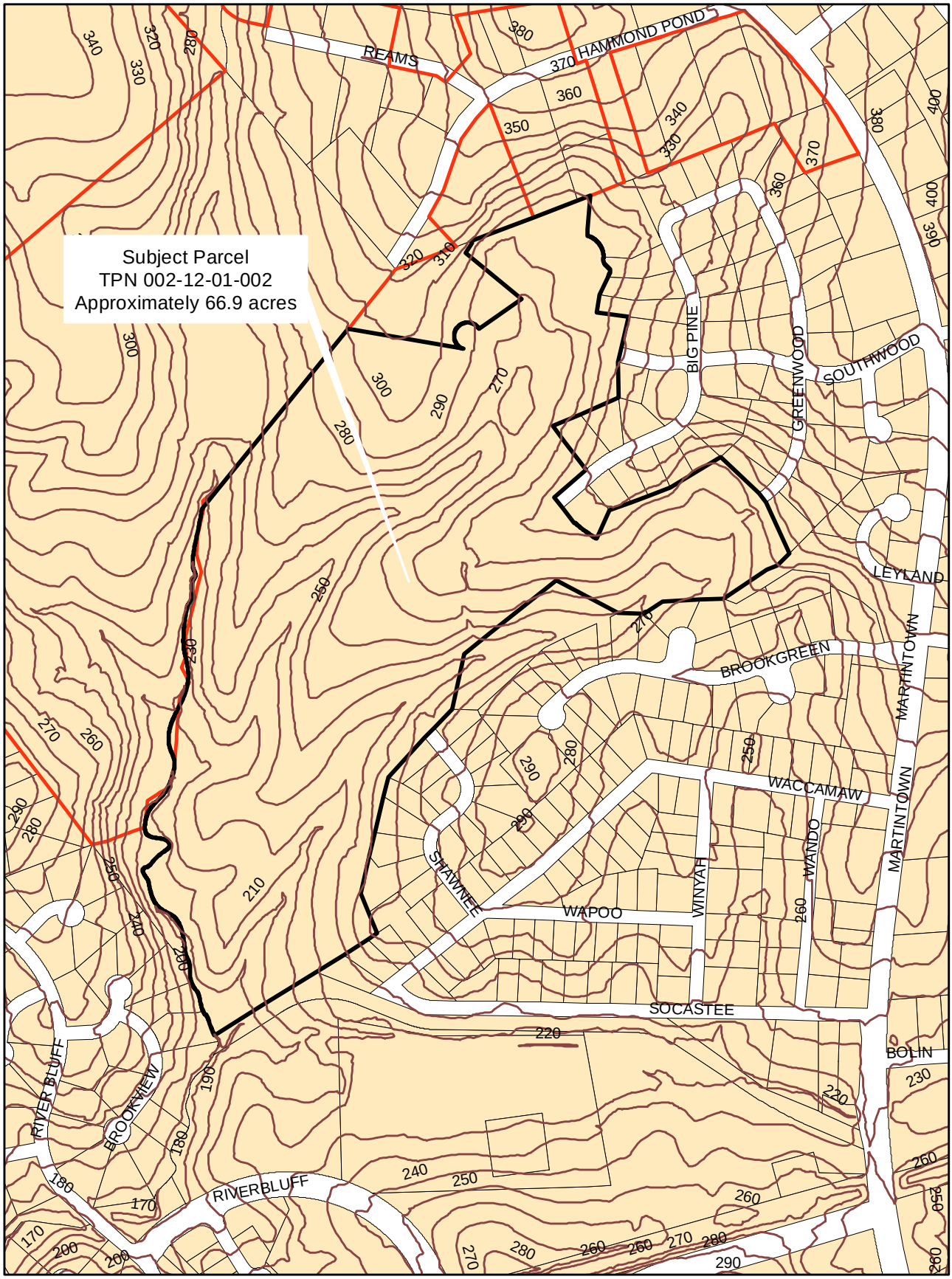
North Augusta
South Carolina's Riverfront

Aerial Map
Application CONPL21-002
TPN 002-12-01-002
Approximately 66.9 acres

N
W E
S

720 360 0 720 Feet

Date: 9/29/2021



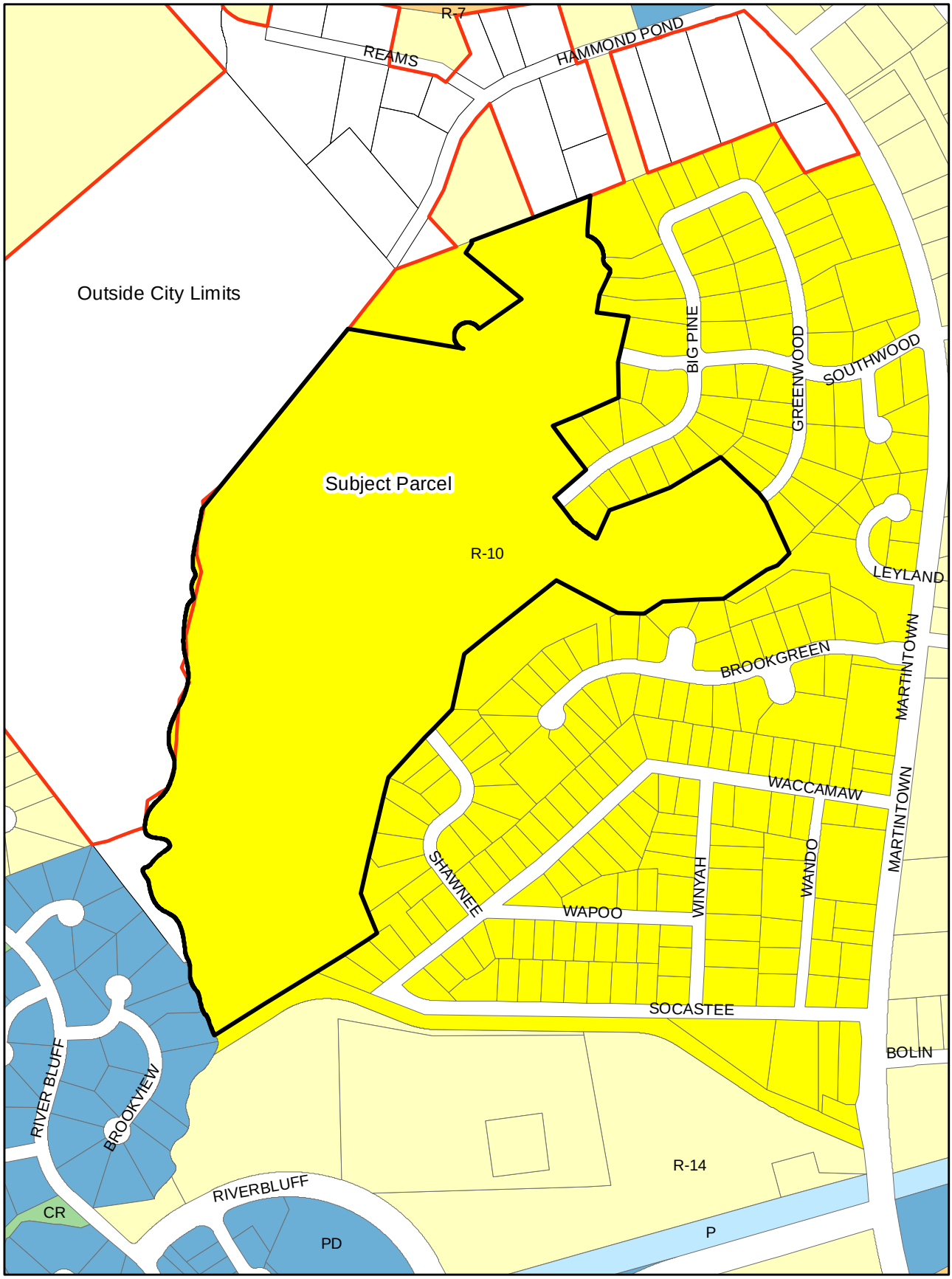
North Augusta
South Carolina's Riverfront

Topography Map
Application CONPL21-002
TPN 002-12-01-002
Approximately 66.9 acres

N
W E
S

360 180 0 360 Feet

Date: 9/29/2021



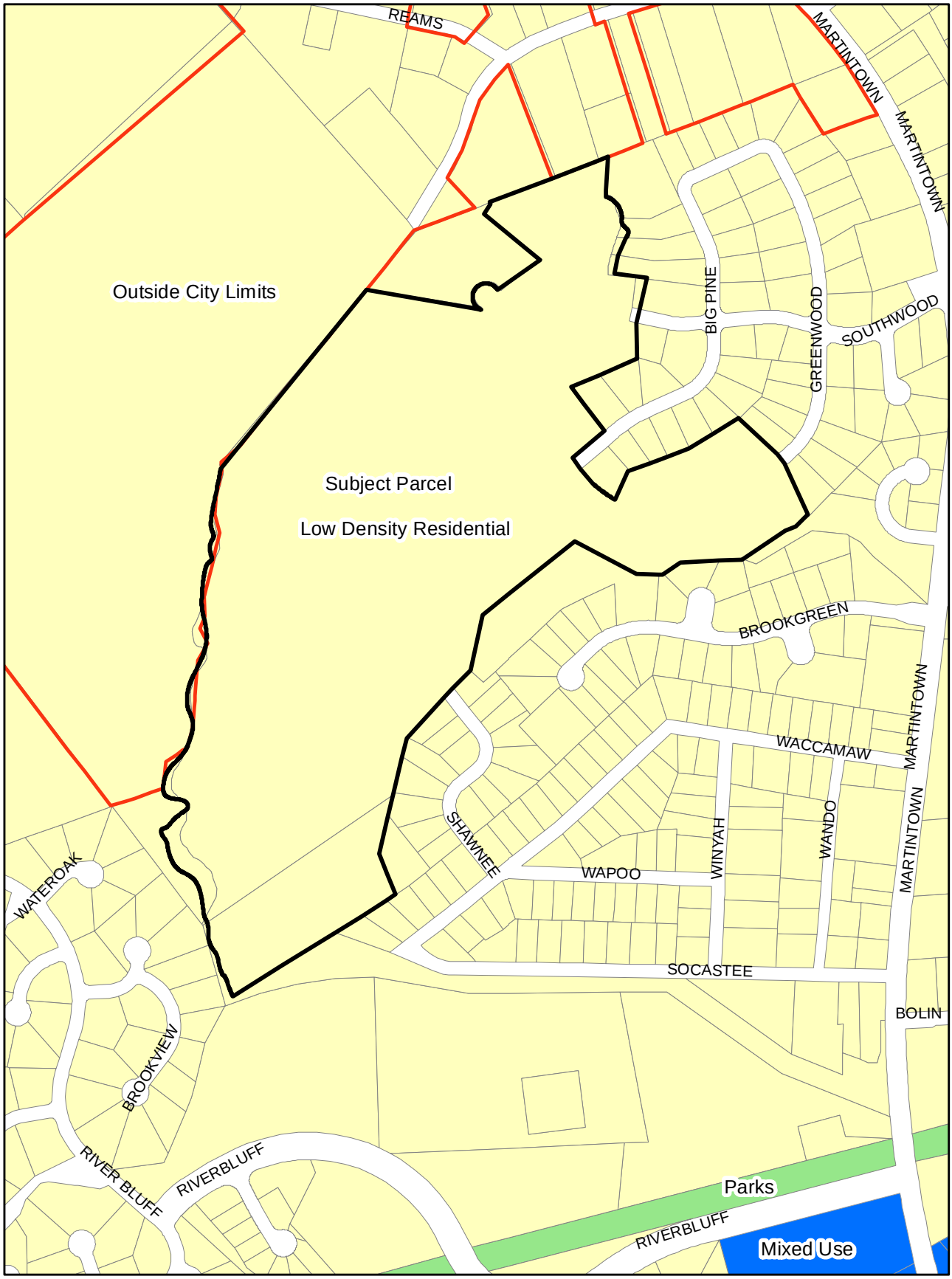
North Augusta
South Carolina's Riverfront

Zoning Map
Application CONPL21-002
TPN 002-12-01-002
Approximately 66.9 acres
R-10, Medium Lot,
Single-Family Residential

N
W E
S

360 180 0 360 Feet

Date: 9/29/2021



North Augusta
South Carolina's Riverfront

Future Land Use Map
Application CONPL21-002
TPN 002-12-01-002
Approximately 66.9 acres
Low Density Residential

N
W E
S

360 180 0 360 Feet

Date: 9/29/2021

Application for Development Approval

Please type or print all information

North Augusta
South Carolina's Riverfront

Staff Use	
Application Number _____	Date Received _____
Review Fee _____	Date Paid _____

1. **Project Name** BIG PINE NEIGHBORHOOD (NAME SUBJECT TO CHANGE)

   Project Address/Location BIG PINE ROAD (PARCEL BOUNDARY IS WHERE BIG PINE ROAD ENDS)

   Total Project Acreage 66.90 ACRES **Current Zoning** R-10

   Tax Parcel Number(s) 002-12-01-002

2. **Applicant/Owner Name** Jonathan Crawford **Applicant Phone** (706) 833-3585

   Mailing Address 2743 Perimeter Pkwy, Bldg 100, Ste 370

   City Augusta **ST** GA **Zip** 30909 **Email** jonathan.crawford@southeastern.company

3. **Is there a Designated Agent for this project?** ✓ **Yes** _____ **No**
   If Yes, attach a notarized Designation of Agent form. (required if Applicant is not property owner)

4. **Engineer/Architect/Surveyor** ALEXANDRA REYNOLDS **License No.** 1557

   Firm Name JOHNSON LASCHOBER + ASSOCIATES **Firm Phone** 706-724-5756

   Firm Mailing Address 1296 BROADSTREET

   City AUGUSTA **ST** GA **Zip** 30901 **Email** AREYNOLDS@THEJLAGROUP.COM

   Signature A. W. Reynolds **Date** 9-28-2021

5. Is there any recorded restricted covenant or other private agreement that is contrary to, conflicts with or prohibits the use or activity on the property that is the subject of the application?
   (Check one.) _____ yes ✓ no

6. In accordance with Section 5.1.2.3 of the North Augusta Development Code, I hereby request the City of North Augusta review the attached project plans. The documents required by the City of North Augusta, as outlined in Appendix B of the North Augusta Development Code, are attached for the City's review for completeness. The applicant acknowledges that all required documents must be correct and complete to initiate the compliance review process.

7. Jonathan M. Crawford
   Applicant or Designated Agent Signature

   9/28/21
   Date

   Jonathan M. Crawford
   Print Applicant or Agent Name

Designation of Agent

Please type or print all information

North Augusta
South Carolina's Riverfront

This form is required if the property owner is not the applicant.

Staff Use Only

Application Number _____ Date Received _____

1. Project Name BIG PINE NEIGHBORHOOD (NAME SUBJECT TO CHANGE)

   Project Address/Location BIG PINE ROAD (PARCEL BOUNDARY IS WHERE BIG PINE ROAD ENDS)

   Project Parcel Number(s) 002-12-01-002

2. Property Owner Name Maria S. Ditty Owner Phone 706 829 5553

   Mailing Address 804 Big Pine Rd

   City North Augusta ST SC Zip 29841 Email doowah2@comcast.net

3. Designated Agent JONATHAN CRAWFORD

   Relationship to Owner REAL ESTATE AGENT

   Firm Name SOUTHEASTERN Phone 706-854-6738

   Agent's Mailing Address 2743 PERIMETER PARKWAY BUILDING 100 SUITE 370

   City AUGUSTA ST GA Zip 30909 Email JONATHAN.CRAWFORD@SOUTHEASTERN.COMPANY

   Agent's Signature Jonathan M. Crawford Date 9/28/21

4. I hereby designate the above-named person (Line 3) to serve as my agent and represent me in the referenced application.

   Maria S Ditty
   Owner Signature

   Sept. 28, 2021
   Date

5. Sworn and subscribed to before me on this 28 day of September, 2021.

   Tandji Simmons
   Notary Public

   November 9, 2027
   Commission Expiration Date

MERIT COMMERCIAL HOLDINGS
506 THOMPKINS LANE EVANS, GA 30809

BIG PINE NEIGHBORHOOD

BIG PINE ROAD NORTH AUGUSTA, SC

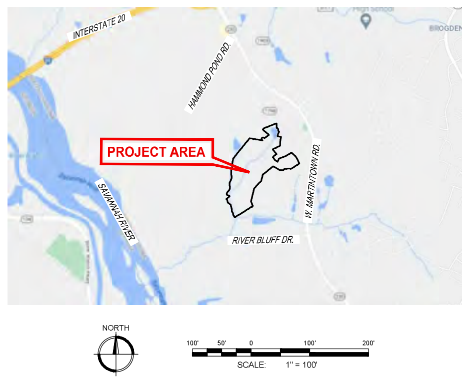
DRAWING INDEX

DWG.	DESCRIPTION
CG001	COVER SHEET
CV001	EXISTING CONDITIONS PLAN SHEET 1 OF 2
CV002	EXISTING CONDITIONS PLAN SHEET 2 OF 2
PC001	PRELIMINARY CONCEPT PLAN SHEET 1 OF 2
PC002	PRELIMINARY CONCEPT PLAN SHEET 2 OF 2
PC003	SOIL MAP

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

UTILITY WARNING:
The underground utilities shown have been located from field survey information and existing drawings. The engineer makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The engineer further does not warrant that the underground utilities shown are in the exact location indicated although he does certify that they are located as accurately as possible from information available. The engineer has not physically located the underground utilities.

LOCATION MAP



PROJECT DATA

OWNER (PRIMARY PERMITEE):
MERIT COMMERCIAL HOLDINGS
DAN HOLLOWAY
506 THOMPKINS LANE
EVANS, GA 30809
PHONE: (706) 231-8400
EMAIL: JDHOLLOWAY@MERITFLOOR.COM

OWNER'S REP/24 HOUR CONTACT:
JOHNSON, LASCHOBER & ASSOCIATES, P.C.
RETT HARBESON, PLA
1296 BROAD STREET
AUGUSTA, GA 30901
PHONE: (706) 724-5756
EMAIL: rharbeson@thejlagroup.com

ZONING: R-10, MEDIUM LOT SINGLE FAMILY RESIDENTIAL

TAX PARCEL #: 002-12-01-002

TOTAL AREA: 66.90 ACRES

CONSTRUCTION TYPE: RESIDENTIAL SUBDIVISION

PROPERTY COORDINATES: 33.5241° N, -81.9840° W

DISTURBED AREA: 32.27 ACRES

SKETCH PLAN REVIEW ITEMS

ITEM A- APPLICATION FOR DEVELOPMENT APPROVAL
SUBMITTED WITH THIS SET OF DRAWINGS

ITEM B- REQUIRED $100.00 FEE
SUBMITTED WITH THIS SET OF DRAWINGS

ITEM C- EXECUTED DESIGNATION OF AGENT FORM
SUBMITTED WITH THIS SET OF DRAWINGS

ITEM D- TYPE OF PROJECT ANTICIPATED
THE PROPERTY IS PROPOSED TO BE DEVELOPED INTO A NEIGHBORHOOD CONTAINING 122 LOTS THAT ARE EACH 10,000 SF OR LARGER.

ITEM E- LOCATION MAP
SEE DRAWING CG001

ITEM F- SITE ANALYSIS AND DEVELOPMENT RECOMMENDATIONS REPORT PER 6.1.1
SHEETS CV001 AND CV002 SHOW EXISTING SITE CONDITIONS. ALL REFERENCED ORDINANCES ARE FROM THE NORTH AUGUSTA DEVELOPMENT CODE. BELOW ARE DESCRIPTIONS OF EACH FEATURE:

SITE LOCATION:
THE SITE IS LOCATED AT THE DEAD END OF BIG PINE ROAD IN NORTH AUGUSTA'S CHANTICLEER NEIGHBORHOOD.

GEOLOGY AND SOILS:
SEE DRAWING PC003 FOR THE SOILS MAP. THERE ARE THREE TYPES OF SOILS PRESENT ON THE PROPERTY: HIAWASSEE, TROUP, AND VAUCLUSE. HIAWASSEE SOILS ARE WELL DRAINED WITH MEDIUM TO RAPID SURFACE RUN OFF AND MODERATE PERMEABILITY. TROUP SOILS ARE VERY DEEP SOMEWHAT EXCESSIVELY DRAINED AND HAVE MODERATE TO RAPID PERMEABILITY. VAUCLUSE SOILS ARE WELL DRAINED WITH HIGH TO VERY HIGH SURFACE RUNOFF AND MODERATE TO SLOW PERMEABILITY.

TOPOGRAPHY:
SLOPES ON THE SITE RANGE FROM 0-24% THE STEEPEST SLOPES HAVE BEEN AVOIDED AS MUCH AS IS PRACTICAL IN ACCORDANCE WITH 6.1.3.2.

WETLAND AND WATER FEATURES:
TWO WETLANDS ARE ON THE NORTH OF THE SITE. THERE WILL BE NO DEVELOPMENT NEAR THESE TWO WETLANDS. THREE STREAMS RUN THROUGH THE PROPERTY. A 25' BUFFER PER 6.2.2.2.a.1 IS SHOWN ON EACH SIDE OF EACH STREAM AND NO LAND DISTURBANCE WILL OCCUR IN THIS BUFFER. FEMA FIRMETTE MAPS SHOW A FLOODPLAIN AT THE SOUTH OF THE PROPERTY. THERE ARE NO HOMES PLANNED TO BE NEAR THE FLOOD PLAIN. THE ONLY DEVELOPMENT NEAR THE FLOODPLAIN IS THE 2.57 ACRE DETENTION POND WHICH IS LOCATED OUTSIDE OF THE LIMITS OF THE FLOORPLAIN.

EXISTING VEGETATION:
THE SITE IS WOODED WITH A MIX OF PINE AND HARDWOODS.

STRUCTURES:
NO EXISTING STRUCTURES ARE PRESENT ON THE PROPERTY. PLANNED STRUCTURES ARE 122 HOUSES AROUND 2,100 SF (35' X 60').

VISUAL AND VIEW FEATURES:
THE NEIGHBORHOOD IS PLANNED TO BE A CONSERVATION SUBDIVISION. 101 / 122 OF THE PLANNED PROPERTIES ABUT A CONSERVATION AREA AND HAVE DIRECT VIEWS AND ACCESS.

OTHER ENVIRONMENTAL CHARACTERISTICS:
THERE ARE NONE KNOWN.

ROAD NETWORKS:
EXISTING ROADS- THE PROPERTY CURRENTLY HAS AN EXISTING DRIVEWAY FROM THE END OF EXISTING BIG PINE ROAD TO PARCEL 002-12-01-032. THIS DRIVEWAY CROSSES ONE OF THE STREAMS. THE LOCATION OF THIS STREAM CROSSING IS PLANNED TO BE IMPROVED AND USED AS THE CROSSING LOCATION FOR THE PROPOSED SOMMERHOUSE BRANCH ROAD.

PROPOSED ROADS- ROADS WERE LAID OUT TO MINIMIZE GRADING AND AVOID STEEP SLOPES AND SENSITIVE AREAS. THIS RESULTED IN SOMMERHOUSE BRANCH ROAD AND BIG PINE ROAD ENDING IN CUL-DE-SACS. THESE TWO STREETS CANNOT BE CONNECTED TOGETHER BECAUSE IT WOULD NECESSITATE ANOTHER STREAM CROSSING. THE EXISTING SHAWNEE DRIVE CANNOT BE CONNECTED TO THE PROPOSED EXTENSION OF BIG PINE ROAD BECAUSE OF THE SIGNIFICANT STEEP TOPOGRAPHY AT THE END OF SHAWNEE DRIVE.

ITEM F CONTINUED
PAST, PRESENT, AND PROPOSED USES OF THE SITE:
PAST- UNDEVELOPED WOODLAND
PRESENT- UNDEVELOPED WOODLAND
FUTURE- CONSERVATION SUBDIVISION WITH ±32.27 ACRES (48.27%) DEVELOPED AREA AND ±34.63 ACRES (51.76%) UNDISTURBED CONSERVATION AREA

ITEM G- CURRENT ZONING, TYPICAL LOT AREA, WIDTH, DEPTH, YARD SETBACKS, BUILDING COVERAGE, OPEN SPACE, PARKING, ETC.
CURRENT ZONING: R-10, MEDIUM LOT SINGLE FAMILY
TYPICAL LOT AREA: 10,000 SF MINIMUM
TYPICAL LOT WIDTH AND DEPTH: 50' X 200'
SETBACKS: 15' FRONT, 5' SIDE, 15' REAR
BUILDING COVERAGE: 21% PER LOT, (HOMES ANTICIPATED TO BE AROUND 2,100 (35' X 60'))
OPEN SPACE: ±34.63 ACRES (51.76% OF PROPERTY) THE PROJECT QUALIFIES AS A CONSERVATION SUBDIVISION
PARKING: EACH LOT WILL ACCOMMODATE AT LEAST 2 VEHICLES

ITEM H- ANTICIPATED USES
THE PROPERTY WILL BE A NEIGHBORHOOD WITH 122 HOMES. THE PROPERTY WILL ALSO BE A CONSERVATION SUBDIVISION. THE PROPERTY AREAS ARE AS FOLLOWS:

±34.63 ACRES CONSERVATION AREA (51.76%)
±4.57 ACRES PUBLIC RIGHT OF WAY (6.83%)
±27.70 ACRES PRIVATE PROPERTY (41.41%)

ITEM I- GENERAL LOCATION AND SIZE OF EXISTING OR PROPOSED STRUCTURES AND STREETS
PLEASE SEE DRAWINGS PC001 AND PC002.

ITEM J- ANY EXISTING OR PROPOSED EASEMENTS OR LAND RESERVED FOR OR DEDICATED TO PUBLIC USE
THERE IS A 20' EASEMENT PROPOSED TO EACH OF THE DETENTION PONDS. THERE IS ALSO A 14' DRIVEWAY EASEMENT PROPOSED TO FOR THE USE OF THE OWNER OF PARCEL 002-12-01-032.

PROPOSED PUBLIC RIGHT OF WAY WILL BE ±4.57 ACRES CONTAINING 4,006 LINEAR FEET OF ROAD.

SEE SHEETS PC001 AND PC002 FOR THE PROPOSED EASEMENTS AND ROADS.

ITEM K- GENERAL LOCATION OF EXISTING STREETS, WATER COURSES, FLOODPLAINS, WETLANDS OR OTHER SENSITIVE AREAS, GENERAL LOCATION OS RIGHTS OF WAY OR EASEMENTS ON AND WITHIN 200 FEET OF THE TRACT
SEE SHEETS CV001 AND CV002.

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WWW.THEJLAGROUP.COM

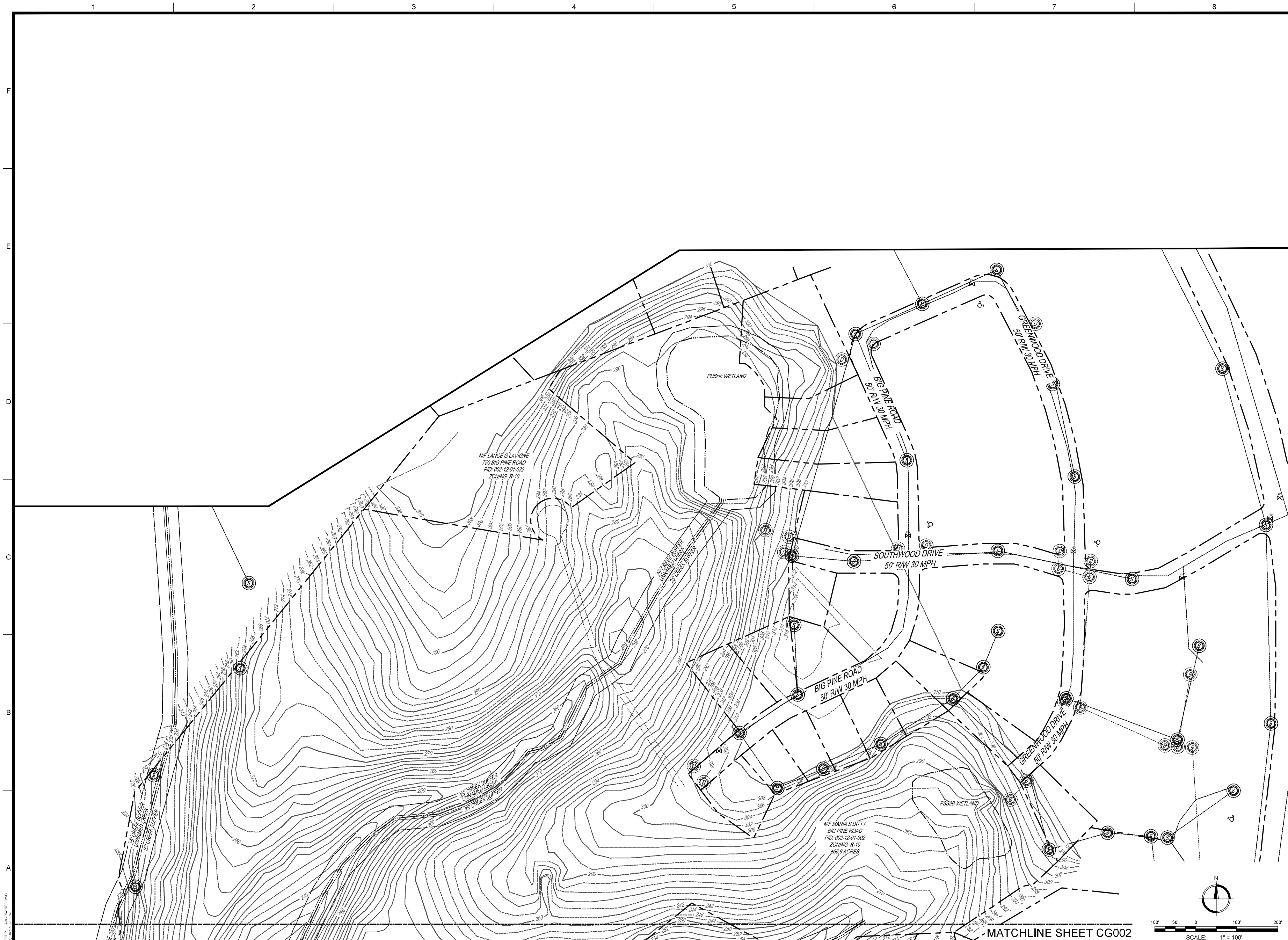
CLIENT: MERIT COMMERCIAL HOLDINGS
506 THOMPKINS LANE EVANS, GA 30809

PROJECT NAME: BIG PINE ROAD NEIGHBORHOOD

PROJECT LOCATION: BIG PINE ROAD NORTH AUGUSTA, SC 29841

REV	DATE	BY	DESCRIPTION
B	09/27/21	RDH	ISSUED FOR NORTH AUGUSTA SKETCH PLAN REVIEW
A	09/13/21	RDH	ISSUED FOR CLIENT REVIEW

PROJECT NO.	2021 PZL 243
DRAWN BY :	AWR
CHECKED BY :	RDH
DATE:	09/09/2021
SHEET TITLE :	COVER SHEET
SCALE:	NO SCALE
DRAWING NO.	CG001
REV.	B



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PROJECT NO.	2021 PZL 243
DRAWN BY :	AWR
CHECKED BY :	RDH
DATE:	09/09/2021

SHEET TITLE :
EXISTING CONDITIONS PLAN SHEET 1 OF 2

SCALE: 1" = 100'

DRAWING NO. **CV001** REV. **B**

CLIENT:
MERIT COMMERCIAL HOLDINGS
506 THOMPKINS LANE EVANS, GA 30809

PROJECT NAME:
BIG PINE ROAD NEIGHBORHOOD

PROJECT LOCATION:
BIG PINE ROAD NORTH AUGUSTA, SC 29841

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PROJECT NO.	2021 PZL 243
DRAWN BY :	AWR
CHECKED BY :	RDH
DATE:	09/09/2021

SHEET TITLE :
EXISTING CONDITIONS PLAN SHEET 2 OF 2

SCALE: 1" = 100'

DRAWING NO. **CV002** REV. **B**

P:\Proposals\PZL2021\PZL243 Big Pine Road Residential Development\JLA-PROPOSED.dwg Plotted:9/28/2021 3:58 PM By:Alexandra Reynolds

PROPERTY SETBACK REQUIREMENTS

REQUIREMENTS ARE PER TABLE 3-3 OF THE NORTH AUGUSTA DEVELOPMENT CODE

PROPERTY ZONING: R-10, MEDIUM LOT SINGLE FAMILY RESIDENTIAL

MINIMUM LOT SIZE: 10,000 SF

MAXIMUM GROSS DENSITY: 4.5 DWELLING UNITS / GROSS ACRE

MAXIMUM IMPERVIOUS SURFACE RATIO: 0.3

MINIMUM LOT FRONTAGE: 40'

MINIMUM LOT WIDTH: 50'

MAXIMUM BUILDING HEIGHT: 35'

MINIMUM FRONT BUILDING SETBACK: 15'

MINIMUM SIDE BUILDING SETBACK: 5'

MINIMUM REAR BUILDING SETBACK: 15'

STREET DESIGN CRITERIA

REQUIREMENTS ARE PER TABLE 14-2 OF THE NORTH AUGUSTA DEVELOPMENT CODE

DESIGN FACTOR: LOCAL STREET

RIGHT OF WAY ALLOWED: 36-50'
RIGHT OF WAY SHOWN ON PLAN: 50'

TRAVEL LANES: 2

PARKING LANES ALLOWED: 0-1

PAVEMENT WIDTH ALLOWED: 20-30'
PAVEMENT WIDTH SHOWN ON PLAN: 24'

MINIMUM CORNER RADIUS: 15'

MINIMUM CENTERLINE RADIUS: 90'

CURB AND GUTTER REQUIRED

MAXIMUM BLOCK LENGTH: 650'

SIDEWALKS: BOTH SIDES OF STREET, MIN. 5' WIDTH EACH

PLANTING STRIP: 4' MINIMUM
PLANTING STRIP SHOWN ON PLAN: 7.5'
(ALLOWS MAXIMUM ROOT ZONE SPACE WITHIN THE RIGHT-OF-WAY FOR THE REQUIRED STREET TREES)

BIKE LANES: NOT REQUIRED

STREET TREES: REQUIRED

MAXIMUM STREET GRADE: 12%

14.19.2: THE PERMISSIBLE LENGTH OF A CUL-DE-SAC OR CLOSE MAY BE INCREASED TO A MAXIMUM OF 1,000' WHERE THE PLANNING COMMISSION FINDS THAT NATURAL FEATURES, INCLUDING TOPOGRAPHY, ENVIRONMENTAL CONSTRAINTS, OR OTHER NATURAL CONDITIONS, OR PARCEL CONNECTIONS OR CONFIGURATION PRECLUDE A CONNECTING STREET DESIGN.

CONSERVATION SUBDIVISION REQUIREMENTS

THE FOLLOWING APPLICABLE STANDARDS AND REQUIREMENTS ARE PER ARTICLE 2.3 OF THE NORTH AUGUSTA DEVELOPMENT CODE

2.3.5.2: IN ORDER TO PROVIDE UNDIVIDED OPEN SPACE, DIRECT VIEWS AND ACCESS, NOT LESS THAN 40% OF THE LOTS WITHIN A CONSERVATION SUBDIVISION SHALL ABUT A CONSERVATION AREA

2.3.7: THE CONNECTIVITY INDEX FOR INTERNAL STREETS AS SET FORTH IN ARTICLE 14 SHALL NOT APPLY TO LOCAL STREETS WITHIN A CONSERVATION SUBDIVISION

2.3.7.2: STREETS SHALL NOT CROSS WETLANDS OR EXISTING SLOPES EXCEEDING 15%*

*THIS PLAN INCLUDES ONE STREAM CROSSING. THIS CROSSING IS ALREADY IN EXISTENCE AND IS ALONG THE CURRENT PAVED DRIVEWAY TO 750 BIG PINE ROAD.

2.3.10.3: A MINIMUM OF 40% OF THE TOTAL TRACT AREA SHALL BE DESIGNATED AS CONSERVATION AREAS

2.3.10.4: STORMWATER DETENTION PONDS MAY BE INCLUDED AS PART OF A CONSERVATION AREA

2.3.11.1:
NO CONSERVATION AREA SHALL BE CLEARED, GRADED, FILLED, OR SUBJECT TO CONSTRUCTION.

HOWEVER RIGHTS OF WAY FOR GREENEWAYS, ARTICLE 14, STREETS, ANY STREETS NEEDED TO PROVIDE ACCESS TO THE PROPOSED SUBDIVISION, AND WATER, SEWER, ELECTRIC, OR CABLE LINES MAY BE CLEARED.

THE WIDTH OF RIGHTS OF WAY FOR STREETS OR GREENEWAYS SHALL BE RESTRICTED TO THE MINIMUM AS DESIGNATED IN ARTICLE 14.4*

*50' R/W WAS UTILIZED TO PROVIDE A LARGER PLANTING MEDIAN TO BETTER ACCOMMODATE THE REQUIREED STREET TREES

2.3.11.2: NO LOT MAY BE PLATTED WITHIN WOODLANDS LOCATED ON HIGHLY ERODIBLE SOILS WITH SLOPES EXCEEDING 10%

TRACT AREA

34.63 ACRES: CONSERVATION AREA (51.76%)
4.57 ACRES: PUBLIC RIGHT-OF-WAY (6.83%)
27.70 ACRES: PRIVATE PROPERTY (41.41%)
66.90 ACRES: TOTAL TRACT (100%)

PROPERTY DOES MEET THE 40% MINIMUM CONSERVATION AREA REQUIREMENT

LOT COUNT

59 LOTS: BIG PINE ROAD EXTENSION
3 LOTS: PINUS TAEDA COURT
50 LOTS: SOMMERHOUSE BRANCH ROAD
122 LOTS: TOTAL

*FINAL ROAD NAMES TO BE CHANGED PER OWNERS DESIRE AND APPROVED BY NORTH AUGUSTA GIS/ADDRESSING STAFF

ROAD LENGTH

1786' BIG PINE ROAD EXTENSION
51' PINUS TAEDA COURT
244' PINUS PALUSTRIS COURT
1925' SOMMERHOUSE BRANCH ROAD

4,006' TOTAL ROAD LENGTH

STORMWATER DETENTION

TWO PONDS WILL BE USED TO DETAIN STORMWATER:

1.14 ACRES: POND 1
2.23 ACRES: POND 2
3.37 ACRES: TOTAL STORMWATER POND AREA:

HOMES ABUTTING CONSERVATION AREAS

57 / 59 LOTS: BIG PINE ROAD EXTENSION
3 /3 LOTS: PINUS TAEDA COURT
41 / 50 LOTS: SOMMERHOUSE BRANCH ROAD
101 / 122 LOTS: TOTAL

101 x 100 = 10100 / 122 = 82.76% OF LOTS ABUT A CONSERVATION AREA

PER 2.3.5.2 A MINIMUM OF 40% OF LOTS WITHIN A CONSERVATION SUBDIVISION SHALL ABUT A CONSERVATION AREA. THIS REQUIREMENT IS EXCEEDED.

SOIL CHARACTERISTICS

SOILS PRESENT ON THE PROPERTY:

HIAWASSEE- WELL DRAINED SOIL WITH MEDIUM TO RAPID SURFACE RUNOFF AND MODERATE PERMEABILITY

TROUP- VERY DEEP SOMEWHAT EXCESSIVELY DRAINED SOIL WITH MODERATE TO RAPID PERMEABILITY

VAUCLUSE- WELL DRAINED SOIL WITH HIGH TO VERY HIGH SURFACE RUNOFF AND MODERATE TO SLOW PERMEABILITY

NOTES

THE MAXIMUM BLOCK LENGTH STANDARD OF 650' IS EXCEEDED ON SOMMERHOUSE BRANCH ROAD. THIS IS DUE TO USING THE EXISTING STREAM CROSSING LOCATION TO REDUCE ENVIRONMENTAL DAMAGE TO THE PROPERTY. THE BLOCK LENGTH BETWEEN THE INTERSECTION OF BIG PINE ROAD AND SOMMERHOUSE BRANCH ROAD AND THE INTERSECTION OF SOMMERHOUSR BRANCH ROAD AND PINUS PALUSTRIS COURT IS 926'.

