



**Town of Clayton
Regular Town Council Meeting Agenda
Monday, October 1, 2018 @ 6:00 PM
Council Chambers**

1. CALL TO ORDER

Pledge of Allegiance and Invocation

2. ADJUSTMENT OF THE AGENDA

3. CONSENT AGENDA

(Items on the consent agenda are considered routine in nature or have been thoroughly discussed at previous meetings. Any member of the Council may request to have an item removed from the consent agenda for further discussion.)

- a. DRAFT Minutes
 - September 17, 2018 - Regular Meeting
[September 17, 2018 DRAFT Minutes](#)
- b. 2019 Town Council Meeting Schedule
[Resolution](#)
- c. 2019 Holiday Schedule
[Resolution](#)
- d. Resolution Directing Clerk to Investigate 2018-183-ANX - Sunbelt Rentals
[Resolution](#)

POTENTIAL ACTION: Adoption of Consent Agenda as Presented

4. ADMINISTRATIVE ITEMS

- a. Warranty Acceptances:
 - Johnston Charter Academy
 - Johnston Charter Academy Roadway Improvements Phase 1
[Warranty - Johnston Charter Academy](#)
[Warranty - Johnston Charter Road Improvements](#)

POTENTIAL ACTION: Place on October 15, 2018 Consent Agenda

5. INTRODUCTIONS AND SPECIAL PRESENTATIONS

- a. Hurricane Florence Employee Recognition
Presenter: Adam Lindsay, Town Manager
- b. Recognition of Public Power Week 2018 - October 7 - 13, 2018
Presenter: Michael Grannis, Mayor Pro Tem
- c. Harmony Playground Project & Fundraising Update

Presenters: Dean Penny, Clayton Community Recreational Foundation and Derrick Thompson, T&T Creative Group

[Cover](#)

[Save the Date](#)

d. Economic Development Districts

Presenters: David DeYoung, Economic Development Director and Jim Perricone, Clayton Chamber Economic Development Committee Chair

[Cover](#)

[Map - Economic Development Districts](#)

[Proposed District Names September 2018](#)

[CCOC Economic Development Action Plan](#)

6. PUBLIC HEARINGS

a. 2018-65-SUP - Spinning Mill - Special Use Permit (Quasi-Judicial)

Presenter: Planning Department

[Cover](#)

[Application](#)

[Neighborhood Meeting Materials](#)

[Newspaper Ad](#)

[Site Plan](#)

[Map 2018](#)

[Traffic Impact Analysis](#)

[NCDOT Comments&Review](#)

[Staff Report](#)

[Planning Board Recommendation](#)

[Wastewater Allocation Request](#)

[Resolution - Wastewater Allocation](#)

[Motion Form](#)

POTENTIAL ACTION:

Approval/Denial of 2018-65-SUP

POTENTIAL ACTION:

Adoption of Resolution #2018-25 (Wastewater Allocation)

7. OLD BUSINESS

8. NEW BUSINESS

a. 2018-123-ORD - Sanitary Sewer Tap Replacements

Presenter: Blake Mills, Public Works Assistant Director

[Cover](#)

[Memo](#)

[Ordinance](#)

POTENTIAL ACTION:

Adoption of Ordinance #2018-10-01

b. 2018-62-SD - Kyli Knolls Preliminary Plat (Quasi-Judicial)

Presenter: Planning Department

[Cover](#)

[Application](#)

POTENTIAL ACTION:

Set Public Hearing for October 15, 2018

- c. 2018-119- PDD - Ashcroft - Phases 6 & 7 Planned Development Rezoning
Presenter: Planning Department
[Cover](#)
[Application](#)
POTENTIAL ACTION: Set Public Hearing for October 15, 2018
- d. 2018-120-SD - Ashcroft - Phases 6 & 7 Preliminary Plat Major Modification
(Quasi-Judicial)
Presenter: Planning Department
[Cover](#)
[Application](#)
POTENTIAL ACTION: Set Public Hearing for October 15, 2018
- e. 2018-121-SUP - Villages @ Parkview - Special Use Permit (Quasi-Judicial)
Presenter: Planning Department
[Cover](#)
[Application](#)
POTENTIAL ACTION: Set Public Hearing for October 15, 2018
- f. 2018-122-SD - Villages @ Parkview - Preliminary Plat (Quasi-Judicial)
Presenter: Planning Department
[Cover](#)
[Application](#)
POTENTIAL ACTION: Set Public Hearing for October 15, 2018

9. STAFF REPORTS

- a. Town Manager
- b. Town Attorney
- c. Town Clerk
- d. Other Staff

10. OTHER BUSINESS

- a. Informal Discussion & Public Comment
- b. Council Comments

11. ADJOURNMENT



Town of Clayton
Regular Town Council Meeting Minutes
Monday, September 17, 2018 @ 6:00 PM
Council Chambers

COUNCIL PRESENT:

Mayor Pro Tem Grannis
Council Member Lawter
Council Member Holder
Council Member Thompson
Council Member Bunn

STAFF PRESENT:

Adam Lindsay, Town Manager
Nancy Medlin, Deputy Town Manager
Katherine Ross, Town Attorney
Kimberly Moffett, Town Clerk
Samantha Wullenwaber, Planning Director
Tim Simpson, Public Works Director
Dale Medlin, Electrical System Director
David DeYoung, Economic & Community
Development Director
Stacy Beard, Public Information Officer

COUNCIL ABSENT:

Mayor McLeod

1 CALL TO ORDER

Pledge of Allegiance and Invocation

- a) Mayor Pro Tem Grannis called the meeting to order at 6:02 p.m. He led everyone in the Pledge of Allegiance as well as offering the Invocation.

2 ADJUSTMENT OF THE AGENDA

- a) Mr. Lindsay requested that Item #4c, Warranty Acceptance for Stone Ridge Phase 2 be removed from the agenda. He also requested an item be added under Special Presentations, Item #5c - Harmony Playground

3 CONSENT AGENDA

(Items on the consent agenda are considered routine in nature or have been thoroughly discussed at previous meetings. Any member of the Council may request to have an item removed from the consent agenda for further discussion.)

- a) Warranty Acceptances:
- Lionsgate - Phase 7B-7D
 - East Village Walk - Phase 1 & Sanitary Sewer Outfall
- b) DRAFT Minutes:
- September 4, 2018 - Regular Meeting
 - August 6, 2018 - Closed Session
 - August 20, 2018 - Closed Session

ACTION: Adoption of Consent Agenda as Presented

Motion: Council Member Thompson

Second: Council Member Holder
Vote: Unanimous

4 ADMINISTRATIVE ITEMS

- a) 2019 Town Council Meeting Schedule
Presenter: Kimberly A. Moffett, Town Clerk

Ms. Moffett stated town council meetings are held the first and third Monday of each month with meetings beginning at 6:00 p.m. Should a holiday fall on a Monday, the council meeting would be held the following day. She further stated historically there is only one meeting held during the month of July and that meeting is held on the third Monday. Presented was a proposed schedule for 2019.

ACTION: Placed on October 1, 2018 Consent Agenda

- b) 2019 Holiday Schedule
Presenter: Kimberly A. Moffett, Town Clerk

Ms. Moffett stated it was the policy of Clayton to following the annual holiday schedule provided by the State of North Carolina for its employees. A proposed schedule for 2019 was presented.

ACTION: Placed on October 1, 2018 Consent Agenda

- c) Warranty Acceptance
• Stone Ridge, Phase 2

This item was removed from the agenda.

5 INTRODUCTIONS AND SPECIAL PRESENTATIONS

- a) New Employee
Presenter: Tim Simpson, Public Works Director
• Kenny Sanders - Utility Maintenance Mechanic Trainee

Recently Promoted
Presenter: Dale Medlin, Electric Distribution Supervisor
• Kenneth Davis - Electrical Technician III

Mr. Simpson introduced Kenny Sanders who the new Utility Maintenance Mechanic Trainee. He joined the team on September 10, 2018. He has experience with Spectrum Cable as well as with Novo Nordisk. Mr. Sanders introduced himself and stated he was happy to be here.

Mr. Medlin introduced Kenneth Davis who was recently promoted to Electrical Technician III. He stated that Mr. Davis has been an amazing employee and offered his congratulations on the well-deserved promotion. Mr. Davis thanked the council.

Mayor Pro Tem Grannis offered his thanks and appreciation to the town staff for the incredible work completed in preparation and during Hurricane Florence.

- b) Constitution Week 2018 Proclamation
Presenter: Gayenell Gull, Smith-Bryan DAR Chapter

Ms. Gull was present and thanked council for their consideration of request for Constitution Week 2018, September 17 - 23, 2018. She provided information about their organization and Constitution Week.

Mayor Pro Tem Grannis read the Proclamation and presented it to Ms. Gull. A photo was taken of the presentation.

ACTION: Presentation of Proclamation

- c) Harmony Playground
Presenter: Dean Penny, Recreational Foundation

Mr. Penny presented updated information regarding the Harmony Playground. H shared information regarding upcoming gala will be held on October 20, 2018. All funds raised will go directly towards the building of the Harmony Playground. Ms. Amy Wright will be the keynote speaker for the event, Debra Morgan of WRAL will emcee and Chris Hendrix will provide entertainment. Mr. Lee Hudson will be honored for community support that evening with a new annual award, to be named the Larry Bailey Community Service Award. Additional information will be shared at the October 1, 2018 town council meeting.

Mayor Pro Tem Grannis offered his thanks to the Foundation for all their hard work and dedication.

6 PUBLIC HEARINGS

- a) 2018-125-SD - Warrick Park - Major Modification (Quasi-Judicial)
Presenter: Planning Department

Attorney Ross provided information regarding a Quasi-Judicial proceeding and the type testimony allowed to be considered by council when making decisions. Anyone wishing to offer testimony must do so under oath. The Town Clerk issued the oath via affirmation to those wishing to offer testimony.

Ms. Wullenwaber presented the item and stated this item is a major modification. Request is for a waiver from construction of sidewalk and waiver of the sidewalk fee-in-lieu. This project was originally approved in 2016. It consists of 25.33 acres with 25 lots and approximately 1 dwelling per acre. The project was originally approved with a waiver from curb and gutter but required installation of sidewalks. Ms. Wullenwaber stated with no curb and gutter, sidewalks are a bit of an issue. She stated staff supported the waiver for sidewalks and supports that fee-in-lieu be required.

The Planning Board offered their recommendations and agreed with waiver of sidewalks but also recommended fee-in-lieu.

Council Member Bunn confirmed this project was in town limits. Ms. Wullenwaber stated it was. Council Member Holder felt curb and gutter should have been required.

Council Member Lawter asked about original approval. There was discussion regarding curb and gutter and sidewalk. Council Member Lawter asked if there should be curb and gutter required moving forward. Ms. Wullenwaber stated she believed it should.

Mayor Pro Tem Grannis stated it was apparent the applicant attempted to install the sidewalk as required previously as well as reaching out to staff coming to a mutual agreement that sidewalk installation was not in the best interest of this development.

Mr. James Lipscomb, applicant, was present. He stated he was a partner in this development and offered information regarding his 25 years of experience in development. He stated he had reached out to Ms. Wullenwaber to discuss concern regarding safety of sidewalk installation. He stated he had concerns about folks going off sidewalk and falling into ditch. He further stated that two homeowners also had concerns about the sidewalks. He also stated he believed a sincere attempt had been made regarding requirement for sidewalks. He asked that the council take into consideration the amount of money that had already been spent trying to be in compliance when taking into consideration fee-in-lieu.

Council Member Lawter inquired as to how many feet of sidewalk had already been installed. Mr. Lipscomb stated he believed approximately 400'-600'.

Council Member Holder shared his concern regarding safety of sidewalk removal. Mr. Lipscomb stated that project was very low density and further stated he believed it would be in alignment with similar subdivisions within the County.

Council Member Lawter asked if the Cassedale Subdivision had a similar layout regarding sidewalks. Mr. Lipscomb stated he believed the homes in that subdivision had a larger setback.

With there being no further questions for the applicant, the floor was open to anyone wishing to speak. With no one coming forward, the public hearing was closed at 6:36 p.m. and turned over to council for their deliberation.

Council Member Lawter stated he felt sidewalks are an important feature, however, we have an applicant that attempted to do the right thing and felt it would be fair if some type of credit be given with reference to fee-in-lieu. Council Member Bunn shared his concerns regarding possible other projects and setting such a precedent.

ACTION: Approval of 2018-125-SD with Conditions as listed in Staff Report with understanding that staff work with applicant and allow fee-in-lieu credit for sidewalks already installed

Motion: Council Member Thompson
Second: Council Member Holder
Vote: Unanimous

7 TOWN POLICY UPDATES

8 OLD BUSINESS

9 NEW BUSINESS

- a) 2018-65-SUP - Spinning Mill Special Use Permit
Presenter: Planning Department

Ms. Wullenwaber requested that a public hearing be set for October 1, 2018.

Mayor Pro Tem Grannis asked if a traffic study would be included and Ms. Wullenwaber stated it would.

ACTION: Set Public Hearing for October 1, 2018

Motion: Council Member
Second: Council Member
Vote: Unanimous

10 STAFF REPORTS

- a) Town Manager

Mr. Lindsay shared his appreciation for town staff for the preparation, event and clean up regarding Hurricane Florence. He stated he would formally recognize all involved staff at the October 1, 2018 council meeting.

Ms. Beard stated everyone came together and further stated that she was at the EOC for the majority of the weekend. She stated it was great to see everyone working together. She stated it was definitely noticed by the community and Ms. Beard shared some of the extremely positive and appreciative comments received.

Mayor Pro Tem Grannis recognized Senator Rick Horner and council offered their appreciation for his attendance this evening as well as the constant support of the town.

- b) Town Attorney
c) Town Clerk
d) Other Staff

Chief Myhand stated the newest Police Officer would be sworn in Thursday, September 20, 2018 at 5:00 p.m. at the Community Center.

11 OTHER BUSINESS

- a) Informal Discussion & Public Comment
- b) Council Comments

Council Member Holder asked about street sweep and leaf pick up. Mr. Lindsay stated leaf pick up is scheduled to begin October 1. He further stated it is hoped that All Star will be able to handle collection of yard waste and that we hold off a bit before making decision about street sweep. Council Member Holder stated he had concerns regarding the many branches currently on the ground. Mr. Lindsay stated they could be bagged in clear bags for pick up as yard waste. Mayor Pro Tem Grannis asked if additional containers with yard waste was allowed. Mr. Lindsay stated that was acceptable.

Council Member Holder stated he was extremely proud of staff during the hurricane, especially the electric division.

12 ADJOURNMENT

- a) Motion to Adjourn

With there being nothing further, the meeting was adjourned at 6:54 p.m.

Motion: Council Member Holder
Second: Council Member Thompson
Vote: Unanimous

Duly adopted this the 1st day of October, 2018 while in regular session

Michael Grannis
Mayor Pro Tem

ATTEST:

Kimberly A. Moffett, CMC, NCCMC
Town Clerk

September 17, 2018
Minutes

**TOWN OF CLAYTON
2019 TOWN COUNCIL MEETING SCHEDULE**

WHEREAS, the Clayton Town Council exists to conduct the business of the citizens; and

WHEREAS, the Clayton Town Council meetings are held the first and third Monday of the month at 6:00 p.m. in the Council chamber of the Town Hall, unless otherwise noted; and

WHEREAS, each meeting of the Clayton Town Council is open to the public, except as provided by NC G.S. 143-318.11; and

WHEREAS, the Clayton Town Council may amend the yearly meeting schedule in accordance with NC G.S. 143-318.12:

TOWN OF CLAYTON 2019 CALENDAR TOWN COUNCIL MEETINGS		
MONTH	MEETING #1	MEETING #2
January	January 7, 2019	January 22, 2019 (Tuesday)
February	February 4, 2019	February 18, 2019
March	March 4, 2019	March 18, 2019
April	April 1, 2019	April 15, 2019
May	May 6, 2019	May 20, 2019
June	June 3, 2019	June 17, 2019
July	July 15, 2019* There is only one meeting held during the month of July, 2019.	
August	August 5, 2019	August 19, 2019
September	September 3, 2019 (Tuesday)	September 16, 2019
October	October 7, 2019	October 21, 2019
November	November 4, 2019	November 18, 2019
December	December 2, 2019	December 16, 2019

NOW THEREFORE, BE IT RESOLVED that the Town Council of Clayton hereby adopts the 2019 Clayton Town Council Schedule as presented.

Duly adopted this 1st day of October, 2018 while in regular session.

Jody McLeod
Mayor

ATTEST:

Kimberly A. Moffett, CMC, NCCMC
Town Clerk

TOWN OF CLAYTON

2019 HOLIDAY SCHEDULE

WHEREAS, it is the policy of the Town of Clayton to follow the holiday schedule provided by the State of North Carolina for its employees; and

WHEREAS, the below 2019 Holiday Schedule was retrieved from the State of North Carolina website: Listed below are the holidays that will be observed by State employees during 2019.

2019 Holiday Schedule		
Holiday	Observance Date	Day of Week
New Year's Day	January 1, 2019	Tuesday
Martin Luther King Jr.'s Birthday	January 21, 2019	Monday
Good Friday	April 19, 2019	Friday
Memorial Day	May 27, 2019	Monday
Independence Day	July 4, 2019	Thursday
Labor Day	September 2, 2019	Monday
Veteran's Day	November 11, 2019	Monday
Thanksgiving	November 28 & 29, 2019	Thursday & Friday
Christmas	December 24, 25 & 26, 2019	Tuesday, Wednesday & Thursday

NOW, THEREFORE, BE IT RESOLVED that the Town Council of Clayton hereby adopts the 2019 Holiday Scheduled as presented.

Duly adopted this 1st day of October, 2018 while in regular session.

Jody McLeod
Mayor

ATTEST:

Kimberly A. Moffett, CMC, NCCMC
Town Clerk

ANNEXATION PETITION 2018-183-ANX

Sunbelt

Parcels: 05I05035A

Owners: Moffat Properties, LLC

Non-Contiguous; 6.22 acres

**TOWN OF CLAYTON
RESOLUTION DIRECTING THE CLERK TO INVESTIGATE
A PETITION RECEIVED UNDER G.S. 160A-58.1**

WHEREAS, a petition requesting annexation of an area described in said petition was received on August 31, 2018, by the Town of Clayton; and

WHEREAS, G.S. 160A-58.2 provides that the sufficiency of the petition shall be investigated by the Town Clerk before further annexation proceedings may take place; and

WHEREAS, the Town Council of the Town of Clayton deems it advisable to proceed in response to this request for annexation:

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Clayton that:

The Town Clerk is hereby directed to investigate the sufficiency of the above-described petition and to certify as soon as possible to the Town Council the results of her investigation.

Duly adopted this 1st day of October 2018, while in regular session.

Michael Grannis
Mayor Pro Tem

ATTEST:

Kimberly A. Moffett, CMC, NCCMC
Town Clerk



TOWN OF CLAYTON
Engineering & Inspections
111 E. Second St., P.O. Box 879
Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

MEMORANDUM

To: Kimberly Moffett, Town Clerk
From: Andy Simerman, Construction Project Administrator
Copy: Dillion Smith, Ballentine Associates
Paralee Smith, Development Services Coordinator
Date: September 21, 2018
Subject: Johnston Charter Academy

Please place a warranty acceptance request for the referenced public sewer, water, storm sewer utilities, all pertinent easements and concrete and asphalt pavement on the next available agenda. Record drawings have been reviewed and accepted. Following acceptance, the utilities and roadway sections will be subject to a one-year warranty period. Following the warranty period, a final inspection will be done and all deficient items corrected prior to final acceptance.



TOWN OF CLAYTON
Engineering & Inspections
111 E. Second St., P.O. Box 879
Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

MEMORANDUM

To: Kimberly Moffett, Town Clerk
From: Andy Simerman, Construction Project Administrator
Copy: Dillion Smith, Ballentine Associates
Paralee Smith, Development Services Coordinator
Date: September 21, 2018
Subject: Johnston Charter Academy Roadway Improvements – Phase I

Please place a warranty acceptance request for the referenced water, storm sewer utilities, all pertinent easements and concrete and asphalt pavement on the next available agenda. Record drawings have been reviewed and accepted. Following acceptance, the utilities and roadway sections will be subject to a one-year warranty period. Following the warranty period, a final inspection will be done and all deficient items corrected prior to final acceptance.



Town Council Agenda Cover Sheet

Meeting Date

October 1 2018

Agenda Location

Introductions & Special Presentations

Item Title

Harmony Playground Project & Fundraising Update

Presenter

Dean Penny - Chairman, Clayton Community Recreational Foundation

Derrick Thompson – Founder & CEO, T&T Creative Group

Summary/Description

The town of Clayton has too many children that are not able to play outside because our playgrounds are not suitable for special needs children!

The Clayton Community Recreational Foundation is working to end this by building the Harmony Playground at East Clayton Community Park. In an effort to expedite the fundraising process, they are hosting a gala Saturday October 20, 2018.

You can help build the first special needs playground in the area by joining our gala planning committee today!

Please contact Derrick Thompson at 919.622.0784 or derrick@ttcreativegroup.com to join the movement!

You may also visit our website at www.harmonyplayground.org for more information.

The Harmony Playground is THE largest, most important project that the Clayton Recreational Foundation has every taken on. We are ½ way to our \$800,000 goal with plans to break ground next year.

We are planning a Fall Gala – October 20th. See attached. Amy Wright is our keynote speaker, with Debra Morgan being the emcee. Chris Hendrix will be providing the music. A silent auction will also be part of the festivities.

Requested Action

Informational Only

Additional Documents to be Included in Agenda Packet

Save the Date

Meeting Timeline

Click or tap here to enter text.



Save The Date

Please join us for the
Harmony Playground Gala!

*Help us reach our goal to build an
inclusive playground in Clayton, NC!*

TICKETS & SPONSORSHIPS - WWW.HARMONYPLAYGROUND.ORG

GALA
PRESENTED BY



**SATURDAY
OCTOBER 20, 2018**

**The Farm at 42,1075 Lynch Road
Selma, NC 27576**

*Red Carpet - Meet & Greet
begins at 5pm*

**Amy Wright,
Founder**



- *Founder of Bitty & Beau's Coffee
- *2017 CNN Hero of the Year Award Winner
- *20 most influential moms by Family Circle Magazine

WRAL's Debra Morgan,
our emcee, will help us honor two local heroes!



Town Council Agenda Cover Sheet

Meeting Date

September 17 2018

Agenda Location

Introductions & Special Presentations

Item Title

Economic Development Districts

Presenters

David DeYoung, Economic Development Director

Jim Perricone, Chamber of Commerce Economic Development Committee Chair

Summary/Description

The Chamber, in collaboration with the Town has been preparing Economic Development Districts for the Town of Clayton. The intent of these districts is to provide specific data and resources relevant to the employers within each zone, as well as attract new businesses and foster economic development activities.

Requested Action

Approval

Additional Documents to be Included in Agenda Packet

Economic Development Districts - Map

Meeting Timeline

N/A



Raleigh Town Limit
and ETJ

Economic Development Districts

Legend

- Economic Development Districts
- Advanced Manufacturing District
- Business Central District
- Covered Bridge District
- Downtown District
- East Bridge District
- Future Freight District
- Gateway District
- Health District
- Clayton Town Limits
- Extra Territorial Jurisdiction
- Parcels
- 540 Corridor
- Railroad

0 0.125 0.25 0.5 0.75 1 Miles

Garner Town Limit
and ETJ

Wake County
Johnston County

Wake County
Johnston County

Archer Lodge
Town Limit and ETJ

Wilson's Mills
Town Limit and ETJ

The Town of Clayton Planning Department shall not be held liable for any errors concerning content or positional accuracy of this mapped information. Use of these data for any purpose should be with the acknowledgement of the limitations of the data, including the fact that the data changes regularly. Please contact the Town of Clayton Planning Department for the most current data.
Path: O:\PLANNING\GIS Maps\2018\Economic Development Districts V309172018.mxd
Printed Date: September 17, 2018

PROPOSED DISTRICT NAMES/ICONS

9/26/18

A

Advanced Manufacturing

District A



B

Busines Central

District B



C

Covered Bridge

District C



D

Downtown

District D



E

East Bridge

District E



F

Future Growth

District F



G

Gateway

District G



H

Health

District H



ECONOMIC DEVELOPMENT

REVISION: March 28, 2018

One Year Action Plan (2018-2019)

In support of economic development, we commit to the following initiatives from **July 1, 2018 through June 30, 2019**:

- » Actively support JCC goal of establishing a Clayton Campus to will help retain local students and foster a pipeline of talent across all sectors for the emerging workforce needs in the area.
- » In collaboration with the Town of Clayton's public information officer, create and initiate a "Clayton" brand marketing program for the Clayton Chamber of Commerce service area that includes district sub-branding.
- » In support of branding initiative, and with guidance from the Town of Clayton's Art Advisory Board, pursue installation of permanent art pieces in each district and at "gateway" entrances to the Town/Clayton Chamber service area. Funding for these art pieces will be secured through private sources and grants where possible. Location selection to be determined through a process that includes district Clayton Chamber investor (member) participation.
- » Coordinate Clayton Chamber initiative to collect data showing investor (member) economic impact to be shared when pursuing programs and changes with municipal and other regulatory entities in furtherance of economic development.



Town Council Agenda Cover Sheet

Meeting Date

October 1 2018

Agenda Location

Public Hearings

Item Title

2018-65-SUP Spinning Mill Apartments

Presenter

Planning Department

Summary/Description

Request for issuance of a Special Use Permit to allow the use of apartments on the subject properties. The properties are zoned Neighborhood-Business (B-2) and are located off Front Street and Central Street. Overall, the development proposes 255 apartment units. These units will be located within 8 new buildings, and some will be located within the existing Spinning Mill which will be renovated. A major site plan was submitted with this application, and was reviewed by Planning Board on September 24th.

Requested Action

Approval/Denial

Additional Documents to be Included in Agenda Packet

Application
Staff Report
Staff Report Map
Neighborhood Meeting Materials
Associated Site Plan
Traffic Impact Analysis
NCDOT Congestion Management Letter
Wastewater Allocation Request
Planning Board Motion Sheet



TOWN OF CLAYTON

Planning Department

111 E. Second Street, Clayton, NC 27520

P.O. Box 879, Clayton, NC 27528

Phone: 919-553-5002

Fax: 919-553-1720

SPECIAL USE APPLICATION

Pursuant to Article 7, Section 155.711 of the Unified Development Code, an owner of land within the jurisdiction of the Town (or a duly authorized agent) may petition the Town Council to allow a Special Use. Special Uses are uses that may be appropriate in a particular district, but have the potential to create incompatibilities with adjacent uses.

Application Fee: \$400.00.

Advertisement Fee: \$100.00.

All fees are due when the application is submitted.

Please note that Section 155.702(B) of the Unified Development Code requires a Neighborhood Meeting for all Special Use Permit applications.

APPLICATION TYPE

☒ New Special Use Permit

☐ Major Modification to an approved SUP

Permit Modified: _____

SITE INFORMATION

Name of Project: Spinning Mill Lofts at East Village Acreage of Property: 24.50

Parcel ID Number: See Attachment Tax ID: See Attachment

Deed Book: See Attachment Deed Page(s): See Attachment

Address/Location: 300 Mill Street, Clayton NC

Existing Use: Vacant Manufacturing Bldg. and Office Proposed Use: Apartments

Is project within a Planned Development? ☒ No ☐ Yes

Planned Development District (if applicable): N/A

Is project within an Overlay District: ☐ No ☒ Yes

Overlay District (if applicable): Watershed Protection

OFFICE USE ONLY

Date Received: APR 02 2018 Amount Paid: \$500 Permit Number: 2018-65-SUP

version 01/06/2016

Page 1 of 9

Spinning Mill Lofts at East Village

County Tag #	NC PIN	Deed	Page
05037009T	1669.18-30-2104	3322	198
05037008V	1669.18-30-5328	3322	196
05037009W	1669.18-30-8385	3322	198
05037009U	1669.18-30-4740	3322	196
5037011	1668.06-48-6538	4099	330
05H03197H	1669.18-40-2748	3371	449

PROPERTY OWNER INFORMATION

Name: WBB, LLC; HCY, LLC; SCA Ventures, LLC; East Village Investments, LLC

Mailing Address: 132 Citation Lane, Smithfield, NC and 227 E. Front St. New Bern, NC 28560-2145

Phone Number: 919-938-1086; 252-670-9370

Fax: N/A

Email Address: Hubie@uhfdevelopmentgroup.com

APPLICANT INFORMATION

Applicant: Bass, Nixon and Kennedy, Inc. Consulting Engineers

Mailing Address: 6310 Chapel Hill Rd., Ste. 250, Raleigh, NC 27607

Phone Number: 919-851-4422

Fax: 919-851-8968

Contact Person: Marty D. Bizzell, PE

Email Address: marty.bizzell@bnkinc.com

REQUIRED INFORMATION (to be submitted with the application)

The following items must accompany a Conditional Use Permit (CUP) application.

To be completed by the applicant:			To be completed by staff:		
	Yes	N/A	Yes	No	N/A
1. A pre-application conference was held with Town of Clayton staff. Date: <u>2/14/18</u>	☒	☐			
2. Review Fee (\$400) and Application Fee (\$100)	☒	☐			
3. Completed application (9 copies)	☒	☐			
4. Owner's Consent Form (9 copies)	☒	☐			
5. Adjacent property owners list (9 copies)	☒	☐			
6. Wastewater allocation request OR verification of wastewater allocation (9 copies)	☒	☐			
7. Signed and sealed traffic impact analysis (2 copies)	☐	☐			
8. If applicant is concurrently applying for site plan approval, a copy of the proposed site plan.	☒	☐			
9. Neighborhood meeting notice letter (9 copies) <i>See sample letter and meeting requirements included in this packet</i>	May be provided at time of submittal if meeting date is known – otherwise must be submitted by email or mail on date the letter is mailed out.				
10. Set of stamped, addressed envelopes using the adjacent property owners list	May be provided at time of submittal OR no later than 25 days prior to the Town Council meeting.				
11. Neighborhood meeting summary form (9 copies) <i>Form is included in this packet</i>	Must be submitted after neighborhood meeting is held and at least 10 days prior to Planning Board meeting.				

Note: More information may be requested by the Planning Department depending on the project

REQUIRED FINDINGS OF FACT

Section 155.711(I) of the Unified Land Development Code requires applications for a Special Use to address the following findings. The burden of proof is on the applicant and failure to adequately address the findings may result in denial of the application. Please attach additional pages if necessary.

1. That the application will not materially endanger the public health or safety if located where proposed, and developed according to the plans as submitted and approved.

The proposed use is residential apartments, which is allowed as a special use on the property. Residential apartments are appropriately located on the property in relation to the surrounding uses, which include single family and office. A total of 255 apartments are proposed.

All of the apartments proposed by the application will have adequate access to public streets, as well as water and sewer, which will be designed and constructed to Town of Clayton standards and specifications. Stormwater will also be controlled by compliance with Town of Clayton standards and regulations. There will be no detrimental impact on the public health, safety and welfare from traffic or other secondary effects, such as dust and noise.

2. That the application meets all required specifications and conforms to the standards and practices of sound land use planning and the Town Code of Ordinances and other applicable regulations.

The proposed residential apartment development will meet all rules and regulations within the Town of Clayton Unified Development Ordinance and all existing Town of Clayton policies. In addition, all construction will be in accordance with all Town of Clayton Standards and Specifications.

3. That the application will not substantially injure the value of adjoining or abutting property, and will not be detrimental to the use or development of adjacent properties or other neighborhood uses.

The proposed use will not substantially injure the value of the adjoining or abutting properties.

Buffering, screening and landscaping will also be provided where required in accordance with Town ordinances, which will minimize the impact on adjoining properties as well.

In summary, the proposed use is consistent with adjoining or abutting uses and the values of those properties will be maintained or enhanced by the proposed use.

4. That the application will not adversely affect the adopted plans and policies of the Town, or violate the character of existing standards for development of the adjacent properties.

The proposed residential apartment development will meet all rules and regulations within the Town of Clayton Unified Development Ordinance (UDO) and all existing Town of Clayton policies. In addition, all construction will be in accordance with all Town of Clayton Standards and Specifications. The proposed development will not violate the character of existing standards for development of the adjacent properties. The character of the existing standards for development of the adjacent properties will be maintained or enhanced by the proposed redevelopment of this property.

EXPLANATION OF PROJECT

Please provide detailed information concerning all requests. Attach additional sheets if necessary.

Project includes the renovation of the Historic Clayton Spinning Mill Building. The existing mill building will be converted to a loft apartment building which will house 25 loft apartments. In addition, 8 new market rate apartments will be constructed on the surrounding properties to the south and east of the mill building containing 230 new market rate apartments.

There will also be a portion of the existing building that will be utilized for a small coffee shop or restaurant.

APPLICANT AFFIDAVIT

I/We, the undersigned, do hereby make application and petition to the Town Council of the Town of Clayton to approve the subject Special Use Permit. I hereby certify that I have full legal right to request such action and that the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related material and all attachments become official records of the Planning Department of the Town of Clayton, North Carolina, and will not be returned.

Marty D. Bizzell

Print Name

Mandy P. Byrill
Signature of Applicant

3/30/18
Date



BASS, NIXON & KENNEDY, INC., CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
919/851-4422 FAX 919/851-8968 BNK@BNKinc.com

May 4, 2018

Dear Clayton Area Property Owner:

The purpose of this letter is to notify you of an application filed with the Town of Clayton for a land use change or development proposal involving property adjacent to, or in close proximity to, property shown in your ownership by Johnston County tax records. Per Town of Clayton regulations, a Neighborhood Meeting will be held to provide information to area residents about the nature of the proposal. A representative of the applicant will be present to explain their application, answer questions, and solicit comments.

Meeting Date: May 16, 2018

Meeting Time: 7:00PM

Meeting Location: The Arbors at East Village Apts. Clubhouse
50 Bentbranch Loop, Clayton

Type of Application: Rezoning, Special Use Permit and Site Plan.

Project/proposal property address: 300 Mill St., Clayton

Description of project/proposal: Residential apartments and amenities

At a minimum, the following will be available for your inspection at the Neighborhood Meeting:

1. A copy of the project application.
2. A map at a scale that is appropriate to the project and shows neighboring properties and roads.
3. A map, drawing, or other depiction of the proposed land use change or development proposal.

A map is enclosed with this letter showing the location of the property that is subject to this application for land use change and/or development proposal.

If you have any questions prior to or after this meeting, you may contact us at 919-851-4422. You may also contact the Planning Department at 919-553-5002.

Sincerely,

A handwritten signature in blue ink that reads "Marty D. Bizzell".

Marty D. Bizzell, PE
Bass, Nixon & Kennedy, Inc

Cc: Town of Clayton Planning Dept.

ADJACENT PROPERTY OWNERS LIST

Project Name: Spinning Mill Lofts at East Village (Page 1 of 2)

The following are all the persons, firms, or corporations owning property within 100 feet and immediately adjacent to the property (including across street rights of way) subject to this request. Where the subject property immediately adjoins a public or private right-of-way, landscape or riparian buffer, commonly-owned private area, public property, or homeowners' association property, then letters of notification shall be sent to adjoining property owners as if they directly abut the subject property. Please use a separate sheet if necessary

It is the responsibility of the applicant to correctly identify the current owner, based upon records in the Johnston County GIS Office, for all property owners of land within the required public notice radius.

PARCEL NUMBER	NAME	ADDRESS
1669.18-30-1510	United States Postal Service	3980 Dekalb Tech. Parkway S240, Atlanta, GA 30340-2778
1669.18-30-3737	Scott J. Perdun	111 Central Street, Clayton, N.C. 27520-2004
1669.18-30-3799	Allen Rhodes	P.O. Box 973, Greenboro, NC 27402-0973
1669.18-30-2808	John R. & Elaine W. Johnson	155 Richard Dr., Garner, NC 27529-6717
1669.18-30-6834	SCA Ventures, LLC	132 Citation Lane, Smithfield, NC 27577
1669.18-30-5814	Nelson K. & Angelina A. Daniels	401 Central Street, Clayton, NC 27520
166.18-30-5887	Raechel L. Marsh	409 Central Street, Clayton, NC 27520-2006
1669.18-30-6849	Joy R. Roberson	P.O. Box 865, Clayton, NC 27528
1669.18-31-9081	Joyce Roberson	P.O. Box 865, Clayton, NC 27528
1669.18-31-7006	Joy R. Roberson	P.O. Box 865, Clayton, NC 27528
1669.18-31-1477	Harvey B. & Mildred S. Gordon	133 Plantation Cir S., Ponte Vedra Beach, FL 32082
1669.18-41-1304	Joy R. Roberson	P.O. Box 865, Clayton, NC 27528
1669.18-41-7775	Walden Homeowners Assoc., Inc.	2044 Deer Trail, Clayton, NC 27527
1669.18-41-6242	Jerry D. & Leetha House	2025 Deer Trail, Clayton, NC 27527
1669.18-41-5034	Hamilton Family Trust	2021 Deer Trail, Clayton, NC 27527
1669.18-40-5883	Anthony R. Tuel	2017 Deer Trl., Clayton, NC 27527-9181
1668.07-59-0985	TH Clayton Development Co., LLC	P.O. Box 566, Greenville, NC 27835-0566

ADJACENT PROPERTY OWNERS LIST

Project Name: Spinning Mill Lofts at East Village (Page 2 of 2)

The following are all the persons, firms, or corporations owning property within 100 feet and immediately adjacent to the property (including across street rights of way) subject to this request. Where the subject property immediately adjoins a public or private right-of-way, landscape or riparian buffer, commonly-owned private area, public property, or homeowners' association property, then letters of notification shall be sent to adjoining property owners as if they directly abut the subject property. Please use a separate sheet if necessary

It is the responsibility of the applicant to correctly identify the current owner, based upon records in the Johnston County GIS Office, for all property owners of land within the required public notice radius.

PARCEL NUMBER	NAME	ADDRESS
1668.06-49-3499	Clayton Multi Family Investments, LLC	P.O Box 566, Greenville, NC 27835-0566
1668.06-39-9260	East Village Investments, LLC	227 E. Front St., New Bern, NC 28560-2145
	North Carolina Railroad	2809 Highwoods Blvd., Raleigh, NC 27604

NEIGHBORHOOD MEETING ATTENDANCE ROSTER

Project: Spinning Mill Lofts at East Village

Application: Rezoning, Special Use and Major Site Plan

Location/Date: The Arbors Apts. Clubhouse - May 16, 2018

	NAME	ADDRESS
1	Angelina Daniels	401 Central St, Clayton, NC 27520
2	Marcia Wolfe	171 East Ridge Circle, Clayton, NC 27520
3		2021 Deer Trl
4	Allen Rhodes	508 ^{#3} 0 Ferrell St Greensboro, NC 27405
5	Jerry House	8025 Deer Trl
6		
7		
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20		

NEIGHBORHOOD MEETING SUMMARY FORM

FILL OUT THE FOLLOWING:

Application: Spinning Mill Lofts at East Village

Date of Mailing: May 4, 2018

I hereby attest that letters were mailed to the addresses listed on the Adjacent Property Owners List (attached) ten days prior to the Neighborhood Meeting:

Printed Name: Marty D. Bizzell

Signature: _____

Date of Meeting: May 16th

Time of Meeting: 7:00

Location of Meeting: The Arbors Apartments Clubhouse

Meeting Summary/Minutes: *provide a summary of the discussion held at the meeting, including issues raised and any resolution discussed, and any changes made to the application as a result of the meeting.*

Five property owners attended the meeting held at the Arbors Apts. Clubhouse on May 16th at 7:00 p.m. An overview of the project was given by Marty Bizzell, Engineer for the project and Thomas Taft, Jr., developer. Several items were discussed including bldg. elevations, landscaping and traffic patterns. It was explained that the existing mill building will be renovated into 25 loft apartments. Stormwater ponds locations were discussed along with locations of Neuse Riparian buffers. There was some discussion about whether the adjacent house on E. Ridge Circle (PIN: 166918-30-6834) would remain or be demolished. It was explained the parcel is not part of the project and will remain. Property owners seemed pleased with the project at the meeting adjourned at approximately 8:30 p.m.

Please write clearly (or submit a typed summary). Use additional sheets if necessary.

PUBLIC NOTICE

In accordance with NC GS 160A-384 and NC GS 160A-364, the Clayton Town Council will hold an evidentiary hearing on Monday, October 1, 2018, at 6:00 PM at Town Hall, 111 East Second Street, to consider 2018-65-SUP Spinning Mill Lofts at East Village Special Use Permit; request to allow the use of apartments on the subject properties. The properties are zoned Neighborhood-Business (B-2). Per UDC requirements, the use of apartments in this zoning district requires a special use permit to be permitted. The properties are located off Front Street and Central Street; TAG #s: 05037009T, 05037008V, 05037009W, 05037009U, 05037011, 05H03197H

For an evidentiary hearing, the Clayton Town Council must make findings of fact based upon sworn testimony and other credible evidence. Citizens may give testimony in an evidentiary hearing after they have taken an oath.

This is an open meeting and the public is invited to attend.

Haley Hogg, Planner
919-553-5002

The Clayton News Star

Please advertise on the following dates:
September 21, 2018
September 28, 2018

Affidavit of publication required.

5/18/2018 3:22:50 PM PLT BY:RCK-gtens R:2017-11-03 - E081-V11.008-SP-10109-MT1-403-Prd-110109-4000 - 17033-cover-490

SYMBOLS AND ABBREVIATIONS

ABC	AGGREGATE BASE COURSE		EXISTING CURB INLET
ALUM	ALUMINUM		EXISTING DROP INLET / YARD INLET
ASSY	ASSEMBLY		EXISTING FLARED END SECTION
B-B	BACK TO BACK		EXISTING FIRE HYDRANT
BOA	BLOW-OFF ASSEMBLY		EXISTING BLOW-OFF ASSEMBLY
C&G	CURB AND GUTTER		EXISTING GATE VALVE
CFS	CUBIC FEET PER SECOND		EXISTING REDUCER
CI	CURB INLET		EXISTING WATER METER
C/L	CENTER LINE		EXISTING MANHOLE / JUNCTION BOX
CO	CLEAN OUT		EXISTING CLEAN OUT
COM	COMMUNICATION		EXISTING POWER POLE
CONC	CONCRETE		EXISTING GUY WIRE
CT	COURT		EXISTING TELEPHONE PEDESTAL
CU	COPPER		EXISTING LIGHT POLE / AREA LIGHT
DCV	DOUBLE CHECK VALVE		EXISTING SIGN
DDCV	DOUBLE DETECTOR CHECK VALVE		NEW CURB INLET
DEFL	DEFLECTION		NEW GRATE INLET/YARD INLET
DI	DROP INLET		NEW FLARED END SECTION
DIP	DUCTILE IRON PIPE		NEW FIRE HYDRANT
DRAIN	DRAINAGE		NEW BLOW-OFF ASSEMBLY
DR	DRIVE		NEW GATE VALVE
EASE	EASEMENT		NEW REDUCER
ELEC	ELECTRIC		NEW WATER METER
EOP	EDGE OF PAVEMENT		NEW TEE
EXIST	EXISTING		NEW PLUG
FES	FLARED END SECTION		NEW MANHOLE
FM	FIRE HYDRANT		NEW CLEAN OUT
FM	FORCE MAIN		NEW SIGN
FT	FEET		IRON PIPE
FT/SEC	FEET PER SEC		BENCHMARK
GALV	GALVANIZED		STORM STRUCTURE LABEL
GV	GATE VALVE		
HCR	HANDICAP RAMP		
INV	INVERT		
L	LENGTH		
LF	LINEAR FEET		
LP	LIGHT POLE		
LT	LEFT		
MH	MANHOLE		
MIN	MINIMUM		
OHE	OVERHEAD ELECTRIC		
PAVE	PAVEMENT		
PERM	PERMANENT		
PP	POWER POLE		
PVC	POLYVINYL CHLORIDE		
R	RADIUS		
R/W	RIGHT-OF-WAY		
RED	REDUCER		
RPZ	REDUCED PRESSURE ZONE		
RT	RIGHT		
S	SLOPE		
SS	SANITARY SEWER		
STA	STATION		
T	TANGENT		
TDD	TEMPORARY DIVERSION DITCH		
TELE	TELEPHONE		
TSB	TEMPORARY SEDIMENT BASIN		
TSO	TEMPORARY SLOPE DRAIN		
UG	UNDERGROUND		
W	WIDTH		
W/L	WATER LINE		
WM	WATER METER		
YI	YARD INLET		

CONSTRUCTION NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH APPLICABLE MUNICIPALITY STANDARDS, SPECIFICATIONS, AND DETAILS. WORK IN THIS PROJECT SHALL ALSO CONFORM TO THESE PLANS, THE LATEST EDITIONS OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION (NCDOT) ROAD AND BRIDGE SPECIFICATIONS, THE ROAD AND BRIDGE STANDARDS, THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL HANDBOOK, THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL REGULATIONS, THE FINAL GEOTECHNICAL REPORT, AND GENERAL DESIGN STANDARDS. IN THE EVENT OF CONFLICT BETWEEN ANY OF THESE STANDARDS, SPECIFICATIONS, OR PLANS, THE MOST STRINGENT SHALL GOVERN.
2. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR TRENCH SAFETY DURING ALL PHASES OF CONSTRUCTION.
3. THE LOCATION AND SIZE OF EXISTING UTILITIES AS SHOWN IS APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR HORIZONTALLY AND VERTICALLY LOCATING AND PROTECTING ALL PUBLIC OR PRIVATE UTILITIES WHICH LIE IN OR ADJACENT TO THE CONSTRUCTION SITE AT LEAST 48 HOURS PRIOR TO ANY DEMOLITION, GRADING, OR CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL NOTIFY THE NORTH CAROLINA ONE-CALL UTILITIES LOCATION SERVICE (1-800-632-4949) FOR PROPER IDENTIFICATION OF EXISTING UTILITIES WITHIN THE SITE.
4. THE CONTRACTOR SHALL SALVAGE AND PROTECT ALL EXISTING POWER POLES, SIGNS, MANHOLES, TELEPHONE RISERS, WATER VALVES, ETC. DURING ALL CONSTRUCTION PHASES. THE CONTRACTOR SHALL REPAIR, AT HIS OWN EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
5. TRAFFIC CONTROL ON PUBLIC STREETS SHALL BE IN COMPLIANCE WITH THE TRAFFIC CONTROL PLAN, THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND AS FURTHER DIRECTED BY CITY AND STATE INSPECTORS.
6. ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN DRAWINGS OR SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER, IN WRITING, WHO SHALL PROMPTLY ADDRESS SUCH INCONSISTENCIES OR AMBIGUITIES. WORK DONE BY THE CONTRACTOR AFTER HIS DISCOVERY OF SUCH DISCREPANCIES, INCONSISTENCIES OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTOR'S RISK.

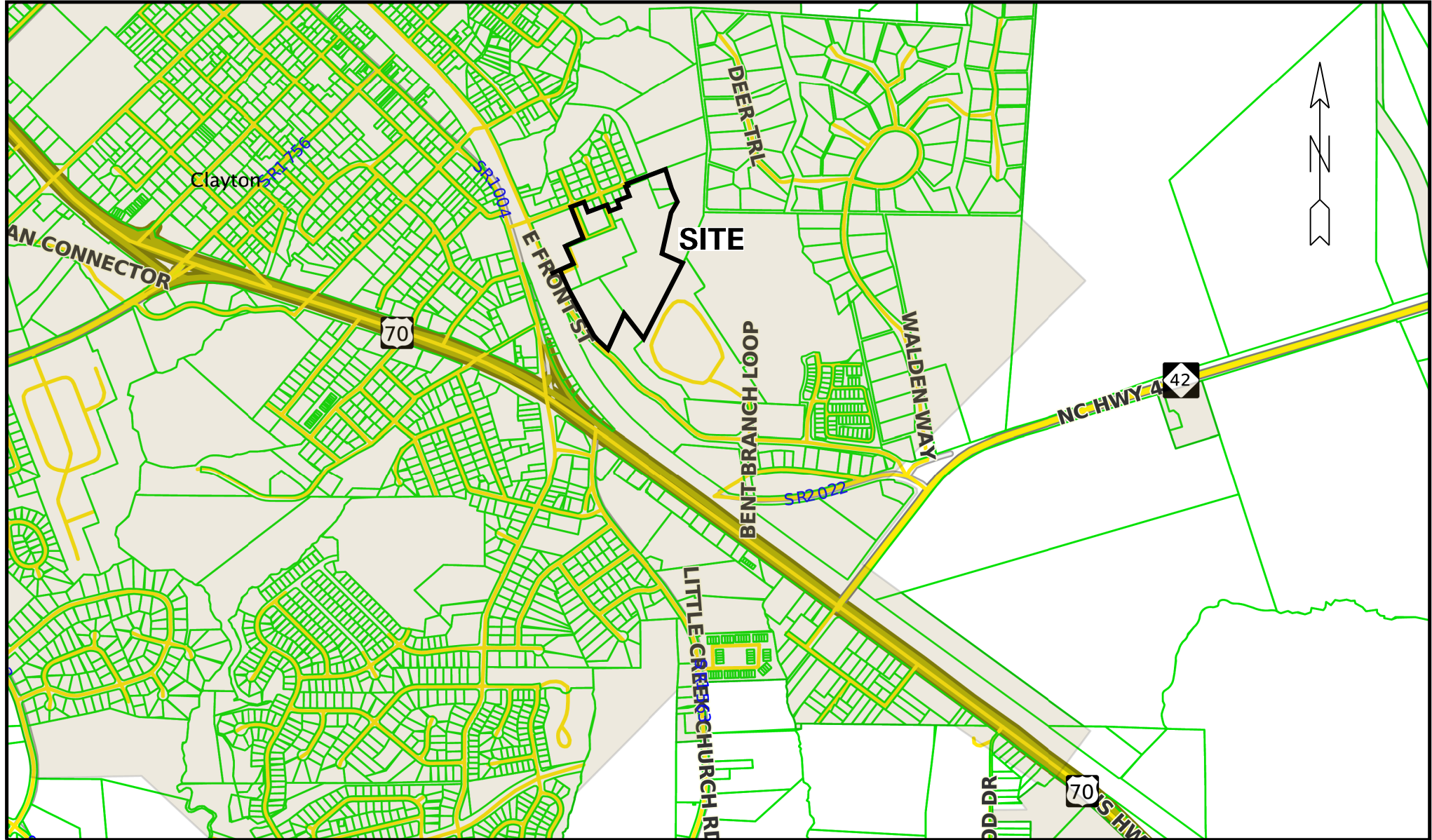
7. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL ARRANGE THE MEETING WITH THE CITY ENGINEERING DIVISION.
8. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL REQUIRED PERMITS AND APPROVALS PRIOR TO COMMENCING CONSTRUCTION.
9. ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE AND AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL USE SILT FENCES (OR OTHER METHODS APPROVED BY THE ENGINEER AND APPLICABLE MUNICIPALITY) AS REQUIRED TO PREVENT SILT AND CONSTRUCTION DEBRIS FROM FLOWING ONTO ADJACENT PROPERTIES. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, OR LOCAL EROSION, CONSERVATION, AND SILTATION ORDINANCES. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF PERMANENT DRAINAGE FACILITIES AND THE ESTABLISHMENT OF A STAND OF GRASS OR OTHER GROWTH TO PREVENT EROSION.
10. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE PROJECT GEOTECHNICAL ENGINEER'S SPECIFICATIONS. THE FILL MATERIAL TO BE USED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.
11. MATERIALS USED TO CONSTRUCT EMBANKMENTS FOR ANY PURPOSE, BACKFILL AROUND DRAINAGE STRUCTURES, OR IN UTILITY TRENCHES FOR ANY OTHER DEPRESSION REQUIRING FILL OR BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AS SET OUT IN ASTM STANDARD D698. STONE BACKFILL SHALL BE COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST AS SET OUT IN ASTM STANDARD D1557. THE CONTRACTOR SHALL, PRIOR TO ANY OPERATIONS INVOLVING FILLING OR BACKFILLING, SUBMIT THE RESULTS OF THE PROCTOR TEST TOGETHER WITH A CERTIFICATION THAT THE SOIL TESTED IS REPRESENTATIVE OF THE MATERIALS TO BE USED ON THE PROJECT. TESTS SHALL BE CONDUCTED BY A CERTIFIED MATERIALS TESTING LABORATORY AND THE CERTIFICATIONS MADE BY A LICENSED PROFESSIONAL ENGINEER REPRESENTING THE LABORATORY.
12. PROPOSED CONTOURS AND GUTTER GRADIENTS ARE APPROXIMATE. PROPOSED SPOT ELEVATIONS AND ROADWAY PROFILE SUPERELEVATIONS ARE TO BE USED IN CASE OF DISCREPANCY

SPINNING MILL LOFTS AT EAST VILLAGE

MAJOR SITE PLAN

JOHNSTON COUNTY

NORTH CAROLINA



VICINITY MAP

NOT TO SCALE

DEVELOPER:

SPINNING MILL INVESTMENTS, LLC
P.O. BOX 566
GREENVILLE, NC 27835
TELEPHONE: (252) 752-7101

PREPARED BY:

B N K
BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250
RALEIGH, NORTH CAROLINA 27607
TELEPHONE: (919) 851-4422 or (800) 354-1879
FAX: (919) 851-8968
www.BNKinc.com
CERTIFICATION NUMBERS: NCBELS (C-0110)
NCBOLA (C-0267)

ENGINEERS:
BASS, NIXON AND KENNEDY, INC.,
6310 CHAPEL HILL ROAD, SUITE 250
RALEIGH, NORTH CAROLINA 27607
TELEPHONE: (919) 851-4422
FAX: (919) 851-8968

CONTACT: MARTY D. BIZZELL, PE, CPESC
EMAIL: MARTY.BIZZELL@BNKINC.COM

20. THE CONTRACTOR OR OWNER SHALL EMPLOY A GEOTECHNICAL ENGINEER TO TEST ALL EMBANKMENTS AND FILL PLACEMENT FOR PROPER COMPACTION. PROPER COMPACTION SHALL BE PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS OR THESE PLANS, WHICHEVER IS MORE STRINGENT. EMBANKMENTS FOR PONDS SHALL BE PLACED IN 6 INCH LOOSE LAYERS AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF 1% OR TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698. THE CONTRACTOR SHALL TAKE PHOTOGRAPHS OF THE OUTLET STRUCTURE AT ALL PHASES OF INSTALLATION AND SHALL RETAIN WITH GEOTECHNICAL TESTING DATA. THE CONTRACTOR SHALL ALSO RETAIN ALL SHIPPING RECORDS AND SPECIFICATIONS FOR THE OUTLET STRUCTURE MATERIALS AND STRUCTURES. ALL OF THE ABOVE DATA MAY BE REQUIRED AS PART OF THE MUNICIPALITY AS-BUILT PROCESS AND SHALL BE MADE AVAILABLE TO THE ENGINEER UPON REQUEST. THE CONTRACTOR AND OWNER SHALL HAVE DOCUMENTATION OF THESE TESTS AVAILABLE UPON REQUEST.

21. RETAINING WALLS SHOWN HEREIN SHALL BE DESIGNED BY A QUALIFIED PROFESSIONAL ENGINEER WITH EXPERIENCE DESIGNING RETAINING WALLS. AT LEAST 14 DAYS PRIOR TO BEGINNING CONSTRUCTION OF RETAINING WALLS, THE CONTRACTOR SHALL CONTACT THE OWNER'S GEOTECHNICAL ENGINEER TO SCHEDULE AND COORDINATE ALL APPROPRIATE INSPECTIONS, TESTING, AND VERIFICATION NECESSARY DURING RETAINING WALL CONSTRUCTION. THE GEOTECHNICAL ENGINEER SHALL PROVIDE CONTINUOUS INSPECTION, TESTING, AND VERIFICATION FOR THE DURATION OF RETAINING WALL CONSTRUCTION. PROPER SCHEDULING, EXECUTION, AND RECORD KEEPING FOR ALL REQUIRED INSPECTIONS, TESTING, AND VERIFICATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SUCH RECORDS SHALL BE RETAINED AND SHALL BE PROVIDED TO THE OWNER AND BASS, NIXON & KENNEDY, INC. ALL MONITORING, TESTING, AND VERIFICATION SHALL CONFORM TO THE MOST RECENT VERSION OF THE NC BUILDING CODE CHAPTER 18, SECTION 1804 OR THE WALL DESIGN ENGINEER'S SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.

SHEET INDEX

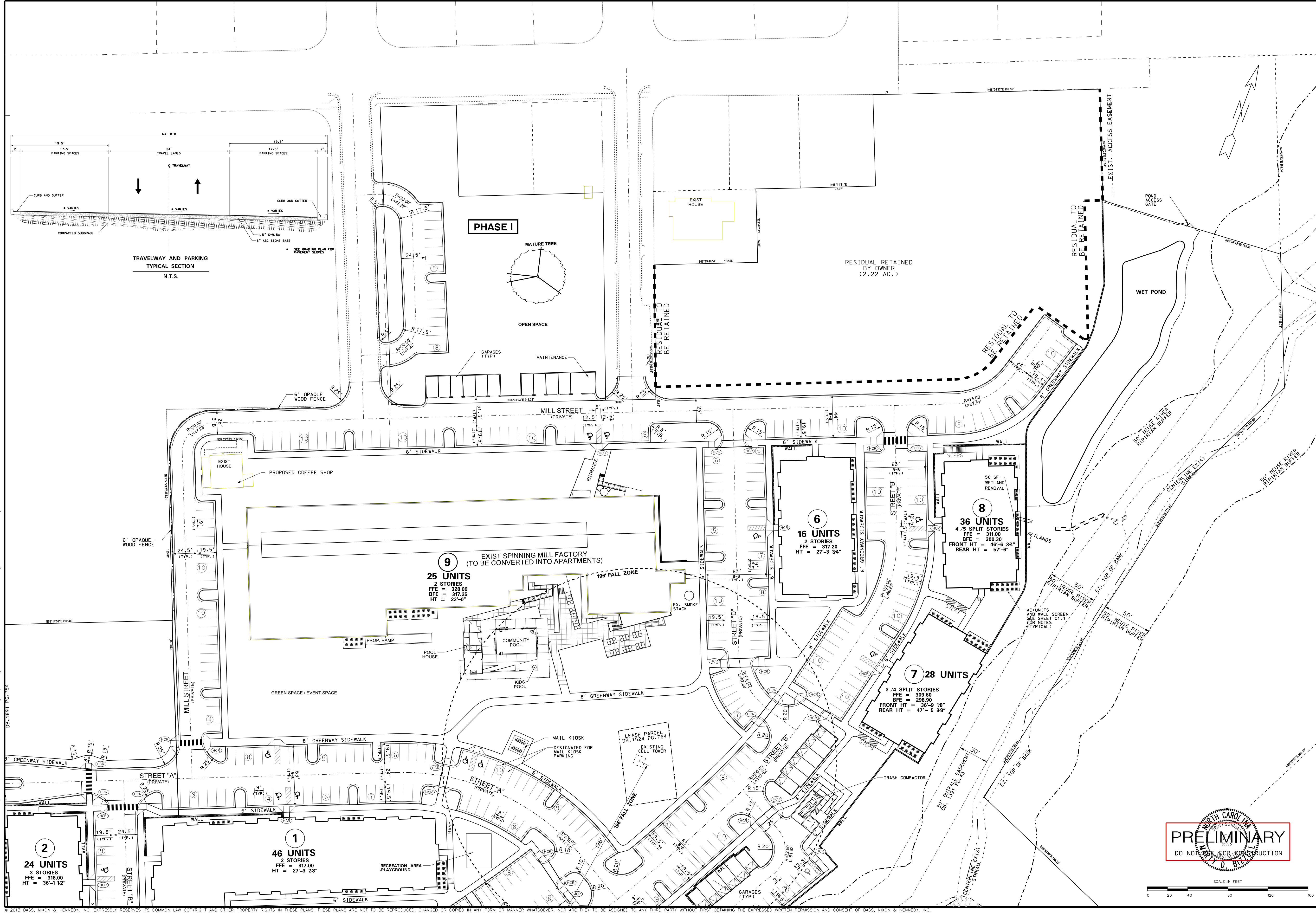
SHEET No.	SHEET TITLE
—	COVER SHEET
C1.0	EXISTING CONDITIONS PLAN
C1.1	OVERALL SITE PLAN
C1.2	SITE PLAN
C1.3	SITE PLAN
C2.1	UTILITY PLAN
C2.2	UTILITY PLAN
C2.3	OFF SITE SANITARY SEWER PLAN
C3.1	GRADING PLAN
C3.2	GRADING PLAN
L1.0	OVERALL LANDSCAPE PLAN
L1.1	LANDSCAPE PLAN – NORTH
L1.2	LANDSCAPE PLAN – SOUTH
1.A1.10	BUILDING TYPE I ELEVATION
1.A1.11	BUILDING TYPE I ELEVATION
1.A2.03	BUILDING TYPE II ELEVATION
1.A2.08	BUILDING TYPE 2.1 ELEVATION
1.A2.09	BUILDING TYPE 2.1 ELEVATION
1.A3.03	BUILDING TYPE 3.0 ELEVATION
1.A3.12	BUILDING TYPE 3.1 ELEVATION
1.A3.24	BUILDING TYPE 3.2 ELEVATION
1.A5.10	GARAGE TYPE 1 ELEVATIONS
1.A5.11	GARAGE TYPE 2 ELEVATIONS
1.A5.12	GARAGE TYPE 3 ELEVATIONS
1.A6.00	COMPACTOR PLAN AND ELEVATION
1.A7.00	POOLSIDE GRILLING STATIONS
CB1	COLOR BOARD 1
A1.1	BUILDING PLAN
A1.2	BUILDING PLAN
A1.3	POOL-HOUSE – BUILDING PLAN – ELEVATIONS
A3.1	BUILDING ELEVATIONS
A3.2	BUILDING ELEVATIONS
A3.3	BUILDING ELEVATIONS

Received by Town of Clayton
9/19/2018

NOT PERMITTED FOR CONSTRUCTION

9/19/2018 11:22:28 PM PLOT BY: mark.gardens R:\420174\1033 - East Village Sporting Mill Apartments\ACTIV\403 Preliminary\403 - 17033.c1.2.dgn

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SHEET
C1.2

SPINNING MILL LOFTS
AT EAST VILLAGE
PHASE I PRELIMINARY SUBMITTAL

TOWN OF CLAYTON JOHNSTON COUNTY NORTH CAROLINA

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

17033
JOB NO. 07-25-18
DATE
DRAWN BY
PRELIMINARY SITE PLAN

NO. DATE DESCRIPTION REVISIONS

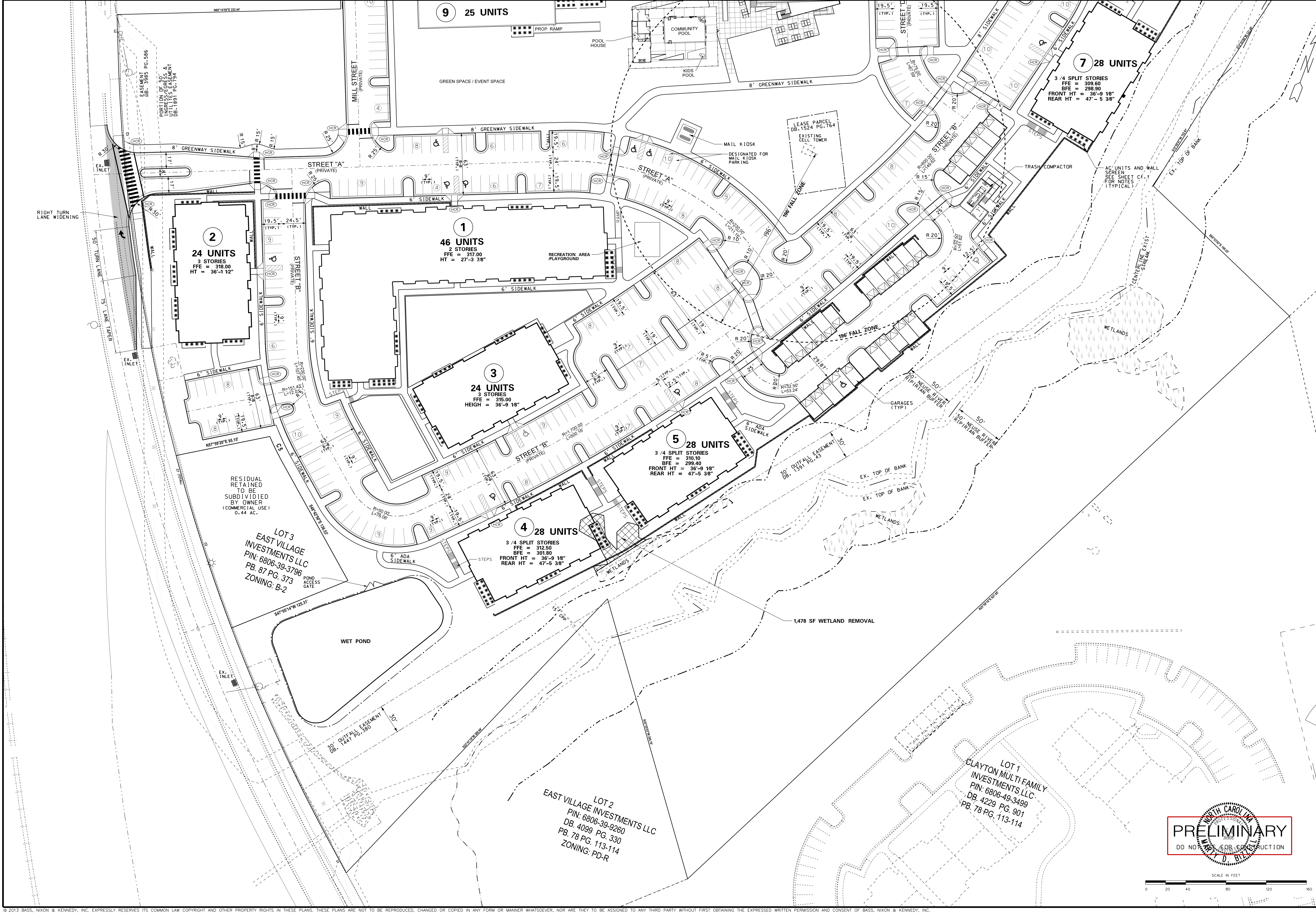
NO.	DATE	DESCRIPTION	REVISIONS
3	8-15-18	T.O. CLAYTON COMMENTS	MG
2	7-25-18	T.O. CLAYTON COMMENTS	MG
1	4-27-18	T.O. CLAYTON COMMENTS	MG