REGARDING REQUIREMENT 14.19.2:

SOMMERHOUSE BRANCH ROAD FROM ITS CUL-DE-SAC TO THE INTERSECTION OF CREEK COURT IS 999'. THIS IS WITHIN THE REQUIREMENT OF 14.19.2 BUT DOES REQUIRE PLANNING COMMISSION APPROVAL.

BIG PINE ROAD FROM ITS CUL-DE-SAC TO THE INTERSECTION OF PINUS TAEDA COURT IS 988'. THIS IS WITHIN REQUIREMENT 14.16.2 BUT DOES REQUIRE PLANNING COMMISSION APPROVAL.

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PROJECT NAME: **BIG PINE ROAD NEIGHBORHOOD**

PROJECT LOCATION: BIG PINE ROAD NORTH AUGUSTA, SC 29841

REV	DATE	BY	DESCRIPTION
B	09/27/21	RDH	ISSUED FOR NORTH AUGUSTA SKETCH PLAN REVIEW
A	09/13/21	RDH	ISSUED FOR CLIENT REVIEW

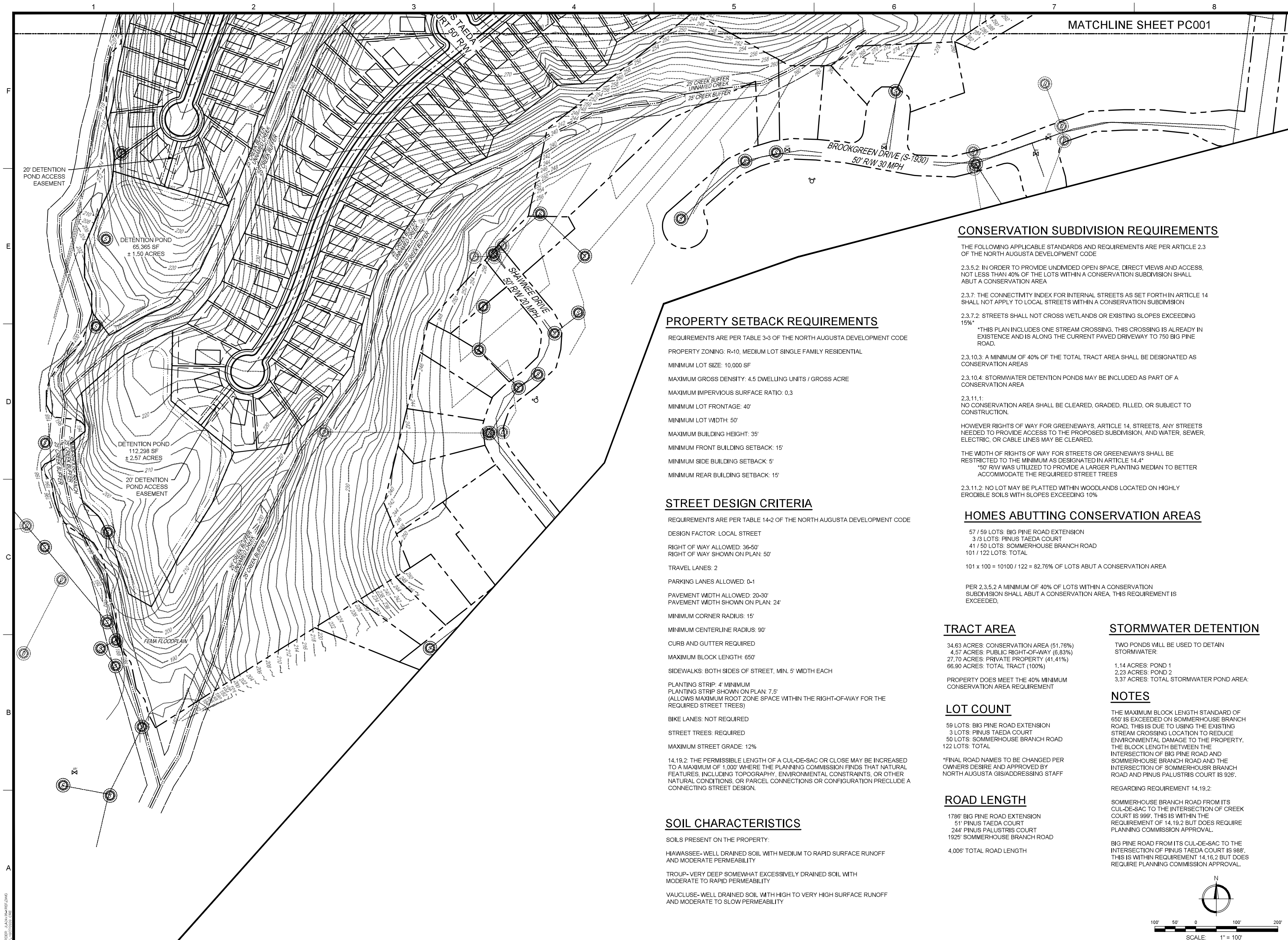
PROJECT NO.	2021 PZL 243
DRAWN BY :	AWR
CHECKED BY :	RDH
DATE:	09/09/2021

SHEET TITLE :
PRELIMINARY CONCEPT PLAN SHEET 1 OF 2

SCALE: 1" = 100'

DRAWING NO. **PC001** REV. **B**

P:\Proposals\PZL2021\PZL243 Big Pine Road Residential Development\JLA-PROPOSED.dwg Plotted:9/28/2021 3:58 PM By:Alexandra Reynolds



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REGARDING REQUIREMENT 14.19.2:

SOMMERHOUSE BRANCH ROAD FROM ITS CUL-DE-SAC TO THE INTERSECTION OF CREEK COURT IS 999'. THIS IS WITHIN THE REQUIREMENT OF 14.19.2 BUT DOES REQUIRE PLANNING COMMISSION APPROVAL.

BIG PINE ROAD FROM ITS CUL-DE-SAC TO THE INTERSECTION OF PINUS TAEDA COURT IS 988'. THIS IS WITHIN REQUIREMENT 14.16.2 BUT DOES REQUIRE PLANNING COMMISSION APPROVAL.

N

SCALE: 1" = 100'

JLA
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AUGUSTA, GA • CHARLESTON, SC
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FAX (706) 724-3955
WWW.THEJLAGROUP.COM

CLIENT: MERIT COMMERCIAL HOLDINGS
506 THOMPKINS LANE EVANS, GA 30809

PROJECT NAME: BIG PINE ROAD NEIGHBORHOOD

PROJECT LOCATION: BIG PINE ROAD NORTH AUGUSTA, SC 29841

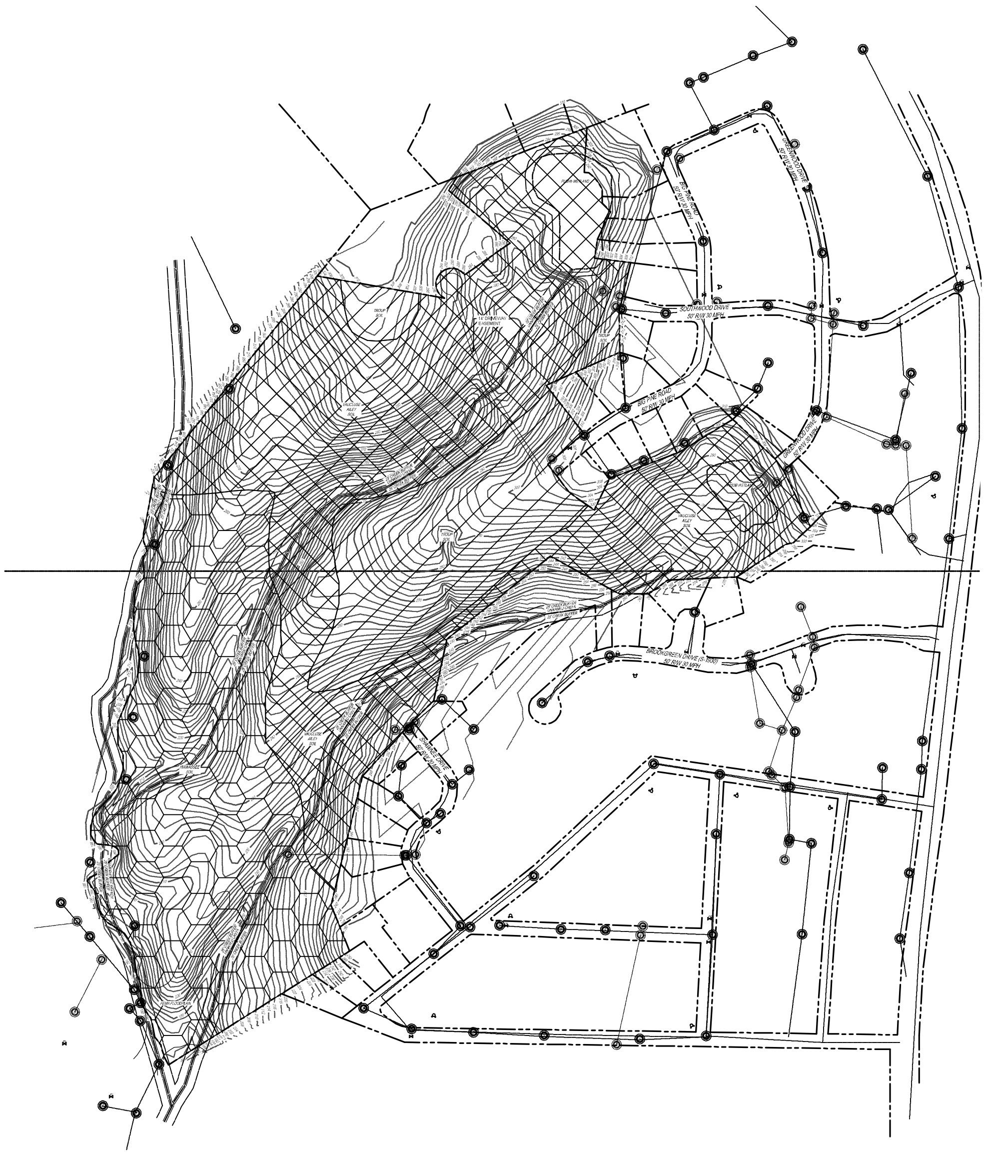
REV	DATE	BY	DESCRIPTION
B	09/27/21	RDH	ISSUED FOR NORTH AUGUSTA SKETCH PLAN REVIEW
A	09/13/21	RDH	ISSUED FOR CLIENT REVIEW

PROJECT NO.	2021 PZL 243
DRAWN BY:	AWR
CHECKED BY:	RDH
DATE:	09/09/2021

SHEET TITLE:
PRELIMINARY CONCEPT PLAN SHEET 2 OF 2

SCALE: 1" = 100'

DRAWING NO. PC002 REV. B



SOIL CHARACTERISTICS

SOILS PRESENT ON THE PROPERTY:

- HIAWASSEE- WELL DRAINED SOIL WITH MEDIUM TO RAPID SURFACE RUNOFF AND MODERATE PERMEABILITY
- TROUP- VERY DEEP SOMEWHAT EXCESSIVELY DRAINED SOIL WITH MODERATE TO RAPID PERMEABILITY
- VAUCLUSE- WELL DRAINED SOIL WITH HIGH TO VERY HIGH SURFACE RUNOFF AND MODERATE TO SLOW PERMEABILITY

N

200' 100' 0 200' 400'

SCALE: 1" = 200'

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CLIENT:
MERIT COMMERCIAL HOLDINGS
506 THOMPKINS LANE EVANS, GA 30809

PROJECT NAME:
BIG PINE ROAD NEIGHBORHOOD

PROJECT LOCATION:
BIG PINE ROAD NORTH AUGUSTA, SC 29841

REV	DATE	BY	DESCRIPTION
A	09/13/21	RDH	ISSUED FOR CLIENT REVIEW
B	09/27/21	RDH	ISSUED FOR NORTH AUGUSTA SKETCH PLAN REVIEW

PROJECT NO.	2021 PZL 243
DRAWN BY :	AWR
CHECKED BY :	RDH
DATE:	09/09/2021
SHEET TITLE :	SOIL MAP
SCALE:	1" = 200'
DRAWING NO.	PC003
REV.	B

P:\Proposals\PZL2021\PZL243 Big Pine Road Residential Development\JLA-PROPOSED.dwg Plotted:9/27/2021 11:42 AM By:Alexandra Reynolds

Tony

ORDINANCE NO. 91-05
TO CHANGE THE CORPORATE LIMITS OF THE CITY OF NORTH AUGUSTA
BY ANNEXING PROPERTY LOCATED ADJACENT TO
CHANTICLEER SUBDIVISION
OWNED BY BISHOP F. STRICKLAND

WHEREAS, Section 5-3-150 of the Code of Laws of the State of South Carolina provides that: "Any area or property which is contiguous to a city or town may be annexed to the city or town by filing with the municipal governing body a petition signed by seventy-five percent or more of the freeholders owning seventy-five percent or more of the assessed valuation of the real property in the area requesting annexation. Upon the agreement of the governing body to accept the petition and annex the area, and the enactment of an ordinance declaring the area annexed to the city or town, the annexation shall be complete;" and

WHEREAS, the Mayor and City Council of the City of North Augusta, by adoption of Resolution No. 91-03, dated March 4, 1991, wish to annex the below described property.

NOW, THEREFORE, BE IT ORDAINED by the Mayor and City Council of the City of North Augusta, South Carolina, in meeting duly assembled and by the authority thereof that:

I. The corporate limits of the City of North Augusta, South Carolina, shall be expanded by annexing the following property:

All those pieces, parcels, or tracts of land with improvements thereon, situate, lying and being in the County of Aiken, State of South Carolina, adjacent to the present City limits of North Augusta, containing 41.4 +/- acres, beginning at a point of intersection of the western right-of-way line of Big Pine Road and the present City limits, thence S 35° 39' W 2,750 +/- feet along said City limits line, thence N 50° 23' W 80 +/- feet, thence N 41° 51' E 161 +/- feet, thence N 7° 6' E 181.2 +/- feet, thence N 0° 40' E 287.7 +/- feet, thence N 5° 46' E 222.10 +/- feet, thence N 11° 9' E 122.3 +/- feet, thence N 0° 17' W 147.4 +/- feet, thence N 23° 32' E 175.1 +/- feet, thence N 38° 49' E 900.9 +/- feet, thence N 38° 49' E 129.6 +/- feet, thence N 68° 27' E 298.1 +/- feet, thence N 68° 27' E 240.41 +/- feet, thence N 68° 50' E 380.0 +/- feet, thence S 24° 44' E 236.02 +/- feet, thence S 24° 44' E approximately 230.0 +/- feet along the western right-of-way line of Big Pine Road to the point of beginning.

Said property is shown on a plat identified as Exhibit "A", entitled "Plat of Property Sought to be Annexed to the City of North Augusta, South Carolina," dated February, 1991. Said property is further identified on a plat entitled "Property Located in Northwest Section of North Augusta" prepared by Joe L. Grant, dated March, 1970, from which a more complete and accurate description of the metes, bounds, and location of the property can be determined.

Said property is identified by the following Tax Map Parcel Numbers and Plat Reference Numbers.

Plat Reference No.	Tax Map Parcel No.
1	00-008-01-918
2	00-008-01-024

II. In conformance with the City's Land Use & Development Plan, the property shall be zoned R-2, Single-Family Residential, under the official Zoning Ordinance of the City of North Augusta and shown on the official Zoning Map as same, as shown on a plat attached hereto marked Exhibit "B" entitled "Zoning of Property Sought to be Annexed to the City of North Augusta, South Carolina," dated February, 1991.

III. This Ordinance shall become effective immediately upon its adoption on third reading.

IV. All ordinances or parts of Ordinances in conflict herewith are, to the extent of such conflict, hereby repealed.

DONE, RATIFIED AND ADOPTED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF NORTH AUGUSTA, SOUTH CAROLINA, ON THIS 18th DAY OF March, 1991.

First Reading 3-4-91

Second Reading 3-4-91

Third Reading 3-18-91

Thomas W. Greene

Thomas W. Greene, Mayor

ATTEST:

Leona J. Lewis

Leona J. Lewis, City Clerk

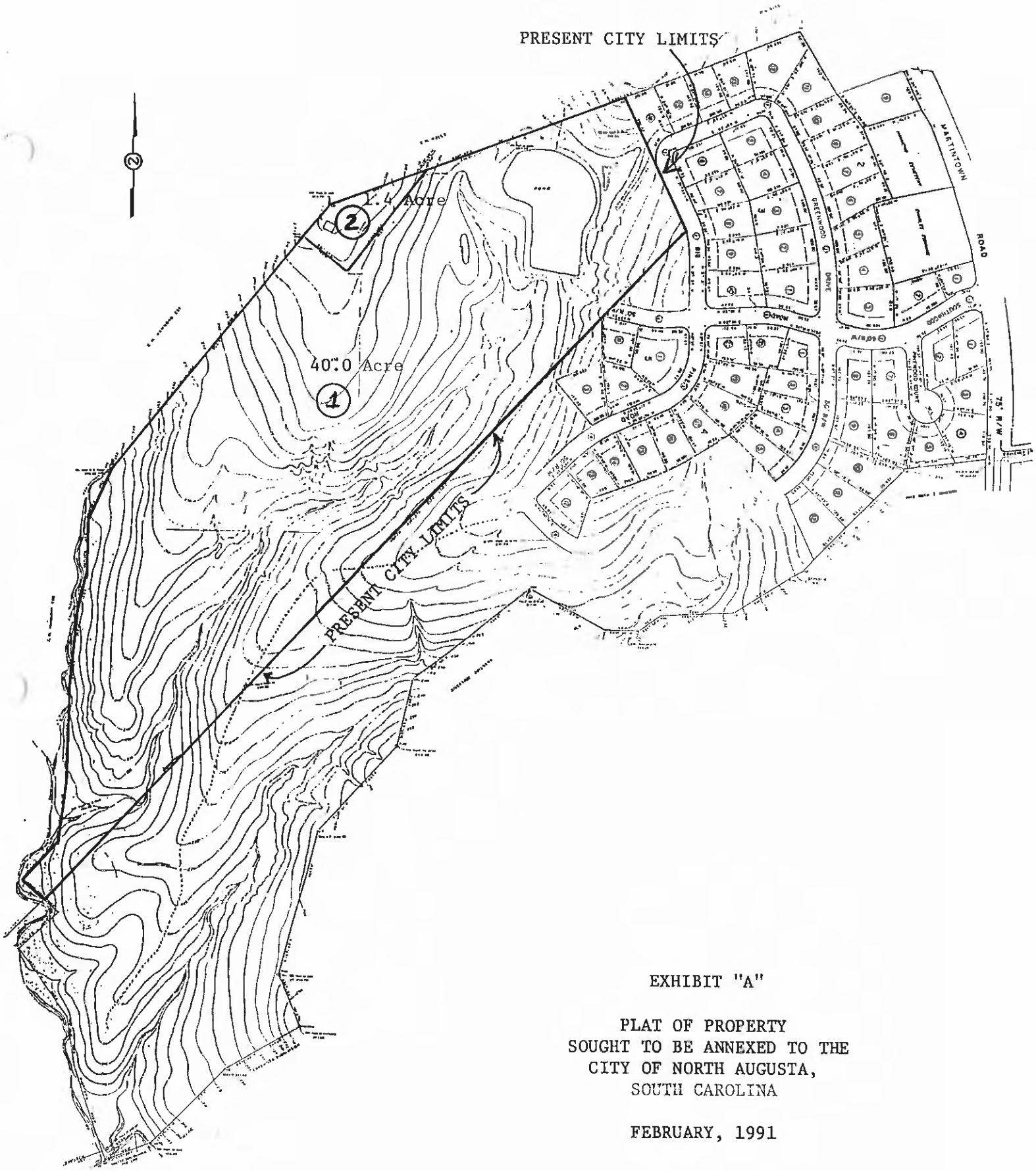


EXHIBIT "A"

PLAT OF PROPERTY
SOUGHT TO BE ANNEXED TO THE
CITY OF NORTH AUGUSTA,
SOUTH CAROLINA

FEBRUARY, 1991

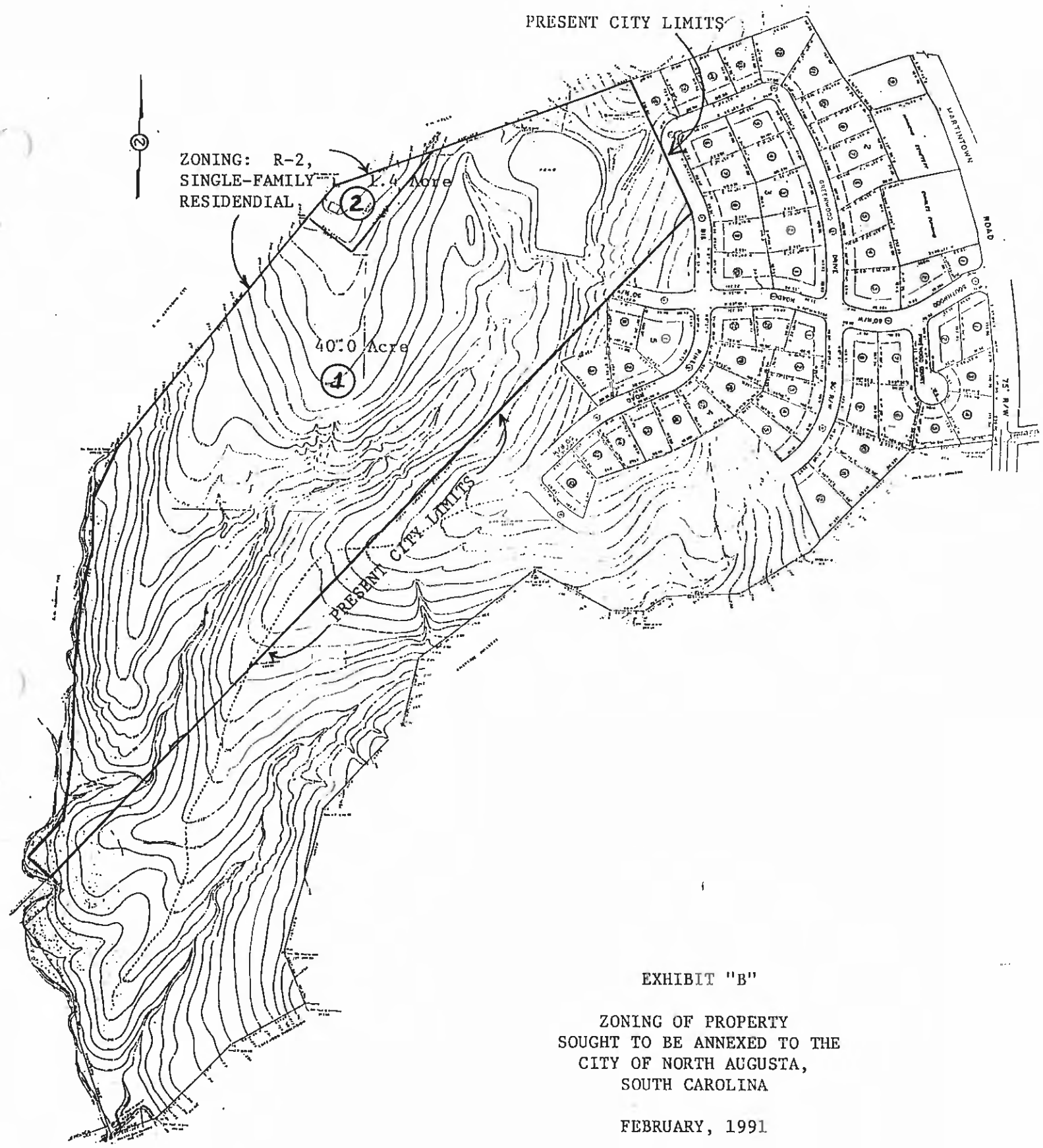


EXHIBIT "B"

ZONING OF PROPERTY
SOUGHT TO BE ANNEXED TO THE
CITY OF NORTH AUGUSTA,
SOUTH CAROLINA

FEBRUARY, 1991

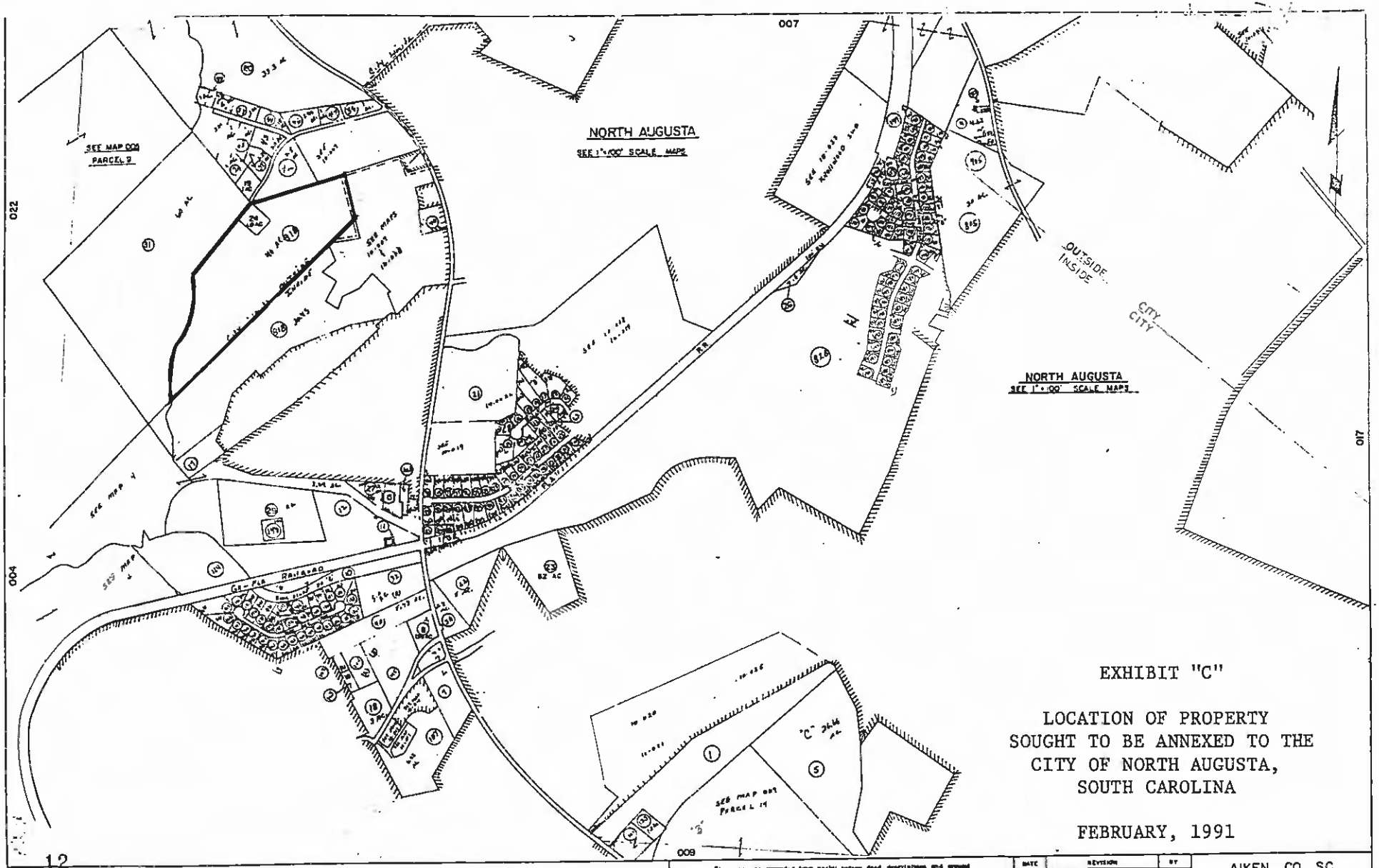


EXHIBIT "C"

LOCATION OF PROPERTY
SOUGHT TO BE ANNEXED TO THE
CITY OF NORTH AUGUSTA,
SOUTH CAROLINA

FEBRUARY, 1991

Parcel Number: 002-12-01-002

Description: This 61-acre parcel is zoned Medium Lot Single-Family Residential, and it is located southwest of the Chanticleer subdivision and northeast of The Rapids subdivision. There is a pond and associated wetland on the northeastern section of the property which receives seepage, as well as drainage from homes and streets in Chanticleer. The pond drains into a streambed which crosses under Big Pine Road and flows to the south to merge with two other streams that flow along the eastern and western boundaries (see figure). The stream along the east originates with a spring that is located near the end of Greenwood Drive. The stream along the west is drainage from Hammond Pond, which is located on the adjacent parcel (#002-12-01-001). The area provides critical habitat for bottlebrush buckeye (*Aesculus parviflora*) and relict trillium (*Trillium reliquum*). Both of these are protected plant species mentioned in the Natural Resources section of the City's Comprehensive Plan for growth and development (see section 8.7, page 8-3). Portions of this parcel are also listed on the U.S. Fish and Wildlife Service's National Wetlands Inventory.

Recommendation: Development of this parcel is not recommended due to due to issues with drainage and critical wetland habitat.

Planning Commission

North Augusta
South Carolina's Riverfront

Minutes for the Thursday, October 21, 2021, Regular Meeting

Members of the Planning Commission

Dr. Christine Crawford
Chair

Bob Bigger
Bob Clark
JoAnn McKie, Vice Chair
Leonard Carter, Jr.
Timothy V. Key
Larry Watts

CITIZEN ASSISTANCE: Individuals requiring special assistance or a sign interpreter to participate in the meeting are asked to please notify the Department of Planning and Development 48 hours prior to the meeting at 803-441-4221.

1. **Call to Order** – 7:00 p.m.

2. **Roll Call** – Present at the meeting were Chairman Dr. Christine Crawford, commissioners Larry Watts, Bob Bigger, Bob Clark, Len Carter and Timothy Key.

3. **Approval of Minutes** - October 21, 2021 Study Session and Regular Meeting

4. **Confirmation of Agenda** - minutes were good with no changes

5. **Application MW21-003** – Highland Springs Elementary/Middle School Landscaping Waiver—A request by Aiken County Public Schools for a waiver from the landscaping requirements of Article 10, Landscaping of the North Augusta Development Code on TPN 023-05-01-003, zoned P, Public Use.

   a. Consideration of Application MW21-003 by Commission.
   Mr. Paradise said the school district wanted to see about some waivers on the land where school is being built. It is 51.2 acres and what the city requires for the landscape will not work for this acreage. The landscape ordnance is not designed for

50 acres. Chairman Mrs. Crawford said they would have to agree the criteria is acceptable and they will go thru each one.
Mr. Roger Davis architect for the school district presented the following things that they think will best fit for the landscape on this large piece of property.

1. Eliminate the small trees along Old Sudlow Lake because what you plant you have to irrigate and this site is to large. The large trees will stay as is.
2. Eliminate all rear buffer on lots 21 & 22 in front of Old Sudlow. There are power lines overhead and in the easement.
3. Eliminate the buffer planting on lot 8 near retaining wall and side because it sits 30 feet below school.
4. To waiver shrubs and trees leading to Old Sudlow Lake Rd. because it is an extremely long road.
5. Waiver to not plant trees and shrubs in back of school in parking lot. It would be too much to maintain.
6. Waiver to plat on street trees on the access dr.
   All the large trees will stay on property. There were no comments from anyone. Commissioner Larry Watts stated that it is very expensive to keep up with the care of plants and landscaping. The Aiken county schools have a hard keeping up with school grounds landscaping. It is a waste of tax payer's money to purchase landscaping due to not have enough staff to care for it. Plus, cut grass looks better than dead shrubbery. Chairman Mrs. Crawford read the 5 conditions that have to be meet to consider this plan on landscaping. Tim Key made the 1st motion and Len Carter 2nd motion and it was unanimous vote.

6. **Application PP21-003** – Forrest Bluff, Section 1— A request by McKie Property Development, LLC for approval of a Major Subdivision Preliminary Plat for 29 single-family residential lots and 37 townhouse lots on TPNs 006-10-09-002, zoned R-7, Small Lot, Single-Family Residential.

   a. Consideration of Application PP21-003 by Commission.
      Recusal from Mr. Bigger. Mr. Paradise stated is 51.53 acres for single family residential and townhouses. It was called Highland Bluff but has been changed since. The applicant has provided a traffic study and will take any questions. Mr. Jason Whinghter with Ivey Properties LLC. I'm here to answer any questions that anyone may have regarding this project. Larry Watts asked about access to the property and was told it is thru Knollwood only not another way to access. They are asking for public comments and questions. Ross Douglas brought up concerns in his neighborhood and how the new subdivision will effect it. Mr. Douglas is concerned that will it not be safe to walk, run or kids walk to school as it is now. That a traffic study was done during covid and it didn't show the real amount of traffic that the area has now. Also it would be adding more roads in the area for the neighborhood which would add more traffic. Also that the Greenway has flooding now when it

rains and if the trees are cut down it will make this worse. He wants to know why it can't be a continuing Knollwood neighborhood with fewer houses and larger lots instead of the plan they have now. He would like for everyone to consider his concerns and hope that they make the right decision for this neighborhood. Mr. Larry Hammett spoke with concerns about the elevation of the other lots and if there would be a barrier wall or privacy fences. Also concerned about the drainage problem because of the elevation on some of the lots.
Mr. Mason Raines spoke about the concerns of lot sizes. Mr. Raines compared them to trailer park lots because they are small lots. The traffic it will cause on his street Green forest would double which would create a safety concern due to the people who walk or ride bikes a lot. The concern that it would affect the Greenway and maybe it's future. Also he had that the city needs to consider the water, sewer and police coverage this area will need. In his closing remarks he asks the BZA to consider maintain the standard for Knollwood it has done for the last 30 years.
Mr. Doug Melton spoke about the promise of an another exit in Knollwood and ask the commission to honor that. He is concerned about the traffic and the safety of people walking. Green forest is the street used to get to Greenway and that makes it busy now. He asked the city to deny the waiver at this time until there is another exit for Knollwood. Gena Russo she expressed her concerns with traffic with the schools and how hard it is to get out on the road now. Gena Russo thinks the traffic study done was done at a time when people were not going to school or work so it is not very accurate. Jason Whinghter is back to discuss the concerns the citizens had regarding this project. The traffic study was done by the City of North Augusta & DOT code requirements. The did adjust what was needed due to traffic being slower because of covid and people working from home. The elevation on the lots will be below and flat. There will detention ponds and retaining walls to keep flooding or water flowing into Knollwood. They will also replant to keep a buffer. The homes and townhomes will have HOA's to help maintain the grounds. The lots will be 7000 square foot as required. The discussion is to get another road to get out of neighborhood. Chairman Mrs. Crawford asked for a motion Commissioner Mr. Key gave the first motion to approve, Mr. Clark gave 2nd motion to approve and Mr. Carter gave a motion of no but 4 approved.

7. **Application CONPL21-002** – Big Pine Subdivision— A request by JLA for a sketch plan review of a proposed Major Subdivision for 122 single-family residential lots on TPN 002-12-01-002, zoned R-10, Medium Lot, Single-Family Residential.

   a. Consideration of Application CONPL21-002 by Commission.
   Mr. Paradise stated it is 69.9 acres proposed for a subdivision. It will have a couple of creeks and a bridge. It is an R-10 with medium lots. He has been talking with storm water division. It will also go thru another subdivision. He needs to know what his obstacles are before beginning his project. Mr. Watts asked about it being inside the

city limits. It is in city limits and comes thru at Big Pine. Alexander Reynolds spoke about the road being used is Chanticleer Rd. for subdivision. It will have a lot of open space and some left as conservation. The plan left the sensitive areas alone. It is 122 homes and R-10 zone. It fits in the development code. Only wavier is for max block link for Big Pine Rd and another connecting road. The development will have 2 cul de sacs. Mrs. Reynolds stated we don't want to cross the creek to disturb anything but it can be done if needed. There will be no development in the wetlands. The goal is to stay out of the creek and only have one crossing that being the bridge. It will be designed to what the zoning is on the property. The commissioner stated that they are still dealing with only one way in and out and said there are other subdivisions that are the same way. Chairman Mrs. Crawford stated that they are compassionate about connectivity & also traffic impact with a traffic study which they need see. Mrs. Reynolds said they wanted to get feedback on their plans before going forward. They have also looked at crossing the creek but were looking at the impact that would have on the land. Mr. Dan Holloway spoke that this project is a conservation subdivision. The area is zoned for R-10 which is houses and the lots would be 50 foot lots. But also that is connectivity is the issue they need to know before going forward with this plan. The discussion came up about townhouses being the best idea but it is not zoned for them. Mr. Paradise stated that it would need to be a R7 or R5 zoned for townhouses plus need variance for lots.

8. **Staff Report**

   a. September Performance Report: Mr. Paradise stated that the Development rewrite was starting up. The staff was meeting with consultants. The staff would be discussing the conditional uses and maybe doing away with the. For example, if a neighborhood or highway or lake is that it is a conditional use but not really cause everything along that corridor is conditional use. Mr. Paradise stated we are looking for things to be particular to specific use. Mr. Paradise stated we are also looking to stop conditional use. By stating these are the conditions either meet them or don't. There are 5 chapters that were sent out to department heads to get their comments. This project and comprehensive plan are ongoing.

9. **Adjourn**

   Meeting was adjourned at 9:30pm

As Approved November 18, 2021

Respectfully Submitted,

Thomas L. Paradise, Interim Director
Department of Planning and Development
Secretary to the Planning Commission

Department of Planning and Development

Project Staff Report
SP22-002 River Falls Apartments, Ph 2
Prepared by: Kuleigh Baker
Meeting Date: September 21, 2022

SECTION 1: PROJECT SUMMARY

Project Name	River Falls Apartments, Ph 2
Applicant	Parker Augusta, LLC
Engineer	ZEL/Ardurra/Cranston
Address/Location	Off Compassion Way (FKA The Frontage Road) at West Martintown Road
Parcel Number	001-20-02-006
Phase Development Size	± 8.71 acres
Existing Zoning	R-5, Mixed Residential
Overlay	N/A
Traffic Impact Tier	2
Proposed Use	132 Apartment units (Phase 2, 264 total units)
Future Land Use	Mixed Use

SECTION 2: PLANNING COMMISSION CONSIDERATION

Section 5.6 of the North Augusta Development Code (NADC) provides uniform approval procedures for site plans.

5.6.1 Purpose

The site plan review provisions and regulations of this section are intended to promote the safe, functional and aesthetic development of property and to ensure that new structures, utilities, streets, parking, circulation systems, yards and open spaces are developed in conformance with the standards of this Chapter. The site plan review considers the siting of structures and related site improvements to promote harmonious relationships with adjacent development.

5.6.2 Major and Minor Site Plans

The approval of a site plan is hereby required as a condition for the issuance of a building permit. No building permit shall be approved unless a site plan has been approved in accordance with the procedures prescribed in this section.

5.6.6 Major Site Plan Approval Procedure

5.6.6.1 Generally – Approval of a major site plan is a two (2) step process. A pre-application conference is recommended. The first step is the submission of a preliminary site plan application and required information for review by the Department and the Planning Commission. The second step is the submission of a final site plan for review by the Department for compliance with the approval of the Planning Commission and other provisions of this Chapter.