BASS, NIXON & KENNEDY, INC.
CONSULTING ENGINEERS
6310 CHAPEL HILL ROAD, SUITE 250, RALEIGH, NC 27607
TELEPHONE: (919) 851-4422 OR (800) 354-1879 FAX: (919) 851-8968
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)



9/18/2018 1:24:00 PM PLT BY: mark.gottens R:\2017\1033 - East Village Spinning Mill Apartments\CIVIL\03 Preliminary\004 - 17033-01-3.dgn

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SHEET
C1.3

SPINNING MILL LOFTS
AT EAST VILLAGE
PHASE I PRELIMINARY SUBMITTAL

TOWN OF CLAYTON
JOHNSTON COUNTY
NORTH CAROLINA

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION

PRELIMINARY SITE PLAN

NO.	DATE	DESCRIPTION	BY
1	4-27-18	T.O. CLAYTON COMMENTS	MG
2	7-25-18	T.O. CLAYTON COMMENTS	MG
3	8-12-18	T.O. CLAYTON COMMENTS	MG

NO.	DATE	DESCRIPTION	BY
1	4-27-18	T.O. CLAYTON COMMENTS	MG
2	7-25-18	T.O. CLAYTON COMMENTS	MG
3	8-12-18	T.O. CLAYTON COMMENTS	MG

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CONSULTING ENGINEERS
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TELEPHONE: (919) 851-4422 OR (800) 354-1879 FAX: (919) 851-8988
CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

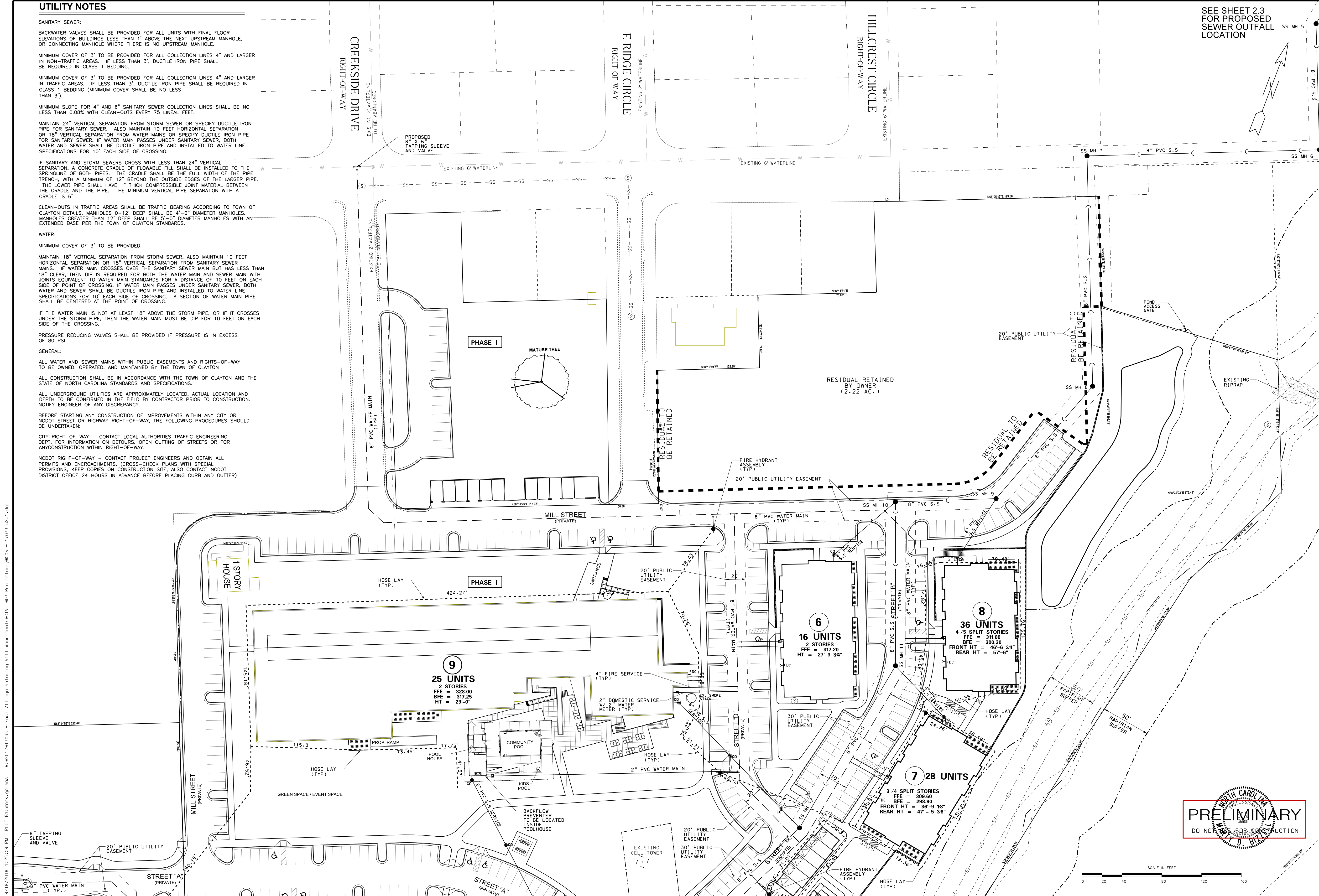
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UTILITY NOTES

SANITARY SEWER:
BACKWATER VALVES SHALL BE PROVIDED FOR ALL UNITS WITH FINAL FLOOR ELEVATIONS OF BUILDINGS LESS THAN 1' ABOVE THE NEXT UPSTREAM MANHOLE, OR CONNECTING MANHOLE WHERE THERE IS NO UPSTREAM MANHOLE.
MINIMUM COVER OF 3' TO BE PROVIDED FOR ALL COLLECTION LINES 4" AND LARGER IN NON-TRAFFIC AREAS. IF LESS THAN 3', DUCTILE IRON PIPE SHALL BE REQUIRED IN CLASS 1 BEDDING.
MINIMUM COVER OF 3' TO BE PROVIDED FOR ALL COLLECTION LINES 4" AND LARGER IN TRAFFIC AREAS. IF LESS THAN 3', DUCTILE IRON PIPE SHALL BE REQUIRED IN CLASS 1 BEDDING (MINIMUM COVER SHALL BE NO LESS THAN 3').
MINIMUM SLOPE FOR 4" AND 6" SANITARY SEWER COLLECTION LINES SHALL BE NO LESS THAN 0.08% WITH CLEAN-OUTS EVERY 75 LINEAL FEET.
MAINTAIN 24" VERTICAL SEPARATION FROM STORM SEWER OR SPECIFY DUCTILE IRON PIPE FOR SANITARY SEWER. ALSO MAINTAIN 10 FEET HORIZONTAL SEPARATION OR 18" VERTICAL SEPARATION FROM WATER MAINS OR SPECIFY DUCTILE IRON PIPE FOR SANITARY SEWER. IF WATER MAIN PASSES UNDER SANITARY SEWER, BOTH WATER AND SEWER SHALL BE DUCTILE IRON PIPE AND INSTALLED TO WATER LINE SPECIFICATIONS FOR 10' EACH SIDE OF CROSSING.
IF SANITARY AND STORM SEWERS CROSS WITH LESS THAN 24" VERTICAL SEPARATION, A CONCRETE CRADLE OF FLOWABLE FILL SHALL BE INSTALLED TO THE SPRINGLINE OF BOTH PIPES. THE CRADLE SHALL BE THE FULL WIDTH OF THE PIPE TRENCH, WITH A MINIMUM OF 12" BEYOND THE OUTSIDE EDGES OF THE LARGER PIPE. THE LOWER PIPE SHALL HAVE 1" THICK COMPRESSIBLE JOINT MATERIAL BETWEEN THE CRADLE AND THE PIPE. THE MINIMUM VERTICAL PIPE SEPARATION WITH A CRADLE IS 6".
CLEAN-OUTS IN TRAFFIC AREAS SHALL BE TRAFFIC BEARING ACCORDING TO TOWN OF CLAYTON DETAILS. MANHOLES 0-12' DEEP SHALL BE 4'-0" DIAMETER MANHOLES. MANHOLES GREATER THAN 12' DEEP SHALL BE 5'-0" DIAMETER MANHOLES WITH AN EXTENDED BASE PER THE TOWN OF CLAYTON STANDARDS.
WATER:
MINIMUM COVER OF 3' TO BE PROVIDED.
MAINTAIN 18" VERTICAL SEPARATION FROM STORM SEWER. ALSO MAINTAIN 10 FEET HORIZONTAL SEPARATION OR 18" VERTICAL SEPARATION FROM SANITARY SEWER MAINS. IF WATER MAIN CROSSES OVER THE SANITARY SEWER MAIN BUT HAS LESS THAN 18" CLEAR, THEN DIP IS REQUIRED FOR BOTH THE WATER MAIN AND SEWER MAIN WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF POINT OF CROSSING. IF WATER MAIN PASSES UNDER SANITARY SEWER, BOTH WATER AND SEWER SHALL BE DUCTILE IRON PIPE AND INSTALLED TO WATER LINE SPECIFICATIONS FOR 10' EACH SIDE OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
IF THE WATER MAIN IS NOT AT LEAST 18" ABOVE THE STORM PIPE, OR IF IT CROSSES UNDER THE STORM PIPE, THEN THE WATER MAIN MUST BE DIP FOR 10 FEET ON EACH SIDE OF THE CROSSING.
PRESSURE REDUCING VALVES SHALL BE PROVIDED IF PRESSURE IS IN EXCESS OF 80 PSI.
GENERAL:
ALL WATER AND SEWER MAINS WITHIN PUBLIC EASEMENTS AND RIGHTS-OF-WAY TO BE OWNED, OPERATED, AND MAINTAINED BY THE TOWN OF CLAYTON.
ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF CLAYTON AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
ALL UNDERGROUND UTILITIES ARE APPROXIMATELY LOCATED. ACTUAL LOCATION AND DEPTH TO BE CONFIRMED IN THE FIELD BY CONTRACTOR PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCY.
BEFORE STARTING ANY CONSTRUCTION OF IMPROVEMENTS WITHIN ANY CITY OR NCDOT STREET OR HIGHWAY RIGHT-OF-WAY, THE FOLLOWING PROCEDURES SHOULD BE UNDERTAKEN:
CITY RIGHT-OF-WAY - CONTACT LOCAL AUTHORITIES TRAFFIC ENGINEERING DEPT. FOR INFORMATION ON DETOURS, OPEN CUTTING OF STREETS OR FOR ANY CONSTRUCTION WITHIN RIGHT-OF-WAY.
NCDOT RIGHT-OF-WAY - CONTACT PROJECT ENGINEERS AND OBTAIN ALL PERMITS AND ENCROACHMENTS. (CROSS-CHECK PLANS WITH SPECIAL PROVISIONS. KEEP COPIES ON CONSTRUCTION SITE. ALSO CONTACT NCDOT DISTRICT OFFICE 24 HOURS IN ADVANCE BEFORE PLACING CURB AND GUTTER)



SEE SHEET 2.3 FOR PROPOSED SEWER OUTFALL LOCATION



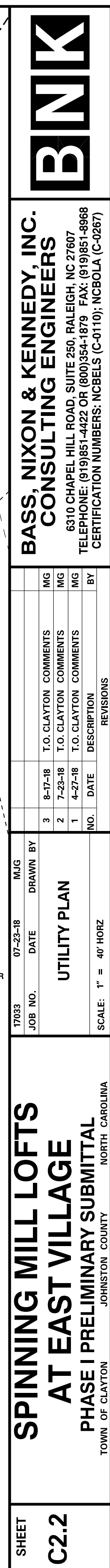
BASS, NIXON & KENNEDY, INC.
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CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)

NO.	DATE	DESCRIPTION	REVISIONS
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SPINNING MILL LOFTS
AT EAST VILLAGE
PHASE I PRELIMINARY SUBMITAL
TOWN OF CLAYTON JOHNSON COUNTY NORTH CAROLINA

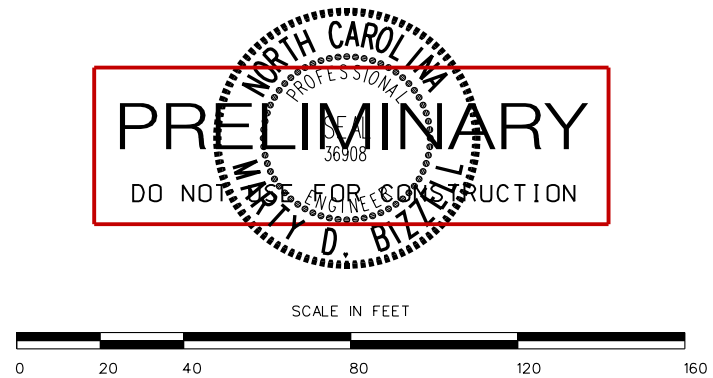
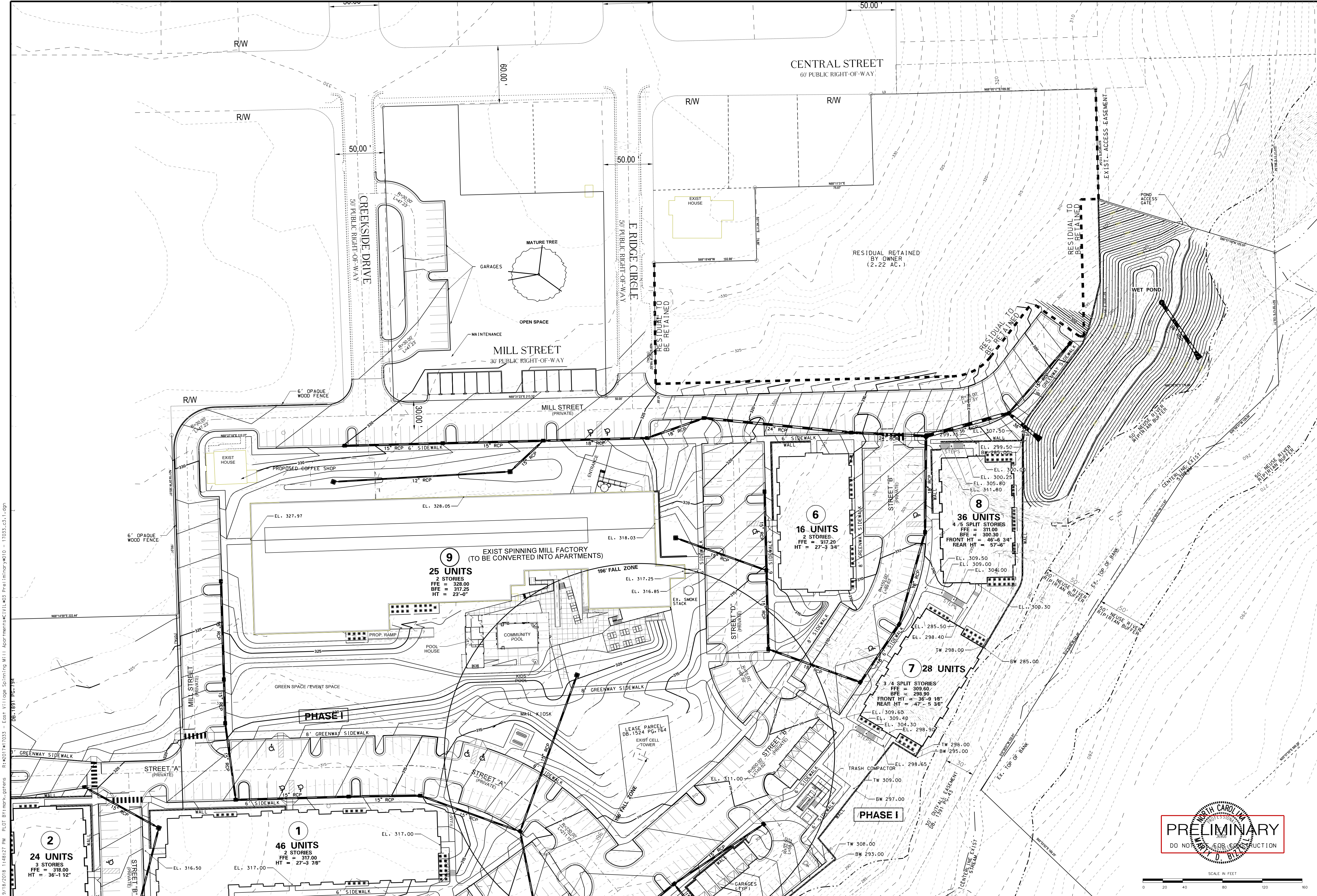
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9/18/2018 11:48:27 PM PLOT BY: mark.garrett R:\4017411033 - East Village Spinning Mill Apartments\AC\111403 Preliminary\4010 - 11033_C3.1.dgn
05-1881 RCP 794

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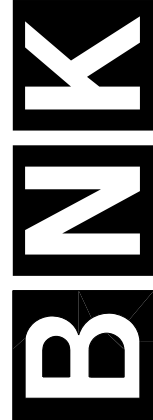
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**SPINNING MILL LOFTS
AT EAST VILLAGE**
PHASE I PRELIMINARY SUBMITTAL
JOHNSTON COUNTY
NORTH CAROLINA

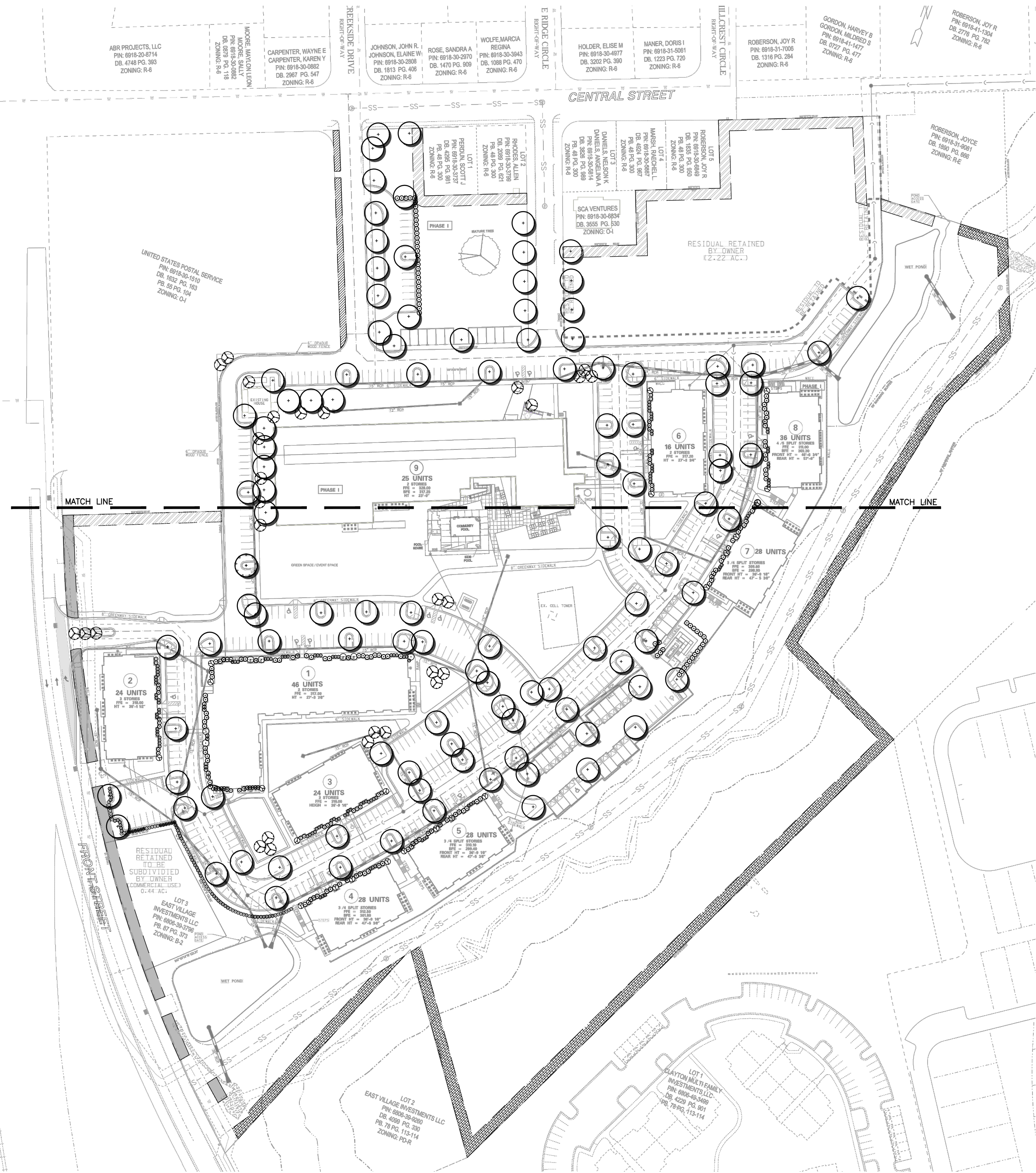
JOB NO. 07-25-18
DATE 07-25-18
DRAWN BY
**DRAINAGE AND
GRADING PLAN**

NO.	DATE	DESCRIPTION	BY
1	4-27-18	T.O. CLAYTON COMMENTS	MG
2	7-29-18	T.O. CLAYTON COMMENTS	MG
3	8-17-18	T.O. CLAYTON COMMENTS	MG

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CERTIFICATION NUMBERS: NCBELA (C-0110); NCBOLA (C-0267)



NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION



GENERAL NOTES

1. A/C UNITS, TRANSFORMERS AND OTHER MECHANICAL OR UTILITY EQUIPMENT, NOT SHOWN ON THE PLAN, SHALL BE SCREENED FROM VIEW BY THE ADDITION OF WAX MYRTLES @ 24" HT. 5' OC (SEE GENERAL NOTES FOR EQUIPMENT ACCESSIBILITY AND PLANTING PROXIMITY, ETC.). DUMPSTER IS SCREENED FROM OFF-SITE VIEWS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO PLANTING.
3. MULCH SHALL BE 3" DEEP SHREDDED HARDWOOD UNLESS OTHERWISE NOTED.
4. VERIFICATION OF TOTAL QUANTITIES AS SHOWN IN THE PLANT LIST AND ON THE PLAN SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR. ANY DISCREPANCIES BETWEEN PLANT LIST AND PLANTING PLAN SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR CLARIFICATION.
5. ALL TREES, SHRUBS, GROUNDCOVER, ETC. SHALL CONFORM TO ACCEPTED STANDARDS ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
6. ALL ROOTBALLS REMOVED FROM CONTAINERS SHALL BE SCARIFIED PRIOR TO PLANTING.
7. B&B AS LISTED UNDER "ROOT" IN THE PLANT LIST INDICATES BALLED & BURLAPPED.
8. ALL PLANTS/PLANTINGS SHALL BE MULCHED IMMEDIATELY AFTER PLANTING AND WATERED.
9. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THEY BORE TO PREVIOUS EXISTING GRADE (UNLESS OTHERWISE NOTED).
10. ALL TREES AND SHRUBS SHALL REQUIRE MULCH RINGS AT THEIR BASE IF LEFT WITHIN LAWN AREAS.
11. MULCH EDGES AND PROPOSED PLANTINGS SHALL NOT DISTURB ANY EXISTING GROUPS OF TREES TO REMAIN. EDGES ARE SHOWN FOR APPROXIMATION ONLY, BUT ARE TO INDICATE SMOOTH, CLEAN CURVES.
12. CULVERTS, RIP-RAP STRUCTURES, AND OTHER STORMWATER DEVICES SHALL BE SCREENED WITH EVERGREEN SHRUBS. IF STRUCTURES ARE NOT SHOWN ON THE PLAN, INSTALL WAX MYRTLES @ 24" HT. - 5' OC.
13. TREE PROTECTION FENCING SHALL BE MAINTAINED UNTIL ALL SITE WORK IS COMPLETED. THE FENCING SHALL BE REMOVED PRIOR TO THE FINAL SITE INSPECTION FOR THE CERTIFICATE OF OCCUPANCY (C.O.). THE SITE SHALL BE STABILIZED AND SEEDED PRIOR TO THE ISSUANCE OF A (C.O.).
15. REQUIRED PLANTING AREAS SHALL INCORPORATE EXISTING NATURAL VEGETATION TO THE MAXIMUM EXTENT FEASIBLE.

LANDSCAPE REQUIREMENTS:

Site Landscaping
20% OF TOTAL LOT AREA SHALL BE LANDSCAPED AT A RATE OF (1) CANOPY TREE, (1) UNDERSTORY TREE, AND (2) SHRUBS PER 1,000 SF. 24.5 ACRES (2,087,200 S.F.)
1,067,200 SF x .20 = 213,444 S.F.
213,444/100 = 214
214 CANOPY TREES REQUIRED: 158 NEW + APPROXIMATELY 2500 EXISTING PROVIDED
214 UNDERSTORY TREES REQUIRED: 79 NEW + APPROXIMATELY 135 EXISTING PROVIDED
SHRUBS REQUIRED: 213,444/500 = 428 SHRUBS REQUIRED/ 752 PROVIDED

Streetyard Plantings

FRONT STREET: 800/40 = 20 TREES REQUIRED/PROVIDED
CENTRAL STREET: 80/40 = 2 TREES REQUIRED/PROVIDED
CREEKSIDE DRIVE: 250/40 = 7 TREES REQUIRED/PROVIDED
EAST RIDGE CIRCLE: 343/40 = 9 TREES REQUIRED/PROVIDED

Streetyard Buffer Plantings: Front Street: 800 LF

15' WIDE TYPE 'B' STREET BUFFER ALONGS FRONT STREET
15' WIDTH REQUIRES (2) CANOPY TREES, (2) UNDERSTORY TREES AND (16) SHRUBS PER 100 LF
800/100 x 2 = 16 CANOPY TREES REQUIRED/PROVIDED
800/100 x 2 = 16 UNDERSTORY TREES REQUIRED/PROVIDED
800/100 x 16 = 128 SHRUBS REQUIRED/PROVIDED

Perimeter Buffer Plantings: 1,224 LF

15' WIDE TYPE 'B' BUFFER ALTERNATIVE 2
15' WIDTH REQUIRES (2) CANOPY TREES, (2) UNDERSTORY TREES AND (16) SHRUBS PER 100 LF
1,224/100 x 2 = 25 CANOPY TREES REQUIRED/PROVIDED
1,224/100 x 2 = 25 UNDERSTORY TREES REQUIRED/PROVIDED
1,224/100 x 16 = 196 SHRUBS REQUIRED/PROVIDED

Perimeter Buffer Plantings: 290 LF

10' WIDE TYPE 'B' BUFFER ALTERNATIVE 1
10' WIDTH REQUIRES (2) CANOPY TREES, (3) UNDERSTORY TREES AND (20) SHRUBS PER 100 LF
291/100 x 2 = 6 CANOPY TREES REQUIRED/PROVIDED
290/100 x 3 = 9 UNDERSTORY TREES REQUIRED/PROVIDED
290/100 x 20 = 58 SHRUBS REQUIRED/PROVIDED

Alternate Compliance for Type 'B' Perimeter: 371 LF

A SIX FOOT ORANGE WOOD FENCE IS PROPOSED BETWEEN THE PERIMETER DRIVE AROUND THE EXISTING MILL BUILDING AND THE USPS SITE. THE EXISTING DRIVE DOES NOT PROVIDE ENOUGH SPACE TO PLANT THE BUFFER ALONG THE PROPERTY LINE. THE TREES THAT WOULD TYPICALLY BE PLANTED IN THE BUFFER WILL BE PLANTED ELSEWHERE ON SITE.
10' WIDE TYPE 'B' BUFFER ALTERNATIVE 1
10' WIDTH REQUIRES (2) CANOPY TREES, (3) UNDERSTORY TREES AND (20) SHRUBS PER 100 LF
371/100 x 2 = 8 CANOPY TREES REQUIRED/PROVIDED
371/100 x 3 = 11 UNDERSTORY TREES REQUIRED/PROVIDED
371/100 x 20 = 74 SHRUBS REQUIRED/PROVIDED

Alternate Compliance for Type 'B' Perimeter: 2,343 LF

EXISTING VEGETATION EXCEEDS PERFORMANCE STANDARDS FOR BUFFER. SEE SAMPLE AREA ON PLAN.

PLANT LEGEND

- CANOPY/SHADE TREE
- UNDERSTORY TREE
- LARGE SHRUB
- SMALL SHRUB



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JOB NO.	DATE	DRAWN BY	CHECKED BY	NO.	DATE	DESCRIPTION	BY
03-17033	04-02-18	GPW	GPW	1	04-30-18	PER T&C COMMENTS	GPW

SPINNING MILL LOFTS
AT EAST VILLAGE
PHASE I PRELIMINARY SUBMITTAL
TOWN OF CLAYTON, JOHNSTON COUNTY, NORTH CAROLINA

SHEET
L1.0

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	04-30-18	PER TOC COMMENTS	GW

JOB NO.	DATE	DRAWN BY
LANDSCAPE PLAN NORTH		
SCALE: 1" = 40'		CHK BY: GPW

SHEET
L1.1

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KEY	SCIENTIFIC NAME	COMMON NAME	QUANT	CAL	HT	ROD	REMARKS
	SHADE TREES						
AS	Acer buergeri 'Somerset'	Red maple	2.5'	10'		B&B	
AR	Acer saccharum	Sugar Maple	2.5'	10'		B&B	
BE	Carpinus betulus	European Hornbeam	2.5'	10'		B&B	
LT	Liriodendron tulipifera	Tulip Poplar	2.5'	10'		B&B	
QC	Quercus coccinea	Scarlet Oak	2.5'	10'		B&B	
QU	Quercus rubra	Red Oak	2.5'	10'		B&B	
QV	Quercus virginiana	Live Oak	2.5'	10'		B&B	
UP	Ulmus parvifolia	Chinese laburnum elm	2.5'	10'		B&B	
ZS	Zelkova serrata	Village Green Zelkova	2.5'	10'		B&B	
	UNDERCUT TREES						
CC	Cornus canadensis 'Forest Pansy'	Eastern Redbud	2"	8'		B&B	
CF	Cornus florida	Dogwood	2"	8'		B&B	Buffer Tree
LC	Lagerstroemia 'Centennial Spirit'	Crape Myrtle	8"	8'		B&B	
MG	Magnolia grandiflora 'Little Gem'	Little Gem Magnolia				B&B	
NS	Syssa sylvatica	Tepeho	2"	8'		B&B	Buffer Tree
	SHRUBS						
BM	Buxa microphylla 'Winter Green'	Wintergreen Bowed		12"		Cont	
IL	Ilex latifolia	Lustreleaf Holly		48"		Cont	
IN	Ilex 'Nellie R Stevens'	Nellie Stevens Holly		48"		Cont	
LC	Loropetalum chinensis 'Chang's Ruby'	Loropetalum		12"		Cont	
OM	Osmanthus heterophyllus 'rotundifolius'	Rotundifolius Osmanthus		24"		Cont	Buffer Shrub
PJ	Pieris japonica 'Mountain Snow'	Japanese Pieris		12"		Cont	
PT	Pittosporum tobira 'Tall N' Double'	Pittosporum		24"		Cont	Buffer Shrub
RI	Rosa blanda 'Knockout Rose'	Knockout Rose		12"		Cont	
VD	Viburnum davidii	David Viburnum		15"		Cont	

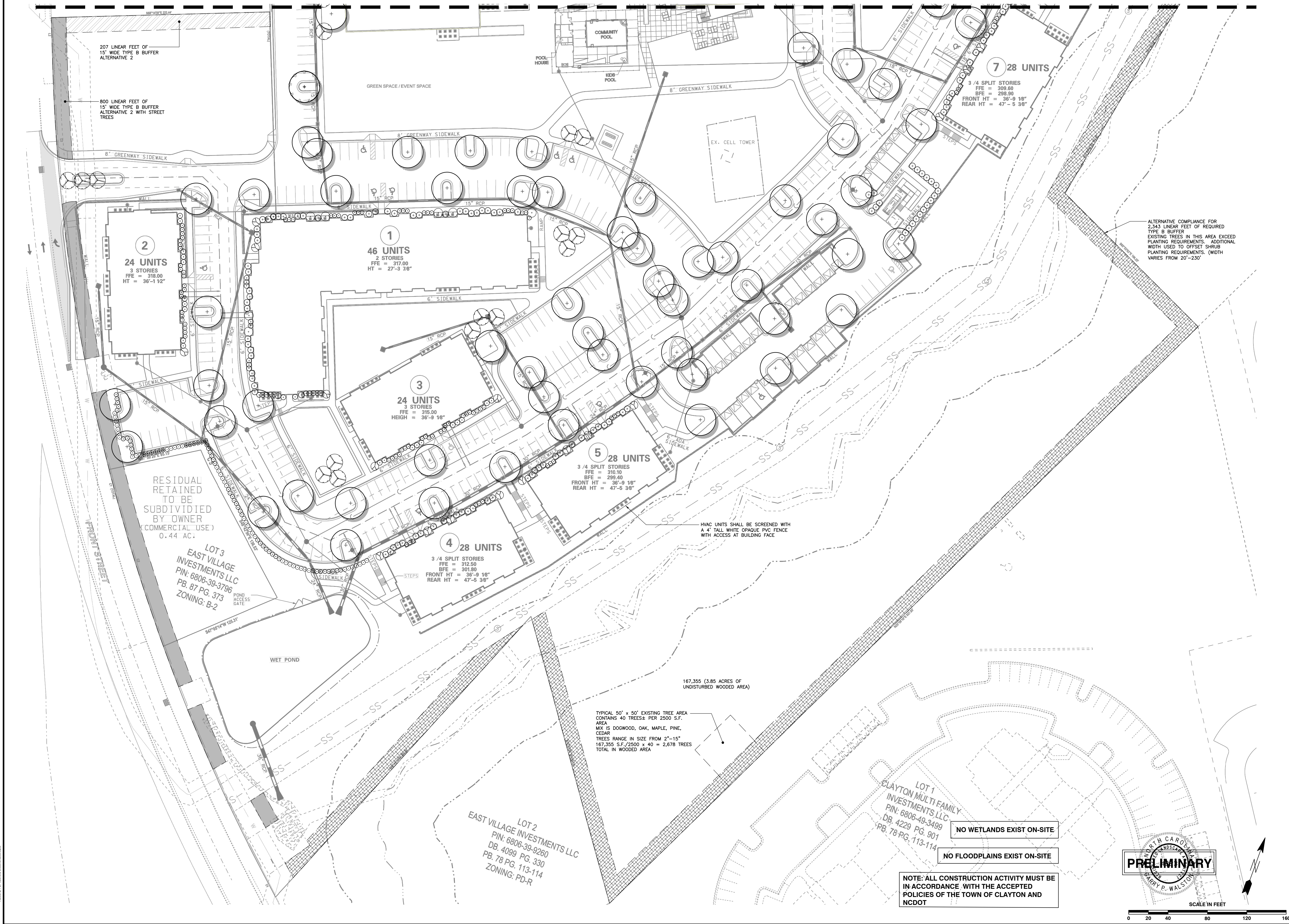
NO FLOODPLAINS EXIST ON-SITE



SCALE IN FEET

OWN OF CLAYTON PROJECT NO. 2018-64-SP

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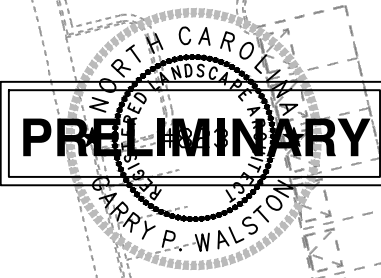


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REVISIONS		DATE		BY	
NO.	DESCRIPTION	DATE	BY	CHK BY	DATE
1	PER T&C COMMENTS	04-30-18			

SPINNING MILL LOFTS
AT EAST VILLAGE
PHASE I PRELIMINARY SUBMITTAL
TOWN OF CLAYTON, JOHNSTON COUNTY, NORTH CAROLINA

SHEET
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TOWN OF CLAYTON PROJECT NO. 2018-64-SP

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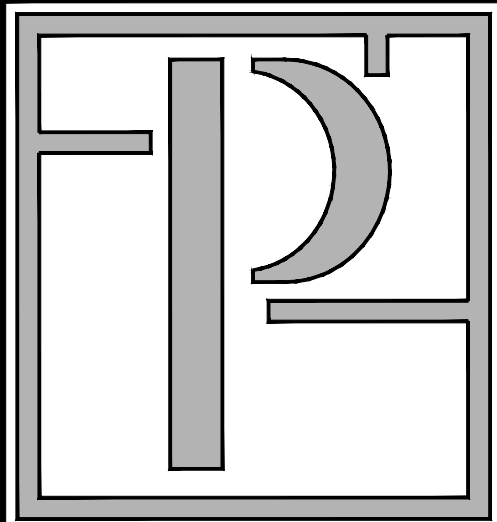


1 BLDG TYPE 1 - FRONT ELEVATION
Scale: 3/32" = 1'-0"



2 BLDG TYPE 1 - LEFT ELEVATION
Scale: 3/32" = 1'-0"

1. All drawings are to be coordinated with all site information by owner and contractor, and applicable codes. 3. Planworx Architecture, P.A. is not responsible for constructed variations from the information depicted.
2. Contractor is to notify architect immediately of conditions or items varying from depicted information. 4. Planworx Architecture, P.A. will not assume any liability for expenses associated with errors and omissions on these drawings unless offset by verified construction savings as a result of planworx architecture, p.a. Design.
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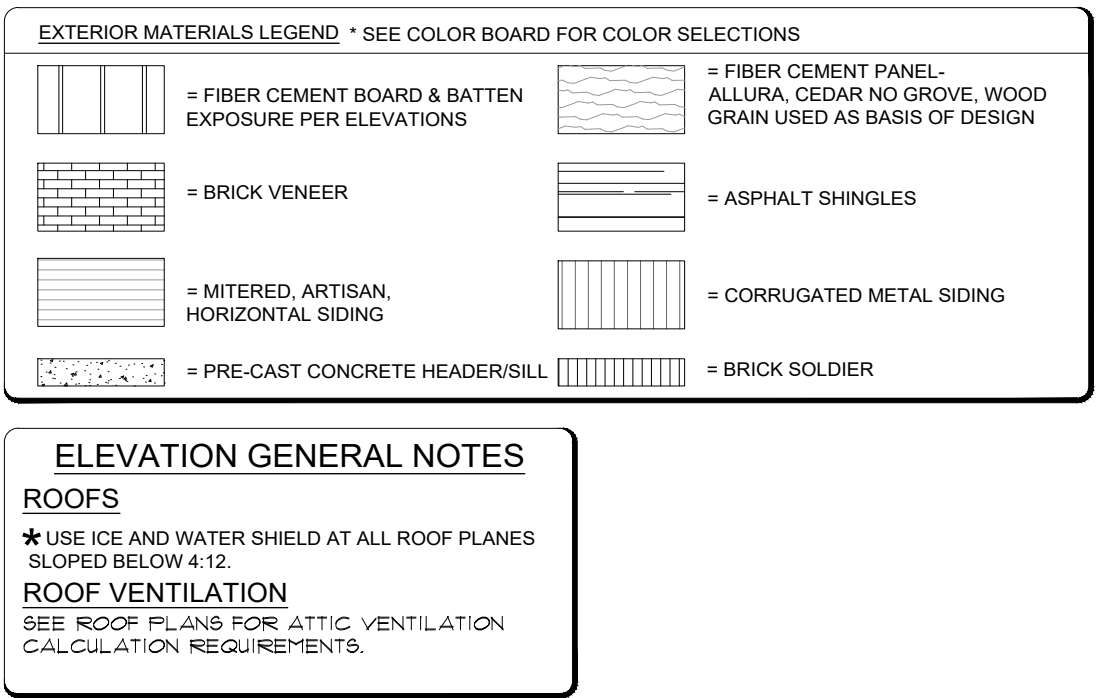


Civil Submission
Spinning Mill Apartments
Clayton NC

PRELIMINARY
NOT FOR CONSTRUCTION

PROGRESS DATE:	09-18-18	DESCRIPTION	
ISSUE DATE:		REVISIONS	
		NUMBER	DATE
PROJECT NO:	003417	DRAWN BY:	JK
CHECKED BY:	-	SHEET TITLE:	Bldg Type 1 Elevations
SHEET NUMBER:			

1.A1.10



1



Civil Submission

Spinning Mill Apartments

Clayton NC

PRELIMINARY
NOT FOR CONSTRUCTION

[illegible]

PROJECT NO:	003417
DRAWN BY:	JK
CHECKED BY:	-

SHEET TITLE:
Bldg Type 2 Elevations

SHEET NUMBER:

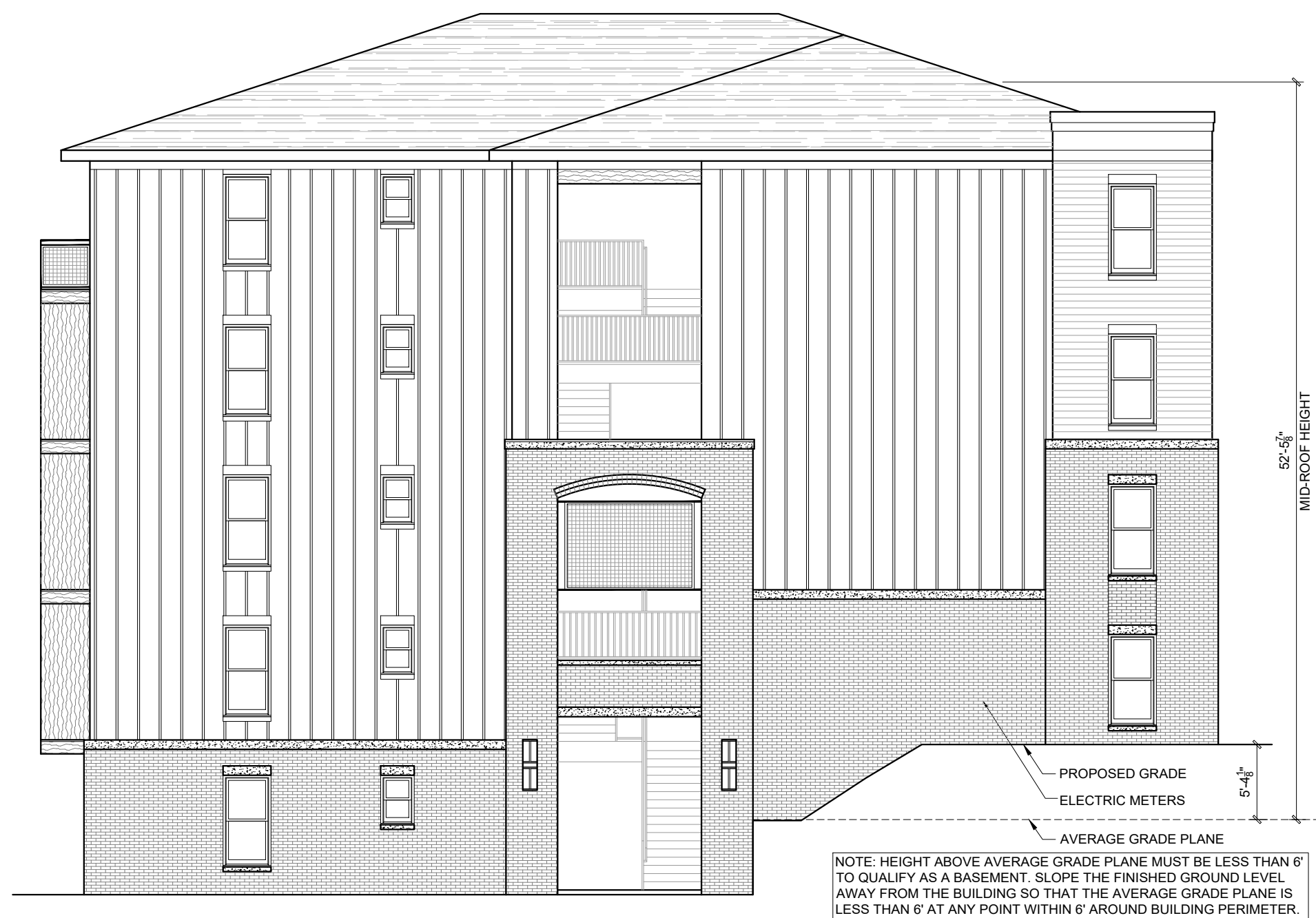
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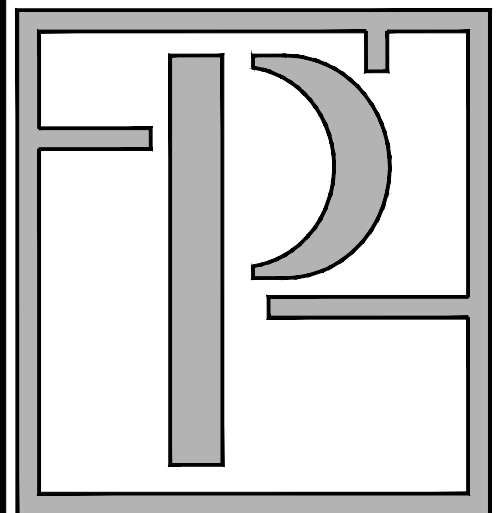
EXTERIOR MATERIALS LEGEND * SEE COLOR BOARD FOR COLOR SELECTIONS			
	= FIBER CEMENT BOARD & BATTEN EXPOSURE PER ELEVATIONS		= FIBER CEMENT PANEL- ALLURA, CEDAR NO GROVE, WOOD GRAIN USED AS BASIS OF DESIGN
	= BRICK VENEER		= ASPHALT SHINGLES
	= MITERED, ARTISAN, HORIZONTAL SIDING		= CORRUGATED METAL SIDING
	= PRE-CAST CONCRETE HEADER/SILL		= BRICK SOLDIER

ELEVATION GENERAL NOTES
ROOFS
★ USE ICE AND WATER SHIELD AT ALL ROOF PLANES
SLOPED BELOW 4:12.
ROOF VENTILATION
SEE ROOF PLANS FOR ATTIC VENTILATION
CALCULATION REQUIREMENTS.

1 BLDG TYPE 2.1 - FRONT ELEVATION
Scale: 1/8" = 1'-0"



3 BLDG TYPE 2.1 - TYPICAL SIDE ELEVATION (LEFT SHOWN)
Scale: 1/8" = 1'-0"



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website www.planworx.com



Civil Submission
Spinning Mill Apartments
Clayton NC

PRELIMINARY
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PROGRESS DATE:	09-18-18	DESCRIPTION	
ISSUE DATE:		REVISIONS	
SUBMIT	DATE	ENTRUS	

PROJECT NO: 003417
DRAWN BY: JK
CHECKED BY: -
SHEET TITLE:
Bldg Type 2.1
Elevations

SHEET NUMBER

1.A2.08

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EXTERIOR MATERIALS LEGEND * SEE COLOR BOARD FOR COLOR SELECTIONS

FIBER CEMENT BOARD & BATTEN
EXPOSURE PER ELEVATIONS

BRICK VENEER

MITERED, ARTISAN,
HORIZONTAL SIDING

PRE-CAST CONCRETE HEADER/SILL

FIBER CEMENT PANEL-
ALLURA, CEDAR NO GROVE, WOOD
GRAIN USED AS BASIS OF DESIGN

ASPHALT SHINGLES

CORRUGATED METAL SIDING

BRICK SOLDIER

ELEVATION GENERAL NOTES

ROOFS

★ USE ICE AND WATER SHIELD AT ALL ROOF PLANES
SLOPED BELOW 4:12.

ROOF VENTILATION

SEE ROOF PLANS FOR ATTIC VENTILATION
CALCULATION REQUIREMENTS.

1

BLDG TYPE 2.1 - REAR ELEVATION

Scale: 1/8" = 1'-0"

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CERT. NO. 55959

N.C. REGISTERED

RALEIGH, NC

Civil Submission

Spinning Mill Apartments

Clayton NC

PRELIMINARY

NOT FOR CONSTRUCTION

PROGRESS DATE: 09-18-18

ISSUE DATE:

REVISIONS

NUMBER DATE INITIALS

DESCRIPTION

PROJECT NO: 003417

DRAWN BY: JK

CHECKED BY: -

SHEET TITLE: Bldg Type 2.1 Elevations

SHEET NUMBER: 1.A2.09

Page 51 of 298



1 BLDG TYPE 3 - FRONT ELEVATION
Scale: 1/8" = 1'-0"

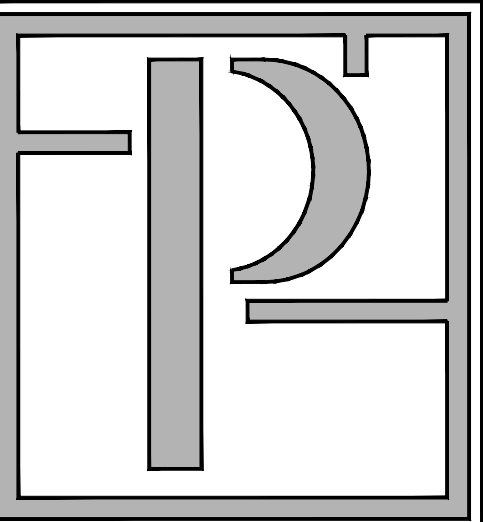


2 BLDG TYPE 3 - TYPICAL SIDE ELEVATION (LEFT SHOWN)
Scale: 1/8" = 1'-0"



3 BLDG TYPE 3 - REAR ELEVATION
Scale: 1/8" = 1'-0"

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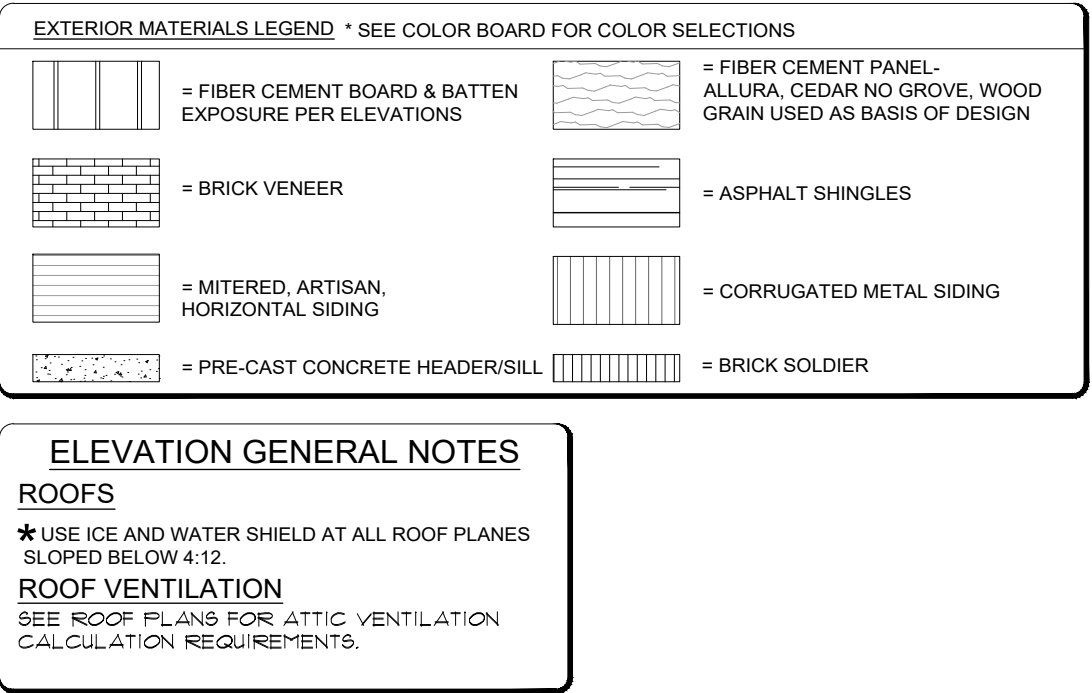


Civil Submission
Spinning Mill Apartments
Clayton NC

PRELIMINARY
NOT FOR CONSTRUCTION

PROGRESS DATE:	09-18-18	DESCRIPTION	
ISSUE DATE:		REVISIONS	
SHEET NO.		DATE	
PROJECT NO:	003417	DRAWN BY:	JK
CHECKED BY:	-	SHEET TITLE:	Bldg Type 3 Elevations
SHEET NUMBER:			

1.A3.03



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6. Planners Architecture, P.A. is not responsible for expenses associated with errors and omissions on these drawings.

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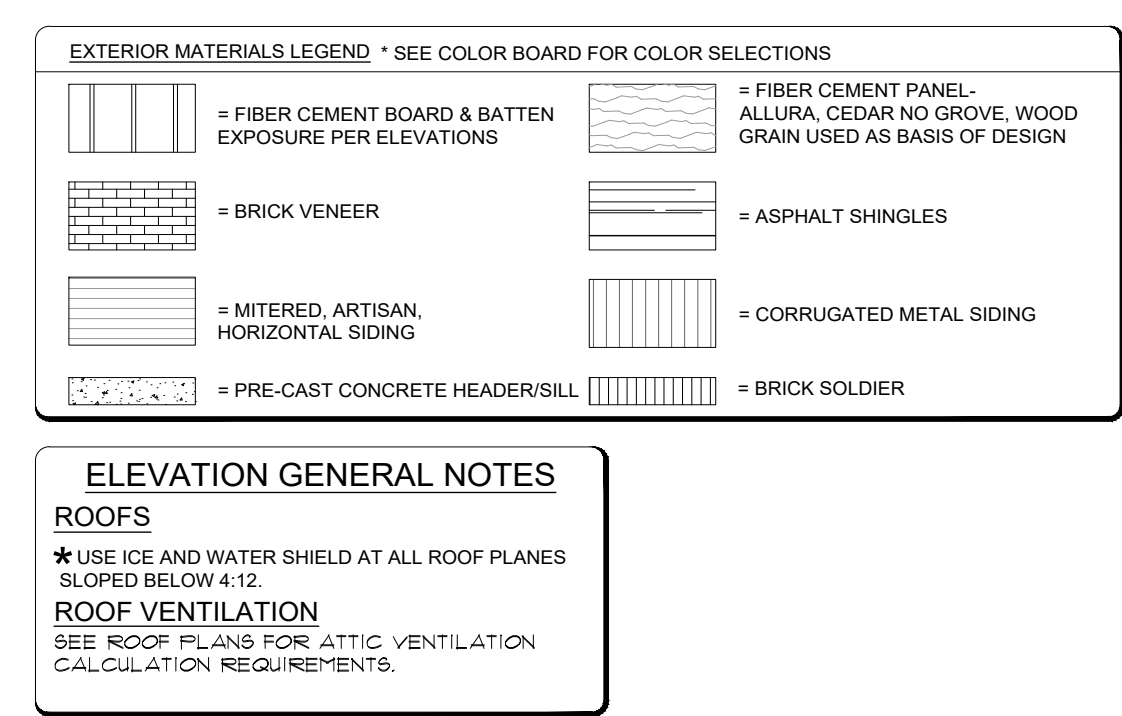


Civil Submission
 Spinning Mill Apartments
 Clayton NC

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT NO:		003417	
DRAWN BY:		JK	
CHECKED BY:		-	
SHEET TITLE:			
Bldg Type 3.1 Elevations			

1.A3.12



Spinning Mill Apartments

Clayton NC

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT NO:	003417
DRAWN BY:	JK
CHECKED BY:	

SHEET TITLE:
Bldg Type 3.2
Elevations

SHEET NUMBER:

1.A3.24

1 BLDG TYPE 3.2 - REAR ELEVATION
Scale: 1/8" = 1'-0"

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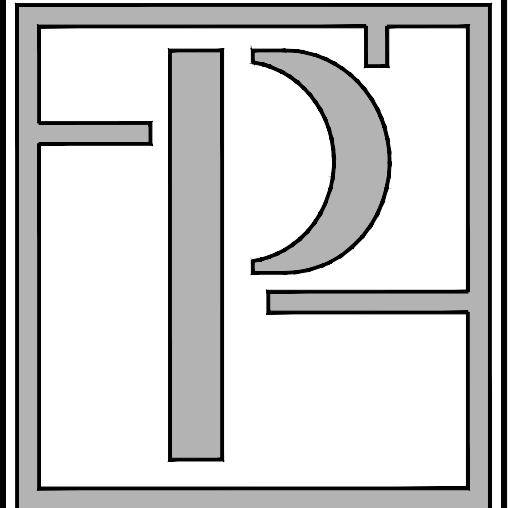
3. November 2018 - PLANS ARCHITECTURE, P.A. NOT RESPONSIBLE FOR CONSTRUCTION W/O APPROPRIATE PROFESSIONAL SEAL

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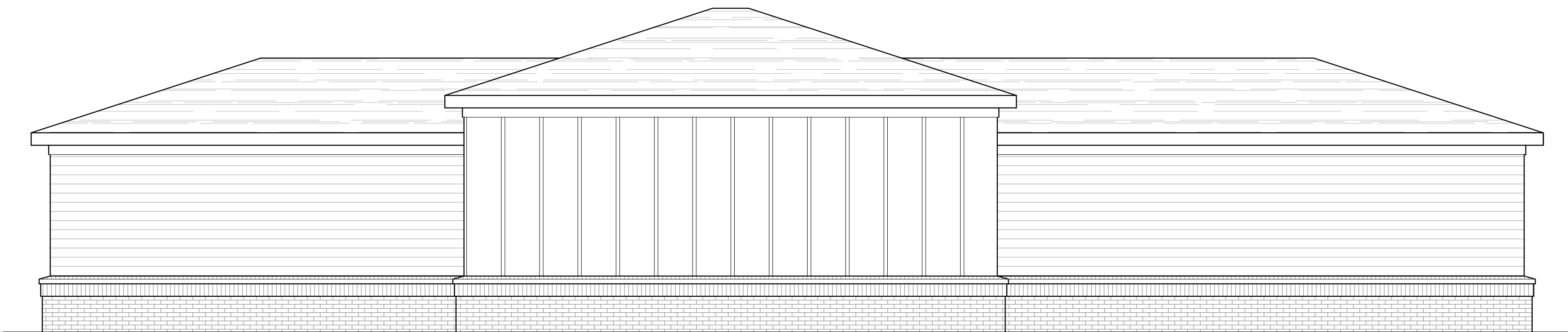
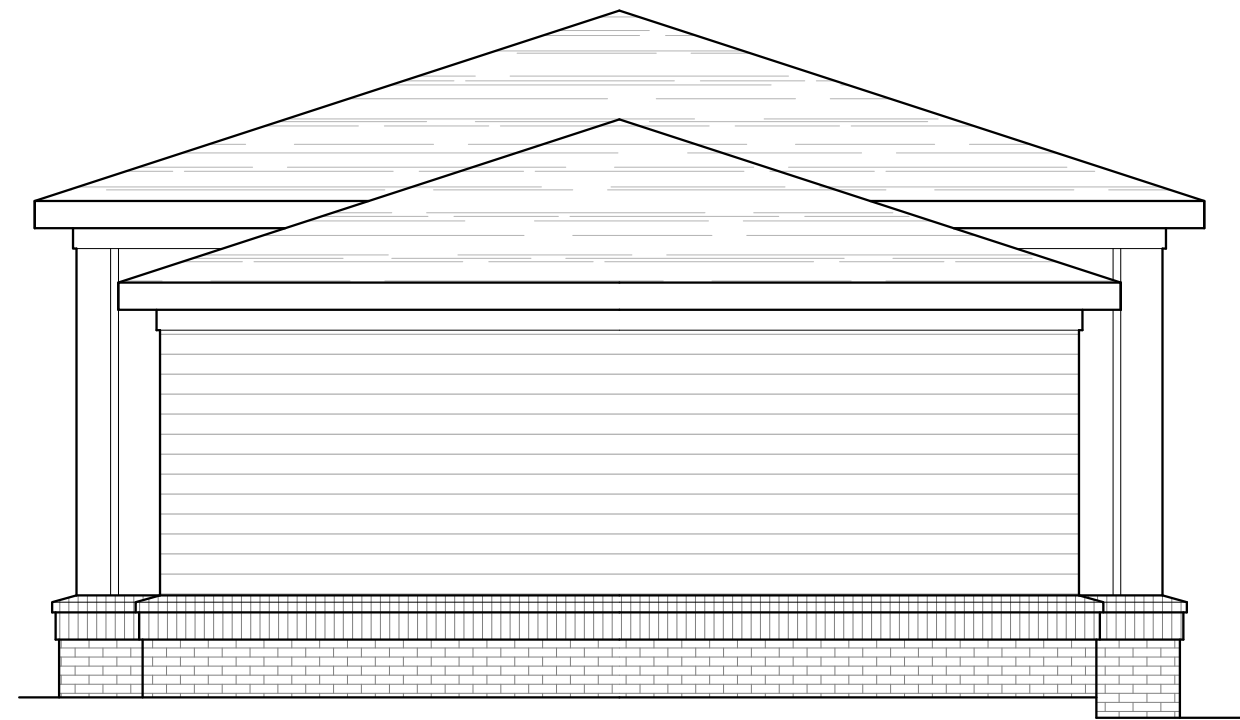
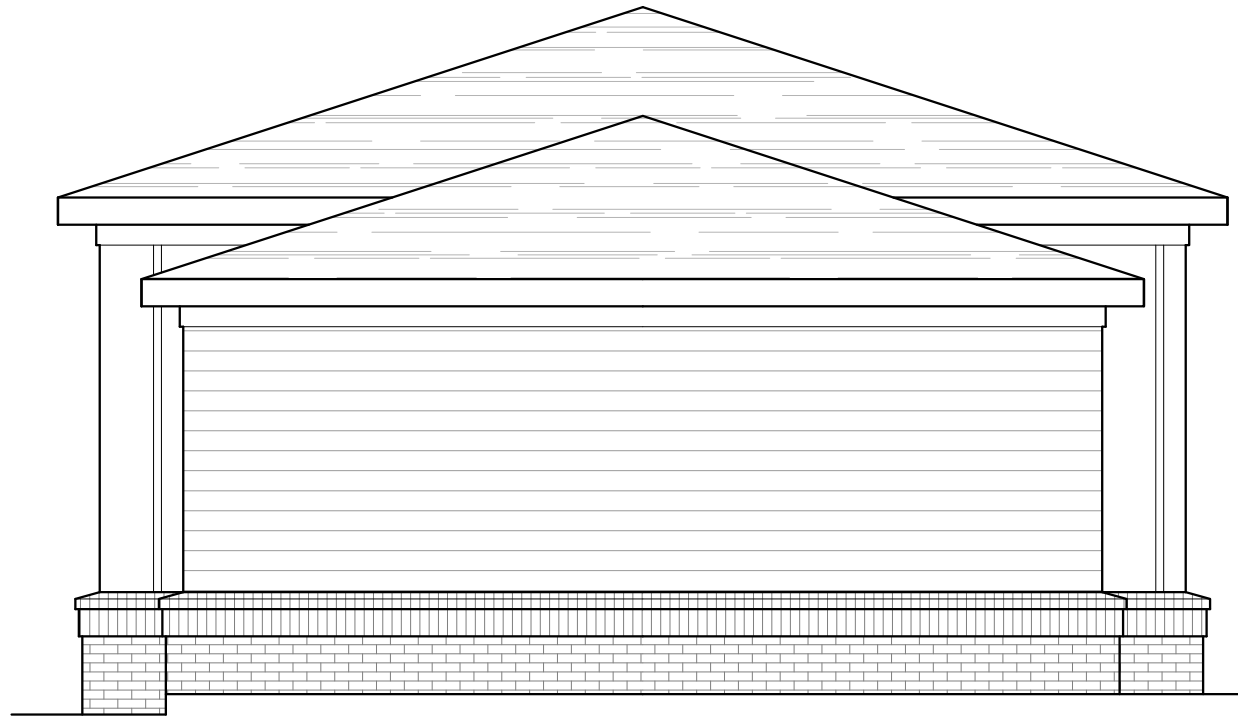
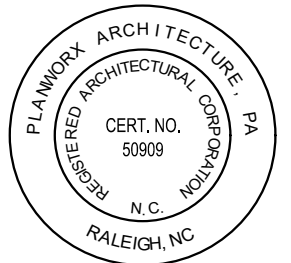
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[illegible]

PROJECT NO:	003417
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DRAWN BY:	JK
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CHECKED BY:	-
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<u>SHEET TITLE:</u>