5.6.6.2 Preliminary Site Plan –

a. An application for approval of a site plan and required information shall be submitted to the Department. The Director shall determine whether the application for a preliminary site plan is complete as prescribed in Appendix B, Application Documents.

b. If the site plan application is complete and conforms to this Chapter, the Director shall forward the application, along with conditional use permit application if applicable, to the Planning Commission within thirty (30) days of the determination of completeness. The Director's report to the Planning Commission on the application shall address compliance of the site development plan with the provisions of this Chapter, the suitability of plans proposed, and shall include a recommendation for approval or denial and any recommended waivers, conditions of approval or modifications to the site plan as submitted, if any, with reasons therefore.

c. (omitted for brevity)

d. A majority vote is required for the Planning Commission to approve, approve with conditions or waivers or both, if applicable, or deny a preliminary site plan application.

e. A preliminary site plan approval by the Planning Commission must be processed and approved as a final site plan by the Director and City Engineer prior to the issuance of any building permit and before the vesting period provided for in §5.6.7.5 shall commence. (Adopt. 12-1-08; Ord. 2008-18)

5.6.6.3 Final Site Plan

After a final decision by the Planning Commission to approve a preliminary site plan and all required conditions of a conditional use permit, if applicable, the application may be processed for final site plan approval. The final site plan shall be prepared and submitted to the Director in the same manner as set forth in §5.6.6.2. If the final site plan conforms to the approval of the Planning Commission, the provisions of this Chapter and all required conditions or waivers or both, if applicable, the Director shall approve the site plan. If the final site plan is complete, but does not conform to the approval of the Planning Commission, the provisions of this Chapter and any conditions or waivers or both, if applicable, the Director shall deny the site plan and return to applicant for revision and resubmission. If the applicant disagrees with the decision of the Director, an appeal

may be filed in accordance with the procedures set forth in §18.4. (Rev. 12-1-08; Ord. 2008-18)

Final approval will be granted by staff when the plans are in substantial compliance with the requirements of the North Augusta Development Code and any proposed conditions.

SECTION 3: PUBLIC NOTICE

Per NADC Table 5-1, no public notice is required for a major site plan. A notice for the Planning Commission meeting was placed on the City website, www.northaugustasc.gov, on September 15, 2022.

SECTION 4: SITE HISTORY

The subject property was originally part of a Planned Development project for The Martin Group, LLC that would include self-storage units, a hotel, restaurants, retail outbuildings, and professional office buildings. The developer received a mine permit from SCDHEC in 2008 with multiple site, pond, and slope failures between 2008 and 2013. The SCDHEC mining permit was eventually terminated in 2013. The site was never developed as planned.

The property was sold in 2016 to I-20 Investors, LLC and rezoned from PD, Planned Development to R-5, Mixed Residential at the regular Planning Commission meeting of December 21, 2017 for use as an apartment complex.

The Planning Commission approved the Major Site Plan application for Phase 1 of River Falls Apartments on May 17, 2018. Some grading work has begun.

SECTION 5: EXISTING SITE CONDITIONS

	Existing Land Use	Future Land Use	Zoning
Subject Parcel	Vacant	Mixed Use	R-5, Mixed Residential
North	I-20	Transportation	Transportation
South	Vacant	Mixed Use/Residential Single Family	PD, Planned Development
East	Commercial	Commercial	GC, General Commercial
West	Vacant	Mixed Use	PD, Planned Development

Access – The site currently has access from Compassion Way (FKA the Frontage Road) off of West Martintown Road

Topography – The subject property has significant slopes on site as a result of grading.

Utilities – Water and wastewater service to the proposed development will be provided from existing utilities along Martintown Road. The existing ten (10) inch water main and twenty-one (21) inch sanitary sewer have sufficient capacity to serve this development.

Floodplain – The subject property is not located within a designated floodplain as identified on the FIRM maps.

Drainage Basin – This site is located within the Pole Branch Drainage Basin as designated on the City of North Augusta Stormwater Management's Drainage Basin Map. The Stormwater Management Department has conducted an updated assessment of the basin and rates the overall quality as poor with water impairments found in the samples.

SECTION 6: WAIVER REQUEST

Section §5.6.6.2 states that the applicant may appeal to the Planning Commission for a waiver from a standard applicable to the site plan in accordance with §5.9.

The applicant has requested a waiver from **NADC Section 11.3.1.1** which states open space shall be reserved at a ratio of one thousand twenty-four (1,024) square feet per dwelling unit for residential development, or that portion of mixed use development containing dwelling units.

An open space waiver was granted for Phase 1 of River Falls Apartments with the condition that the waiver apply only to that phase.

Per §5.9.1 Planning Commission Waivers, the Planning Commission may waive such standards where:

1) After obtaining the recommendation of the Director, the Planning Commission determines that the proposed waiver does not conflict with the goals and policies of the Comprehensive Plan or the purposes underlying the standard; and

   The applicant state the waiver does not conflict with the goals and policies of the Comprehensive Plan or the purpose of the standard and that the goal of the plan is to provide useful and useable open space for the public. The site is not conductive to useable open space, especially in the Phase 2 area.

   Staff notes that a waiver was granted for Phase 1 due to the same site constraints.

2) The applicant demonstrates, through documentation and/or studies, based on generally accepted engineering principles, that adherence to the standard provided by this Chapter would pose a threat to health and safety or would undermine a policy set forth in the Comprehensive Plan or the purposes underlying the standard; and

   The applicant states that adherence to the standard could pose a threat to the health, safety and welfare of the public by expecting residence to traverse a steep and impractical existing slope. The applicant also states that use of the open space in this area could destabilize the slope and cause significant soil erosion.

   Staff notes that there are significant slope issues on site that have been identified through the Stormwater review process. The available land on site is being utilized for Stormwater management.

3) The applicant consents to an alternative standard, and the Planning Commission finds that such standard is consistent with the Comprehensive Plan, will protect the public health, safety and general welfare, and is consistent with the purposes underlying the standard; and

The applicant will include as much open space as shown on the submitted site plan and enhance landscaping where possible.

4) The economic burden imposed on the applicant to comply with the generally applicable standard outweighs the public purpose for such standard; and

   The applicant states that underground detention is a possibility with significant cost and feasibility implications and that the financial burden would eliminate the benefit of the development of an apartment complex for varied housing stock.

   Staff notes that the economic burden is not the primary purpose of this application through strict adherence to the standard reduces the amount of land that may be profitably developed.

5) Compliance with the generally applicable standard is impracticable due to unique topographical or other site conditions.

   The applicant states that the site has severe slopes and the useable land is required for Stormwater management. The required location of the stormwater treatment area has increased slopes on site and those slopes are unsuitable for open space as described in the NADC.

   Staff notes that there are significant slopes on the Western portion of the site that limit development.

SECTION 7: STAFF EVALUATION AND ANALYSIS

1) Multi-family residential uses are permitted within the R-5, Mixed Residential zoning district.

2) The future land use classification for the site is Mixed Use. The proposed use is appropriate for the future land use classification.

3) The site plan proposes access from Compassion Way (FKA the Frontage Road). The current proposed access drive exceeds the expected trip generation of the multi-family use. Traffic mitigation plans have been reviewed by SCDOT and will be required prior to final staff approval.

4) The maximum number of proposed multi-family units anticipated for this development is 264.

5) Parking calculations for the proposed multi-family development must be a minimum 1.5 parking spaces per unit. The developer has indicated through the site plans that parking will be designated in lots surrounding each apartment building. One guest parking spot per every 4 units is required. Parking for the club house is required at the rate of 1 space per 300 sf. The total required parking for the development is 470 spaces. The minimum required parking has been provided.

6) The sample architectural elevations provided for the proposed detached multi-family units are included in the attached backup. The materials appear to be horizontal siding (unclear if vinyl or fiber/cementious), wood accents and glass windows. The materials are appropriate for residential structures.

7) The final landscape plan must comply with the development standards for screening, buffering and street trees as specified in Article 10, Landscaping, in the NADC. The final, detailed landscape plan will require details regarding the species and buffer points for the individual buffer areas to confirm compliance with the development standards. A waiver is requested for the open space requirements for Phase 2. A waiver was granted by the Planning Commission for Phase 1.

8) The Stormwater management department must approve the sediment and erosion control plans. The applicant must satisfactorily resolve the discharge of the captured stormwater on the site and appropriately treat the storm water (water quality) on site as part of the final site plan.

9) Staff recommends approval of the site plan and waiver request assuming all other development code standards are met.

SECTION 8: ATTACHMENTS

Aerial Map
Topography
Current Zoning
Future Land Use
Application Materials
Site Plans
Waiver Request
Traffic Impact Analysis

cc Parker Augusta, LLC, via email

ZEL/Ardurra, via email

Cranston Engineering Group, PC, via email

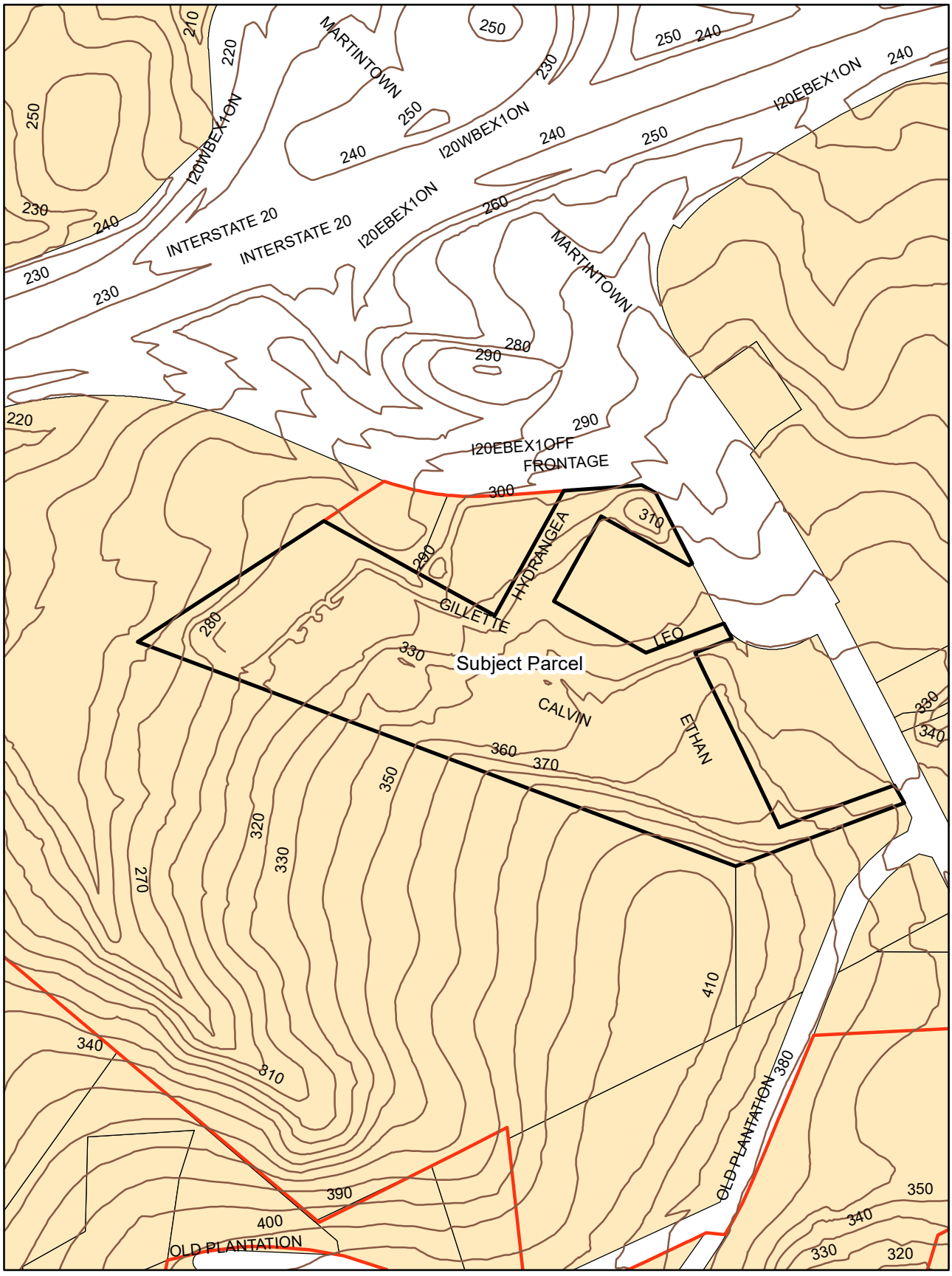
North Augusta
South Carolina's Riverfront

Aerial Map
SP22-002 River Falls Ph 2
Approx. 16 ac
zoned R-5, Mixed Residential

N
W E
S

0 0.0275 0.055 0.11 0.165 Miles

Date: 9/12/2022



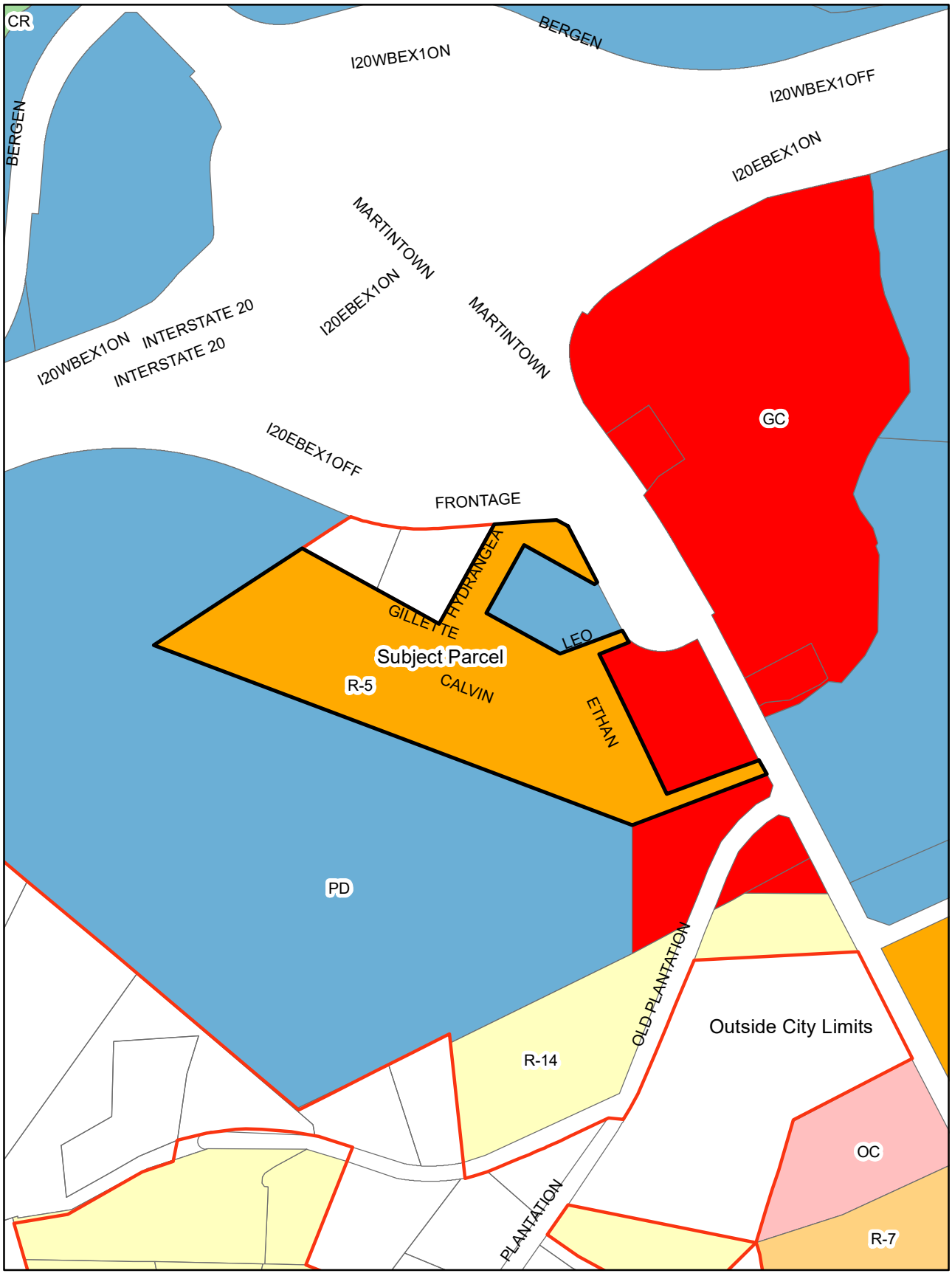
North Augusta
South Carolina's Riverfront

Topography Map
SP22-002 River Falls Ph 2
Approx. 16 ac
zoned R-5, Mixed Residential

N
W E
S

0 0.0175 0.035 0.07 0.105 Miles

Date: 9/12/2022



North Augusta
South Carolina's Riverfront

Zoning Map
SP22-002 River Falls Ph 2
Approx. 16 ac
zoned R-5, Mixed Residential

N
W E
S

0 0.0225 0.045 0.09 0.135 Miles

Date: 9/12/2022

Application for Development Approval

Please type or print all information

North Augusta
South Carolina's Riverfront

Staff Use	
Application Number _____	**Date Received** _____
Review Fee _____	**Date Paid** _____

1. **Project Name** River Falls Apartments Phase II

   Project Address/Location Off of Frontage Road @ I-20, Exit 1

   Total Project Acreage 8.71 Acres **Current Zoning** R-5

   Tax Parcel Number(s) 001-20-02-006

2. **Applicant/Owner Name** Parker Augusta, LLC **Applicant Phone** 645-532-2453

   Mailing Address 10 East 53rd Street, 18th Floor

   City New York **ST** NY **Zip** 10022 **Email** bill@capefearcommercial.com

3. **Is there a Designated Agent for this project?** X **Yes** _____ **No**
   If Yes, attach a notarized Designation of Agent form. (required if Applicant is not property owner)

4. **Engineer/Architect/Surveyor** Jonathan Heald **License No.** 23970

   Firm Name Zimmerman, Evans and Leopold, Inc. **Firm Phone** 843-318-1807

   Firm Mailing Address 973 Broad St. Suite A

   City Augusta **ST** GA **Zip** 30901 **Email** jheald@ardurra.com

   Signature Jonathan W Heald, PE Digitally signed by Jonathan W Heald, PE Date: 2022.06.24 13:05:05 -04'00' **Date** 06/24/2022

5. Is there any recorded restricted covenant or other private agreement that is contrary to, conflicts with or prohibits the use or activity on the property that is the subject of the application? (Check one.) _____ yes X no

6. In accordance with Section 5.1.2.3 of the North Augusta Development Code, I hereby request the City of North Augusta review the attached project plans. The documents required by the City of North Augusta, as outlined in Appendix B of the North Augusta Development Code, are attached for the City's review for completeness. The applicant acknowledges that all required documents must be correct and complete to initiate the compliance review process.

7. Kenneth Wardenski — **Applicant or Designated Agent Signature**

   06/24/2022 — **Date**

   Kenneth Wardenski — **Print Applicant or Agent Name**

Designation of Agent

Please type or print all information

North Augusta
South Carolina's Riverfront

This form is required if the property owner is not the applicant.

Staff Use Only	
Application Number _____	Date Received _____

1. Project Name River Falls Apartments Phase II

   Project Address/Location Off of Frontage Road at I-20, Exit 1

   Project Parcel Number(s) 001-20-02-006

2. Property Owner Name Parker Augusta, LLC Owner Phone 645-532-2453

   Mailing Address 10 East 53rd Street, 18th Floor

   City New York ST NY Zip 10022 Email bill@capefearcommercial.com

3. Designated Agent Kenneth Wardenski

   Relationship to Owner Engineering Consultant

   Firm Name Zimmerman, Evans and Leopold, Inc. Phone 706-394-2404

   Agent's Mailing Address 973 Broad St. Suite A

   City Augusta ST GA Zip 30901 Email kwardenski@ardurra.com

   Agent's Signature Kenneth Wardenski Date 06/21/2022

4. I hereby designate the above-named person (Line 3) to serve as my agent and represent me in the referenced application.

   _____ 6/21/22
   Owner Signature Date

5. Sworn and subscribed to before me on this 24 day of June, 20 22.

   _____
   Notary Public

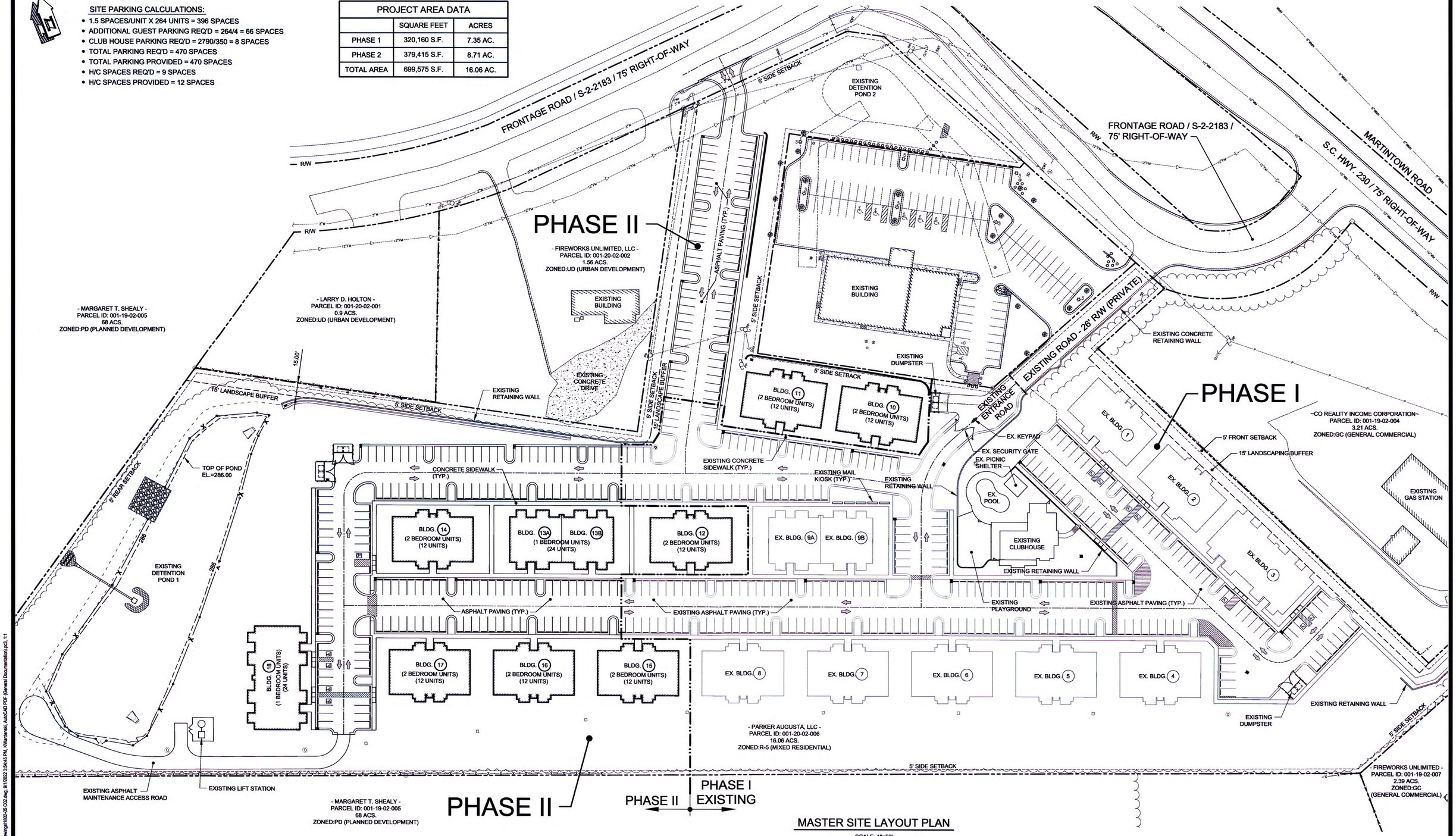
   _____
   Commission Expiration Date

KARLA M. WESTPHAL
Notary Public
New Hanover County, North Carolina
My Commission Expires April 22, 2023

SITE PARKING CALCULATIONS:

- 1.5 SPACES/UNIT X 264 UNITS = 396 SPACES
- ADDITIONAL GUEST PARKING REQ'D = 264/4 = 66 SPACES
- CLUB HOUSE PARKING REQ'D = 2790/350 = 8 SPACES
- TOTAL PARKING REQ'D = 470 SPACES
- TOTAL PARKING PROVIDED = 470 SPACES
- H/C SPACES REQ'D = 9 SPACES
- H/C SPACES PROVIDED = 12 SPACES

PROJECT AREA DATA		
	SQUARE FEET	ACRES
PHASE 1	320,160 S.F.	7.35 AC.
PHASE 2	379,415 S.F.	8.71 AC.
TOTAL AREA	699,575 S.F.	16.06 AC.



MASTER SITE LAYOUT PLAN

SCALE: 1"=50'

NO.	DATE	REVISION	BY	APVD
		ISSUED FOR PERMIT - NOT FOR CONSTRUCTION		
A	9/1/22	REVISED DRAWING PER CITY REVIEW COMMENTS DATED 7/21/22	KMW	JWH

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 23970 JONATHAN HELD 9/1/2022

SOUTH CAROLINA ZIMMERMAN EVANS AND LEOPOLD, INC. C00148 CERTIFICATE OF AUTHORIZATION

ZEL ENGINEERS

Zimmerman, Evans and Leopold, Inc.
435 Telfair Street, Augusta, Georgia 30901
Office - 706-724-5627 Fax - 706-724-5789
www.zelengineers.com

PARKER AUGUSTA, LLC

RIVER FALLS APARTMENTS - PHASE II
NORTH AUGUSTA, SOUTH CAROLINA

MASTER SITE LAYOUT PLAN

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

DESIGNED	DKR	REF.	1802-05	DWG NO. C02
DRAWN	SWH	DATE	FEB 2022	
QC		SCALE	1"=50'	

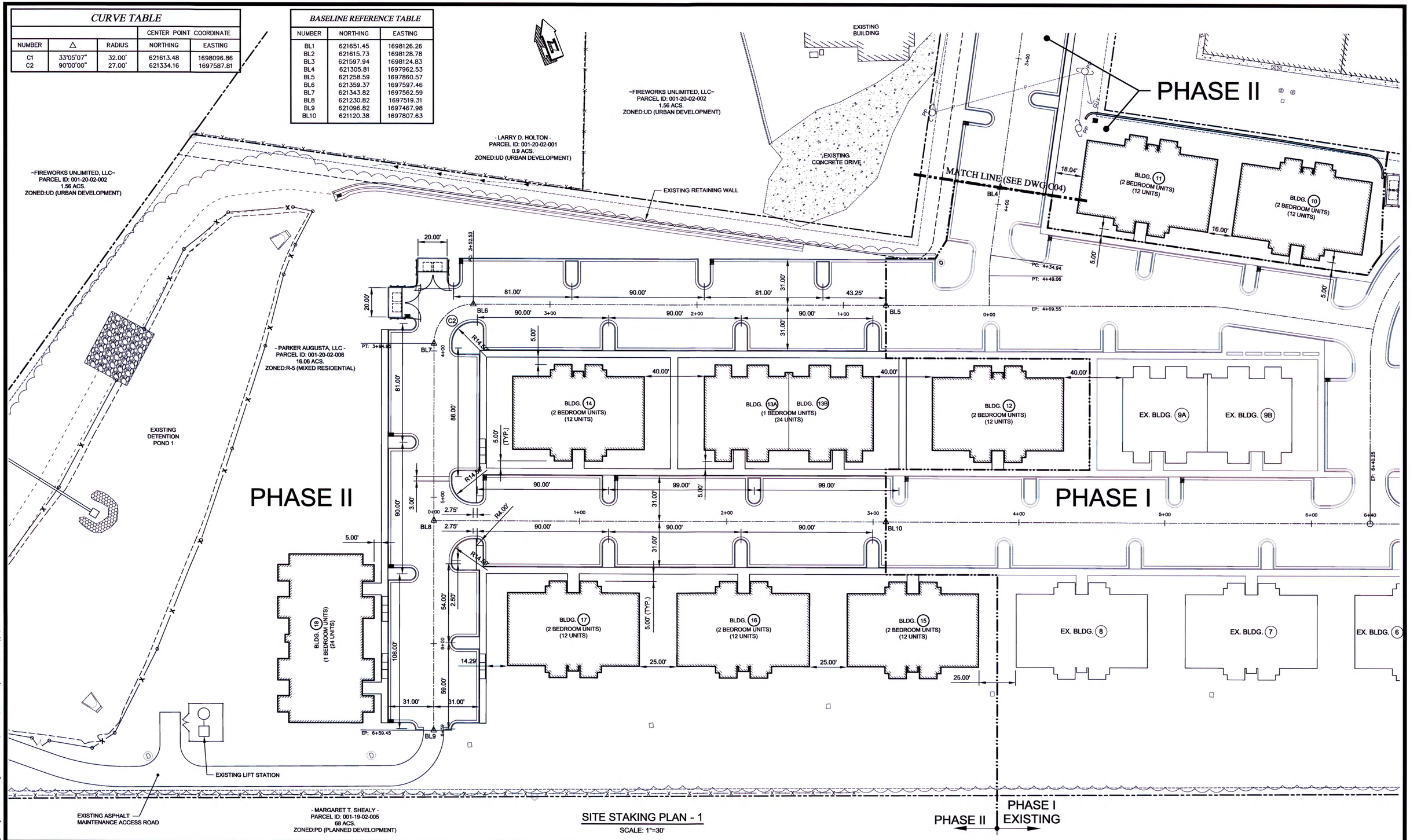
J:\2018\1802 TR Reddy\1802-05 Phase 2 Design\Drawings\1802-05 C02.dwg, 9/1/2022 3:54:45 PM, KWardenski, AutoCAD PDF (General Documentation).pc3, 1:1

CURVE TABLE

NUMBER	Δ	RADIUS	CENTER POINT COORDINATE NORTHING	CENTER POINT COORDINATE EASTING
C1	33°05'07"	32.00'	621613.48	1698096.86
C2	90°00'00"	27.00'	621334.16	1697587.81

BASELINE REFERENCE TABLE

NUMBER	NORTHING	EASTING
BL1	621651.45	1698126.26
BL2	621615.73	1698128.78
BL3	621597.94	1698124.83
BL4	621305.81	1697962.53
BL5	621258.59	1697860.57
BL6	621359.37	1697597.46
BL7	621343.82	1697562.59
BL8	621230.82	1697519.31
BL9	621096.82	1697467.98
BL10	621120.38	1697807.63



SITE STAKING PLAN - 1

SCALE: 1"=30'

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 23970 JONATHAN HERALD 09/19/22

SOUTH CAROLINA ZIMMERMAN EVANS AND LEOPOLD, INC. C00148 CERTIFICATE OF AUTHORIZATION

NO.	DATE	REVISION	BY	APVD
		ISSUED FOR PERMIT - NOT FOR CONSTRUCTION		
1	9/1/22	REVISED DRAWING PER CITY REVIEW COMMENTS DATED 7/21/22	KMW	JWH

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PARKER AUGUSTA, LLC

RIVER FALLS APARTMENTS - PHASE II
NORTH AUGUSTA, SOUTH CAROLINA

SITE STAKING PLAN - 1

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

DESIGNED	DKR	REF.	1802-05	DWG NO. C03
DRAWN	SWH	DATE	FEB 2022	
QC		SCALE	1"=30'	

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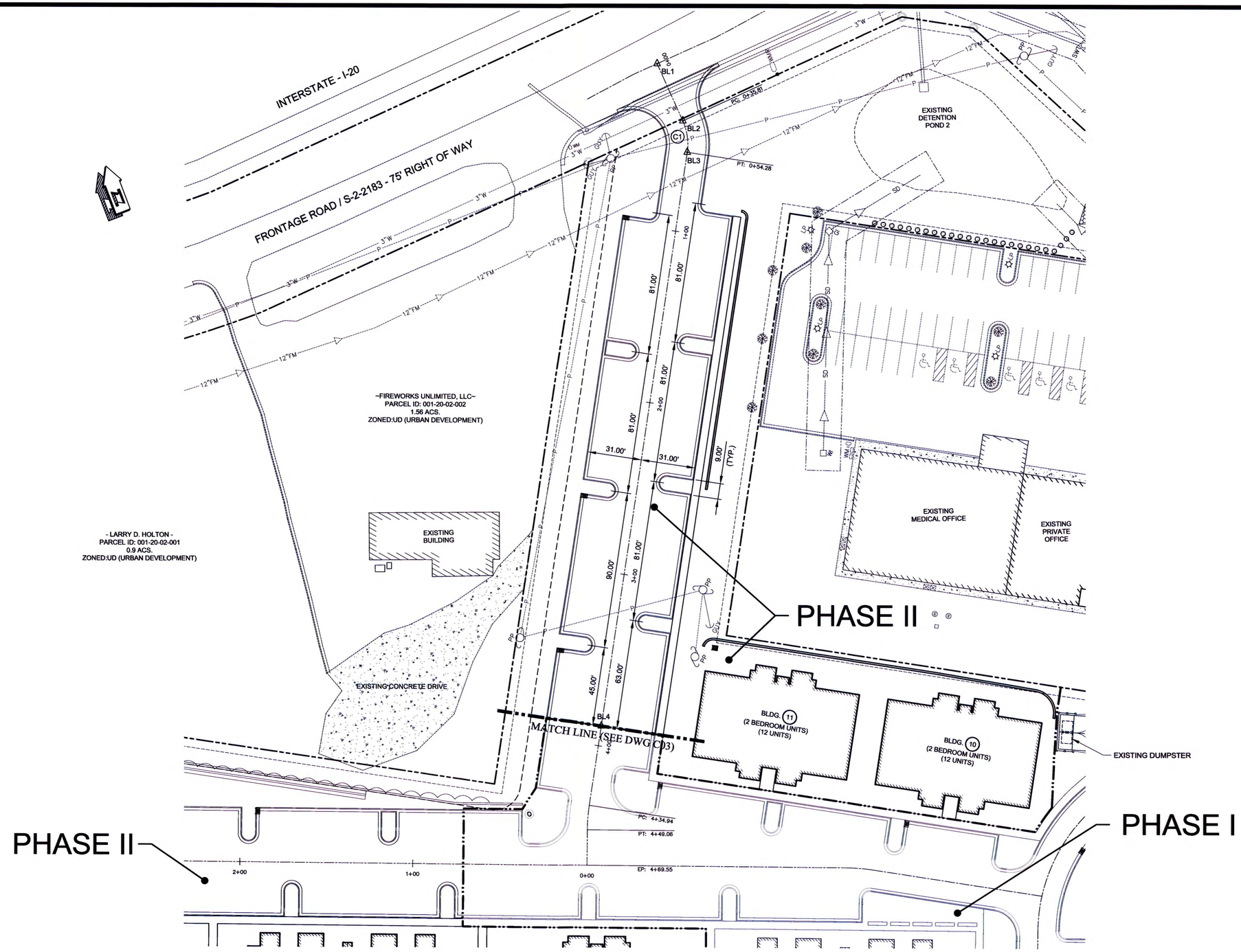

SITE STAKING PLAN - 2

SCALE: 1"=30'

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 23970 JONATHAN HEALD

SOUTH CAROLINA ZIMMERMAN EVANS AND LEOPOLD, INC. CERTIFICATE OF AUTHORIZATION C00148

NO.	DATE	REVISION	BY	APVD
		ISSUED FOR PERMIT - NOT FOR CONSTRUCTION		
A	9/1/22	REVISED DRAWING PER CITY REVIEW COMMENTS DATED 7/21/22	KMW	JWH

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PARKER AUGUSTA, LLC

RIVER FALLS APARTMENTS - PHASE II
NORTH AUGUSTA, SOUTH CAROLINA

SITE STAKING PLAN - 2

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

DESIGNED	DKR	REF.	1802-05	DWG NO. C04
DRAWN	SWH	DATE	FEB 2022	
QC		SCALE	1"=30'	

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- MARGARET T. SHEALY -
PARCEL ID: 001-19-02-005
68 ACS.
ZONED:PD (PLANNED DEVELOPMENT)

- LARRY D. HOLTON -
PARCEL ID: 001-20-02-001
0.9 ACS.
ZONED:UD (URBAN DEVELOPMENT)

~FIREWORKS UNLIMITED, LLC~
PARCEL ID: 001-20-02-002
1.56 ACS.
ZONED:UD (URBAN DEVELOPMENT)

- PARKER AUGUSTA, LLC -
PARCEL ID: 001-20-02-006
16.06 ACS.
ZONED:R-5 (MIXED RESIDENTIAL)

EXISTING DETENTION POND 1

EXISTING LIFT STATION

EXISTING ASPHALT MAINTENANCE ACCESS ROAD

BLDG. (11) (2 BEDROOM UNITS) (12 UNITS)

BLDG. (10) (2 BEDROOM UNITS) (12 UNITS)

CONNECT TO EXISTING 4" FP

WATER SERVICE DISTRIBUTION BOX (TYP.)

BLDG. (14) (2 BEDROOM UNITS) (12 UNITS)

EXISTING SAN. SEWER MANHOLE
TOP=317.35
I.E.(IN)=310.56
I.E.(OUT)=310.46

BLDG. (13A) BLDG. (13B) (1 BEDROOM UNITS) (24 UNITS)

SAN. SEWER CLEANOUT (TYP.)

BLDG. (12) (2 BEDROOM UNITS) (12 UNITS)

CONNECT TO EXISTING 4" FP

EX. BLDG. (9A) EX. BLDG. (9B)

6" C900 WATER MAIN

FIRE HYDRANT AND VALVE

6" PVC SANITARY SEWER SERVICE (TYP.)

EXISTING SAN. SEWER MANHOLE
TOP=305.30
I.E.(IN)=298.91
I.E.(OUT)=298.81

EXISTING 8" PVC SAN. SEWER

6" x 4" RED.

EXISTING 8" PVC SAN. SEWER

BLDG. (18) (1 BEDROOM UNITS) (24 UNITS)

4" x 2" RED.

EXISTING WET WELL
TOP=299.00

SAN. SEWER CLEANOUT (TYP.)

6" PVC SAN. SEWER SERVICE (TYP.)

2" DOMESTIC SERVICE (TYP.) SEE DETAIL ON DWG C18.

EXISTING 8" PVC SAN. SEWER

CONNECT TO EXISTING 6" WATERLINE

EXISTING 6" WATERLINE

EXISTING 6" SEWER SERVICE (TYP.)

EXISTING 2" SERVICE (TYP.)

SAN. SEWER CLEANOUT (TYP.)

BLDG. (17) (2 BEDROOM UNITS) (12 UNITS)

BLDG. (16) (2 BEDROOM UNITS) (12 UNITS)

EXISTING SAN. SEWER MANHOLE
TOP=326.59
I.E.(IN)=319.90
I.E.(OUT)=319.80

BLDG. (15) (2 BEDROOM UNITS) (12 UNITS)

HVAC UNIT (TYP.)

FIRE PROTECTION LINE (TYP.) SEE DETAIL ON DWG C18

CONNECT TO EXISTING 4" FP

EXISTING 4" SANITARY SEWER FORCE MAIN (TYP.)

EX. BLDG. (8) EX. BLDG. (7) EX. BLDG. (6)

EXISTING FIRE PROTECTION LINE (TYP.)

PHASE II PHASE I EXISTING

UTILITY PLAN
SCALE: 1"=30'

- MARGARET T. SHEALY -
PARCEL ID: 001-19-02-005
68 ACS.
ZONED:PD (PLANNED DEVELOPMENT)

J:\2018\1802 TR Reddy\1802-05 Phase 2 Design\Drawings\1802-05 C14.dwg, 9/1/2022 4:18:49 PM, KWestervelt, AutoCAD PDF (General Documentation).pc3, 1:1

NO.	DATE	REVISION	BY	APVD
		ISSUED FOR PERMIT - NOT FOR CONSTRUCTION		
1	9/1/22	REVISED DRAWING PER CITY REVIEW COMMENTS DATED 7/21/22	KMW	JWH

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 23970 JONATHAN HEALD

SOUTH CAROLINA ZIMMERMAN EVANS AND LEOPOLD, INC. C00148 CERTIFICATE OF AUTHORIZATION

ZEL ENGINEERS

Zimmerman, Evans and Leopold, Inc.
435 Telfair Street, Augusta, Georgia 30901
Office - 706-724-5627 Fax - 706-724-5789
www.zelengineers.com

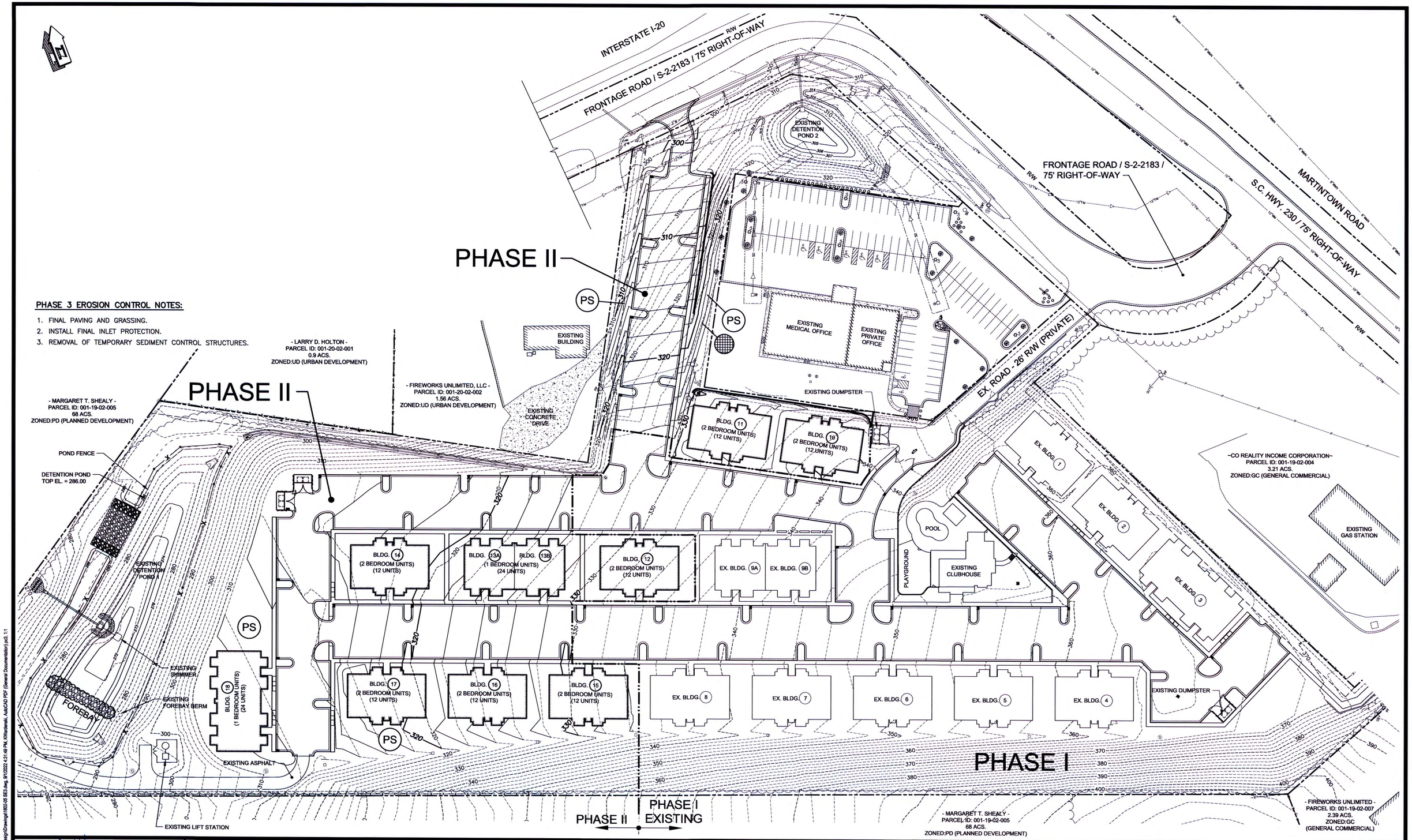
PARKER AUGUSTA, LLC

RIVER FALLS APARTMENTS - PHASE II
NORTH AUGUSTA, SOUTH CAROLINA

UTILITY PLAN

0 1
IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

DESIGNED	DKR	REF.	1802-05	DWG NO.
DRAWN	SWH	DATE	FEB 2022	C14
QC		SCALE	1"=30'	



NO.	DATE	REVISION	BY	APVD
		ISSUED FOR PERMIT - NOT FOR CONSTRUCTION		
1	9/1/22	REVISED DRAWING PER CITY REVIEW COMMENTS DATED 7/21/22	KMW	JWH

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 23970 JONATHAN HEALD

SOUTH CAROLINA ZIMMERMAN EVANS AND LEOPOLD, INC C00148 CERTIFICATE OF AUTHORIZATION

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PARKER AUGUSTA, LLC

RIVER FALLS APARTMENTS - PHASE II
NORTH AUGUSTA, SOUTH CAROLINA

SEDIMENT AND EROSION CONTROL PLAN PHASE 3

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

DESIGNED	DKR	REF.	1802-05	DWG NO.	SE3
DRAWN	SWH	DATE	FEB 2022		
QC		SCALE	1"=50'		

J:\2018\1802 TR Reds\1802-05 Phase 2 Design\Drawings\1802-05 SE3.dwg, 9/1/2022 1:31:49 PM, KWesterveld, AutoCAD PDF (General Documentation).pc3, 1:1

Application for Development Approval

Please type or print all information

North Augusta
South Carolina's Riverfront

Staff Use

Application Number SP22-002 Date Received 9-7-22

Review Fee 50.00 Date Paid 9-7-22

1. Project Name RIVER FALLS PH. 2

   Project Address/Location 1122 W MARTINTOWN ROAD

   Total Project Acreage 16.06 Current Zoning R-5

   Tax Parcel Number(s) 001 20 02 006

2. Applicant/Owner Name CRANSTON Applicant Phone 706 840 3076

   Mailing Address 452 ELLIS STREET

   City AUGUSTA ST GA Zip 30901 Email LCHEELY@CRANSTONENGINEERING.COM

3. Is there a Designated Agent for this project? ✓ Yes _____ No
   If Yes, attach a notarized Designation of Agent form. (required if Applicant is not property owner)

4. Engineer/Architect/Surveyor CRANSTON License No. 1392

   Firm Name LANCE CHEELY Firm Phone 706 840 3076

   Firm Mailing Address 452 ELLIS ST.

   City AUGUSTA ST GA Zip 30901 Email LCHEELY@CRANSTONENGINEERING.COM

   Signature [signature] Date 9/6/2022

5. Is there any recorded restricted covenant or other private agreement that is contrary to, conflicts with or prohibits the use or activity on the property that is the subject of the application?
   (Check one.) _____ yes ✓ no

6. In accordance with Section 5.1.2.3 of the North Augusta Development Code, I hereby request the City of North Augusta review the attached project plans. The documents required by the City of North Augusta, as outlined in Appendix B of the North Augusta Development Code, are attached for the City's review for completeness. The applicant acknowledges that all required documents must be correct and complete to initiate the compliance review process.

7. [signature] 9/6/2022
   Applicant or Designated Agent Signature Date

   LANCE CHEELY
   Print Applicant or Agent Name

Designation of Agent

North Augusta
South Carolina's Riverfront

Please type or print all information

This form is required if the property owner is not the applicant.

Staff Use Only

Application Number SP22-002 **Date Received** 9-7-22

1. **Project Name** River Falls Apts Phase II

   Project Address/Location 1122 W Martintown Road

   Project Parcel Number(s) 001-20-02-006

2. **Property Owner Name** Parker Augusta LLC **Owner Phone** 910-880-0063

   Mailing Address 10 east 53rd Street, 18th Floor

   City New York **ST** NY **Zip** 10022 **Email** bill@capefearcommercial.com

3. **Designated Agent** Lance Cheely

   Relationship to Owner Consultant

   Firm Name Cranston Engineering **Phone** 706-288-3022

   Agent's Mailing Address 452 Ellis Street

   City Augusta **ST** GA **Zip** 30901 **Email** lcheely@cranstonengineering.com

   Agent's Signature [signature] **Date** 9/6/2022

4. **I hereby designate the above-named person (Line 3) to serve as my agent and represent me in the referenced application.**

   [signature]
   Owner Signature

   9/7/2022
   Date

5. **Sworn and subscribed to before me on this** 7 **day of** September, **20** 22.

   [signature]
   Notary Public

   Commission Expiration Date

KARLA M. WESTPHAL
Notary Public
Richmond County, North Carolina
My Commission Expires April 22, 2023

CRANSTON

CranstonEngineering.com

452 Ellis Street Augusta, Georgia 30901
PO Box 2546 Augusta, Georgia 30903
706.722.1588

September 6, 2022

North Augusta Planning and Zoning
100 Georgia Avenue
North Augusta, SC 29841

Attn: Mr. Tommy Paradise

RE: River Falls Phase Two
North Augusta, SC
Cranston File No.: 2022-0001

Dear Mr. Paradise:

On behalf of the owner, Cranston requests a waiver from the open space requirement from NADC 11.3.1.1 based on the following criteria.

5.9.1.1 After obtaining the recommendation of the Director, the Planning Commission determines that the proposed waiver does not conflict with the goals and policies of the Comprehensive Plan or the purposes underlying the standard.

a. **The proposed waiver does not conflict with the goals of the Comprehensive Plan. The goal of the plan is to provide useful and useable open space for the public. This site is not conducive to useable open space, especially in the phase two area. A waiver was granted for phase one, likely due to the same issues.**

5.9.1.2 The applicant demonstrates, through documentation and/or studies, based on generally accepted engineering principles, that adherence to the standard provided by this Chapter would pose a threat to health and safety or would undermine a policy set forth in the Comprehensive Plan or the purposes underlying the standard; and

b. **Adherence to the standard could pose a threat to health, safety, and welfare of the public in two ways. First, the public would be expected to transverse a steep and impractical existing slope to use the portion of the site that would be left. Second, the use of the open space in this area could destabilize the slope and cause a source of significant soil erosion.**

5.9.1.3 The applicant consents to an alternative standard, and the Planning Commission finds that such standard is consistent with the Comprehensive Plan, will protect the public health, safety and general welfare, and is consistent with the purposes underlying the standard; and

c. The applicant will include as much open space as shown on the submitted site plan and consider enhanced landscape where possible.

5.9.1.4 The economic burden imposed on the applicant to comply with the generally applicable standard outweighs the public purpose for such standard; and

d. To be compliant with the applicable standard the owner would have to develop the site at a lesser density to provide the amount of open space required. Another option would be for the site to use underground detention to treat stormwater leaving the detention pond area for open space. This too has significant cost and feasibility implications. Either instance of financial burden could eliminate the benefit of the development to the Owner and terminate the project leaving the area with less housing options.

5.9.1.5 Compliance with the generally applicable standard is impracticable due to unique topographical or other site conditions.

e. This site is not conducive to useable open space, especially in the phase two area. The site slopes off severely and the useable land is required for stormwater treatment. The required location of the stormwater treatment area makes the slopes even steeper and more unsuitable for open space as described in the NADC.

We respectfully request that the Planning Commission approve the development with a waiver from the open space requirement as stated in NADC 11.3.1.1.

Sincerely,

CRANSTON LLC

Lance Cheely

Lance Cheely, PLA, MBA

PLANT CALCULATIONS

BUFFER 2:
TYPE-B (15' WIDTH)
LENGTH- L'
POINTS REQUIRED: 0.7/LF * 400'=280

TREES REQUIRED:
LARGE: 1+ L/50 =9
SMALL: 1+ L/50 = 9

PROVIDED:

	9 L.T.	@10 PTS	90 PTS
	9 S.T.	@ 5 PTS	45 PTS
+	58 SHR.	@ 2.5 PTS	145 PTS
			280 PTS

BUFFER 3:
TYPE-B (15' WIDTH)
LENGTH- L'
POINTS REQUIRED: 0.7/LF * 369'=258

TREES REQUIRED:
LARGE: 1+ L/50 =8
SMALL: 1+ L/50 = 8

PROVIDED:

	8 L.T.	@10 PTS	80 PTS
	8 S.T.	@ 5 PTS	40 PTS
+	66 SHR.	@ 2.5 PTS	165 PTS
			285 PTS

BUFFER 4:
TYPE-B (15' WIDTH)
LENGTH- L'
POINTS REQUIRED: 0.7/LF * 304'=213

TREES REQUIRED:
LARGE: 1+ L/50 =7
SMALL: 1+ L/50 = 7

PROVIDED:

	7 L.T.	@10 PTS	70 PTS
	7 S.T.	@ 5 PTS	35 PTS
+	43 SHR.	@ 2.5 PTS	108 PTS
			213 PTS

BUFFER 5:
TYPE-B (15' WIDTH)
LENGTH- L'
POINTS REQUIRED: 0.7/LF * 249'=174

TREES REQUIRED:
LARGE: 1+ L/50 =6
SMALL: 1+ L/50 = 6

PROVIDED:

	6 L.T.	@10 PTS	60 PTS
	6 S.T.	@ 5 PTS	30 PTS
+	34 SHR.	@ 2.5 PTS	84 PTS
			174 PTS

STREET BUFFER
TYPE-B (15' WIDTH)
LENGTH- L'
POINTS REQUIRED: 0.7/LF * 150'=105

TREES REQUIRED:
LARGE: 1+ 1/60 = 3
SMALL: 1+ 1/40 = 4
SHRUB: 1+ 1/5=31

PARKING LOT:
1 LARGE TREES, 2 SMALL TREES, AND 8 SHRUBS PER 10 PARKING SPACES
220 PARKING SPACES PROVIDED

REQUIRED:
22 LARGE TREES 44 SMALL TREES 176 SHRUBS REQUIRED

PROVIDED:
32 LARGE TREES , 44 SMALL TREES, 210 SHRUBS

PARKING LOT PERIMETER:
1 SMALL TREE / 40 LF
1 SHRUB / 5 LF
1 LARGE TREE / 60 LF (ADJACENT TO STREET ONLY)

TREE CANOPY:

REQUIRED:
NET LOT AREA: 360, 588 TOTAL LOT SF - 48,720 SF BLDG
20% CANOPY REQUIREMENT: 62,373 SF

EXISTING CANOPY CREDIT: 32,845 SF
LARGE TREE CREDIT: 400 SF EA. X 60 TREES= 24,000 SF
SMALL TREE CREDIT: 200 SF EA. X 118 TREES= 23,600 SF

PROVIDED:
80,445 SF CANOPY PROVIDED

BUILDING PERIMETER PLANTINGS:

1 SHRUB / 5 LF

OPEN SPACE (TABLE 11-1):

REQUIRED:
1,024 SF/UNIT*132= 135,168 SF

EDUCATION	114
FOOD SALES	89
FOOD SERVICE	151
HEALTH CARE	168
LODGING	**66**
RETAIL AND SERVICE	92
OFFICE	225
PUBLIC ASSEMBLY	66
RELIGIOUS WORSHIP	60
WAREHOUSE AND STORAGE	50
OTHER	160

PROVIDED:
3,215 SF OPEN SPACE- PLAYGROUND (PREVIOUS PHASE)
22,113 SF NATURAL AREAS
WAIVER REQUIRED

EXTERIOR SEATING:

REQUIRED:
3,215 SF X 1 LF OF SEATING/ 50 SF OPEN SPACE = 64
LINEAR FOOT OF EXTERIOR SEATING

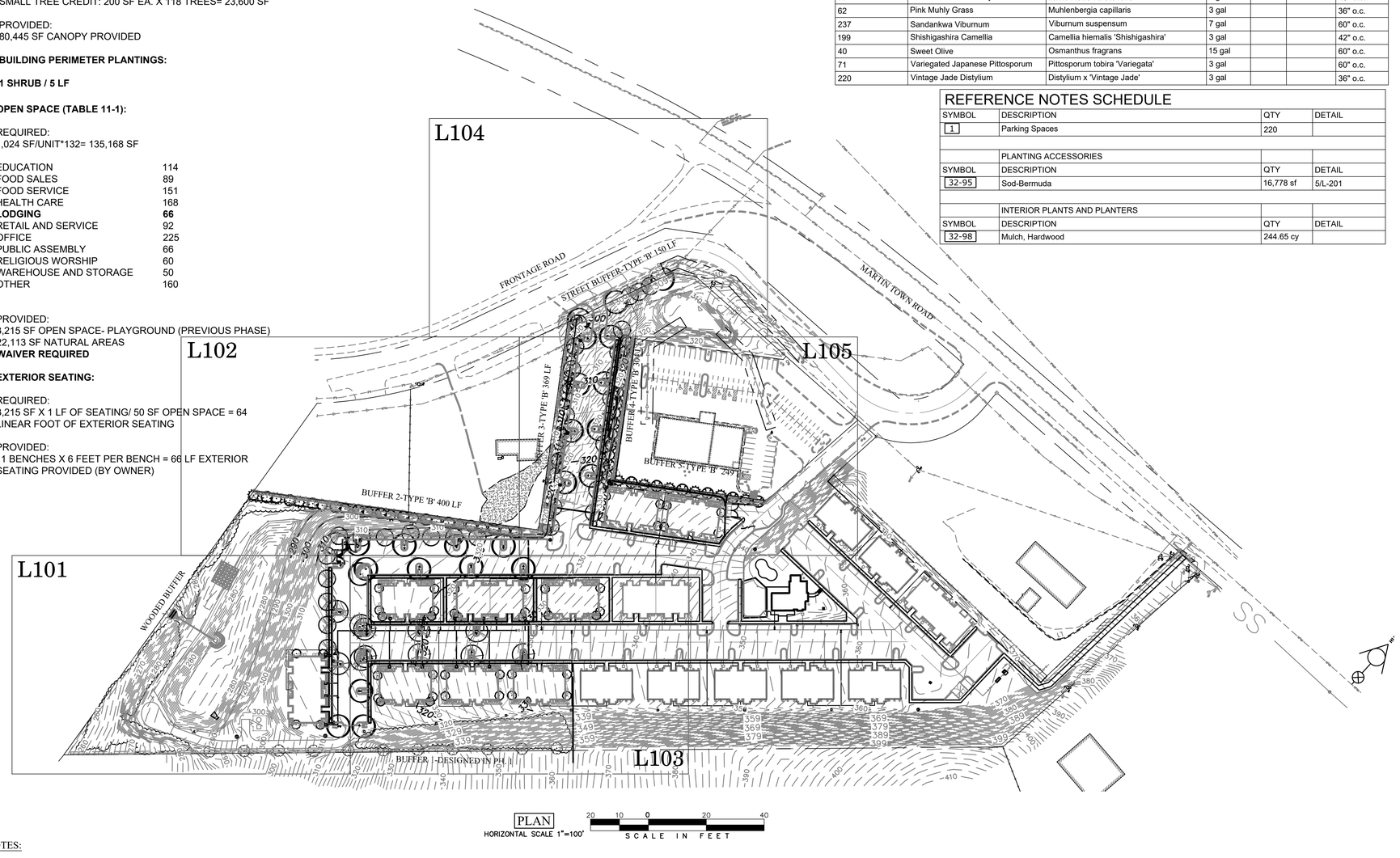
PROVIDED:
11 BENCHES X 6 FEET PER BENCH = 66 LF EXTERIOR
SEATING PROVIDED (BY OWNER)

PLANT SCHEDULE

TREES	COMMON NAME	BOTANICAL NAME	CONT.	CAL.	HEIGHT	
11	Western Red Cedar	Thuja plicata	Existing			
LARGE TREES	COMMON NAME	BOTANICAL NAME	CONT.	CAL.	HEIGHT	
24	American Elm	Ulmus americana `Princeton`	B & B	3"Cal	14`-18`	
33	Eastern Red Cedar	Juniperus virginiana	B & B	3"Cal	14`-18`	
11	Wynstar Willow Oak	Quercus phellos 'QPMTF' TM	B & B	3"Cal	14`-18`	
SMALL TREES	COMMON NAME	BOTANICAL NAME	CONT.	CAL.	HEIGHT	
34	Emerald Knight Fringetree	Chionanthus virginicus `Emerald Knight`	B & B	2"Cal	8` MIN.	
45	Loquat	Eriobotrya japonica	B & B	2"Cal	8` MIN.	
33	Wax Myrtle	Myrica cerifera	B & B	2"Cal	8` MIN.	
SHRUBS	COMMON NAME	BOTANICAL NAME	SIZE	HT.	SPREAD	SPACING
250	Blue Cascade Distylium	Distylium x 'PIIDIST-II' TM	3 gal			48" o.c.
148	Chinese Fringe Flower	Loropetalum chinense	3 gal			24" o.c.
280	Flirt Heavenly Bamboo	Nandina domestica 'Murasaki' TM	3 gal			18" o.c.
220	Illicium	Illicium parviflorum	7 gal			72" o.c.
78	Lemon Lime Heavenly Bamboo	Nandina domestica 'Lemon Lime'	3 gal			18" o.c.
14	Nellie R. Stevens Holly	Ilex x 'Nellie R. Stevens'	7 gal			48" o.c.
62	Pink Muhly Grass	Muhlenbergia capillaris	3 gal			36" o.c.
237	Sandankwa Viburnum	Viburnum suspensum	7 gal			60" o.c.
199	Shishigashira Camellia	Camellia hiemalis 'Shishigashira'	3 gal			42" o.c.
40	Sweet Olive	Osmanthus fragrans	15 gal			60" o.c.
71	Variegated Japanese Pittosporum	Pittosporum tobira 'Variegata'	3 gal			60" o.c.
220	Vintage Jade Distylium	Distylium x 'Vintage Jade'	3 gal			36" o.c.

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION	QTY	DETAIL
1	Parking Spaces	220	
	PLANTING ACCESSORIES		
SYMBOL	DESCRIPTION	QTY	DETAIL
32-95	Sod-Bermuda	16,778 sf	5/L-201
	INTERIOR PLANTS AND PLANTERS		
SYMBOL	DESCRIPTION	QTY	DETAIL
32-98	Mulch, Hardwood	244.65 cy	



PLAN
HORIZONTAL SCALE 1"=100'
20 10 0 20 40
SCALE IN FEET

GENERAL NOTES:
1. NOTES
2. NOTES
3. MORE NOTES

CRANSTON

STATE OF SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT LAWRENCE FRANK GREEN No. 1392

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION

RIVER FALLS PHASE 2
LANDSCAPE PLAN

INDEX PLAN

DRAWN BY:	DY
CHECKED BY:	LFC
APPROVED BY:	LFC
DATE:	01–18–2022
SCALE:	1" = 100'
JOB No.	2022–0001
DRAWING No.	L100

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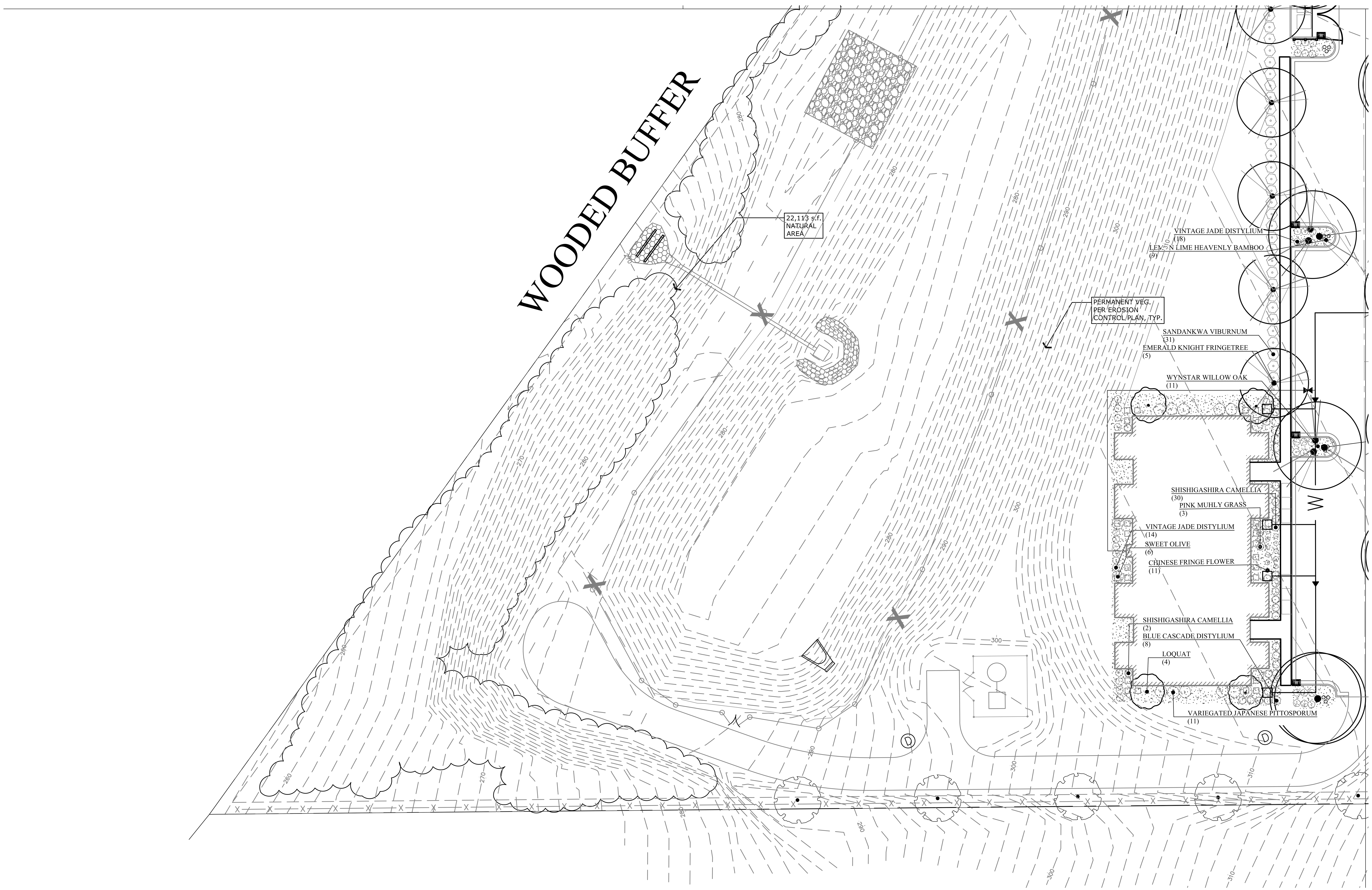

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GENERAL NOTES:
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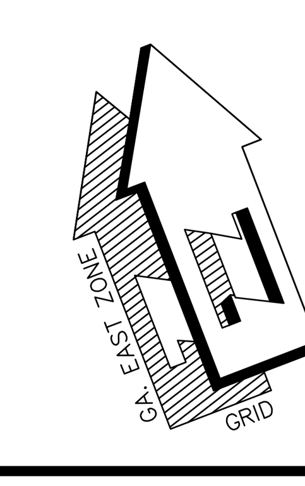
2. NOTES
3. MORE NOTES



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CRANSTON

STATE OF SOUTH CAROLINA
REGISTERED LANDSCAPE ARCHITECT
No. 1392
LAWRENCE FRANK CHEELY, IV

PRELIMINARY
NOT FOR CONSTRUCTION

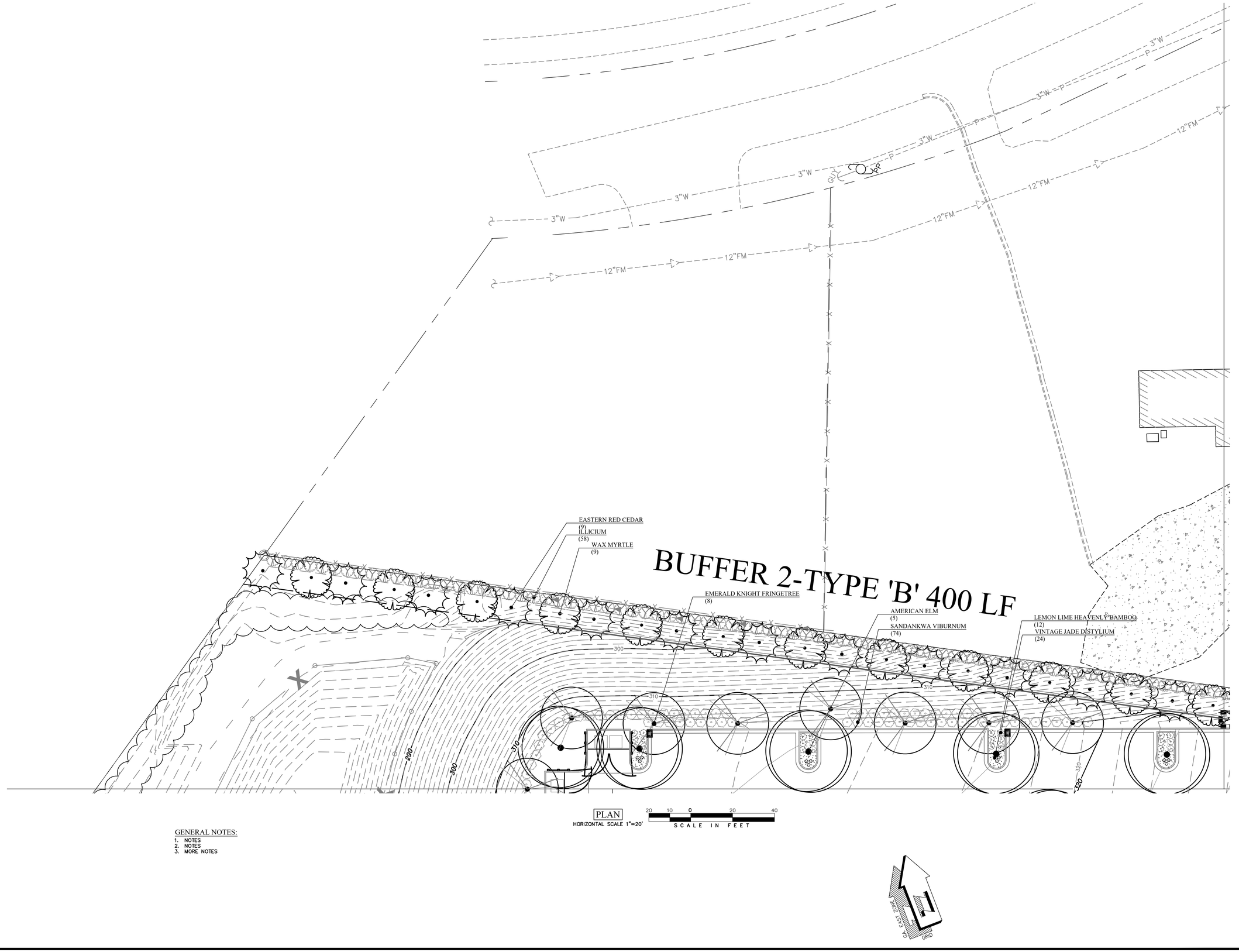
SOUTH CAROLINA
Cranston Engineering Group
NO. C00575
CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION

RIVER FALLS PHASE 2
LANDSCAPE PLAN

LANDSCAPE PLAN 1 OF 5

DRAWN BY:	DY
CHECKED BY:	LFC
APPROVED BY:	LFC
DATE:	01-18-2022
SCALE:	1" = 20'
JOB No.	2022-0001
DRAWING No.	L101



PLAN
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SCALE IN FEET

GENERAL NOTES:
1. NOTES
2. NOTES
3. MORE NOTES

CRANSTON

STATE OF SOUTH CAROLINA
REGISTERED LANDSCAPE ARCHITECT
No. 1392
LAWRENCE FRANK CRANSTON

PRELIMINARY
NOT FOR CONSTRUCTION

SOUTH CAROLINA
Cranston Engineering Group
NO. C00575
CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION

RIVER FALLS PHASE 2
LANDSCAPE PLAN

LANDSCAPE PLAN 2 OF 5

DRAWN BY:	DY
CHECKED BY:	LFC
APPROVED BY:	LFC
DATE:	01-18-2022
SCALE:	1" = 20'
JOB No.	2022-0001
DRAWING No.	L102

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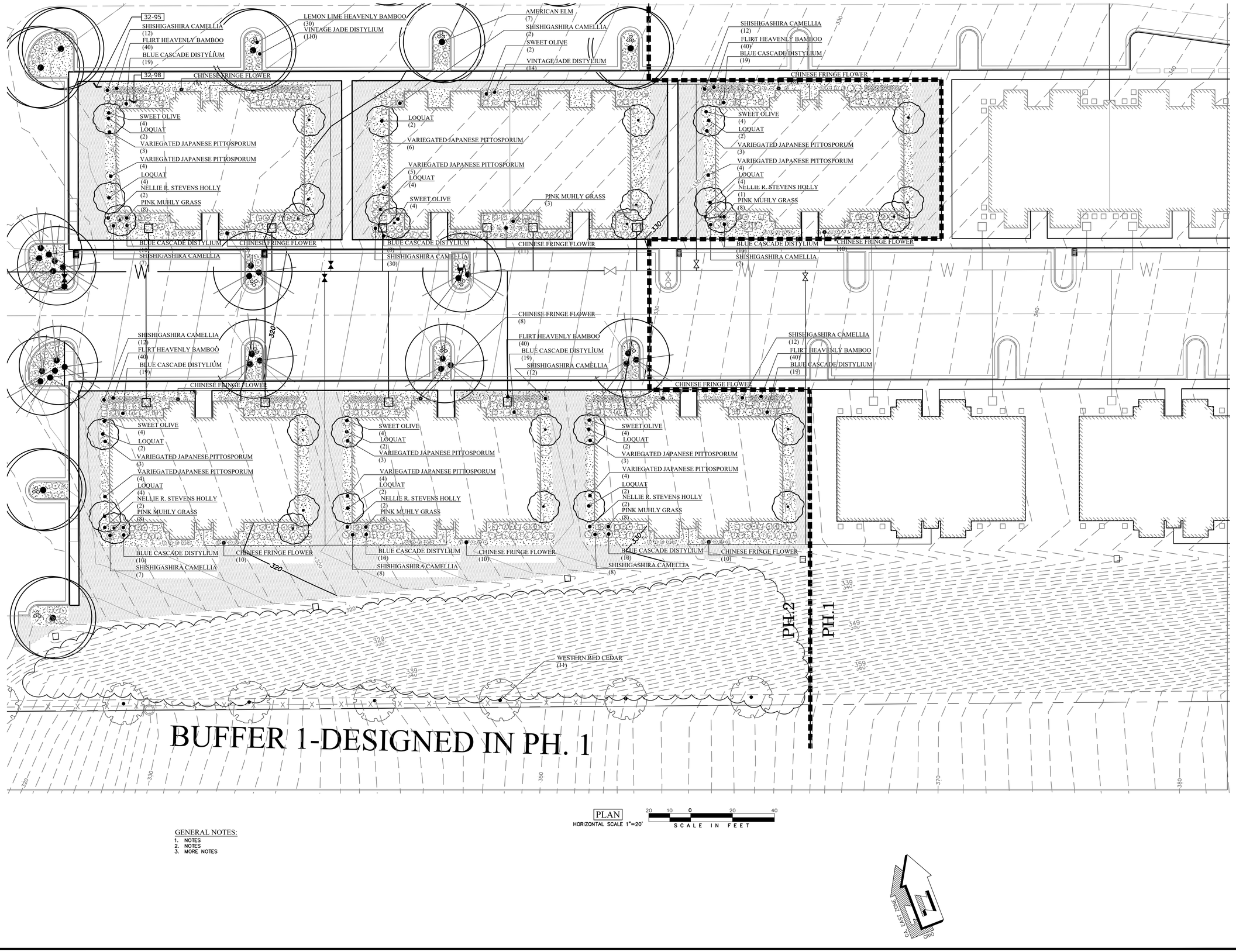

PLAN
HORIZONTAL SCALE 1"=20'

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SCALE IN FEET

GENERAL NOTES:

1. NOTES
2. NOTES
3. MORE NOTES

CRANSTON

STATE OF SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT No. 1392 LAWRENCE FRANK CRANSTON

PRELIMINARY
NOT FOR CONSTRUCTION

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION

RIVER FALLS PHASE 2
LANDSCAPE PLAN

LANDSCAPE PLAN 3 OF 5

DRAWN BY:	DY
CHECKED BY:	LFC
APPROVED BY:	LFC
DATE:	01-18-2022
SCALE:	1" = 20'
JOB No.	2022-0001
DRAWING No.	L103

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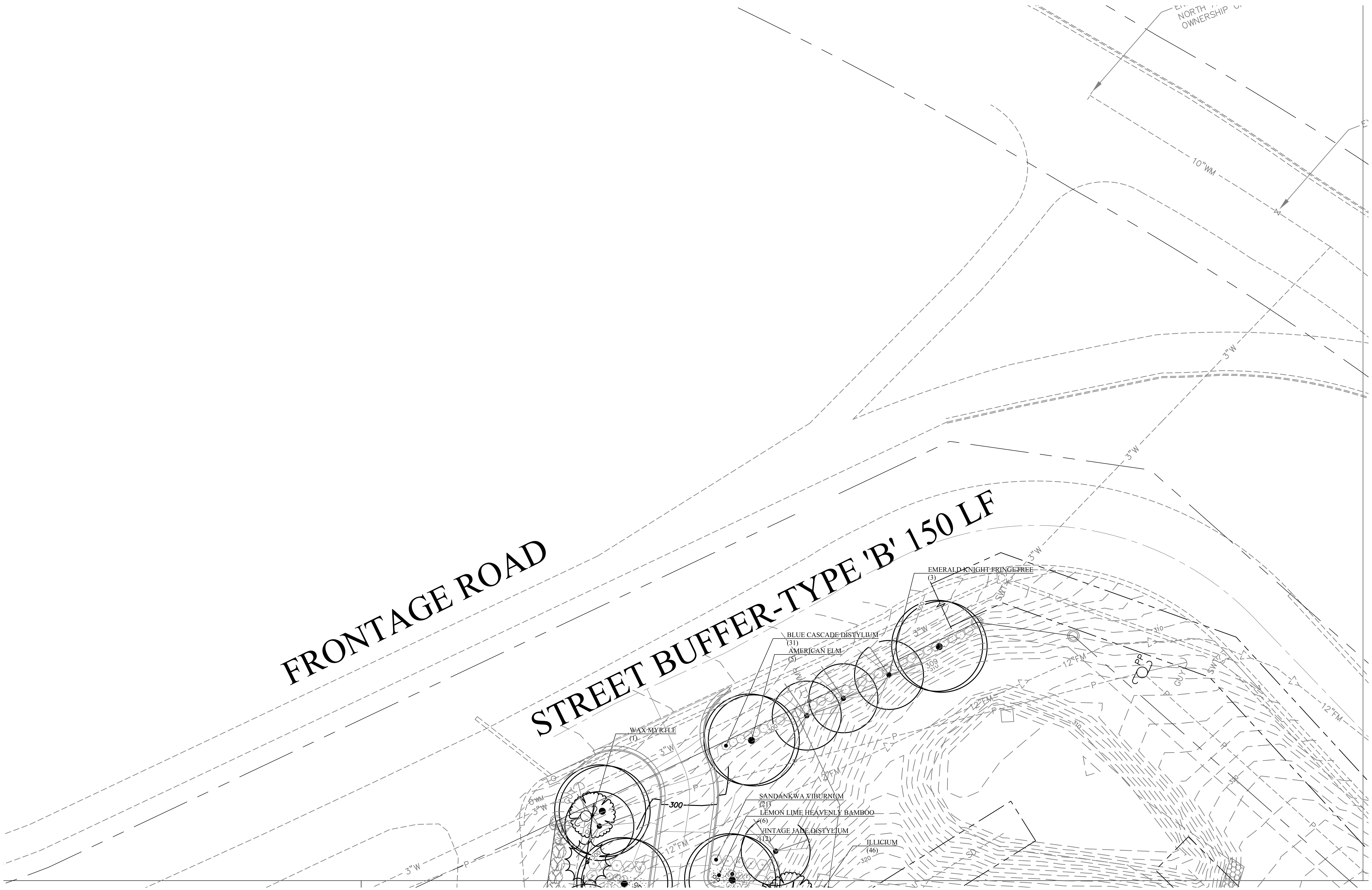

PLAN
HORIZONTAL SCALE 1"=20'

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SCALE IN FEET

GENERAL NOTES:
1. NOTES
2. NOTES
3. MORE NOTES

GA. EAST ZONE
GRID

CRANSTON

STATE OF SOUTH CAROLINA
REGISTERED LANDSCAPE ARCHITECT
No. 1392
LAWRENCE FRANK CHEELY IV

PRELIMINARY
NOT FOR CONSTRUCTION

SOUTH CAROLINA
Cranston Engineering Group
NO. C00575
CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION

RIVER FALLS PHASE 2
LANDSCAPE PLAN

LANDSCAPE PLAN 4 OF 5

DRAWN BY:	DY
CHECKED BY:	LFC
APPROVED BY:	LFC
DATE:	01-18-2022
SCALE:	1"=20'
JOB No.	2022-0001
DRAWING No.	L104

BUFFER 3-TYPE 'B' 369 LF

BUFFER 4-TYPE 'B' 304 LF

BUFFER 5-TYPE 'B' 249 LF

LEMON LIME HEAVENLY BAMBOO (18)

EMERALD KNIGHT FRINGETREE (18)

SANDANKWA VIBURNUM (147)

VINTAGE JADE DISTYLIUM (42)

AMERICAN ELM (6)

SHISHIGASHIRA CAMELLIA (12)
FLIRT HEAVENLY BAMBOO (40)
BLUE CASCADE DISTYLIUM (19)
CHINESE FRINGE FLOWER

EASTERN RED CEDAR (20)
WAX MYRTLE (20)
ILLICIUM (105)
SHISHIGASHIRA CAMELLIA (12)
FLIRT HEAVENLY BAMBOO (40)
BLUE CASCADE DISTYLIUM (19)
CHINESE FRINGE FLOWER (8)

SWEET OLIVE (4)
LOQUAT (2)
VARIEGATED JAPANESE PITTOSPORUM (3)
VARIEGATED JAPANESE PITTOSPORUM (4)
LOQUAT (2)
NELLIE R. STEVENS HOLLY (2)
PINK MUHLY GRASS (8)

SWEET OLIVE (4)
LOQUAT (2)
VARIEGATED JAPANESE PITTOSPORUM (3)
VARIEGATED JAPANESE PITTOSPORUM (4)
LOQUAT (2)
NELLIE R. STEVENS HOLLY (2)
PINK MUHLY GRASS (8)

BLUE CASCADE DISTYLIUM (10)
SHISHIGASHIRA CAMELLIA (7)
CHINESE FRINGE FLOWER (10)

BLUE CASCADE DISTYLIUM (10)
SHISHIGASHIRA CAMELLIA (7)
CHINESE FRINGE FLOWER (10)

PH.2

PH.1

PLAN
HORIZONTAL SCALE 1"=20'

20 10 0 20 40
SCALE IN FEET

GENERAL NOTES:

1. NOTES
2. NOTES
3. MORE NOTES

CRANSTON

STATE OF SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT No. 1392 LAWRENCE FRANK CRISTY

PRELIMINARY
NOT FOR CONSTRUCTION

SOUTH CAROLINA Cranston Engineering Group NO. C00575 CERTIFICATE OF AUTHORIZATION

REV #	DATE	DESCRIPTION

RIVER FALLS PHASE 2
LANDSCAPE PLAN

LANDSCAPE PLAN 5 OF 5

DRAWN BY:	DY
CHECKED BY:	LFC
APPROVED BY:	LFC
DATE:	01-18-2022
SCALE:	1" = 20'
JOB No.	2022-0001
DRAWING No.	L105

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THE PARKER AUGUSTA

TRAFFIC IMPACT STUDY
FRONTAGE ROAD @ W. MARTINTOWN ROAD (SC-230)

Prepared for:

JH Cleveland
618 PONDER PLACE DR
EVANS, GA 30809

Prepared by:

CLEARCOURSE
KEEPING COMMUNITIES IN MOTION

100 GRACE HOOPER LN, SUITE 3751
AUGUSTA, GA 30901

SUBMITTED: MAY 2022

5.9.22

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

Introduction

The proposed development for The Parker Augusta (formerly River Falls Apartments) is located near the intersection of W. Martintown Road (SC-230) and Frontage Road in North Augusta, South Carolina. The Parker Augusta project is situated on the 16-acre tract located on Frontage Road behind Wacky Waynes Fireworks. The River Falls Apartment Traffic Impact Study for Phase 1 was submitted to the SCDOT District 7 and approved in 2021. The property has since been transferred to new ownership and the revised development plan anticipates building the entire site at once. The project proposes a single construction phase to include 18 buildings comprised of 1, 2, and 3-bedroom units totaling 264 dwelling units. Since the previous Study was already approved, we have built off that approved Phase 1 of construction and projected full occupancy by 2025. The purpose of this study is to analyze the access plan and traffic impacts associated with this full buildout of this proposed development.