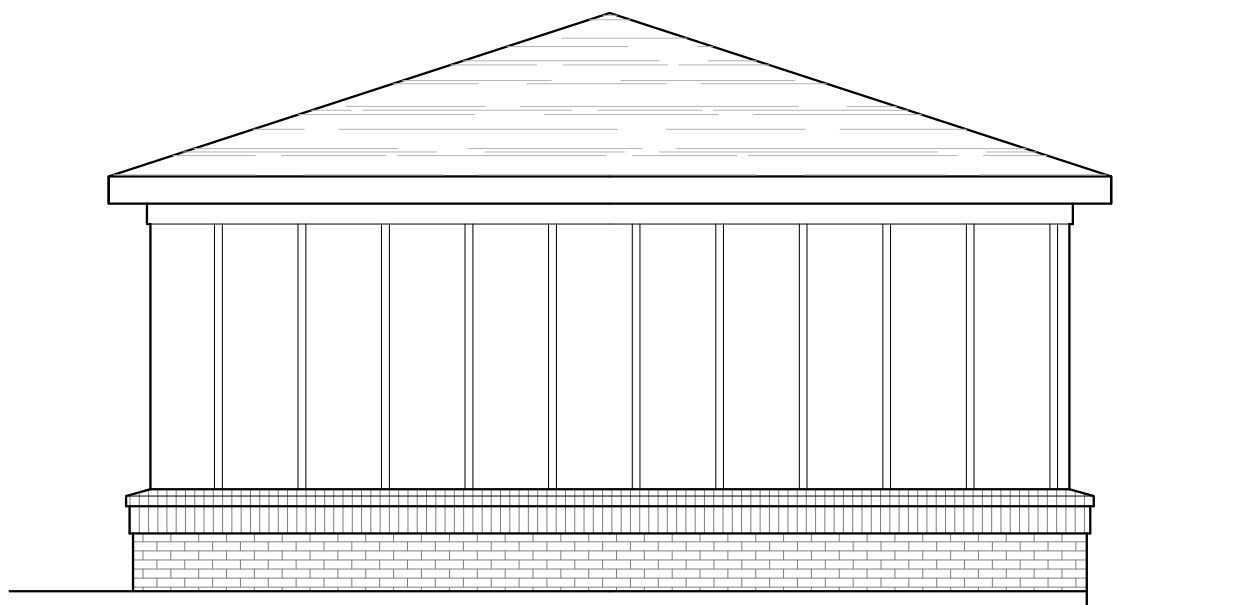
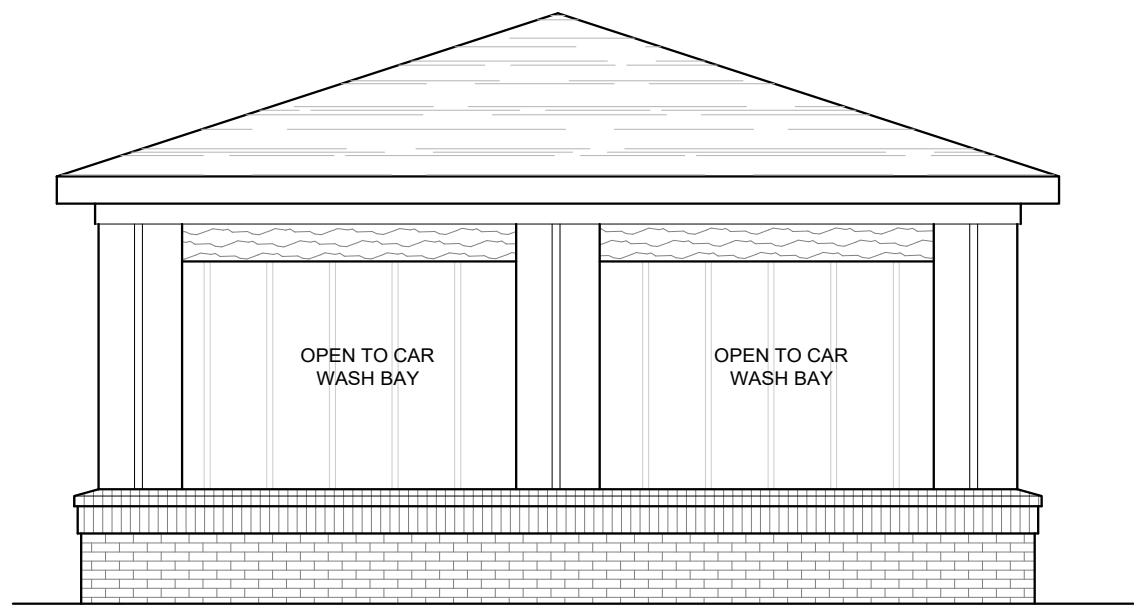
Garage Type 2
Elevations

SHEET NUMBER:

1.A5.11



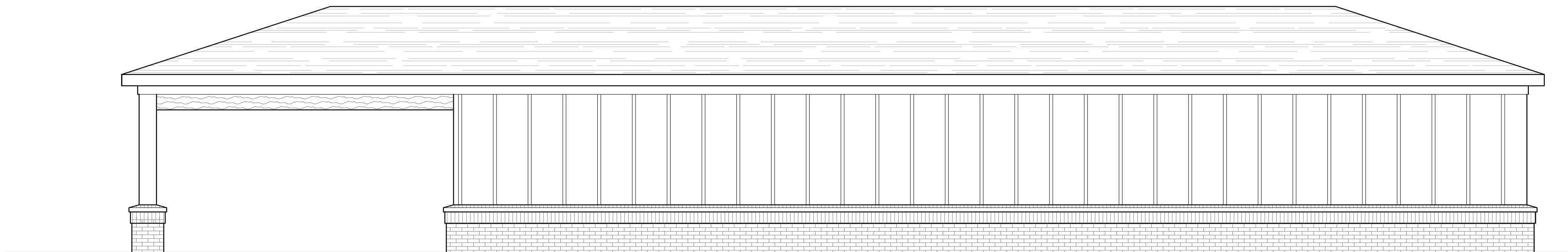
1 GARAGE TYPE 3 - FRONT ELEVATION
Scale: 1/4" = 1'-0"



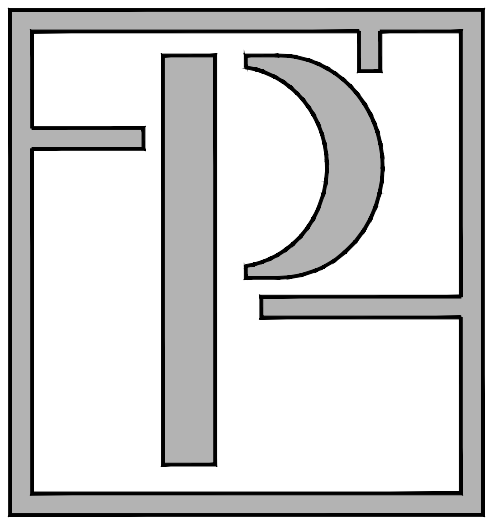
COLOR OF MATERIALS TO MATCH
COLORS/MATERIALS OF PRIMARY
APARTMENT BUILDINGS

2 GARAGE TYPE 3 - RIGHT ELEVATION
Scale: 1/4" = 1'-0"

3 GARAGE TYPE 3 - LEFT ELEVATION
Scale: 1/4" = 1'-0"



4 GARAGE TYPE 3 - REAR ELEVATION
Scale: 1/4" = 1'-0"



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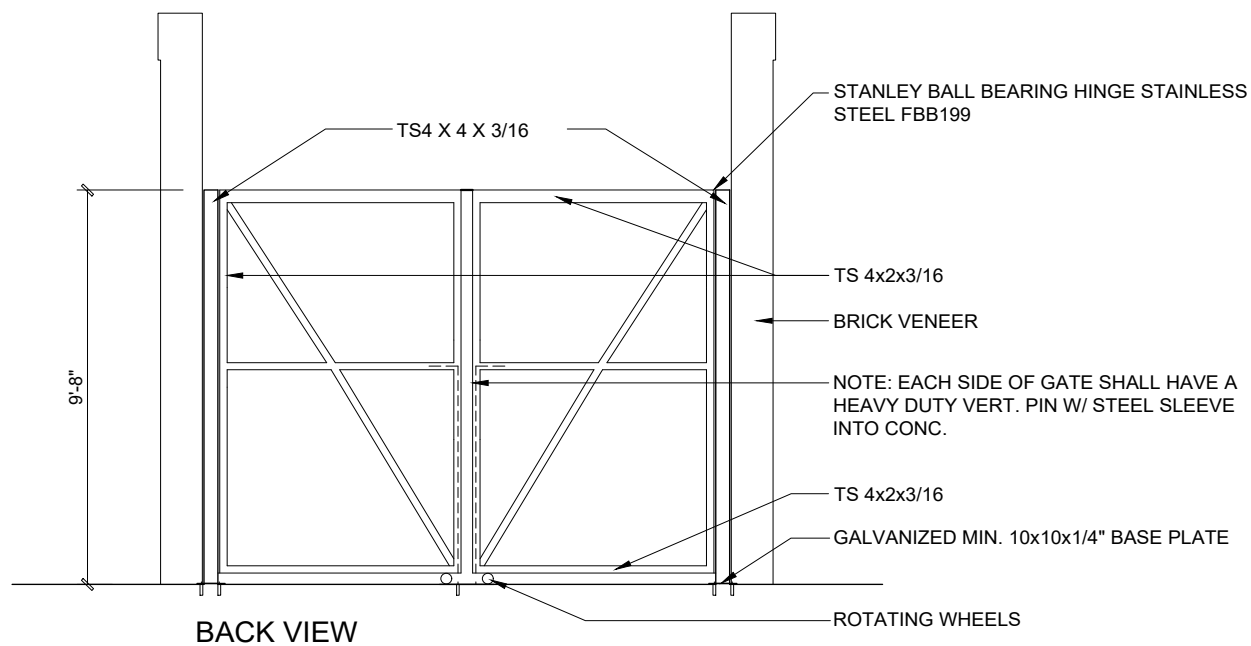
Civil Submission	Spinning Mill Apartments	Clayton NC
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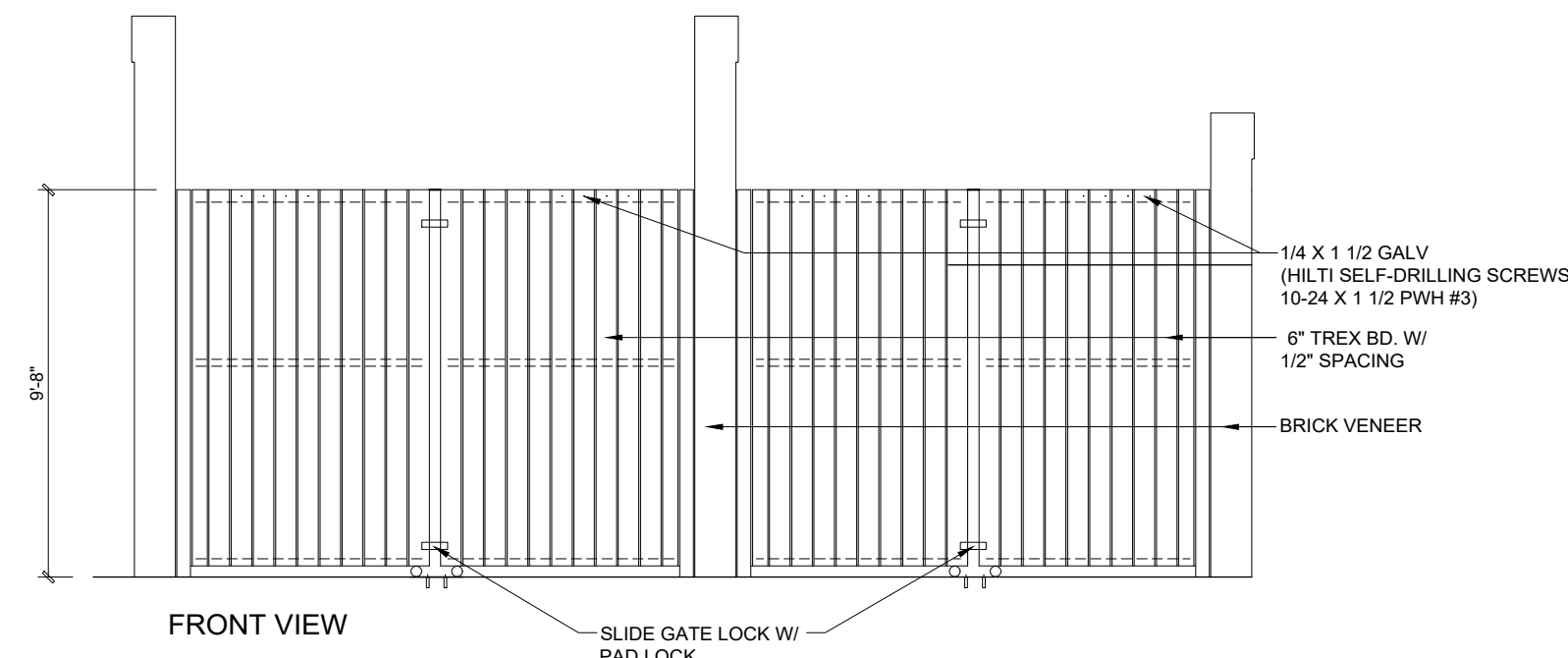
PROGRESS DATE:	09-18-18	DESCRIPTION	
ISSUE DATE:		REVISIONS	
		SUBMIT	
		DATE	
		INITIALS	
PROJECT NO:	003417	DRAWN BY:	JK
CHECKED BY:	-	SHEET TITLE:	Garage Type 3 Elevations
SHEET NUMBER:			

1.A5.12

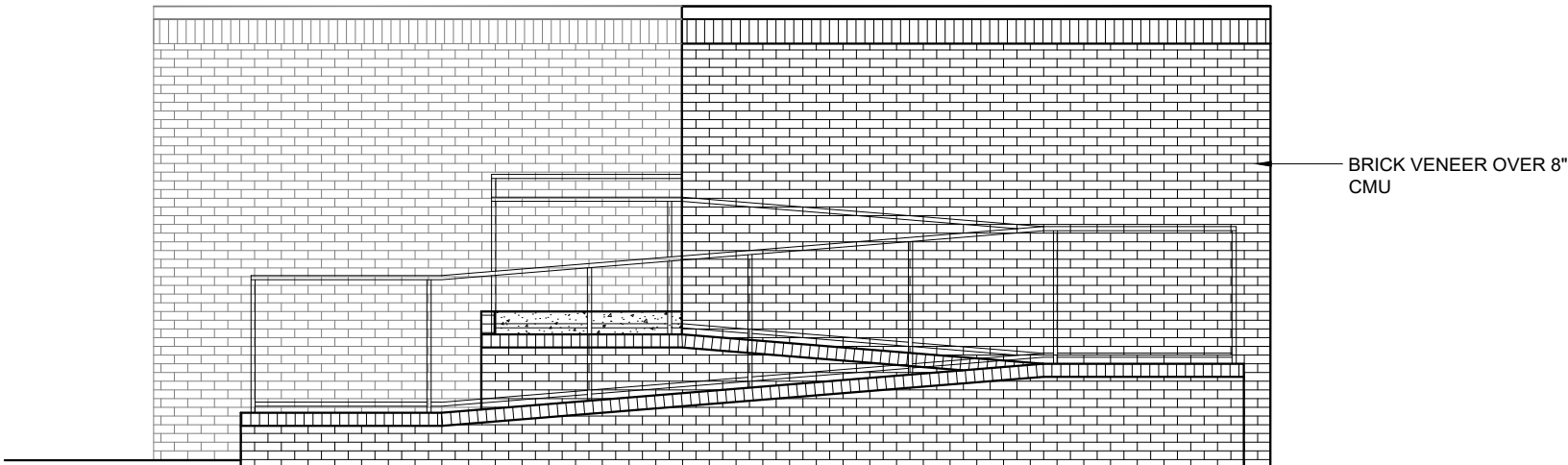
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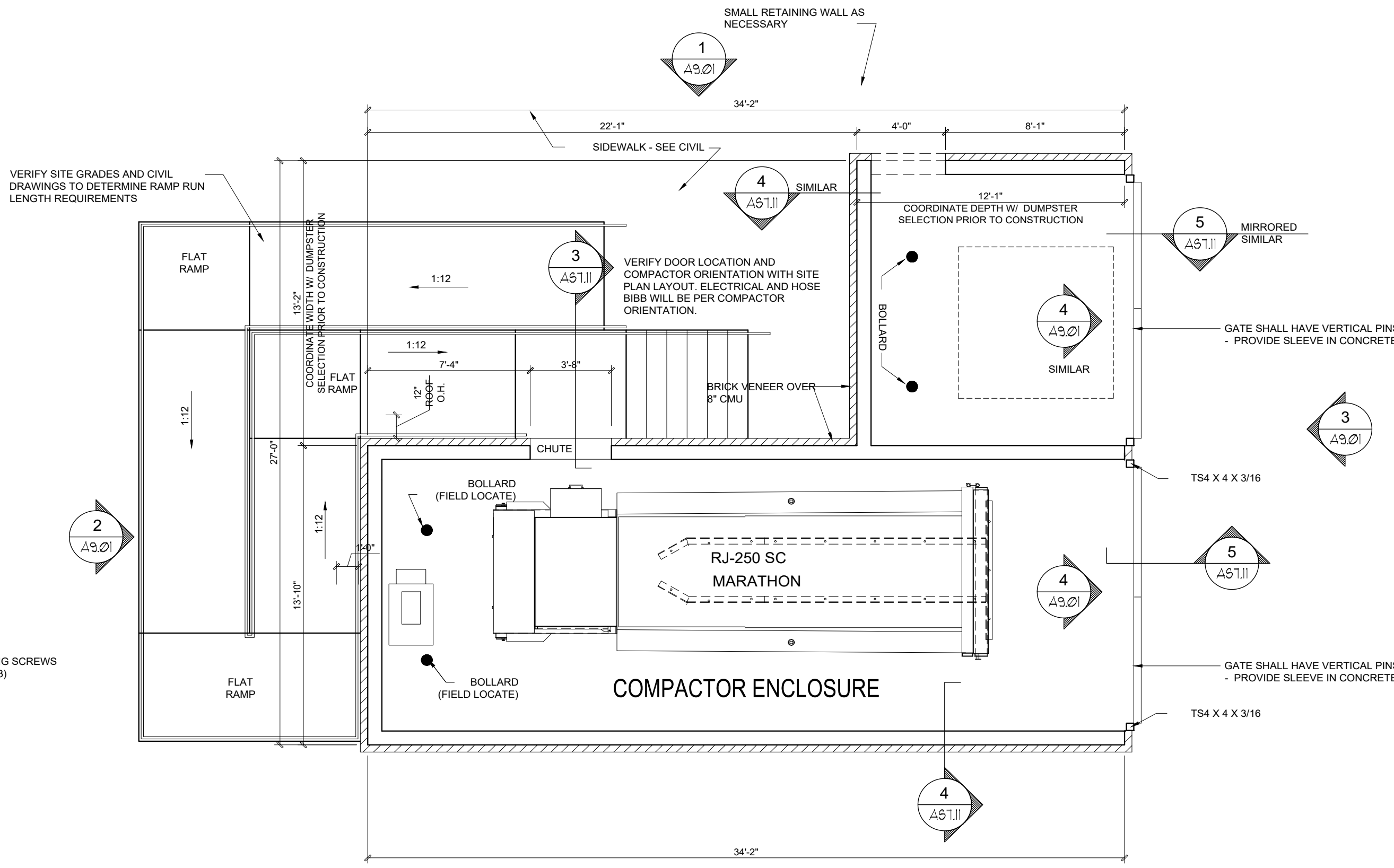
4 GATE DETAIL BACK VIEW
1/4"=1'-0"



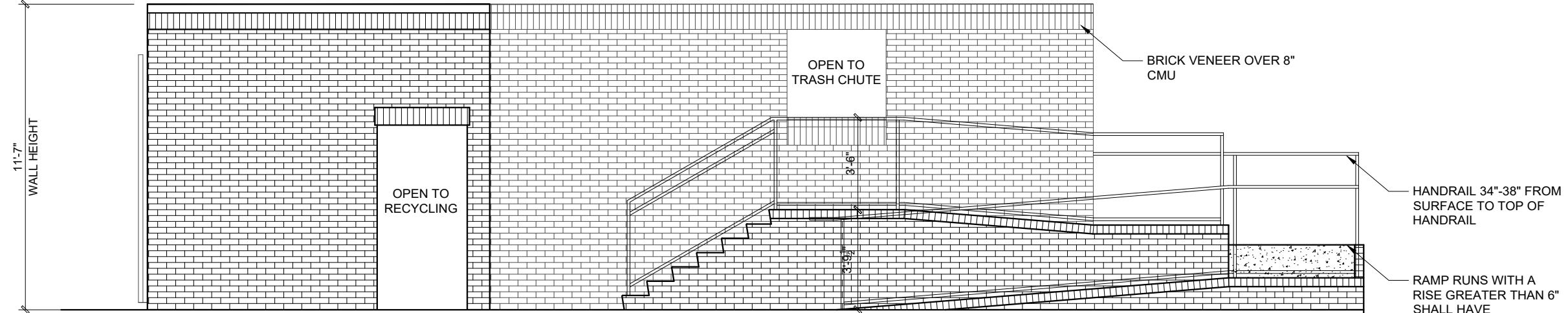
3 GATE DETAIL FRONT VIEW
1/4"=1'-0"



2 TRASH COMPACTOR REAR ELEVATION
1/4"=1'-0"



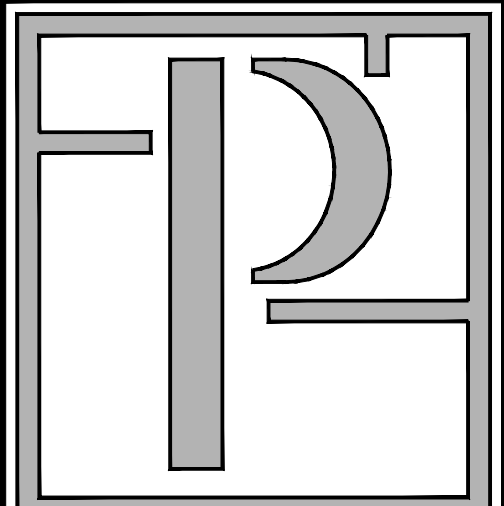
5 TRASH COMPACTOR ENCLOSURE PLAN
1/4"=1'-0"



1 TRASH COMPACTOR SIDE ELEVATION
1/4"=1'-0"

1 TRASH COMPACTOR - PLAN AND ELEVATIONS

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Civil Submission
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Clayton NC

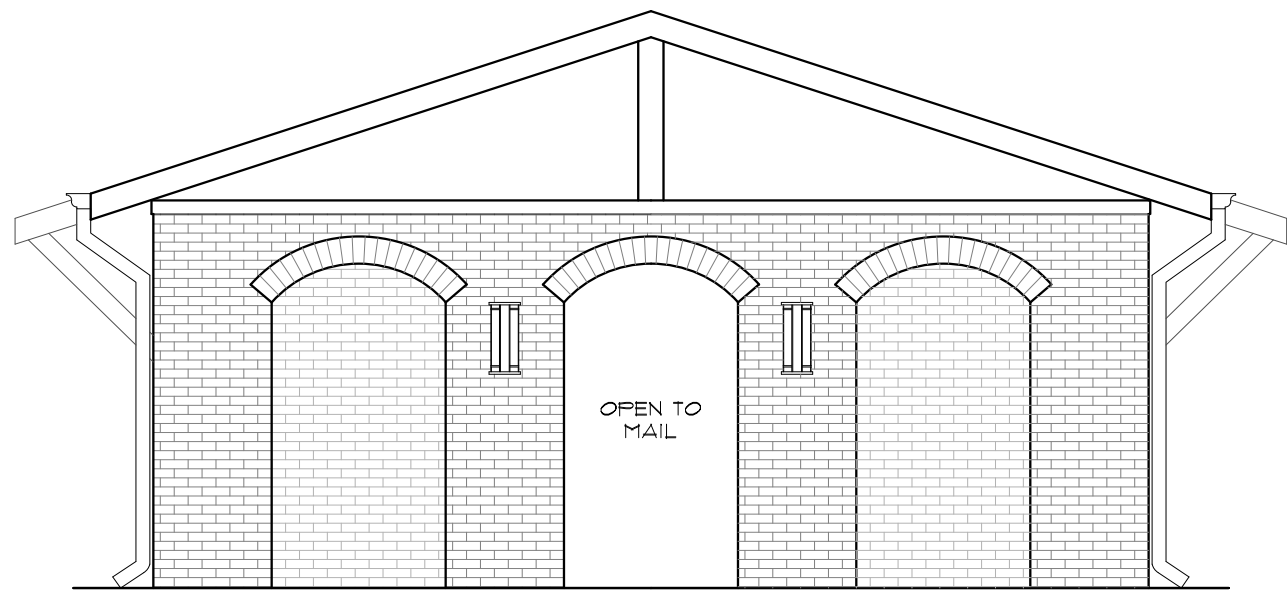
PRELIMINARY
NOT FOR CONSTRUCTION

PROGRESS DATE:	09-18-18	DISCUSSION	
ISSUE DATE:		REVISIONS	
		SUBMIT	
		DATE	
		INITIALS	

PROJECT NO: 003417
DRAWN BY: JK
CHECKED BY: -

SHEET TITLE
Compactor Plan and Elevations

SHEET NUMBER
1.A6.00



ARCHITECTURAL PLANS
EXTERIOR MATERIALS

• ASPHALT SHINGLE ROOF

• STANDING SEAM METAL ROOF

• FIBER CEMENT SIDING

• FIBER CEMENT VERTICAL SIDING
PANELS W/ FIBER CEMENT BATTENS

• CULTURED STONE VENEER

• STONE HEADER

ELEVATION GENERAL NOTES

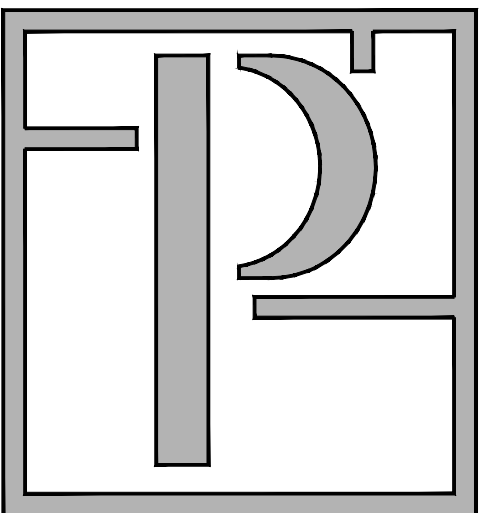
ROOFS
1. USE ICE AND WATER SHIELD AT ALL ROOF
PLANES SLOPED BELOW 4:12.

PAINT ALL ROOF PENETRATIONS TO MATCH
SHINGLE COLOR.
ROOF VENTILATION
SEE ROOF PLANS FOR ATTIC VENTILATION
CALCULATION REQUIREMENTS.

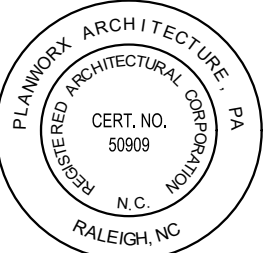
SQUARE FOOTAGE

MAIL BOX BAY SHELL (74sf x 2) = 148

TOTAL COVERED AREA = 749



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Civil Submission
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PROGRESS DATE:	ISSUE DATE:	REVISIONS	SUBMIT	DATE	INITIALS	DESCRIPTION
09-18-18						

PROJECT NO: 003417
DRAWN BY: JK
CHECKED BY: -

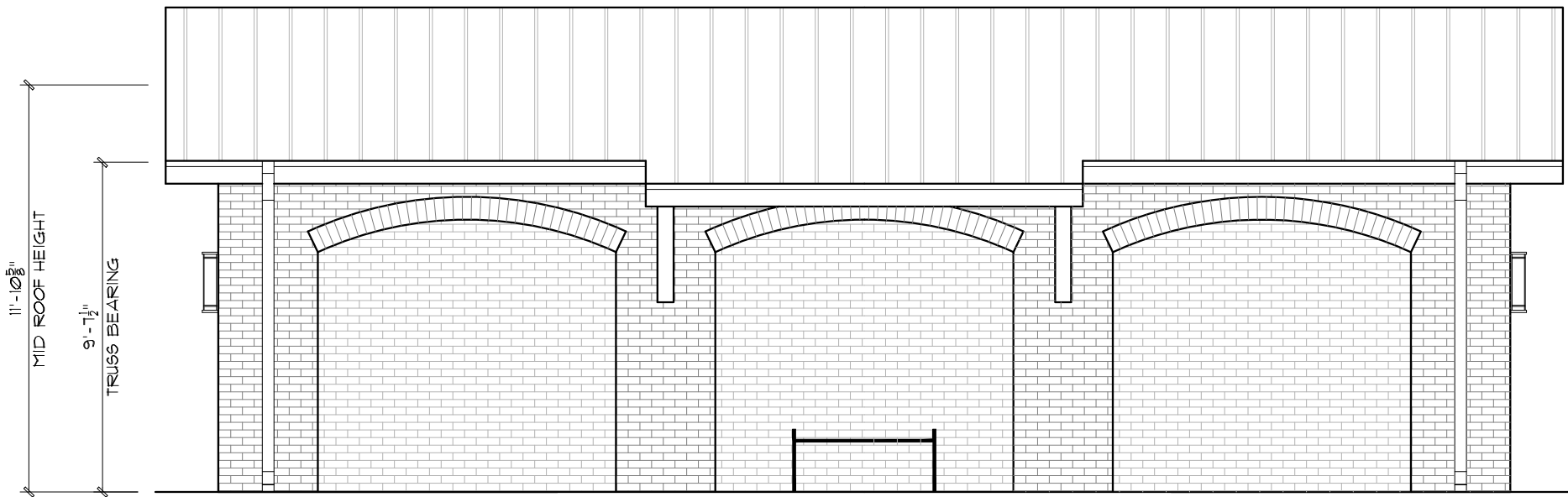
SHEET TITLE:
Mail Kiosk Plan and
Elevations

SHEET NUMBER:

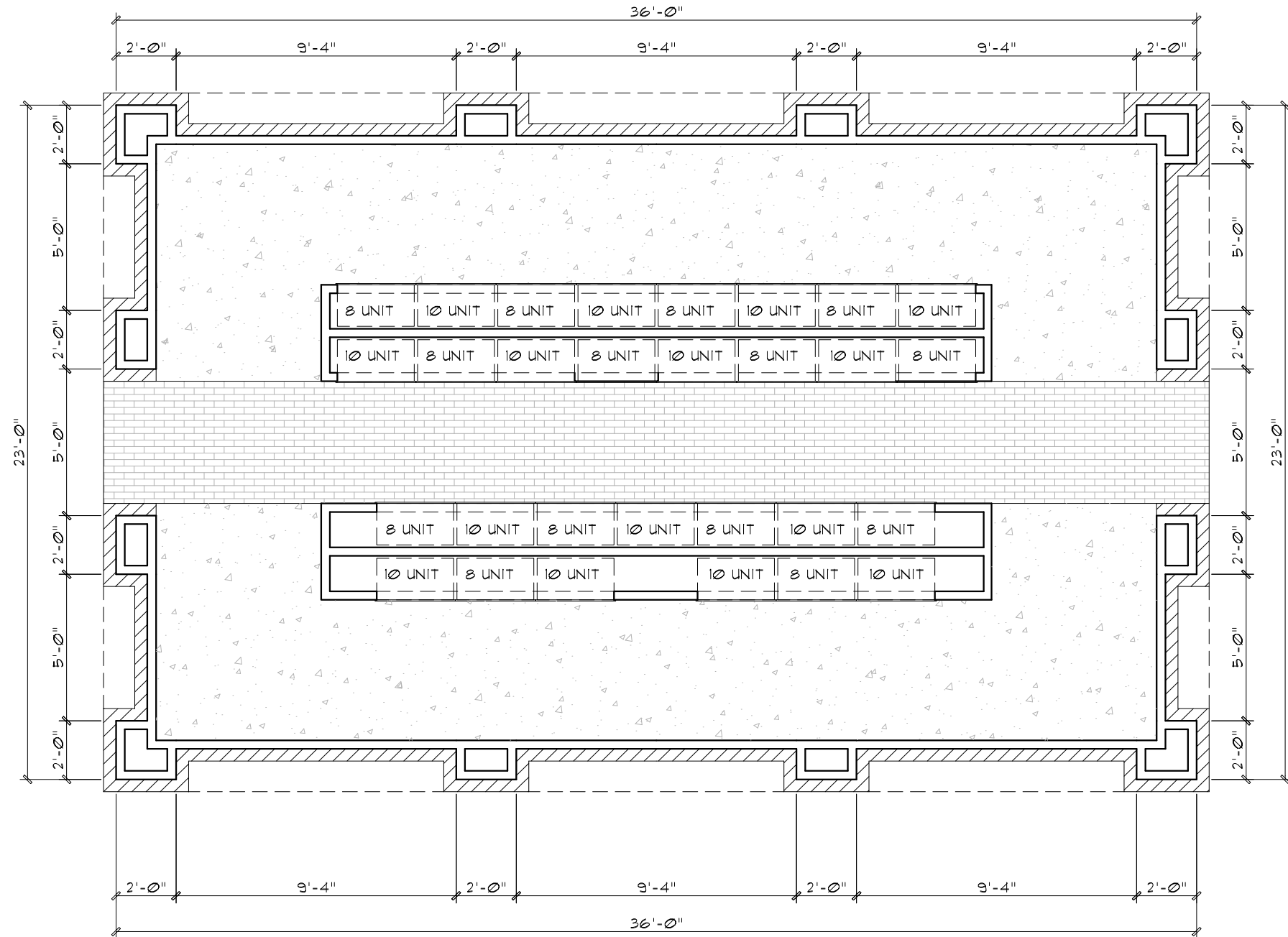
1.A7.00

3 TYPICAL SIDE ELEVATION
Scale: 1/4" = 1'-0"

GENERAL NOTES
Scale: 1/4" = 1'-0"



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



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

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CONSTRUCTION

Clayton Spinning
Mill

Clayton,
North Carolina

17-701.00

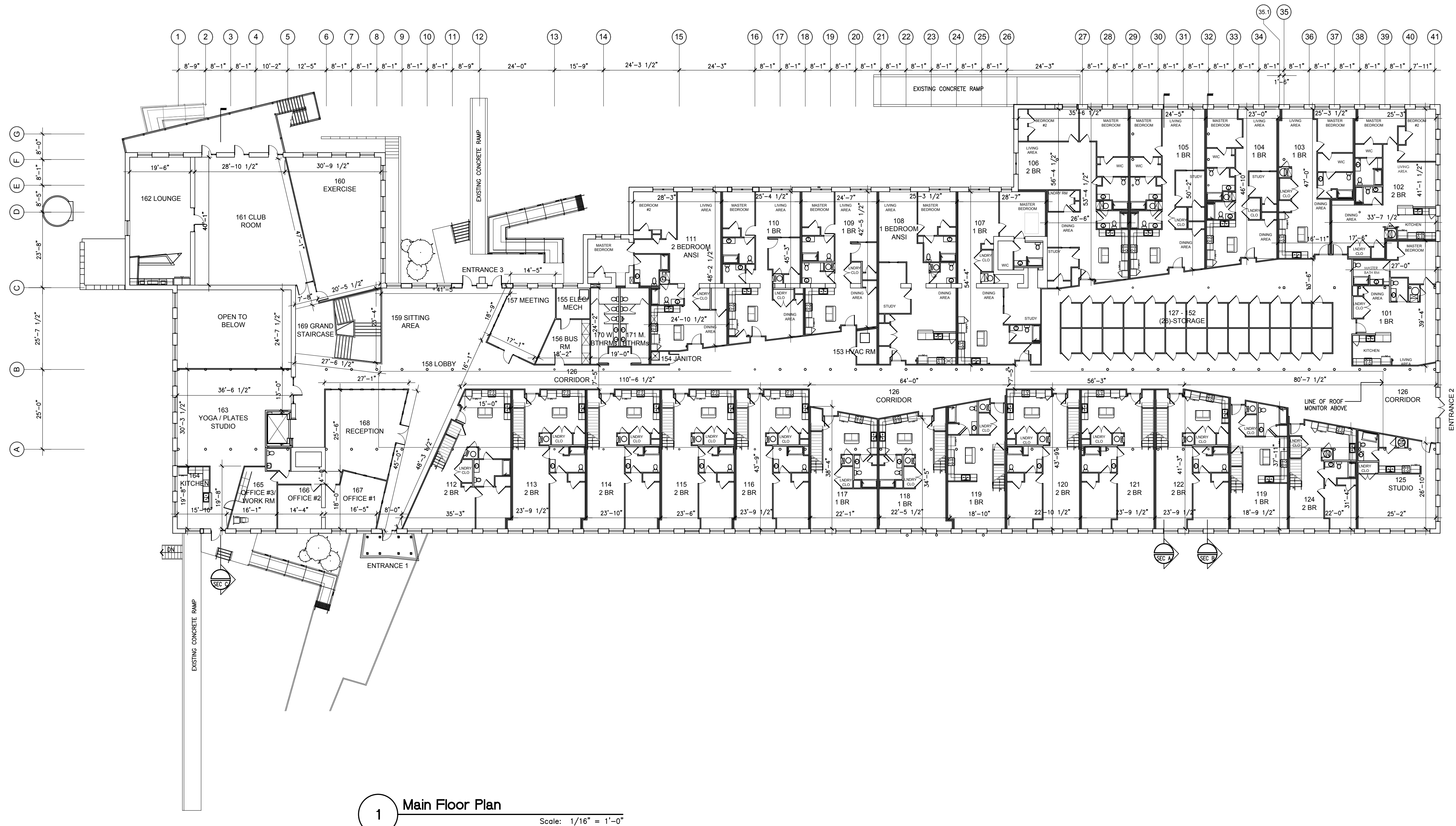
DATE: April 2, 2018
ISSUED FOR: Review

Building Plan

A 1.1

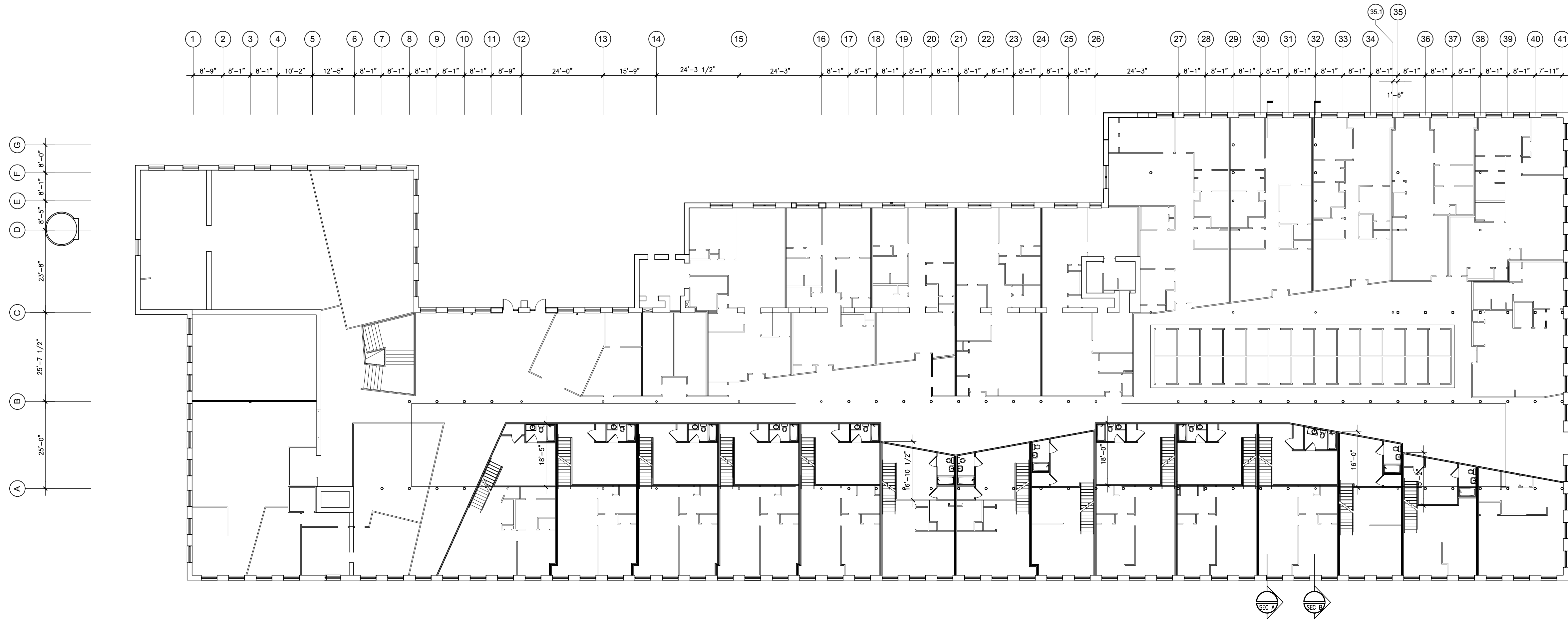
SHEET OF
TOTAL SHEETS IN SET: DRAWN BY: -
CHECKED BY: -

Architecture
Planning
Interiors
Ross/Deckard Architects

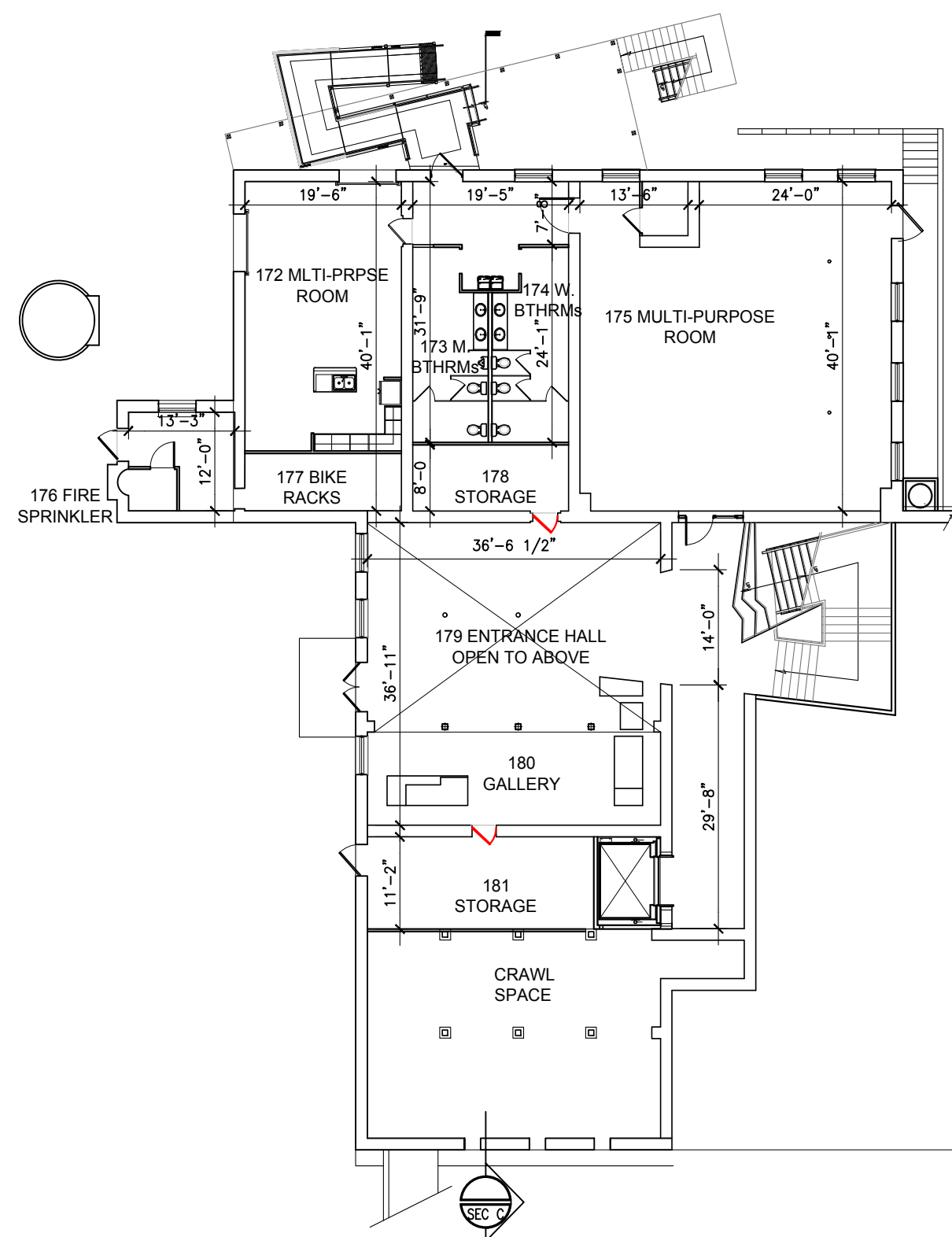


1 Main Floor Plan

Scale: 1/16" = 1'-0"



2 Mezzanin Floor Plan
Scale: 1/16" = 1'-0"



1 Basement Floor Plan
Scale: 1/16" = 1'-0"

NOT FOR
CONSTRUCTION

Clayton Spinning
Mill

Clayton,
North Carolina

17-701.00

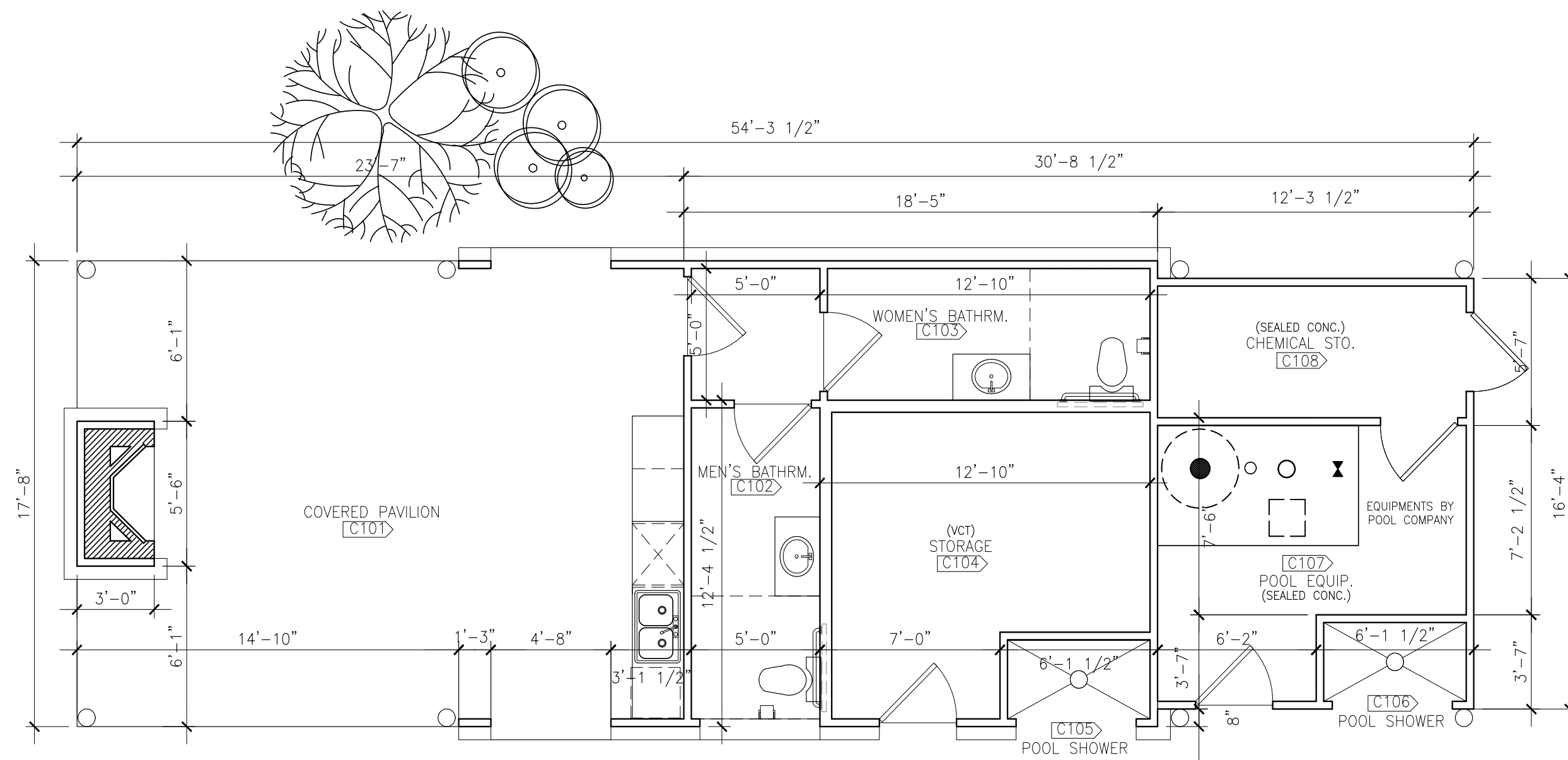
DATE: April 2, 2018
ISSUED FOR: Review

Building Plan

A 1.2

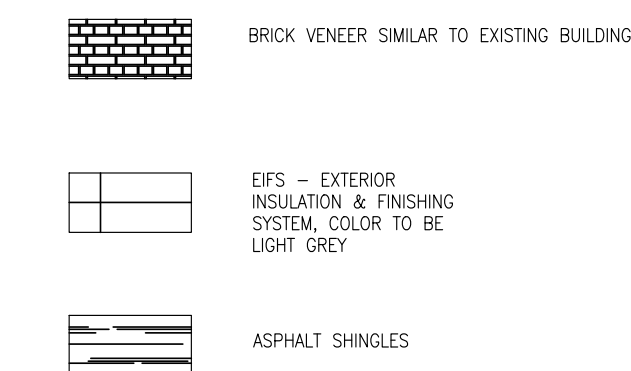
SHEET OF
TOTAL SHEETS IN SET: 1
DRAWN BY: -
CHECKED BY: -

Architecture
Planning
Interiors
Ross/Deckard Architects

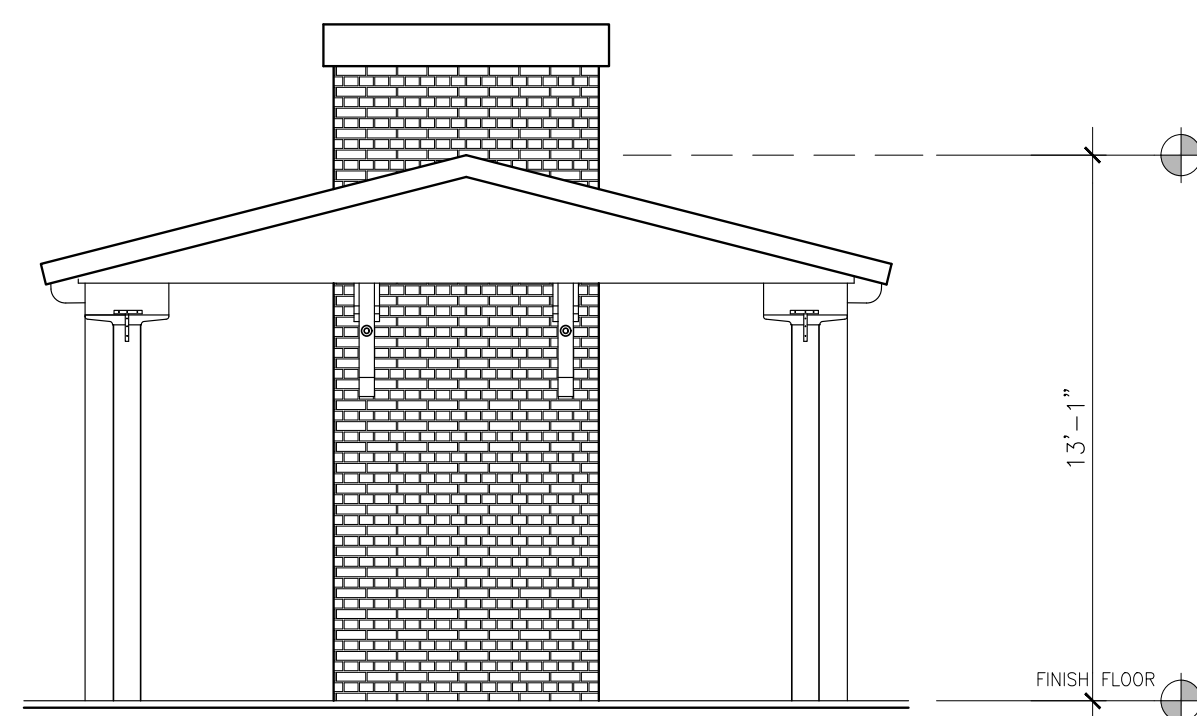


1 Building Plan
Scale: 1/8"=1'-0"

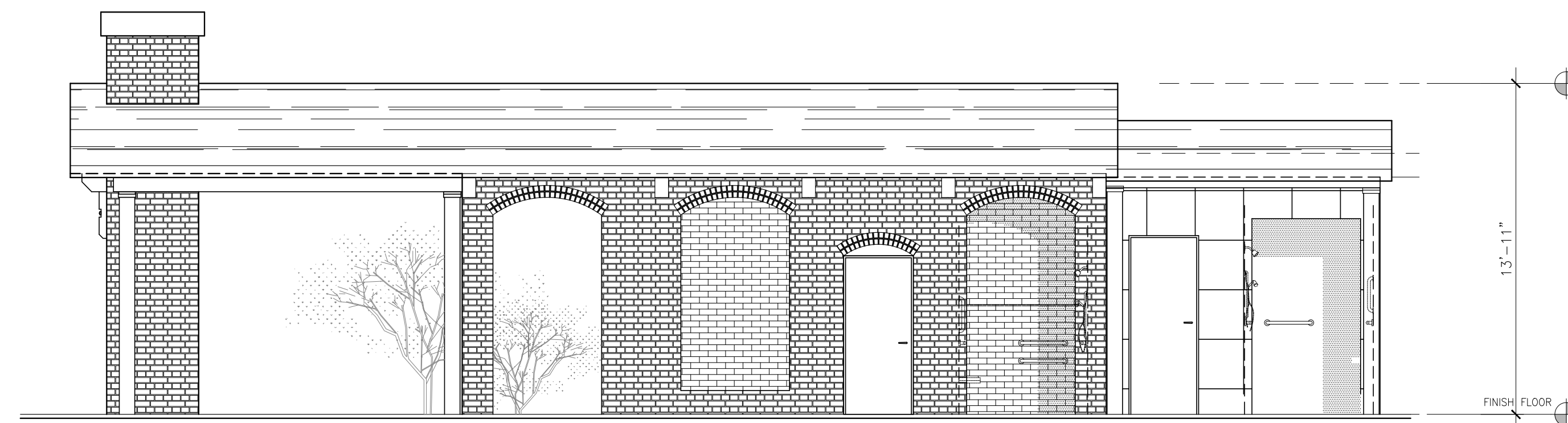
ELEVATION KEY



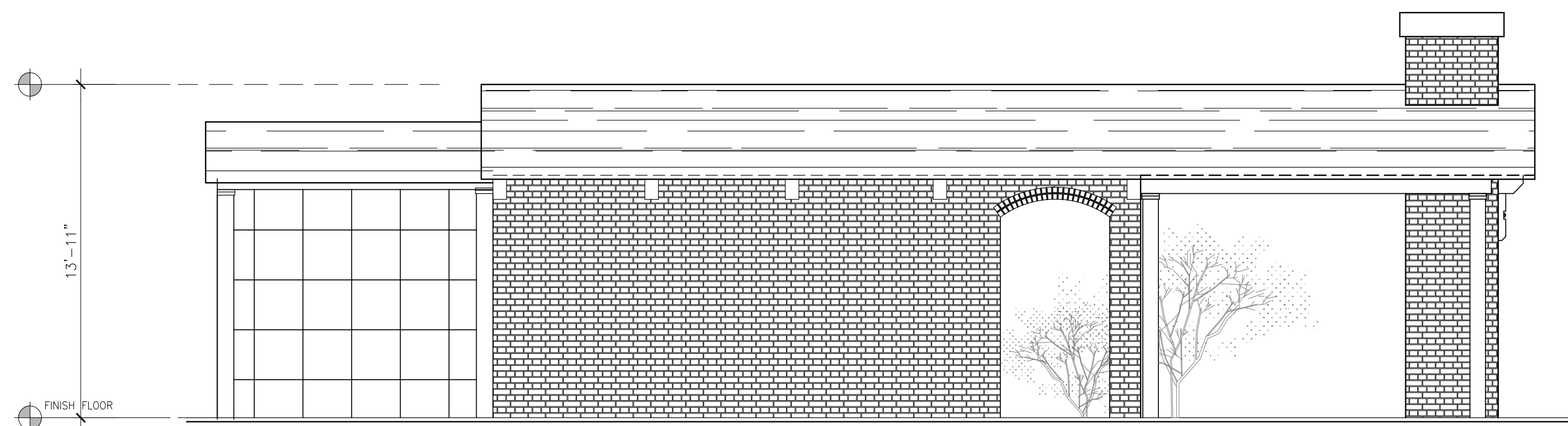
NOTE: BUILDING TO BE TYPE VB CONSTRUCTION



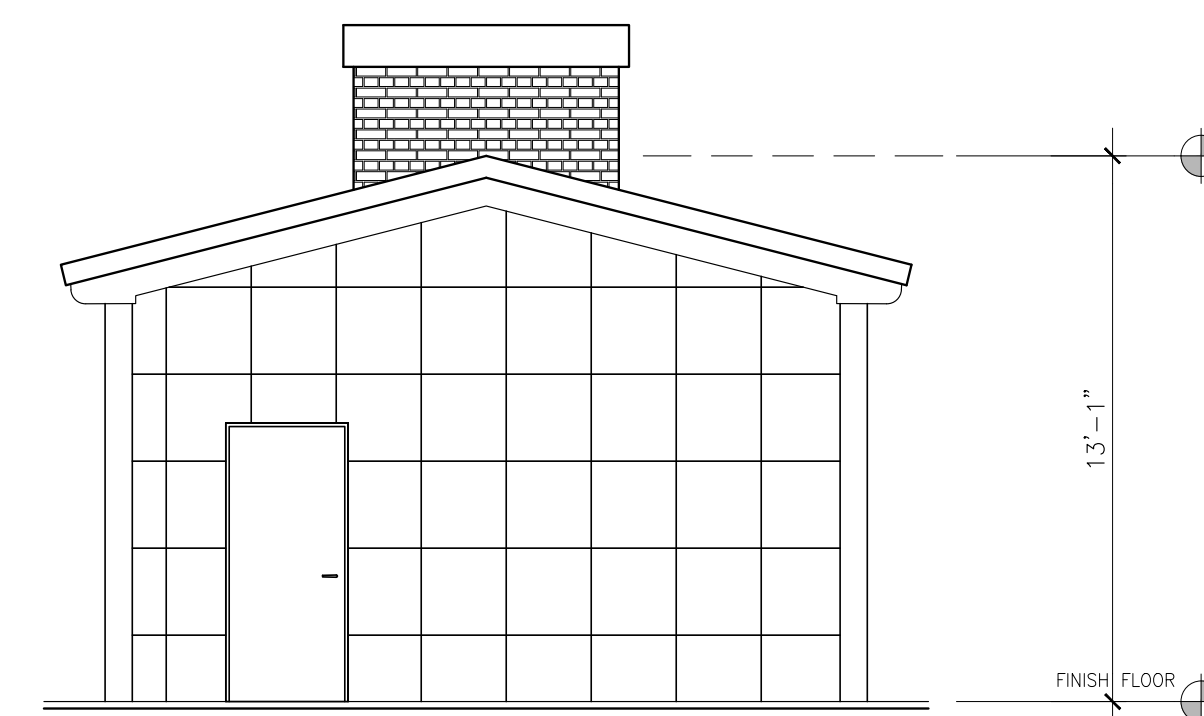
2 Side Elevation
Scale: 1/4"=1'-0"



3 Building Front Elevation
Scale: 1/4"=1'-0"



4 Building Rear Elevation
Scale: 1/8"=1'-0"



5 Side Elevation
Scale: 1/4"=1'-0"

NOT FOR
CONSTRUCTION

Clayton Spinning
Mill

Clayton,
North Carolina

17-701.00

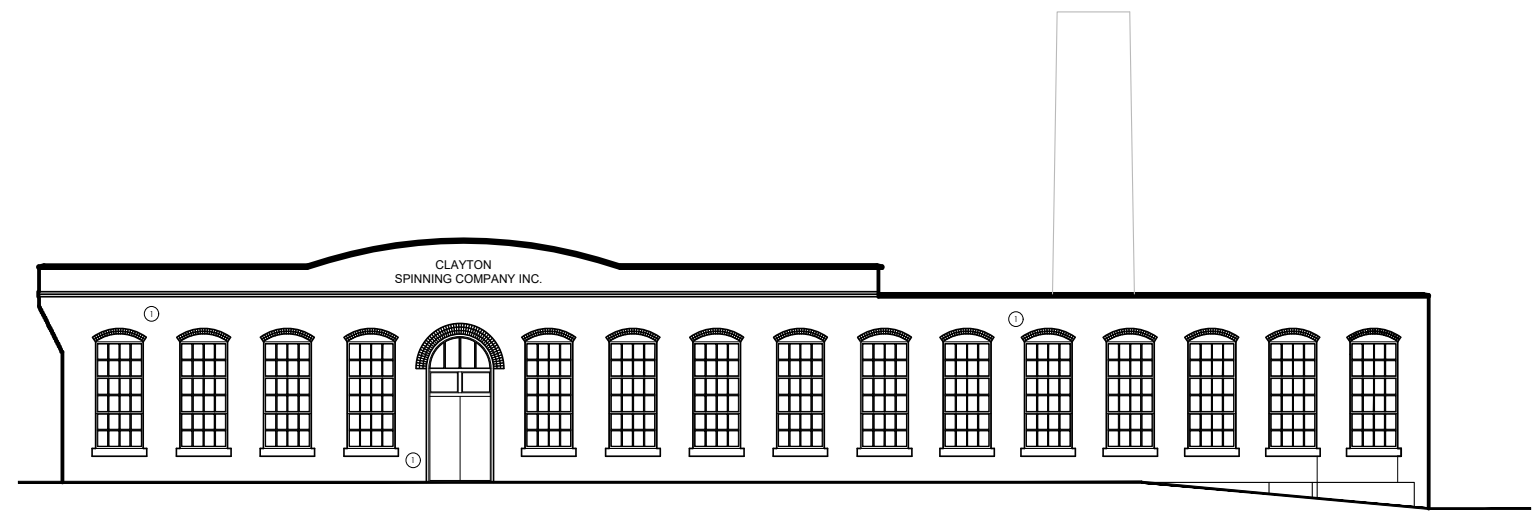
April 27, 2018
Review Comments

DATE: April 9, 2018
ISSUED FOR: Review

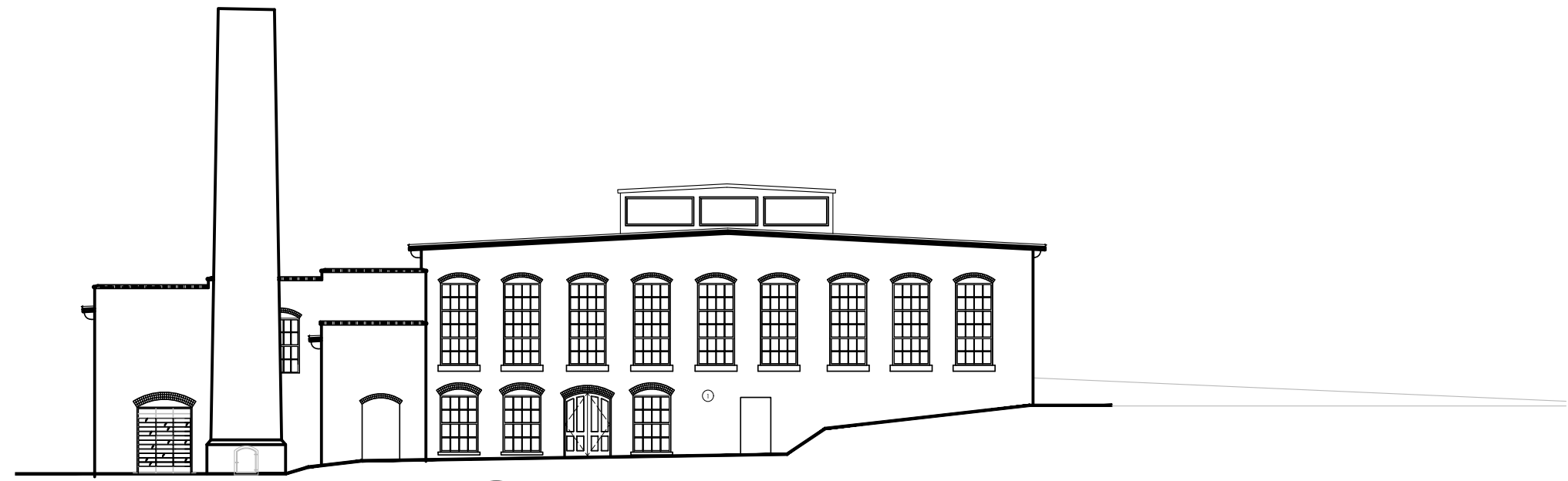
Pool House
- Building Plan
- Elevations

A 1.3

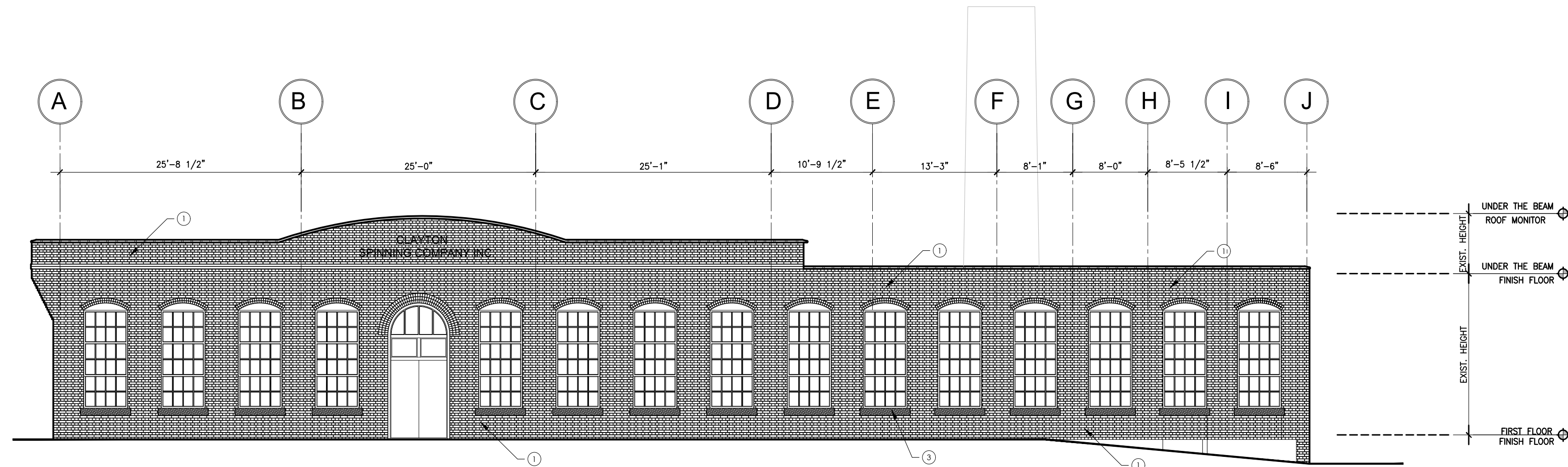
SHEET OF
TOTAL SHEETS IN SET: DRAWN BY: -
CHECKED BY: -



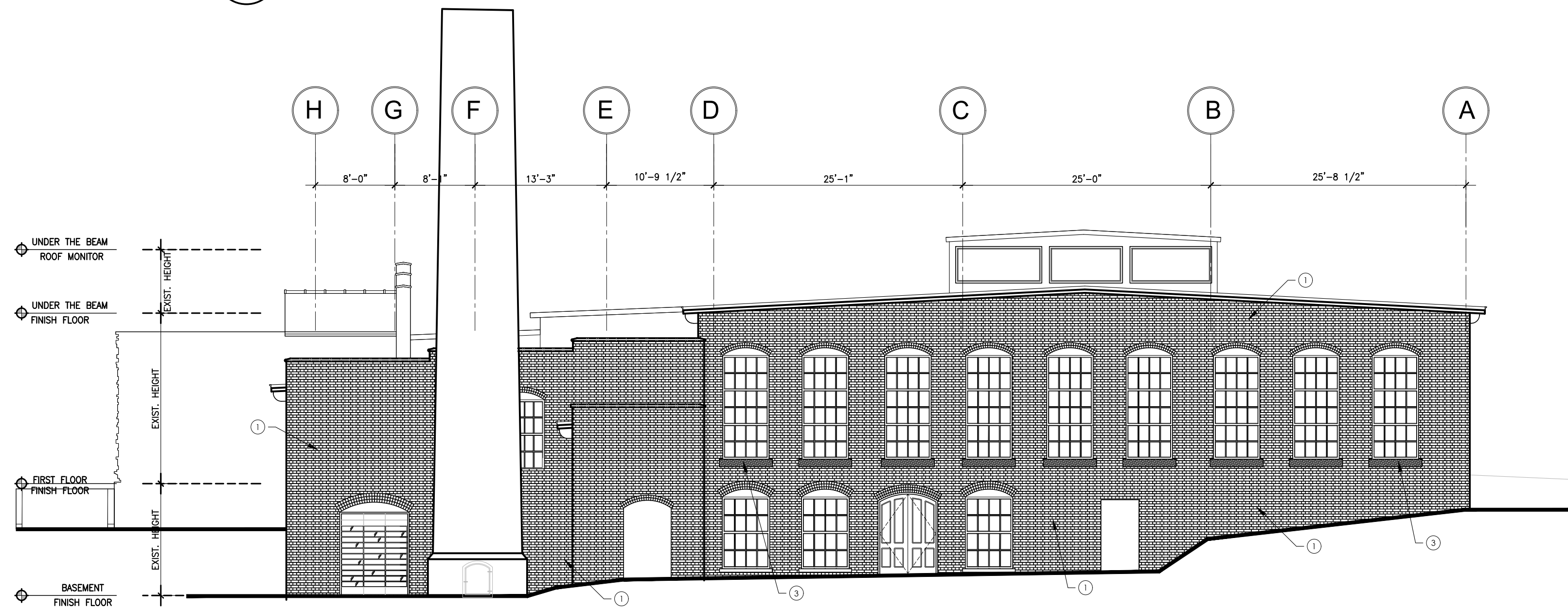
1 West Elevation
Scale: 1/16" = 1'-0"



2 East Elevation
Scale: 1/16" = 1'-0"



3 West Elevation
Scale: 1/8" = 1'-0"



4 East Elevation
Scale: 1/8" = 1'-0"

ELEVATION KEY	
	1 COLOR RED COMMON BRICK.
	2 PARGE COAT OVER EXISTING CMU WITH SCORED REVEALS. COLOR TO BE LIGHT GREY.
	3 PRECAST CONCRETE.