Existing Conditions

The Martintown Road corridor is classified as a Tier II roadway by the City of North Augusta (CoNA) Development Plan. Per the North Augusta Development Code, a development is responsible for roadway improvements for any project that creates a Level of Service (LOS) of D or worse. The existing roadways are sufficient with the exception of the I-20 WB off-ramp left turn and the Frontage Road approach to Martintown Road. These both experience LOS F in the AM and PM peak hours and require improvements, regardless of the traffic from proposed site.

Proposed Development

The anticipated traffic generated by The Parker Augusta Apartments is approximately 1,650 trips a day. Due to the high volume of traffic on Martintown Road, left hand turns exiting the development experienced high delay times (LOS F) in both the open year-build and design year analysis scenarios. Due to the close proximity to the existing traffic signal at the eastbound I-20 off-ramp, a traffic signal was deemed to be unfeasible at this location. Therefore, all traffic exiting the development would need to exit southbound on Martintown Road and make a U-turn to get north to the I-20 interchange. Northbound traffic turning left to enter the proposed development still operates at acceptable levels.

Recommendations

ClearCourse recommends that the intersection of Martintown Road at Frontage Road be revised to a right-out only for traffic coming from Frontage Road. Road widening along northbound Martintown Road will be required at the U-turn location to allow for the design vehicle turning movement. It is anticipated that a signal will be needed at the Knobcone Avenue intersection in the near future and therefore the U-turn at this intersection is desirable. Any traffic desiring to travel north exiting the site will be required to exit south on Martintown Road and make a U-turn at the Knobcone Avenue intersections.

INTRODUCTION

This report analyzes the existing and projected traffic volumes associated with the revised layout for The Parker Augusta (formerly River Falls Apartments) development at the intersection of W. Martintown Road (SC-230) and Frontage Road in North Augusta, South Carolina. The Parker Augusta project contains a single construction phase situated on a 16-acre tract located on Frontage Road behind Wacky Waynes Fireworks. The development will be 18 buildings comprised of 1, 2, and 3-bedroom units.

LOCATION

The site is located in the western corner of Aiken County, within the North Augusta city limits. It falls within the City's Traffic Impact Tier 2 and is just south of I-20 Exit 1. See Figure 1 for the Vicinity Map and Figure 2 for the Project Site Map. This report is submitted to the South Carolina Department of Transportation (SCDOT) and North Augusta Engineering & Planning and Development Departments for review on behalf of the developer, JH Cleveland.

Existing traffic conditions were analyzed for the intersection to determine the need for potential improvements to accommodate the future traffic volumes and allow efficient ingress and egress to the site. Capacity issues are not anticipated on Frontage Road due to minimal traffic that currently utilizes Frontage Road. Therefore, the focus of this study will be on the capacity and delay associated with the additional traffic entering and exiting onto W. Martintown Rd (SC-230) during the peak hours and passing through the two I-20 Exit 1 interchange intersections. The methodology to assess operations and the study findings are summarized in the sections that follow.

Figure 1: Vicinity Map

CAPACITY ANALYSIS METHODOLOGY

The methodology used for evaluating intersection traffic operations is based on criteria set forth in the Transportation Research Board's Highway Capacity Manual, 6th Edition (HCM). The capacity of an intersection is described in terms of Level of Service (LOS), which ranges from A to F and corresponds to average control delay per vehicle.

In general, the LOS may be defined as a measure of operating conditions within a traffic stream and the perception of the conditions by the general motoring public. The six levels of service are briefly described, as follows:

- LOS A – Little or no traffic delays;
- LOS B – Minimal to short traffic delays;
- LOS C – Average traffic delays;
- LOS D – Relatively long traffic delays;
- LOS E – Intersections are at or near the maximum capacity and traffic experiences long delays; and
- LOS F – Intersections are operating above their maximum capacity and traffic delays are long and unstable.

For signalized intersections, one overall intersection LOS is reported. At unsignalized intersections, the LOS for each controlled approach or movement (side-streets and main-street left-turns) is reported. Table 1 presents LOS criteria for signalized and unsignalized intersections.

Table 1
Level of Service Criteria

LOS	Average Control Delay (sec / veh)	
	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

A volume-to-capacity ratio (v/c) is also computed for each lane group and at signalized intersections an overall v/c ratio is reported. The capacity of the intersection is calculated based on the geometry and traffic control. Intersection capacity is then compared to the volumes entering the intersection. A v/c ratio of less than 1.0 indicates that there is sufficient capacity for the traffic demand. A v/c ratio of more than 1.0 generally indicates the need for intersection improvements.

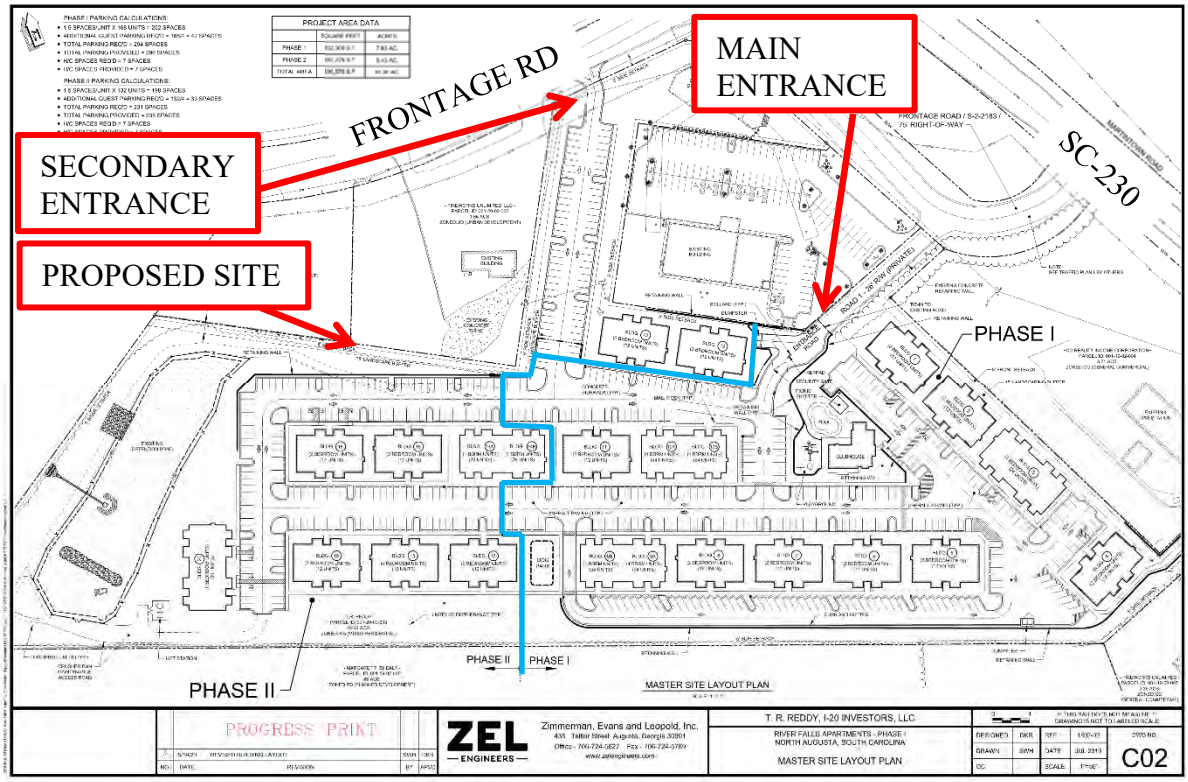
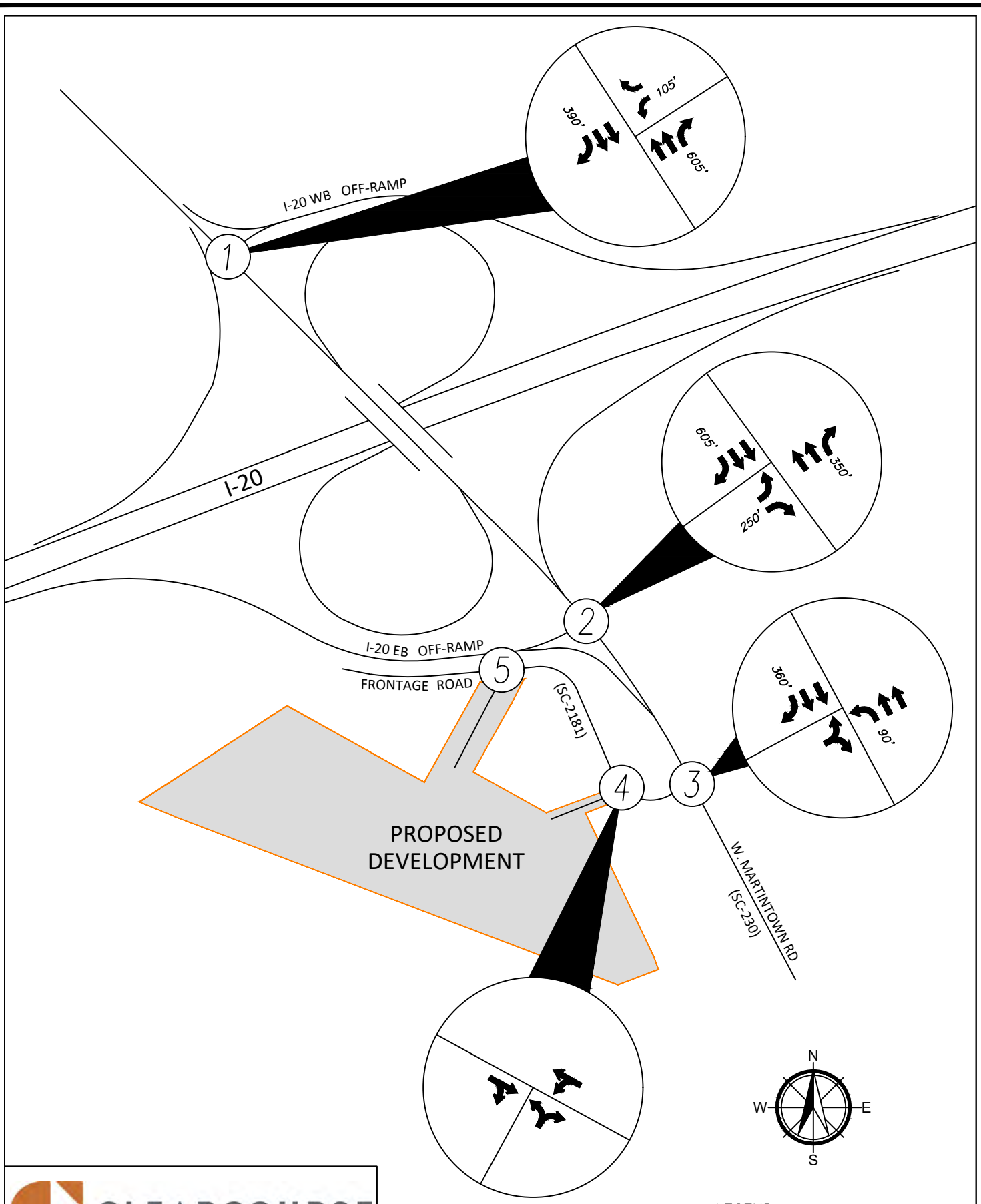


Figure 2: Project Site Map

EXISTING CONDITIONS SURVEY

An evaluation of existing conditions was performed to document existing operations and provide a basis for relative comparison of future conditions. The following paragraphs describe the existing roadway facilities, traffic volumes, and intersection operations.

The study area for this project includes Frontage Road, W. Martintown Road, and the EB and WB I-20 Exit 1 off-ramps. W. Martintown Road is a state route (SC-230) that connects Edgefield County to North Augusta's Central Business District. Frontage Road intersects W. Martintown Road just south of the I-20 interchange (Exit 1). W. Martintown Road carries the majority of traffic volume while Frontage Road is the minor side road. W. Martintown Road is a 5-lane section that includes a center two-way left turn lane. The Frontage Road approach to the intersection is a single lane with a shared left turn and right turn lane with a stop condition. A newly installed traffic signal is located at the intersection of W. Martintown Road and the eastbound I-20 off-ramp. For the purposes of this study, Frontage Road is the east/west movement and W. Martintown Road is north/south. Figure 3 shows the existing lane geometry for the intersections in the study area.



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100 Grace Hooper Ln, Suite 3751
Augusta, GA 30901

Figure 3: EXISTING LANE GEOMETRY

Existing Conditions

This development is proposed near the I-20 Exit 1 interchange that intersects Martintown Road in North Augusta, South Carolina. The Martintown Rd corridor is largely underdeveloped at the interchange. It was observed that the existing roadways adequately maintain the existing traffic volume with several intersections experiencing a long delay for the minor approaches during the peak hours. However, there are several projects ongoing in the surrounding areas and are summarized in the West Martintown Road Corridor Study, adopted by the City of North Augusta in April 2021.

Existing Traffic Volumes

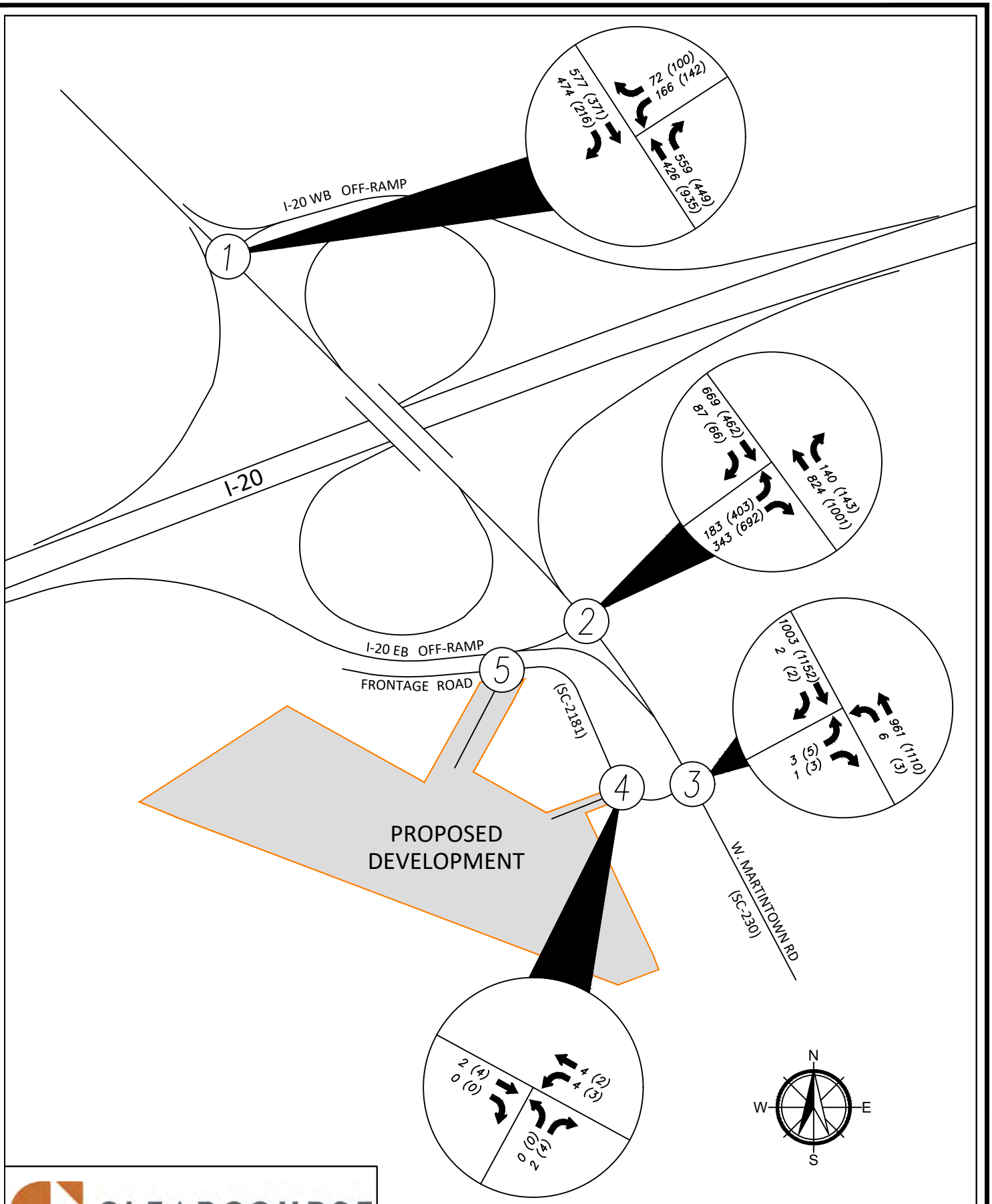
Turning movement counts were performed for the 2-hour peak times on March 22, 2022 from 7:00 am to 9:00 am and from 4:00 pm to 6:00 pm. The four consecutive 15-minute interval volumes that summed to the highest volume during the morning and evening peak periods were determined at each intersection. Tube counts were also conducted to establish the average daily traffic (ADT) volume, as shown in Table 2.

Table 2
Traffic in the Study Area

Route	Location	2022 ADT	Average Annual Growth	2025 ADT (100% Capacity)	2030 ADT (Design Year)
W. Martintown Road	North of Frontage Road	23,730	2.00%	25,182	27,803
Frontage Road	Between CSRA Pain Management driveway and W. Martintown Road	313	2.00%	332	367

Historical traffic data from SCDOT line counts show a 2.0% growth rate in the study area. The traffic study done for the I-20 project showed growth rates from 1.2% - 1.83% at the interchange. The historical line count data was used for this report as it was the more conservative estimate. The growth rate was applied to the existing volumes over three and eight years to give the 2025 (base year) and 2030 (design year) traffic volume projections.

Existing intersection operations were analyzed to establish current traffic conditions and identify areas of existing deficiencies that should be addressed. The opening year existing peak hour counts and current intersection geometries were used in the analysis. The results are summarized in Table 3 and the estimated opening year, No-Build volumes are illustrated in Figure 4.



LEGEND

XXX – AM PEAK HOUR TRAFFIC VOLUMES
(XXX) – PM PEAK HOUR TRAFFIC VOLUMES

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Augusta, GA 30901

Figure 4: 2023 BASE TRAFFIC VOLUMES - NO BUILD

Table 3 Existing Intersection Operations – Base Year (2023)						
Intersection	A.M. Peak Hour			P.M. Peak Hour		
	Delay (sec)	LOS	v/c	Delay (sec)	LOS	v/c
W. Martintown Road @ I-20 WB Off-ramp						
westbound left-turn	58.4	F	0.82	194.7	F	1.18
westbound right-turn	10.5	B	0.12	14.0	B	0.22
W. Martintown Road @ I-20 EB Off-ramp*	--	--	--	--	--	--
Eastbound approach	10.8	B	0.40	12.1	B	0. 57
W. Martintown Road @ Frontage Road						
northbound left-turn	10.9	B	0.01	11.2	B	0.01
eastbound approach	66.6	F	0.22	63.5	F	0.18
Site Driveway #1 @ Frontage Road						
- westbound left-turn	7.2	A	0.00	7.2	A	0.00
- northbound approach	8.3	A	0.00	8.3	A	0.00

* Denotes a signalized intersection

The westbound off-ramp experiences failing delays (LOS F) in the AM and PM peak hours for the left-turn movement. The Frontage Road approach at W. Martintown Road also operates at LOS F during the morning and evening peak hours. The northbound left-turn operates at LOS B in the AM and PM peak hours. The proposed site entrance projects to operate at LOS A for AM and PM peak hours. All approaches are below capacity for the total traffic volume carried and do not warrant additional capacity, except for the westbound off-ramp, which has a capacity over 1.0 in the PM peak hour.

Under the opening year No Build traffic conditions, the existing roadway geometry and traffic control in the study area is failing to serve existing demand with a surplus of capacity. Mitigation measures have been identified in the West Martintown Road Corridor Study for these intersections. However, there is currently no plan or ongoing design for these improvements.

Proposed Build Traffic Conditions

The proposed apartment development will access Frontage Road and move through the Martintown Road intersection. The apartment complex is proposed to have a single phase with 264 total apartments constructed by 2024. The traffic analysis is broken into the open year scenario (50% occupancy by 2023); the 100% occupancy scenario (by 2025); and the design year scenario (2030). A design period of 5 years is used to evaluate the short-term growth of the study area. The existing traffic volumes were given a 2.0% growth rate projection for the proposed traffic analysis. Trip generations were calculated for the apartments using the number of units based on the use of the proposed building. Proposed traffic volumes used in this analysis are made up of the projected 2023, 2025 and 2030 traffic volumes plus the addition of projected site-generated traffic. Projections for trip generation and traffic assignment are detailed in the following sections.

Trip Generation

Traffic that will be generated by the apartment development is projected based on trip generation characteristics for similar land uses nationwide. The trip generation rates used in this study were taken from the 10th edition of the Institute of Transportation Engineers' (ITE) Trip Generation Manual report. Trip generations were based on *ITE Land Use 220 – Multifamily Housing (Low Rise)*. Due to the nature of this site, pass-by reductions were deemed not applicable.

Gross trip generations for the proposed development are presented in Table 4.

Table 4
Trip Generation

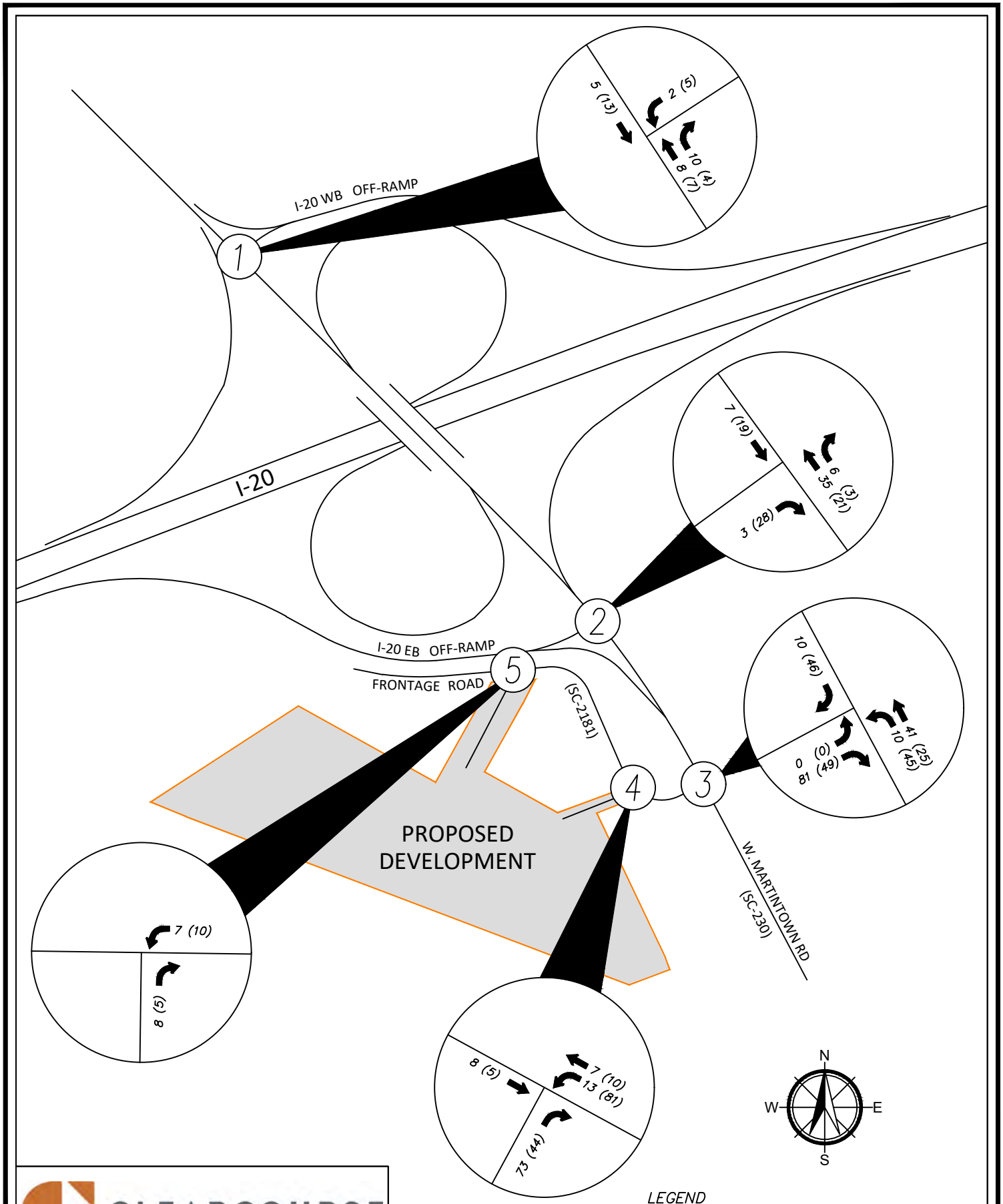
Land Use	A.M. Peak Hour			P.M. Peak Hour			Average Daily Trips		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
220 – Multifamily Housing – 2023 50% Occupied (132 Units)	11	43	54	46	25	71	416	417	833
220 – Multifamily Housing – 2025 100% Occupied (264 Units)	20	81	101	91	49	140	833	833	1666
Pass-by Reductions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New Driveway Volumes (100% Occupied)	**20**	**81**	**101**	**91**	**49**	**140**	**833**	**833**	**1666**

Traffic Assignment and Trip Distribution

The arriving/departing percentages for Trip Assignment were determined by the proposed building uses based on the historical data of the building uses, per the Trip Generation Manual. Traffic Distribution describes the direction drivers will be coming from/going to when they turn into and depart from the site. The breakdown of the assigned trips generated by the site is shown in Table 5. The trip distribution volumes of the arrivals and departures for this site onto Martintown Road is presented in Figure 5. Both the arriving and departing trip percentages were calculated based on the existing turning movements due at each interchange intersection and on Frontage Road. The resulting traffic that will be generated by these calculations was added to the study area based on these distributions.

Table 5
Trip Generation Percentages

Building Use	A.M. Peak Hour		P.M. Peak Hour	
	Arrivals	Departures	Arrivals	Departures
220 – Multifamily Housing (Low-Rise)	20%	80%	65%	35%



CLEARCOURSE
KEEPING COMMUNITIES IN MOTION

100 Grace Hooper Ln, Suite 3751
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Figure 5: SITE GENERATED TRAFFIC VOLUMES (100% BUILD)

Site Access

The site will have two driveways connected to Frontage Road. Due to the layout of the parking lot, it is assumed most traffic will flow through the main entrance on the east side of the site. The other entrance will connect to Frontage Road on the north side of the site. This second driveway has been included in the analysis of Frontage Road for this report. The existing roadway geometry will be used in the initial analysis of the intersection to determine if auxiliary storage lengths are adequate and if further improvements are needed for acceptable traffic operations.

Proposed Intersection Operations

Using the proposed traffic volumes (shown in Figures 6, 7 and 8) a capacity analysis was performed for the peak hours at the study area intersection. Results of the analysis for the 100% occupied-year and a 5-year design scenarios are presented below in Table 6.

The northbound left-turn movement from Martintown Road provides adequate capacity for all design periods analyzed and the delay is no worse than the LOS B. The storage length of the existing left-turn lane was observed to be approximately 100 feet long with a 50-foot taper length. This was adequate based on the maximum queue length remaining under 50 feet. The minor approach to the intersection experiences significant delay due to the increased exiting left-turn volumes. With the initial construction phase already approved and underway, it is recommended that Frontage Road be improved to a right out only. Making this improvement changes the approach from LOS F in both the AM and PM Build scenario to a LOS E in the AM peak and LOS C in the PM peak during the Design year scenario. The summary of each movement is provided below in Table 6.

Table 6
Intersection Operations Summary

Intersection	A.M. Peak Hour			P.M. Peak Hour		
	Delay (sec)	LOS	v/c	Delay (sec)	LOS	v/c
2025 Build						
W. Martintown Road @ I-20 WB Off-ramp						
- westbound left-turn	62.4	F	0.84	210.7	F	1.22
- westbound right-turn	10.5	B	0.13	14.0	B	0.23
W. Martintown Road @ I-20 EB Off-ramp*	5.4	**A**		**8.0**	A	
- Eastbound approach	11.0	B	0.40	12.2	B	**0.57**
W. Martintown Road @ Frontage Road						
- northbound left-turn	10.9	B	0.02	11.6	B	0.05
- eastbound approach	819.5	F	2.54	182.7	F	0.88
Site Driveway #1 @ Frontage Road						
- westbound left-turn	8.5	A	0.04	8.4	A	**0.03**
- northbound approach	7.2	A	0.01	7.3	A	0.03
Site Driveway #2 @ Frontage Road						
- westbound left-turn	0.0	A	0.00	0.0	A	0.00
- northbound approach	0.0	A	0.00	0.0	A	0.00
2030 Build w/ Improvments						
W. Martintown Road @ I-20 WB Off-ramp						
- westbound left-turn	163.1	F	1.18	164.2	F	**1.1**
- westbound right-turn	11	B	0.15	13.7	B	0.22
W. Martintown Road @ I-20 EB Off-ramp*	6.0	A		**7.8**	A	
- Eastbound approach	12.1	B	0.45	11.9	B	**0.56**
W. Martintown Road @ Frontage Road						
- northbound left-turn	12.0	B	0.04	12.6	B	**0.13**
- eastbound approach (Right Only)	41.7	E	0.81	15.8	C	**0.23**
Site Driveway #1 @ Frontage Road						
- westbound left-turn	8.6	A	0.08	8.5	A	**0.05**
- northbound approach	7.3	A	0.01	7.4	A	0.06
Site Driveway #2 @ Frontage Road						
- westbound left-turn	7.2	A	0.01	7.2	A	0.01
- northbound approach	8.4	A	0.01	8.4	A	0.01

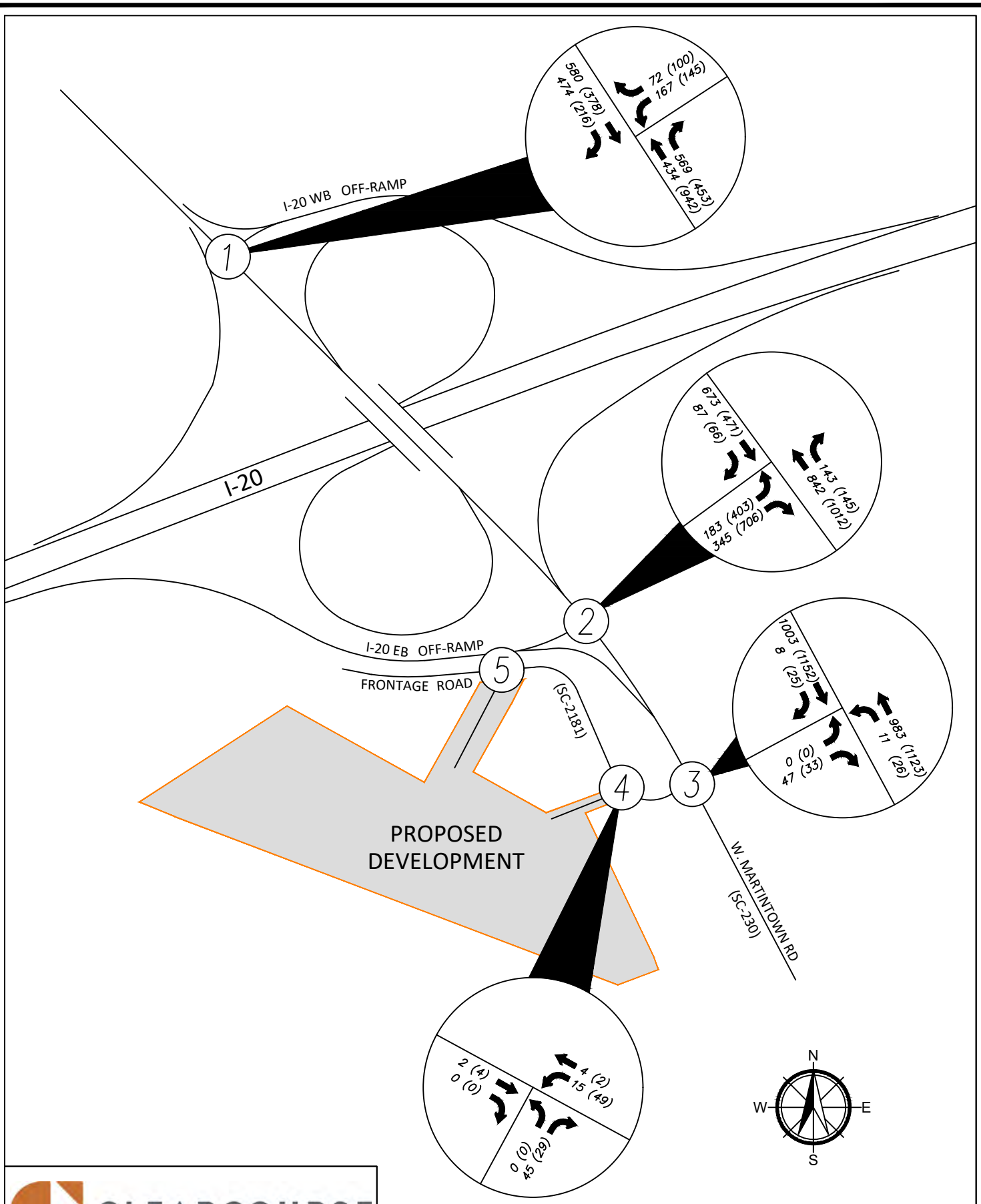

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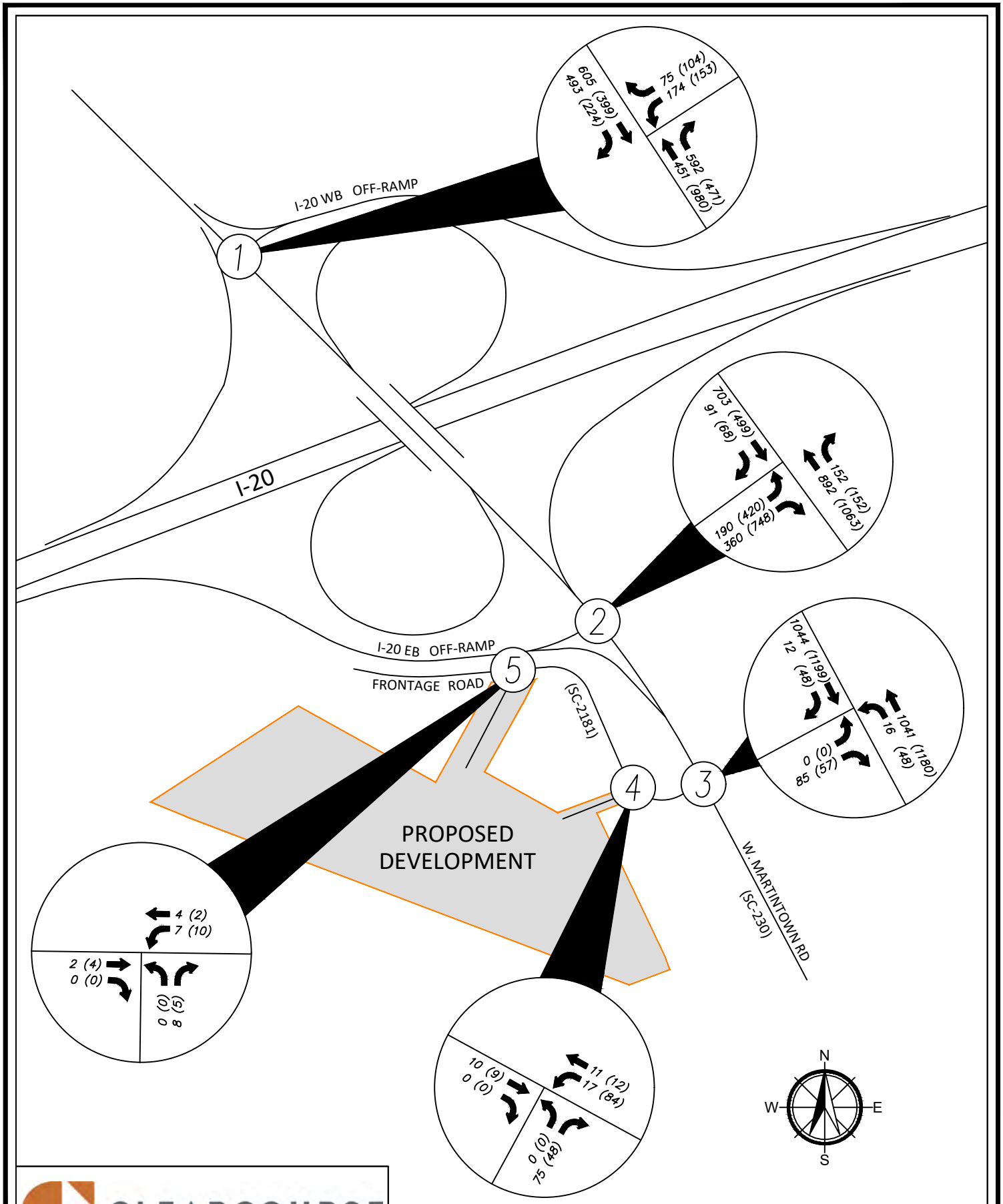
Figure 6: 2023 BUILD TRAFFIC VOLUMES



LEGEND

XXX – AM PEAK HOUR TRAFFIC VOLUMES
(XXX) – PM PEAK HOUR TRAFFIC VOLUMES

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Figure 7: 2025 100% BUILD TRAFFIC VOLUMES

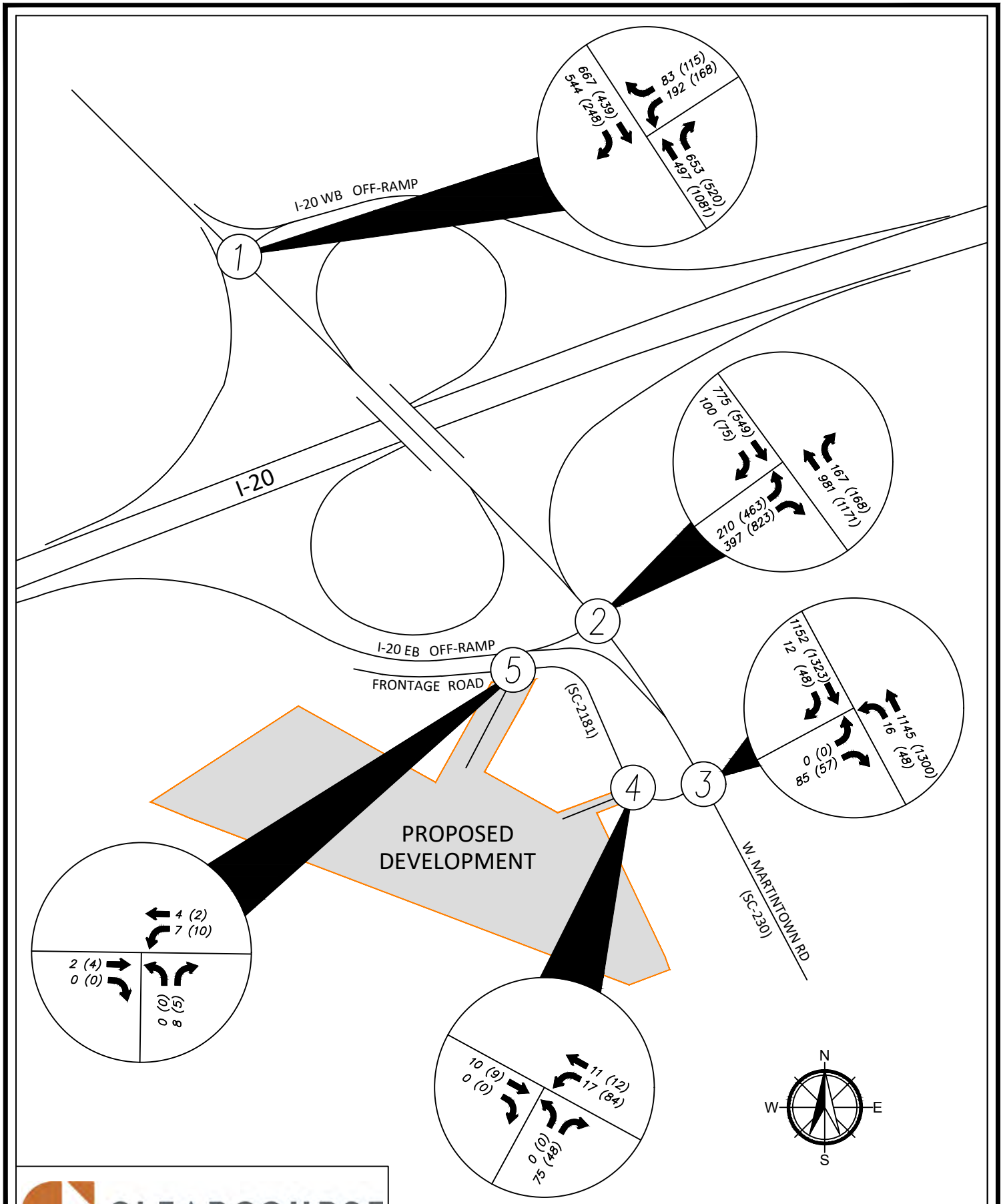

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Figure 8: 2030 DESIGN TRAFFIC VOLUMES

STUDY FINDINGS

Existing Conditions

The following points summarize analysis of the existing conditions within the study area:

- Existing operations along W. Martintown Road (SC-230) at Frontage Road are mostly within acceptable ranges of delay. However, the Frontage Road approach already experiences a long delay (LOS F) due to the high traffic volumes on Martintown Road.
- The westbound I-20 off-ramp left turn movement experiences LOS F in both the AM and PM peak hours and is over capacity in the PM peak hour.
- Improvements were identified to mitigate the current and projected traffic volumes in the West Martintown Road Corridor Study, adopted by the City of North Augusta in April 2021. There are no currently no projects programed for these improvements.

Proposed Development

The anticipated traffic impacts of The Parker Augusta Apartments are summarized below:

- The proposed Open Year (50% occupancy) for the apartment complex off Frontage Road is projected to introduce 833 new trips to W. Martintown Road on a daily basis. Approximately 54 of these new trips will occur during the morning peak hour and 71 new trips will occur during the evening peak hour.
- The proposed Open Year (100% occupancy) for the apartment complex off Frontage Road is projected to introduce 1,650 new trips to W. Martintown Road on a daily basis. Approximately 101 of these new trips will occur during the morning peak hour and 140 new trips will occur during the evening peak hour.
- Trip distribution was based on travel patterns associated with the existing traffic volumes on Martintown Road. This data indicates that there is a 53/47 split of traffic arriving from/departing to the north/south direction in both the morning and in the afternoon.
- There are two access drives from the site to Frontage Road and both will funnel the proposed traffic through the analyzed intersection at W. Martintown Road. The existing lane geometry at the proposed driveway is sufficient for the anticipated volumes generated by the apartment complex.
- The delay for traffic exiting the site at the Frontage Road intersection is failing due to the high volume of cross traffic on W. Martintown Road not allowing for gaps. A signal warrant was recommended to analyze the intersection with a signal control. However, due to the proximity of the existing signal recently installed as part of the I-20 widening project at the I-20 Exit 1 eastbound exit ramp, a signal was not deemed feasible.

STUDY FINDINGS (CONT.)

Future Traffic Operations

Future build condition analyses were prepared for The Parker Augusta Apartments. Results of these analyses are summarized as follows:

- The un-signalized intersections at Frontage Road and I-20 westbound off-ramp will operate with extended delays on the existing, stop-controlled T-intersection regardless of when the apartment complex opens.
- Requiring traffic on Frontage Road to make a right turn only onto Martintown Road will reduce the delay to allowable levels. Construction of a concrete median will help guide traffic to exit safely. Widening to allow for the U-turn movement at Knobcone Avenue intersection will be necessary to allow for the U-turns leaving the proposed site.
- Left turns onto Frontage from Martintown Road operate at acceptable levels and can remain. If a raised median is installed in the future, it is recommended that this left turn be maintained.

APPENDICES

APPENDIX A
PROPOSED SITE LAYOUT PLAN

PHASE I PARKING CALCULATIONS:

- 1.5 SPACES/UNIT X 132 UNITS = 198 SPACES
- ADDITIONAL GUEST PARKING REQ'D ≈ 1324 = 33 SPACES
- CLUB HOUSE PARKING REQ'D = 2790/350 = 8 SPACES
- TOTAL PARKING REQ'D = 239 SPACES
- TOTAL PARKING PROVIDED = 249 SPACES
- H/C SPACES REQ'D = 7 SPACES
- H/C SPACES PROVIDED = 7 SPACES

TOTAL SITE PARKING CALCULATIONS:

- 1.5 SPACES/UNIT X 264 UNITS = 396 SPACES
- ADDITIONAL GUEST PARKING REQ'D = 264/4 = 66 SPACES
- CLUB HOUSE PARKING REQ'D = 2790/350 = 8 SPACES
- TOTAL PARKING REQ'D = 470 SPACES
- TOTAL PARKING PROVIDED = 476 SPACES
- H/C SPACES REQ'D = 9 SPACES
- H/C SPACES PROVIDED = 12 SPACES

PROJECT AREA DATA		
	SQUARE FEET	ACRES
PHASE 1	320,160 S.F.	7.35 AC.
PHASE 2	379,415 S.F.	8.71 AC.
TOTAL AREA	699,575 S.F.	16.06 AC.

FRONTAGE ROAD / S-2-2183 / 75' RIGHT-OF-WAY

R/W

5' SIDE SETBACK

EXISTING DETENTION POND

FRONTAGE ROAD / S-2-2183 / 75' RIGHT-OF-WAY

S.C. HWY. 230 / 75' RIGHT-OF-WAY

MARTINTOWN ROAD

- FIREWORKS UNLIMITED, LLC -
PARCEL ID: 001-20-02-002
1.56 ACS.
ZONED:UD (URBAN DEVELOPMENT)

EXISTING BUILDING

- LARRY D. HOLTON -
PARCEL ID: 001-20-02-001
0.9 ACS.
ZONED:UD (URBAN DEVELOPMENT)

- MARGARET T. SHEALY -
PARCEL ID: 001-19-02-005
68 ACS.
ZONED:PD (PLANNED DEVELOPMENT)

15.00'

5' SIDE SETBACK

15' LANDSCAPE BUFFER

EXISTING CONCRETE DRIVE

RETAINING WALL

TOP OF POND EL.=286.00

5' REAR SETBACK

285

DETENTION POND

14.00'

ASPHALT MAINTENANCE ACCESS ROAD

LIFT STATION

14.00' (TYP.)

- MARGARET T. SHEALY -
PARCEL ID: 001-19-02-005
68 ACS.
ZONED:PD (PLANNED DEVELOPMENT)

PHASE II

- T.R. REDDY -
PARCEL ID: 001-20-02-006
16.06 ACS.
ZONED:R-5 (MIXED RESIDENTIAL)

EXISTING BUILDING

DUMPSTER

EX. ROAD - 26' R/W (PRIVATE)

EXISTING CONCRETE RETAINING WALL

TIE-IN TO EXISTING ROAD

NOTE:
FOR WIDENING OF FRONTAGE ROAD ENTRANCE, SEE TRAFFIC PLANS BY OTHERS.

ENTRANCE ROAD

KEYPAD

SECURITY GATE

PICNIC SHELTER

POOL

CLUBHOUSE

RETAINING WALL

PLAYGROUND

ASPHALT PAVING (TYP.)

CONCRETE SIDEWALK (TYP.)

MAIL KIOSK (TYP.)

RETAINING WALL

PHASE I

~CO REALITY INCOME CORPORATION~
PARCEL ID: 001-19-02-004
3.21 ACS.
ZONED:GC (GENERAL COMMERCIAL)

5' FRONT SETBACK

15' LANDSCAPING BUFFER

EXISTING GAS STATION

RETAINING WALL

DUMPSTER

5' SIDE SETBACK

- FIREWORKS UNLIMITED -
PARCEL ID: 001-19-02-007
2.39 ACS.
ZONED:GC
(GENERAL COMMERCIAL)

PHASE II PHASE I

BLDG. 11 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 10 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 1 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 2 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 3 (1 BEDROOM UNITS) (24 UNITS)
BLDG. 14 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 13A (1 BEDROOM UNITS) (24 UNITS) BLDG. 13B
BLDG. 12 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 9A (1 BEDROOM UNITS) (24 UNITS) BLDG. 9B
BLDG. 19 (1 BEDROOM UNITS) (24 UNITS)
BLDG. 17 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 16 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 15 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 8 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 7 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 6 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 5 (2 BEDROOM UNITS) (12 UNITS)
BLDG. 4 (2 BEDROOM UNITS) (12 UNITS)

MASTER SITE LAYOUT PLAN

SCALE: 1"=50'

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 13274 DANIEL K. RICKABAUGH

SOUTH CAROLINA ZIMMERMAN, EVANS AND LEOPOLD, INC CERTIFICATE OF AUTHORIZATION C00148

NO.	DATE	REVISION	BY	APVD
1	1/15/21	REVISED BUILDING LAYOUT, PARKING AND POND	SWH	DKR

ZEL — ENGINEERS —

Zimmerman, Evans and Leopold, Inc.
435 Telfair Street, Augusta, Georgia 30901
Office - 706-724-5627 Fax - 706-724-5789
www.zelengineers.com

PARKER AUGUSTA, LLC

RIVER FALLS APARTMENTS - PHASE I
NORTH AUGUSTA, SOUTH CAROLINA

MASTER SITE LAYOUT PLAN

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

DESIGNED	DKR	REF.	1802-01	DWG NO. C02
DRAWN	SWH	DATE	JUL 2019	
QC		SCALE	1"=50'	

J:\2018\1802 TR Reddy\1802-02 River Fall Apartments, Construction Support\Drawings\1802-02 C02.dwg, 3/29/2021 3:07:12 PM, Hiteman, HP Designjet T2500 Roll 2.pc3, 1:1

APPENDIX B
TRAFFIC VOLUME WORKSHEETS

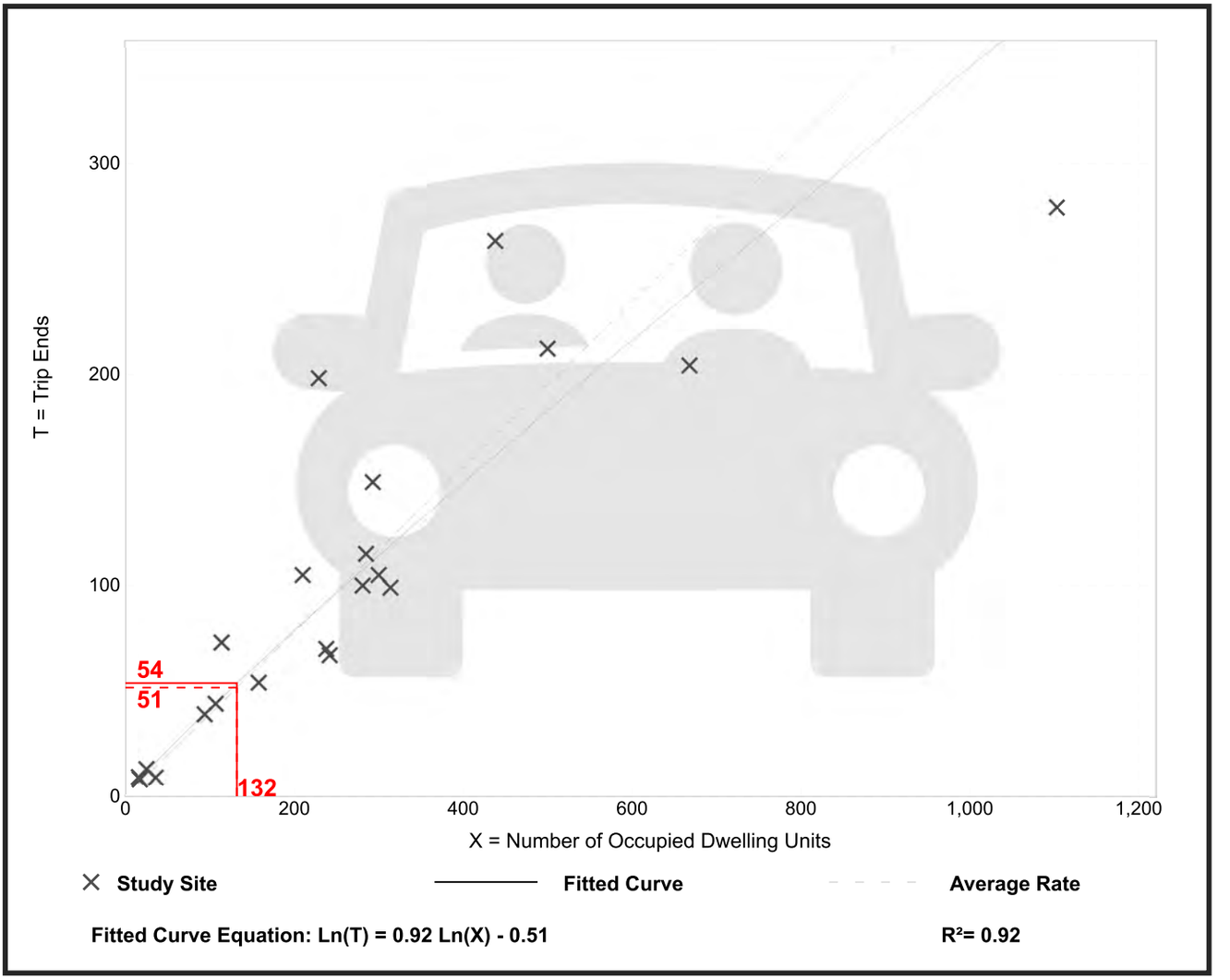
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Occupied 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:	21
Avg. Num. of Occupied Dwelling Units:	270
Directional Distribution:	20% entering, 80% exiting

Vehicle Trip Generation per Occupied Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.25 - 0.86	0.15

Data Plot and Equation



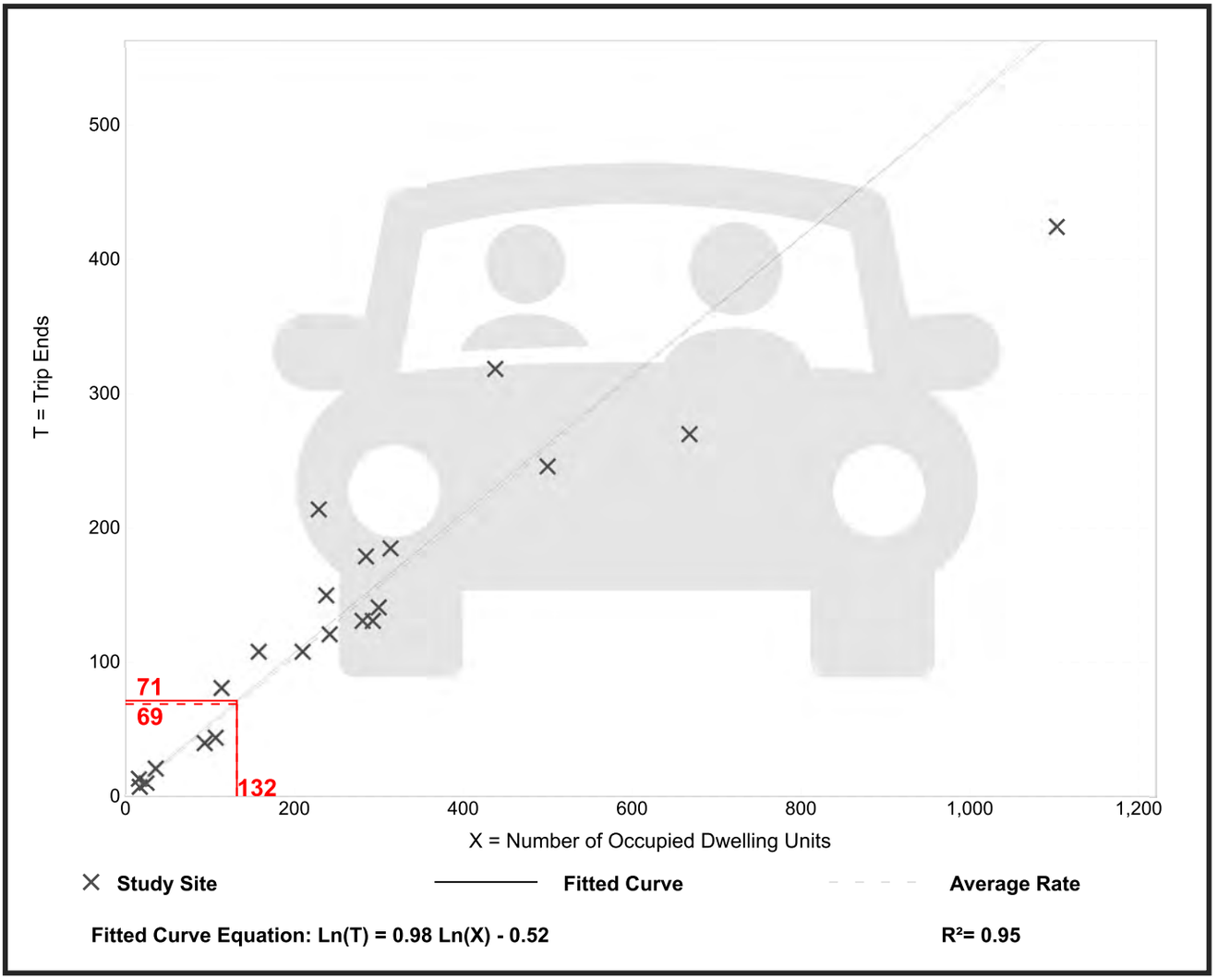
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Occupied 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:	21
Avg. Num. of Occupied Dwelling Units:	270
Directional Distribution:	65% entering, 35% exiting

Vehicle Trip Generation per Occupied Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.38 - 0.93	0.14

Data Plot and Equation



Multifamily Housing (Low-Rise)
(220)

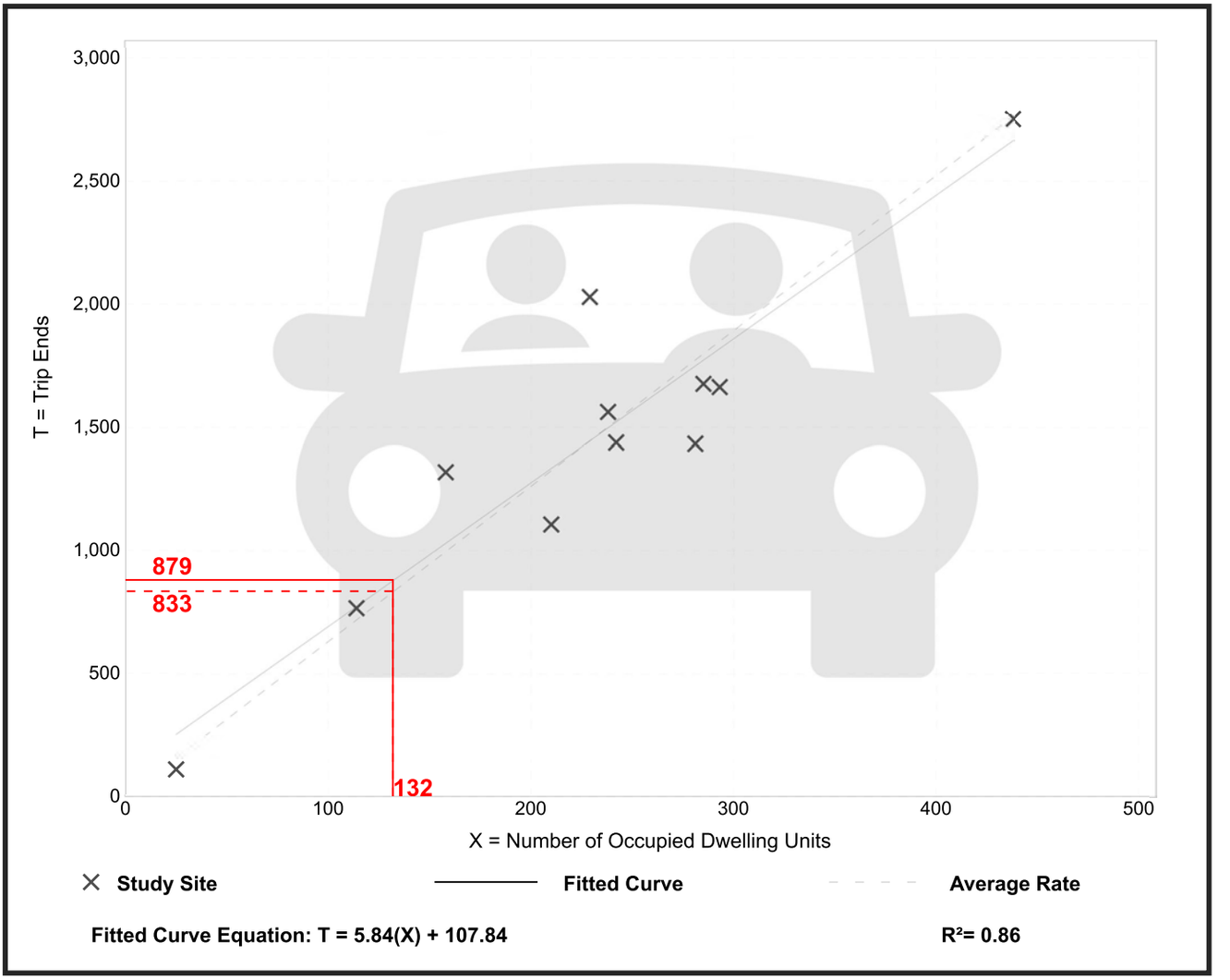
Vehicle Trip Ends vs: **Occupied Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 11
Avg. Num. of Occupied Dwelling Units: 228
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Occupied Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.31	4.36 - 8.86	1.17

Data Plot and Equation



Fitted Curve Equation: T = 5.84(X) + 107.84

R^2= 0.86

Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Occupied 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:	21
Avg. Num. of Occupied Dwelling Units:	270
Directional Distribution:	20% entering, 80% exiting

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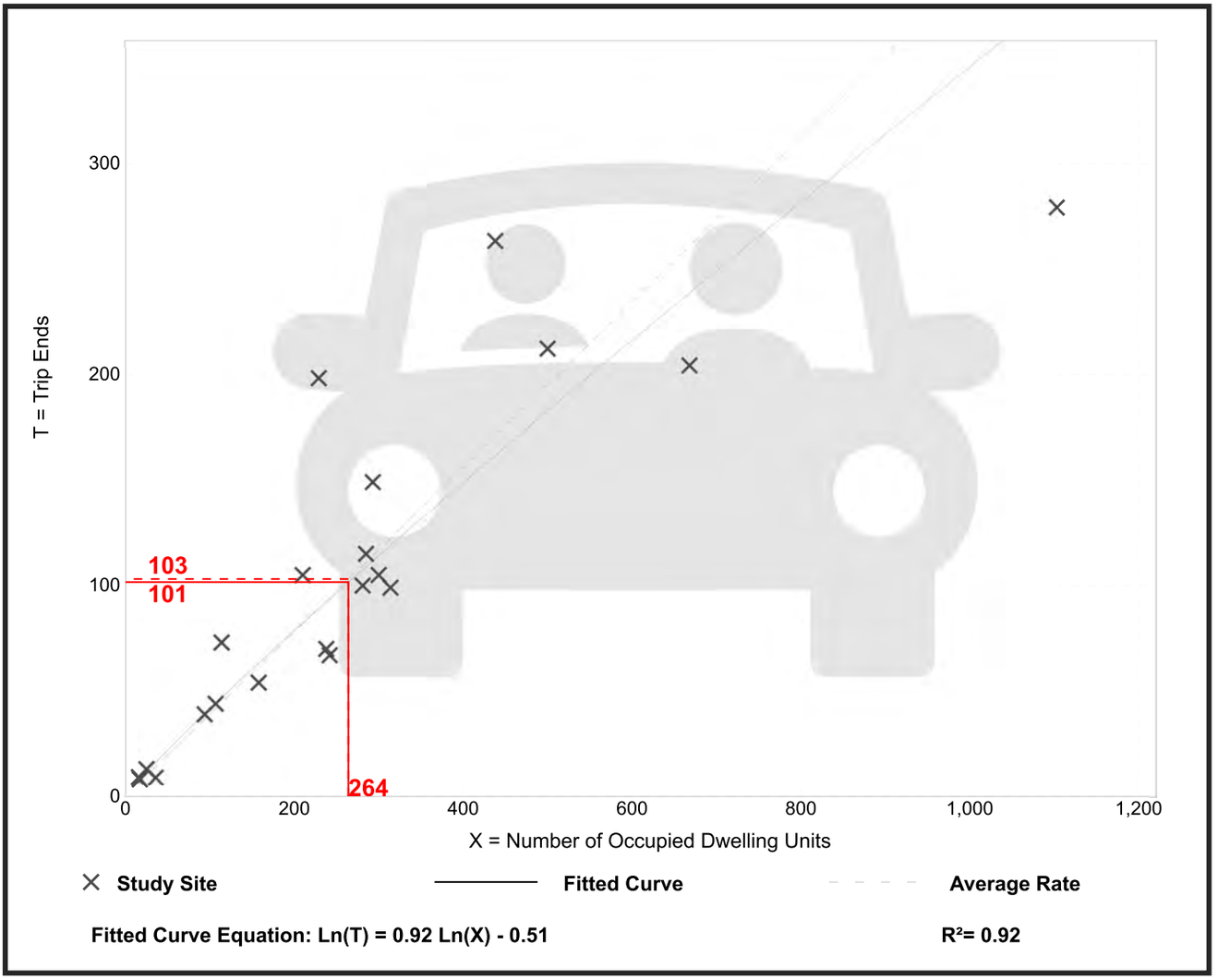
Data Plot and Equation



Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Occupied 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:	21
Avg. Num. of Occupied Dwelling Units:	270
Directional Distribution:	65% entering, 35% exiting

Vehicle Trip Generation per Occupied Dwelling Unit

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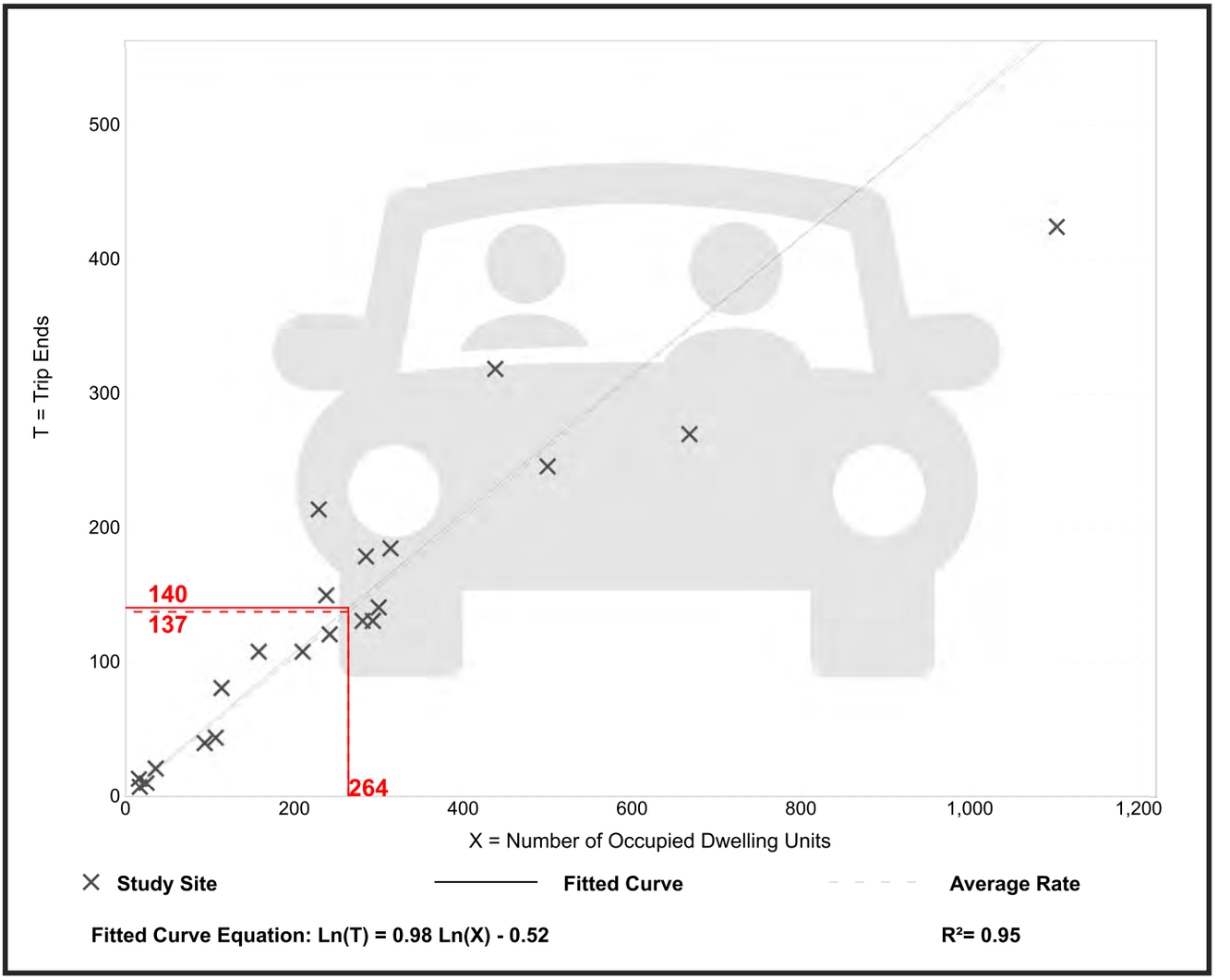
Data Plot and Equation



Multifamily Housing (Low-Rise)
(220)

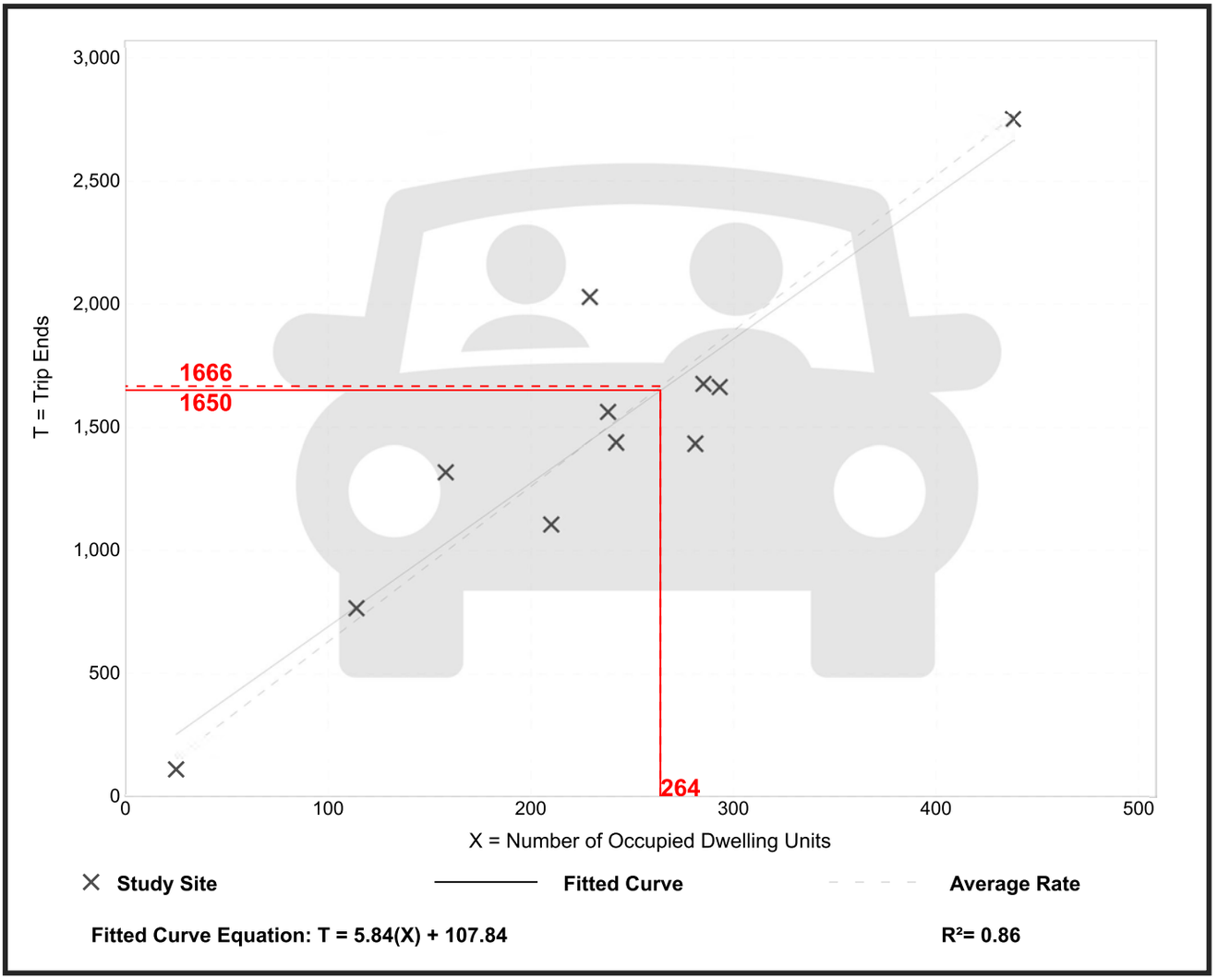
Vehicle Trip Ends vs: **Occupied Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 11
Avg. Num. of Occupied Dwelling Units: 228
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Occupied Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.31	4.36 - 8.86	1.17

Data Plot and Equation



Fitted Curve Equation: T = 5.84(X) + 107.84

R^2= 0.86

APPENDIX C
EXISTING TRAFFIC OPERATIONS

CLEARCOURSE

Intersection	
Int Delay, s/veh	8.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	565	464	0	417	548	0	0	0	162	0	70
Future Vol, veh/h	0	565	464	0	417	548	0	0	0	162	0	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	88	88	92	87	87	92	92	92	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	642	527	0	479	630	0	0	0	213	0	92