NOT FOR
CONSTRUCTION

Clayton Spinning
Mill

Clayton,
North Carolina

17-701.00

September 18, 2018
Plan Review

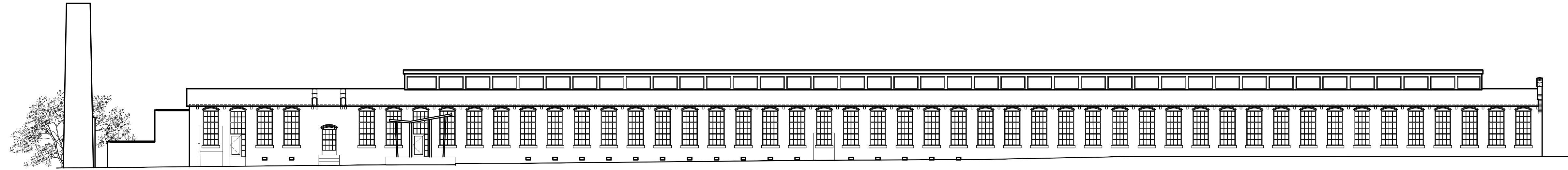
DATE: April 2, 2018
ISSUED FOR: Review

Building
Elevations

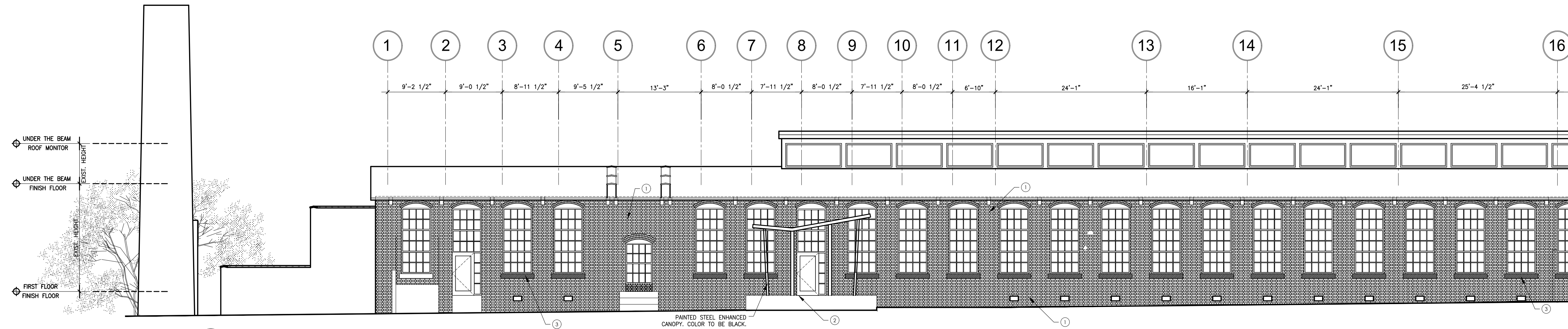
A 3.1

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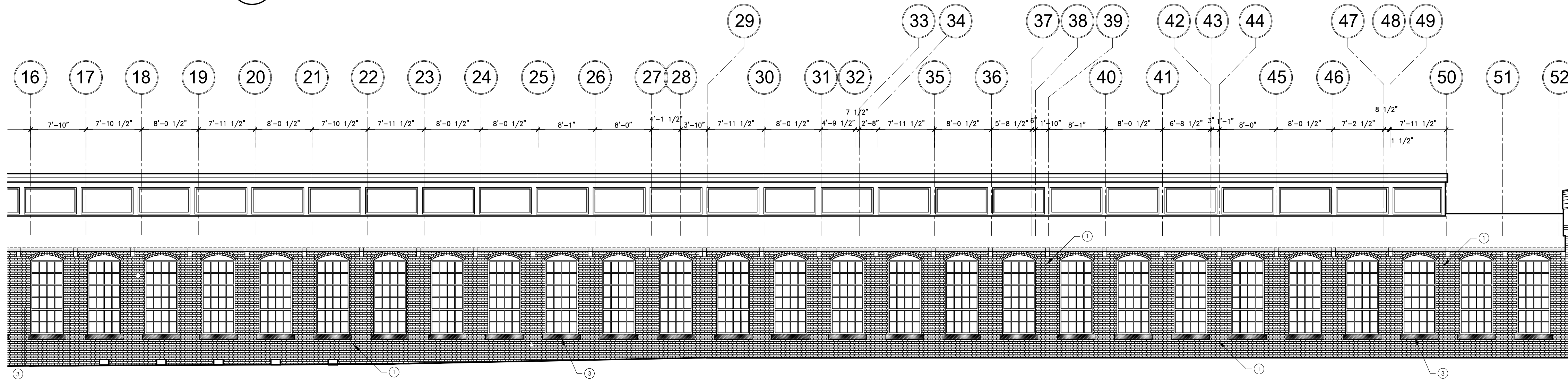
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Drawing Title: Clayton Spinning Mill - Building Elevations
Printed Date: Sep 18, 2018 - 6:03pm



1 North Elevation
Scale: 1/16" = 1'-0"



2 Partial North Elevation
Scale: 1/8" = 1'-0"



3 Partial North Elevation
Scale: 1/8" = 1'-0"

ELEVATION KEY

- 1 COLOR RED COMMON BRICK.
- 2 PARGE COAT OVER EXISTING CMU WITH SCORED REVEALS. COLOR TO BE LIGHT GREY.
- 3 PRECAST CONCRETE.

NOT FOR
CONSTRUCTION

Clayton Spinning
Mill

Clayton,
North Carolina

17-701.00

September 18, 2018
Plan Review

DATE: April 2, 2018
ISSUED FOR: Review

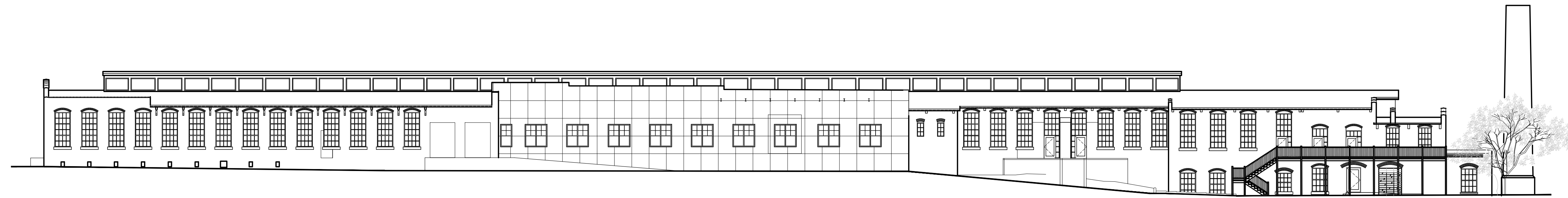
Building
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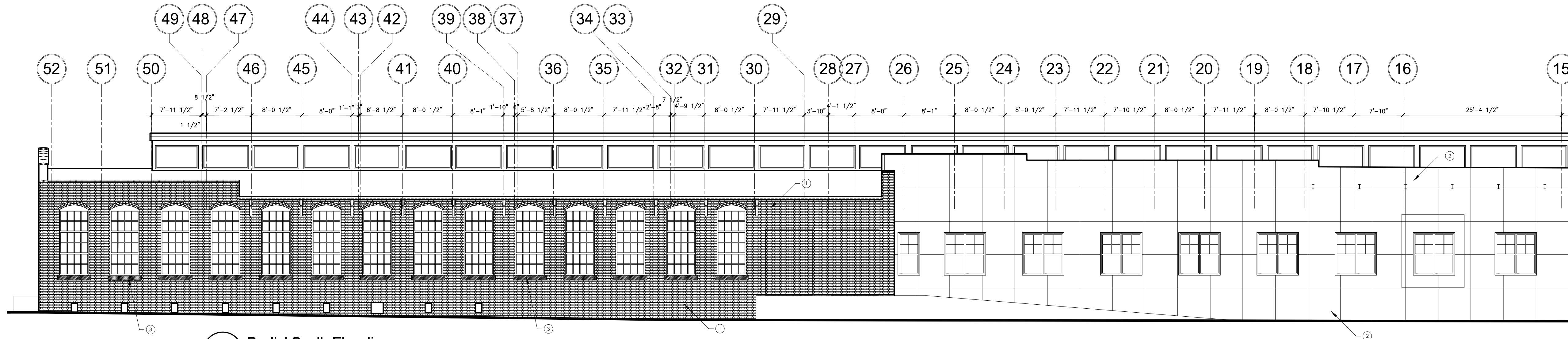
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Architecture
Planning
Interiors
Ross/Deckard Architects

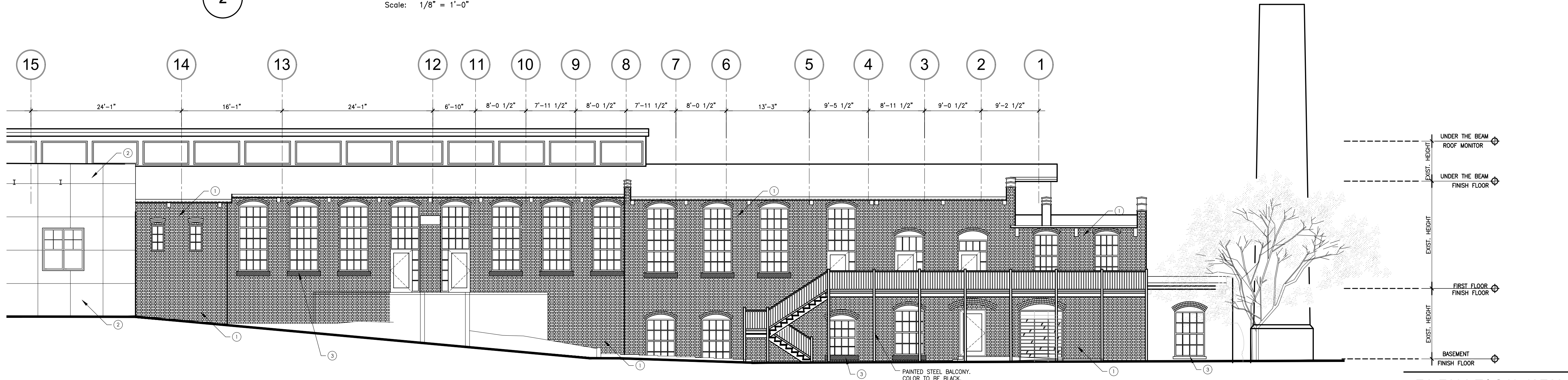
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1 South Elevation
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2 Partial South Elevation
Scale: 1/8" = 1'-0"



3 Partial South Elevation
Scale: 1/8" = 1'-0"

ELEVATION KEY

	1 COLOR RED COMMON BRICK.
	2 PATCH COAT OVER EXISTING CMU WITH SCORED REVEALS. COLOR TO BE LIGHT GREY.
	3 PRECAST CONCRETE.

UNDER THE BEAM ROOF MONITOR
EXIST. HEIGHT
UNDER THE BEAM FINISH FLOOR
EXIST. HEIGHT
FIRST FLOOR FINISH FLOOR
EXIST. HEIGHT
BASEMENT FINISH FLOOR
EXIST. HEIGHT

PAINTED STEEL BALCONY. COLOR TO BE BLACK.

NOT FOR CONSTRUCTION

Clayton Spinning Mill

Clayton, North Carolina

17-701.00

September 18, 2018
Plan Review

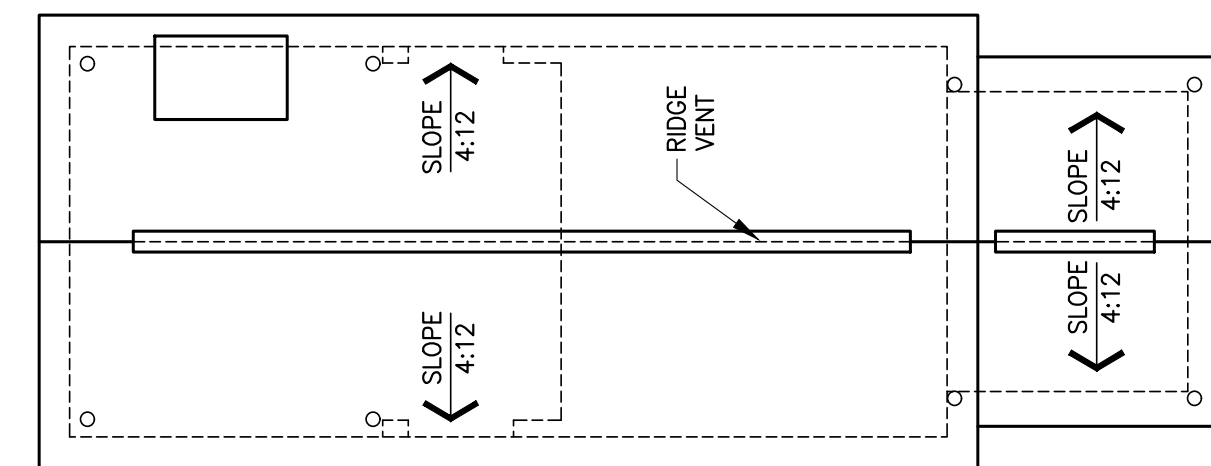
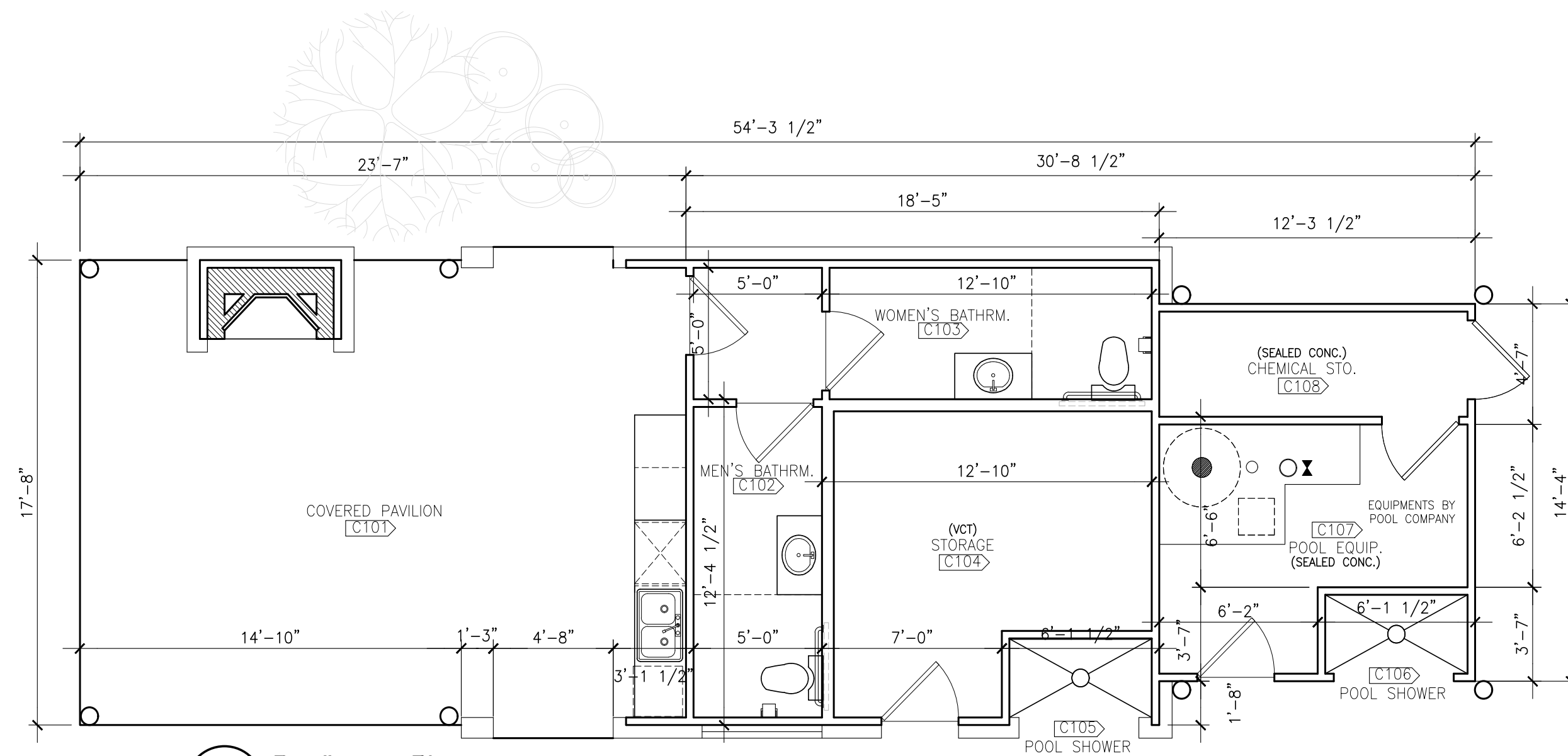
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Building Elevations

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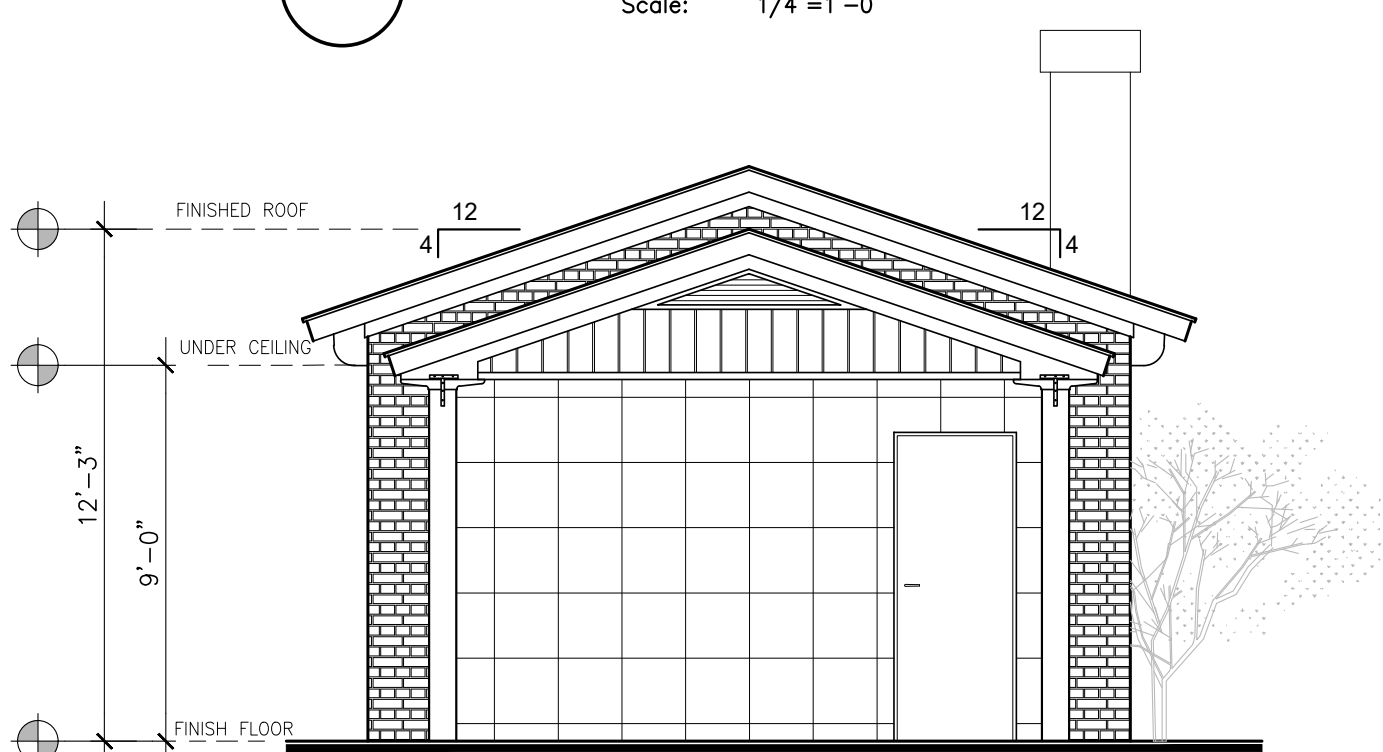
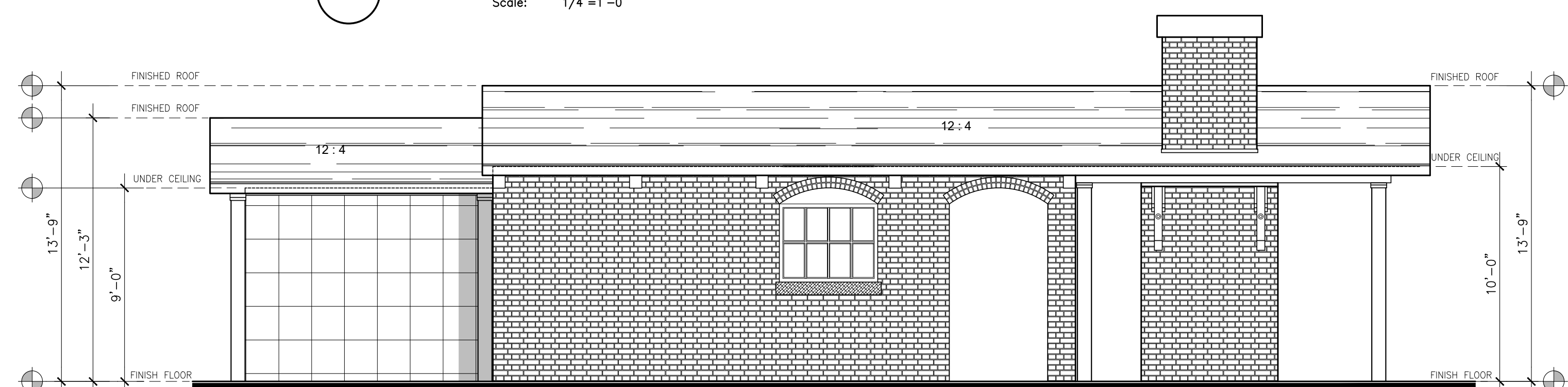
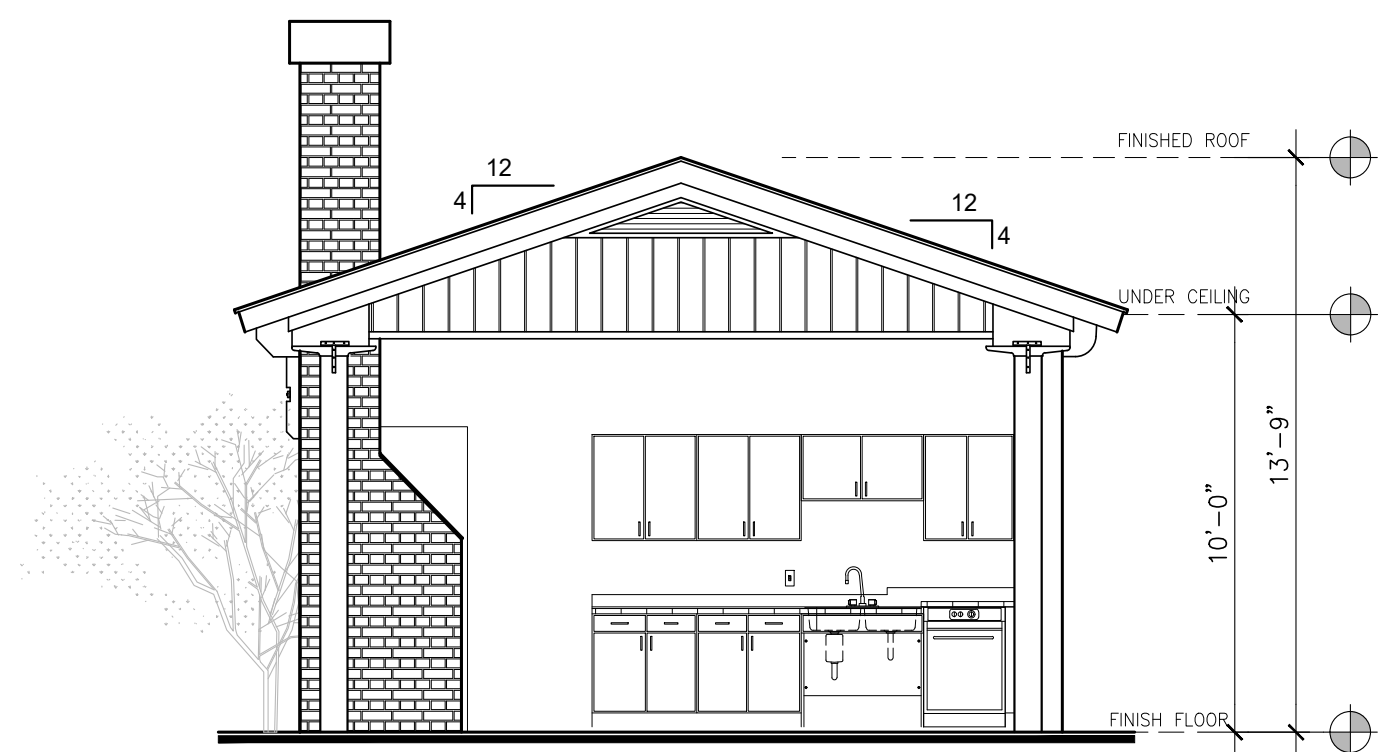
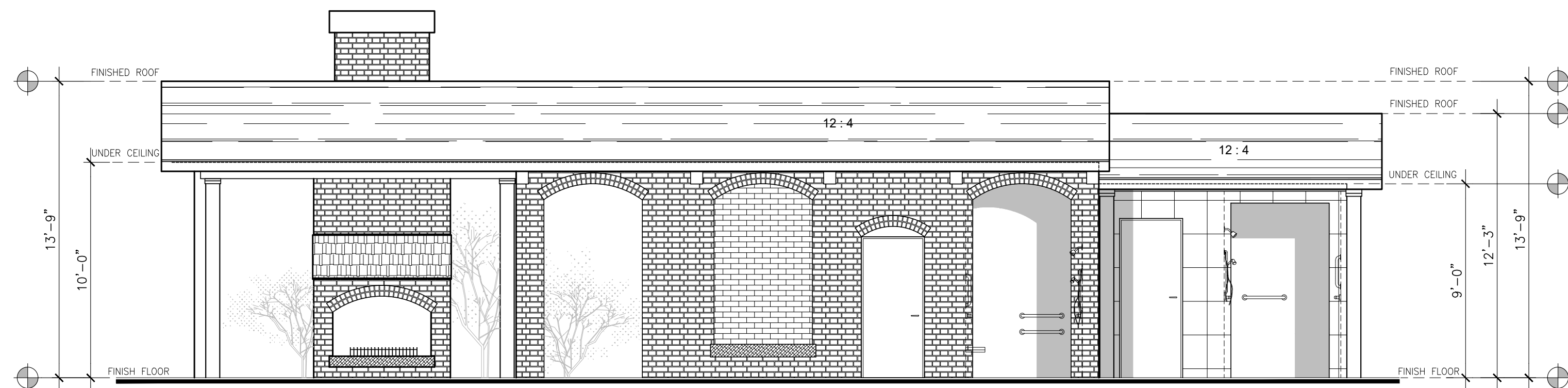
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ELEVATION KEY

- 1 COLOR RED COMMON BRICK.
- 2 PARGE COAT OVER EXISTING CMU WITH SCORED REVEALS. COLOR TO BE LIGHT GREY.
- 3 PRECAST CONCRETE.
- 4 ASPHALT SHINGLES. COLOR TO MATCH THE ADJACENT MATERIAL.



NOT FOR
CONSTRUCTION

Clayton Spinning
Mill

Clayton,
North Carolina

17-701.00

September 18, 2018
Plan Review

DATE: April 2, 2018
ISSUED FOR: Review

Poolhouse

A 3.4

DRAWN BY:
CHECKED BY: JTL

Architecture
Planning
Interiors
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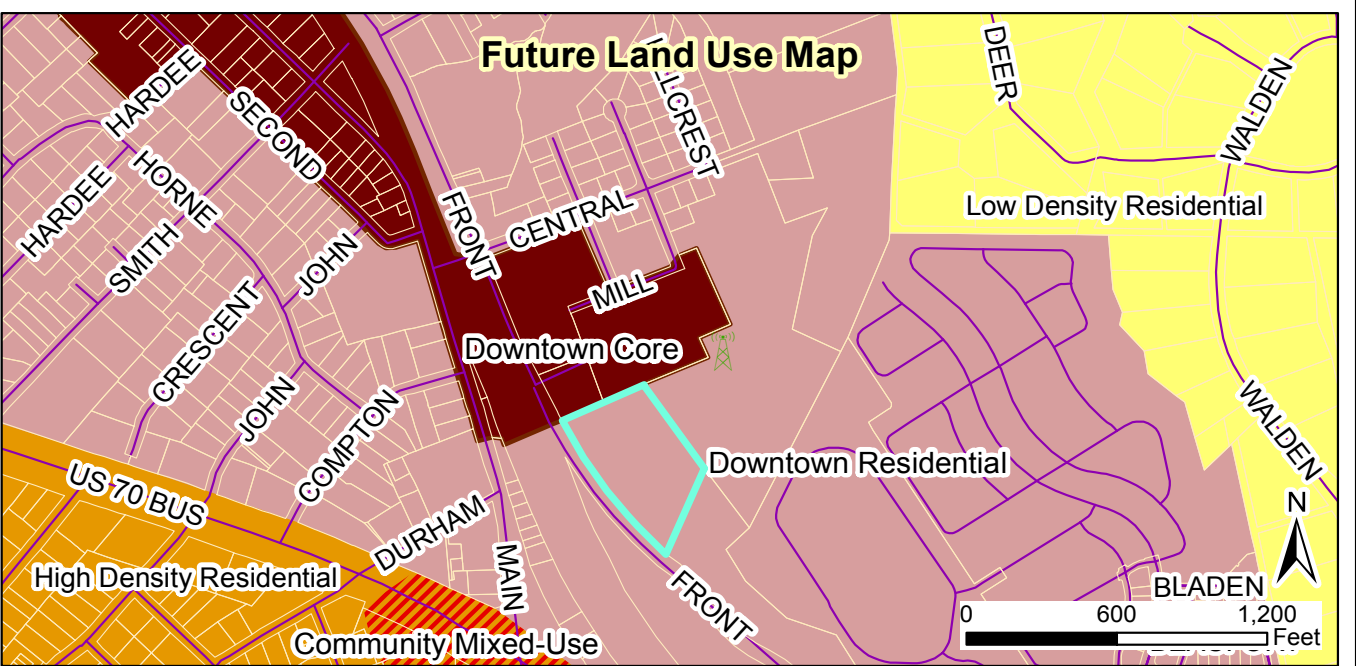
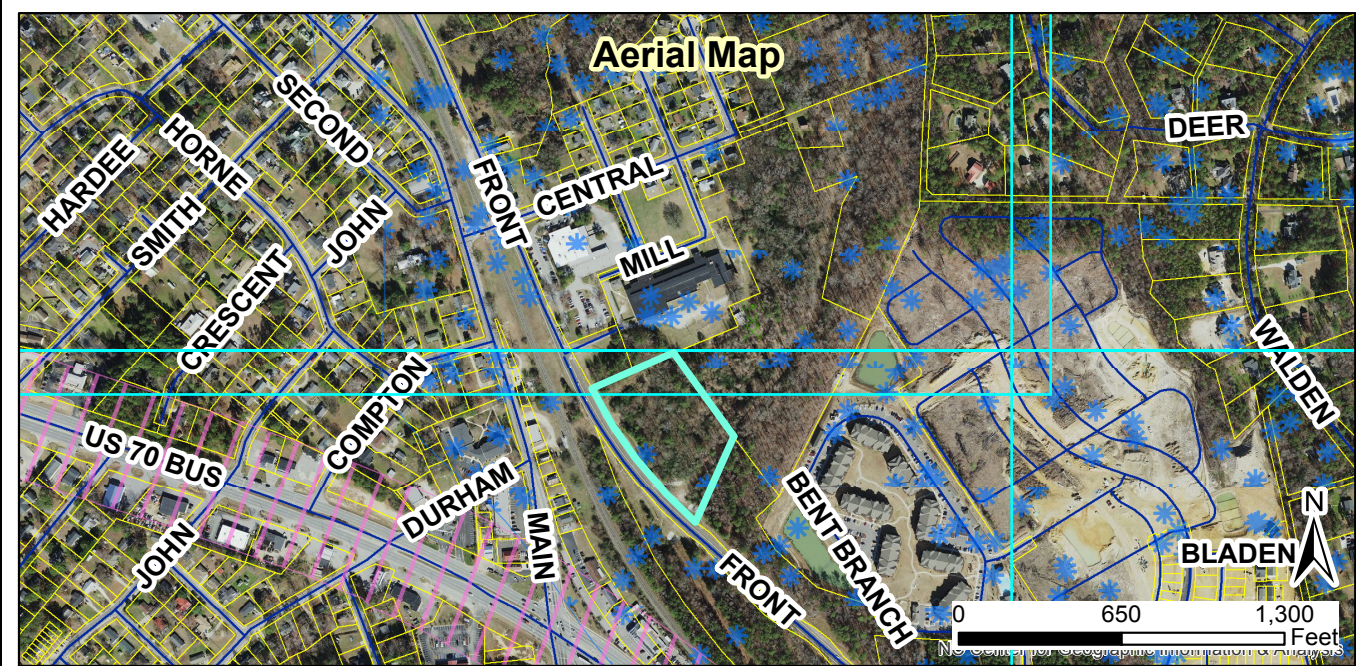
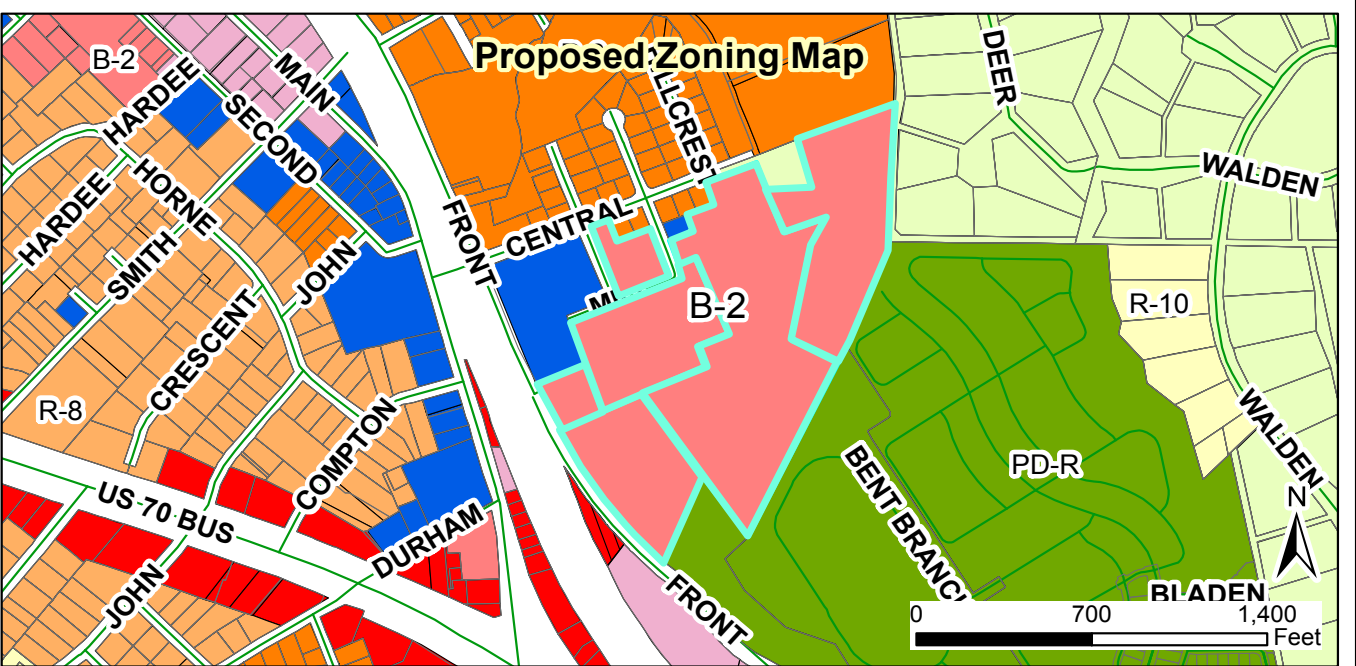
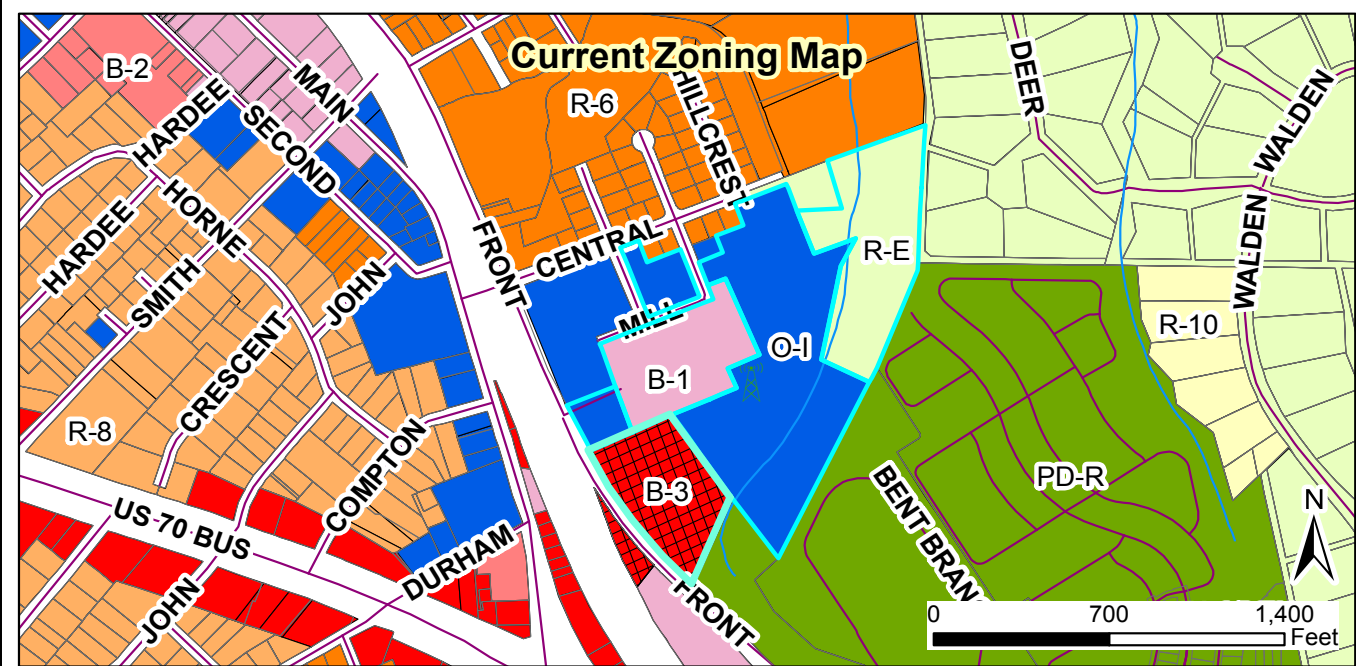
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E-mail: mail@RossDeckardArchitects.com

Fax: 919.875.9200

Phone: 919.875.0001



**Request:
2018-64-SP and 2018-65-SUP**

Applicant: Bass, Nixon, and Kennedy, Inc.
 Property Owners: WBB LLC; HCY LLC; SCA Ventures LLC; East Village Investments LLC
 Parcel ID: 166918-30-2104; 166918-30-5328; 166918-30-8385; 166918-30-4740;
 166806-48-6538 (portion north of Front Street; 166918-40-2748
 Tag #: 05037009t; 05037008v; 05037009w; 05037009u; 05037011 (portion north
 of Front Street); 05h03197h

Staff Report Map



Document Path: O:\PLANNING\REZONING\Rezoning\2018\2018-66-RZ Spinning Mill Lofts at East Village\Map\Map 2018-66-RZ Spinning Mill Lofts at East Village.mxd

Legend

- 100-yr Flood Zone
- Thoroughfare Overlay
- Scenic Highway Overlay
- Watershed Protection Overlay
- Site

05/03/2018
 Produced by: TOC Planning
 Disclaimer: Town of Clayton assumes no legal responsibility for the quality of the data represented here.

Traffic Impact Analysis Spinning Mill Loft at East Village Clayton, NC



TRAFFIC IMPACT ANALYSIS

FOR

SPINNING MILL LOFTS AT EAST VILLAGE

LOCATED

IN

CLAYTON, NC

Prepared For:
Bass, Nixon, & Kennedy, Inc.
6310 Chapel Hill Road, Suite 250
Raleigh, NC

Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
License #C-0910

June 2018



RKA Project No. 18129

Prepared By: CB

Reviewed By: JR

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Appendix B:	Traffic Counts
Appendix C:	Signal Plans
Appendix D:	Adjacent Development Information
Appendix E:	Capacity Calculations – Front Street and Central Street
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Appendix G:	Capacity Calculations – Front Street and NC 42
Appendix H:	Capacity Calculations – Front Street and Old State NC 42 / Walden Way
Appendix I:	Capacity Calculations – Front Street and Bent Branch Loop Road
Appendix J:	Capacity Calculations – Central Street and Creekside Drive
Appendix K:	Capacity Calculations – Central Street and East Ridge Circle
Appendix L:	Capacity Calculations – Front Street and Mill Street

**TRAFFIC IMPACT ANALYSIS
SPINNING MILL LOFTS AT EAST VILLAGE
CLAYTON, NORTH CAROLINA**

1. INTRODUCTION

The contents of this report present the findings of the Traffic Impact Analysis (TIA) conducted for the proposed Spinning Mill Lofts at East Village development to be located south of Central Street and east of Front Street in Clayton, North Carolina. The purpose of this study is to determine the potential impacts to the surrounding transportation system created by traffic generated by the proposed development, as well as recommend improvements to mitigate the impacts.

The Spinning Mill Lofts at East Village development is a residential development that is expected to re-develop the existing Clayton Spinning Mill. For the purpose of the TIA, the site is analyzed with 255 low-rise apartment units and is expected to be completed in 2021.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- Existing (2018) Traffic Conditions
- Background (2021) Traffic Conditions
- Combined (2021) Traffic Conditions

1.1. Site Location and Study Area

The development is proposed to be located south of Central Street and east of Front Street in Clayton, North Carolina. Refer to Figure 1 for the site location map.

The study area for the TIA was determined through coordination with the North Carolina Department of Transportation (NCDOT) and the Town of Clayton (Town) and consists of the following existing intersections:

- Front Street and Central Street
- Front Street and Old State NC 42 / Walden Way



- Front Street and NC 42
- Central Street and Main Street
- Front Street and Bent Branch Loop Road
- Central Street and Creekside Drive
- Central Street and East Ridge Circle
- Front Street and Mill Street

Refer to Appendix A for the NCDOT Scoping Checklist and the approved Memorandum of Understanding (MOU).

1.2. Proposed Land Use and Site Access

The proposed development, anticipated to be completed in 2021, is assumed to consist of 255 low-rise apartment units. Site access is proposed via the two existing full movement intersections on Central Street and one existing full movement intersection on Front Street. Refer to Figure 2 for a copy of the preliminary site plan.

1.3. Adjacent Land Uses

The proposed development is located in an area consisting primarily of undeveloped land and residential development.

1.4. Existing Roadways

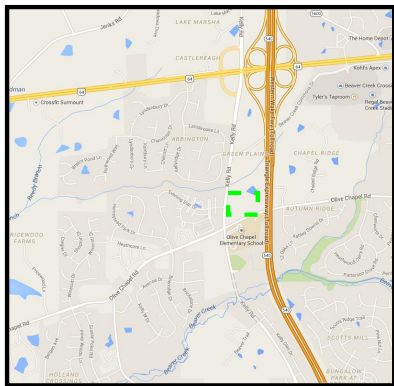
Existing lane configurations (number of traffic lanes on each intersection approach), lane widths, storage capacities, and other intersection and roadway information was collected through field reconnaissance by Ramey Kemp & Associates, Inc. (RKA). Table 1 provides a summary of the field data collected. Refer to Figure 3 for an illustration of the existing lane configurations within the study area.

Table 1: Existing Roadway Inventory

Road Name	Route Number	Typical Cross Section	Speed Limit	Maintained By	AADT* (vpd)
Front Street	N/A	2-lane undivided	35 mph	Town	5,900
Central Street	N/A	2-lane undivided	25 mph	Town	5,800
NC 42	NC 42	4-lane divided	45 mph	NCDOT	23,000**
Old NC 42	Old NC-42	2-lane undivided	35 mph (assumed)	NCDOT	2,300
Main Street	SR 1004	2-lane undivided	35 mph	NCDOT	7,700**
Bent Branch Loop Road	N/A	2-lane undivided	25 mph (assumed)	Private	800
Creekside Drive	N/A	2-lane undivided	25 mph (assumed)	Private	N/A
East Ridge Circle	N/A	2-lane undivided	25 mph (assumed)	Private	N/A
Mill Street	N/A	2-lane undivided	25 mph (assumed)	Private	N/A

* AADT based on the traffic counts from 2018 and assuming the weekday PM peak hour volume is 10% of the average daily traffic.

** 2015 AADT based on the NCDOT Traffic Volumes Map



LEGEND

- Proposed Site Location
- Study Intersection
- Study Area

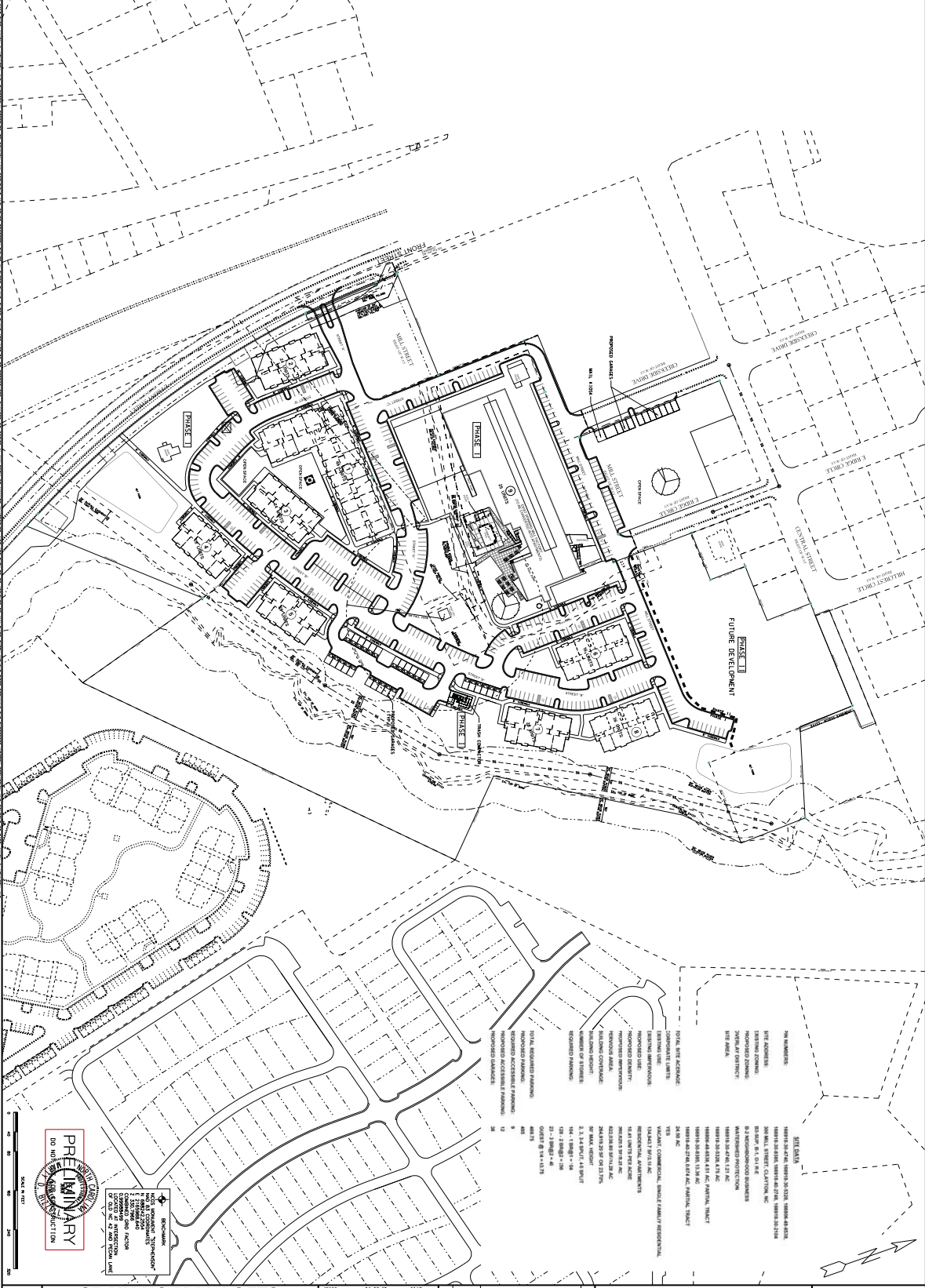


Spinning Mill Lofts
at East Village
Clayton, NC

Site Location Map

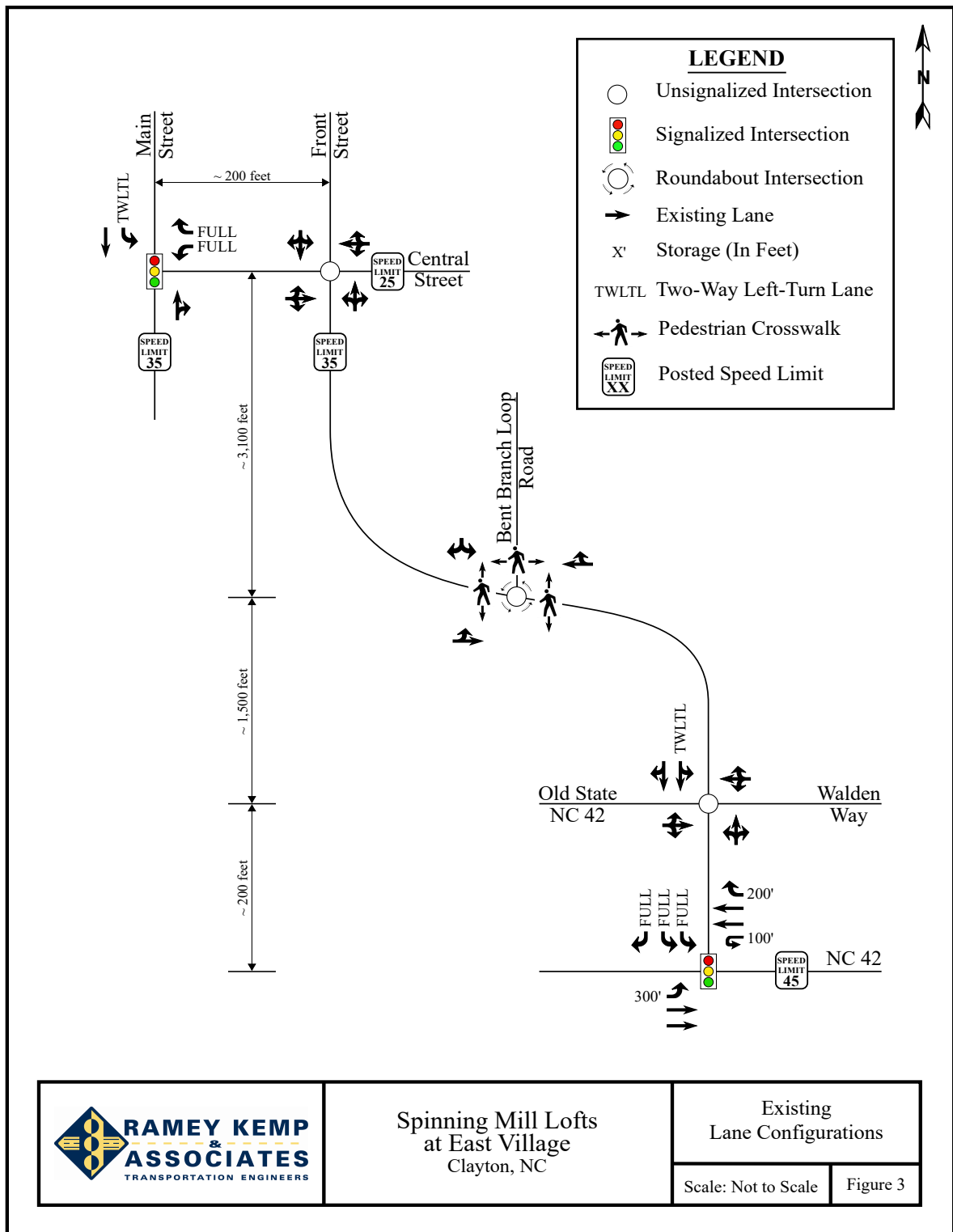
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Figure 1



SHEET C1.1		SPINNING MILL LOFTS AT EAST VILLAGE PHASE I PRELIMINARY SUBMITTAL TOWN OF CLAYTON JOHNSTON COUNTY NORTH CAROLINA		17033 04-20-18 MJG JOB NO. DATE DRAWN BY OVERALL PRELIMINARY SITE PLAN SCALE: 1" = 80' HORIZ		BASS, NIXON & KENNEDY, INC. CONSULTING ENGINEERS 6310 CHAPEL HILL ROAD, SUITE 200, RALEIGH, NC 27607 TELEPHONE: (919) 851-4422 OR (800) 354-1879 FAX: (919) 851-4868 CERTIFICATION NUMBERS: NCBELS (C-0110); NCBOLA (C-0267)		BNK	
NO. DATE DESCRIPTION		BY		REV		REV		REV	
1 04-20-18 PRELIMINARY SITE PLAN		MJG		1		1		1	

NOT RELEASED FOR CONSTRUCTION OR BID SOLICITATION



Spinning Mill Lofts
at East Village
Clayton, NC

Existing
Lane Configurations

Scale: Not to Scale

Figure 3

2. EXISTING (2018) PEAK HOUR CONDITIONS

2.1. Existing (2018) Peak Hour Traffic

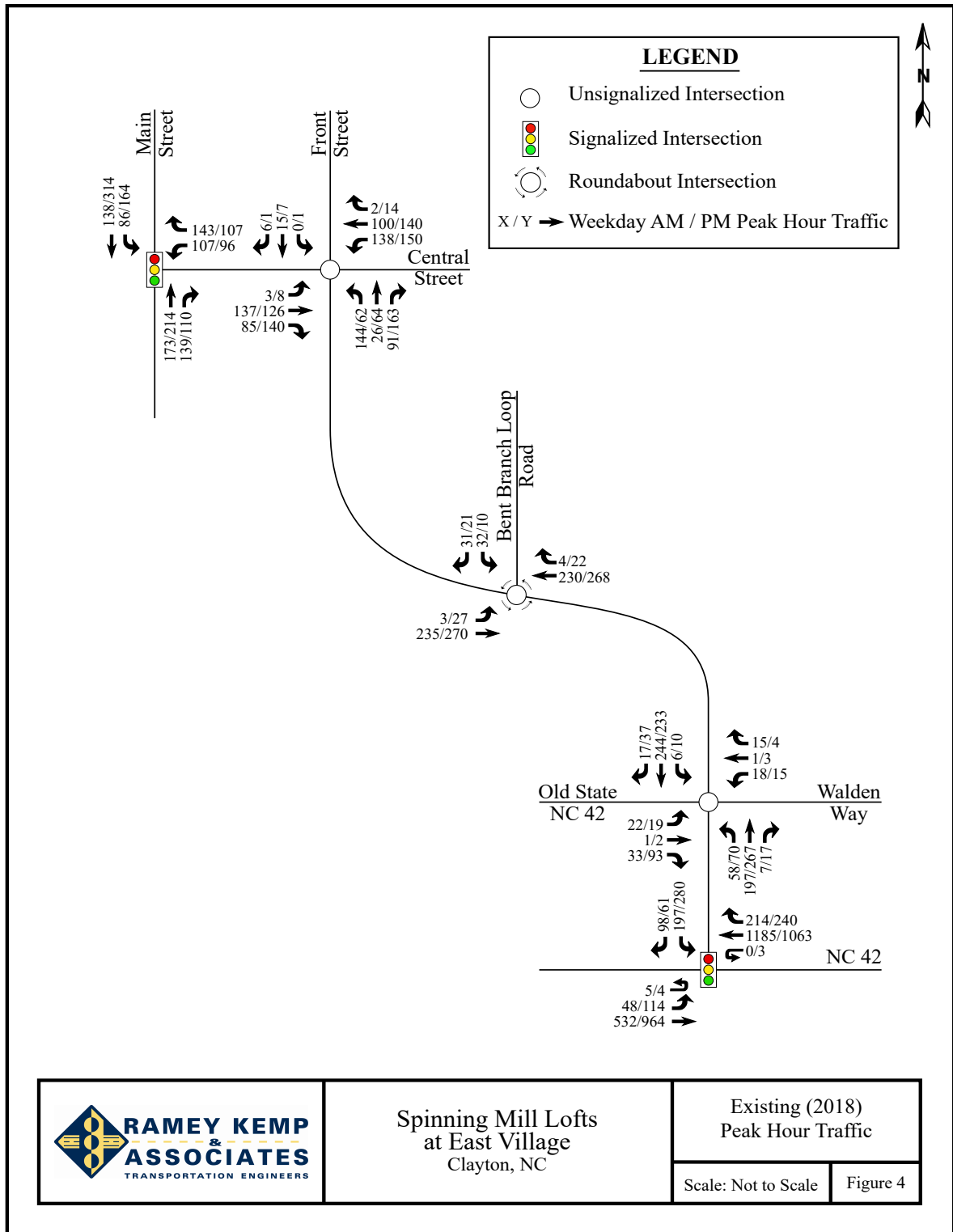
Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below, in May of 2018 by RKA during a typical weekday AM (6:30 AM – 9:00 AM) and PM (4:00 PM – 7:00 PM) peak periods:

- Front Street and Central Street
- Front Street and Old State NC 42 / Walden Way
- Front Street and NC 42
- Central Street and Main Street
- Central Street and Bent Branch Loop Road

Traffic volumes were balanced between study intersections, where appropriate. Refer to Figure 4 for existing (2018) weekday AM and PM peak hour traffic volumes. A copy of the count data is located in Appendix B of this report.

2.2. Analysis of Existing (2018) Peak Hour Traffic

The existing (2018) weekday AM and PM peak hour traffic volumes were analyzed to determine the current levels of service at the study intersections under existing roadway conditions. Signal information was obtained from NCDOT and is included in Appendix C. The results of the analysis are presented in Section 7 of this report.



3. BACKGROUND (2021) PEAK HOUR CONDITIONS

In order to account for growth of traffic and subsequent traffic conditions at a future year, background traffic projections are needed. Background traffic is the component of traffic due to the growth of the community and surrounding area that is anticipated to occur regardless of whether or not the proposed development is constructed. Background traffic is comprised of existing traffic growth within the study area and additional traffic created as a result of adjacent approved developments.

3.1. Ambient Traffic Growth

Through coordination with the Town and NCDOT, it was determined that an annual growth rate of 3% would be used to generate projected (2021) weekday AM and PM peak hour traffic volumes. Refer to Figure 5 for projected (2021) peak hour traffic.

3.2. Adjacent Development Traffic

Through coordination with the Town, three adjacent developments were identified to be included in this study.

Arbors Phase 2 is anticipated to consist of 74 apartment units. The site is located north of Front Street with access at its intersection with Bent Branch Loop Road in Clayton, North Carolina.

East Village Walk consists of 300 single-family homes. The site is located north of Front Street with access at its intersection with Bent Branch Loop Road in Clayton, North Carolina.

The Hunt Property development is a mixed-use development that is anticipated to be built-out by 2019. The development is located southeast of the intersection of Glen Laurel Road and NC 42 in Clayton, North Carolina, and is expected to consist of 240 apartment units, 180,000 sq. ft. of commercial retail space, and a 117,000 sq. ft. self-storage facility.

As a result of the site driveways for the above listed adjacent developments, the trips associated with these developments do not balance between all study intersections for the

proposed Spinning Mill Lofts at East Village. Adjacent development trips are shown in Figure 6. Adjacent development information can be found in Appendix D.

3.3. Future Roadway Improvements

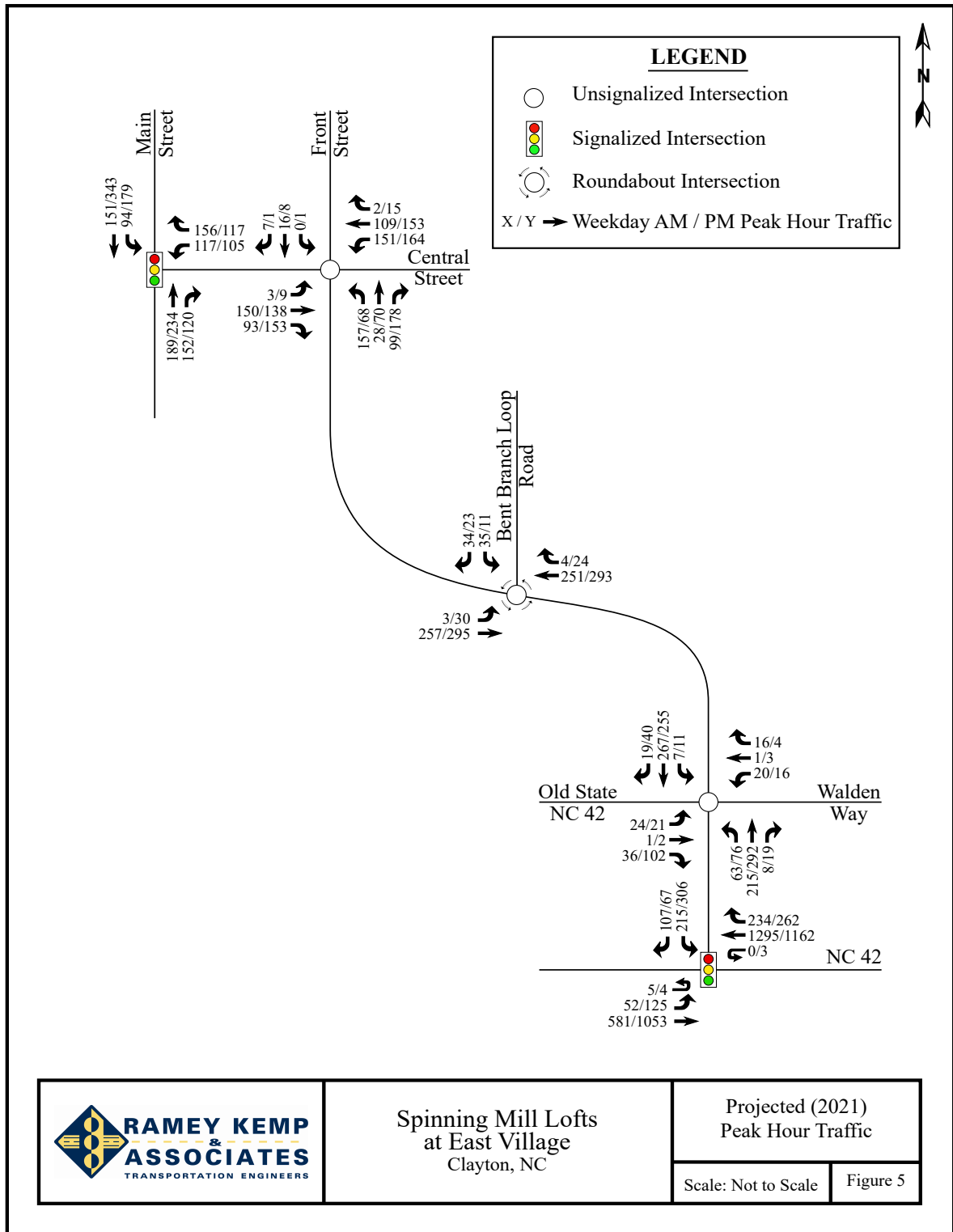
Based on coordination with the NCDOT and the Town, it was determined there were no future roadway improvements to consider with this study.

3.4. Background (2021) Peak Hour Traffic Volumes

The background (2021) traffic volumes were determined by projecting the existing (2018) peak hour traffic to the year 2021 and adding the adjacent development trips. Refer to Figure 7 for an illustration of the background (2021) peak hour traffic volumes at the study intersections.

3.5. Analysis of Background (2021) Peak Hour Traffic Conditions

The background (2021) AM and PM peak hour traffic volumes at the study intersections were analyzed with future geometric roadway conditions and traffic control. The analysis results are presented in Section 7 of this report.

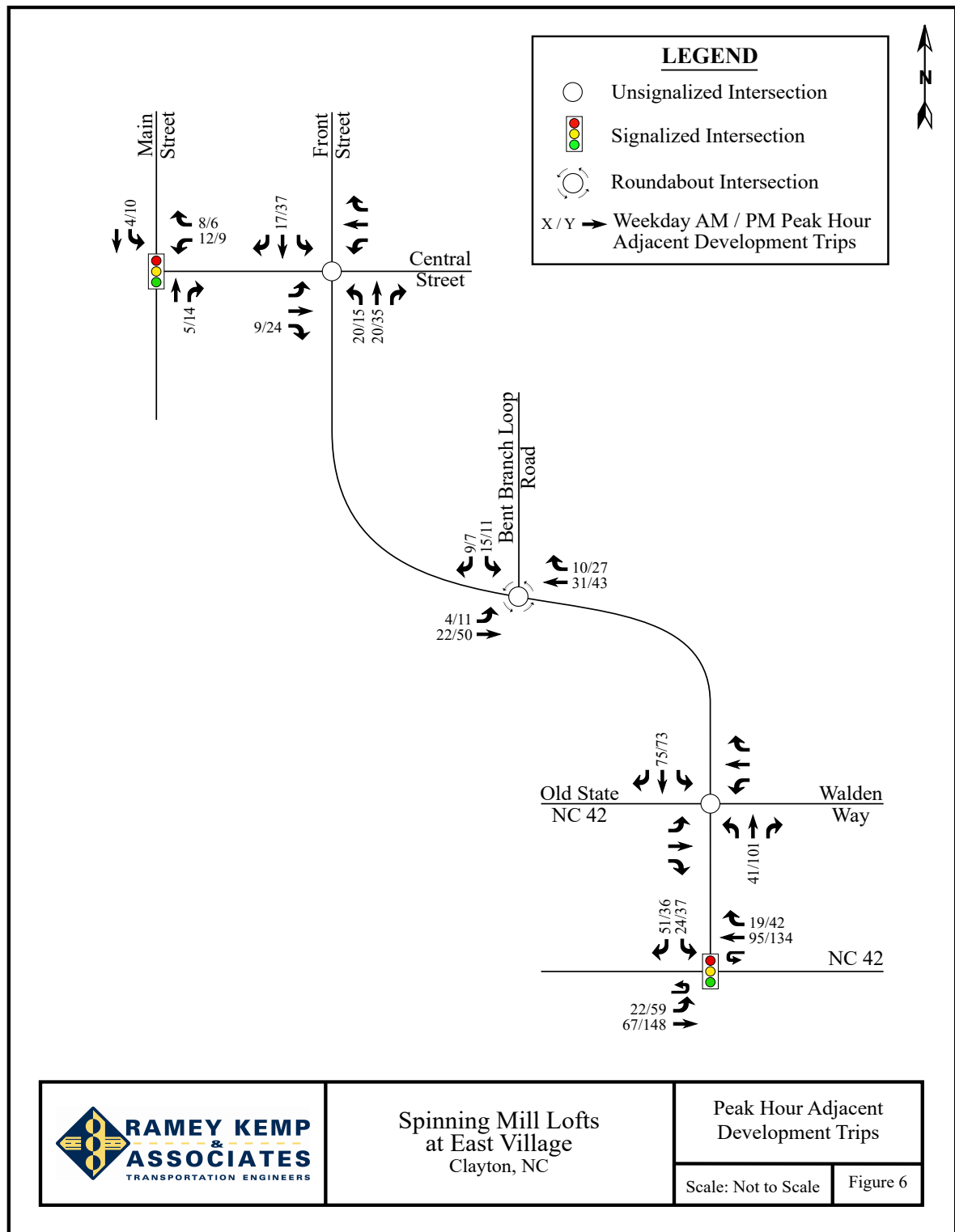


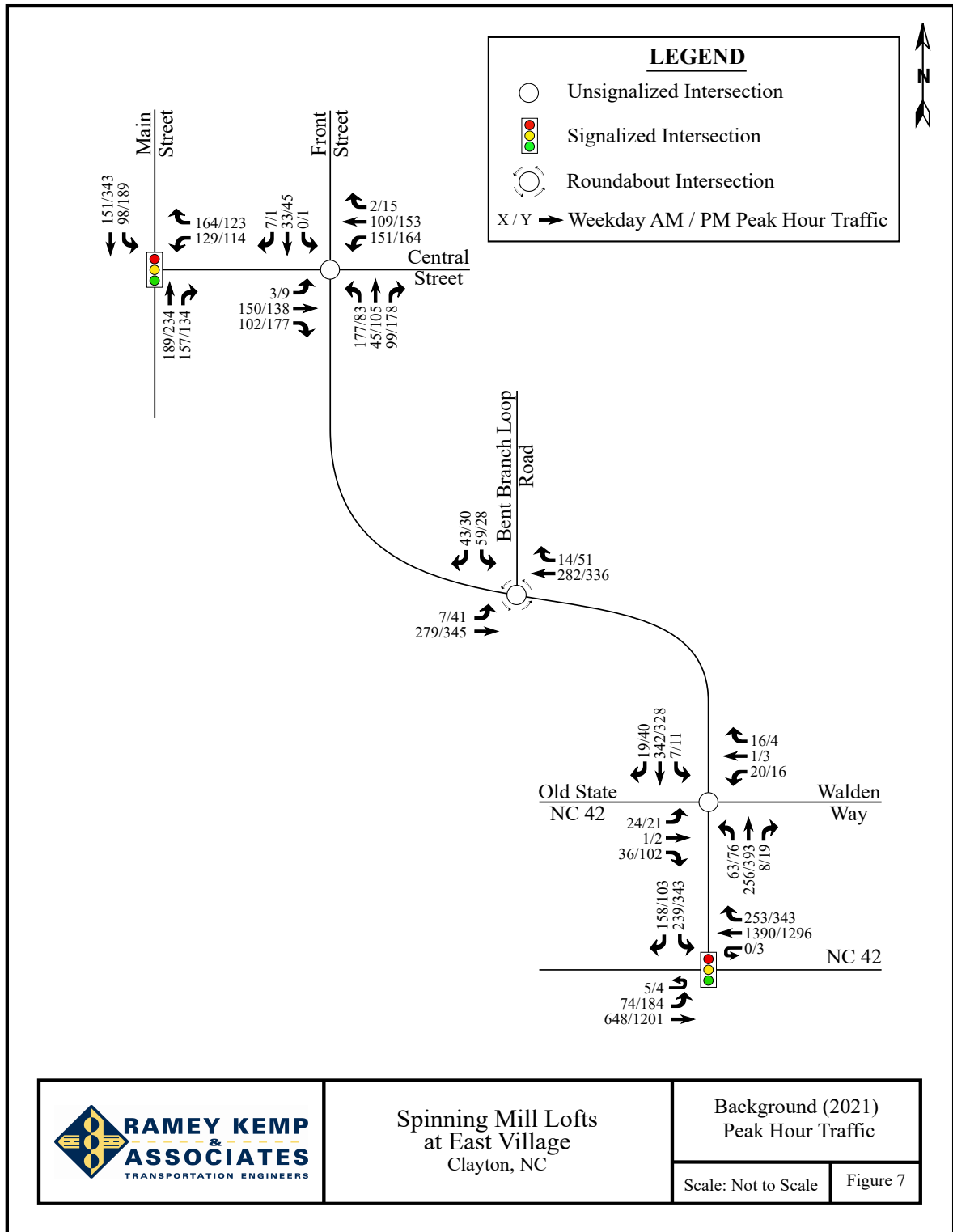
Spinning Mill Lofts
at East Village
Clayton, NC

Projected (2021)
Peak Hour Traffic

Scale: Not to Scale

Figure 5





4. SITE TRIP GENERATION AND DISTRIBUTION

4.1. Trip Generation

The proposed development is assumed to consist of 255 low-rise apartment units. Average weekday daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the *ITE Trip Generation Manual*, 10th Edition. Table 2 provides a summary of the trip generation potential for the site.

Table 2: Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Low-Rise Apartments (220)	255 dwellings	1,900	27	89	86	50

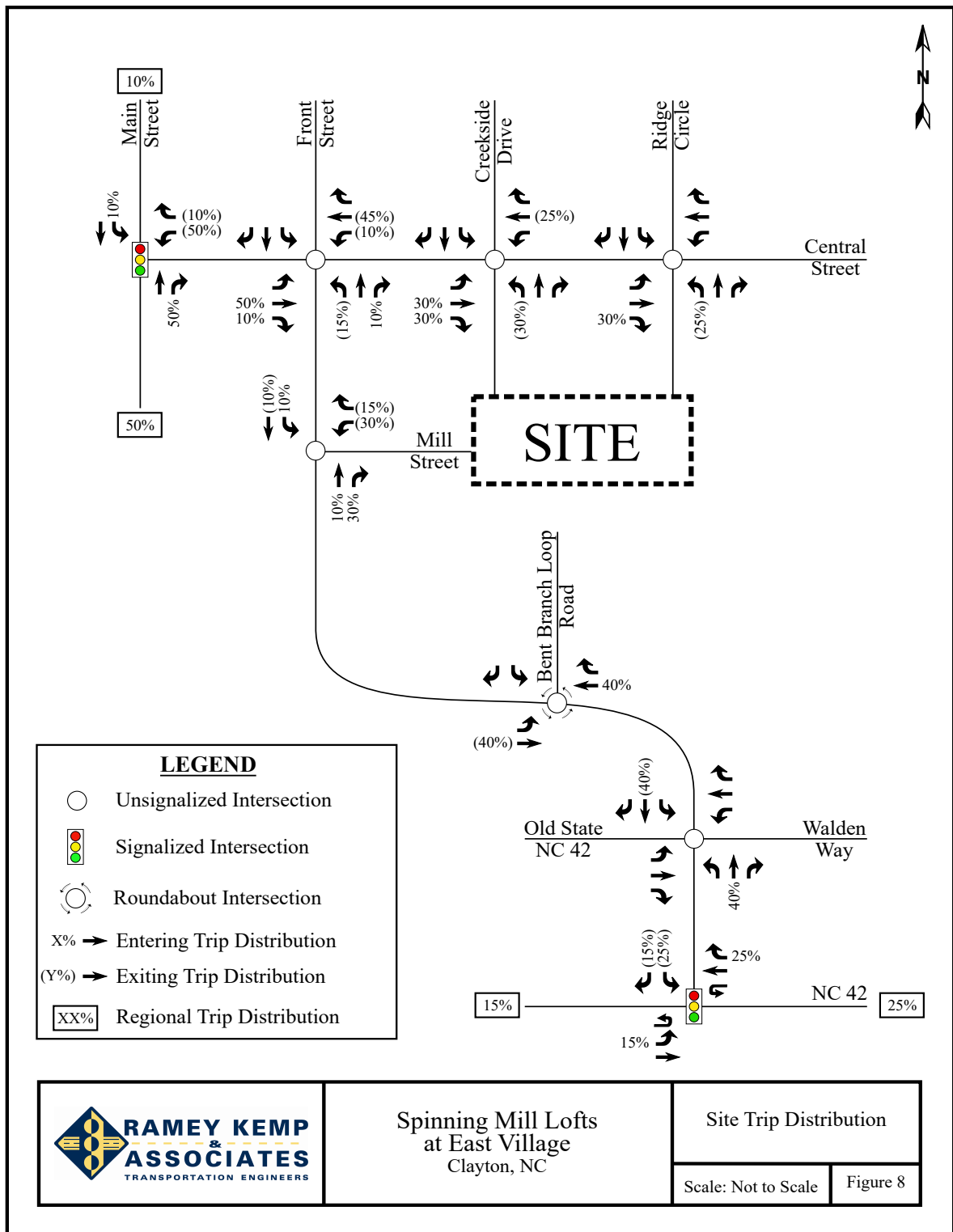
It is estimated that the proposed development will generate approximately 1,900 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 116 trips (27 entering and 89 exiting) will occur during the AM peak hour and 136 (86 entering and 50 exiting) will occur during the PM peak hour.

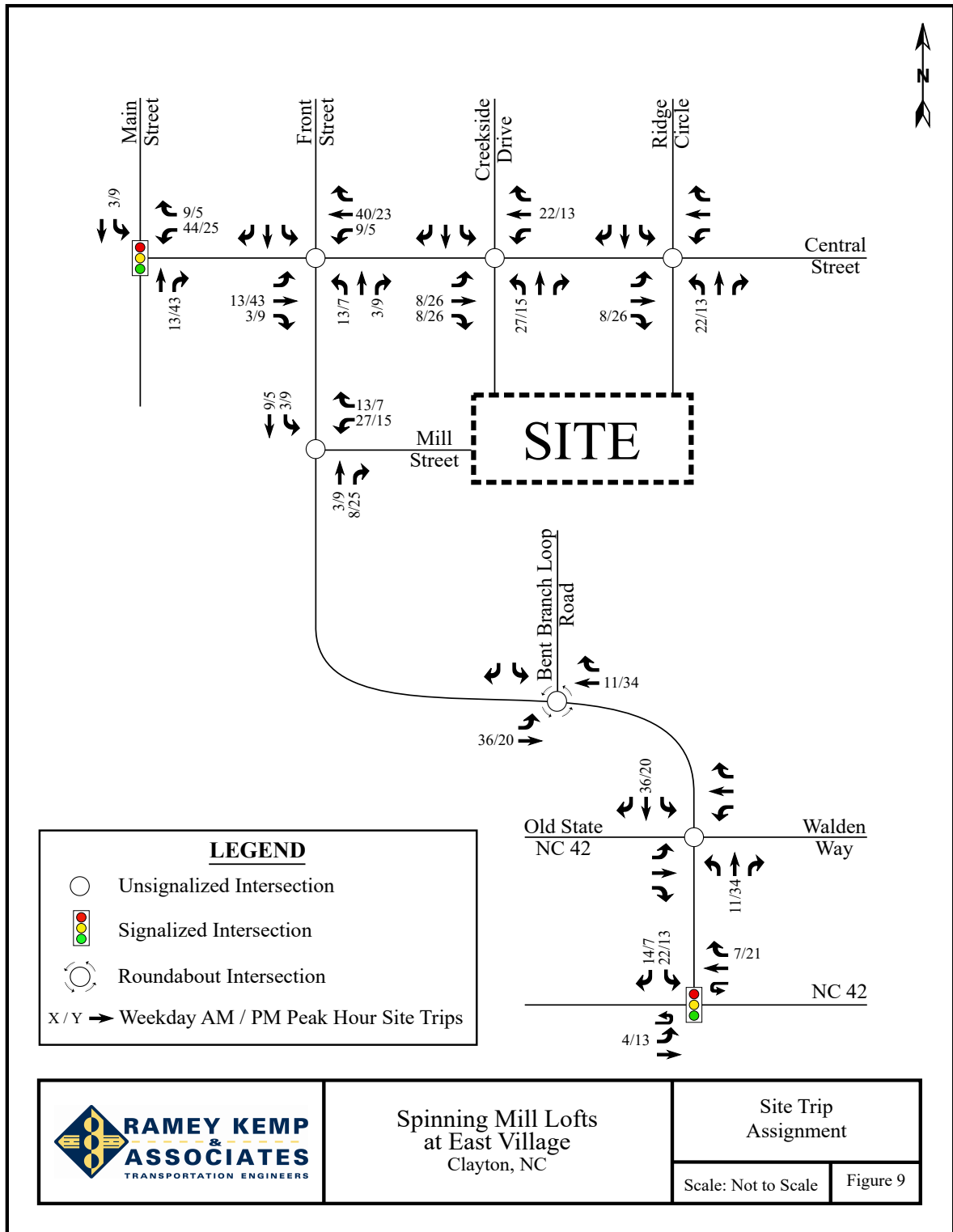
4.2. Site Trip Distribution and Assignment

Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns, population centers adjacent to the study area, and engineering judgment. It is estimated that trips will be distributed as follows:

- 10% to/from the north via Main Street
- 25% to/from the east via NC 42
- 50% to/from the south via Main Street
- 15% to/from the west via NC 42

The site trip distribution is shown in Figure 8. Refer to Figure 9 for the site trip assignment.





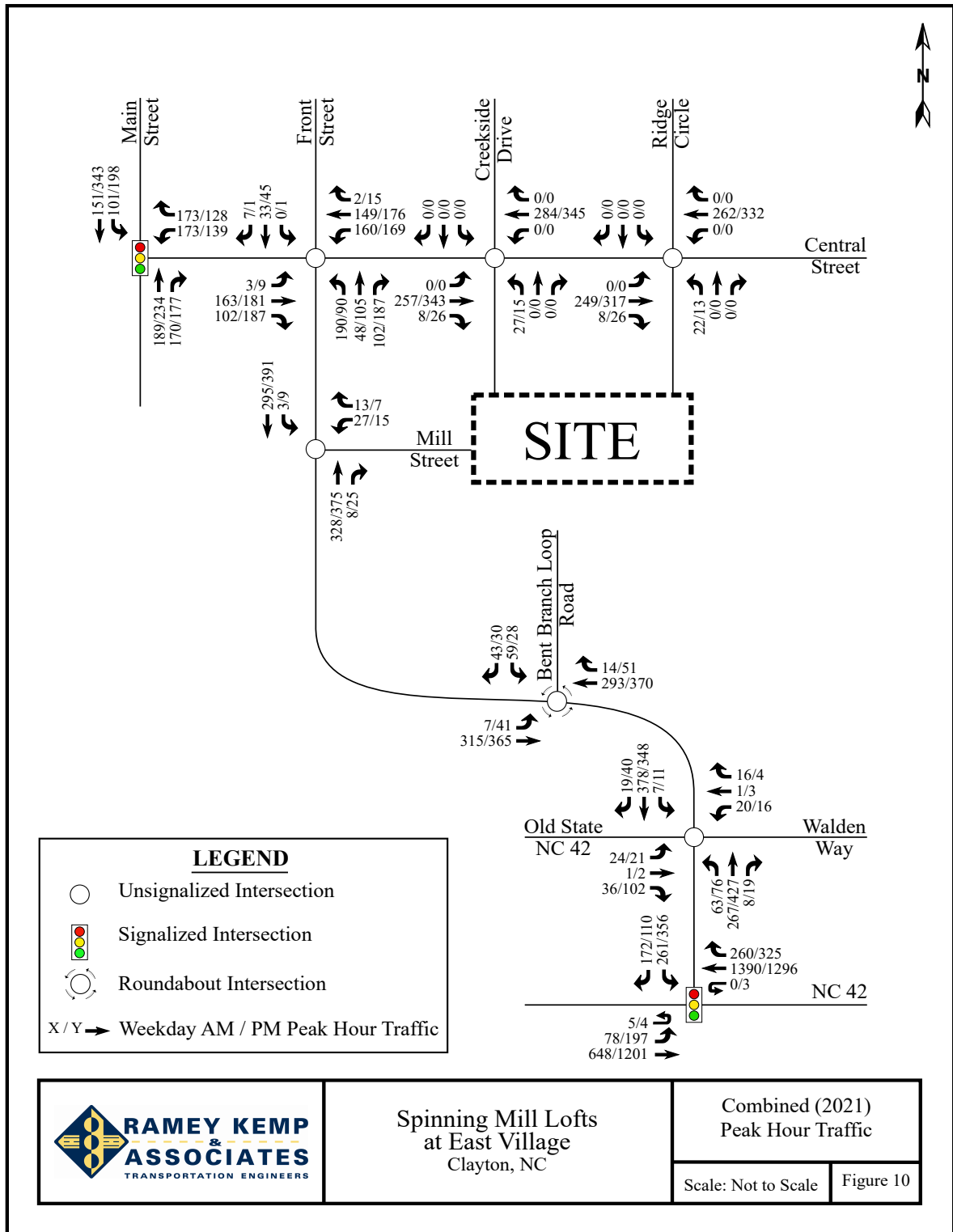
5. COMBINED (2021) TRAFFIC CONDITIONS

5.1. Combined (2021) Peak Hour Traffic Volumes

To estimate traffic conditions with the site fully built-out, the total site trips were added to the background (2021) traffic volumes to determine the combined (2021) traffic volumes. Refer to Figure 10 for an illustration of the combined (2021) peak hour traffic volumes with the proposed site fully developed.

5.2. Analysis of Combined (2021) Peak Hour Traffic

Study intersections were analyzed with the combined (2021) traffic volumes using the same methodology previously discussed for existing and background traffic conditions. Intersections were analyzed with improvements necessary to accommodate future traffic volumes. The results of the capacity analysis for each intersection are presented in Section 7 of this report.



6. TRAFFIC ANALYSIS PROCEDURE

Study intersections were analyzed using the methodology outlined in the *2010 Highway Capacity Manual* (HCM) published by the Transportation Research Board. Capacity and level of service are the design criteria for this traffic study. A computer software package, Synchro (Version 9.2), was used to complete the analyses for most of the study area intersections. Please note that the unsignalized capacity analysis does not provide an overall level of service for an intersection; only delay for an approach with a conflicting movement.

The HCM defines capacity as “the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions.” Level of service (LOS) is a term used to represent different driving conditions, and is defined as a “qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers.” Level of service varies from Level “A” representing free flow, to Level “F” where breakdown conditions are evident. Refer to Table 3 for HCM levels of service and related average control delay per vehicle for both signalized and unsignalized intersections. Control delay as defined by the HCM includes “initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay”. An average control delay of 50 seconds at a signalized intersection results in LOS “D” operation at the intersection.

Table 3: Highway Capacity Manual – Levels-of-Service and Delay

UNSIGNALIZED INTERSECTION		SIGNALIZED INTERSECTION	
LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)
A	0-10	A	0-10
B	10-15	B	10-20
C	15-25	C	20-35
D	25-35	D	35-55
E	35-50	E	55-80
F	>50	F	>80

6.1. Adjustments to Analysis Guidelines

Capacity analysis at all study intersections was completed according to the NCDOT Congestions Management Guidelines.

7. CAPACITY ANALYSIS

7.1. Front Street and Central Street

The existing unsignalized intersection of Front Street and Central Street was analyzed under existing (2018), background (2021), and combined (2021) traffic conditions with existing lane configurations and traffic control. Refer to Table 4 for a summary of the analysis results. Refer to Appendix E for the Synchro capacity analysis reports.

Table 4: Analysis Summary of Front Street and Central Street

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2018) Conditions	EB WB NB SB	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	A ¹ A ¹ D ² B ²	N/A	A ¹ A ¹ D ² C ²	N/A
Background (2021) Conditions	EB WB NB SB	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	A ¹ A ¹ F ² C ²	N/A	A ¹ A ¹ F ² D ²	N/A
Combined (2021) Conditions	EB WB NB SB	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	A ¹ A ¹ F ² C ²	N/A	A ¹ A ¹ F ² D ²	N/A
Combined (2021) Conditions with Improvements*	EB WB NB SB	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	C B C B	N/A	D C C B	N/A

1. Level of service for major-street left-turn movement.

2. Level of service for minor-street approach.

*Due to limitations with the Synchro software, four-way stop control was reported in lieu of three-way stop control.

Capacity analysis of existing (2018) traffic conditions indicates all minor-street approaches and major-street left-turn movements at Front Street and Central Street are expected to operate at LOS D or better during both weekday AM and PM peak hours. Under background (2021) and combined (2021) traffic conditions, the northbound approach is expected to operate at LOS F during the weekday AM and PM peak hour. It should be noted that it is typical for the minor-street approach at an unsignalized intersection to operate with delay when the major-

street operates with a similar, high volume of traffic as the minor-street. It should also be noted that the proposed development contributes less than 10% of the total traffic at the intersection of Front Street and Central Street.

Alternate traffic control was considered at this intersection. Three-way stop control was considered at this intersection in combined (2021) traffic conditions with improvements. Capacity analysis of combined (2021) traffic conditions with improvements indicates that all approaches are expected to operate at LOS D or better during both weekday AM and PM peak hours. Due to limitations with the Synchro software, three-way stop control must be analyzed as four-way stop control; however, three-way stop control was analyzed with SimTraffic. Due to the proximity of the railroad, it is recommended that the eastbound movement remains free. A traffic signal was also considered at this intersection utilizing the methodology contained in the Manual on Uniform Traffic Control Devices (MUTCD). The intersection is not expected to warrant during either weekday peak hour under combined (2021) traffic conditions. Additionally, due to the high volume of residential development, which typically generates trips during two peak hours each day, it is anticipated that a 4- or 8-hour signal warrant would not be met either. Due to the proximity to other signalized intersections less than 200 feet away from the adjacent signalized intersection, this intersection is not a desirable intersection for signalization.

Modifying the westbound approach to provide stop control would be necessary in order to achieve significant improvements in operation and level of service; however, this improvement is not recommended by the Spinning Mill Lofts at East Village development because the proposed development is expected to contribute less than 10% of the total 2021 traffic to the intersection of Front Street and Central Street.

7.2. Central Street and Main Street

The existing signalized intersection of Central Street and Main Street was analyzed under existing (2018), background (2021), and combined (2021) traffic conditions with existing lane configurations and traffic control. Refer to Table 5 for a summary of the analysis results. Refer to Appendix F for the Synchro capacity analysis reports.

Table 5: Analysis Summary of Central Street and Main Street

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2018) Conditions	WB NB SB	1 LT, 1 RT 1 TH-RT 1 LT, 1 TH	B B A	B (13)	B B A	B (11)
Background (2021) Conditions	WB NB SB	1 LT, 1 RT 1 TH-RT 1 LT, 1 TH	C B A	B (17)	C C A	B (15)
Combined (2021) Conditions	WB NB SB	1 LT, 1 RT 1 TH-RT 1 LT, 1 TH	C C A	B (18)	C C A	B (17)

Capacity analysis of existing (2018), background (2021), and combined (2021) traffic conditions indicates the intersection of Central Street and Main Street is expected to operate at an overall LOS B during both weekday AM and PM peak hours.

7.3. Front Street and NC 42

The existing signalized intersection of Front Street and NC 42 was analyzed under existing (2018), background (2021), and combined (2021) traffic conditions with existing lane configurations and traffic control. Refer to Table 6 for a summary of the analysis results. Refer to Appendix G for the Synchro capacity analysis reports.

Table 6: Analysis Summary of Front Street and NC 42

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2018) Conditions	EB WB SB	1 LT, 2 TH 1 UT, 2 TH, 1 RT 2 LT, 1 RT	A A E	B (14)	A B D	B (13)
Background (2021) Conditions	EB WB SB	1 LT, 2 TH 1 UT, 2 TH, 1 RT 2 LT, 1 RT	A B D	B (16)	A B D	B (17)
Combined (2021) Conditions	EB WB SB	1 LT, 2 TH 1 UT, 2 TH, 1 RT 2 LT, 1 RT	A B D	B (17)	A B D	B (17)

Capacity analysis of existing (2018), background (2021), and combined (2021) traffic conditions indicates the intersection of Front Street and NC 42 is expected to operate at an overall LOS B during both weekday AM and PM peak hours.

7.4. Front Street and Old State NC 42 / Walden Way

The existing signalized intersection of Front Street and Old State NC 42 / Walden Way was analyzed under existing (2018), background (2021), and combined (2021) traffic conditions with existing lane configurations and traffic control. Refer to Table 7 for a summary of the analysis results. Refer to Appendix H for the Synchro capacity analysis reports.

Table 7: Analysis Summary of Front Street and Old State NC 42 / Walden Way

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2018) Conditions	EB WB NB SB	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH, 1 TH-RT	B ² B ² A ¹ A ¹	N/A	B ² C ² A ¹ A ¹	N/A
Background (2021) Conditions	EB WB NB SB	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH, 1 TH-RT	C ² B ² A ¹ A ¹	N/A	C ² C ² A ¹ A ¹	N/A
Combined (2021) Conditions	EB WB NB SB	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH, 1 TH-RT	C ² B ² A ¹ A ¹	N/A	C ² C ² A ¹ A ¹	N/A

1. Level of service for major-street left-turn movement.

2. Level of service for minor-street approach.

Capacity analysis of existing (2018), background (2021), and combined (2021) traffic conditions indicates all minor-street approaches and major-street left-turn movements at the intersection of Front Street and Old State NC 42 / Walden Way are expected to operate at LOS C or better during both weekday AM and PM peak hours.

7.5. Front Street and Bent Branch Loop Road

The existing roundabout intersection of Front Street and Bent Branch Loop Road was analyzed under existing (2018), background (2021), and combined (2021) traffic conditions with existing lane configurations and traffic control. Refer to Table 8 for a summary of the analysis results. Refer to Appendix I for the Synchro capacity analysis reports.

Table 8: Analysis Summary of Front Street and Bent Branch Loop Road

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Existing (2018) Conditions	EB	1 LT-TH	A	A	A	A
	WB	1 TH-RT	A	(4)	A	(4)
	SB	1 LT-RT	A		A	
Background (2021) Conditions	EB	1 LT-TH	A	A	A	A
	WB	1 TH-RT	A	(4)	A	(4)
	SB	1 LT-RT	A		A	
Combined (2021) Conditions	EB	1 LT-TH	A	A	A	A
	WB	1 TH-RT	A	(4)	A	(4)
	SB	1 LT-RT	A		A	

Capacity analysis of existing (2018), background (2021), and combined (2021) traffic conditions indicates the intersection of Front Street and Bent Branch Loop Road is expected to operate at an overall LOS A during both weekday AM and PM peak hours.

7.6. Central Street and Creekside Drive (Site Drive 1)

The existing unsignalized intersection of Central Street and Creekside Drive (Site Drive 1) was analyzed under combined (2021) traffic conditions with proposed lane configurations and traffic control. Refer to Table 9 for a summary of the analysis results. Refer to Appendix J for the Synchro capacity analysis reports.

Table 9: Analysis Summary of Central Street and Creekside Drive (Site Drive 1)

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Combined (2021) Conditions	EB	1 LT-TH-RT	A ¹	N/A	A ¹	N/A
	WB	1 LT-TH-RT	A ¹		A ¹	
	NB	1 LT-TH-RT	B ²		C ²	
	SB	1 LT-TH-RT	B ²		C ²	

3. Level of service for major-street left-turn movement.

4. Level of service for minor-street approach.

Capacity analysis of combined (2021) traffic conditions indicates all minor-street approaches and major-street left-turn movements at the intersection of Central Street and Creekside Drive (Site Drive 1) are expected to operate at LOS C or better during the weekday AM and PM peak hours.

7.7. Central Street and East Ridge Circle (Site Drive 2)

The existing unsignalized intersection of Central Street and East Ridge Circle (Site Drive 2) was analyzed under combined (2021) traffic conditions with proposed lane configurations and traffic control. Refer to Table 10 for a summary of the analysis results. Refer to Appendix K for the Synchro capacity analysis reports.

Table 10: Analysis Summary of Central Street and East Ridge Circle (Site Drive 2)

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Combined (2021) Conditions	EB	1 LT-TH-RT	A ¹	N/A	A ¹	N/A
	WB	1 LT-TH-RT	A ¹		A ¹	
	NB	1 LT-TH-RT	B ²		C ²	
	SB	1 LT-TH-RT	B ²		B ²	

1. Level of service for major-street left-turn movement.

2. Level of service for minor-street approach.

Capacity analysis of combined (2021) traffic conditions indicates all minor-street approaches and major-street left-turn movements at the intersection of Central Street and East Ridge Circle (Site Drive 2) are expected to operate at LOS C or better during the weekday AM and PM peak hours.

7.8. Front Street and Mill Street (Site Drive 3)

The existing unsignalized intersection of Front Street and Mill Street (Site Drive 3) was analyzed under combined (2021) traffic conditions with proposed lane configurations and traffic control. Refer to Table 11 for a summary of the analysis results. Refer to Appendix L for the Synchro capacity analysis reports.

Table 11: Analysis Summary of Front Street and Mill Street (Site Drive 3)

ANALYSIS SCENARIO	A P P R O A C H	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
Combined (2021) Conditions	WB NB SB	1 LT-RT 1 TH, 1 RT 1 LT-TH	B ² -- A ¹	N/A	C ² -- A ¹	N/A

1. Level of service for major-street left-turn movement.

2. Level of service for minor-street approach.

Capacity analysis of combined (2021) traffic conditions indicates the minor-street approach and major-street left-turn movement at the intersection of Front Street and Mill Street (Site Drive 3) is expected to operate at LOS C or better during the weekday AM and PM peak hours.

Left and right-turn lanes were considered at this intersection based on the methodology outlined in the *Policy on Street and Driveway Access to North Carolina Highways* (published by the NCDOT) was considered. Based on the findings from the turn lane warrant analysis, the intersection does not meet the criteria to warrant an exclusive left-turn lane; however, based on the 2018 AADT (~5,900 vpd) an exclusive left-turn lane is recommended to remove left turning vehicles from the through lane. It should be noted that although turning lanes were considered at this intersection, a full width left-turn lane may not fit within the existing right-of-way. The intersection was analyzed without a designated left-turn lane to determine the operations of the intersection if a designated left-turn lane cannot be constructed. The intersection is expected to operate at acceptable levels of service without a designated left-turn

lane. If right-of-way is available, a designated left-turn lane is recommended. The intersection is expected to warrant an exclusive right-turn lane with 50 feet of storage and appropriate taper.

8. CONCLUSIONS

This Traffic Impact Analysis was conducted to determine the potential traffic impacts of the proposed Spinning Mill Lofts at East Village, located south of Central Street and east of Front Street in Clayton, North Carolina. The proposed development is expected to redevelop the existing Spinning Mill for residential use and be built out by 2021. Site access is proposed via the two existing full movement accesses on Central Street and the existing full movement access on Front Street.

The study analyzes traffic conditions during the weekday AM and PM peak hours for the following scenarios:

- Existing (2018) Traffic Conditions
- Background (2021) Traffic Conditions
- Combined (2021) Traffic Conditions

Trip Generation

It is estimated that the proposed development will generate approximately 1,900 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 116 trips (27 entering and 89 exiting) will occur during the AM peak hour and 136 (86 entering and 50 exiting) will occur during the PM peak hour.

Adjustments to Analysis Guidelines

Capacity analysis at all study intersections was completed according to the Town's LDO and NCDOT Congestion Management Guidelines. Refer to section 6.1 of this report for a detailed description of any adjustments to these guidelines made throughout the analysis.

Intersection Capacity Analysis Summary

All the study area intersections (including the proposed site driveways) are expected to operate at acceptable levels-of-service under existing and future year conditions with the exception of the intersection listed below. A summary of the study area intersection that are expected to need improvements are as follows:

Front Street and Central Street

The poor level-of-service observed on the northbound Front Street approach is due to it being an unsignalized approach at a two-lane mainline (Central Street) with heavy through volumes. Additionally, the northbound approach has similar traffic volumes as the mainline movements in both weekday AM and PM peak hours. Additional stop control of the westbound approach will be necessary in order to achieve significant improvements in operation and level of service. The traffic at this intersection does not meet the peak hour warrant for the weekday AM and PM peak hours from the *Manual on Uniform Traffic Control Devices* (MUTCD) and it is unlikely this intersection will satisfy the MUTCD 8-hour and 4-hour warrants. Improvement is not recommended by the Spinning Mill Lofts at East Village development since this development contributes less than 10% of the total traffic volumes to the intersection of Front Street and Central Street.

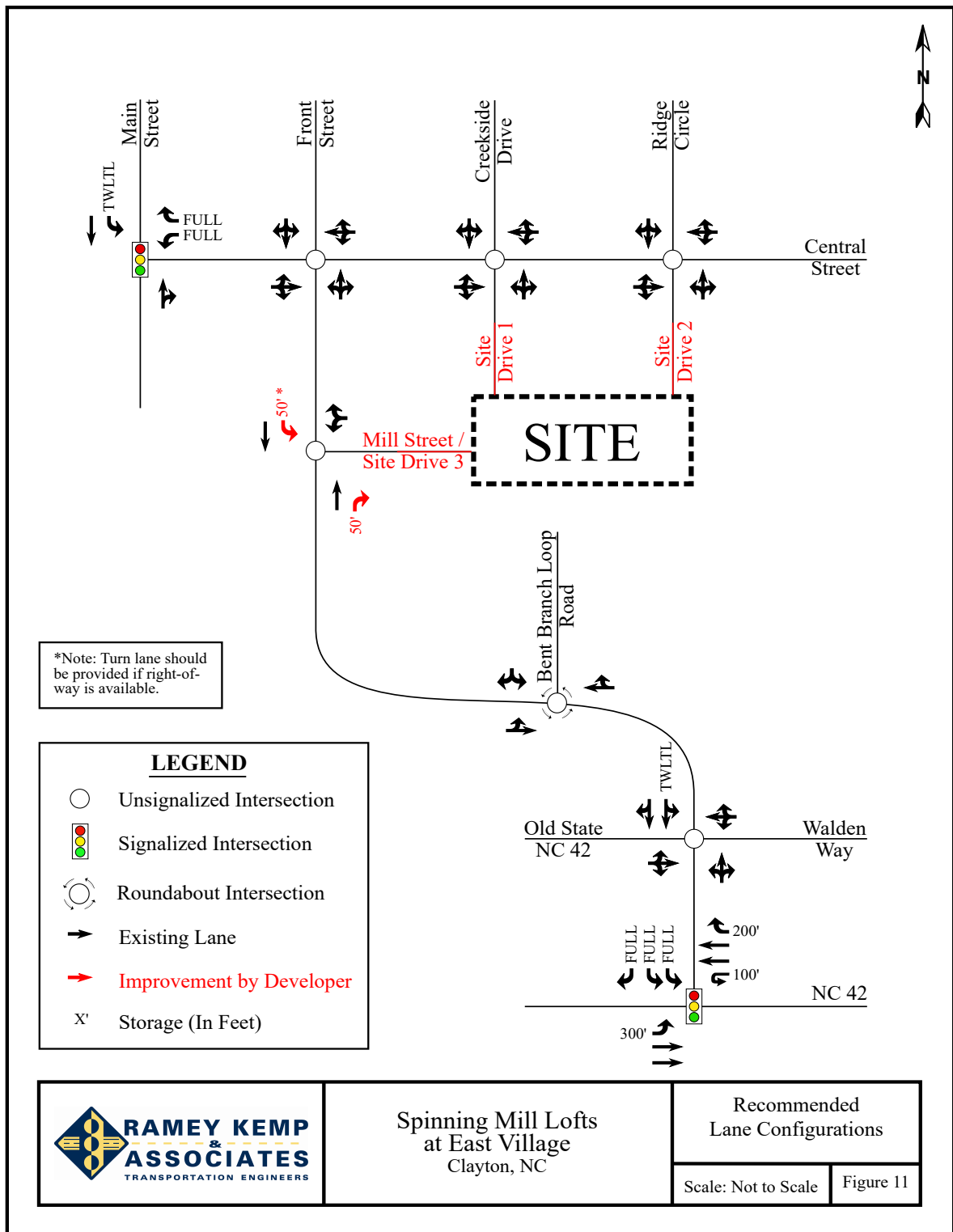
9. RECOMMENDATIONS

Based on the findings of this study, specific geometric improvements have been identified and are recommended to accommodate future traffic conditions. See a more detailed description of the recommended improvements below. Refer to Figure 11 for an illustration of the recommended lane configuration for the proposed development.

Recommended Improvements by Developer

Front Street and Mill Street (Site Drive 3)

- Provide an exclusive northbound right-turn lane on Front Street with 50 feet of storage and appropriate taper.
- If right-of-way is available, provide an exclusive southbound left-turn lane on Front Street with 50 feet of storage and appropriate taper.



TECHNICAL APPENDIX

APPENDIX A

SCOPING INFORMATION

APPENDIX B

COUNT DATA

APPENDIX C

SIGNAL INFORMATION

APPENDIX D

ADJACENT DEVELOPMENT INFORMATION

APPENDIX E

CAPACITY ANALYSIS CALCULATIONS FRONT STREET & CENTRAL STREET

APPENDIX F

CAPACITY ANALYSIS CALCULATIONS

CENTRAL STREET

&

MAIN STREET

APPENDIX G

CAPACITY ANALYSIS CALCULATIONS

FRONT STREET

&

NC 42

APPENDIX H

CAPACITY ANALYSIS CALCULATIONS

FRONT STREET

&

OLD STATE NC 42 / WALDEN WAY

APPENDIX I

CAPACITY ANALYSIS CALCULATIONS

FRONT STREET

&

BENT BRANCH LOOP ROAD

APPENDIX J

CAPACITY ANALYSIS CALCULATIONS

CENTRAL STREET

&

CREEKSIDE DRIVE

APPENDIX K

CAPACITY ANALYSIS CALCULATIONS

CENTRAL STREET

&

EAST RIDGE CIRCLE

APPENDIX L

CAPACITY ANALYSIS CALCULATIONS

FRONT STREET

&

MILL STREET

TECHNICAL APPENDIX

APPENDIX A

SCOPING INFORMATION

Mary Smith

From: Caroline Bojarski
Sent: Tuesday, May 22, 2018 9:49 AM
To: Mary Smith
Subject: FW: East Village (Spinning Mill) TIA Scoping Checklist, East Village Walk
Attachments: Trip Generation 8-20-15.pdf; Trip Generation Comparison - 9-4-2015 - submission.pdf

From: Jay McLeod <jwmcLeod@townofclaytonnc.org>
Sent: Thursday, May 03, 2018 8:24 AM
To: Caroline Bojarski <cbojarski@rameykemp.com>
Subject: RE: East Village (Spinning Mill) TIA Scoping Checklist, East Village Walk

Attached is the TIA info for East Village Walk, 300 homes just west of The Arbors apartments.
This is the last email. I hope this information helps you.

Thanks,
Jay McLeod
919-359-9335

From: Caroline Bojarski <cbojarski@rameykemp.com>
Sent: Wednesday, May 02, 2018 3:36 PM
To: Jay McLeod <jwmcLeod@townofclaytonnc.org>
Cc: Jessica McClure <JMCclure@rameykemp.com>; Harrell, Jiles P <jpharrell@ncdot.gov>; Samantha Wullenwaber <swullenwaber@townofclaytonnc.org>
Subject: RE: East Village (Spinning Mill) TIA Scoping Checklist

Jay / Samantha,

Thanks for the quick response. The new legislation calls out the timeline that NCDOT has to respond to specific items during the TIA scoping and submittal process: <http://www.ncleg.net/Sessions/2017/Bills/House/PDF/H528v3.pdf>

It's still relatively new, so we have been trying to determine the best way to scope projects in different municipalities. Some areas that didn't require in-person meetings for every project are requiring them now and vice versa.

Could you send us on the information regarding the adjacent developments that you mentioned? If there is anything on the 72-unit apartment that would be great, but I would imagine that traffic would be captured in a 3% growth rate. The 300 homes and the 244 apartments likely had a traffic study that we could pull the trips from to include.

We will continue to update the scoping checklist with the scoping information.

Thanks!

Caroline Bojarski, EI
Transportation Associate



Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
Ph: 919-872-5115

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From: Jay McLeod <jwmcleod@townofclaytonnc.org>
Sent: Tuesday, May 01, 2018 3:55 PM
To: Caroline Bojarski <cbojarski@rameykemp.com>
Cc: Jessica McClure <JMCClure@rameykemp.com>; Harrell, Jiles P <jpharrell@ncdot.gov>; Samantha Wullenwaber <swullenwaber@townofclaytonnc.org>
Subject: RE: East Village (Spinning Mill) TIA Scoping Checklist

Hello,

What you have outlined seems sufficient scoping to begin your work. What you have provided is more than is usually presented and takes a well-rounded look at the site and potentially impacted intersections. I think it should be fine. Please note that in the past we have used a 3% background population growth rate, but depending on what NCDOT thinks, that may not be applicable in this instance.

You might want to change the Project Description on the first page to match that shown in the rest of the document, which lists 255 apartments. The 255 figure is also reflected in the plans that have been submitted to the Town.

I must admit that I am not familiar with the legislation you reference regarding scoping timelines. Would you please let me know the referenced section of NC G.S. so that I can look it up?

The Town does have the TIA's for other local projects, including the 72-unit apartment addition at the Arbors and the 300 homes at East Village Walk. There are also 244 apartments going in on the corner of NC Hwy 42 W and Glen Laurel Road, but that might be out of the area of interest for your project.

Please note that I will no longer be working for the Town after May 10th, so please direct all future correspondence to Samantha Wullenwaber, Planning Director. She will probably also review this scoping document (attached) and will let you know if she has any comments.

Again, thanks for putting so much into this scoping document, and if you have any other questions, we're happy to help.

Thanks,

Jay McLeod, AICP
Senior Planner

TOWN OF CLAYTON

111 East Second Street | PO Box 879 | Clayton NC 27528
Direct (919) 359-9335 | Office (919) 553-5002
jwmcleod@townofclaytonnc.org

From: Caroline Bojarski [<mailto:cbojarski@rameykemp.com>]
Sent: Tuesday, May 01, 2018 2:09 PM
To: Harrell, Jiles P <jpharrell@ncdot.gov>; Jay McLeod <jwmcleod@townofclaytonnc.org>

Cc: Jessica McClure <JMCClure@rameykemp.com>

Subject: East Village TIA Scoping Checklist

Jiles / Jay,

Please see the attached scoping checklist and the preliminary site plan for the proposed East Village Apartments development in Clayton, NC. The development is expected to convert the existing Spinning Mill into apartments. We have filled out as much of the scoping checklist as we could with our assumptions.

Jay, please let us know if you will need a scoping meeting to finalize the scope. Per the legislation, we will need to finalize the scope within 10 business days, so if a meeting is required please provide your next availability as soon as possible.

Thanks!

Caroline Bojarski, EI
Transportation Associate



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DRAFT Traffic Impact Analysis Need Screening / Scoping Request

TIA Need
Screening



TIA
Scoping



TIA
Submittal



A Traffic Impact Analysis (TIA) may be required for developments based on the site trip generation estimates, site context, or at the discretion of the NCDOT District Engineer. The Applicant or the TIA Consultant shall submit this form along with the site plan to the District Engineer to determine the TIA need and, if a TIA is required, initiate the TIA scoping process. Without an approved scope, the TIA is incomplete and will be rejected until the study is revised to conform to NCDOT's TIA requirements.

Project Name: East Village Apartments - Clayton **Previous Name:** If Applicable
Location: West of E Front St and South of Central St **County:** Johnston **Municipality:** Clayton
Project Description: Re-develop the existing Clayton Spinning Mill into 255 apartments

Project Contact: <u>Applicant</u> Company Name <u>Bass, Nixon, & Kennedy, Inc. (BNK)</u> Contact Person <u>Marty Bizzell, PE, CPESC</u> Phone Number <u>(919) 851-4422</u> Email <u>Marty.Bizzell@bnkinc.com</u> Mailing Address <u>6310 Chapel Hill Road, Suite 250</u> <u>Raleigh, NC 27607</u>	TIA Consultant <u>Ramey Kemp & Associates, Inc. (RKA)</u> <u>Jessica McClure, PE</u> <u>(919) 872-5115</u> <u>jmmclure@rameykemp.com</u> <u>5808 Faringdon Place, Suite 100</u> <u>Raleigh, NC 27609</u>
--	---

Site Plan Prepared By: Bnk **Site Plan Date:** 04/02/2018
 See site plan/vicinity map requirements on page 2.
Parcel Size: 24.5 Acre(s) **Anticipated Build-Out Year:** Assume 2021

Weekday Site Trip Generation - Do NOT adjust for mode split, pass-by, internal capture, or diverted trips.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
220	Apartments	255	dwellings	1900	Adj. Street	27	89	116	86	50	136	ITE Equation
Total												X

Refer to the current [NCDOT Congestion Management Capacity Analysis Guidelines](#) for acceptable trip calculation methods and data sources.

**Explain local or other data sources, if used: _____

- ☐ The estimated site trips meet NCDOT's TIA trip threshold of 3,000 daily trips.
- ☒ The estimated site trips meet the municipal TIA trip threshold of 100 trips / peak hour
- ☐ This project is located in a known [STIP](#) and/ or local CIP project # _____
- ☐ This project includes a rezoning request.
- ☐ The proposed site access is located within 1,000 feet of an interchange.
- ☐ The Applicant requests for a new or modified control-of-access break.
- ☐ The Applicant requests for a new or modified median break.

_____ Applicant's Signature	_____ Print Name	_____ Date
Effective Date: 10/01/2017 (Version 17-721)		Page 1 of 2



DRAFT Traffic Impact Analysis Need Screening / Scoping Request



Site Plan/Vicinity Map Requirement for TIA Need Screening: While the site plan may not be finalized during the TIA scoping stage, the graphic representation of the proposed development shall provide adequate details on the development scope and context. More specifically, the site plan/map shall clearly show the location and type of each access point, spacing to adjacent and opposing driveways or intersections, internal street network, proposed buildings/parcels with their anticipated uses and sizes at full build-out and, if applicable, any nearby interstate, US, NC or Secondary Roads (SR).

Project Name: _____ **Project Reference Number:** _____

☒ **A TIA is Required by the Local Government.** In addition, the study area is expected to include NCDOT maintained transportation facilities.

☐ **A TIA is Required by NCDOT,** per the [Policy on Street and Driveway Access to North Carolina Highways](#).

If either or both of the boxes above are checked, the Applicant/TIA Consultant is hereby requested to fill out as much as possible of the following TIA scoping checklist, and return it along with the supporting documents to NCDOT prior to the scoping meeting.

☐ **A TIA is NOT required.** This decision is based on the development information presented above. Changes in the development plan will require re-evaluation of the TIA need, and may necessitate a TIA. The Applicant should inform the District Engineer of any significant changes in a timely fashion to avoid delays or rejections of the driveway permit / encroachment agreement applications.

Additional Comments:

The TIA need decision is made by the NCDOT Division _____ District _____ on _____.

NCDOT District Representative's Signature
Email concurrence may be used in lieu of the signature.

Print Name

Effective Date: 10/01/2017 (Version 17-721)

Page 2 of 2



DRAFT TIA Scoping Checklist



Project Name: East Village Apartments - Clayton

TIA Scoping Date: _____

☒ **TIA Need Screening Forms are Attached.** Project Reference #: _____ Decision Date: _____

☒ **Site Plan and Access**

☒ Provide a site plan illustrating site access, internal and external roadways, buildings and land uses.

Refer to NCDOT's [Policy on Street and Driveway Access to North Carolina Highways](#) pages 14 and 15 for site plan requirements.

☒ Identify site access.

New Access	On Road	Access Type		Driveway Spacing		
	Road Name	Permitted Movements	Traffic Control	Distance (ft)	Direction	Nearest Intersection / Access
Access A	Front Street	Conventional Full-Mvmt	2-Way Stop		Please Select	
Access B						
Access C						
Access D						
Access E						
Access F						
Access G						
Access H						

Existing Access	Existing Intersection of		Access Modification	Proposed Interconnectivity (If Applicable)		
	Road A	Road B		Connector #	Road Connected	Adjacent Development
Access 1	Central Street	Creekside Drive	N/A	Connector 1		
Access 2	Central Street	E Ridge Circle	N/A	Connector 2		
Access 3	Front Street	Mill Street	N/A	Connector 3		
Access 4				Connector 4		

☐ Additional access clarifications and provisions (e.g., proposed control-of-access or median breaks, modifications of existing access, loading/unloading area access, bike/pedestrian accommodation).

☐ **Proposed K-12 School Site**

☐ NCDOT [MSTA School Traffic Calculator](#) for Select School Type shall be used.

☐ Peak Hour Factors (PHFs) shall be adjusted/weighted for new school trips (0.5 PHF by default).

☐ Internal school circulation analysis is required, and should be submitted in advance or concurrent with the TIA submittal.

☐ Clarify traffic operation plans (e.g. traffic circulation pattern, pedestrian access, drop-off/pick-up zone location and configuration, queue storage area and, if applicable, staggered start times).



DRAFT TIA Scoping Checklist



☒ Trip Generation

The TIA Consultant shall prepare trip generation estimates following the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), and submit the calculation sheets and supporting information to the District Engineer for approval prior to capacity analysis.

ITE LUC	Proposed Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
220	Apartments	255	dwellings	1900	Adj. Street	27	89	116	86	50	136	ITE Equation
Unadjusted Site Trips				1900		27	89	116	86	50	136	X
Internal Capture Trips (Attach Calculation Sheets)												Please Select
Internal Capture % of Unadjusted Site Trips				%		%			%			X
LUC	Proposed Land Use	Any Internal Trips?		Pass-By % of External Trips								X
		Please Select		%		%			%			Please Select
				%		%			%			
				%		%			%			
				%		%			%			
				%		%			%			
Pass-By Trips (Attach Calculation Sheets)												X
Adjacent Street Volumes												Please Select
Non-Pass-By Primary Trips												X
Diverted Trips, if Applicable and Justifiable												Please Select

**Explain local or other data sources, if used:

☒ Existing Site Trip Information for Redevelopment Projects (Attach separate sheets as needed)

ITE LUC	Existing Land Use	Size	Unit	Daily Trips	Peak Hour Type	AM Peak Hour Trips			PM Peak Hour Trips			Data Source
						Enter	Exit	Total	Enter	Exit	Total	
					Please Select							Please Select
Total Existing Site Trips												X



DRAFT TIA Scoping Checklist



☒ Trip Distribution

- ☐ Trip distribution diagrams are submitted concurrently with this document (attach separate sheets).
- ☐ Trip distribution diagrams will be submitted separately, along with supporting information, to the District Engineer for review and approval prior to capacity analysis. The trip distribution shall be based on the current and anticipated traffic patterns, as well as instructions noted below.

If required by the District Engineer, the following additional diagrams shall also be submitted:

- ☐ Mixed-Use Developments (separate diagrams for residential, commercial, and office trips)
- ☐ Inter-Development Trips (if "internal" trips cross public streets)
- ☐ Pass-By Trips
- ☐ Diverted Trips
- ☐ Each Analysis Period

☐ Mode Split

- ☐ Provide Data Source and Justification

Mode Period	Auto		
AM Peak	%	%	%
PM Peak	%	%	%
Daily	%	%	%
	%	%	%

- ☐ Identify proper infrastructure and accommodation for other modes of travel.

☒ Analysis Peak Periods:

- ☒ Weekday AM Peak _____
- ☒ Weekday PM Peak _____
- ☐ Weekday Midday Peak _____
- ☐ Weekday PM School Peak _____
- ☐ Weekend _____ Peak _____
- ☐ Other _____



DRAFT TIA Scoping Checklist

TIA Need
Screening



TIA
Scoping



TIA
Submittal



☒ Study Area Intersections and Data Collection

The study area shall include the site access intersections (both new and existing) identified under “Site Plan and Access” on page 1, as well as the following external and, if applicable, internal intersections.

External Intersection	Intersection of		Traffic Control	Intersection Turning Movement Counts			Notes
	Road A	Road B		New / Existing	Date of Counts	Growth Adjustment	
#1	Front Street	Central Street	2-Way Stop	Require New Counts			
#2	Front Street	NC 42	Signal	Require New Counts			
#3	Old State NC 42	NC 42	Signal	Require New Counts			
#4	Central Street	Main Street	Signal	Require New Counts			
#5	Front Street	Bent Branch Loop	Yield	Require New Counts			
#6							
#7							
#8							
#9							
#10							
#11							
#12							

Internal Intersection	Intersection of		Access Type		Intersection Spacing		
	Road A	Road B	Traffic Control	Permitted Movements	Distance (ft)	Direction	Nearest Intersection
#101	Central Street	Creekside Drive	2-Way Stop	Conventional Full-Mvmt		Please Select	
#102	Central Street	East Ridge Circle	2-Way Stop	Conventional Full-Mvmt			
#103	Front Street	Mill Street	2-Way Stop	Conventional Full-Mvmt			
#104							
#105							

The following data will be collected:

- ☒ New traffic turning movement counts in ☒ 15-min intervals ☐ 5-min intervals (near schools)
 Unless otherwise noted above, new traffic counts shall be collected at the existing study intersections during the analysis periods. Weekday counts shall avoid Mondays, Fridays, holidays, school breaks, road closures, and major weather events.

- ☐ To account for the impact of existing and/or proposed school traffic, PHFs will be adjusted for:

intersections numbered: _____

and access points numbered: _____

- ☐ Traffic Forecast Data for TIP: _____

- ☒ Roadway/Intersection Configuration & Traffic Control

- ☒ Traffic Signal Phasing & Timing Data

☐ Crash Data: _____ Period: _____

- ☐ Other: _____



DRAFT TIA Scoping Checklist

TIA Need
Screening



TIA
Scoping



TIA
Submittal



☒ Future Year Conditions

☒ Project Build-Out Year: _____ Assume 2021

☒ Future Analysis Year(s): _____

☐ Identify below any funded/committed future transportation improvements, as well as any approved but incomplete developments near the site.

Funded STIP / Local CIP Project	Project Description		Year Complete
Nearby Approved Development	Location	Future Land Use (exclude any completed phases)	Committed Improvements

☐ Annual Growth Factor: _____%

Justification/Data Source: _____

☐ Local Comprehensive Transportation Plan Compliance

☐ Identify Applicable Local Transportation Planning Documents

☐ Identify Applicable Roadways inside the Study Area

Road Name	Classification	Speed Limit	Proposed Cross-Section	Proposed Right-of-Way	Compliance Requirements	Affect Study Intersection #



DRAFT TIA Scoping Checklist



☒ Study Method

The traffic analysis shall follow the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), [Policy on Street and Driveway Access to North Carolina Highways](#), and use the current approved version of analysis software (e.g. Synchro/SimTraffic, HCS, Sidra Intersection, TransModeler).

The study shall include the following analysis scenarios for each analysis period.

1. Existing Conditions
2. Future No-Build Conditions (existing + background growth + approved developments + committed or funded improvements)
3. Future Build Conditions (future no-build + site trips)
4. Future Build with Improvements Conditions (future build traffic with improvements to mitigate the proposed development's impacts) and, if applicable:
- ☐ 5. TIP Design Year Analysis _____
- ☐ 6. Alternative Access Scenario (without proposed control-of-access or median break / modification)

The following additional analysis/outputs should be provided as warranted:

- ☐ Signal Warrant Analysis for accesses/intersections _____
- ☐ Multi-Modal Level of Service Analysis
- ☐ School Loading Zone Traffic Simulation
- ☐ Phasing Analysis (scope separately as needed)
- ☐ Safety/Crash Analysis
- ☐ Control-of-Access Modification Justification
- ☐ Median Break / Modification Justification
- ☐ Other _____

☒ Submittals

In addition to the hardcopies required below, the TIA Consultant shall provide the District Engineer and, if required, the local government an electronic copy of the study documents, including the latest site plan, figures and appendices, in searchable PDF files and the original traffic analysis files (e.g., Synchro, HCS). To expedite review, the NCDOT electronic submittals shall also be delivered concurrently to:

☐ Div. Traffic Engr ☐ Regional Traffic Engr ☐ Congestion Management ☐ Other _____

Submittals	NCDOT		Local Government	
	Electronic	Hardcopy	Electronic	Hardcopy
Trip Generation & Distribution	Required		Please Select	
Draft TIA Report	Required			
Final Sealed TIA Report	Required			

☐ **Additional Comments** (municipal TIA requirements, approved variations from NCDOT guidelines)



DRAFT TIA Submittal Checklist



Submittal: Please Select Document Date: _____
Project Name: _____ Previous Name: If Applicable _____
NCDOT Division: _____ District: _____ County: _____ Municipality: _____
TIA Consultant: _____ Submitted By: _____
Phone Number: _____ Email: _____
TIA Scoping Checklist Approval Date: _____ Unadjusted Daily Site Trips: _____

- ☒ The approved TIA Scoping Checklist is included in this submittal.
- ☒ LOS D or better is expected at all study intersections after proposed mitigations.
- ☒ The study report is sealed by a NC Professional Engineer with expertise in traffic engineering.
- ☒ This study has identified all known deficiencies with and without the proposed development.
- ☒ This study has identified mitigation measures to adequately accommodate the site trips.

Explain here if any of the boxes above are unchecked:

The undersigned affirms that, except for the deviations noted below, the TIA submittal conforms to the current [NCDOT Congestion Management Capacity Analysis Guidelines](#), [Policy on Street and Driveway Access to North Carolina Highways](#), and the TIA Scoping Checklist approved by the NCDOT District Office. The undersigned also acknowledges that the TIA will be rejected if the deviations and justifications are not properly documented and approved by NCDOT.

Deviations and Justifications (e.g., changes in site plan, development schedule, site trip and off-site trip estimates, study area, data collection, analysis period and method. Attached separate sheets if needed.)

TIA Consultant's Signature
(Professional Engineer of TIA Record)

Print Name

Date

Effective Date: 10/01/2017 (Version 17-721)



RAMEY KEMP & ASSOCIATES, INC.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
Phone - 919-872-5115 Fax - 919-878-5416
www.rameykemp.com

May 23, 2018

Ms. Samantha Wullenwaber
Clayton Planning Department
111 E 2nd Street
Clayton, NC 27520
P: 919.553.5002
E: swullenwaber@townofclaytonnc.org

Reference: East Village Apartments
Clayton, North Carolina

Subject: Memorandum of Understanding for TIA Report

Dear Ms. Wullenwaber:

The following is a Memorandum of Understanding (MOU) outlining the proposed scope of work and assumptions to be included in the Traffic Impact Analysis (TIA) report for the proposed development located south of Central Street and east of Front Street in Clayton, North Carolina.

The East Village Apartments development is a residential development that is expected to re-develop the existing Clayton Spinning Mill. For the purpose of the TIA, the site is analyzed with 255 low-rise apartment units and is expected to be completed in 2021. Site access will be provided via the existing two full-movement driveways along Central Street and the existing full-movement driveway along Front Street. It should be noted that although the existing spinning mill is currently operational, it is expected that traffic to and from this mill is minimal. Therefore, to remain conservative, counts at these existing access drives were not collected and the volumes were considered negligible. A general site plan has been attached for your reference.

Study Area

The study area is proposed to consist of the following intersections:

- Front Street and Central Street (unsignalized)
- Front Street and NC 42 (signalized)
- Old State NC 42 and NC 42 (signalized)
- Central Street and Main Street (signalized)
- Front Street and Bent Branch Loop Road (roundabout)
- Central Street and Creekside Drive (unsignalized, site access)
- Central Street and East Ridge Circle (unsignalized, site access)
- Front Street and Mill Street (unsignalized, site access)

Charleston, SC - Charlotte, NC - Raleigh, NC - Richmond, VA - Winston-Salem, NC

Existing Traffic Volumes

Peak hour turning movement counts were collected at the following existing study intersections by RKA in May of 2018 during typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak hours:

- Front Street and Central Street
- Front Street and NC 42
- Old State NC 42 and NC 42
- Central Street and Main Street
- Front Street and Bent Branch Loop Road

It should be noted these counts were collected while the local schools were in session. An existing (2018) peak hour traffic volumes figure has been attached for your reference.

Trip Generation

Average weekday daily and peak hour trips for the proposed site were calculated utilizing methodology contained within the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition. Per North Carolina Department of Transportation (NCDOT) Congestion Management guidelines, equations were used to generate trips for the development. No pass-by trips are associated with this type of development. Refer to Table 1 for a detailed breakdown of the trip generation.

TABLE 1
Trip Generation

Land Use (ITE Code)	Size	Weekday Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Low-Rise Apartments (220)	255 dwellings	1,900	27	89	86	50

It is estimated at full build-out the proposed development will generate approximately 1,900 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 116 trips (27 entering and 89 exiting) will occur during the AM peak hour and 136 (86 entering and 50 exiting) will occur during the PM peak hour.

Trip Distribution and Assignment

The proposed site trip distribution is based on existing traffic patterns, population centers, and engineering judgment. A summary of the overall distribution is below:

- 10% to/from the north via Main Street
- 25% to/from the east via NC 42
- 50% to/from the south via Main Street
- 15% to/from the west via NC 42

A site trip distribution figure has been attached for your reference.

Analysis Scenarios

All capacity analyses will be performed utilizing Synchro 9.2. All study intersections will be analyzed during the weekday AM and PM peak hours under the following proposed traffic scenarios:

- Existing (2017) Traffic Conditions
- Background (2021) Traffic Conditions
- Combined (2021) Traffic Conditions

Background Traffic Volumes

Background traffic volumes will be determined by projecting existing (2018) traffic volumes to each analysis year using a 3% annual growth rate. Historical data was considered when determining the proposed annual growth rate. It was determined, through coordination with the Town of Clayton that three adjacent developments are to be included in the study. Traffic from these developments will be distributed according to the approved TIA's, if available, or a trip generation / distribution will be calculated. These adjacent developments are listed below:

- Arbors Phase 2 (Trip Generation Letter provided)
- East Village Walk
- Hunt Property (TIA provided)

Refer to the attached adjacent development traffic figures for a summary of these trips.

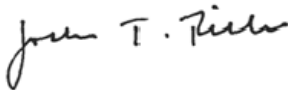
Report

The TIA report will be prepared based on the North Carolina Department of Transportation requirements.

If you find this memorandum of understanding acceptable, please let me know so that we may include it in the TIA report as requested. If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Ramey Kemp & Associates, Inc.