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	479	0	-	642	0	0	882	1121	321	800	1121	240
Stage 1	-	-	-	-	-	-	642	642	-	479	479	-
Stage 2	-	-	-	-	-	-	240	479	-	321	642	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1080	-	0	939	-	0	241	205	675	276	205	761
Stage 1	-	-	0	-	-	0	429	467	-	537	553	-
Stage 2	-	-	0	-	-	0	742	553	-	665	467	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	1080	-	-	939	-	-	212	205	675	276	205	761
Mov Cap-2 Maneuver	-	-	-	-	-	-	212	205	-	276	205	-
Stage 1	-	-	-	-	-	-	429	467	-	537	553	-
Stage 2	-	-	-	-	-	-	652	553	-	665	467	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	39
HCM LOS			A	E

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	939	-	1080	-	276	761
HCM Lane V/C Ratio	-	-	-	-	-	0.772	0.121
HCM Control Delay (s)	0	0	-	0	-	51.4	10.4
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	5.8	0.4

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	179	1	336	0	0	0	0	655	0	0	944	0
Future Volume (veh/h)	179	1	336	0	0	0	0	655	0	0	944	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	229	1	0	0	0	0	0	712	0	0	1137	0
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.92	0.92	0.92	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	584	328		544	328	0	272	1722	0	272	2474	0
Arrive On Green	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.48	0.00
Sat Flow, veh/h	1781	1870	2790	2748	1870	0	495	3647	0	738	5274	0
Grp Volume(v), veh/h	229	1	0	0	0	0	0	712	0	0	1137	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1374	1870	0	495	1777	0	738	1702	0
Q Serve(g_s), s	3.2	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.9	0.0
Cycle Q Clear(g_c), s	3.2	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.9	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	584	328		544	328	0	272	1722	0	272	2474	0
V/C Ratio(X)	0.39	0.00		0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.46	0.00
Avail Cap(c_a), veh/h	1484	1273		1932	1273	0	463	3090	0	556	4440	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	10.3	9.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	4.5	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	9.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	4.7	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		230	A		0			712			1137	
Approach Delay, s/veh		10.7			0.0			4.6			4.7	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.3		9.1		17.3		9.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		5.9		5.2		5.4		0.0				
Green Ext Time (p_c), s		6.9		0.5		4.2		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			5.3									
HCM 6th LOS			A									

Notes

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	0	0	0	0	5	942	0	0	983	1
Future Vol, veh/h	2	0	0	0	0	0	5	942	0	0	983	1
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	92	92	92	85	85	85	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	0	0	0	0	6	1108	0	0	1092	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1658	2212	546	-	-	554	1093	0	0	1108	0	0
Stage 1	1092	1092	-	-	-	-	-	-	-	-	-	-
Stage 2	566	1120	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	64	43	482	0	0	476	634	-	-	626	-	-
Stage 1	229	289	-	0	0	-	-	-	-	-	-	-
Stage 2	476	280	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	64	43	482	-	-	476	634	-	-	626	-	-
Mov Cap-2 Maneuver	64	43	-	-	-	-	-	-	-	-	-	-
Stage 1	227	289	-	-	-	-	-	-	-	-	-	-
Stage 2	471	277	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	69.1	0	0.1	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	634	-	-	64	-	626	-	-
HCM Lane V/C Ratio	0.009	-	-	0.125	-	-	-	-
HCM Control Delay (s)	10.7	-	-	69.1	0	0	-	-
HCM Lane LOS	B	-	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	-	0	-	-

Intersection	
Int Delay, s/veh	17

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	363	211	0	916	440	0	0	0	139	0	98
Future Vol, veh/h	0	363	211	0	916	440	0	0	0	139	0	98
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	403	234	0	974	468	0	0	0	162	0	114

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	974	0	-	403	0	0	890	1377	202	1176	1377	487
Stage 1	-	-	-	-	-	-	403	403	-	974	974	-
Stage 2	-	-	-	-	-	-	487	974	-	202	403	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	704	-	0	1152	-	0	237	144	805	~ 147	144	526
Stage 1	-	-	0	-	-	0	595	598	-	270	328	-
Stage 2	-	-	0	-	-	0	531	328	-	781	598	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	704	-	-	1152	-	-	186	144	805	~ 147	144	526
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	144	-	~ 147	144	-
Stage 1	-	-	-	-	-	-	595	598	-	270	328	-
Stage 2	-	-	-	-	-	-	416	328	-	781	598	-

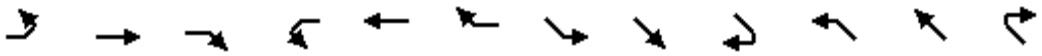
Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	102
HCM LOS			A	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	1152	-	704	-	147	526
HCM Lane V/C Ratio	-	-	-	-	-	1.1	0.217
HCM Control Delay (s)	0	0	-	0	-	164.2	13.7
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	8.8	0.8

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

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	395	2	678	0	0	0	0	452	0	0	1121	0
Future Volume (veh/h)	395	2	678	0	0	0	0	452	0	0	1121	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	407	2	0	0	0	0	0	491	0	0	1260	0
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	723	538		422	538	0	211	1594	0	211	2290	0
Arrive On Green	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.45	0.00
Sat Flow, veh/h	1781	1870	2790	2745	1870	0	440	3647	0	906	5274	0
Grp Volume(v), veh/h	407	2	0	0	0	0	0	491	0	0	1260	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1373	1870	0	440	1777	0	906	1702	0
Q Serve(g_s), s	7.2	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	6.2	0.0
Cycle Q Clear(g_c), s	7.2	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	6.2	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	723	538		422	538	0	211	1594	0	211	2290	0
V/C Ratio(X)	0.56	0.00		0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.55	0.00
Avail Cap(c_a), veh/h	1151	987		1082	987	0	311	2397	0	416	3444	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	11.2	8.7	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	6.9	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	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	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	8.7	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	7.1	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		409	A		0			491			1260	
Approach Delay, s/veh		11.9			0.0			6.1			7.1	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.8		14.3		19.8		14.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		8.2		9.2		5.0		0.0				
Green Ext Time (p_c), s		7.1		0.8		2.7		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

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

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	2	0	0	0	2	1088	0	0	1129	1
Future Vol, veh/h	4	0	2	0	0	0	2	1088	0	0	1129	1
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	92	92	92	92	92	92	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	3	0	0	0	2	1183	0	0	1164	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1760	2351	582	-	-	592	1165	0	0	1183	0	0
Stage 1	1164	1164	-	-	-	-	-	-	-	-	-	-
Stage 2	596	1187	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	54	35	456	0	0	449	595	-	-	586	-	-
Stage 1	207	267	-	0	0	-	-	-	-	-	-	-
Stage 2	457	260	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	54	35	456	-	-	449	595	-	-	586	-	-
Mov Cap-2 Maneuver	54	35	-	-	-	-	-	-	-	-	-	-
Stage 1	206	267	-	-	-	-	-	-	-	-	-	-
Stage 2	455	259	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	59.7	0	0	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	595	-	-	76	-	586	-	-
HCM Lane V/C Ratio	0.004	-	-	0.136	-	-	-	-
HCM Control Delay (s)	11.1	-	-	59.7	0	0	-	-
HCM Lane LOS	B	-	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	-	0	-	-

APPENDIX D
NO-BUILD TRAFFIC OPERATIONS

CLEARCOURSE

Intersection	
Int Delay, s/veh	9.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	577	474	0	426	559	0	0	0	166	0	72
Future Vol, veh/h	0	577	474	0	426	559	0	0	0	166	0	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	87	87	87	92	92	92	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	656	539	0	490	643	0	0	0	218	0	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	490	0	-	656	0	0	901	1146	328	818	1146	245
Stage 1	-	-	-	-	-	-	656	656	-	490	490	-
Stage 2	-	-	-	-	-	-	245	490	-	328	656	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1070	-	0	927	-	0	233	198	668	268	198	755
Stage 1	-	-	0	-	-	0	421	460	-	529	547	-
Stage 2	-	-	0	-	-	0	737	547	-	659	460	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	1070	-	-	927	-	-	204	198	668	268	198	755
Mov Cap-2 Maneuver	-	-	-	-	-	-	204	198	-	268	198	-
Stage 1	-	-	-	-	-	-	421	460	-	529	547	-
Stage 2	-	-	-	-	-	-	645	547	-	659	460	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	43.9
HCM LOS			A	E

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	927	-	1070	-	268	755
HCM Lane V/C Ratio	-	-	-	-	-	0.815	0.125
HCM Control Delay (s)	0	0	-	0	-	58.4	10.5
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	6.5	0.4

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	183	2	343	0	0	0	0	669	0	0	944	0
Future Volume (veh/h)	183	2	343	0	0	0	0	669	0	0	944	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	235	3	0	0	0	0	0	727	0	0	1137	0
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.92	0.92	0.92	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	591	338		540	338	0	270	1713	0	270	2462	0
Arrive On Green	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.48	0.00
Sat Flow, veh/h	1781	1870	2790	2743	1870	0	495	3647	0	728	5274	0
Grp Volume(v), veh/h	235	3	0	0	0	0	0	727	0	0	1137	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1371	1870	0	495	1777	0	728	1702	0
Q Serve(g_s), s	3.3	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	4.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	4.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	591	338		540	338	0	270	1713	0	270	2462	0
V/C Ratio(X)	0.40	0.01		0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.46	0.00
Avail Cap(c_a), veh/h	1472	1262		1896	1262	0	458	3065	0	547	4403	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	10.3	9.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	4.6	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	9.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	4.7	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		238	A		0			727			1137	
Approach Delay, s/veh		10.7			0.0			4.7			4.7	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.4		9.3		17.4		9.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		6.0		5.3		5.6		0.0				
Green Ext Time (p_c), s		6.9		0.5		4.2		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			5.4									
HCM 6th LOS			A									

Notes

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

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	1	0	0	12	6	961	0	0	1003	2
Future Vol, veh/h	3	0	1	0	0	12	6	961	0	0	1003	2
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	92	92	92	85	85	85	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	0	4	0	0	13	7	1131	0	0	1114	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1694	2259	557	-	-	566	1116	0	0	1131	0	0
Stage 1	1114	1114	-	-	-	-	-	-	-	-	-	-
Stage 2	580	1145	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	60	41	474	0	0	467	622	-	-	613	-	-
Stage 1	222	282	-	0	0	-	-	-	-	-	-	-
Stage 2	467	272	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	58	41	474	-	-	467	622	-	-	613	-	-
Mov Cap-2 Maneuver	58	41	-	-	-	-	-	-	-	-	-	-
Stage 1	220	282	-	-	-	-	-	-	-	-	-	-
Stage 2	449	269	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	66.6	12.9	0.1	0
HCM LOS	F	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	622	-	-	74	467	613	-	-
HCM Lane V/C Ratio	0.011	-	-	0.216	0.028	-	-	-
HCM Control Delay (s)	10.9	-	-	66.6	12.9	0	-	-
HCM Lane LOS	B	-	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.8	0.1	0	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	4	4	2	0
Future Vol, veh/h	0	2	4	4	2	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	4	4	2	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	14	2	2	0	-	0
Stage 1	2	-	-	-	-	-
Stage 2	12	-	-	-	-	-
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	1005	1082	1620	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	1011	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1003	1082	1620	-	-	-
Mov Cap-2 Maneuver	1003	-	-	-	-	-
Stage 1	1019	-	-	-	-	-
Stage 2	1011	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.3	3.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1620	-	1082	-	-
HCM Lane V/C Ratio	0.003	-	0.002	-	-
HCM Control Delay (s)	7.2	0	8.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	20

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	371	216	0	935	449	0	0	0	142	0	100
Future Vol, veh/h	0	371	216	0	935	449	0	0	0	142	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	412	240	0	995	478	0	0	0	165	0	116

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	995	0	-	412	0	0	910	1407	206	1201	1407	498
Stage 1	-	-	-	-	-	-	412	412	-	995	995	-
Stage 2	-	-	-	-	-	-	498	995	-	206	412	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	691	-	0	1143	-	0	230	138	800	~ 140	138	518
Stage 1	-	-	0	-	-	0	588	593	-	262	321	-
Stage 2	-	-	0	-	-	0	523	321	-	777	593	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	691	-	-	1143	-	-	178	138	800	~ 140	138	518
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	138	-	~ 140	138	-
Stage 1	-	-	-	-	-	-	588	593	-	262	321	-
Stage 2	-	-	-	-	-	-	406	321	-	777	593	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	120
HCM LOS			A	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	1143	-	691	-	140	518
HCM Lane V/C Ratio	-	-	-	-	-	1.179	0.224
HCM Control Delay (s)	0	0	-	0	-	194.7	14
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	9.6	0.9

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

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	403	3	692	0	0	0	0	462	0	0	1144	0
Future Volume (veh/h)	403	3	692	0	0	0	0	462	0	0	1144	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	415	3	0	0	0	0	0	502	0	0	1285	0
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	726	545		414	545	0	207	1598	0	207	2296	0
Arrive On Green	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.45	0.00
Sat Flow, veh/h	1781	1870	2790	2743	1870	0	430	3647	0	896	5274	0
Grp Volume(v), veh/h	415	3	0	0	0	0	0	502	0	0	1285	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1371	1870	0	430	1777	0	896	1702	0
Q Serve(g_s), s	7.5	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	6.4	0.0
Cycle Q Clear(g_c), s	7.5	0.0	0.0	0.0	0.0	0.0	0.0	3.1	0.0	0.0	6.4	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	726	545		414	545	0	207	1598	0	207	2296	0
V/C Ratio(X)	0.57	0.01		0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.56	0.00
Avail Cap(c_a), veh/h	1130	969		1036	969	0	298	2352	0	397	3379	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	11.4	8.7	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	7.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	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	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	8.7	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	7.2	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		418	A		0			502			1285	
Approach Delay, s/veh		12.1			0.0			6.2			7.2	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.1		14.6		20.1		14.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		8.4		9.5		5.1		0.0				
Green Ext Time (p_c), s		7.2		0.8		2.8		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			7.9									
HCM 6th LOS			A									

Notes

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

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	3	0	0	0	3	1110	0	0	1152	2
Future Vol, veh/h	5	0	3	0	0	0	3	1110	0	0	1152	2
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	92	92	92	92	92	92	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	5	0	0	0	3	1207	0	0	1188	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1798	2401	594	-	-	604	1190	0	0	1207	0	0
Stage 1	1188	1188	-	-	-	-	-	-	-	-	-	-
Stage 2	610	1213	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	50	33	448	0	0	441	582	-	-	574	-	-
Stage 1	200	260	-	0	0	-	-	-	-	-	-	-
Stage 2	448	253	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	50	33	448	-	-	441	582	-	-	574	-	-
Mov Cap-2 Maneuver	50	33	-	-	-	-	-	-	-	-	-	-
Stage 1	199	260	-	-	-	-	-	-	-	-	-	-
Stage 2	446	252	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	63.5	0	0	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	582	-	-	75	-	574	-	-
HCM Lane V/C Ratio	0.006	-	-	0.184	-	-	-	-
HCM Control Delay (s)	11.2	-	-	63.5	0	0	-	-
HCM Lane LOS	B	-	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.6	-	0	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	3	2	4	0
Future Vol, veh/h	0	4	3	2	4	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	4	3	2	4	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	12	4	4	0	-	0
Stage 1	4	-	-	-	-	-
Stage 2	8	-	-	-	-	-
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	1008	1080	1618	-	-	-
Stage 1	1019	-	-	-	-	-
Stage 2	1015	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1006	1080	1618	-	-	-
Mov Cap-2 Maneuver	1006	-	-	-	-	-
Stage 1	1017	-	-	-	-	-
Stage 2	1015	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.3	4.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1618	-	1080	-	-
HCM Lane V/C Ratio	0.002	-	0.004	-	-
HCM Control Delay (s)	7.2	0	8.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

APPENDIX E
PROPOSED BUILD TRAFFIC OPERATIONS

CLEARCOURSE

Intersection	
Int Delay, s/veh	10

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	580	474	0	434	569	0	0	0	167	0	72
Future Vol, veh/h	0	580	474	0	434	569	0	0	0	167	0	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	87	87	87	92	92	92	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	659	539	0	499	654	0	0	0	220	0	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	499	0	-	659	0	0	909	1158	330	829	1158	250
Stage 1	-	-	-	-	-	-	659	659	-	499	499	-
Stage 2	-	-	-	-	-	-	250	499	-	330	659	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1061	-	0	925	-	0	230	195	666	263	195	750
Stage 1	-	-	0	-	-	0	419	459	-	522	542	-
Stage 2	-	-	0	-	-	0	732	542	-	657	459	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	1061	-	-	925	-	-	201	195	666	263	195	750
Mov Cap-2 Maneuver	-	-	-	-	-	-	201	195	-	263	195	-
Stage 1	-	-	-	-	-	-	419	459	-	522	542	-
Stage 2	-	-	-	-	-	-	640	542	-	657	459	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	46.8
HCM LOS			A	E

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	925	-	1061	-	263	750
HCM Lane V/C Ratio	-	-	-	-	-	0.836	0.126
HCM Control Delay (s)	0	0	-	0	-	62.4	10.5
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	6.8	0.4

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	183	2	345	0	0	0	0	673	0	0	986	0
Future Volume (veh/h)	183	2	345	0	0	0	0	673	0	0	986	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	235	3	0	0	0	0	0	732	0	0	1188	0
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.92	0.92	0.92	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	584	337		527	337	0	263	1743	0	263	2504	0
Arrive On Green	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.49	0.00
Sat Flow, veh/h	1781	1870	2790	2743	1870	0	472	3647	0	724	5274	0
Grp Volume(v), veh/h	235	3	0	0	0	0	0	732	0	0	1188	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1371	1870	0	472	1777	0	724	1702	0
Q Serve(g_s), s	3.4	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	4.2	0.0
Cycle Q Clear(g_c), s	3.4	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	4.2	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	584	337		527	337	0	263	1743	0	263	2504	0
V/C Ratio(X)	0.40	0.01		0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.47	0.00
Avail Cap(c_a), veh/h	1437	1232		1840	1232	0	429	2991	0	518	4298	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	10.6	9.2	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	4.6	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.0	9.2	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	4.8	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		238	A		0			732			1188	
Approach Delay, s/veh		11.0			0.0			4.6			4.8	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.9		9.4		17.9		9.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		6.2		5.4		5.6		0.0				
Green Ext Time (p_c), s		7.2		0.5		4.3		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			5.4									
HCM 6th LOS			A									

Notes

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

Intersection	
Int Delay, s/veh	62.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	0	12	0	0	0	11	983	0	0	1003	8
Future Vol, veh/h	35	0	12	0	0	0	11	983	0	0	1003	8
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	92	92	92	85	85	85	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	0	48	0	0	0	13	1156	0	0	1114	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1718	2296	557	-	-	578	1123	0	0	1156	0	0
Stage 1	1114	1114	-	-	-	-	-	-	-	-	-	-
Stage 2	604	1182	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	~ 58	38	474	0	0	459	618	-	-	600	-	-
Stage 1	222	282	-	0	0	-	-	-	-	-	-	-
Stage 2	452	262	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 57	37	474	-	-	459	618	-	-	600	-	-
Mov Cap-2 Maneuver	~ 57	37	-	-	-	-	-	-	-	-	-	-
Stage 1	217	282	-	-	-	-	-	-	-	-	-	-
Stage 2	442	256	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	$ 819.5	0	0.1	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	618	-	-	74	-	600	-	-
HCM Lane V/C Ratio	0.021	-	-	2.541	-	-	-	-
HCM Control Delay (s)	10.9	-	-	$ 819.5	0	0	-	-
HCM Lane LOS	B	-	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	18.1	-	0	-	-

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

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	45	15	4	2	0
Future Vol, veh/h	0	45	15	4	2	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	49	16	4	2	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	38	2	2	0	-	0
Stage 1	2	-	-	-	-	-
Stage 2	36	-	-	-	-	-
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	974	1082	1620	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	964	1082	1620	-	-	-
Mov Cap-2 Maneuver	964	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	5.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1620	-	1082	-	-
HCM Lane V/C Ratio	0.01	-	0.045	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	0	0	4	0	0
Future Vol, veh/h	2	0	0	4	0	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	2	0	0	4	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2	0	6	2
Stage 1	-	-	-	-	2	-
Stage 2	-	-	-	-	4	-
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	-	-	1620	-	1015	1082
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1019	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	1015	1082
Mov Cap-2 Maneuver	-	-	-	-	1015	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1019	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1620	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	21.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	378	216	0	942	453	0	0	0	145	0	100
Future Vol, veh/h	0	378	216	0	942	453	0	0	0	145	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	420	240	0	1002	482	0	0	0	169	0	116

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1002	0	-	420	0	0	921	1422	210	1212	1422	501
Stage 1	-	-	-	-	-	-	420	420	-	1002	1002	-
Stage 2	-	-	-	-	-	-	501	1002	-	210	420	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	687	-	0	1136	-	0	225	135	796	~ 138	135	515
Stage 1	-	-	0	-	-	0	581	588	-	260	318	-
Stage 2	-	-	0	-	-	0	521	318	-	773	588	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	687	-	-	1136	-	-	174	135	796	~ 138	135	515
Mov Cap-2 Maneuver	-	-	-	-	-	-	174	135	-	~ 138	135	-
Stage 1	-	-	-	-	-	-	581	588	-	260	318	-
Stage 2	-	-	-	-	-	-	403	318	-	773	588	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	130.4
HCM LOS			A	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	1136	-	687	-	138	515
HCM Lane V/C Ratio	-	-	-	-	-	1.222	0.226
HCM Control Delay (s)	0	0	-	0	-	210.7	14
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	10.1	0.9

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

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	403	3	706	0	0	0	0	471	0	0	1157	0
Future Volume (veh/h)	403	3	706	0	0	0	0	471	0	0	1157	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	415	3	0	0	0	0	0	512	0	0	1300	0
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	724	544		412	544	0	206	1605	0	206	2306	0
Arrive On Green	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.45	0.00
Sat Flow, veh/h	1781	1870	2790	2743	1870	0	424	3647	0	888	5274	0
Grp Volume(v), veh/h	415	3	0	0	0	0	0	512	0	0	1300	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1371	1870	0	424	1777	0	888	1702	0
Q Serve(g_s), s	7.5	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	6.6	0.0
Cycle Q Clear(g_c), s	7.5	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	6.6	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	724	544		412	544	0	206	1605	0	206	2306	0
V/C Ratio(X)	0.57	0.01		0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.56	0.00
Avail Cap(c_a), veh/h	1123	963		1025	963	0	293	2337	0	389	3358	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	11.5	8.8	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	7.1	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	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	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.2	8.8	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.0	7.3	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		418	A		0			512			1300	
Approach Delay, s/veh		12.2			0.0			6.3			7.3	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.3		14.7		20.3		14.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		8.6		9.5		5.2		0.0				
Green Ext Time (p_c), s		7.2		0.8		2.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		8.0
HCM 6th LOS		A

Notes

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

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	21	0	12	0	0	0	26	1123	0	0	1152	25
Future Vol, veh/h	21	0	12	0	0	0	26	1123	0	0	1152	25
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	92	92	92	92	92	92	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	0	21	0	0	0	28	1221	0	0	1188	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1855	2465	594	-	-	611	1214	0	0	1221	0	0
Stage 1	1188	1188	-	-	-	-	-	-	-	-	-	-
Stage 2	667	1277	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	46	30	448	0	0	437	570	-	-	567	-	-
Stage 1	200	260	-	0	0	-	-	-	-	-	-	-
Stage 2	414	236	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	44	29	448	-	-	437	570	-	-	567	-	-
Mov Cap-2 Maneuver	44	29	-	-	-	-	-	-	-	-	-	-
Stage 1	190	260	-	-	-	-	-	-	-	-	-	-
Stage 2	394	224	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	182.7	0	0.3	0
HCM LOS	F	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	570	-	-	65	-	567	-	-
HCM Lane V/C Ratio	0.05	-	-	0.875	-	-	-	-
HCM Control Delay (s)	11.6	-	-	182.7	0	0	-	-
HCM Lane LOS	B	-	-	F	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	4.1	-	0	-	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	29	49	2	4	0
Future Vol, veh/h	0	29	49	2	4	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	32	53	2	4	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	112	4	4	0	-	0
Stage 1	4	-	-	-	-	-
Stage 2	108	-	-	-	-	-
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	885	1080	1618	-	-	-
Stage 1	1019	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	856	1080	1618	-	-	-
Mov Cap-2 Maneuver	856	-	-	-	-	-
Stage 1	985	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1618	-	1080	-	-
HCM Lane V/C Ratio	0.033	-	0.029	-	-
HCM Control Delay (s)	7.3	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	0	0	2	0	0
Future Vol, veh/h	4	0	0	2	0	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	4	0	0	2	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	4	0	6	4
Stage 1	-	-	-	-	4	-
Stage 2	-	-	-	-	2	-
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	-	-	1618	-	1015	1080
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	1021	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1618	-	1015	1080
Mov Cap-2 Maneuver	-	-	-	-	1015	-
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	1021	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1618	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Appendix F
Proposed Build Traffic Operations with Improvements

CLEARCOURSE

Intersection	
Int Delay, s/veh	10

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	580	474	0	434	569	0	0	0	167	0	72
Future Vol, veh/h	0	580	474	0	434	569	0	0	0	167	0	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	87	87	87	92	92	92	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	659	539	0	499	654	0	0	0	220	0	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	499	0	-	659	0	0	909	1158	330	829	1158	250
Stage 1	-	-	-	-	-	-	659	659	-	499	499	-
Stage 2	-	-	-	-	-	-	250	499	-	330	659	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1061	-	0	925	-	0	230	195	666	263	195	750
Stage 1	-	-	0	-	-	0	419	459	-	522	542	-
Stage 2	-	-	0	-	-	0	732	542	-	657	459	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	1061	-	-	925	-	-	201	195	666	263	195	750
Mov Cap-2 Maneuver	-	-	-	-	-	-	201	195	-	263	195	-
Stage 1	-	-	-	-	-	-	419	459	-	522	542	-
Stage 2	-	-	-	-	-	-	640	542	-	657	459	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	46.8
HCM LOS			A	E

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	925	-	1061	-	263	750
HCM Lane V/C Ratio	-	-	-	-	-	0.836	0.126
HCM Control Delay (s)	0	0	-	0	-	62.4	10.5
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	6.8	0.4

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	183	2	345	0	0	0	0	673	0	0	986	0
Future Volume (veh/h)	183	2	345	0	0	0	0	673	0	0	986	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	235	3	0	0	0	0	0	732	0	0	1188	0
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.92	0.92	0.92	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	584	337		527	337	0	263	1743	0	263	2504	0
Arrive On Green	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.49	0.00
Sat Flow, veh/h	1781	1870	2790	2743	1870	0	472	3647	0	724	5274	0
Grp Volume(v), veh/h	235	3	0	0	0	0	0	732	0	0	1188	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1371	1870	0	472	1777	0	724	1702	0
Q Serve(g_s), s	3.4	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	4.2	0.0
Cycle Q Clear(g_c), s	3.4	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	4.2	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	584	337		527	337	0	263	1743	0	263	2504	0
V/C Ratio(X)	0.40	0.01		0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.47	0.00
Avail Cap(c_a), veh/h	1437	1232		1840	1232	0	429	2991	0	518	4298	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	10.6	9.2	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	4.6	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.0	9.2	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	4.8	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		238	A		0			732			1188	
Approach Delay, s/veh		11.0			0.0			4.6			4.8	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.9		9.4		17.9		9.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		6.2		5.4		5.6		0.0				
Green Ext Time (p_c), s		7.2		0.5		4.3		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			5.4									
HCM 6th LOS			A									

Notes

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

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	47	0	0	0	11	983	0	0	1003	8
Future Vol, veh/h	0	0	47	0	0	0	11	983	0	0	1003	8
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	92	92	92	85	85	85	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	188	0	0	0	13	1156	0	0	1114	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1718	2296	557	-	-	578	1123	0	0	1156	0	0
Stage 1	1114	1114	-	-	-	-	-	-	-	-	-	-
Stage 2	604	1182	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	58	38	474	0	0	459	618	-	-	600	-	-
Stage 1	222	282	-	0	0	-	-	-	-	-	-	-
Stage 2	452	262	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	57	37	474	-	-	459	618	-	-	600	-	-
Mov Cap-2 Maneuver	57	37	-	-	-	-	-	-	-	-	-	-
Stage 1	217	282	-	-	-	-	-	-	-	-	-	-
Stage 2	442	256	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.5	0	0.1	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	618	-	-	474	-	600	-	-
HCM Lane V/C Ratio	0.021	-	-	0.397	-	-	-	-
HCM Control Delay (s)	10.9	-	-	17.5	0	0	-	-
HCM Lane LOS	B	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.9	-	0	-	-

Intersection	
Int Delay, s/veh	7.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	45	15	4	2	0
Future Vol, veh/h	0	45	15	4	2	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	49	16	4	2	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	38	2	2	0	-	0
Stage 1	2	-	-	-	-	-
Stage 2	36	-	-	-	-	-
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	974	1082	1620	-	-	-
Stage 1	1021	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	964	1082	1620	-	-	-
Mov Cap-2 Maneuver	964	-	-	-	-	-
Stage 1	1011	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	5.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1620	-	1082	-	-
HCM Lane V/C Ratio	0.01	-	0.045	-	-
HCM Control Delay (s)	7.2	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	0	0	4	0	0
Future Vol, veh/h	2	0	0	4	0	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	2	0	0	4	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2	0	6	2
Stage 1	-	-	-	-	2	-
Stage 2	-	-	-	-	4	-
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	-	-	1620	-	1015	1082
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1019	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	1015	1082
Mov Cap-2 Maneuver	-	-	-	-	1015	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1019	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1620	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	21.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	378	216	0	942	453	0	0	0	145	0	100
Future Vol, veh/h	0	378	216	0	942	453	0	0	0	145	0	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	420	240	0	1002	482	0	0	0	169	0	116

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1002	0	-	420	0	0	921	1422	210	1212	1422	501
Stage 1	-	-	-	-	-	-	420	420	-	1002	1002	-
Stage 2	-	-	-	-	-	-	501	1002	-	210	420	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	687	-	0	1136	-	0	225	135	796	~ 138	135	515
Stage 1	-	-	0	-	-	0	581	588	-	260	318	-
Stage 2	-	-	0	-	-	0	521	318	-	773	588	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	687	-	-	1136	-	-	174	135	796	~ 138	135	515
Mov Cap-2 Maneuver	-	-	-	-	-	-	174	135	-	~ 138	135	-
Stage 1	-	-	-	-	-	-	581	588	-	260	318	-
Stage 2	-	-	-	-	-	-	403	318	-	773	588	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	130.4
HCM LOS			A	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	1136	-	687	-	138	515
HCM Lane V/C Ratio	-	-	-	-	-	1.222	0.226
HCM Control Delay (s)	0	0	-	0	-	210.7	14
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	10.1	0.9

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

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	403	3	706	0	0	0	0	471	0	0	1157	0
Future Volume (veh/h)	403	3	706	0	0	0	0	471	0	0	1157	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	415	3	0	0	0	0	0	512	0	0	1300	0
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	724	544		412	544	0	206	1605	0	206	2306	0
Arrive On Green	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.45	0.00
Sat Flow, veh/h	1781	1870	2790	2743	1870	0	424	3647	0	888	5274	0
Grp Volume(v), veh/h	415	3	0	0	0	0	0	512	0	0	1300	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1371	1870	0	424	1777	0	888	1702	0
Q Serve(g_s), s	7.5	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	6.6	0.0
Cycle Q Clear(g_c), s	7.5	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	6.6	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	724	544		412	544	0	206	1605	0	206	2306	0
V/C Ratio(X)	0.57	0.01		0.00	0.00	0.00	0.00	0.32	0.00	0.00	0.56	0.00
Avail Cap(c_a), veh/h	1123	963		1025	963	0	293	2337	0	389	3358	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	11.5	8.8	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	7.1	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	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	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.2	8.8	0.0	0.0	0.0	0.0	0.0	6.3	0.0	0.0	7.3	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		418	A		0			512			1300	
Approach Delay, s/veh		12.2			0.0			6.3			7.3	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.3		14.7		20.3		14.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		8.6		9.5		5.2		0.0				
Green Ext Time (p_c), s		7.2		0.8		2.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			8.0									
HCM 6th LOS			A									

Notes

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

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	33	0	0	0	26	1123	0	0	1152	25
Future Vol, veh/h	0	0	33	0	0	0	26	1123	0	0	1152	25
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	92	92	92	92	92	92	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	57	0	0	0	28	1221	0	0	1188	26

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1855	2465	594	-	-	611	1214	0	0	1221	0	0
Stage 1	1188	1188	-	-	-	-	-	-	-	-	-	-
Stage 2	667	1277	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	46	30	448	0	0	437	570	-	-	567	-	-
Stage 1	200	260	-	0	0	-	-	-	-	-	-	-
Stage 2	414	236	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	44	29	448	-	-	437	570	-	-	567	-	-
Mov Cap-2 Maneuver	44	29	-	-	-	-	-	-	-	-	-	-
Stage 1	190	260	-	-	-	-	-	-	-	-	-	-
Stage 2	394	224	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.2	0	0.3	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	570	-	-	448	-	567	-	-
HCM Lane V/C Ratio	0.05	-	-	0.127	-	-	-	-
HCM Control Delay (s)	11.6	-	-	14.2	0	0	-	-
HCM Lane LOS	B	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	-	0	-	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	29	49	2	4	0
Future Vol, veh/h	0	29	49	2	4	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	32	53	2	4	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	112	4	4	0	-	0
Stage 1	4	-	-	-	-	-
Stage 2	108	-	-	-	-	-
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	885	1080	1618	-	-	-
Stage 1	1019	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	856	1080	1618	-	-	-
Mov Cap-2 Maneuver	856	-	-	-	-	-
Stage 1	985	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1618	-	1080	-	-
HCM Lane V/C Ratio	0.033	-	0.029	-	-
HCM Control Delay (s)	7.3	0	8.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	0	0	2	0	0
Future Vol, veh/h	4	0	0	2	0	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	4	0	0	2	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	4	0	6	4
Stage 1	-	-	-	-	4	-
Stage 2	-	-	-	-	2	-
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	-	-	1618	-	1015	1080
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	1021	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1618	-	1015	1080
Mov Cap-2 Maneuver	-	-	-	-	1015	-
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	1021	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1618	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	12.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	605	493	0	451	592	0	0	0	174	0	75
Future Vol, veh/h	0	605	493	0	451	592	0	0	0	174	0	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	87	87	87	92	92	92	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	688	560	0	518	680	0	0	0	229	0	99

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	518	0	-	688	0	0	947	1206	344	862	1206	259
Stage 1	-	-	-	-	-	-	688	688	-	518	518	-
Stage 2	-	-	-	-	-	-	259	518	-	344	688	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1044	-	0	902	-	0	216	182	652	249	182	740
Stage 1	-	-	0	-	-	0	403	445	-	509	531	-
Stage 2	-	-	0	-	-	0	723	531	-	645	445	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	1044	-	-	902	-	-	187	182	652	249	182	740
Mov Cap-2 Maneuver	-	-	-	-	-	-	187	182	-	249	182	-
Stage 1	-	-	-	-	-	-	403	445	-	509	531	-
Stage 2	-	-	-	-	-	-	627	531	-	645	445	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	59.7
HCM LOS			A	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	902	-	1044	-	249	740
HCM Lane V/C Ratio	-	-	-	-	-	0.919	0.133
HCM Control Delay (s)	0	0	-	0	-	80.8	10.6
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	8.1	0.5

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	190	1	360	0	0	0	0	703	0	0	1044	0
Future Volume (veh/h)	190	1	360	0	0	0	0	703	0	0	1044	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	244	1	0	0	0	0	0	764	0	0	1258	0
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.92	0.92	0.92	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	584	347		506	347	0	253	1771	0	253	2545	0
Arrive On Green	0.19	0.19	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.50	0.00
Sat Flow, veh/h	1781	1870	2790	2748	1870	0	441	3647	0	703	5274	0
Grp Volume(v), veh/h	244	1	0	0	0	0	0	764	0	0	1258	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1374	1870	0	441	1777	0	703	1702	0
Q Serve(g_s), s	3.7	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	4.7	0.0
Cycle Q Clear(g_c), s	3.7	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	4.7	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	584	347		506	347	0	253	1771	0	253	2545	0
V/C Ratio(X)	0.42	0.00		0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.49	0.00
Avail Cap(c_a), veh/h	1378	1182		1732	1182	0	389	2870	0	470	4123	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	10.9	9.4	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	4.8	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	9.5	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	4.9	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		245	A		0			764			1258	
Approach Delay, s/veh		11.4			0.0			4.7			4.9	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.7		9.8		18.7		9.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		6.7		5.7		5.9		0.0				
Green Ext Time (p_c), s		7.5		0.5		4.5		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			5.5									
HCM 6th LOS			A									

Notes

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

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	85	0	0	12	16	1041	0	0	1044	12
Future Vol, veh/h	0	0	85	0	0	12	16	1041	0	0	1044	12
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	92	92	92	85	85	85	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	340	0	0	13	19	1225	0	0	1160	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1811	2423	580	-	-	613	1173	0	0	1225	0	0
Stage 1	1160	1160	-	-	-	-	-	-	-	-	-	-
Stage 2	651	1263	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	49	32	458	0	0	435	591	-	-	565	-	-
Stage 1	208	268	-	0	0	-	-	-	-	-	-	-
Stage 2	424	239	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	46	31	458	-	-	435	591	-	-	565	-	-
Mov Cap-2 Maneuver	46	31	-	-	-	-	-	-	-	-	-	-
Stage 1	201	268	-	-	-	-	-	-	-	-	-	-
Stage 2	398	231	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	32.3	13.5	0.2	0
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	591	-	-	458	435	565	-	-
HCM Lane V/C Ratio	0.032	-	-	0.742	0.03	-	-	-
HCM Control Delay (s)	11.3	-	-	32.3	13.5	0	-	-
HCM Lane LOS	B	-	-	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	6.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	75	17	11	10	0
Future Vol, veh/h	0	75	17	11	10	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	82	18	12	11	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	59	11	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	48	-	-	-	-	-
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	948	1070	1608	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	938	1070	1608	-	-	-
Mov Cap-2 Maneuver	938	-	-	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	974	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	4.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1070	-	-
HCM Lane V/C Ratio	0.011	-	0.076	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	0	7	4	0	8
Future Vol, veh/h	2	0	7	4	0	8
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	2	0	8	4	0	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2	0	22	2
Stage 1	-	-	-	-	2	-
Stage 2	-	-	-	-	20	-
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	-	-	1620	-	995	1082
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1003	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	990	1082
Mov Cap-2 Maneuver	-	-	-	-	990	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	998	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1082	-	-	1620	-
HCM Lane V/C Ratio	0.008	-	-	0.005	-
HCM Control Delay (s)	8.4	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	29.9

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	399	224	0	980	471	0	0	0	153	0	104
Future Vol, veh/h	0	399	224	0	980	471	0	0	0	153	0	104
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	443	249	0	1043	501	0	0	0	178	0	121

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1043	0	-	443	0	0	965	1486	222	1265	1486	522
Stage 1	-	-	-	-	-	-	443	443	-	1043	1043	-
Stage 2	-	-	-	-	-	-	522	1043	-	222	443	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	663	-	0	1113	-	0	209	123	782	~ 126	123	499
Stage 1	-	-	0	-	-	0	564	574	-	245	305	-
Stage 2	-	-	0	-	-	0	506	305	-	760	574	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	663	-	-	1113	-	-	158	123	782	~ 126	123	499
Mov Cap-2 Maneuver	-	-	-	-	-	-	158	123	-	~ 126	123	-
Stage 1	-	-	-	-	-	-	564	574	-	245	305	-
Stage 2	-	-	-	-	-	-	383	305	-	760	574	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	178.4
HCM LOS			A	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	1113	-	663	-	126	499
HCM Lane V/C Ratio	-	-	-	-	-	1.412	0.242
HCM Control Delay (s)	0	0	-	0	-	289.8	14.5
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	12	0.9