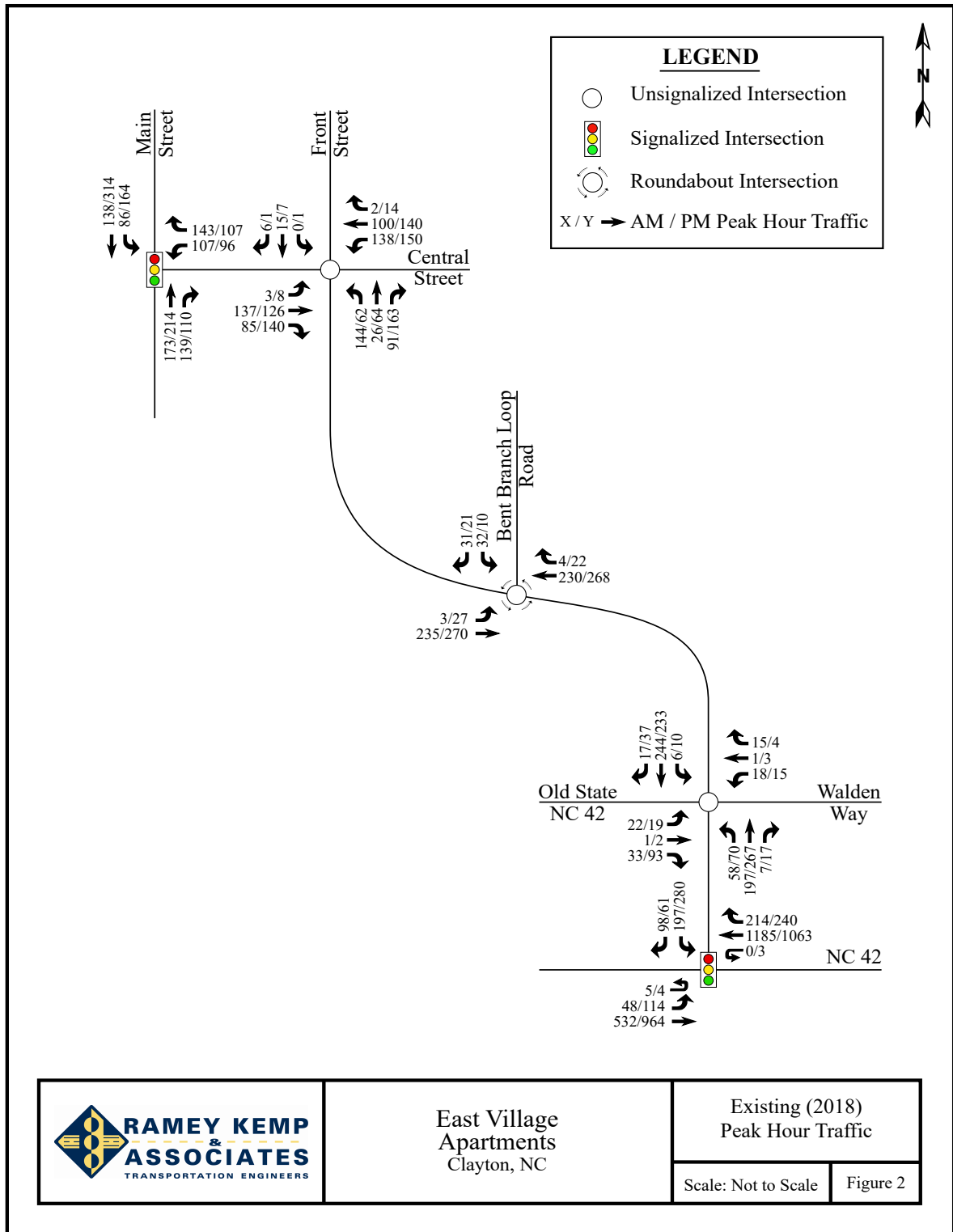


Joshua Reinke, P.E.
Transportation Manager

Attachments: Preliminary Site Plan
Existing (2017) Count Figure
Trip Distribution Figure

CC: Sam Lawhorn, NCDOT



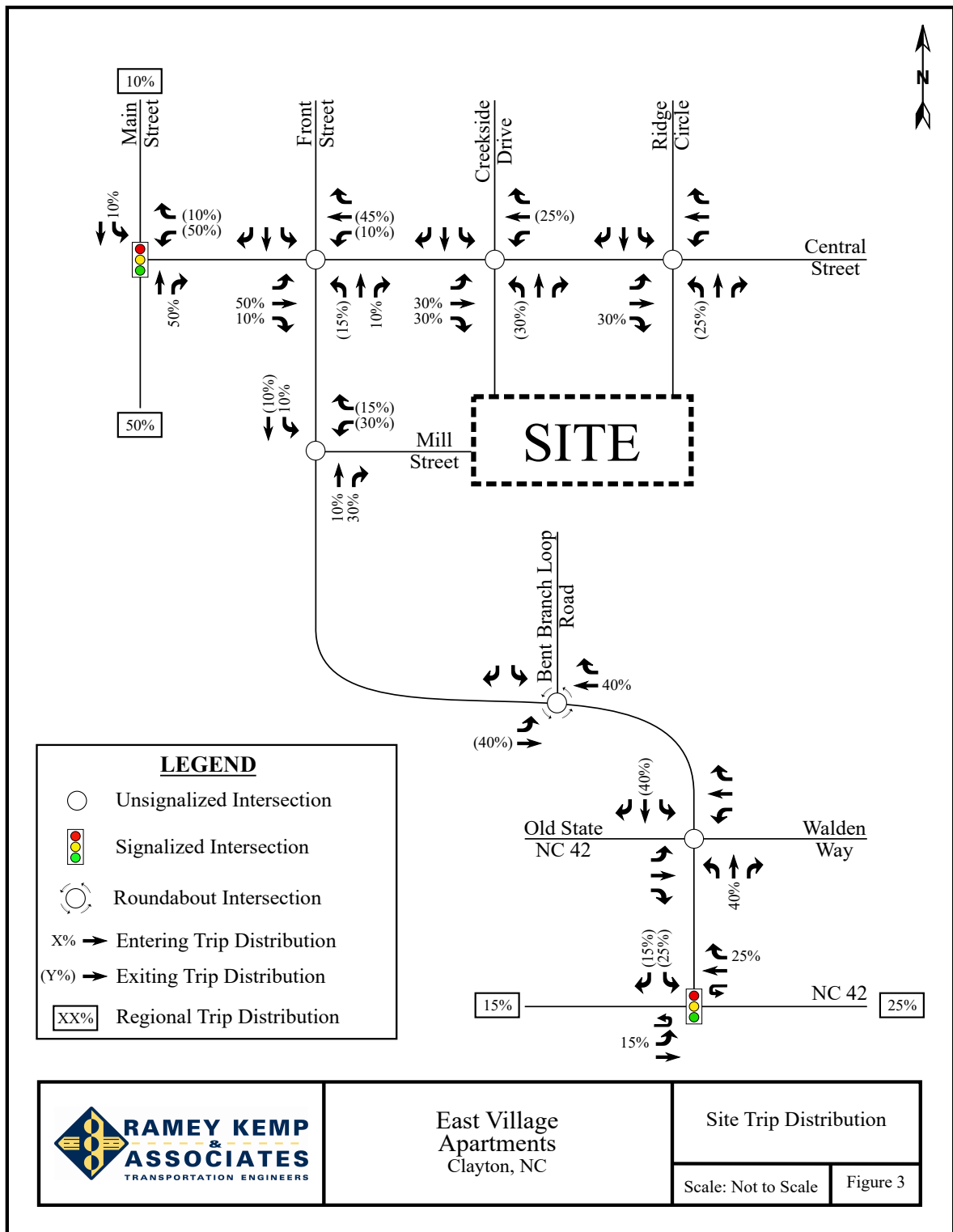


East Village
Apartments
Clayton, NC

Existing (2018)
Peak Hour Traffic

Scale: Not to Scale

Figure 2



APPENDIX B

COUNT DATA



5808 Faringdon Place, Suite 100
Raleigh, NC 27609
PH: 919 872-5115

File Name : Old NC 42 and NC 42
Site Code : 00000003
Start Date : 5/9/2018
Page No : 1

Groups Printed- Cars & - Trucks & - Semis

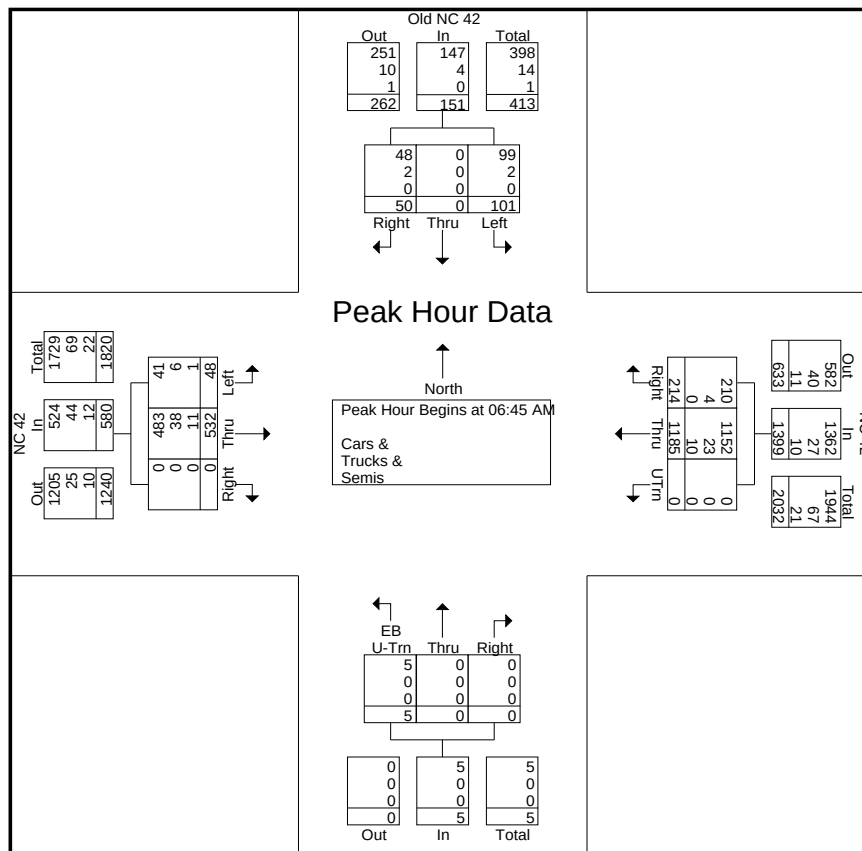
	Old NC 42 From North				NC 42 From East				From South				NC 42 From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	UTrn	App. Total	Right	Thru	EB U-Tn	App. Total	Right	Thru	Left	App. Total	Int. Total
06:30 AM	14	0	15	29	34	317	0	351	0	0	2	2	0	92	6	98	480
06:45 AM	10	0	16	26	61	335	0	396	0	0	1	1	0	102	9	111	534
Total	24	0	31	55	95	652	0	747	0	0	3	3	0	194	15	209	1014
07:00 AM	6	0	26	32	56	314	0	370	0	0	2	2	0	138	9	147	551
07:15 AM	18	0	32	50	53	281	0	334	0	0	2	2	0	145	17	162	548
07:30 AM	16	0	27	43	44	255	0	299	0	0	0	0	0	147	13	160	502
07:45 AM	19	0	40	59	38	248	0	286	0	0	1	1	0	149	10	159	505
Total	59	0	125	184	191	1098	0	1289	0	0	5	5	0	579	49	628	2106
08:00 AM	15	0	25	40	40	245	1	286	0	0	2	2	0	149	16	165	493
08:15 AM	10	0	22	32	25	253	0	278	0	0	1	1	0	158	20	178	489
08:30 AM	8	0	34	42	59	293	1	353	0	0	5	5	0	153	9	162	562
08:45 AM	8	0	32	40	94	297	0	391	0	0	4	4	0	130	11	141	576
Total	41	0	113	154	218	1088	2	1308	0	0	12	12	0	590	56	646	2120
*** BREAK ***																	
04:00 PM	13	0	62	75	42	223	0	265	0	0	4	4	0	194	17	211	555
04:15 PM	7	0	67	74	44	218	0	262	0	0	2	2	0	227	31	258	596
04:30 PM	12	0	56	68	43	305	1	349	0	0	0	0	0	242	19	261	678
04:45 PM	15	0	64	79	50	274	0	324	0	0	0	0	0	256	17	273	676
Total	47	0	249	296	179	1020	1	1200	0	0	6	6	0	919	84	1003	2505
05:00 PM	9	0	82	91	36	259	1	296	0	0	1	1	0	189	24	213	601
05:15 PM	25	0	78	103	46	225	1	272	0	0	3	3	0	277	23	300	678
05:30 PM	4	0	75	79	43	286	0	329	0	0	5	5	0	218	20	238	651
05:45 PM	12	0	49	61	46	270	0	316	0	0	5	5	0	228	20	248	630
Total	50	0	284	334	171	1040	2	1213	0	0	14	14	0	912	87	999	2560
06:00 PM	7	0	58	65	42	183	0	225	0	0	3	3	0	190	15	205	498
06:15 PM	12	0	78	90	45	241	0	286	0	0	2	2	0	255	11	266	644
06:30 PM	8	0	66	74	33	225	0	258	0	0	0	0	0	225	20	245	577
06:45 PM	0	0	0	0	0	0	0	0	0	0	2	2	0	255	13	268	270
Total	27	0	202	229	120	649	0	769	0	0	7	7	0	925	59	984	1989
Grand Total	248	0	1004	1252	974	5547	5	6526	0	0	47	47	0	4119	350	4469	12294
Apprch %	19.8	0	80.2		14.9	85	0.1		0	0	100		0	92.2	7.8		
Total %	2	0	8.2	10.2	7.9	45.1	0	53.1	0	0	0.4	0.4	0	33.5	2.8	36.4	
Cars &	234	0	985	1219	961	5392	5	6358	0	0	47	47	0	3956	324	4280	11904
% Cars &	94.4	0	98.1	97.4	98.7	97.2	100	97.4	0	0	100	100	0	96	92.6	95.8	96.8
Trucks &	13	0	18	31	13	115	0	128	0	0	0	0	0	123	24	147	306
% Trucks &	5.2	0	1.8	2.5	1.3	2.1	0	2	0	0	0	0	0	3	6.9	3.3	2.5
Semis	1	0	1	2	0	40	0	40	0	0	0	0	0	40	2	42	84
% Semis	0.4	0	0.1	0.2	0	0.7	0	0.6	0	0	0	0	0	1	0.6	0.9	0.7



5808 Faringdon Place, Suite 100
Raleigh, NC 27609
PH: 919 872-5115

File Name : Old NC 42 and NC 42
Site Code : 00000003
Start Date : 5/9/2018
Page No : 2

	Old NC 42 From North				NC 42 From East				From South				NC 42 From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	UTrn	App. Total	Right	Thru	EB U-Trn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	10	0	16	26	61	335	0	396	0	0	1	1	0	102	9	111	534
07:00 AM	6	0	26	32	56	314	0	370	0	0	2	2	0	138	9	147	551
07:15 AM	18	0	32	50	53	281	0	334	0	0	2	2	0	145	17	162	548
07:30 AM	16	0	27	43	44	255	0	299	0	0	0	0	0	147	13	160	502
Total Volume	50	0	101	151	214	1185	0	1399	0	0	5	5	0	532	48	580	2135
% App. Total	33.1	0	66.9		15.3	84.7	0		0	0	100		0	91.7	8.3		
PHF	.694	.000	.789	.755	.877	.884	.000	.883	.000	.000	.625	.625	.000	.905	.706	.895	.969
Cars &	48	0	99	147	210	1152	0	1362	0	0	5	5	0	483	41	524	2038
% Cars &	96.0	0	98.0	97.4	98.1	97.2	0	97.4	0	0	100	100	0	90.8	85.4	90.3	95.5
Trucks &	2	0	2	4	4	23	0	27	0	0	0	0	0	38	6	44	75
% Trucks &	4.0	0	2.0	2.6	1.9	1.9	0	1.9	0	0	0	0	0	7.1	12.5	7.6	3.5
Semis	0	0	0	0	0	10	0	10	0	0	0	0	0	11	1	12	22
% Semis	0	0	0	0	0	0.8	0	0.7	0	0	0	0	0	2.1	2.1	2.1	1.0

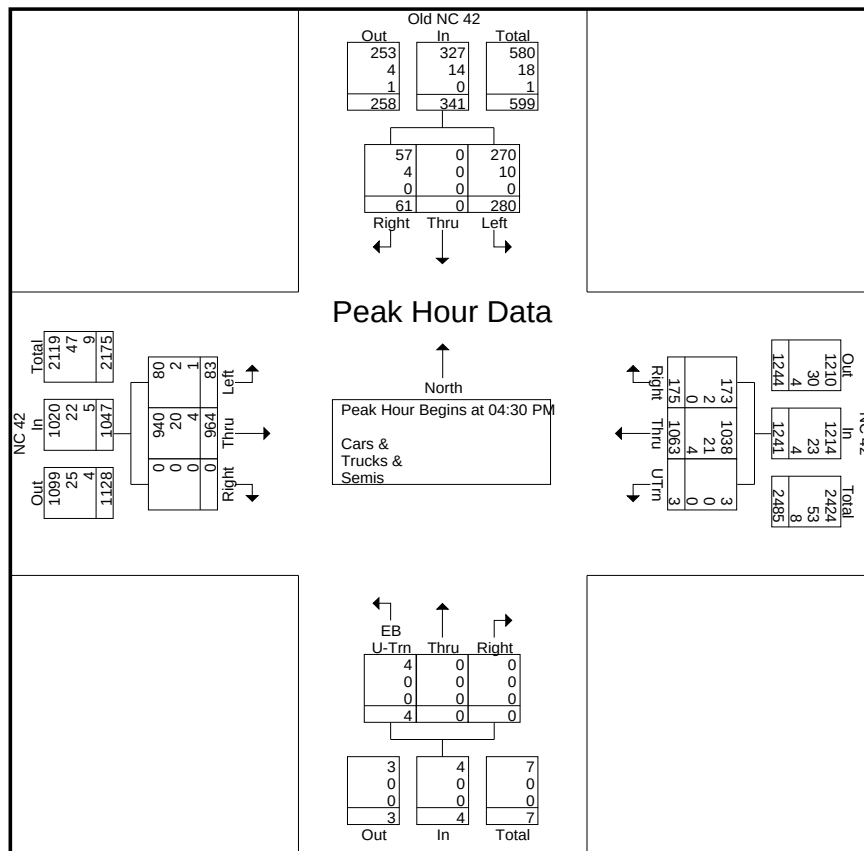




5808 Faringdon Place, Suite 100
Raleigh, NC 27609
PH: 919 872-5115

File Name : Old NC 42 and NC 42
Site Code : 00000003
Start Date : 5/9/2018
Page No : 3

	Old NC 42 From North				NC 42 From East				From South				NC 42 From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	UTrn	App. Total	Right	Thru	EB U-Trn	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	12	0	56	68	43	305	1	349	0	0	0	0	0	242	19	261	678
04:45 PM	15	0	64	79	50	274	0	324	0	0	0	0	0	256	17	273	676
05:00 PM	9	0	82	91	36	259	1	296	0	0	1	1	0	189	24	213	601
05:15 PM	25	0	78	103	46	225	1	272	0	0	3	3	0	277	23	300	678
Total Volume	61	0	280	341	175	1063	3	1241	0	0	4	4	0	964	83	1047	2633
% App. Total	17.9	0	82.1		14.1	85.7	0.2		0	0	100		0	92.1	7.9		
PHF	.610	.000	.854	.828	.875	.871	.750	.889	.000	.000	.333	.333	.000	.870	.865	.873	.971
Cars &	57	0	270	327	173	1038	3	1214	0	0	4	4	0	940	80	1020	2565
% Cars &	93.4	0	96.4	95.9	98.9	97.6	100	97.8	0	0	100	100	0	97.5	96.4	97.4	97.4
Trucks &	4	0	10	14	2	21	0	23	0	0	0	0	0	20	2	22	59
% Trucks &	6.6	0	3.6	4.1	1.1	2.0	0	1.9	0	0	0	0	0	2.1	2.4	2.1	2.2
Semis	0	0	0	0	0	4	0	4	0	0	0	0	0	4	1	5	9
% Semis	0	0	0	0	0	0.4	0	0.3	0	0	0	0	0	0.4	1.2	0.5	0.3





5808 Faringdon Place, Suite 100
Raleigh, NC 27609
PH: 919 872-5115



5808 Faringdon Place, Suite 100
Raleigh, NC 27609
PH: 919 872-5115

File Name : Front Street and Walden Way
Site Code : 00000002
Start Date : 5/9/2018
Page No : 1

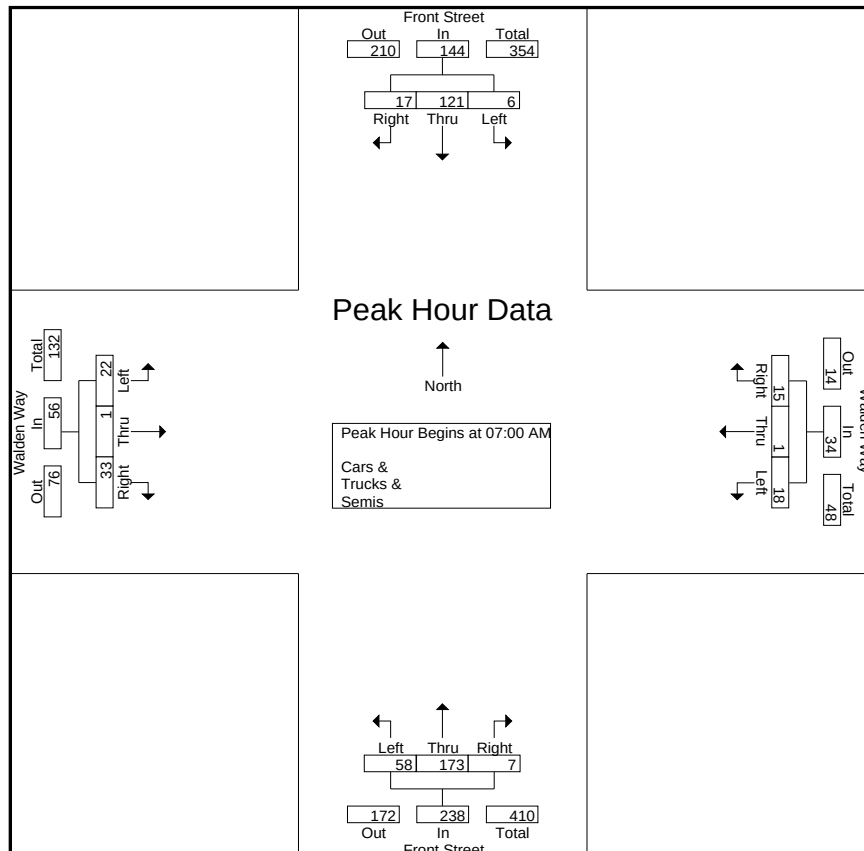
Groups Printed- Cars & - Trucks & - Semis																	
	Front Street From North				Walden Way From East				Front Street From South				Walden Way From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
06:30 AM	4	21	0	25	3	0	5	8	1	31	10	42	4	0	3	7	82
06:45 AM	5	20	0	25	4	1	4	9	1	54	15	70	4	0	4	8	112
Total	9	41	0	50	7	1	9	17	2	85	25	112	8	0	7	15	194
07:00 AM	6	25	0	31	5	0	0	5	2	52	12	66	5	1	7	13	115
07:15 AM	0	29	5	34	4	1	7	12	3	43	19	65	8	0	4	12	123
07:30 AM	5	32	1	38	5	0	3	8	1	46	11	58	6	0	6	12	116
07:45 AM	6	35	0	41	1	0	8	9	1	32	16	49	14	0	5	19	118
Total	17	121	6	144	15	1	18	34	7	173	58	238	33	1	22	56	472
08:00 AM	3	19	1	23	2	1	11	14	2	32	22	56	3	0	3	6	99
08:15 AM	4	20	0	24	1	0	8	9	0	23	12	35	6	0	3	9	77
08:30 AM	3	26	0	29	1	0	7	8	5	43	19	67	7	1	1	9	113
08:45 AM	9	28	0	37	3	1	6	10	2	85	16	103	14	0	6	20	170
Total	19	93	1	113	7	2	32	41	9	183	69	261	30	1	13	44	459
*** BREAK ***																	
04:00 PM	10	46	1	57	2	0	4	6	5	34	20	59	21	1	5	27	149
04:15 PM	5	50	2	57	2	0	3	5	6	42	21	69	22	0	5	27	158
04:30 PM	6	41	3	50	0	0	3	3	2	41	15	58	23	0	4	27	138
04:45 PM	14	53	3	70	4	1	4	9	4	47	16	67	24	0	4	28	174
Total	35	190	9	234	8	1	14	23	17	164	72	253	90	1	18	109	619
05:00 PM	7	52	3	62	0	0	0	0	6	27	17	50	24	0	5	29	141
05:15 PM	7	62	2	71	0	2	5	7	3	43	21	67	26	1	7	34	179
05:30 PM	9	53	2	64	0	0	6	6	4	44	16	64	19	1	3	23	157
05:45 PM	12	38	0	50	2	1	4	7	4	47	11	62	17	1	5	23	142
Total	35	205	7	247	2	3	15	20	17	161	65	243	86	3	20	109	619
06:00 PM	4	49	1	54	0	0	2	2	5	32	18	55	13	1	5	19	130
06:15 PM	5	67	0	72	2	0	3	5	3	38	13	54	18	1	11	30	161
06:30 PM	6	57	3	66	0	2	5	7	3	36	10	49	10	2	6	18	140
06:45 PM	4	31	3	38	2	0	7	9	3	25	13	41	18	0	4	22	110
Total	19	204	7	230	4	2	17	23	14	131	54	199	59	4	26	89	541
Grand Total	134	854	30	1018	43	10	105	158	66	897	343	1306	306	10	106	422	2904
Apprch %	13.2	83.9	2.9		27.2	6.3	66.5		5.1	68.7	26.3		72.5	2.4	25.1		
Total %	4.6	29.4	1	35.1	1.5	0.3	3.6	5.4	2.3	30.9	11.8	45	10.5	0.3	3.7	14.5	
Cars &	130	834	29	993	37	10	105	152	61	885	326	1272	293	10	103	406	2823
% Cars &	97	97.7	96.7	97.5	86	100	100	96.2	92.4	98.7	95	97.4	95.8	100	97.2	96.2	97.2
Trucks &	4	20	1	25	6	0	0	6	5	12	16	33	11	0	3	14	78
% Trucks &	3	2.3	3.3	2.5	14	0	0	3.8	7.6	1.3	4.7	2.5	3.6	0	2.8	3.3	2.7
Semis	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	2	3
% Semis	0	0	0	0	0	0	0	0	0	0	0.3	0.1	0.7	0	0	0.5	0.1



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File Name : Front Street and Walden Way
Site Code : 00000002
Start Date : 5/9/2018
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	Front Street From North				Walden Way From East				Front Street From South				Walden Way From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	6	25	0	31	5	0	0	5	2	52	12	66	5	1	7	13	115
07:15 AM	0	29	5	34	4	1	7	12	3	43	19	65	8	0	4	12	123
07:30 AM	5	32	1	38	5	0	3	8	1	46	11	58	6	0	6	12	116
07:45 AM	6	35	0	41	1	0	8	9	1	32	16	49	14	0	5	19	118
Total Volume	17	121	6	144	15	1	18	34	7	173	58	238	33	1	22	56	472
% App. Total	11.8	84	4.2		44.1	2.9	52.9		2.9	72.7	24.4		58.9	1.8	39.3		
PHF	.708	.864	.300	.878	.750	.250	.563	.708	.583	.832	.763	.902	.589	.250	.786	.737	.959

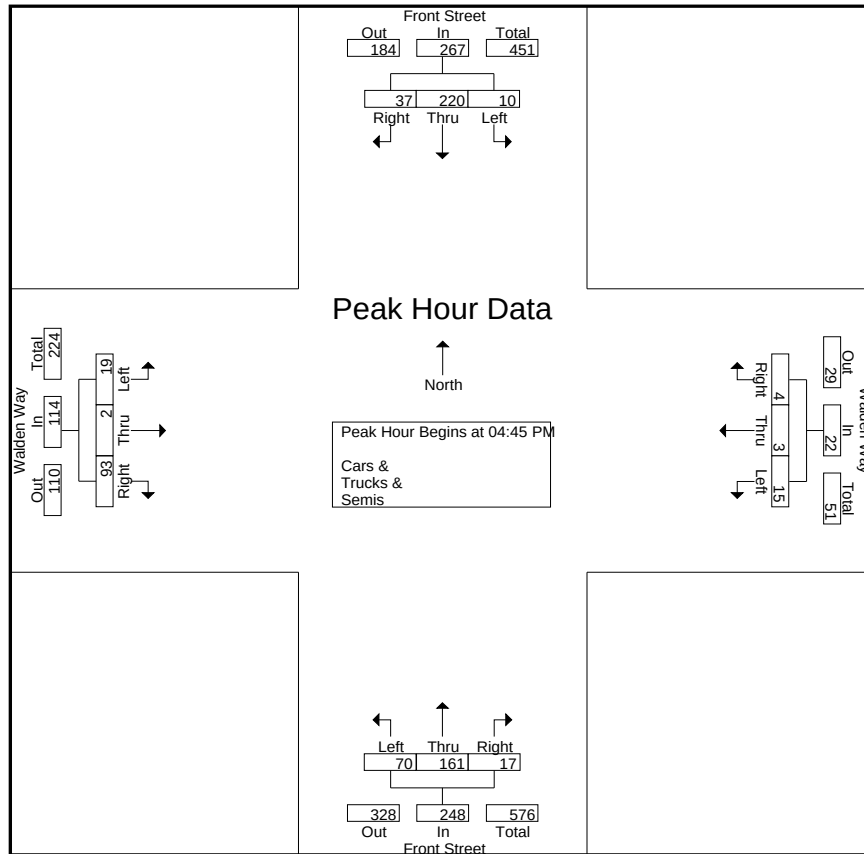




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File Name : Front Street and Walden Way
Site Code : 00000002
Start Date : 5/9/2018
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	Front Street From North				Walden Way From East				Front Street From South				Walden Way From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	14	53	3	70	4	1	4	9	4	47	16	67	24	0	4	28	174
05:00 PM	7	52	3	62	0	0	0	0	6	27	17	50	24	0	5	29	141
05:15 PM	7	62	2	71	0	2	5	7	3	43	21	67	26	1	7	34	179
05:30 PM	9	53	2	64	0	0	6	6	4	44	16	64	19	1	3	23	157
Total Volume	37	220	10	267	4	3	15	22	17	161	70	248	93	2	19	114	651
% App. Total	13.9	82.4	3.7		18.2	13.6	68.2		6.9	64.9	28.2		81.6	1.8	16.7		
PHF	.661	.887	.833	.940	.250	.375	.625	.611	.708	.856	.833	.925	.894	.500	.679	.838	.909





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File Name : Front Street and Bent Branch Loop Road
Site Code : 00000005
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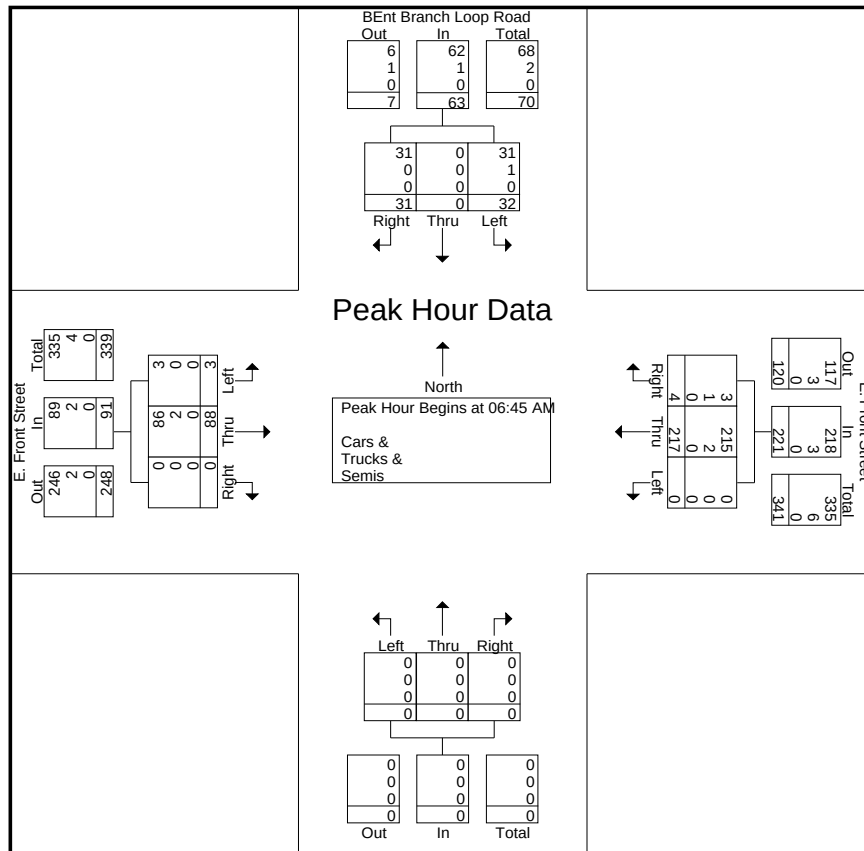
Groups Printed- Cars & - Trucks & - Semis																
	BEnt Branch Loop Road From North				E. Front Street From East				From South				E. Front Street From West			
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total
06:30 AM	9	0	13	22	1	36	0	37	0	0	0	0	0	13	0	13
06:45 AM	8	0	11	19	0	59	0	59	0	0	0	0	0	15	0	15
Total	17	0	24	41	1	95	0	96	0	0	0	0	0	28	0	28
07:00 AM	10	0	8	18	1	61	0	62	0	0	0	0	0	21	1	22
07:15 AM	6	0	7	13	1	45	0	46	0	0	0	0	0	23	2	25
07:30 AM	7	0	6	13	2	52	0	54	0	0	0	0	0	29	0	29
07:45 AM	4	0	7	11	0	37	0	37	0	0	0	0	0	33	1	34
Total	27	0	28	55	4	195	0	199	0	0	0	0	0	106	4	110
08:00 AM	2	0	7	9	3	32	0	35	0	0	0	0	0	20	0	20
08:15 AM	5	0	5	10	0	22	0	22	0	0	0	0	0	16	1	17
08:30 AM	6	0	5	11	1	42	0	43	0	0	0	0	0	28	0	28
08:45 AM	1	0	3	4	2	89	0	91	0	0	0	0	0	26	2	28
Total	14	0	20	34	6	185	0	191	0	0	0	0	0	90	3	93
*** BREAK ***																
04:00 PM	5	0	4	9	4	36	0	40	0	0	0	0	0	50	1	51
04:15 PM	4	0	1	5	11	32	0	43	0	0	0	0	0	44	10	54
04:30 PM	6	0	1	7	9	36	0	45	0	0	0	0	0	48	4	52
04:45 PM	4	0	1	5	6	46	0	52	0	0	0	0	0	63	7	70
Total	19	0	7	26	30	150	0	180	0	0	0	0	0	205	22	227
05:00 PM	4	0	3	7	1	30	0	31	0	0	0	0	0	67	8	75
05:15 PM	8	0	3	11	7	41	0	48	0	0	0	0	0	56	4	60
05:30 PM	5	0	3	8	8	36	0	44	0	0	0	0	0	56	8	64
05:45 PM	1	0	3	4	4	45	0	49	0	0	0	0	0	41	4	45
Total	18	0	12	30	20	152	0	172	0	0	0	0	0	220	24	244
06:00 PM	7	0	4	11	9	31	0	40	1	0	0	1	0	48	6	54
06:15 PM	7	0	4	11	8	43	0	51	0	0	0	0	0	67	7	74
06:30 PM	4	0	3	7	11	26	0	37	0	0	0	0	0	60	6	66
06:45 PM	4	0	2	6	8	26	0	34	0	0	0	0	0	31	7	38
Total	22	0	13	35	36	126	0	162	1	0	0	1	0	206	26	232
Grand Total	117	0	104	221	97	903	0	1000	1	0	0	1	0	855	79	934
Apprch %	52.9	0	47.1		9.7	90.3	0		100	0	0		0	91.5	8.5	
Total %	5.4	0	4.8	10.3	4.5	41.9	0	46.4	0	0	0	0	0	39.7	3.7	43.3
Cars &	117	0	101	218	93	892	0	985	1	0	0	1	0	837	79	916
% Cars &	100	0	97.1	98.6	95.9	98.8	0	98.5	100	0	0	100	0	97.9	100	98.1
Trucks &	0	0	3	3	4	10	0	14	0	0	0	0	0	17	0	17
% Trucks &	0	0	2.9	1.4	4.1	1.1	0	1.4	0	0	0	0	0	2	0	1.8
Semis	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
% Semis	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0	0.1	0	0.1



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File Name : Front Street and Bent Branch Loop Road
Site Code : 00000005
Start Date : 5/9/2018
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	BEnt Branch Loop Road From North				E. Front Street From East				From South				E. Front Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	8	0	11	19	0	59	0	59	0	0	0	0	0	15	0	15	93
07:00 AM	10	0	8	18	1	61	0	62	0	0	0	0	0	21	1	22	102
07:15 AM	6	0	7	13	1	45	0	46	0	0	0	0	0	23	2	25	84
07:30 AM	7	0	6	13	2	52	0	54	0	0	0	0	0	29	0	29	96
Total Volume	31	0	32	63	4	217	0	221	0	0	0	0	0	88	3	91	375
% App. Total	49.2	0	50.8		1.8	98.2	0		0	0	0	0	0	96.7	3.3		
PHF	.775	.000	.727	.829	.500	.889	.000	.891	.000	.000	.000	.000	.000	.759	.375	.784	.919
Cars &	31	0	31	62	3	215	0	218	0	0	0	0	0	86	3	89	369
% Cars &	100	0	96.9	98.4	75.0	99.1	0	98.6	0	0	0	0	0	97.7	100	97.8	98.4
Trucks &	0	0	1	1	1	2	0	3	0	0	0	0	0	2	0	2	6
% Trucks &	0	0	3.1	1.6	25.0	0.9	0	1.4	0	0	0	0	0	2.3	0	2.2	1.6
Semis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Semis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

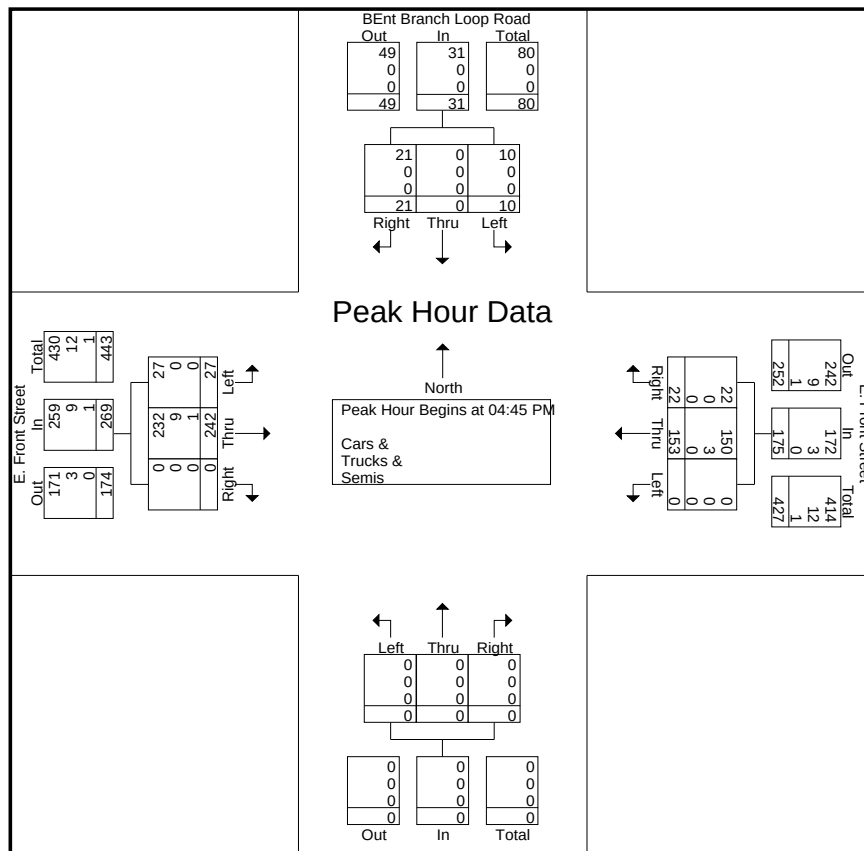




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File Name : Front Street and Bent Branch Loop Road
Site Code : 00000005
Start Date : 5/9/2018
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	BEnt Branch Loop Road From North				E. Front Street From East				From South				E. Front Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	4	0	1	5	6	46	0	52	0	0	0	0	0	63	7	70	127
05:00 PM	4	0	3	7	1	30	0	31	0	0	0	0	0	67	8	75	113
05:15 PM	8	0	3	11	7	41	0	48	0	0	0	0	0	56	4	60	119
05:30 PM	5	0	3	8	8	36	0	44	0	0	0	0	0	56	8	64	116
Total Volume	21	0	10	31	22	153	0	175	0	0	0	0	0	242	27	269	475
% App. Total	67.7	0	32.3		12.6	87.4	0		0	0	0	0	0	90	10		
PHF	.656	.000	.833	.705	.688	.832	.000	.841	.000	.000	.000	.000	.000	.903	.844	.897	.935
Cars &	21	0	10	31	22	150	0	172	0	0	0	0	0	232	27	259	462
% Cars &	100	0	100	100	100	98.0	0	98.3	0	0	0	0	0	95.9	100	96.3	97.3
Trucks &	0	0	0	0	0	3	0	3	0	0	0	0	0	9	0	9	12
% Trucks &	0	0	0	0	0	2.0	0	1.7	0	0	0	0	0	3.7	0	3.3	2.5
Semis	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Semis	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0.4	0.2





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5808 Faringdon Place, Suite 100
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File Name : E. Main Street and Central Street
Site Code : 00000004
Start Date : 5/9/2018
Page No : 1

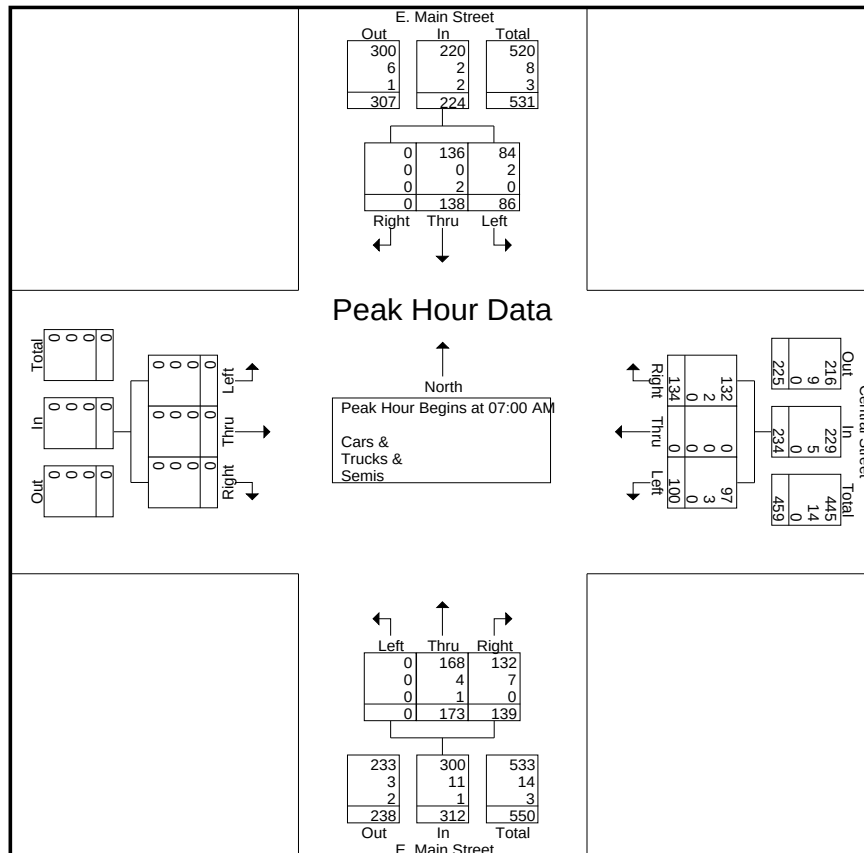
Groups Printed- Cars & - Trucks & - Semis																
	E. Main Street From North				Central Street From East				E. Main Street From South				From West			
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total
06:30 AM	0	22	6	28	31	0	4	35	22	32	0	54	0	0	0	0
06:45 AM	0	16	7	23	40	0	16	56	16	42	0	58	0	0	0	0
Total	0	38	13	51	71	0	20	91	38	74	0	112	0	0	0	0
07:00 AM	0	31	18	49	43	0	13	56	21	48	0	69	0	0	0	0
07:15 AM	0	30	17	47	29	0	28	57	41	41	0	82	0	0	0	0
07:30 AM	0	38	32	70	36	0	27	63	54	44	0	98	0	0	0	0
07:45 AM	0	39	19	58	26	0	32	58	23	40	0	63	0	0	0	0
Total	0	138	86	224	134	0	100	234	139	173	0	312	0	0	0	0
08:00 AM	0	32	15	47	20	0	22	42	11	40	0	51	0	0	0	0
08:15 AM	0	28	16	44	24	0	14	38	7	40	0	47	0	0	0	0
08:30 AM	0	31	13	44	35	0	15	50	18	28	0	46	0	0	0	0
08:45 AM	0	31	19	50	49	0	14	63	11	48	0	59	0	0	0	0
Total	0	122	63	185	128	0	65	193	47	156	0	203	0	0	0	0
09:00 AM	0	1	0	1	0	0	3	3	1	2	0	3	0	0	0	0
*** BREAK ***																
Total	0	1	0	1	0	0	3	3	1	2	0	3	0	0	0	0
*** BREAK ***																
04:00 PM	0	56	41	97	31	0	46	77	36	45	0	81	0	0	0	0
04:15 PM	0	60	53	113	36	0	25	61	34	41	0	75	0	0	0	0
04:30 PM	0	55	41	96	27	0	19	46	12	57	0	69	0	0	0	0
04:45 PM	0	77	46	123	34	0	15	49	25	56	0	81	0	0	0	0
Total	0	248	181	429	128	0	105	233	107	199	0	306	0	0	0	0
05:00 PM	0	82	40	122	22	0	21	43	29	54	0	83	0	0	0	0
05:15 PM	0	74	32	106	26	0	29	55	33	59	0	92	0	0	0	0
05:30 PM	0	81	46	127	25	0	31	56	23	45	0	68	0	0	0	0
05:45 PM	0	73	32	105	30	0	19	49	27	43	0	70	0	0	0	0
Total	0	310	150	460	103	0	100	203	112	201	0	313	0	0	0	0
06:00 PM	0	61	34	95	14	0	20	34	25	45	0	70	0	0	0	0
06:15 PM	1	86	45	132	28	0	19	47	28	39	0	67	0	0	0	0
06:30 PM	0	71	49	120	18	0	18	36	27	32	0	59	0	0	0	0
06:45 PM	0	64	34	98	28	0	22	50	22	58	0	80	0	0	0	0
Total	1	282	162	445	88	0	79	167	102	174	0	276	0	0	0	0
Grand Total	1	1139	655	1795	652	0	472	1124	546	979	0	1525	0	0	0	0
Apprch %	0.1	63.5	36.5		58	0	42		35.8	64.2	0		0	0	0	
Total %	0	25.6	14.7	40.4	14.7	0	10.6	25.3	12.3	22	0	34.3	0	0	0	0
Cars &	1	1116	648	1765	646	0	463	1109	533	959	0	1492	0	0	0	0
% Cars &	100	98	98.9	98.3	99.1	0	98.1	98.7	97.6	98	0	97.8	0	0	0	0
Trucks &	0	19	7	26	6	0	9	15	13	18	0	31	0	0	0	0
% Trucks &	0	1.7	1.1	1.4	0.9	0	1.9	1.3	2.4	1.8	0	2	0	0	0	0
Semis	0	4	0	4	0	0	0	0	0	2	0	2	0	0	0	0
% Semis	0	0.4	0	0.2	0	0	0	0	0	0.2	0	0.1	0	0	0	0



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File Name : E. Main Street and Central Street
Site Code : 00000004
Start Date : 5/9/2018
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	E. Main Street From North				Central Street From East				E. Main Street From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	31	18	49	43	0	13	56	21	48	0	69	0	0	0	0	174
07:15 AM	0	30	17	47	29	0	28	57	41	41	0	82	0	0	0	0	186
07:30 AM	0	38	32	70	36	0	27	63	54	44	0	98	0	0	0	0	231
07:45 AM	0	39	19	58	26	0	32	58	23	40	0	63	0	0	0	0	179
Total Volume	0	138	86	224	134	0	100	234	139	173	0	312	0	0	0	0	770
% App. Total	0	61.6	38.4		57.3	0	42.7		44.6	55.4	0		0	0	0	0	
PHF	.000	.885	.672	.800	.779	.000	.781	.929	.644	.901	.000	.796	.000	.000	.000	.000	.833
Cars &	0	136	84	220	132	0	97	229	132	168	0	300	0	0	0	0	749
% Cars &	0	98.6	97.7	98.2	98.5	0	97.0	97.9	95.0	97.1	0	96.2	0	0	0	0	97.3
Trucks &	0	0	2	2	2	0	3	5	7	4	0	11	0	0	0	0	18
% Trucks &	0	0	2.3	0.9	1.5	0	3.0	2.1	5.0	2.3	0	3.5	0	0	0	0	2.3
Semis	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
% Semis	0	1.4	0	0.9	0	0	0	0	0	0.6	0	0.3	0	0	0	0	0.4

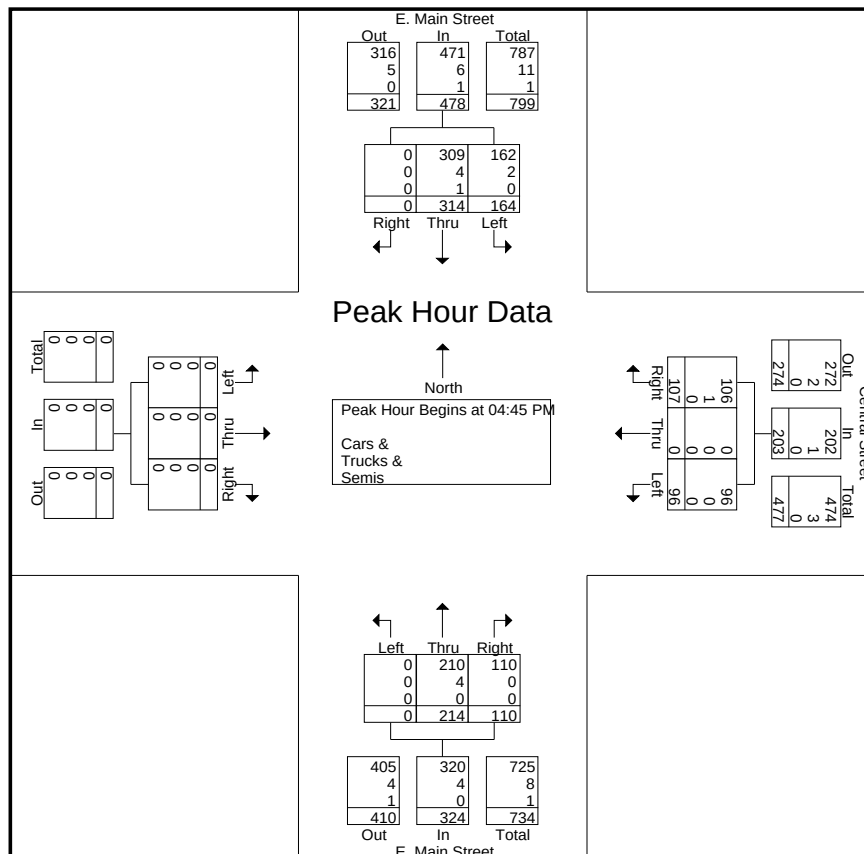




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File Name : E. Main Street and Central Street
Site Code : 00000004
Start Date : 5/9/2018
Page No : 3

	E. Main Street From North				Central Street From East				E. Main Street From South				From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	77	46	123	34	0	15	49	25	56	0	81	0	0	0	0	253
05:00 PM	0	82	40	122	22	0	21	43	29	54	0	83	0	0	0	0	248
05:15 PM	0	74	32	106	26	0	29	55	33	59	0	92	0	0	0	0	253
05:30 PM	0	81	46	127	25	0	31	56	23	45	0	68	0	0	0	0	251
Total Volume	0	314	164	478	107	0	96	203	110	214	0	324	0	0	0	0	1005
% App. Total	0	65.7	34.3		52.7	0	47.3		34	66	0		0	0	0		
PHF	.000	.957	.891	.941	.787	.000	.774	.906	.833	.907	.000	.880	.000	.000	.000	.000	.993
Cars &	0	309	162	471	106	0	96	202	110	210	0	320	0	0	0	0	993
% Cars &	0	98.4	98.8	98.5	99.1	0	100	99.5	100	98.1	0	98.8	0	0	0	0	98.8
Trucks &	0	4	2	6	1	0	0	1	0	4	0	4	0	0	0	0	11
% Trucks &	0	1.3	1.2	1.3	0.9	0	0	0.5	0	1.9	0	1.2	0	0	0	0	1.1
Semis	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Semis	0	0.3	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0.1





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PH: 919 872-5115

File Name : Central Street and Front Street
Site Code : 00000001
Start Date : 5/9/2018
Page No : 1

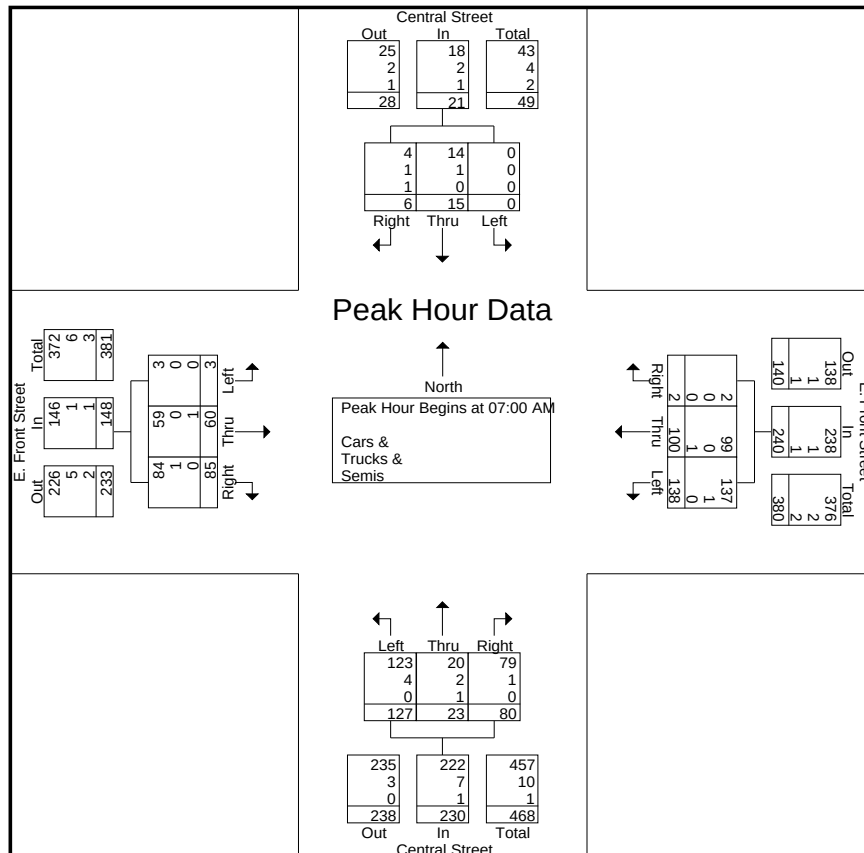
Groups Printed- Cars & - Trucks & - Semis																	
	Central Street From North				E. Front Street From East				Central Street From South				E. Front Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
06:30 AM	0	5	0	5	0	9	32	41	7	2	17	26	9	7	1	17	89
06:45 AM	0	4	0	4	0	29	40	69	6	4	13	23	11	9	1	21	117
Total	0	9	0	9	0	38	72	110	13	6	30	49	20	16	2	38	206
07:00 AM	3	4	0	7	2	25	48	75	18	4	20	42	8	10	0	18	142
07:15 AM	2	5	0	7	0	29	29	58	13	4	42	59	23	16	0	39	163
07:30 AM	0	4	0	4	0	32	33	65	30	8	51	89	25	11	1	37	195
07:45 AM	1	2	0	3	0	14	28	42	19	7	14	40	29	23	2	54	139
Total	6	15	0	21	2	100	138	240	80	23	127	230	85	60	3	148	639
08:00 AM	0	5	2	7	3	15	18	36	13	4	7	24	17	10	4	31	98
08:15 AM	0	2	0	2	0	10	22	32	16	3	9	28	12	9	1	22	84
08:30 AM	0	3	0	3	1	13	44	58	17	7	7	31	6	15	2	23	115
*** BREAK ***																	
Total	0	10	2	12	4	38	84	126	46	14	23	83	35	34	7	76	297
*** BREAK ***																	
04:00 PM	0	4	0	4	5	23	38	66	34	21	22	77	32	19	4	55	202
04:15 PM	0	2	1	3	5	31	40	76	43	22	19	84	17	21	0	38	201
04:30 PM	0	0	0	0	2	23	30	55	38	7	10	55	13	20	2	35	145
04:45 PM	1	1	0	2	2	21	42	65	48	14	11	73	8	32	2	42	182
Total	1	7	1	9	14	98	150	262	163	64	62	289	70	92	8	170	730
05:00 PM	0	4	0	4	1	18	22	41	41	9	18	68	17	30	2	49	162
05:15 PM	0	3	0	3	2	26	28	56	32	5	23	60	27	38	3	68	187
05:30 PM	1	3	0	4	1	18	34	53	43	7	21	71	27	18	1	46	174
05:45 PM	1	5	0	6	1	24	27	52	34	8	17	59	18	16	2	36	153
Total	2	15	0	17	5	86	111	202	150	29	79	258	89	102	8	199	676
06:00 PM	0	2	0	2	0	24	18	42	32	4	25	61	19	22	2	43	148
06:15 PM	0	2	0	2	1	28	28	57	47	10	17	74	12	27	3	42	175
06:30 PM	0	2	0	2	1	20	19	40	47	6	23	76	11	20	6	37	155
06:45 PM	1	2	0	3	1	14	28	43	29	6	17	52	12	15	1	28	126
Total	1	8	0	9	3	86	93	182	155	26	82	263	54	84	12	150	604
Grand Total	10	64	3	77	28	446	648	1122	607	162	403	1172	353	388	40	781	3152
Apprch %	13	83.1	3.9		2.5	39.8	57.8		51.8	13.8	34.4		45.2	49.7	5.1		
Total %	0.3	2	0.1	2.4	0.9	14.1	20.6	35.6	19.3	5.1	12.8	37.2	11.2	12.3	1.3	24.8	
Cars &	8	61	3	72	28	443	645	1116	605	159	396	1160	349	379	39	767	3115
% Cars &	80	95.3	100	93.5	100	99.3	99.5	99.5	99.7	98.1	98.3	99	98.9	97.7	97.5	98.2	98.8
Trucks &	1	3	0	4	0	2	3	5	2	2	5	9	3	6	1	10	28
% Trucks &	10	4.7	0	5.2	0	0.4	0.5	0.4	0.3	1.2	1.2	0.8	0.8	1.5	2.5	1.3	0.9
Semis	1	0	0	1	0	1	0	1	0	1	2	3	1	3	0	4	9
% Semis	10	0	0	1.3	0	0.2	0	0.1	0	0.6	0.5	0.3	0.3	0.8	0	0.5	0.3



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File Name : Central Street and Front Street
Site Code : 00000001
Start Date : 5/9/2018
Page No : 2

	Central Street From North				E. Front Street From East				Central Street From South				E. Front Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	3	4	0	7	2	25	48	75	18	4	20	42	8	10	0	18	142
07:15 AM	2	5	0	7	0	29	29	58	13	4	42	59	23	16	0	39	163
07:30 AM	0	4	0	4	0	32	33	65	30	8	51	89	25	11	1	37	195
07:45 AM	1	2	0	3	0	14	28	42	19	7	14	40	29	23	2	54	139
Total Volume	6	15	0	21	2	100	138	240	80	23	127	230	85	60	3	148	639
% App. Total	28.6	71.4	0		0.8	41.7	57.5		34.8	10	55.2		57.4	40.5	2		
PHF	.500	.750	.000	.750	.250	.781	.719	.800	.667	.719	.623	.646	.733	.652	.375	.685	.819
Cars &	4	14	0	18	2	99	137	238	79	20	123	222	84	59	3	146	624
% Cars &	66.7	93.3	0	85.7	100	99.0	99.3	99.2	98.8	87.0	96.9	96.5	98.8	98.3	100	98.6	97.7
Trucks &	1	1	0	2	0	0	1	1	1	2	4	7	1	0	0	1	11
% Trucks &	16.7	6.7	0	9.5	0	0	0.7	0.4	1.3	8.7	3.1	3.0	1.2	0	0	0.7	1.7
Semis	1	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	4
% Semis	16.7	0	0	4.8	0	1.0	0	0.4	0	4.3	0	0.4	0	1.7	0	0.7	0.6

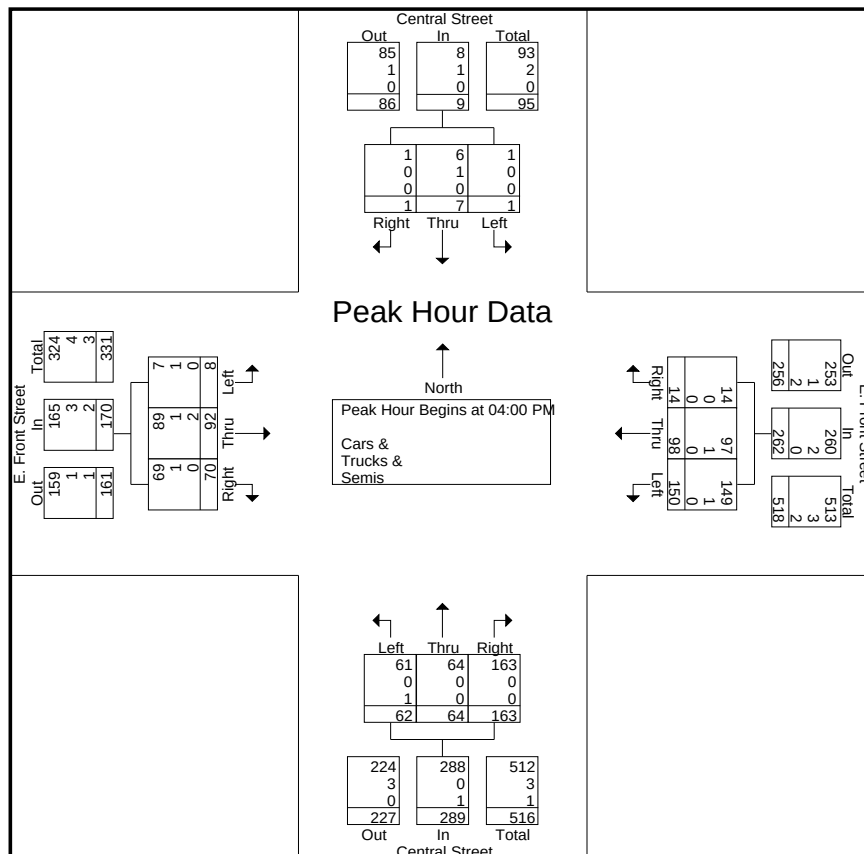




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Raleigh, NC 27609
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File Name : Central Street and Front Street
Site Code : 00000001
Start Date : 5/9/2018
Page No : 3

	Central Street From North				E. Front Street From East				Central Street From South				E. Front Street From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	4	0	4	5	23	38	66	34	21	22	77	32	19	4	55	202
04:15 PM	0	2	1	3	5	31	40	76	43	22	19	84	17	21	0	38	201
04:30 PM	0	0	0	0	2	23	30	55	38	7	10	55	13	20	2	35	145
04:45 PM	1	1	0	2	2	21	42	65	48	14	11	73	8	32	2	42	182
Total Volume	1	7	1	9	14	98	150	262	163	64	62	289	70	92	8	170	730
% App. Total	11.1	77.8	11.1		5.3	37.4	57.3		56.4	22.1	21.5		41.2	54.1	4.7		
PHF	.250	.438	.250	.563	.700	.790	.893	.862	.849	.727	.705	.860	.547	.719	.500	.773	.903
Cars &	1	6	1	8	14	97	149	260	163	64	61	288	69	89	7	165	721
% Cars &	100	85.7	100	88.9	100	99.0	99.3	99.2	100	100	98.4	99.7	98.6	96.7	87.5	97.1	98.8
Trucks &	0	1	0	1	0	1	1	2	0	0	0	0	1	1	1	3	6
% Trucks &	0	14.3	0	11.1	0	1.0	0.7	0.8	0	0	0	0	1.4	1.1	12.5	1.8	0.8
Semis	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	2	3
% Semis	0	0	0	0	0	0	0	0	0	0	1.6	0.3	0	2.2	0	1.2	0.4



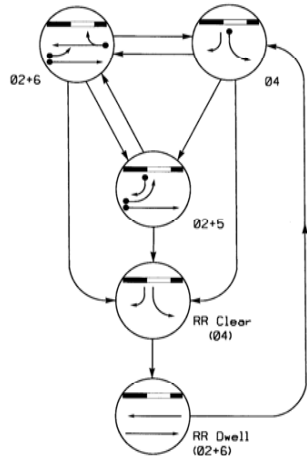


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APPENDIX C

SIGNAL INFORMATION

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

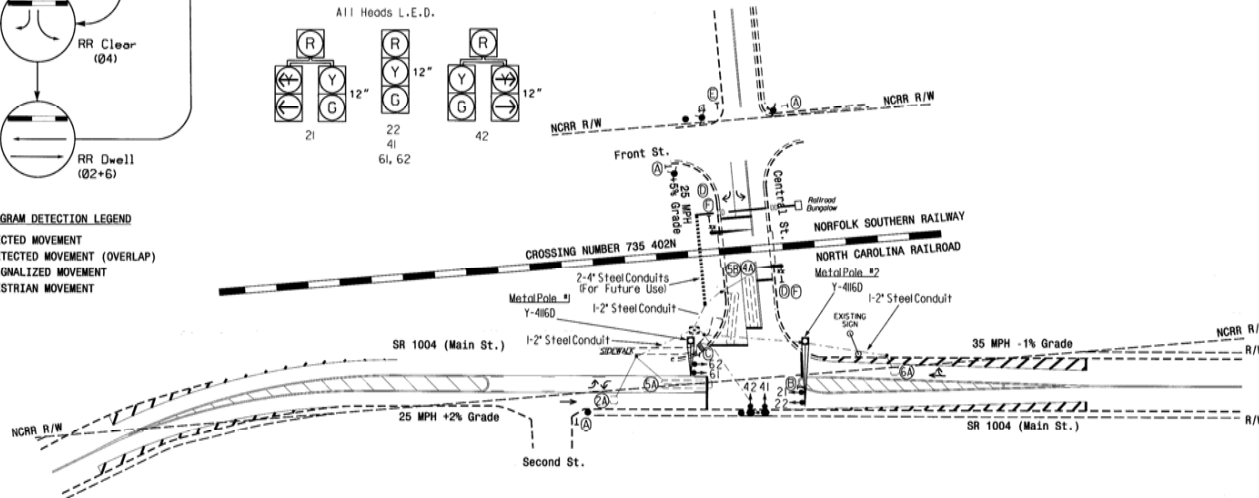
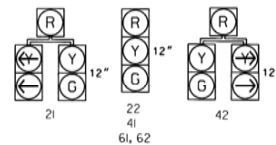
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE					
	02+6	04	02+5	04	02+6	04
21	G	R	R	G	Y	Y
22	G	R	R	G	Y	Y
41	R	G	R	G	R	R
42	R	G	R	G	R	R
61, 62	R	G	R	G	Y	Y
Sign B	OFF	OFF	OFF	ON	*	*
Sign C	OFF	OFF	OFF	ON	*	*

* See Note 5.