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

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	420	2	748	0	0	0	0	499	0	0	1216	0
Future Volume (veh/h)	420	2	748	0	0	0	0	499	0	0	1216	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	433	2	0	0	0	0	0	542	0	0	1366	0
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	729	559		394	559	0	197	1618	0	197	2324	0
Arrive On Green	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.46	0.00	0.00	0.46	0.00
Sat Flow, veh/h	1781	1870	2790	2745	1870	0	398	3647	0	864	5274	0
Grp Volume(v), veh/h	433	2	0	0	0	0	0	542	0	0	1366	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1373	1870	0	398	1777	0	864	1702	0
Q Serve(g_s), s	8.2	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	7.3	0.0
Cycle Q Clear(g_c), s	8.2	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	7.3	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	729	559		394	559	0	197	1618	0	197	2324	0
V/C Ratio(X)	0.59	0.00		0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.59	0.00
Avail Cap(c_a), veh/h	1073	920		924	920	0	266	2234	0	347	3210	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	11.9	9.0	0.0	0.0	0.0	0.0	0.0	6.4	0.0	0.0	7.4	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	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	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	9.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0	7.7	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		435	A		0			542			1366	
Approach Delay, s/veh		12.6			0.0			6.5			7.7	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.2		15.4		21.2		15.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		9.3		10.2		5.6		0.0				
Green Ext Time (p_c), s		7.4		0.8		3.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			8.3									
HCM 6th LOS			A									

Notes

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	57	0	0	0	48	1180	0	0	1199	48
Future Vol, veh/h	0	0	57	0	0	0	48	1180	0	0	1199	48
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	92	92	92	92	92	92	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	98	0	0	0	52	1283	0	0	1236	49

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1982	2623	618	-	-	642	1285	0	0	1283	0	0
Stage 1	1236	1236	-	-	-	-	-	-	-	-	-	-
Stage 2	746	1387	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	36	24	432	0	0	417	536	-	-	537	-	-
Stage 1	187	246	-	0	0	-	-	-	-	-	-	-
Stage 2	372	208	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	33	22	432	-	-	417	536	-	-	537	-	-
Mov Cap-2 Maneuver	33	22	-	-	-	-	-	-	-	-	-	-
Stage 1	169	246	-	-	-	-	-	-	-	-	-	-
Stage 2	336	188	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.8	0	0.5	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	536	-	-	432	-	537	-	-
HCM Lane V/C Ratio	0.097	-	-	0.227	-	-	-	-
HCM Control Delay (s)	12.4	-	-	15.8	0	0	-	-
HCM Lane LOS	B	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.9	-	0	-	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	48	84	12	9	0
Future Vol, veh/h	0	48	84	12	9	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	52	91	13	10	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	205	10	10	0	-	0
Stage 1	10	-	-	-	-	-
Stage 2	195	-	-	-	-	-
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	783	1071	1610	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	738	1071	1610	-	-	-
Mov Cap-2 Maneuver	738	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	838	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	6.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1610	-	1071	-	-
HCM Lane V/C Ratio	0.057	-	0.049	-	-
HCM Control Delay (s)	7.4	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	0	10	2	0	5
Future Vol, veh/h	4	0	10	2	0	5
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	4	0	11	2	0	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	4	0	28	4
Stage 1	-	-	-	-	4	-
Stage 2	-	-	-	-	24	-
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	-	-	1618	-	987	1080
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1618	-	980	1080
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	992	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1080	-	-	1618	-
HCM Lane V/C Ratio	0.005	-	-	0.007	-
HCM Control Delay (s)	8.4	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	25.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	667	544	0	497	653	0	0	0	192	0	83
Future Vol, veh/h	0	667	544	0	497	653	0	0	0	192	0	83
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	87	87	87	92	92	92	76	76	76
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	758	618	0	571	751	0	0	0	253	0	109

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	571	0	-	758	0	0	1044	1329	379	950	1329	286
Stage 1	-	-	-	-	-	-	758	758	-	571	571	-
Stage 2	-	-	-	-	-	-	286	571	-	379	758	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	998	-	0	849	-	0	183	154	619	~ 215	154	711
Stage 1	-	-	0	-	-	0	365	413	-	473	503	-
Stage 2	-	-	0	-	-	0	697	503	-	615	413	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	998	-	-	849	-	-	155	154	619	~ 215	154	711
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	154	-	~ 215	154	-
Stage 1	-	-	-	-	-	-	365	413	-	473	503	-
Stage 2	-	-	-	-	-	-	590	503	-	615	413	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	117.2
HCM LOS			A	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	849	-	998	-	215	711
HCM Lane V/C Ratio	-	-	-	-	-	1.175	0.154
HCM Control Delay (s)	0	0	-	0	-	163.1	11
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	12.4	0.5

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

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	210	1	397	0	0	0	0	775	0	0	1148	0
Future Volume (veh/h)	210	1	397	0	0	0	0	775	0	0	1148	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	269	1	0	0	0	0	0	842	0	0	1383	0
Peak Hour Factor	0.78	0.78	0.78	0.92	0.92	0.92	0.92	0.92	0.92	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	593	378		466	378	0	233	1801	0	233	2587	0
Arrive On Green	0.20	0.20	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.00	0.51	0.00
Sat Flow, veh/h	1781	1870	2790	2748	1870	0	392	3647	0	653	5274	0
Grp Volume(v), veh/h	269	1	0	0	0	0	0	842	0	0	1383	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1374	1870	0	392	1777	0	653	1702	0
Q Serve(g_s), s	4.4	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	5.7	0.0
Cycle Q Clear(g_c), s	4.4	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	5.7	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	593	378		466	378	0	233	1801	0	233	2587	0
V/C Ratio(X)	0.45	0.00		0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.53	0.00
Avail Cap(c_a), veh/h	1270	1089		1509	1089	0	326	2643	0	388	3798	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	11.6	9.8	0.0	0.0	0.0	0.0	0.0	4.9	0.0	0.0	5.2	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	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	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	9.8	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0	5.3	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		270	A		0			842			1383	
Approach Delay, s/veh		12.1			0.0			5.1			5.3	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		20.2		10.8		20.2		10.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		7.7		6.4		6.7		0.0				
Green Ext Time (p_c), s		8.0		0.5		4.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			6.0									
HCM 6th LOS			A									

Notes

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

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	85	0	0	0	16	1145	0	0	1152	12
Future Vol, veh/h	0	0	85	0	0	0	16	1145	0	0	1152	12
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	25	25	25	92	92	92	85	85	85	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	340	0	0	0	19	1347	0	0	1280	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1992	2665	640	-	-	674	1293	0	0	1347	0	0
Stage 1	1280	1280	-	-	-	-	-	-	-	-	-	-
Stage 2	712	1385	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	36	22	418	0	0	397	532	-	-	507	-	-
Stage 1	175	235	-	0	0	-	-	-	-	-	-	-
Stage 2	389	209	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	35	21	418	-	-	397	532	-	-	507	-	-
Mov Cap-2 Maneuver	35	21	-	-	-	-	-	-	-	-	-	-
Stage 1	169	235	-	-	-	-	-	-	-	-	-	-
Stage 2	375	201	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	41.7	0	0.2	0
HCM LOS	E	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	532	-	-	418	-	507	-	-
HCM Lane V/C Ratio	0.035	-	-	0.813	-	-	-	-
HCM Control Delay (s)	12	-	-	41.7	0	0	-	-
HCM Lane LOS	B	-	-	E	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	7.4	-	0	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	75	17	11	10	0
Future Vol, veh/h	0	75	17	11	10	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	82	18	12	11	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	59	11	11	0	-	0
Stage 1	11	-	-	-	-	-
Stage 2	48	-	-	-	-	-
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	948	1070	1608	-	-	-
Stage 1	1012	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	938	1070	1608	-	-	-
Mov Cap-2 Maneuver	938	-	-	-	-	-
Stage 1	1001	-	-	-	-	-
Stage 2	974	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	4.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1608	-	1070	-	-
HCM Lane V/C Ratio	0.011	-	0.076	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	0	7	4	0	8
Future Vol, veh/h	2	0	7	4	0	8
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	2	0	8	4	0	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2	0	22	2
Stage 1	-	-	-	-	2	-
Stage 2	-	-	-	-	20	-
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	-	-	1620	-	995	1082
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1003	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	990	1082
Mov Cap-2 Maneuver	-	-	-	-	990	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	998	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1082	-	-	1620	-
HCM Lane V/C Ratio	0.008	-	-	0.005	-
HCM Control Delay (s)	8.4	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	17

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Vol, veh/h	0	363	211	0	916	440	0	0	0	139	0	98
Future Vol, veh/h	0	363	211	0	916	440	0	0	0	139	0	98
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	Free	-	-	None	-	-	Yield
Storage Length	-	-	480	-	-	900	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	94	94	94	92	92	92	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	403	234	0	974	468	0	0	0	162	0	114

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	974	0	-	403	0	0	890	1377	202	1176	1377	487
Stage 1	-	-	-	-	-	-	403	403	-	974	974	-
Stage 2	-	-	-	-	-	-	487	974	-	202	403	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	704	-	0	1152	-	0	237	144	805	~ 147	144	526
Stage 1	-	-	0	-	-	0	595	598	-	270	328	-
Stage 2	-	-	0	-	-	0	531	328	-	781	598	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	704	-	-	1152	-	-	186	144	805	~ 147	144	526
Mov Cap-2 Maneuver	-	-	-	-	-	-	186	144	-	~ 147	144	-
Stage 1	-	-	-	-	-	-	595	598	-	270	328	-
Stage 2	-	-	-	-	-	-	416	328	-	781	598	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	0	0	0	102
HCM LOS			A	F

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SEL	SET	SWLn1	SWLn2
Capacity (veh/h)	-	1152	-	704	-	147	526
HCM Lane V/C Ratio	-	-	-	-	-	1.1	0.217
HCM Control Delay (s)	0	0	-	0	-	164.2	13.7
HCM Lane LOS	A	A	-	A	-	F	B
HCM 95th %tile Q(veh)	-	0	-	0	-	8.8	0.8

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

HCM 6th Signalized Intersection Summary
2: Martintown Rd & I-20 EB Off-Ramp/Site Drive #1

05/09/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (veh/h)	395	2	678	0	0	0	0	452	0	0	1121	0
Future Volume (veh/h)	395	2	678	0	0	0	0	452	0	0	1121	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	407	2	0	0	0	0	0	491	0	0	1260	0
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	0
Cap, veh/h	723	538		422	538	0	211	1594	0	211	2290	0
Arrive On Green	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.45	0.00
Sat Flow, veh/h	1781	1870	2790	2745	1870	0	440	3647	0	906	5274	0
Grp Volume(v), veh/h	407	2	0	0	0	0	0	491	0	0	1260	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1395	1373	1870	0	440	1777	0	906	1702	0
Q Serve(g_s), s	7.2	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	6.2	0.0
Cycle Q Clear(g_c), s	7.2	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	6.2	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	723	538		422	538	0	211	1594	0	211	2290	0
V/C Ratio(X)	0.56	0.00		0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.55	0.00
Avail Cap(c_a), veh/h	1151	987		1082	987	0	311	2397	0	416	3444	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	11.2	8.7	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	6.9	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	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	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	8.7	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	7.1	0.0
LnGrp LOS	B	A		A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		409	A		0			491			1260	
Approach Delay, s/veh		11.9			0.0			6.1			7.1	
Approach LOS		B						A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.8		14.3		19.8		14.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		23.0		18.0		23.0		18.0				
Max Q Clear Time (g_c+I1), s		8.2		9.2		5.0		0.0				
Green Ext Time (p_c), s		7.1		0.8		2.7		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	57	0	0	0	64	1155	0	0	1199	32
Future Vol, veh/h	0	0	57	0	0	0	64	1155	0	0	1199	32
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	80	-	-	200	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	92	92	92	92	92	92	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	98	0	0	0	70	1255	0	0	1236	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2004	2631	618	-	-	628	1269	0	0	1255	0	0
Stage 1	1236	1236	-	-	-	-	-	-	-	-	-	-
Stage 2	768	1395	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	-	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	-	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	35	23	432	0	0	426	543	-	-	550	-	-
Stage 1	187	246	-	0	0	-	-	-	-	-	-	-
Stage 2	360	207	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	32	20	432	-	-	426	543	-	-	550	-	-
Mov Cap-2 Maneuver	32	20	-	-	-	-	-	-	-	-	-	-
Stage 1	163	246	-	-	-	-	-	-	-	-	-	-
Stage 2	314	180	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.8	0	0.7	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	543	-	-	432	-	550	-	-
HCM Lane V/C Ratio	0.128	-	-	0.227	-	-	-	-
HCM Control Delay (s)	12.6	-	-	15.8	0	0	-	-
HCM Lane LOS	B	-	-	C	A	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.9	-	0	-	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	48	84	12	9	0
Future Vol, veh/h	0	48	84	12	9	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	52	91	13	10	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	205	10	10	0	-	0
Stage 1	10	-	-	-	-	-
Stage 2	195	-	-	-	-	-
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	783	1071	1610	-	-	-
Stage 1	1013	-	-	-	-	-
Stage 2	838	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	738	1071	1610	-	-	-
Mov Cap-2 Maneuver	738	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	838	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	6.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1610	-	1071	-	-
HCM Lane V/C Ratio	0.057	-	0.049	-	-
HCM Control Delay (s)	7.4	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-

Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	4	0	10	2	0	5
Future Vol, veh/h	4	0	10	2	0	5
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	4	0	11	2	0	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	4	0	28	4
Stage 1	-	-	-	-	4	-
Stage 2	-	-	-	-	24	-
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	-	-	1618	-	987	1080
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1618	-	980	1080
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	992	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1080	-	-	1618	-
HCM Lane V/C Ratio	0.005	-	-	0.007	-
HCM Control Delay (s)	8.4	-	-	7.2	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

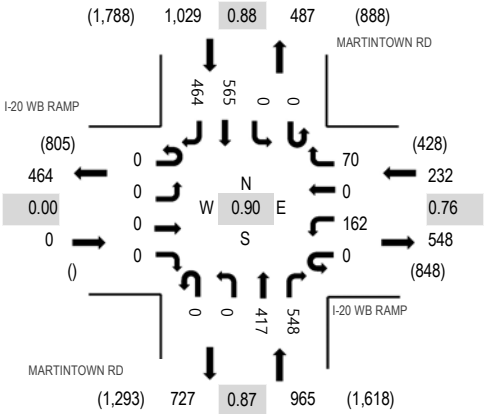
APPENDIX G
TRAFFIC COUNT DATA

CLEARCOURSE

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

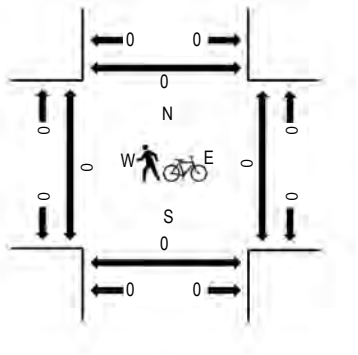
Location: 1 MARTINTOWN RD & I-20 WB RAMP AM
Date: Tuesday, March 22, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	I-20 WB RAMP Eastbound				I-20 WB RAMP Westbound				MARTINTOWN RD Northbound				MARTINTOWN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	27	0	7	0	0	70	64	0	0	120	80	368	2,078	0	0	0	0
7:15 AM	0	0	0	0	0	39	0	14	0	0	85	114	0	0	147	116	515	2,226	0	0	0	0
7:30 AM	0	0	0	0	0	30	0	18	0	0	114	163	0	0	147	145	617	2,203	0	0	0	0
7:45 AM	0	0	0	0	0	52	0	24	0	0	105	141	0	0	138	118	578	1,978	0	0	0	0
8:00 AM	0	0	0	0	0	41	0	14	0	0	113	130	0	0	133	85	516	1,756	0	0	0	0
8:15 AM	0	0	0	0	0	68	1	21	0	0	125	62	0	0	122	93	492		0	0	0	0
8:30 AM	0	0	0	0	0	36	3	14	0	0	89	94	0	0	80	76	392		0	0	0	0
8:45 AM	0	0	0	0	0	13	0	6	0	0	69	80	0	0	100	88	356		0	0	0	0

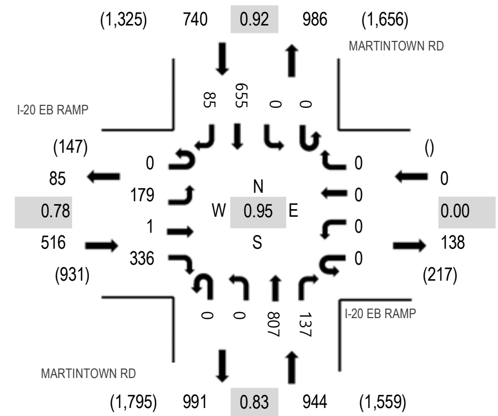
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	2	0	1	0	0	2	3	0	0	8	1	17
Lights	0	0	0	0	0	160	0	68	0	0	413	545	0	0	555	460	2,201
Mediums	0	0	0	0	0	0	0	1	0	0	2	0	0	0	2	3	8
Total	0	0	0	0	0	162	0	70	0	0	417	548	0	0	565	464	2,226

Location: 2 MARTINTOWN RD & I-20 EB RAMP AM
Date: Tuesday, March 22, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

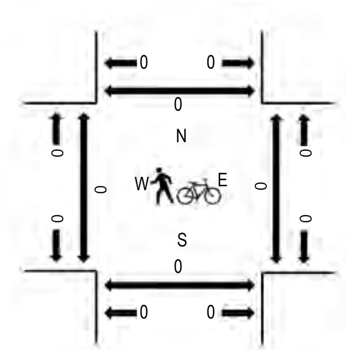
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	I-20 EB RAMP Eastbound U-Turn	Left	Thru	Right	I-20 EB RAMP Westbound U-Turn	Left	Thru	Right	MARTINTOWN RD Northbound U-Turn	Left	Thru	Right	MARTINTOWN RD Southbound U-Turn	Left	Thru	Right	Total	Rolling Hour	Pedestrian Crossings West	East	South	North
7:00 AM	0	35	0	53	0	0	0	0	0	0	103	24	0	0	131	22	368	2,026	0	0	0	0
7:15 AM	0	38	0	69	0	0	0	0	0	0	178	31	0	0	176	20	512	2,200	0	0	0	0
7:30 AM	0	37	0	73	0	0	0	0	0	0	238	47	0	0	146	26	567	2,177	0	0	0	0
7:45 AM	0	56	1	109	0	0	0	0	0	0	191	30	0	0	168	24	579	1,995	0	0	0	0
8:00 AM	0	48	0	85	0	0	0	0	0	0	200	29	0	0	165	15	542	1,789	0	0	0	0
8:15 AM	0	30	0	68	0	0	0	0	0	0	165	22	0	0	183	21	489		0	0	0	0
8:30 AM	0	34	0	73	0	0	0	0	0	0	152	13	1	0	104	8	385		0	0	0	0
8:45 AM	0	34	0	88	0	0	0	0	0	0	116	20	0	0	104	11	373		0	0	0	0

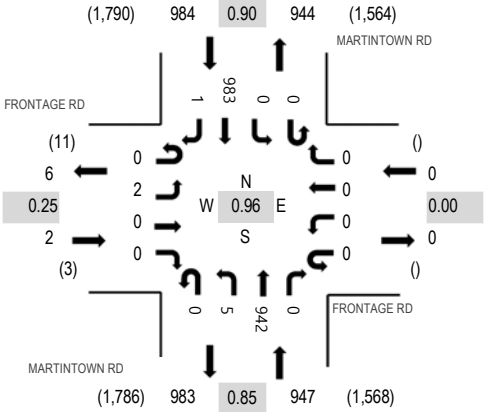
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound U-Turn	Left	Thru	Right	Westbound U-Turn	Left	Thru	Right	Northbound U-Turn	Left	Thru	Right	Southbound U-Turn	Left	Thru	Right	Total
Articulated Trucks	0	1	0	5	0	0	0	0	0	0	5	1	0	0	6	5	23
Lights	0	178	1	331	0	0	0	0	0	0	800	136	0	0	648	80	2,174
Mediums	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3
Total	0	179	1	336	0	0	0	0	0	0	807	137	0	0	655	85	2,200

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

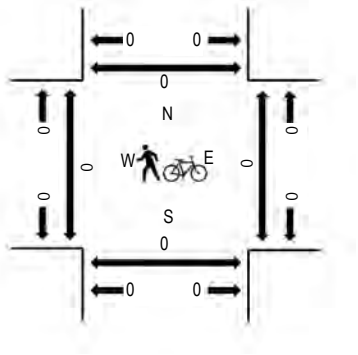
Location: 3 MARTINTOWN RD & FRONTAGE RD AM
Date: Tuesday, March 22, 2022
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	FRONTAGE RD Eastbound				FRONTAGE RD Westbound				MARTINTOWN RD Northbound				MARTINTOWN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	0	0	0	0	0	126	0	0	0	184	0	310	1,767	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	2	219	0	0	0	235	0	456	1,933	0	0	0	0
7:30 AM	0	2	0	0	0	0	0	0	0	0	277	0	0	0	221	0	500	1,915	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	2	220	0	0	0	278	1	501	1,760	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	1	226	0	0	0	249	0	476	1,594	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	186	0	0	0	252	0	438		0	0	0	0
8:30 AM	0	0	0	1	0	0	0	0	0	1	165	0	0	0	175	3	345		0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	143	0	0	0	191	1	335		0	0	0	0

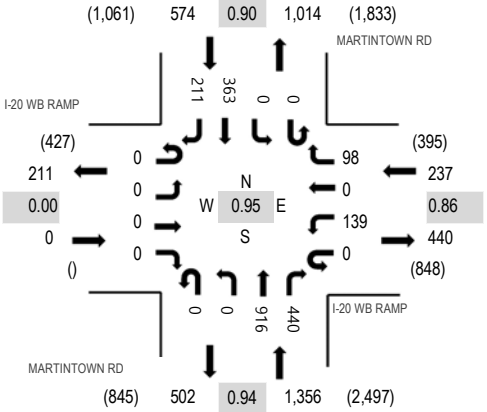
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	5	0	0	0	11	0	16
Lights	0	2	0	0	0	0	0	0	0	5	934	0	0	0	971	1	1,913
Mediums	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4
Total	0	2	0	0	0	0	0	0	0	5	942	0	0	0	983	1	1,933

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

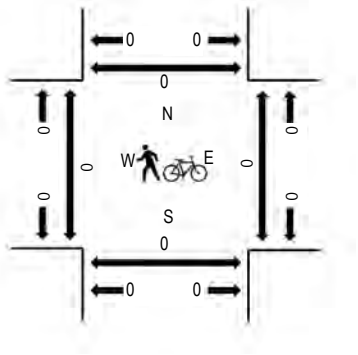
Location: 1 MARTINTOWN RD & I-20 WB RAMP PM
Date: Tuesday, March 22, 2022
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	I-20 WB RAMP Eastbound				I-20 WB RAMP Westbound				MARTINTOWN RD Northbound				MARTINTOWN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	21	0	22	0	0	177	103	0	0	81	52	456	1,823	0	0	0	0
4:15 PM	0	0	0	0	0	14	0	30	0	0	180	102	0	0	65	51	442	1,939	0	0	0	0
4:30 PM	0	0	0	0	0	17	0	17	0	0	173	97	0	0	61	60	425	2,024	0	0	0	0
4:45 PM	0	0	0	0	0	30	0	22	0	0	225	87	0	0	79	57	500	2,167	0	0	0	0
5:00 PM	0	0	0	0	0	35	0	18	0	0	225	135	0	0	103	56	572	2,130	0	0	0	0
5:15 PM	0	0	0	0	0	36	0	33	0	0	230	100	0	0	87	41	527		0	0	0	0
5:30 PM	0	0	0	0	0	38	0	25	0	0	236	118	0	0	94	57	568		0	0	0	0
5:45 PM	0	0	0	0	0	20	0	17	0	0	203	106	0	0	64	53	463		0	0	0	0

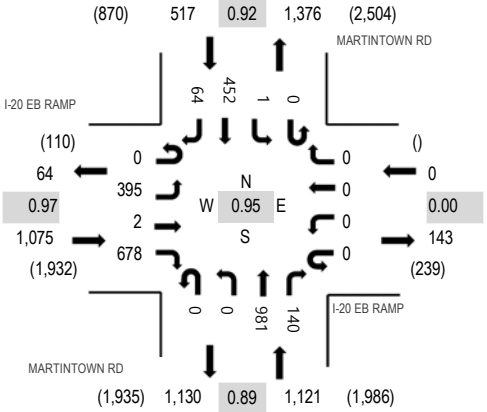
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	2	0	1	0	0	2	5	0	0	2	0	12
Lights	0	0	0	0	0	135	0	97	0	0	911	434	0	0	361	210	2,148
Mediums	0	0	0	0	0	2	0	0	0	0	3	1	0	0	0	1	7
Total	0	0	0	0	0	139	0	98	0	0	916	440	0	0	363	211	2,167

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

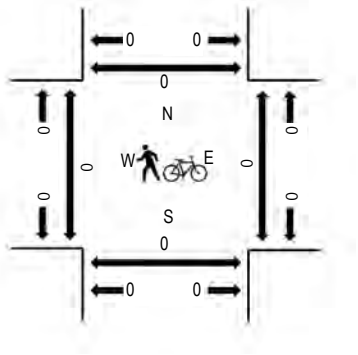
Location: 2 MARTINTOWN RD & I-20 EB RAMP PM
Date: Tuesday, March 22, 2022
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	I-20 EB RAMP Eastbound				I-20 EB RAMP Westbound				MARTINTOWN RD Northbound				MARTINTOWN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	79	1	100	0	0	0	0	0	0	190	19	0	0	91	16	496	2,129	0	0	0	0
4:15 PM	0	100	0	136	0	0	0	0	0	0	181	27	0	0	68	10	522	2,335	0	0	0	0
4:30 PM	0	74	0	128	0	0	0	0	0	0	200	22	0	0	69	10	503	2,499	0	0	0	0
4:45 PM	0	108	0	160	0	0	0	0	0	0	200	28	0	1	98	13	608	2,713	0	0	0	0
5:00 PM	0	90	1	178	0	0	0	0	0	0	265	34	0	0	115	19	702	2,659	0	0	0	0
5:15 PM	0	106	1	171	0	0	0	0	0	0	236	42	0	0	118	12	686		0	0	0	0
5:30 PM	0	91	0	169	0	0	0	0	0	0	280	36	0	0	121	20	717		0	0	0	0
5:45 PM	0	105	0	134	0	0	0	0	0	0	199	27	0	0	79	10	554		0	0	0	0

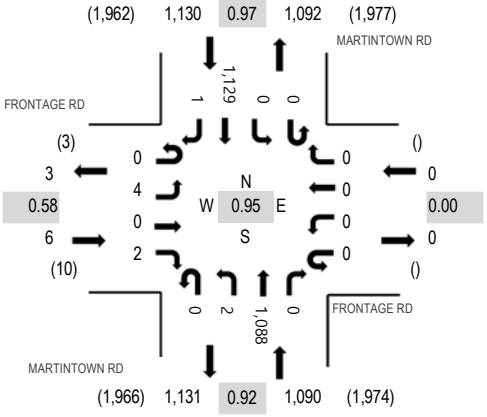
Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	3	0	2	0	0	0	0	0	0	5	0	0	0	2	2	14
Lights	0	389	2	676	0	0	0	0	0	0	974	140	0	1	450	61	2,693
Mediums	0	3	0	0	0	0	0	0	0	0	2	0	0	0	0	1	6
Total	0	395	2	678	0	0	0	0	0	0	981	140	0	1	452	64	2,713

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

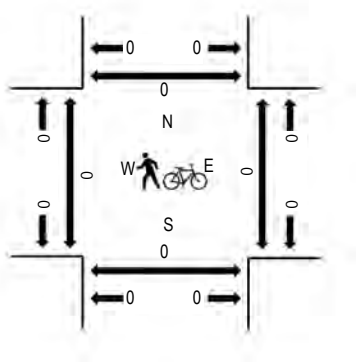
Location: 3 MARTINTOWN RD & FRONTAGE RD PM
Date: Tuesday, March 22, 2022
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - Motorized Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles in Crosswalk



Traffic Counts - Motorized Vehicles

Interval Start Time	FRONTAGE RD Eastbound				FRONTAGE RD Westbound				MARTINTOWN RD Northbound				MARTINTOWN RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	0	0	0	0	0	222	0	0	0	199	0	421	1,759	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	215	0	0	0	210	0	426	1,926	0	0	0	0
4:30 PM	0	0	0	1	0	0	0	0	0	0	218	0	0	0	206	0	425	2,072	0	0	0	0
4:45 PM	0	2	0	1	0	0	0	0	0	0	221	0	0	0	263	0	487	2,226	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	298	0	0	0	289	0	588	2,187	0	0	0	0
5:15 PM	0	1	0	1	0	0	0	0	0	0	284	0	0	0	285	1	572		0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	2	285	0	0	0	292	0	579		0	0	0	0
5:45 PM	0	0	0	2	0	0	0	0	0	0	229	0	0	0	217	0	448		0	0	0	0

Peak Rolling Hour Flow Rates

Vehicle Type	Eastbound				Westbound				Northbound				Southbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9
Lights	0	4	0	2	0	0	0	0	0	2	1,080	0	0	0	1,120	1	2,209
Mediums	0	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	8
Total	0	4	0	2	0	0	0	0	0	2	1,088	0	0	0	1,129	1	2,226

DEPARTMENT OF PLANNING AND DEVELOPMENT

TOMMY PARADISE
DIRECTOR

MONTHLY REPORT
FOR
August 2022

City of North Augusta

Department of Planning and Development

Monthly Report for August 2022

Item	This Month		Year To Date		Same Month, Last Year		Last Year To Date	
Administrative	**Incoming**	**Outgoing**	**Incoming**	**Outgoing**	**Incoming**	**Outgoing**	**Incoming**	**Outgoing**
Total Phone Calls					**462**	**303**	**3,982**	**2,516**
Development Applications	**Received**	**Approved**	**Received**	**Approved**	**Received**	**Approved**	**Received**	**Approved**
Subdivisions								
Major Subdivision Plans (PP)	1	0	6	1	0	0	9	3
Planned Acres	25.85	0.00	111.96	8.00	0.00	0.00	256.60	32.48
Planned Lots	56	0	184	79	0	0	0	104
Minor Subdivision Plats (MP)	1	1	13	9	2	2	17	16
Platted New Lots	2	2	46	45	5	5	22	22
Major Subdivision Plats (FP)	1	1	5	4	0	1	2	2
Platted Acres	39.78	39.78	236.64	230.89	0.00	18.92	1.00	21.97
Platted Lots	4	4	244	244	0	50	82	82
Site Plans								
Minor Site Plans (MSP)	2	0	9	7	3	2	12	5
Major Site Plans (SP)	0	0	3	1	0	0	3	2
Site Plan Modification (SPM)	0	0	0	0	0	1	2	2
Total Site Plan Acres	1.88	0.00	58.76	19.92	0.00	1.09	191.51	77.29
Planned Developments								
PD Gen Dev Plans/Major Mod. (PD)	0	0	1	0	0	0	0	0
PD Acres	0	0	68.73	0	0	0	0	0
Development Plan Modification (PDM)	0	0	2	0	0	0	2	0
Annexations								
Annexation Agreements Received	0	0	0	0	0	0	0	0
Annexation Cases (ANX)	0	0	2	1	0	0	3	0
Approved by City Council	0	0	1	1	0	0	0	1
Parcels	0	0	1	0	0	0	0	1
Acres	0	0	45	43.90	0	0	0	0.23

City of North Augusta

Department of Planning and Development

Monthly Report for August 2022

Item	This Month		Year To Date		Same Month Last Year		Last Year To Date	
	Received	Approved	Received	Approved	Received	Approved	Received	Approved
Zoning/Text Amendments								
Rezoning (RZM)	0	0	2	1	3	0	5	2
Parcels	0	0	1	1	5	0	3	1
Acres	0	0.00	15.64	4.39	56.54	0.00	124.26	51.20
Conditional Zoning (RZC)	0	0	0	0	0	0	0	0
Parcels	0	0	0	0	0	0	0	0
Acres	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Text Amendments (RZT)	0	0	1	1	0	0	0	0
Other								
Certificates of Zoning Compliance (CZC)	13	13	101	99	17	17	86	87
Zoning Confirmation Letters (LZC)	1	1	9	9	7	7	20	17
Residential Site Reviews	15	15	259	259	34	34	238	240
Sign Permits (SN)	9	9	38	38	3	3	29	29
Right of Way Naming (RWN)	0	1	2	2	0	0	0	0
Right of Way Abandonment	0	0	0	0	0	0	0	0
Planning Projects (PROJ)	0	0	0	0	0	0	3	2
Communications Towers (CT)	0	0	0	0	0	0	0	0
Conditional Use Permits (CU)	0	0	5	5	0	0	7	6

Item	This Month		Year To Date		Same Month Last Year		Last Year To Date	
Appeals	Received	Approved	Received	Approved	Received	Approved	Received	Approved
Variances	0	1	13	10	2	2	8	3
Special Exceptions	0	0	0	0	0	0	0	0
Administrative Decisions	0	0	0	0	0	0	0	0
Waivers	0	0	1	1	1	0	1	2

City of North Augusta

Department of Planning and Development

Monthly Report for August 2022

Item	This Month	Year To Date	Same Month Last Year	Last Year To Date
Fees Collected				
Development Applications	$2,298.46	$31,546.91	$2,540.00	$28,181.51
Appeals	$0.00	$3,257.77	$500.00	$2,257.77
Maps/Publications	$0.00	$0.00	$0.00	$0.00
Special Review Fees	$0.00	$0.00	$0.00	$0.00
Total Fees	**$2,298.46**	**$34,804.68**	**$3,040.00**	**$30,439.28**

* Not yet recorded

Item	This Month		Year To Date		Same Month, Last Year		Last Year To Date	
Code Enforcement	**Case Received or Investigated**	**Case Closed**	**Case Received or Investigated**	**Case Closed**	**Case Received or Investigated**	**Case Closed**	**Case Received or Investigated**	**Case Closed**
Property Maintenance	11	12	130	112	26	21	125	133
Property Leins/Contractor Mitigation	0	0	0	0	0	0	2	2
Swimming Pools	5	5	11	6	1	0	3	1
Recreational Vehicles/RV/Boat/Utility Trailers	6	5	26	23	4	6	33	26
Illegal Vehicles	8	8	32	35	12	4	74	43
Commercial Vehicles/Equipment	0	0	1	2	1	1	1	1
Temporary Signs	84	84	641	641	37	37	451	451
Landscape Inspections	13	13	145	145	21	21	118	118
Structure Demolitions	0	0	0	0	0	0	2	2
Citation/Summons Issued	0	0	1	0	1	0	1	0

City of North Augusta
Department of Planning and Development

North Augusta Planning Department

August 2022 Staff Approvals

Residential Site Plans

Application Number	Tax Parcel Number	Applicant	Legal Description	Zone	Approval Date	Structure
B22-0563	010 11 09 016	Winchester Commercial Group	4279 Candleberry Garden	PD	8/3/2022	New Residential Construction
B22-0564	010 11 09 017	Winchester Commercial Group	4285 Candleberrry Garden	PD	8/3/2022	New Residential Construction
B22-0565	010 11 09 018	Winchester Commercial Group	4289 Candleberry Garden	PD	8/3/2022	New Residential Construction
B22-0566	012 17 03 040	Park Ridge Builders	1570 Womrath Rd	R-7	8/3/2022	New Residential Construction
B22-0568	007 12 13 001	Robert Methvin	907 Laurens St	R-10	8/3/2022	Storage Building 16X12
B22-0579	006 16 12 024	ParkRidge Builders	324 Whitlaws Rd	R-7	8/8/2022	New Residential Construction
B22-0580	006 16 12 026	ParkRidge Builders	322 Whitlaws Rd	R-7	8/8/2022	New Residential Construction
B22-0581	006 09 06 013	JS and More LLC	1810 Robinson Dr	R-14	8/11/2022	Adding lean to
B22-0589	003 08 06 005	Vintson Construction Co	615 Stanton Dr	R-14	8/10/2022	add master bedroom/bath/laundry room
B22-0624	007 11 03 005	Prescott & Sons Construction	909 East Ave	R-7	8/24/2022	Adding Master bedroom/bath/laundry
B22-0630	007 11 05 077	Green & Green Construction	811 East Ave	R-7	8/26/2022	New Residential Construction
B22-0631	006 13 04 012	Christian Mercado	1975 Bolin Rd	R-14	8/29/2022	Build Attached lean to over Patio
B22-0642	001 12 16 001	Bill Beazley Homes	214 Bonhill St	PD	8/30/2022	New Residential Construction
SP22-0019	002 11 02 102	BEC Custom Pools	203 Seton Circle	R-14	8/8/2022	Swimming Pool
SP22-0020	014 00 02 033	Peach Tree Pools & Spa	328 Rivernorth Dr	PD	8/24/2022	Swimming Pool

City of North Augusta
Department of Planning and Development

Sign Permits

Application Number	Tax Parcel Number	Applicant	Legal Description	Zone	Approval Date	Use
SN22-030	007 14 04 012	Julie McNeely	McNeely Place	D	8/2/2022	
SN22-031	007 06 24 006	Fast Signs	Woodward & Associates	OC	8/11/2022	
SN22-032	007 14 03 002	Keen Signs and Graphics	Orange Otter Toys	D	8/18/2022	
SN22-033	006 12 05 001	Keen Signs and Graphics	Community Choice Finance	GC	8/19/2022	
SN22-034	006 18 07 043	Summer Trullo/Apollo Signs	Athletico Physical Therapy	GC	8/25/2022	
SN22-035	012 17 03 035	Glynn Bruker	Spring Grove Village-Sign	R-7	8/24/2022	
SN22-036	007 11 05 048	AAA Sign Co	T Mobile	GC	8/22/2022	
SN22-037	007 11 05 047	Finuf Sign Company INC	Beall's Outlet	GC	8/23/2022	
SN22-038	010 14 13 001	AAA Sign Co	Piedmont Prompt Care	GC	8/29/2022	

Certificate of Zoning Compliance Approvals

Application Number	Tax Parcel Number	Applicant	Legal Description	Zone	Approval Date	Use
CZC22-088	013 19 02 001	Terry Lambert	gusta, Inc. Dba terry Lambert H	TC	8/1/2022	
CZC22-089	006 15 03 002	William Manning	North Augusta Consulting	R-7	8/1/2022	
CZC22-090	013 17 14 001	Theyartis Edwards	Hannibal International Imports	TC	8/2/2022	
CZC22-091	006 16 14 003	Dorothy Spaulding	Watchman Broadcasting	GC	8/4/2022	
CZC22-092	007 14 03 002	Denice Golden	ane's Income Tax & Bookeeping	D	8/10/2022	
CZC22-093	007 10 27 007	Africa Thomas	Booze Pops CSRA Food Truck	D	8/10/2022	
CZC22-094	106 00 07 018	James Neal	Frontline Irrigation Service	R-10	8/11/2022	
CZC22-095	005 08 07 013	David Hall	Southern Sudds	R-7	8/15/2022	
CZC22-096	006 16 14 001	Jessica Veerapen	aylor's Barber & Beauty Academ	GC	8/18/2022	
CZC22-097	007 09 17 028	Jesus Mercado	Mercado Landscaping LLC	R-5	8/18/2022	
CZC22-098	007 16 02 008	Ho Yong Lee	BJ Country Buffet	TC	8/22/2022	
CZC22-099	001 16 07 040	Pedro Ryan Ufret	CSRA Pressure Pros	PD	8/25/2022	
CZC22-100	007 07 06 007	Jo Barton	America's Rubbish Removal	R-14	8/29/2022	