SIGNAL FACE I.D.

All Heads L.E.D.



FEATURE	PHASE			
	2	4	5	6
Min Green 1 *	10	7	7	10
Extension 1 *	3.0	2.0	2.0	3.0
Max Green 1 *	45	25	15	45
Yellow Clearance	3.9	3.0	3.0	3.7
Red Clearance	1.1	2.1	1.8	1.3
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 4 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

2070 RAIL PREEMPTION	
Interval 1 - Track Clearance Green	20
Interval 1 - Track Clearance Yellow	3.0
Interval 1 - Track Clearance Red	2.1
Interval 2 - Dwell Green	255
Interval 2 - Dwell Yellow	0.0 *
Interval 2 - Dwell Red	0.0 *
Interval 3 - Exit Green	1
Interval 3 - Yellow	0.0
Interval 3 - Red	0.0
Delay Time	0
Min Green Before Pre	1
Red Clear Before Pre	0
Yellow Clear Before Pre	3.9
Red Clear Before Pre	1.1
Dwell Min Time	10
Red Clear Through Yellow	N
Omit Overlaps	P

* Time defaults to time used for phase during normal operation.

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART									
INDUCTIVE LOOPS					DETECTOR PROGRAMMING				
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	PHASE	NEW LOOP	PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME
2A	6X6	70	3	-	2	Y	Y	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	3
5A	6X40	0	2-4-2	-	5	Y	Y	-	15
5B	6X40	0	2-4-2	-	2	Y	Y	-	-
6A	6X6	70	3	-	6	Y	Y	-	-

3 Phase Fully Actuated With Railroad Preemption (Isolated)

NOTES

1. Refer to "Roadway Standard Drawings" dated July 2006 and "Standard Specifications for Road and Structures" dated July 2006. Work shall also be completed in accordance with North Carolina Railroad (NCRR) Specifications N and NCR 102.
2. This location contains railroad preemption phasing. Do not program signal for late night flashing operation.
3. Phase 5 may be lagged.
4. Set all detector units to present mode.
5. Ensure flashing operation does not alter operation of blankout sign.
6. Program parent phases for Overlap "P" for all phases used in normal operation.

LEGEND

PROPOSED	EXISTING
○ Traffic Signal Head	●
○ Modified Signal Head	●
○ Sign	●
○ Pedestrian Signal Head	●
○ With Push Button & Sign	●
○ Pedestrian Signal Pedestal	●
○ Metal Pole with Mastarm	●
○ Signal Pole with Guy	●
○ Signal Pole with Sidewalk Guy	●
○ Inductive Loop Detector	●
○ Controller & Cabinet	●
○ Junction Box	●
○ 2-in Underground Steel Conduit	●
○ 4-in Underground Steel Conduit (2 Conduits)	●
○ Right of Way	●
○ Directional Arrow	●
○ Railroad Tracks	●
○ Railroad Gate and Flasher	●
○ "STOP" Sign (R1-1)	●
○ "NO LEFT TURN - TRAIN" L.E.D. Blankout Sign	●
○ "NO RIGHT TURN - TRAIN" L.E.D. Blankout Sign	●
○ "DO NOT STOP ON TRACKS" Sign (R8-8)	●
○ "DO NOT BLOCK INTERSECTION" Sign (R10-7)	●
○ "STOP HERE WHEN FLASHING" Sign (R8-10)	●

Plan of Record

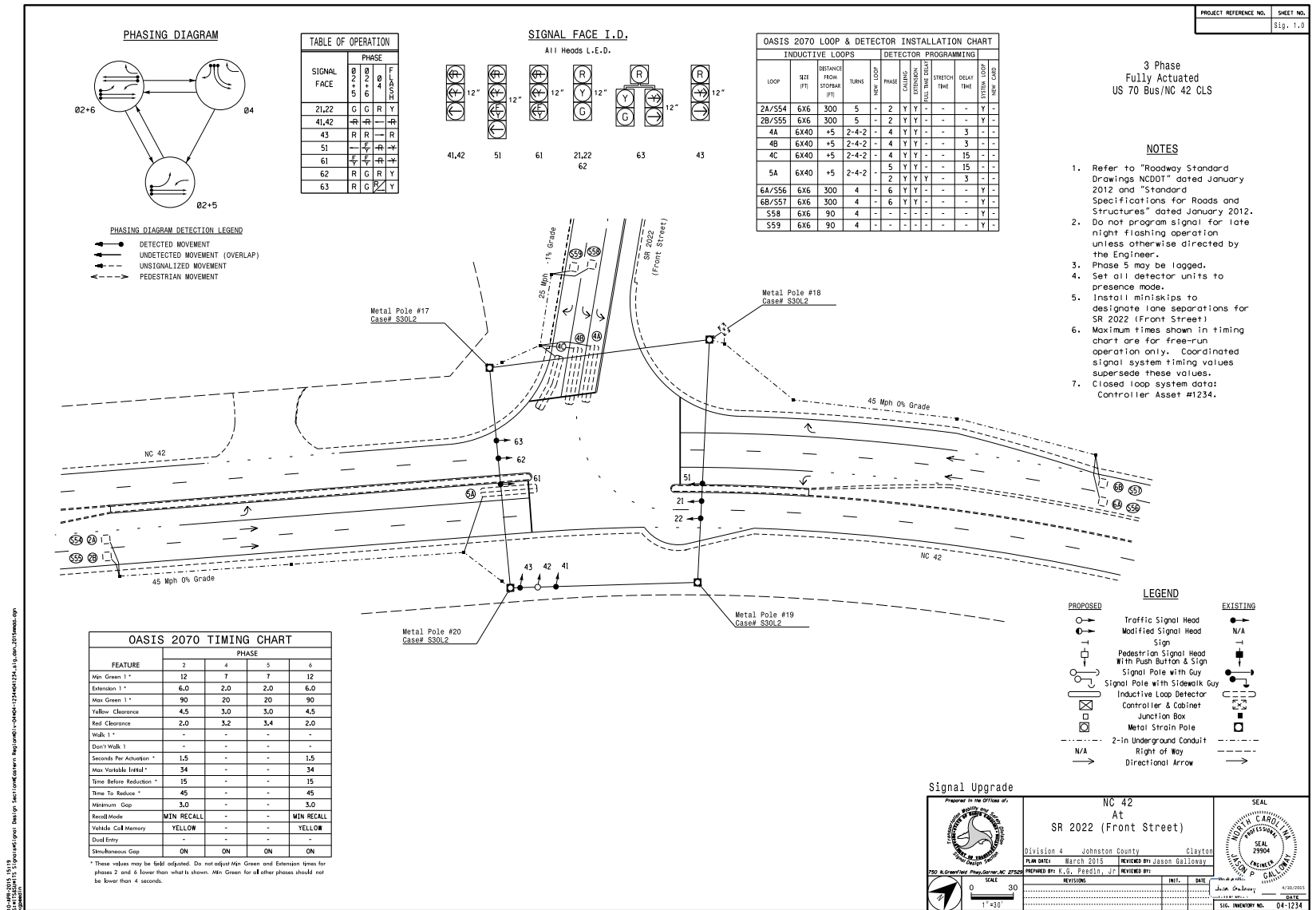
PREPARED BY: L. D. Young DATE: December 2010
 REVIEWED BY: P. L. Alexander DATE: December 2010
 SIGNATURE: [Signature] DATE: 1/3/11

REMOVED SUPPLIES: _____
 COMMENTS: _____
 This plan of record reflects existing field conditions as submitted by field personnel. This plan may have been modified from its original state.

PLAN OF RECORD

Prepared in the Office of:

 SR 1004 (Main Street) at Central Street
 Division 4 Johnston County Clayton
 PLAN DATE: March 2006 REVIEWED BY:
 PREPARED BY: Sterling REVIEWED BY:
 REVISIONS: _____
 SCALE: 1"=50'
 DATE: _____



APPENDIX D

ADJACENT DEVELOPMENT INFORMATION

Traffic Impact Analysis

For

Hunt Property

Located in

Clayton, North Carolina

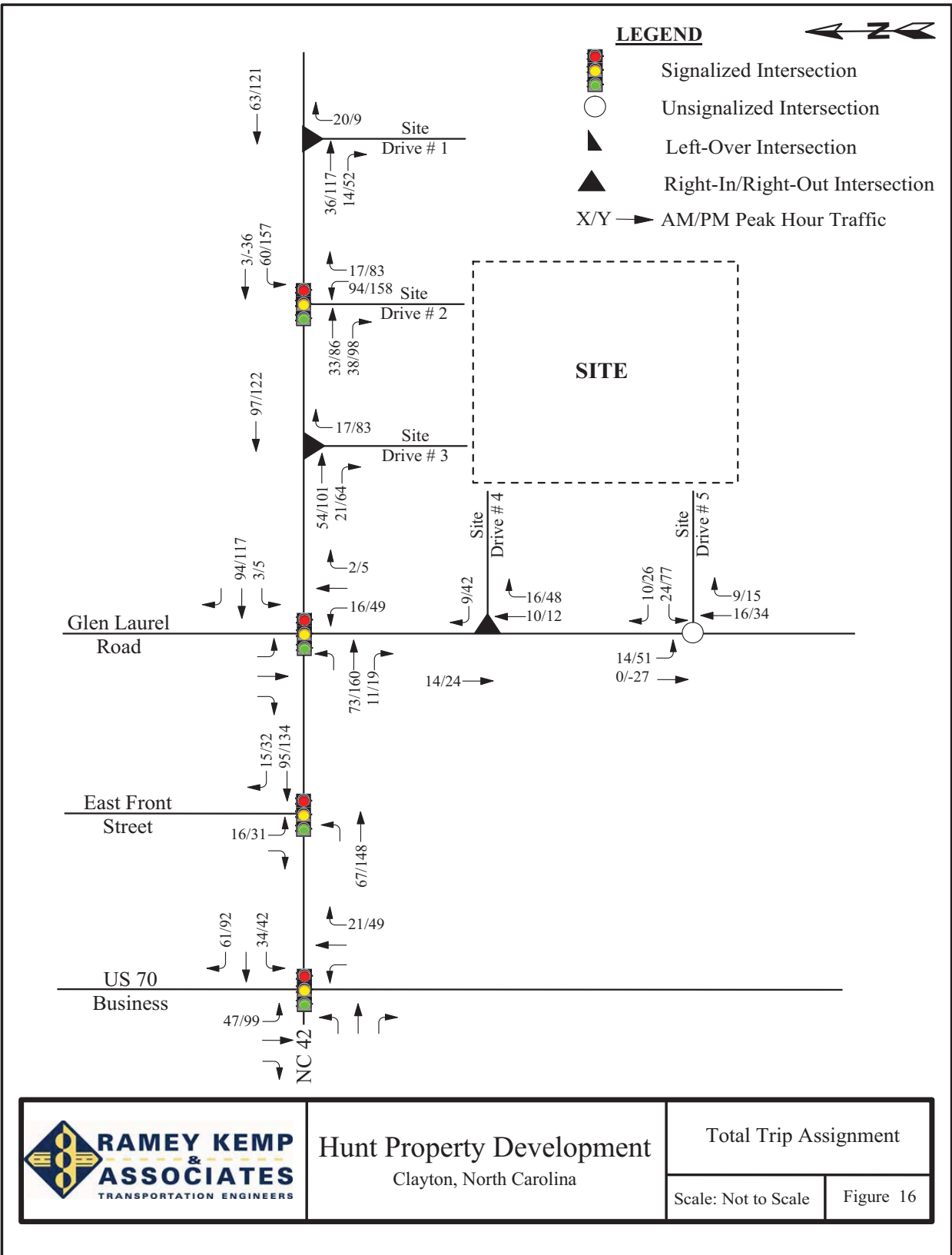
Prepared For:
C. Brantley Tillman
Commercial Properties, Inc.
1004 Wake Forest Road
Raleigh, NC 27604

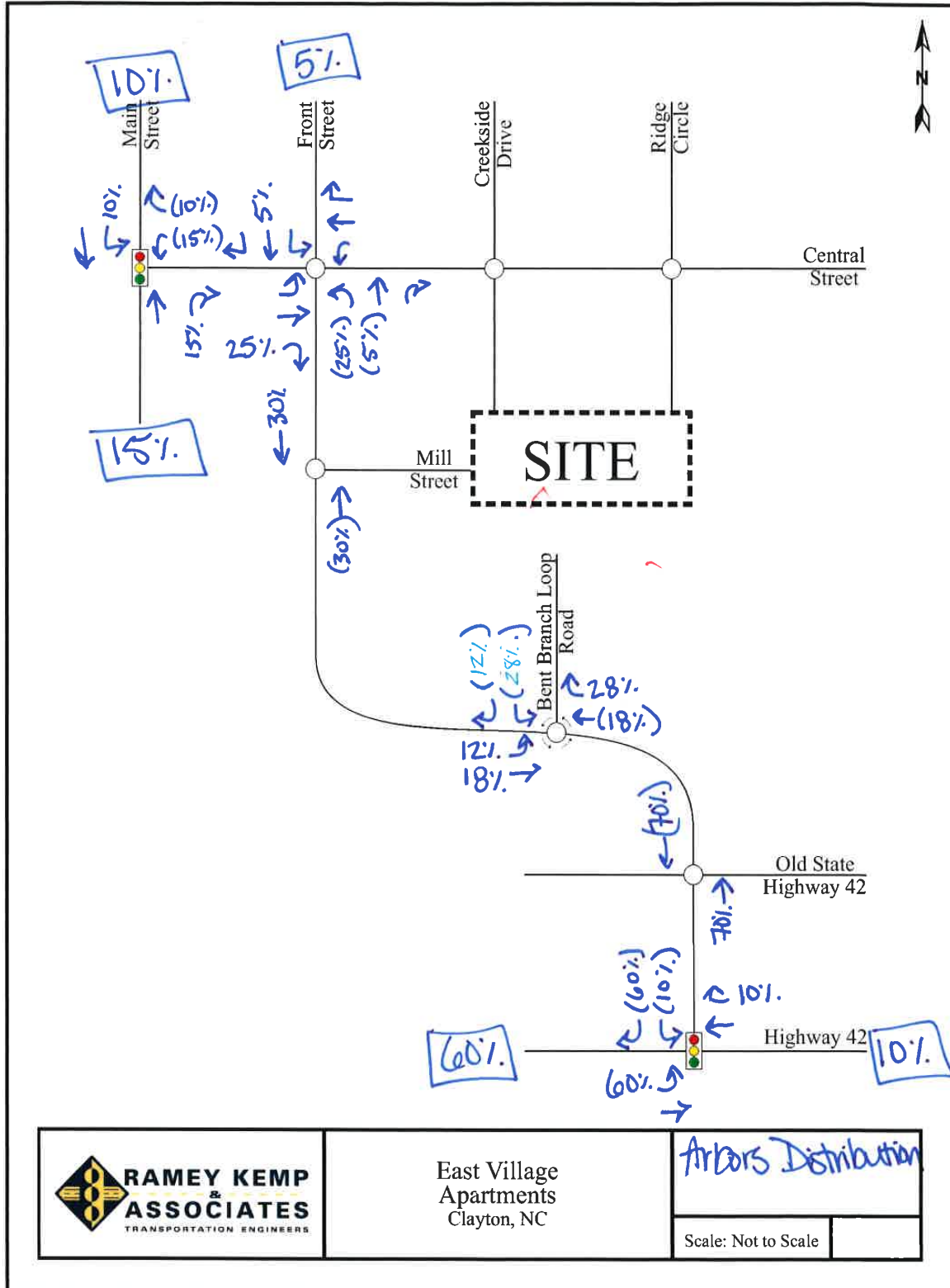
Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
NC Corporate License # C-0910

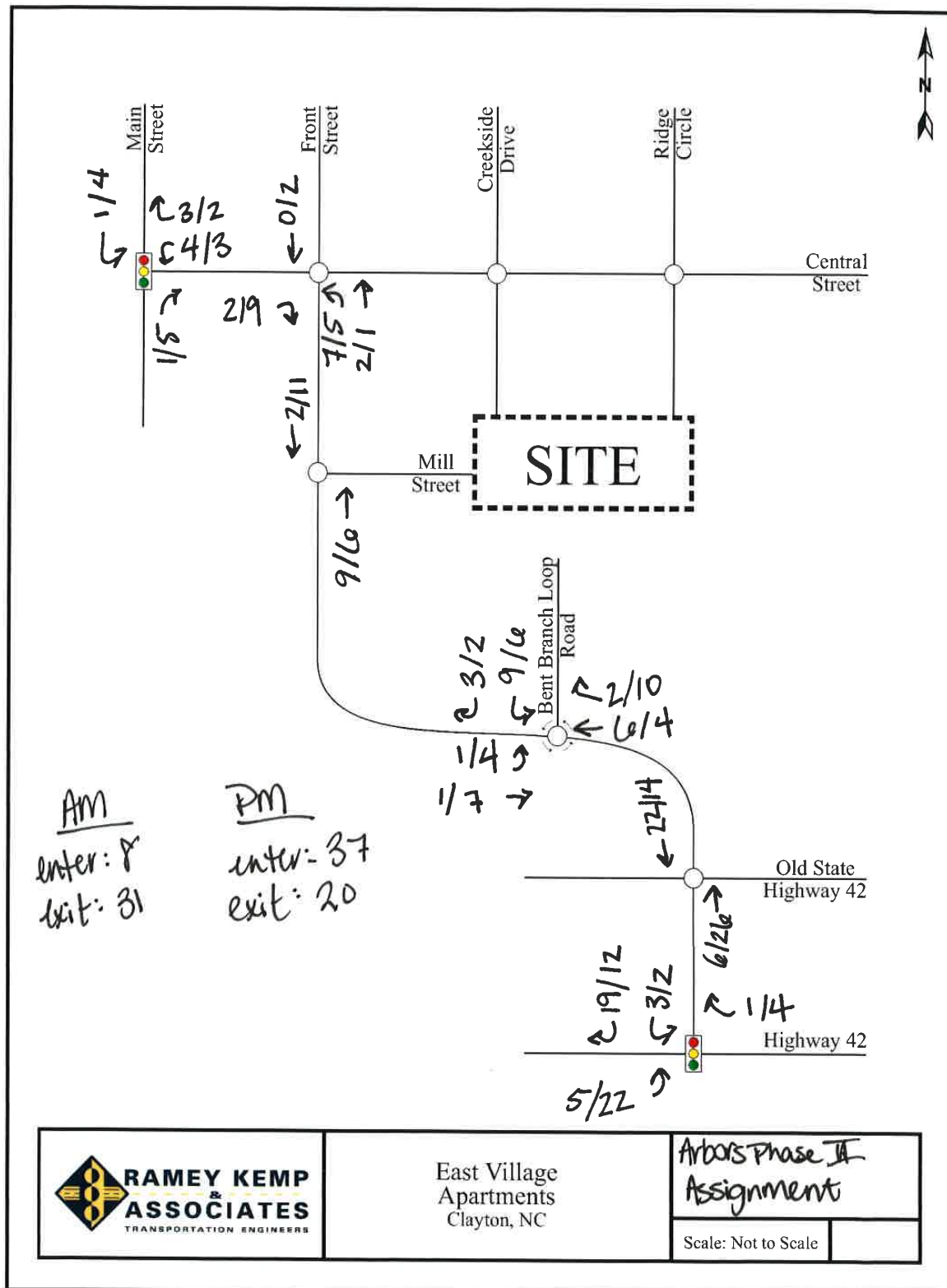


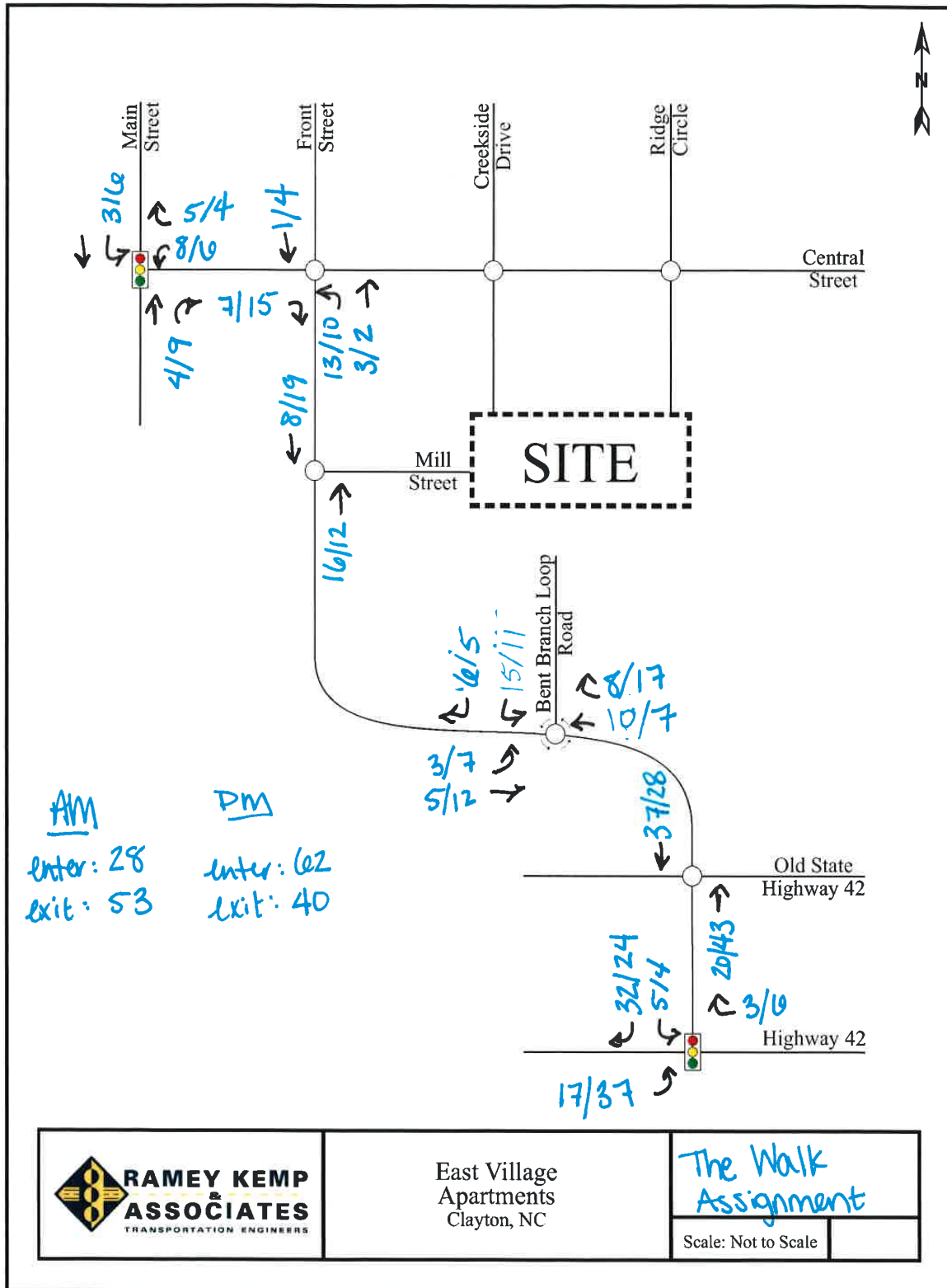
November 2015

RKA Project #15074











RAMEY KEMP & ASSOCIATES, INC.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609
Phone - 919-872-5115 Fax - 919-878-5416
www.rameykemp.com

September 4, 2015

Hubert G. Tolson, III
UHF Development Group, LLC
227 East Front Street
New Bern, NC 28560
P: 252-670-9370
E: hubie@uhfdevelopmentgroup.com

Subject: **Trip Generation Study for Arbors Phase 2**
Clayton, North Carolina

Dear Mr. Tolson:

This letter provides an updated trip generation for the East Village development located on the north side of Front Street west of NC 42 in Clayton. The trip generation update is being requested by the Town since the Arbors – Phase 2 proposes to expand the number of residential units at the property that was previously considered for commercial use.

A Traffic Impact Analysis (TIA) report was prepared for the overall development in January 2012 by Ramey Kemp & Associates, Inc. (RKA). The original TIA report included a mix of residential, office, and retail uses for the development. Single-family homes were assumed to be traditional and not age-restricted. Assumptions were made for commercial uses since exact land uses were not known when the TIA was completed. Refer to Table 1 for the total trips generated for the overall development as shown in the TIA report. Relevant pages from the TIA report are attached for reference.

Table 1
TIA Approved Trip Generation

Land Use	Average Daily Traffic (vpd)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
		Enter	Exit	Enter	Exit
Total Trips	6,237	179	229	304	308

* See attached trip generation table from TIA report

Charlotte, NC - Raleigh, NC - Richmond, VA - Winston-Salem, NC

It is our understanding that the project is currently approved for two scenarios of residential development. Option 1 would allow 151 single-family homes + 57 townhomes + 192 apartments. Option 2 would allow 151 single-family homes + 37 additional single-family homes + 192 apartments. This study assumes the residential portion of the development will include a total of 300 residential units in addition to 264 apartments. The apartments would be increased by 72 units from 192 to 264 units. To be conservative, all 300 residential units are assumed to be detached instead of a mixture of single-family and townhomes. In addition, it is our understanding that the non-apartment residential units would be age-restricted to seniors. Commercial land uses are not known at this time.

Trips were generated for the updated land uses within the development using the ITE *Trip Generation Manual*, 9th Edition. Assumptions for the commercial land uses are the same as in the original TIA. Refer to Table 2 for the trip generation associated with the overall development.

Table 2
Future Overall Development Trip Generation – Updated Option

Land Use (ITE Code)	Density	Average Daily Traffic (vpd)	AM Peak Hour Trips (vph)		PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Senior Adult Housing – Detached (251) (ITE equation used)	300 units	1,257	28	53	62	40
Apartments (approved + 72 units) (210) (ITE equation used)	264 units (192 + 72)	1,723	27	106	106	57
Specialty Retail (826) (ITE equation used)	38,000 s.f.	1,663	0	0	50	63
General Office Building (710) (ITE equation used)	48,000 s.f.	752	93	13	22	110
High Turnover Sit Down Restaurant (932) (ITE rates used)	6,000 s.f.	763	36	29	35	24
Total – Option 1		6,160	184	201	274	294

Table 3 provides a comparison of the updated trip generation results for the development with the previously approved trip generation from the original TIA report.

Table 3
Trip Generation Comparison

Use Scenario	Average Daily Traffic (vpd)	AM Peak Hour Trips (vph)			PM Peak Hour Trips (vph)		
		Enter	Exit	Total	Enter	Exit	Total
Approved TIA	6,237	179	229	408	304	308	612
Updated Option	6,160	184	201	385	274	294	568

Conclusions

The updated land uses for the overall development are expected to generate fewer trips than the trip generation that was approved in the TIA report. The updated land uses include additional residential units and also assumes the single-family homes and townhomes are age-restricted. It should be noted that specific uses for the commercial portion of the development are unknown. The actual trips added to the roadway network will likely be less than shown in the tables above since the trip generation calculations do not consider reductions for internal capture trips between residential and commercial uses.

Please let us know if you have any questions regarding this information.

Sincerely,




Rynal Stephenson, P.E.
Regional Manager
RAMEY KEMP & ASSOCIATES, INC
NC Corporate License # C-0910

9-4-15

Attachment: TIA Report Pages

5. TRIP GENERATION

At full build out, the East Village development is expected to consist of approximately 141 single-family homes, 192 apartments, 48 townhomes, and commercial development along E. Front Street Extension. The commercial property located along E. Front Street Extension is currently zoned for neighborhood business uses. Based on discussions with the Town Planning staff, intense commercial development such as big-box retail space or grocery stores would not be allowed in this zoning. Based on uses allowed in this zoning, this study assumes the commercial property would be developed with 48,000 s.f. of office space, 38,000 s.f. of specialty retail space, and a 6,000 s.f. sit-down restaurant. The land use type and size of the commercial property uses were estimated for the purposes of this study. Refer to Appendix C for more information on the assumptions for the commercial property.

Average weekday daily, AM peak hour and PM peak hour trips for the proposed development were calculated utilizing methodology contained within the *ITE Trip Generation Manual*, 8th Edition. Refer to Table 2 for a summary of the trip generation results.

Table 2
East Village Site Trip Generation Table

Land Use	ITE Code	Size	24 Hour Volumes	AM Peak Hour Trips		PM Peak Hour Trips	
				Enter	Exit	Enter	Exit
Single-Family Detached Housing	210	141 Units	1,426	27	81	90	53
Apartments	220	192 Units	1,287	20	78	80	43
Townhomes	230	48 Units	340	5	24	22	11
Specialty Retail	814	38,000 sf	1,663	0	0	50	63
High Turnover Sit Down Restaurant	932	6,000 sf	763	36	33	39	27
General Office	710	48,000 sf	758	92	13	23	110
Total Trips			6,237	179	229	304	308



HagerSmith
DESIGN PA

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Civil Engineering
Planning
Interior Design

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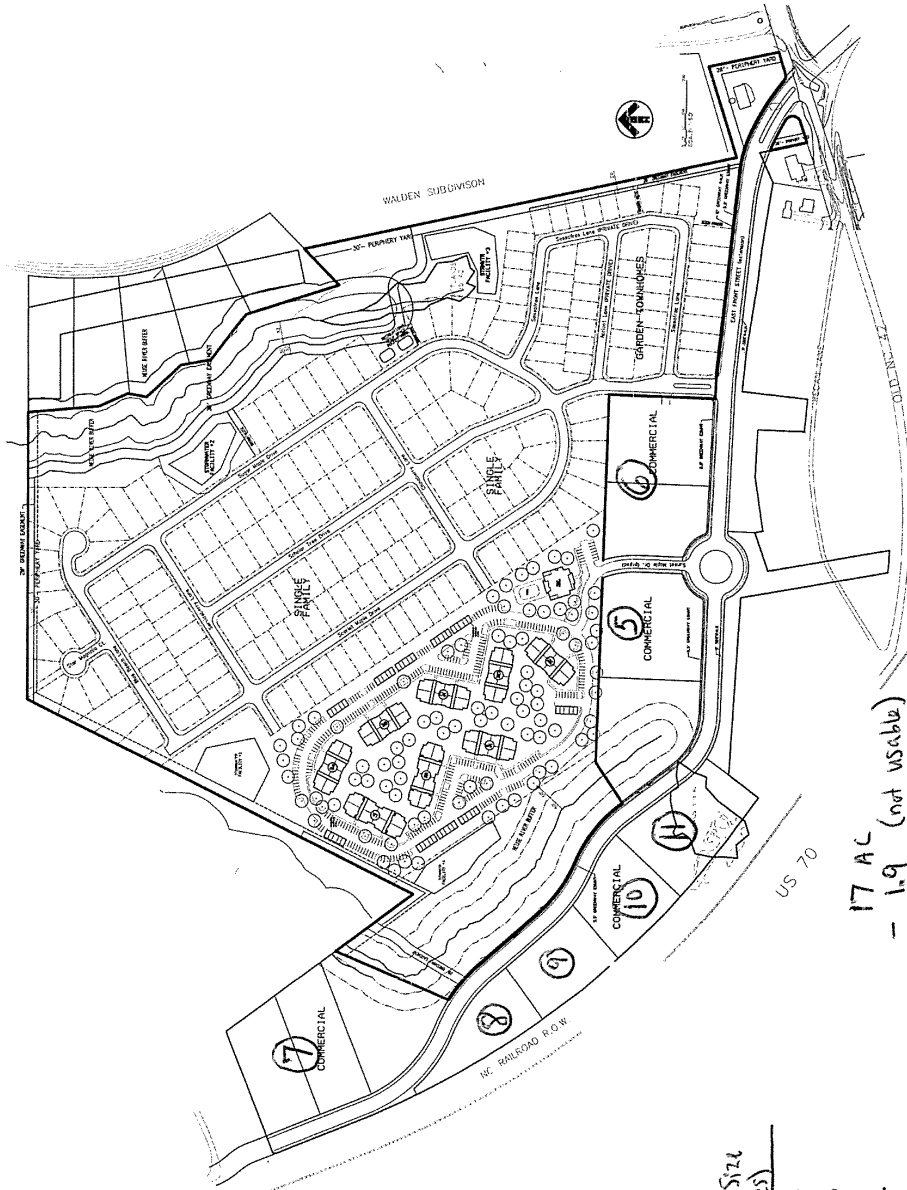
CONSULTANTS
NAMES

ARBORS AT
EAST VILLAGE

CLAYTON
MULTIFAMILY
INVESTMENTS, LLC

EAST VILLAGE PLAN

NO.	DESCRIPTION	DATE
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Parcel #	Approx Size (Acres)
5	4.4
6	3.6
7	2.8
8	1.5
9	1.3
10	1.5
11	1.9
17 AC TOTAL	

17 AC
- 1.9 (not usable)
- 2.8 (restaurant)

12.3 AC (retail + office)

Assume 6 AC office @ 8,000 sf/AC = 48,000 sf
6.3 AC retail @ 6,000 sf/AC = 38,000 sf

APPENDIX E

CAPACITY ANALYSIS CALCULATIONS

FRONT STREET

&

CENTRAL STREET

HCM 2010 TWSC
1: Front Street & Central Street

Existing (2018) AM
05/24/2018

Intersection

Int Delay, s/veh 12.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	3	137	85	138	100	2	144	26	91	0	15	6
Future Vol, veh/h	3	137	85	138	100	2	144	26	91	0	15	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	152	94	153	111	2	160	29	101	0	17	7

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	113	0	0	247	0	0	637	626	199	690	672	112
Stage 1	-	-	-	-	-	-	206	206	-	419	419	-
Stage 2	-	-	-	-	-	-	431	420	-	271	253	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1476	-	-	1319	-	-	390	401	842	359	377	941
Stage 1	-	-	-	-	-	-	796	731	-	612	590	-
Stage 2	-	-	-	-	-	-	603	589	-	735	698	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1476	-	-	1319	-	-	337	351	842	268	330	941
Mov Cap-2 Maneuver	-	-	-	-	-	-	337	351	-	268	330	-
Stage 1	-	-	-	-	-	-	794	730	-	611	517	-
Stage 2	-	-	-	-	-	-	508	516	-	620	697	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.1		4.7		29.3		14.4
HCM LOS					D		B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	428	1476	-	-	1319	-	-	405
HCM Lane V/C Ratio	0.678	0.002	-	-	0.116	-	-	0.058
HCM Control Delay (s)	29.3	7.4	0	-	8.1	0	-	14.4
HCM Lane LOS	D	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	4.9	0	-	-	0.4	-	-	0.2

HCM 2010 TWSC
1: Front Street & Central Street

Existing (2018) PM
06/01/2018

Intersection

Int Delay, s/veh 11.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	8	126	140	150	140	14	62	64	163	1	7	1
Future Vol, veh/h	8	126	140	150	140	14	62	64	163	1	7	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	140	156	167	156	16	69	71	181	1	8	1

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	171	0	0	296	0	0	737	740	218	859	810	163
Stage 1	-	-	-	-	-	-	236	236	-	497	497	-
Stage 2	-	-	-	-	-	-	501	504	-	362	313	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1406	-	-	1265	-	-	334	345	822	277	314	882
Stage 1	-	-	-	-	-	-	767	710	-	555	545	-
Stage 2	-	-	-	-	-	-	552	541	-	657	657	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1406	-	-	1265	-	-	288	292	822	156	266	882
Mov Cap-2 Maneuver	-	-	-	-	-	-	288	292	-	156	266	-
Stage 1	-	-	-	-	-	-	761	704	-	551	465	-
Stage 2	-	-	-	-	-	-	463	462	-	457	652	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.2		4.1		29.4		19.1
HCM LOS					D		C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	457	1406	-	-	1265	-	-	266
HCM Lane V/C Ratio	0.703	0.006	-	-	0.132	-	-	0.038
HCM Control Delay (s)	29.4	7.6	0	-	8.3	0	-	19.1
HCM Lane LOS	D	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	5.4	0	-	-	0.5	-	-	0.1

HCM 2010 TWSC
1: Front Street & Central Street

Background (2021) AM
06/04/2018

Intersection

Int Delay, s/veh 33.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	3	150	102	151	109	2	177	48	99	4	33	7
Future Vol, veh/h	3	150	102	151	109	2	177	48	99	4	33	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	167	113	168	121	2	197	53	110	4	37	8

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	123	0	0	280	0	0	710	689	223	770	745	122
Stage 1	-	-	-	-	-	-	230	230	-	458	458	-
Stage 2	-	-	-	-	-	-	480	459	-	312	287	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1464	-	-	1283	-	-	348	369	817	318	342	929
Stage 1	-	-	-	-	-	-	773	714	-	583	567	-
Stage 2	-	-	-	-	-	-	567	566	-	699	674	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1464	-	-	1283	-	-	279	316	817	214	293	929
Mov Cap-2 Maneuver	-	-	-	-	-	-	279	316	-	214	293	-
Stage 1	-	-	-	-	-	-	771	713	-	582	487	-
Stage 2	-	-	-	-	-	-	447	486	-	559	673	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.1		4.7		84.6		18.4
HCM LOS					F		C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	357	1464	-	-	1283	-	-	317
HCM Lane V/C Ratio	1.008	0.002	-	-	0.131	-	-	0.154
HCM Control Delay (s)	84.6	7.5	0	-	8.2	0	-	18.4
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	11.8	0	-	-	0.5	-	-	0.5

HCM 2010 TWSC
1: Front Street & Central Street

Background (2021) PM
06/04/2018

Intersection

Int Delay, s/veh 47.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	9	138	177	164	153	15	83	105	178	1	45	1
Future Vol, veh/h	9	138	177	164	153	15	83	105	178	1	45	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	153	197	182	170	17	92	117	198	1	50	1

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	187	0	0	350	0	0	840	823	252	972	913	178
Stage 1	-	-	-	-	-	-	272	272	-	543	543	-
Stage 2	-	-	-	-	-	-	568	551	-	429	370	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1387	-	-	1209	-	-	285	309	787	232	273	865
Stage 1	-	-	-	-	-	-	734	685	-	524	520	-
Stage 2	-	-	-	-	-	-	508	515	-	604	620	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1387	-	-	1209	-	-	205	255	787	98	225	865
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	255	-	98	225	-
Stage 1	-	-	-	-	-	-	727	679	-	519	433	-
Stage 2	-	-	-	-	-	-	373	428	-	371	614	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.2		4.2		132.3		26.1
HCM LOS					F		D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	351	1387	-	-	1209	-	-	222
HCM Lane V/C Ratio	1.159	0.007	-	-	0.151	-	-	0.235
HCM Control Delay (s)	132.3	7.6	0	-	8.5	0	-	26.1
HCM Lane LOS	F	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	16.3	0	-	-	0.5	-	-	0.9

HCM 2010 TWSC
1: Front Street & Central Street

Combined (2021) AM
06/04/2018

Intersection

Int Delay, s/veh 57.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	3	163	105	160	149	2	190	48	102	4	33	7
Future Vol, veh/h	3	163	105	160	149	2	190	48	102	4	33	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	181	117	178	166	2	211	53	113	4	37	8

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	168	0	0	298	0	0	790	769	239	851	826	167
Stage 1	-	-	-	-	-	-	246	246	-	522	522	-
Stage 2	-	-	-	-	-	-	544	523	-	329	304	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1410	-	-	1263	-	-	308	332	800	280	307	877
Stage 1	-	-	-	-	-	-	758	703	-	538	531	-
Stage 2	-	-	-	-	-	-	523	530	-	684	663	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1410	-	-	1263	-	-	240	280	800	181	259	877
Mov Cap-2 Maneuver	-	-	-	-	-	-	240	280	-	181	259	-
Stage 1	-	-	-	-	-	-	756	701	-	536	449	-
Stage 2	-	-	-	-	-	-	402	448	-	541	661	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.1		4.3		156.4		20.6
HCM LOS					F		C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	312	1410	-	-	1263	-	-	279
HCM Lane V/C Ratio	1.211	0.002	-	-	0.141	-	-	0.175
HCM Control Delay (s)	156.4	7.6	0	-	8.3	0	-	20.6
HCM Lane LOS	F	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	16.7	0	-	-	0.5	-	-	0.6

HCM 2010 TWSC
1: Front Street & Central Street

Combined (2021) PM
06/04/2018

Intersection

Int Delay, s/veh 78

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	9	181	186	169	176	15	90	105	187	1	45	1
Future Vol, veh/h	9	181	186	169	176	15	90	105	187	1	45	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	201	207	188	196	17	100	117	208	1	50	1

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	212	0	0	408	0	0	929	912	304	1066	1007	204
Stage 1	-	-	-	-	-	-	324	324	-	579	579	-
Stage 2	-	-	-	-	-	-	605	588	-	487	428	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1358	-	-	1151	-	-	248	274	736	200	241	837
Stage 1	-	-	-	-	-	-	688	650	-	501	501	-
Stage 2	-	-	-	-	-	-	485	496	-	562	585	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1358	-	-	1151	-	-	170	221	736	72	194	837
Mov Cap-2 Maneuver	-	-	-	-	-	-	170	221	-	72	194	-
Stage 1	-	-	-	-	-	-	681	644	-	496	408	-
Stage 2	-	-	-	-	-	-	346	404	-	327	579	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.2		4.1		230		31
HCM LOS					F		D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	304	1358	-	-	1151	-	-	190
HCM Lane V/C Ratio	1.396	0.007	-	-	0.163	-	-	0.275
HCM Control Delay (s)	230	7.7	0	-	8.7	0	-	31
HCM Lane LOS	F	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	22.2	0	-	-	0.6	-	-	1.1

APPENDIX F

CAPACITY ANALYSIS CALCULATIONS

CENTRAL STREET

&

MAIN STREET

Lanes, Volumes, Timings
2: Main Street & Central Street

Existing (2018) AM
05/24/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	107	143	173	139	86	138
Future Volume (vph)	107	143	173	139	86	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.940			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1751	0	1770	1863
Flt Permitted	0.950				0.524	
Satd. Flow (perm)	1770	1583	1751	0	976	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		25			25
Link Distance (ft)	195		1300			1066
Travel Time (s)	5.3		35.5			29.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	119	159	192	154	96	153
Shared Lane Traffic (%)						
Lane Group Flow (vph)	119	159	346	0	96	153
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	1		1	1
Detector Template						
Leading Detector (ft)	40	40	76		40	76
Trailing Detector (ft)	0	0	70		0	70
Detector 1 Position(ft)	0	0	70		0	70
Detector 1 Size(ft)	40	40	6		40	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	3.0	15.0	0.0		15.0	0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0
Minimum Split (s)	12.1	12.1	15.0		11.8	15.0
Total Split (s)	25.0	25.0	45.0		15.0	45.0

East Village Apartments
RKA

Synchro 9 Report
Page 1

Lanes, Volumes, Timings
2: Main Street & Central Street

Existing (2018) AM
05/24/2018

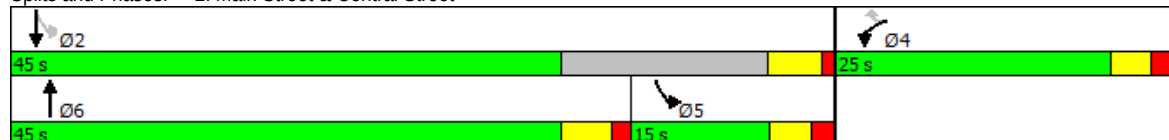
	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (%)	29.4%	29.4%	52.9%		17.6%	52.9%
Maximum Green (s)	19.9	19.9	40.0		10.2	40.0
Yellow Time (s)	3.0	3.0	3.7		3.0	3.9
All-Red Time (s)	2.1	2.1	1.3		1.8	1.1
Lost Time Adjust (s)	-0.1	-0.1	0.0		0.2	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	9.8	9.8	19.2		25.8	25.2
Actuated g/C Ratio	0.24	0.24	0.47		0.63	0.61
v/c Ratio	0.28	0.42	0.42		0.13	0.13
Control Delay	17.3	19.6	14.3		5.5	5.6
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	17.3	19.6	14.3		5.5	5.6
LOS	B	B	B		A	A
Approach Delay	18.6		14.3			5.6
Approach LOS	B		B			A

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 41
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.42
Intersection Signal Delay: 13.2
Intersection Capacity Utilization 41.9%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service A

Splits and Phases: 2: Main Street & Central Street



Lanes, Volumes, Timings
2: Main Street & Central Street

Existing (2018) PM
06/01/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	96	107	214	110	164	314
Future Volume (vph)	96	107	214	110	164	314
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.954			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1777	0	1770	1863
Flt Permitted	0.950				0.505	
Satd. Flow (perm)	1770	1583	1777	0	941	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		25			25
Link Distance (ft)	195		1300			1066
Travel Time (s)	5.3		35.5			29.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	107	119	238	122	182	349
Shared Lane Traffic (%)						
Lane Group Flow (vph)	107	119	360	0	182	349
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	1		1	1
Detector Template						
Leading Detector (ft)	40	40	76		40	76
Trailing Detector (ft)	0	0	70		0	70
Detector 1 Position(ft)	0	0	70		0	70
Detector 1 Size(ft)	40	40	6		40	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	3.0	15.0	0.0		15.0	0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0
Minimum Split (s)	12.1	12.1	15.0		11.8	15.0
Total Split (s)	25.0	25.0	45.0		15.0	45.0

East Village Apartments 05/16/2018 Existing (2018) PM
RKA

Synchro 9 Report
Page 1

Lanes, Volumes, Timings
2: Main Street & Central Street

Existing (2018) PM
06/01/2018

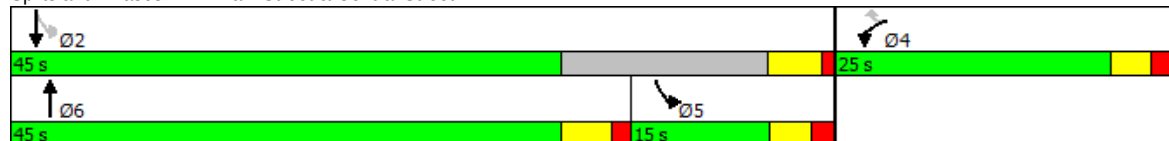
	↙	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (%)	29.4%	29.4%	52.9%		17.6%	52.9%
Maximum Green (s)	19.9	19.9	40.0		10.2	40.0
Yellow Time (s)	3.0	3.0	3.7		3.0	3.9
All-Red Time (s)	2.1	2.1	1.3		1.8	1.1
Lost Time Adjust (s)	-0.1	-0.1	0.0		0.2	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	8.8	8.8	18.4		25.6	27.2
Actuated g/C Ratio	0.21	0.21	0.45		0.62	0.66
v/c Ratio	0.28	0.35	0.45		0.25	0.28
Control Delay	18.4	19.7	15.0		6.3	5.5
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	18.4	19.7	15.0		6.3	5.5
LOS	B	B	B		A	A
Approach Delay	19.1		15.0			5.8
Approach LOS	B		B			A
Queue Length 50th (ft)	22	25	74		17	35
Queue Length 95th (ft)	63	70	157		44	84
Internal Link Dist (ft)	115		1220			986
Turn Bay Length (ft)					100	
Base Capacity (vph)	921	823	1624		853	1863
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.12	0.14	0.22		0.21	0.19

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 41.1
Natural Cycle: 45
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 11.4
Intersection Capacity Utilization 45.4%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service A

Splits and Phases: 2: Main Street & Central Street



Lanes, Volumes, Timings
2: Main Street & Central Street

Background (2021) AM
06/04/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	129	164	189	157	98	151
Future Volume (vph)	129	164	189	157	98	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.939			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1749	0	1770	1863
Flt Permitted	0.950				0.448	
Satd. Flow (perm)	1770	1583	1749	0	835	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		25			25
Link Distance (ft)	195		1300			1066
Travel Time (s)	5.3		35.5			29.1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	143	182	210	174	109	168
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	182	384	0	109	168
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0
Minimum Split (s)	12.1	12.1	15.0		11.8	15.0
Total Split (s)	25.0	25.0	45.0		15.0	45.0
Total Split (%)	29.4%	29.4%	52.9%		17.6%	52.9%
Maximum Green (s)	19.9	19.9	40.0		10.2	40.0
Yellow Time (s)	3.0	3.0	3.7		3.0	3.9
All-Red Time (s)	2.1	2.1	1.3		1.8	1.1
Lost Time Adjust (s)	-0.1	-0.1	0.0		0.2	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0
Recall Mode	None	None	Min		None	Min
Act Effct Green (s)	10.6	10.6	15.5		26.5	24.3
Actuated g/C Ratio	0.23	0.23	0.34		0.58	0.53
v/c Ratio	0.35	0.50	0.65		0.17	0.17
Control Delay	19.6	22.6	19.8		6.6	5.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	19.6	22.6	19.8		6.6	5.9
LOS	B	C	B		A	A
Approach Delay	21.3		19.8			6.2
Approach LOS	C		B			A

East Village Apartments
RKA

Synchro 9 Report
Page 1

Lanes, Volumes, Timings
2: Main Street & Central Street

Background (2021) AM
06/04/2018

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	32	43	88		11	18
Queue Length 95th (ft)	86	109	185		34	49
Internal Link Dist (ft)	115		1220			986
Turn Bay Length (ft)					100	
Base Capacity (vph)	830	742	1494		767	1824
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.17	0.25	0.26		0.14	0.09

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 45.6

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 16.5

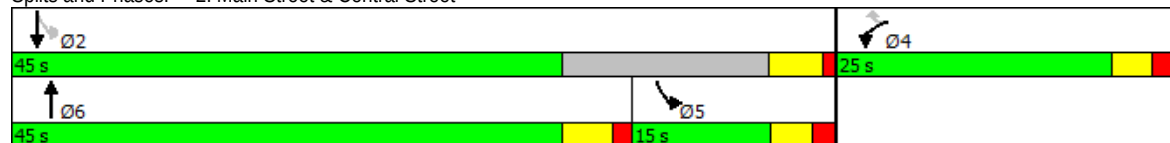
Intersection Capacity Utilization 45.0%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A

Splits and Phases: 2: Main Street & Central Street



Lanes, Volumes, Timings
2: Main Street & Central Street

Background (2021) PM
06/04/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	114	123	234	134	189	343
Future Volume (vph)	114	123	234	134	189	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.951			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1771	0	1770	1863
Flt Permitted	0.950				0.411	
Satd. Flow (perm)	1770	1583	1771	0	766	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		35			35
Link Distance (ft)	195		1300			1066
Travel Time (s)	5.3		25.3			20.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	127	137	260	149	210	381
Shared Lane Traffic (%)						
Lane Group Flow (vph)	127	137	409	0	210	381
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	1		1	1
Detector Template						
Leading Detector (ft)	40	40	76		40	76
Trailing Detector (ft)	0	0	70		0	70
Detector 1 Position(ft)	0	0	70		0	70
Detector 1 Size(ft)	40	40	6		40	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	3.0	15.0	0.0		15.0	0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0
Minimum Split (s)	12.1	12.1	15.0		11.8	15.0
Total Split (s)	25.0	25.0	45.0		15.0	45.0

East Village Apartments 05/16/2018 Background (2021) PM
RKA

Synchro 9 Report
Page 1

Lanes, Volumes, Timings
2: Main Street & Central Street

Background (2021) PM
06/04/2018

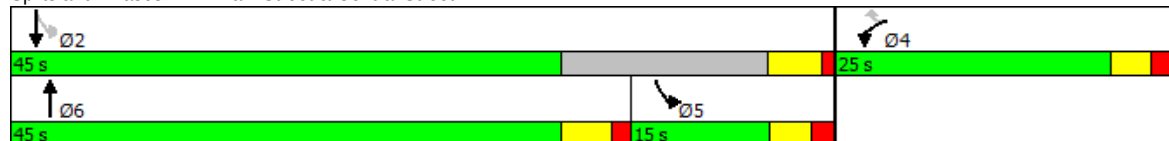
	↙	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (%)	29.4%	29.4%	52.9%		17.6%	52.9%
Maximum Green (s)	19.9	19.9	40.0		10.2	40.0
Yellow Time (s)	3.0	3.0	3.7		3.0	3.9
All-Red Time (s)	2.1	2.1	1.3		1.8	1.1
Lost Time Adjust (s)	-0.1	-0.1	0.0		0.2	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	9.2	9.2	15.3		27.8	27.8
Actuated g/C Ratio	0.19	0.19	0.32		0.59	0.59
v/c Ratio	0.37	0.45	0.71		0.35	0.35
Control Delay	21.5	23.5	22.0		8.0	6.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	21.5	23.5	22.0		8.0	6.2
LOS	C	C	C		A	A
Approach Delay	22.5		22.0			6.9
Approach LOS	C		C			A
Queue Length 50th (ft)	29	32	90		21	42
Queue Length 95th (ft)	82	89	200		54	98
Internal Link Dist (ft)	115		1220			986
Turn Bay Length (ft)					100	
Base Capacity (vph)	768	687	1528		715	1823
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.17	0.20	0.27		0.29	0.21

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 47.3
Natural Cycle: 50
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 15.0
Intersection Capacity Utilization 49.8%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service A

Splits and Phases: 2: Main Street & Central Street



Lanes, Volumes, Timings
2: Main Street & Central Street

Combined (2021) AM
06/04/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	173	173	189	170	101	151
Future Volume (vph)	173	173	189	170	101	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.936			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1744	0	1770	1863
Flt Permitted	0.950				0.432	
Satd. Flow (perm)	1770	1583	1744	0	805	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	35		45			45
Link Distance (ft)	195		1300			1066
Travel Time (s)	3.8		19.7			16.2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	192	192	210	189	112	168
Shared Lane Traffic (%)						
Lane Group Flow (vph)	192	192	399	0	112	168
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0
Minimum Split (s)	12.1	12.1	15.0		11.8	15.0
Total Split (s)	25.0	25.0	45.0		15.0	45.0
Total Split (%)	29.4%	29.4%	52.9%		17.6%	52.9%
Maximum Green (s)	19.9	19.9	40.0		10.2	40.0
Yellow Time (s)	3.0	3.0	3.7		3.0	3.9
All-Red Time (s)	2.1	2.1	1.3		1.8	1.1
Lost Time Adjust (s)	-0.1	-0.1	0.0		0.2	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0
Recall Mode	None	None	Min		None	Min
Act Effct Green (s)	11.2	11.2	16.5		27.7	25.3
Actuated g/C Ratio	0.24	0.24	0.35		0.58	0.53
v/c Ratio	0.46	0.52	0.66		0.18	0.17
Control Delay	22.0	23.7	20.2		6.9	6.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	22.0	23.7	20.2		6.9	6.0
LOS	C	C	C		A	A
Approach Delay	22.8		20.2			6.3
Approach LOS	C		C			A

East Village Apartments
RKA

Synchro 9 Report
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Lanes, Volumes, Timings
2: Main Street & Central Street

Combined (2021) AM
06/04/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Queue Length 50th (ft)	47	48	95		12	19
Queue Length 95th (ft)	116	120	201		36	51
Internal Link Dist (ft)	115		1220			986
Turn Bay Length (ft)					100	
Base Capacity (vph)	813	727	1437		750	1806
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.24	0.26	0.28		0.15	0.09

Intersection Summary

Area Type: Other

Cycle Length: 85

Actuated Cycle Length: 47.4

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 17.5

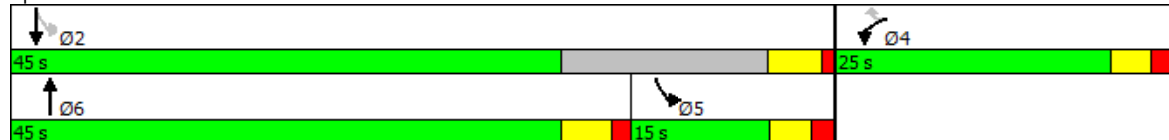
Intersection Capacity Utilization 48.3%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service A

Splits and Phases: 2: Main Street & Central Street



Lanes, Volumes, Timings
2: Main Street & Central Street

Combined (2021) PM
06/04/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	139	128	234	177	198	343
Future Volume (vph)	139	128	234	177	198	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	100				100	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.942			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1755	0	1770	1863
Flt Permitted	0.950				0.360	
Satd. Flow (perm)	1770	1583	1755	0	671	1863
Right Turn on Red		No		No		
Satd. Flow (RTOR)						
Link Speed (mph)	25		35			35
Link Distance (ft)	195		1300			1066
Travel Time (s)	5.3		25.3			20.8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	154	142	260	197	220	381
Shared Lane Traffic (%)						
Lane Group Flow (vph)	154	142	457	0	220	381
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	1		1	1
Detector Template						
Leading Detector (ft)	40	40	76		40	76
Trailing Detector (ft)	0	0	70		0	70
Detector 1 Position(ft)	0	0	70		0	70
Detector 1 Size(ft)	40	40	6		40	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	3.0	15.0	0.0		15.0	0.0
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		6		5	2
Permitted Phases		4			2	
Detector Phase	4	4	6		5	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	10.0		7.0	10.0
Minimum Split (s)	12.1	12.1	15.0		11.8	15.0
Total Split (s)	25.0	25.0	45.0		15.0	45.0

East Village Apartments 05/16/2018 Combined (2021) PM
RKA

Synchro 9 Report
Page 1

Lanes, Volumes, Timings
2: Main Street & Central Street

Combined (2021) PM
06/04/2018

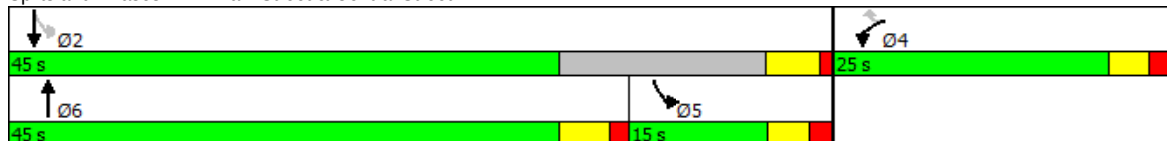
						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Split (%)	29.4%	29.4%	52.9%		17.6%	52.9%
Maximum Green (s)	19.9	19.9	40.0		10.2	40.0
Yellow Time (s)	3.0	3.0	3.7		3.0	3.9
All-Red Time (s)	2.1	2.1	1.3		1.8	1.1
Lost Time Adjust (s)	-0.1	-0.1	0.0		0.2	0.0
Total Lost Time (s)	5.0	5.0	5.0		5.0	5.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	2.0	2.0	3.0		2.0	3.0
Recall Mode	None	None	Min		None	Min
Act Effect Green (s)	9.7	9.7	17.0		30.1	30.1
Actuated g/C Ratio	0.19	0.19	0.34		0.60	0.60
v/c Ratio	0.45	0.47	0.77		0.38	0.34
Control Delay	24.5	25.5	24.4		9.1	6.1
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	24.5	25.5	24.4		9.1	6.1
LOS	C	C	C		A	A
Approach Delay	25.0		24.4			7.2
Approach LOS	C		C			A
Queue Length 50th (ft)	38	35	107		23	43
Queue Length 95th (ft)	104	99	237		58	102
Internal Link Dist (ft)	115		1220			986
Turn Bay Length (ft)					100	
Base Capacity (vph)	732	655	1443		664	1797
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.21	0.22	0.32		0.33	0.21

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 50.1
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 16.9
Intersection Capacity Utilization 54.3%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service A

Splits and Phases: 2: Main Street & Central Street



APPENDIX G

CAPACITY ANALYSIS CALCULATIONS

FRONT STREET

&

NC 42

Lanes, Volumes, Timings
3: NC 42 & Front Street

Existing (2018) AM
05/24/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Volume (vph)	5	48	532	0	1185	214	197	98
Future Volume (vph)	5	48	532	0	1185	214	197	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		100		200	0	0
Storage Lanes		1		1		1	2	1
Taper Length (ft)		100		100			100	
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00
Frt						0.850		0.850
Flt Protected		0.950					0.950	
Satd. Flow (prot)	0	1770	3539	1863	3539	1583	3433	1583
Flt Permitted		0.160					0.950	
Satd. Flow (perm)	0	298	3539	1863	3539	1583	3433	1583
Right Turn on Red						No		No
Satd. Flow (RTOR)								
Link Speed (mph)			30		45		35	
Link Distance (ft)			1327		1539		289	
Travel Time (s)			30.2		23.3		5.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	53	591	0	1317	238	219	109
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	59	591	0	1317	238	219	109
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)			12		12		24	
Link Offset(ft)			0		0		0	
Crosswalk Width(ft)			16		16		16	
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9		9	15	9
Number of Detectors	1	1	1	0	1	0	1	1
Detector Template	Left							
Leading Detector (ft)	20	35	306	0	306	0	35	35
Trailing Detector (ft)	0	-5	300	0	300	0	-5	-5
Detector 1 Position(ft)	0	-5	300	0	300	0	-5	-5
Detector 1 Size(ft)	20	40	6	20	6	20	40	40
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	15.0	0.0	0.0	0.0	0.0	3.0	15.0
Turn Type		pm+pt	NA	D.Pm	NA	pm+ov	Prot	Perm
Protected Phases		5	2		6	4	4	
Permitted Phases		2		2		6		4
Detector Phase		5	2	2	6	4	4	4
Switch Phase								
Minimum Initial (s)		7.0	12.0	12.0	12.0	7.0	7.0	7.0
Minimum Split (s)		13.4	18.5	18.5	18.5	13.2	13.2	13.2
Total Split (s)		20.0	90.0	90.0	90.0	20.0	20.0	20.0

East Village Apartments
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Synchro 9 Report
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Lanes, Volumes, Timings
3: NC 42 & Front Street

Existing (2018) AM
05/24/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Total Split (%)		15.4%	69.2%	69.2%	69.2%	15.4%	15.4%	15.4%
Maximum Green (s)		13.6	83.5	83.5	83.5	13.8	13.8	13.8
Yellow Time (s)		3.0	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)		3.4	2.0	2.0	2.0	3.2	3.2	3.2
Lost Time Adjust (s)		-1.4	-1.5	-1.5	-1.5	-1.2	-1.2	-1.2
Total Lost Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead			Lag			
Lead-Lag Optimize?		Yes			Yes			
Vehicle Extension (s)		2.0	6.0	6.0	6.0	2.0	2.0	2.0
Minimum Gap (s)		2.0	3.0	3.0	3.0	2.0	2.0	2.0
Time Before Reduce (s)		0.0	15.0	15.0	15.0	0.0	0.0	0.0
Time To Reduce (s)		0.0	45.0	45.0	45.0	0.0	0.0	0.0
Recall Mode		None	C-Min	C-Min	C-Min	None	None	None
Act Effect Green (s)		105.2	105.2		94.4	115.3	14.8	14.8
Actuated g/C Ratio		0.81	0.81		0.73	0.89	0.11	0.11
v/c Ratio		0.18	0.21		0.51	0.17	0.56	0.61
Control Delay		4.1	3.3		9.6	1.7	59.5	68.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		4.1	3.3		9.6	1.7	59.5	68.3
LOS		A	A		A	A	E	E
Approach Delay			3.3		8.4		62.4	
Approach LOS			A		A		E	

Intersection Summary

Area Type: Other
 Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 40 (31%), Referenced to phase 2:EBWB and 6:WBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 14.1
 Intersection Capacity Utilization 57.2%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 3: NC 42 & Front Street



Lanes, Volumes, Timings
3: NC 42 & Front Street

Existing (2018) PM
06/01/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Volume (vph)	4	114	964	3	1063	240	280	61
Future Volume (vph)	4	114	964	3	1063	240	280	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		100		200	0	0
Storage Lanes		1		1		1	2	1
Taper Length (ft)		100		100			100	
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00
Frt						0.850		0.850
Flt Protected		0.950		0.950			0.950	
Satd. Flow (prot)	0	1770	3539	1770	3539	1583	3433	1583
Flt Permitted		0.166		0.245			0.950	
Satd. Flow (perm)	0	309	3539	456	3539	1583	3433	1583
Right Turn on Red						No		No
Satd. Flow (RTOR)								
Link Speed (mph)			30		45		35	
Link Distance (ft)			1327		1539		289	
Travel Time (s)			30.2		23.3		5.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	127	1071	3	1181	267	311	68
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	131	1071	3	1181	267	311	68
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)			12		12		24	
Link Offset(ft)			0		0		0	
Crosswalk Width(ft)			16		16		16	
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9		9	15	9
Number of Detectors	1	1	1	0	1	0	1	1
Detector Template	Left							
Leading Detector (ft)	20	35	306	0	306	0	35	35
Trailing Detector (ft)	0	-5	300	0	300	0	-5	-5
Detector 1 Position(ft)	0	-5	300	0	300	0	-5	-5
Detector 1 Size(ft)	20	40	6	20	6	20	40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	15.0	0.0	0.0	0.0	0.0	3.0	15.0
Turn Type	custom	pm+pt	NA	D.Pm	NA	pm+ov	Prot	Perm
Protected Phases		5	2		6	4	4	
Permitted Phases	5	2		2		6		4
Detector Phase	5	5	2	2	6	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	12.0	12.0	12.0	7.0	7.0	7.0
Minimum Split (s)	13.4	13.4	18.5	18.5	18.5	13.2	13.2	13.2
Total Split (s)	18.0	18.0	78.0	78.0	60.0	22.0	22.0	22.0

East Village Apartments 05/16/2018 Existing (2018) PM
RKA

Synchro 9 Report
Page 1

Lanes, Volumes, Timings
3: NC 42 & Front Street

Existing (2018) PM
06/01/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Total Split (%)	18.0%	18.0%	78.0%	78.0%	60.0%	22.0%	22.0%	22.0%
Maximum Green (s)	11.6	11.6	71.5	71.5	53.5	15.8	15.8	15.8
Yellow Time (s)	3.0	3.0	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	3.4	3.4	2.0	2.0	2.0	3.2	3.2	3.2
Lost Time Adjust (s)		-1.4	-1.5	-1.5	-1.5	-1.2	-1.2	-1.2
Total Lost Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead			Lag			
Lead-Lag Optimize?	Yes	Yes			Yes			
Vehicle Extension (s)	2.0	2.0	6.0	6.0	6.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	2.0	3.0	3.0	3.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	15.0	15.0	15.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	45.0	45.0	45.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min	None	None	None
Act Effect Green (s)		75.2	75.2	75.2	61.4	81.2	14.8	14.8
Actuated g/C Ratio		0.75	0.75	0.75	0.61	0.81	0.15	0.15
v/c Ratio		0.36	0.40	0.01	0.54	0.21	0.61	0.29
Control Delay		6.6	5.2	4.0	12.9	2.6	44.9	40.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		6.6	5.2	4.0	12.9	2.6	44.9	40.1
LOS		A	A	A	B	A	D	D
Approach Delay			5.4		11.0		44.0	
Approach LOS			A		B		D	
Queue Length 50th (ft)		18	104	0	207	28	97	39
Queue Length 95th (ft)		41	165	3	313	50	134	76
Internal Link Dist (ft)			1247		1459		209	
Turn Bay Length (ft)		300		100		200		
Base Capacity (vph)		422	2677	344	2172	1327	599	276
Starvation Cap Reductn		0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0
Reduced v/c Ratio		0.31	0.40	0.01	0.54	0.20	0.52	0.25

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 24 (24%), Referenced to phase 2:EBWB and 6:WBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 12.9
 Intersection Capacity Utilization 57.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 3: NC 42 & Front Street



East Village Apartments 05/16/2018 Existing (2018) PM
RKA

Synchro 9 Report
Page 2

Lanes, Volumes, Timings
3: NC 42 & Old State Hwy 42

Background (2021) AM
06/04/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Volume (vph)	5	74	648	0	1390	253	239	158
Future Volume (vph)	5	74	648	0	1390	253	239	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		100		200	0	0
Storage Lanes		1		1		1	2	1
Taper Length (ft)		100		100			100	
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00
Frt						0.850		0.850
Flt Protected		0.950					0.950	
Satd. Flow (prot)	0	1770	3539	1863	3539	1583	3433	1583
Flt Permitted		0.090					0.950	
Satd. Flow (perm)	0	168	3539	1863	3539	1583	3433	1583
Right Turn on Red						No		No
Satd. Flow (RTOR)								
Link Speed (mph)			30		45		35	
Link Distance (ft)			1327		1539		289	
Travel Time (s)			30.2		23.3		5.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	82	720	0	1544	281	266	176
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	88	720	0	1544	281	266	176
Turn Type	custom	pm+pt	NA	D.Pm	NA	pm+ov	Prot	Perm
Protected Phases		5	2		6	4	4	
Permitted Phases	5	2		2		6		4
Detector Phase	5	5	2	2	6	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	12.0	12.0	12.0	7.0	7.0	7.0
Minimum Split (s)	13.4	13.4	18.5	18.5	18.5	13.2	13.2	13.2
Total Split (s)	18.0	18.0	80.0	80.0	62.0	20.0	20.0	20.0
Total Split (%)	18.0%	18.0%	80.0%	80.0%	62.0%	20.0%	20.0%	20.0%
Maximum Green (s)	11.6	11.6	73.5	73.5	55.5	13.8	13.8	13.8
Yellow Time (s)	3.0	3.0	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	3.4	3.4	2.0	2.0	2.0	3.2	3.2	3.2
Lost Time Adjust (s)		-1.4	-1.5	-1.5	-1.5	-1.2	-1.2	-1.2
Total Lost Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead			Lag			
Lead-Lag Optimize?	Yes	Yes			Yes			
Vehicle Extension (s)	2.0	2.0	6.0	6.0	6.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	2.0	3.0	3.0	3.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	15.0	15.0	15.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	45.0	45.0	45.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min	None	None	None
Act Effect Green (s)		74.4	74.4		63.7	85.3	15.6	15.6
Actuated g/C Ratio		0.74	0.74		0.64	0.85	0.16	0.16
v/c Ratio		0.34	0.27		0.69	0.21	0.50	0.71
Control Delay		7.4	4.6		15.0	2.3	41.7	56.7
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		7.4	4.6		15.0	2.3	41.7	56.7

East Village Apartments
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Synchro 9 Report
Page 1

Lanes, Volumes, Timings
3: NC 42 & Old State Hwy 42

Background (2021) AM
06/04/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
LOS		A	A		B	A	D	E
Approach Delay			4.9		13.0		47.7	
Approach LOS			A		B		D	
Queue Length 50th (ft)		14	70		346	29	79	106
Queue Length 95th (ft)		24	83		409	47	121	#207
Internal Link Dist (ft)			1247		1459		209	
Turn Bay Length (ft)		300				200		
Base Capacity (vph)		333	2684		2254	1347	564	260
Starvation Cap Reductn		0	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.26	0.27		0.69	0.21	0.47	0.68

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 52 (52%), Referenced to phase 2:EBWB and 6:WBT, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 15.9
 Intersection LOS: B
 Intersection Capacity Utilization 66.5%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: NC 42 & Old State Hwy 42



Lanes, Volumes, Timings
3: NC 42 & Front Street

Background (2021) PM
06/04/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Volume (vph)	4	184	1201	3	1296	304	343	103
Future Volume (vph)	4	184	1201	3	1296	304	343	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		100		200	0	0
Storage Lanes		1		1		1	2	1
Taper Length (ft)		100		100			100	
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00
Frt						0.850		0.850
Flt Protected		0.950		0.950			0.950	
Satd. Flow (prot)	0	1770	3539	1770	3539	1583	3433	1583
Flt Permitted		0.094		0.173			0.950	
Satd. Flow (perm)	0	175	3539	322	3539	1583	3433	1583
Right Turn on Red						No		No
Satd. Flow (RTOR)								
Link Speed (mph)			45		45		35	
Link Distance (ft)			1327		1539		289	
Travel Time (s)			20.1		23.3		5.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	204	1334	3	1440	338	381	114
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	208	1334	3	1440	338	381	114
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)			12		12		24	
Link Offset(ft)			0		0		0	
Crosswalk Width(ft)			16		16		16	
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9		9	15	9
Number of Detectors	1	1	1	0	1	0	1	1
Detector Template	Left							
Leading Detector (ft)	20	35	306	0	306	0	35	35
Trailing Detector (ft)	0	-5	300	0	300	0	-5	-5
Detector 1 Position(ft)	0	-5	300	0	300	0	-5	-5
Detector 1 Size(ft)	20	40	6	20	6	20	40	40
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	15.0	0.0	0.0	0.0	0.0	3.0	15.0
Turn Type	custom	pm+pt	NA	D.Pm	NA	pm+ov	Prot	Perm
Protected Phases		5	2		6	4	4	
Permitted Phases	5	2		2		6		4
Detector Phase	5	5	2	2	6	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	12.0	12.0	12.0	7.0	7.0	7.0
Minimum Split (s)	13.4	13.4	18.5	18.5	18.5	13.2	13.2	13.2
Total Split (s)	18.0	18.0	78.0	78.0	60.0	22.0	22.0	22.0

East Village Apartments 05/16/2018 Background (2021) PM
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Synchro 9 Report
Page 1

Lanes, Volumes, Timings
3: NC 42 & Front Street

Background (2021) PM
06/04/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Total Split (%)	18.0%	18.0%	78.0%	78.0%	60.0%	22.0%	22.0%	22.0%
Maximum Green (s)	11.6	11.6	71.5	71.5	53.5	15.8	15.8	15.8
Yellow Time (s)	3.0	3.0	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	3.4	3.4	2.0	2.0	2.0	3.2	3.2	3.2
Lost Time Adjust (s)		-1.4	-1.5	-1.5	-1.5	-1.2	-1.2	-1.2
Total Lost Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead			Lag			
Lead-Lag Optimize?	Yes	Yes			Yes			
Vehicle Extension (s)	2.0	2.0	6.0	6.0	6.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	2.0	3.0	3.0	3.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	15.0	15.0	15.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	45.0	45.0	45.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min	None	None	None
Act Effct Green (s)		74.0	74.0	74.0	57.7	78.7	16.0	16.0
Actuated g/C Ratio		0.74	0.74	0.74	0.58	0.79	0.16	0.16
v/c Ratio		0.67	0.51	0.01	0.71	0.27	0.69	0.45
Control Delay		24.6	6.5	4.0	18.3	3.7	46.6	43.6
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		24.6	6.5	4.0	18.3	3.7	46.6	43.6
LOS		C	A	A	B	A	D	D
Approach Delay			8.9		15.5		45.9	
Approach LOS			A		B		D	
Queue Length 50th (ft)		50	161	0	331	47	119	66
Queue Length 95th (ft)		127	205	3	432	78	168	120
Internal Link Dist (ft)			1247		1459		209	
Turn Bay Length (ft)		300		100		200		
Base Capacity (vph)		342	2633	239	2068	1267	598	276
Starvation Cap Reductn		0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0
Reduced v/c Ratio		0.61	0.51	0.01	0.70	0.27	0.64	0.41

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 24 (24%), Referenced to phase 2:EBWB and 6:WBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 16.8
 Intersection Capacity Utilization 68.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 3: NC 42 & Front Street



East Village Apartments 05/16/2018 Background (2021) PM
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Synchro 9 Report
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Lanes, Volumes, Timings
3: NC 42 & Old State Hwy 42

Combined (2021) AM
06/04/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Volume (vph)	5	78	648	0	1390	260	261	172
Future Volume (vph)	5	78	648	0	1390	260	261	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		100		200	0	0
Storage Lanes		1		1		1	2	1
Taper Length (ft)		100		100			100	
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00
Frt						0.850		0.850
Flt Protected		0.950					0.950	
Satd. Flow (prot)	0	1770	3539	1863	3539	1583	3433	1583
Flt Permitted		0.086					0.950	
Satd. Flow (perm)	0	160	3539	1863	3539	1583	3433	1583
Right Turn on Red						No		No
Satd. Flow (RTOR)								
Link Speed (mph)			45		45		35	
Link Distance (ft)			1327		1539		289	
Travel Time (s)			20.1		23.3		5.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	87	720	0	1544	289	290	191
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	93	720	0	1544	289	290	191
Turn Type	custom	pm+pt	NA	D.Pm	NA	pm+ov	Prot	Perm
Protected Phases		5	2		6	4	4	
Permitted Phases	5	2		2		6		4
Detector Phase	5	5	2	2	6	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	12.0	12.0	12.0	7.0	7.0	7.0
Minimum Split (s)	13.4	13.4	18.5	18.5	18.5	13.2	13.2	13.2
Total Split (s)	18.0	18.0	80.0	80.0	62.0	20.0	20.0	20.0
Total Split (%)	18.0%	18.0%	80.0%	80.0%	62.0%	20.0%	20.0%	20.0%
Maximum Green (s)	11.6	11.6	73.5	73.5	55.5	13.8	13.8	13.8
Yellow Time (s)	3.0	3.0	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	3.4	3.4	2.0	2.0	2.0	3.2	3.2	3.2
Lost Time Adjust (s)		-1.4	-1.5	-1.5	-1.5	-1.2	-1.2	-1.2
Total Lost Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead			Lag			
Lead-Lag Optimize?	Yes	Yes			Yes			
Vehicle Extension (s)	2.0	2.0	6.0	6.0	6.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	2.0	3.0	3.0	3.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	15.0	15.0	15.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	45.0	45.0	45.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min	None	None	None
Act Effect Green (s)		73.6	73.6		62.6	84.9	16.4	16.4
Actuated g/C Ratio		0.74	0.74		0.63	0.85	0.16	0.16
v/c Ratio		0.36	0.28		0.70	0.22	0.52	0.74
Control Delay		8.4	4.8		15.8	2.4	41.6	57.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0
Total Delay		8.4	4.8		15.8	2.4	41.6	57.9

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Synchro 9 Report
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Lanes, Volumes, Timings
3: NC 42 & Old State Hwy 42

Combined (2021) AM
06/04/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
LOS		A	A		B	A	D	E
Approach Delay			5.2		13.7		48.1	
Approach LOS			A		B		D	
Queue Length 50th (ft)		15	75		361	31	85	114
Queue Length 95th (ft)		29	82		426	54	132	#234
Internal Link Dist (ft)			1247		1459		209	
Turn Bay Length (ft)		300				200		
Base Capacity (vph)		327	2674		2216	1337	580	267
Starvation Cap Reductn		0	0		0	0	0	0
Spillback Cap Reductn		0	0		0	0	0	0
Storage Cap Reductn		0	0		0	0	0	0
Reduced v/c Ratio		0.28	0.27		0.70	0.22	0.50	0.72

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 52 (52%), Referenced to phase 2:EBWB and 6:WBT, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 16.8
 Intersection LOS: B
 Intersection Capacity Utilization 67.4%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: NC 42 & Old State Hwy 42



Lanes, Volumes, Timings
3: NC 42 & Front Street

Combined (2021) PM
06/04/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Volume (vph)	4	197	1201	3	1296	325	356	110
Future Volume (vph)	4	197	1201	3	1296	325	356	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300		100		200	0	0
Storage Lanes		1		1		1	2	1
Taper Length (ft)		100		100			100	
Lane Util. Factor	0.95	1.00	0.95	1.00	0.95	1.00	0.97	1.00
Frt						0.850		0.850
Flt Protected		0.950		0.950			0.950	
Satd. Flow (prot)	0	1770	3539	1770	3539	1583	3433	1583
Flt Permitted		0.092		0.172			0.950	
Satd. Flow (perm)	0	171	3539	320	3539	1583	3433	1583
Right Turn on Red						No		No
Satd. Flow (RTOR)								
Link Speed (mph)			45		45		35	
Link Distance (ft)			1327		1539		289	
Travel Time (s)			20.1		23.3		5.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	4	219	1334	3	1440	361	396	122
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	223	1334	3	1440	361	396	122
Enter Blocked Intersection	No	No	No	No	No	No	No	No
Lane Alignment	R NA	Left	Left	R NA	Left	Right	Left	Right
Median Width(ft)			12		12		24	
Link Offset(ft)			0		0		0	
Crosswalk Width(ft)			16		16		16	
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	9	15		9		9	15	9
Number of Detectors	1	1	1	0	1	0	1	1
Detector Template	Left							
Leading Detector (ft)	20	35	306	0	306	0	35	35
Trailing Detector (ft)	0	-5	300	0	300	0	-5	-5
Detector 1 Position(ft)	0	-5	300	0	300	0	-5	-5
Detector 1 Size(ft)	20	40	6	20	6	20	40	40
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel								
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	15.0	0.0	0.0	0.0	0.0	3.0	15.0
Turn Type	custom	pm+pt	NA	D.Pm	NA	pm+ov	Prot	Perm
Protected Phases		5	2		6	4	4	
Permitted Phases	5	2		2		6		4
Detector Phase	5	5	2	2	6	4	4	4
Switch Phase								
Minimum Initial (s)	7.0	7.0	12.0	12.0	12.0	7.0	7.0	7.0
Minimum Split (s)	13.4	13.4	18.5	18.5	18.5	13.2	13.2	13.2
Total Split (s)	18.0	18.0	78.0	78.0	60.0	22.0	22.0	22.0

East Village Apartments 05/16/2018 Combined (2021) PM
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Synchro 9 Report
Page 1

Lanes, Volumes, Timings
3: NC 42 & Front Street

Combined (2021) PM
06/04/2018

								
Lane Group	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Total Split (%)	18.0%	18.0%	78.0%	78.0%	60.0%	22.0%	22.0%	22.0%
Maximum Green (s)	11.6	11.6	71.5	71.5	53.5	15.8	15.8	15.8
Yellow Time (s)	3.0	3.0	4.5	4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	3.4	3.4	2.0	2.0	2.0	3.2	3.2	3.2
Lost Time Adjust (s)		-1.4	-1.5	-1.5	-1.5	-1.2	-1.2	-1.2
Total Lost Time (s)		5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lead			Lag			
Lead-Lag Optimize?	Yes	Yes			Yes			
Vehicle Extension (s)	2.0	2.0	6.0	6.0	6.0	2.0	2.0	2.0
Minimum Gap (s)	2.0	2.0	3.0	3.0	3.0	2.0	2.0	2.0
Time Before Reduce (s)	0.0	0.0	15.0	15.0	15.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	45.0	45.0	45.0	0.0	0.0	0.0
Recall Mode	None	None	C-Min	C-Min	C-Min	None	None	None
Act Effct Green (s)		73.7	73.7	73.7	57.0	78.4	16.3	16.3
Actuated g/C Ratio		0.74	0.74	0.74	0.57	0.78	0.16	0.16
v/c Ratio		0.72	0.51	0.01	0.71	0.29	0.71	0.47
Control Delay		28.7	6.6	4.0	18.8	3.9	46.8	44.0
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		28.7	6.6	4.0	18.8	3.9	46.8	44.0
LOS		C	A	A	B	A	D	D
Approach Delay			9.8		15.8		46.1	
Approach LOS			A		B		D	
Queue Length 50th (ft)		62	164	0	345	55	123	71
Queue Length 95th (ft)		#143	205	3	432	85	173	128
Internal Link Dist (ft)			1247		1459		209	
Turn Bay Length (ft)		300		100		200		
Base Capacity (vph)		336	2625	237	2044	1259	602	277
Starvation Cap Reductn		0	0	0	0	0	0	0
Spillback Cap Reductn		0	0	0	0	0	0	0
Storage Cap Reductn		0	0	0	0	0	0	0
Reduced v/c Ratio		0.66	0.51	0.01	0.70	0.29	0.66	0.44

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 24 (24%), Referenced to phase 2:EBWB and 6:WBT, Start of Green
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 17.4
 Intersection Capacity Utilization 69.6%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: NC 42 & Front Street



APPENDIX H

CAPACITY ANALYSIS CALCULATIONS

FRONT STREET

&

OLD STATE NC 42 / WALDEN WAY

HCM 2010 TWSC
4: Old State Hwy 42 & Walden Way & Front Street

Existing (2018) AM
06/05/2018

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	22	1	33	18	1	15	58	197	7	6	244	17
Future Vol, veh/h	22	1	33	18	1	15	58	197	7	6	244	17
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	-	-	-	-	-	-	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	1	37	20	1	17	64	219	8	7	271	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	655	650	145	501	655	223	290	0	0	227	0	0
Stage 1	294	294	-	352	352	-	-	-	-	-	-	-
Stage 2	361	356	-	149	303	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	365	387	877	467	385	816	1270	-	-	1340	-	-
Stage 1	691	669	-	664	631	-	-	-	-	-	-	-
Stage 2	657	628	-	839	663	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	339	362	877	425	360	816	1270	-	-	1340	-	-
Mov Cap-2 Maneuver	339	362	-	425	360	-	-	-	-	-	-	-
Stage 1	651	665	-	625	594	-	-	-	-	-	-	-
Stage 2	605	592	-	798	659	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.7	12.2	1.8	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1270	-	-	532	535	1340	-
HCM Lane V/C Ratio	0.051	-	-	0.117	0.071	0.005	-
HCM Control Delay (s)	8	0	-	12.7	12.2	7.7	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.4	0.2	0	-

HCM 2010 TWSC
4: Front Street & Old State Hwy 42/Walden Way

Existing (2018) PM
06/05/2018

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	19	2	93	15	3	4	70	267	17	10	233	37
Future Vol, veh/h	19	2	93	15	3	4	70	267	17	10	233	37
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	-	-	-	-	-	-	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	2	103	17	3	4	78	297	19	11	259	41

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	768	773	150	615	784	306	300	0	0	316	0	0
Stage 1	302	302	-	462	462	-	-	-	-	-	-	-
Stage 2	466	471	-	153	322	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	305	329	870	389	324	733	1260	-	-	1243	-	-
Stage 1	683	664	-	579	564	-	-	-	-	-	-	-
Stage 2	576	559	-	835	650	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	281	301	870	319	296	733	1260	-	-	1243	-	-
Mov Cap-2 Maneuver	281	301	-	319	296	-	-	-	-	-	-	-
Stage 1	632	657	-	536	522	-	-	-	-	-	-	-
Stage 2	526	517	-	725	643	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.2	16	1.6	0.3
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1260	-	-	629	351	1243	-
HCM Lane V/C Ratio	0.062	-	-	0.201	0.07	0.009	-
HCM Control Delay (s)	8	0	-	12.2	16	7.9	0
HCM Lane LOS	A	A	-	B	C	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.7	0.2	0	-

HCM 2010 TWSC
4: Old State Hwy 42 & Walden Way & Front Street

Background (2021) AM
06/05/2018

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	24	1	36	20	1	16	63	256	8	7	342	19
Future Vol, veh/h	24	1	36	20	1	16	63	256	8	7	342	19
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	-	-	-	-	-	-	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	1	40	22	1	18	70	284	9	8	380	21

Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	844	839	201	635	846	289	401	0	0	293	0	0
Stage 1	406	406	-	429	429	-	-	-	-	-	-	-
Stage 2	438	433	-	206	417	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	269	301	807	377	298	749	1156	-	-	1267	-	-
Stage 1	593	597	-	603	583	-	-	-	-	-	-	-
Stage 2	597	581	-	777	590	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	246	277	807	336	274	749	1156	-	-	1267	-	-
Mov Cap-2 Maneuver	246	277	-	336	274	-	-	-	-	-	-	-
Stage 1	550	592	-	560	541	-	-	-	-	-	-	-
Stage 2	540	539	-	731	585	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.3	14.1	1.6	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1156	-	-	418	438	1267	-
HCM Lane V/C Ratio	0.061	-	-	0.162	0.094	0.006	-
HCM Control Delay (s)	8.3	0	-	15.3	14.1	7.9	0
HCM Lane LOS	A	A	-	C	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0.3	0	-

East Village Apartments
RKA

Synchro 9 Report
Page 1

HCM 2010 TWSC
4: Front Street & Old State Hwy 42/Walden Way

Background (2021) PM
06/05/2018

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	21	2	102	16	3	4	76	393	19	11	328	40
Future Vol, veh/h	21	2	102	16	3	4	76	393	19	11	328	40
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	-	-	-	-	-	-	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	2	113	18	3	4	84	437	21	12	364	44

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1031	1038	204	824	1049	447	409	0	0	458	0	0
Stage 1	411	411	-	616	616	-	-	-	-	-	-	-
Stage 2	620	627	-	208	433	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	199	230	803	278	227	611	1148	-	-	1101	-	-
Stage 1	589	594	-	477	481	-	-	-	-	-	-	-
Stage 2	475	475	-	775	581	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	179	205	803	217	202	611	1148	-	-	1101	-	-
Mov Cap-2 Maneuver	179	205	-	217	202	-	-	-	-	-	-	-
Stage 1	531	586	-	430	434	-	-	-	-	-	-	-
Stage 2	422	428	-	654	573	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.2	21.6	1.3	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1148	-	-	492	242	1101	-	-
HCM Lane V/C Ratio	0.074	-	-	0.282	0.106	0.011	-	-
HCM Control Delay (s)	8.4	0	-	15.2	21.6	8.3	0.1	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.2	0.4	0	-	-

HCM 2010 TWSC
4: Old State Hwy 42 & Walden Way & Front Street

Combined (2021) AM
06/05/2018

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	24	1	36	20	1	16	63	267	8	7	378	19
Future Vol, veh/h	24	1	36	20	1	16	63	267	8	7	378	19
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	-	-	-	-	-	-	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	1	40	22	1	18	70	297	9	8	420	21

Major/Minor	Minor2	Minor1	Major1	Major2	Major2	Major2	Major2	Major2	Major2	Major2	Major2	Major2
Conflicting Flow All	897	892	221	667	898	301	441	0	0	306	0	0
Stage 1	446	446	-	441	441	-	-	-	-	-	-	-
Stage 2	451	446	-	226	457	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	247	281	783	358	278	738	1117	-	-	1253	-	-
Stage 1	562	573	-	594	576	-	-	-	-	-	-	-
Stage 2	587	573	-	757	567	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	225	258	783	317	255	738	1117	-	-	1253	-	-
Mov Cap-2 Maneuver	225	258	-	317	255	-	-	-	-	-	-	-
Stage 1	519	568	-	549	532	-	-	-	-	-	-	-
Stage 2	528	529	-	711	562	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.2	14.6	1.6	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1117	-	-	390	417	1253	-
HCM Lane V/C Ratio	0.063	-	-	0.174	0.099	0.006	-
HCM Control Delay (s)	8.4	0	-	16.2	14.6	7.9	0
HCM Lane LOS	A	A	-	C	B	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.6	0.3	0	-

HCM 2010 TWSC
4: Front Street & Old State Hwy 42/Walden Way

Combined (2021) PM
06/05/2018

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	21	2	102	16	3	4	76	427	19	11	348	40
Future Vol, veh/h	21	2	102	16	3	4	76	427	19	11	348	40
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	-	-	-	-	-	-	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	2	113	18	3	4	84	474	21	12	387	44

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1091	1097	216	873	1110	485	431	0	0	496	0	0
Stage 1	433	433	-	654	654	-	-	-	-	-	-	-
Stage 2	658	664	-	219	456	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	180	212	789	257	209	581	1127	-	-	1066	-	-
Stage 1	572	581	-	455	462	-	-	-	-	-	-	-
Stage 2	452	457	-	764	567	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	160	187	789	199	185	581	1127	-	-	1066	-	-
Mov Cap-2 Maneuver	160	187	-	199	185	-	-	-	-	-	-	-
Stage 1	513	572	-	408	414	-	-	-	-	-	-	-
Stage 2	399	410	-	642	558	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.1	23.3	1.2	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1127	-	-	461	222	1066	-
HCM Lane V/C Ratio	0.075	-	-	0.301	0.115	0.011	-
HCM Control Delay (s)	8.5	0	-	16.1	23.3	8.4	0.1
HCM Lane LOS	A	A	-	C	C	A	A
HCM 95th %tile Q(veh)	0.2	-	-	1.3	0.4	0	-

APPENDIX I

CAPACITY ANALYSIS CALCULATIONS

FRONT STREET

&

BENT BRANCH LOOP ROAD

MOVEMENT SUMMARY

 **Site: 101 [Existing (2018) AM]**

Front Street and Bent Branch Loop Road
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Front Street											
5	T1	256	2.0	0.168	3.6	LOS A	1.0	7.0	0.14	0.34	57.5
6	R2	4	2.0	0.168	9.3	LOS A	1.0	7.0	0.14	0.34	57.9
Approach		260	2.0	0.168	3.7	LOS A	1.0	7.0	0.14	0.34	57.5
North: Bent Branch Loop Road											
7	L2	34	2.0	0.055	4.4	LOS A	0.3	1.9	0.37	0.57	53.2
9	R2	33	2.0	0.055	10.2	LOS B	0.3	1.9	0.37	0.57	55.0
Approach		66	2.0	0.055	7.3	LOS A	0.3	1.9	0.37	0.57	54.1
West: Front Street											
10	L2	3	2.0	0.146	3.4	LOS A	0.8	5.5	0.04	0.34	56.4
11	T1	247	2.0	0.146	3.4	LOS A	0.8	5.5	0.04	0.34	58.2
Approach		251	2.0	0.146	3.4	LOS A	0.8	5.5	0.04	0.34	58.2
All Vehicles		577	2.0	0.168	4.0	LOS A	1.0	7.0	0.12	0.37	57.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [Existing (2018) PM]**

Front Street and Bent Branch Loop Road
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Front Street											
5	T1	298	2.0	0.201	3.5	LOS A	1.2	8.8	0.12	0.36	57.4
6	R2	24	2.0	0.201	9.2	LOS A	1.2	8.8	0.12	0.36	57.7
Approach		322	2.0	0.201	4.0	LOS A	1.2	8.8	0.12	0.36	57.4
North: Bent Branch Loop Road											
7	L2	11	2.0	0.028	4.6	LOS A	0.1	1.0	0.40	0.58	52.3
9	R2	22	2.0	0.028	10.3	LOS B	0.1	1.0	0.40	0.58	54.1
Approach		33	2.0	0.028	8.5	LOS A	0.1	1.0	0.40	0.58	53.5
West: Front Street											
10	L2	28	2.0	0.196	3.5	LOS A	1.1	7.7	0.11	0.34	56.0
11	T1	284	2.0	0.196	3.5	LOS A	1.1	7.7	0.11	0.34	57.8
Approach		313	2.0	0.196	3.5	LOS A	1.1	7.7	0.11	0.34	57.6
All Vehicles		667	2.0	0.201	4.0	LOS A	1.2	8.8	0.13	0.36	57.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [Background (2021) AM]**

Front Street and Bent Branch Loop Road
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Front Street											
5	T1	313	2.0	0.216	3.6	LOS A	1.3	9.5	0.19	0.36	57.2
6	R2	16	2.0	0.216	9.4	LOS A	1.3	9.5	0.19	0.36	57.5
Approach		329	2.0	0.216	3.9	LOS A	1.3	9.5	0.19	0.36	57.2
North: Bent Branch Loop Road											
7	L2	62	2.0	0.092	4.7	LOS A	0.5	3.3	0.42	0.58	53.3
9	R2	45	2.0	0.092	10.4	LOS B	0.5	3.3	0.42	0.58	55.2
Approach		107	2.0	0.092	7.1	LOS A	0.5	3.3	0.42	0.58	54.1
West: Front Street											
10	L2	7	2.0	0.184	3.5	LOS A	1.0	7.3	0.09	0.34	56.2
11	T1	294	2.0	0.184	3.5	LOS A	1.0	7.3	0.09	0.34	57.9
Approach		301	2.0	0.184	3.5	LOS A	1.0	7.3	0.09	0.34	57.9
All Vehicles		737	2.0	0.216	4.2	LOS A	1.3	9.5	0.18	0.38	57.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [Background (2021) PM]**

Front Street and Bent Branch Loop Road
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Front Street											
5	T1	373	2.0	0.272	3.6	LOS A	1.8	13.0	0.16	0.39	56.9
6	R2	57	2.0	0.272	9.3	LOS A	1.8	13.0	0.16	0.39	57.3
Approach		430	2.0	0.272	4.3	LOS A	1.8	13.0	0.16	0.39	57.0
North: Bent Branch Loop Road											
7	L2	29	2.0	0.055	5.0	LOS A	0.3	2.0	0.47	0.60	52.8
9	R2	32	2.0	0.055	10.7	LOS B	0.3	2.0	0.47	0.60	54.6
Approach		61	2.0	0.055	7.9	LOS A	0.3	2.0	0.47	0.60	53.7
West: Front Street											
10	L2	43	2.0	0.269	3.7	LOS A	1.6	11.5	0.20	0.36	55.6
11	T1	363	2.0	0.269	3.7	LOS A	1.6	11.5	0.20	0.36	57.3
Approach		406	2.0	0.269	3.7	LOS A	1.6	11.5	0.20	0.36	57.1
All Vehicles		897	2.0	0.272	4.3	LOS A	1.8	13.0	0.20	0.39	56.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [Combined (2021) AM]

Front Street and Bent Branch Loop Road
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Front Street											
5	T1	326	2.0	0.224	3.6	LOS A	1.4	10.1	0.19	0.36	57.2
6	R2	16	2.0	0.224	9.4	LOS A	1.4	10.1	0.19	0.36	57.5
Approach		341	2.0	0.224	3.9	LOS A	1.4	10.1	0.19	0.36	57.2
North: Bent Branch Loop Road											
7	L2	62	2.0	0.094	4.9	LOS A	0.5	3.4	0.45	0.60	53.2
9	R2	45	2.0	0.094	10.6	LOS B	0.5	3.4	0.45	0.60	55.1
Approach		107	2.0	0.094	7.3	LOS A	0.5	3.4	0.45	0.60	54.0
West: Front Street											
10	L2	7	2.0	0.206	3.5	LOS A	1.2	8.4	0.09	0.33	56.2
11	T1	332	2.0	0.206	3.5	LOS A	1.2	8.4	0.09	0.33	57.9
Approach		339	2.0	0.206	3.5	LOS A	1.2	8.4	0.09	0.33	57.9
All Vehicles		787	2.0	0.224	4.2	LOS A	1.4	10.1	0.18	0.38	57.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [Combined (2021) PM]

Front Street and Bent Branch Loop Road
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Front Street											
5	T1	411	2.0	0.294	3.6	LOS A	2.0	14.6	0.17	0.38	57.0
6	R2	57	2.0	0.294	9.3	LOS A	2.0	14.6	0.17	0.38	57.3
Approach		468	2.0	0.294	4.3	LOS A	2.0	14.6	0.17	0.38	57.0
North: Bent Branch Loop Road											
7	L2	29	2.0	0.056	5.1	LOS A	0.3	2.1	0.48	0.61	52.7
9	R2	32	2.0	0.056	10.8	LOS B	0.3	2.1	0.48	0.61	54.6
Approach		61	2.0	0.056	8.1	LOS A	0.3	2.1	0.48	0.61	53.7
West: Front Street											
10	L2	43	2.0	0.282	3.7	LOS A	1.7	12.3	0.21	0.36	55.5
11	T1	384	2.0	0.282	3.7	LOS A	1.7	12.3	0.21	0.36	57.3
Approach		427	2.0	0.282	3.7	LOS A	1.7	12.3	0.21	0.36	57.1
All Vehicles		956	2.0	0.294	4.3	LOS A	2.0	14.6	0.20	0.39	56.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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APPENDIX J

CAPACITY ANALYSIS CALCULATIONS

CENTRAL STREET

&

CREEKSIDE DRIVE

HCM 2010 TWSC
6: Site Drive 1/Creekside Drive & Central Street

Combined (2021) AM
06/04/2018

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	4	257	8	4	284	4	27	4	4	4	4	4
Future Vol, veh/h	4	257	8	4	284	4	27	4	4	4	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	286	9	4	316	4	30	4	4	4	4	4

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	320	0	0	294	0	0	630	628	290	630	630	318
Stage 1	-	-	-	-	-	-	299	299	-	327	327	-
Stage 2	-	-	-	-	-	-	331	329	-	303	303	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1240	-	-	1268	-	-	394	400	749	394	399	723
Stage 1	-	-	-	-	-	-	710	666	-	686	648	-
Stage 2	-	-	-	-	-	-	682	646	-	706	664	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1240	-	-	1268	-	-	386	397	749	386	396	723
Mov Cap-2 Maneuver	-	-	-	-	-	-	386	397	-	386	396	-
Stage 1	-	-	-	-	-	-	707	663	-	683	645	-
Stage 2	-	-	-	-	-	-	670	643	-	694	661	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.1		0.1		14.7		13
HCM LOS					B		B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	410	1240	-	-	1268	-	-	462
HCM Lane V/C Ratio	0.095	0.004	-	-	0.004	-	-	0.029
HCM Control Delay (s)	14.7	7.9	0	-	7.8	0	-	13
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

HCM 2010 TWSC
6: Site Drive 1/Creekside Drive & Central Street

Combined (2021) PM
06/04/2018

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	4	343	26	4	345	4	15	4	4	4	4	4
Future Vol, veh/h	4	343	26	4	345	4	15	4	4	4	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	381	29	4	383	4	17	4	4	4	4	4

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	388	0	0	410	0	0	803	801	396	803	813	386
Stage 1	-	-	-	-	-	-	404	404	-	394	394	-
Stage 2	-	-	-	-	-	-	399	397	-	409	419	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1170	-	-	1149	-	-	302	318	653	302	313	662
Stage 1	-	-	-	-	-	-	623	599	-	631	605	-
Stage 2	-	-	-	-	-	-	627	603	-	619	590	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1170	-	-	1149	-	-	295	315	653	295	311	662
Mov Cap-2 Maneuver	-	-	-	-	-	-	295	315	-	295	311	-
Stage 1	-	-	-	-	-	-	621	597	-	628	603	-
Stage 2	-	-	-	-	-	-	616	601	-	608	588	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.1		0.1		16.8		15.1
HCM LOS					C		C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	330	1170	-	-	1149	-	-	370
HCM Lane V/C Ratio	0.077	0.004	-	-	0.004	-	-	0.036
HCM Control Delay (s)	16.8	8.1	0	-	8.1	0	-	15.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

APPENDIX K

CAPACITY ANALYSIS CALCULATIONS

CENTRAL STREET

&

EAST RIDGE CIRCLE

HCM 2010 TWSC
7: Site Drive 2/Ridge Circle & Central Street

Combined (2021) AM
06/04/2018

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	4	249	8	4	262	4	22	4	4	4	4	4
Future Vol, veh/h	4	249	8	4	262	4	22	4	4	4	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	277	9	4	291	4	24	4	4	4	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	296	0	0	286	0	0	597	594	281	596	596	293
Stage 1	-	-	-	-	-	-	290	290	-	302	302	-
Stage 2	-	-	-	-	-	-	307	304	-	294	294	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1265	-	-	1276	-	-	415	418	758	415	417	746
Stage 1	-	-	-	-	-	-	718	672	-	707	664	-
Stage 2	-	-	-	-	-	-	703	663	-	714	670	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1265	-	-	1276	-	-	407	415	758	407	414	746
Mov Cap-2 Maneuver	-	-	-	-	-	-	407	415	-	407	414	-
Stage 1	-	-	-	-	-	-	715	669	-	704	661	-
Stage 2	-	-	-	-	-	-	691	660	-	702	667	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	14	12.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	435	1265	-	-	1276	-	-	483
HCM Lane V/C Ratio	0.077	0.004	-	-	0.003	-	-	0.028
HCM Control Delay (s)	14	7.9	0	-	7.8	0	-	12.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

HCM 2010 TWSC
7: Site Drive 2/Ridge Circle & Central Street

Combined (2021) PM
06/04/2018

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	4	317	26	4	332	4	13	4	4	4	4	4
Future Vol, veh/h	4	317	26	4	332	4	13	4	4	4	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	352	29	4	369	4	14	4	4	4	4	4

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	373	0	0	381	0	0	760	758	367	760	770	371
Stage 1	-	-	-	-	-	-	376	376	-	380	380	-
Stage 2	-	-	-	-	-	-	384	382	-	380	390	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1185	-	-	1177	-	-	323	336	678	323	331	675
Stage 1	-	-	-	-	-	-	645	616	-	642	614	-
Stage 2	-	-	-	-	-	-	639	613	-	642	608	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1185	-	-	1177	-	-	316	333	678	316	328	675
Mov Cap-2 Maneuver	-	-	-	-	-	-	316	333	-	316	328	-
Stage 1	-	-	-	-	-	-	642	614	-	639	612	-
Stage 2	-	-	-	-	-	-	628	611	-	631	606	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.1		0.1		15.8		14.6
HCM LOS					C		B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	356	1185	-	-	1177	-	-	390
HCM Lane V/C Ratio	0.066	0.004	-	-	0.004	-	-	0.034
HCM Control Delay (s)	15.8	8	0	-	8.1	0	-	14.6
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0.1

APPENDIX L

CAPACITY ANALYSIS CALCULATIONS

FRONT STREET

&

MILL STREET

HCM 2010 TWSC
8: Front Street & Mill Street / Site Drive 3

Combined (2021) AM
06/05/2018

Intersection

Int Delay, s/veh 0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	13	328	8	3	295
Future Vol, veh/h	27	13	328	8	3	295
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	-	-	50	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	14	364	9	3	328

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	698	364	0
Stage 1	364	-	-
Stage 2	334	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	407	681	-
Stage 1	703	-	-
Stage 2	725	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	406	681	-
Mov Cap-2 Maneuver	406	-	-
Stage 1	703	-	-
Stage 2	723	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	467	1195
HCM Lane V/C Ratio	-	-	0.095	0.003
HCM Control Delay (s)	-	-	13.5	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 2010 TWSC
8: Front Street & Mill Street / Site Drive 3

Combined (2021) PM
06/05/2018

Intersection

Int Delay, s/veh 0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	7	375	25	9	391
Future Vol, veh/h	15	7	375	25	9	391
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	-	-	50	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	17	8	417	28	10	434

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	871	417	0
Stage 1	417	-	-
Stage 2	454	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	322	636	-
Stage 1	665	-	-
Stage 2	640	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	318	636	-
Mov Cap-2 Maneuver	318	-	-
Stage 1	665	-	-
Stage 2	632	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	378	1142
HCM Lane V/C Ratio	-	-	0.065	0.009
HCM Control Delay (s)	-	-	15.2	8.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.2	0



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

DEPARTMENT OF TRANSPORTATION

TRANSPORTATION MOBILITY AND SAFETY DIVISION
TRAFFIC MANAGEMENT UNIT
CONGESTION MANAGEMENT SECTION

July 19, 2018

Traffic Impact Analysis Review Report
Spinning Mill Lofts at East Village

TIA Project: SC-2018-088
Division: 4
County: Johnston
Description: Spinning Mill Lofts at East Village on E Front St at
Central St in Clayton



James H. Dunlop 19 July 2018
James H. Dunlop, P. E.
Congestion Management Engineer

Solomon Mengesha
Congestion Management Project Design Engineer

MAILING ADDRESS:
1561 Mail Service Center
Raleigh, North Carolina 27699-1561

Telephone: 919-814-5000

LOCATION:
750 North Greenfield Parkway
Garner, North Carolina 27529

Website: WWW.NCDOT.ORG/DOH/Preconstruct/Traffic/Congestion/CM/

Spinning Mill Lofts at East Village

SC-2018-088

Johnston County

07/19/2018

Per your request, the Congestion Management Section (CMS) of the Transportation Mobility and Safety Division has completed a review of the subject site. The comments and recommendations contained in this review are based on data presented in the sealed Traffic Impact Analysis (TIA) and are subject to the approval of the local District Engineer's Office and appropriate local authorities.

Date Initially Received by CMS	07/06/2018	Date of Site Plan Prepared by Bass, Nixon and Kennedy, Inc	04/02/2018
Date of Preliminary Review Letter Accepting TIA for Review	07/19/2018	Date of Sealed TIA Prepared by Ramey Kemp & Associates, Inc	06/11/2018

Proposed Development

According to the TIA, the proposed Spinning Mill Lofts at East Village is to be located on E Front St at Central St in Clayton, Johnston County. The TIA states the development is to be constructed by 2021 and is to consist of the following:

Land Use	Land Use Code	Size
Multifamily Housing (Low Rise)	220	2 Dwelling Units

Trip Generation - Unadjusted Volumes During a Typical Weekday

Based on appropriate methodology outlined in the *ITE Trip Generation Manual, 9th Ed.*

	IN	OUT	TOTAL
AM Peak Hour	27	89	116
PM Peak Hour	86	50	136
Daily Trips			1,900

Requested Access Points

Driveway	Public Roadway	Access Type
Site Driveway #1 (Creekside Dr)	Central Street	All-Movement
Site Driveway #2 (E Ridge Cir)	Central Street	All -Movement
Site Driveway #3	E Front Street	All-Movement

TIP Projects in Study Area

None In Area

General Reference

For reference to various documents applicable to this review please reference the following link: <http://www.ncdot.org/doh/preconstruct/traffic/tepl/Topics/C-37/C-37.html>

Once the driveway permit has been approved and issued, a copy of the final driveway permit requirements should be forwarded to this office. If we can provide further assistance, please contact the Congestion Management Section at (919) 773-2800.

Recommendations

LEGEND

- ① Improvement by Developer. Congestion Management concurs with recommendation.
- ② Improvement by Developer. Additional or modified recommendation.

Central St and E Front St Intersection

TIA (page 31) suggested that additional stop control will be necessary to achieve significant improvements of LOS. Due to the close proximity to the railroad, any improvements at this location required approval from NCDOT Rail Division.

Central St and Creekside Dr (Site Driveway #1) Intersection

- **NB Site Driveway #1**
 - Two-lane cross-section: one ingress, one egress ①
 - Egress: Left/Thru/Right Lane ①
 - 100' Internal Protected Stem ②

Central St and E Ridge Cir (Site Driveway #2) Intersection

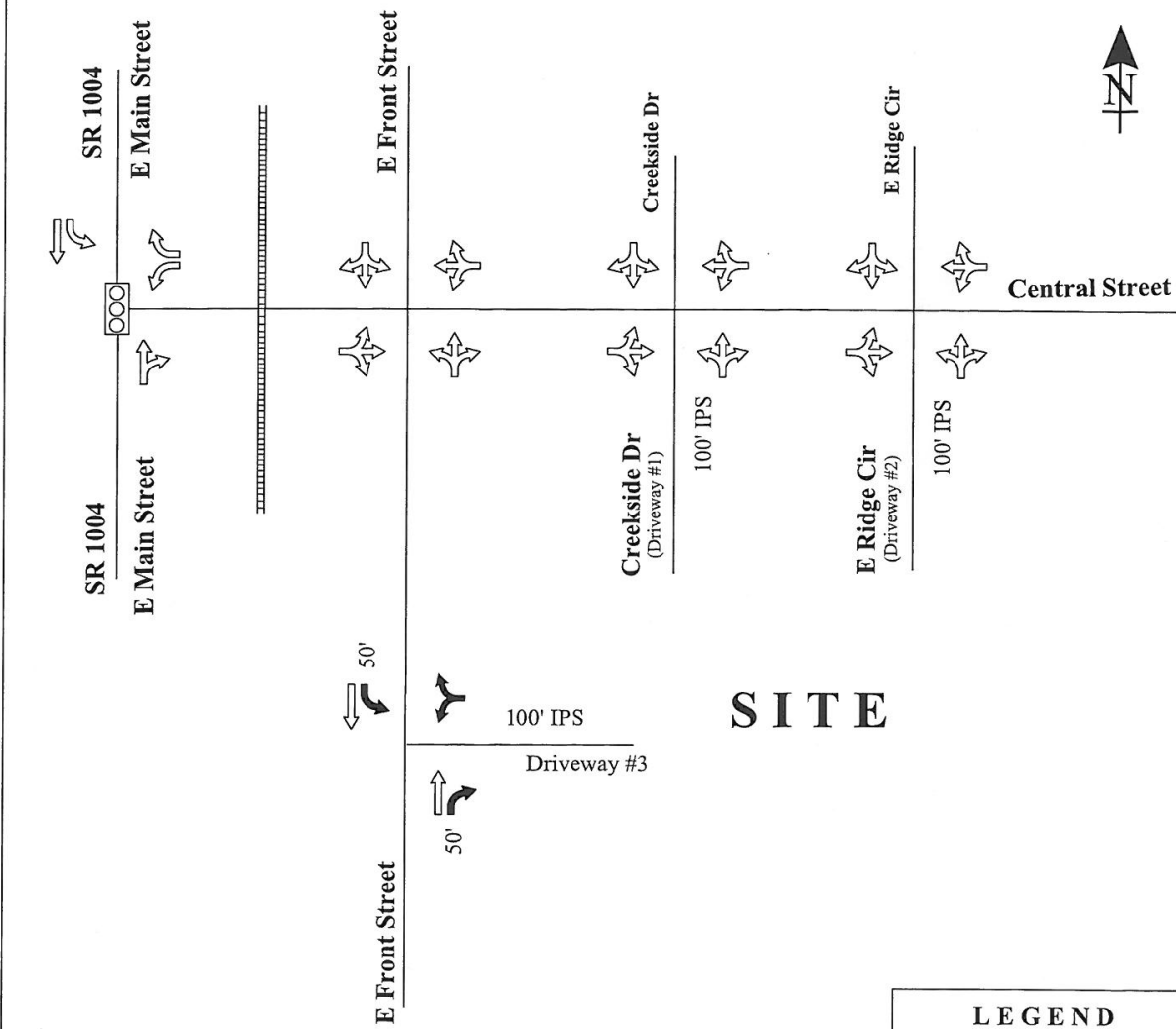
- **NB Site Driveway #2**
 - Two-lane cross-section: one ingress, one egress ①
 - Egress: Left/Thru/Right Lane ①
 - 100' Internal Protected Stem ②

E Front St and Site Driveway #3 Intersection

- **NB E Front St**
 - 50' Right-Turn Lane ①
- **SB E Front St**
 - 50' Left-Turn Lane ①
- **EB Site Driveway #3**
 - Two-lane cross-section: one ingress, one egress ①
 - Egress: Left/Right Lane ①
 - 100' Internal Protected Stem ②

No other improvements are recommended for site traffic.

Spinning Mill Lofts at East Village SC-2018-088



SM 07/19/2018

LEGEND

Existing Laneage

Recommended Laneage

Existing Railroad

Existing Signal

Storage

Internal Protected Stem

XXX

IPS

Drawing Not to Scale

Page 234 of 298



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

DELIVERY VIA EMAIL

July 23, 2018

Samantha L. Wullenwaber, MPA
Planning Director - Town of Clayton
PO Box 879
Clayton, NC 27528

COUNTY: Johnston

SUBJECT: **TIA Review of Proposed Spinning Mill Lofts at East Village**

Dear Ms. Wullenwaber,

Highway Division Four (Division) has reviewed the Traffic Impact Analysis (TIA) for the subject development and offers the following comments. These comments are in addition to any requirements that are included in the attached Traffic Impact Analysis Review Report performed by the Congestion Management Section of the Transportation Mobility and Safety Division of NCDOT. All requirements or recommendations included herein are based off current Department policies. This review should not be mistaken for approval of the driveway permit, design/construction plans, or final plat. A driveway permit must be obtained prior to construction. All design aspects of any submitted plans shall comply with current NCDOT Standard Specifications for Roads and Structures and Policy on Street and Driveway Access to North Carolina Highways.

GENERAL COMMENTS

- Lane Closures for required improvement construction on NCDOT ROW will only be permitted under restricted hours due to heavy traffic volumes in the vicinity of the proposed development. These restrictions will be determined during the driveway permitting application and approval.

INTERSECTIONS / SITE ACCESSES AND ASSOCIATED IMPROVEMENTS

The following comments are in addition to individual intersection improvements recommended by the TIA and TIA Review Report and are considered necessary for consistency with local District and Division policy. If an intersection is not listed herein, then the Division concurs with the TIA Review Report recommendations.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS | DIV. 4 DIST. 3
2671 US 70 WEST
GOLDSBORO, NC 27530

Telephone: (919) 739-5300
Fax: (919) 731-2017
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
2671 US 70 WEST
GOLDSBORO, NC 26730

E Front Street & Site Driveway Intersection

- E Front Street is a non-State maintained road. If NCDOT maintained Front Street we would require 150' of storage on the left turn lane. NCDOT suggests the Town of Clayton to still require this storage.

E Front Street & Central Street Intersection

- E Front Street and Central Street are both non-State maintained roads. If NCDOT maintained Front Street and Central Street, we would require a left turn lane with 150' of storage on the NB approach. If the tapers for any turn lane overlap, NCDOT requires the entire section to be widened to three lanes on all NCDOT roads. NCDOT suggests the Town of Clayton to still require this turn lane. NCDOT does not recommend additional stop control, due to the proximity of the railroad.

Any roadway improvements and right-of-way dedication necessary to accommodate the road construction shall be the responsibility of the owner/developers. These conditions are based on current traffic volumes and projected growth for the study area. Should the timelines presented for project build-out dates not be met and traffic conditions change due to growth in adjacent areas, these recommendations may not be applicable. Feel free to contact me if you have any additional questions or concerns.

Sincerely,



Sam Lawhorn, PE
District Engineer

cc: Ronnie Keeter, PE - Division Engineer
Andy Brown, PE - Division Traffic Engineer
Solomon Mengesha – Congestion Management Project Design Engineer
Caroline Bojarski, EI– Ramey Kemp and Associates
Driveway Permit File



Town of Clayton
Planning Department
111 E. Second Street, Clayton, NC 27520
P.O. Box 879, Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

Planning Board
September 24, 2018

STAFF REPORT

Application Number: 2018-65-SUP
Project Name: Spinning Mill Apartments Special Use Permit

NC PIN / Tag #: 166918-30-2104 / 05037009T, 166918-30-5328 / 05037008V, 166918-30-8385 / 05037009W, 166918-30-4740 / 05037009U, 166806-48-6538 / 05037011, 166918-40-2748 / 05H03197H

Overlay: Watershed Protection Overlay

Applicant: Bass, Nixon, and Kennedy, Inc.

Owner: WBB LLC, HCY LLC, SCA Ventures LLC, East Village Investments LLC

Location: Located off Front Street and Central Street

Public Noticing:

- Neighborhood meeting held on May 16, 2018
- Sign posted prior to July 13, 2018

REQUEST: The applicant is requesting Special Use Permit approval to develop the use of apartments on the subject properties, zoned B-2. A Major Site Plan application is running concurrently with this request (2018-64-SUP).

SITE DATA:

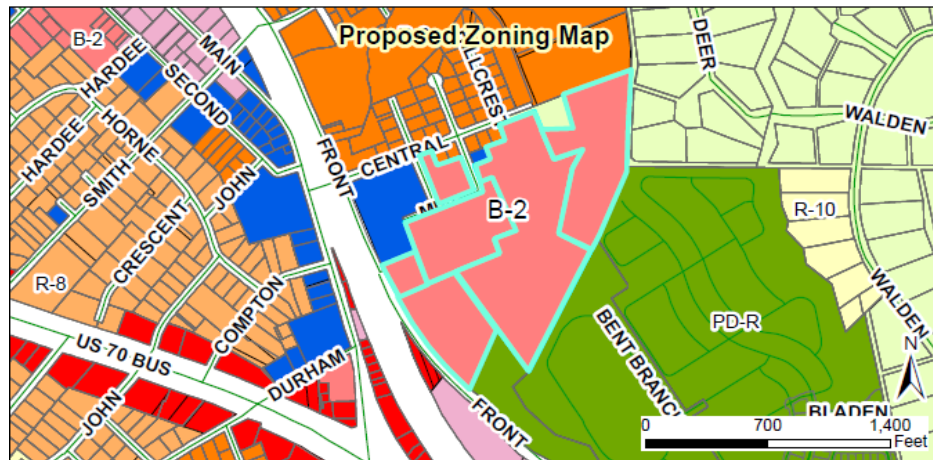
Acreage: 24.50 acres

Existing Use: Vacant



ADJACENT ZONING AND LAND USES:

Direction	Zoning	Existing Use
North	Residential-6 (R-6) / Office Institutional (O-I)	Single-family residential / Post Office
South	Planned Development Residential (PD-R)	Apartments, single-family residential
East	Residential-10 (R-10) and Planned Development Residential (PD-R)	Single-family residential
West	Office Institutional (O-I)	Railroad ROW/ Single-family residential

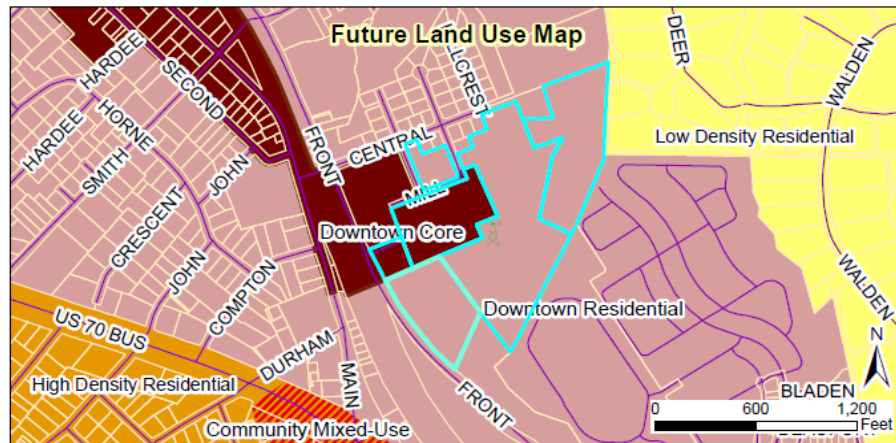


DEVELOPMENT DATA:

Proposed Uses:	Apartments (255 units)
Buildings:	8 new buildings, plus 1 existing building to be utilized
Impervious Surface:	54.9%
Proposed Parking:	476 Spaces (470 required)
Access/Streets:	One access point off Front Street and two access point off Central Street

STAFF ANALYSIS:**Overview**

The applicant is requesting a Special Use Permit to develop the use of apartments on the subject property, which is zoned Neighborhood Business (B-2). Per UDC requirements, any development of apartments within the B-2 zoning district must obtain a Special Use Permit in order to be permitted. The subject properties are currently vacant, with the exception of the existing historic Spinning Mill. The applicant is proposing to develop eight new apartment buildings and to revitalize the existing Spinning Mill to accommodate apartment units as well. Running concurrently with this request is a Major Site Plan (2018-64-SP).



Consistency with Adopted Plans:

- **Comprehensive Plan 2040**

The proposed development is consistent with the comprehensive plan 2040, which designates this land as partially “Downtown Core” and primarily “Downtown Residential”. Downtown residential typically consists of single-family residential per the comprehensive plan 2040. However, the proposed use is consistent with the existing development pattern in the area which includes apartments directly adjacent to the south.

- **Unified Development Code**

The proposed development is consistent with the Unified Development Code (UDC).

Associated Site Plan

The applicant is proposing to develop 8 new apartment buildings and revitalize the existing historic Spinning Mill in order to accommodate 255 apartment units. The development will be access off Front Street and Central Street. An amenity center will be located at the Spinning Mill building and will include a community pool and green space/event space. The applicant will provide required landscape buffers along all property lines, and will provide sidewalk connections throughout the development. A portion of the proposed sidewalk will be built to 8’ in width and serve as greenway for future connection to the northeast.

The buildings range in height from 27’ to 52’ tall. The B-2 zoning district typically allows up to 35’ in building height, but the applicant can exceed the height through this special use permit.

Watershed Protection Overlay

The proposed development is located entirely within the Watershed Protection Overlay. Proposed multi-family residential development in this overlay is limited to 24% of impervious surface area unless storm water quality mitigation structures are installed and maintained by the property owner. Two wet pond detention areas are provided onsite for stormwater controls.

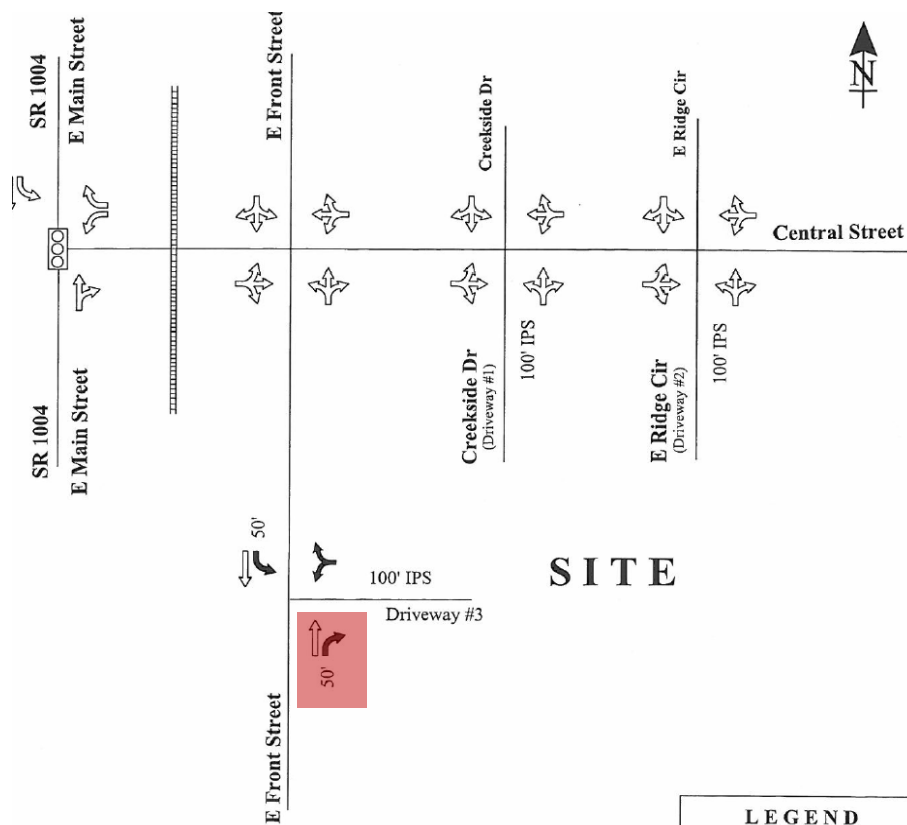
Traffic Impact Analysis

A Traffic Impact Analysis was submitted by Ramey Kemp and Associates dated June 2018. The TIA states that 1,900 total site trips are expected to be generated from this development during a typical 24-hour weekday period. It is anticipated that 116 trips will occur during the AM peak hour and 136 trips will occur during the PM peak hour.

NCDOT Congestion Management has reviewed this application and the associated TIA. NCDOT concurs with the findings of the TIA, and recommends to the Town that the following additional improvements be made:

1. A 100' internal protected stem at all site driveway entrances.
2. 150' of storage on the left turn lane, at E Front Street entering into the main driveway entrance.
3. 150' storage on the northbound approach to the intersection of Front Street and Central Street.

Staff has reviewed the TIA and NCDOT's recommendations internally. Due to the proximity of the Railroad ROW along Front Street, the applicant is not be permitted by NCRR to encroach into the ROW for any roadway improvements. As such, staff does not recommend a left-turn lane on Front Street turning into the development nor a left-turn lane at the intersection with Central Street be required. NCDOT is aware of the site restrictions due to the proximity to the NCRR and concurs with staff's recommendations. Instead, staff recommends that a 100' internal protected stem be provided at all site driveway entrances and a right-turn lane into the site off Front Street be provided with 50' taper (as required from the TIA).



Wastewater Allocation Request

A wastewater allocation request of 65,960 gallons per day has been submitted for review. The Town Engineer has reviewed this request. The request will proceed to Town Council for final approval, subject to the approval of this application as well as the associated Special Use Permit application.

Architecture/Design

The new buildings proposed within the development will consist of fiber cement siding, with brick veneer features. The buildings will vary in the number of stories, but all will feature balconies on the front and rear upper floors. The existing Spinning Mill will be renovated to accommodate the apartment units, but the applicant is not proposing changes to the design of the exterior building in order to maintain the historic character.

Findings of Fact

Special Use Permits shall address the following findings. The burden of proof is on the applicant. Please see below for the applicant's response to each finding, as well as staff's commentary.

1. *That the application will not materially endanger the public health or safety if located where proposed and developed according to the plans as submitted and approved.*

Applicant Response: "The proposed use is residential apartments, which is allowed as a special use on the property. Residential apartments are appropriately located on the property in relation to the surrounding uses, which include single-family and office. A total of 255 apartments are proposed. All of the apartments proposed by the application will have adequate access to public streets, as well as water and sewer, which will be designed and constructed to Town of Clayton standards and specifications. Stormwater will also be controlled by compliance with Town of Clayton standards and regulations. There will be no detrimental impact to the public health, safety, and welfare from traffic or other secondary effects, such as dust and noise."

Staff Commentary: Staff concurs with the applicant's response, although they did not mention traffic in their response above to the traffic impact which is a safety component of the findings of facts. The TIA was conducted and the applicant is implementing what is allowed by NCDOT, the town and the NCRR.

2. *That the application meets all required specifications and conforms to the standards and practices of sound land use planning and the Town Code of Ordinances and other applicable regulations.*

Applicant Response: "The proposed residential apartment development will meet all rules and regulations within the Town of Clayton Unified Development Ordinance and all existing Town of Clayton policies. In addition, all construction will be in accordance with all Town of Clayton Standards and Specifications."

Staff Commentary: Staff has reviewed the associated major site plan and has found that it meets all requirements of the UDC.

3. *That the application will not substantially injure the value of adjoining or abutting property, and will not be detrimental to the use or development of adjacent properties or other neighborhood uses.*

Applicant Response: "The proposed use will not substantially injure the value of the adjoining or abutting properties. Buffering, screening, and landscaping will also be provided where required in accordance with Town ordinances, which will minimize the impact on adjoining properties as well. In summary, the proposed use is consistent with adjoining or abutting uses and the values of those properties will be maintained or enhanced by the proposed use."

Staff Commentary: Staff feels that the applicant did not specifically address how the property values of adjoining property's will increase or list the adjacent type of uses. The landscaping and distance from the property lines will help to buffer the property.

4. *That the application will not adversely affect the adopted plans and policies of the Town, or violate the character of existing standards for development of the adjacent properties.*

Applicant Response: "The proposed residential apartment development will meet all rules and regulations within the Town of Clayton UDC and all existing Town of Clayton policies. In addition, all construction will be in accordance with all Town of Clayton standards and specifications. The proposed development will not violate the character of existing standards for development of the adjacent properties. The character of existing standards for development of adjacent properties will be maintained or enhanced by the proposed redevelopment of this property."

Staff Commentary: Staff concurs that the associated plan for this development does meet all rules and regulations within the Town of Clayton UDC and policies.

CONSIDERATIONS:

- The Town Council shall make final decisions regarding Special Use Permits.
- Approval of the associated Major Site Plan is contingent upon approval of the Special Use Permit.

STAFF RECOMMENDATION:

If approved, staff recommends the following conditions of approval be placed upon this application:

1. These conditions of approval shall be recorded on the final plan set, which will be delivered to the Planning Department for review and final approval.
2. The final development of the site shall be consistent with the specifications of the associated Major Site Plan and this Special Use Permit. Modifications may require additional approvals pursuant to the requirements of the Unified Development Code.
3. The building heights shall not exceed 52' without modification to the special use permit.
4. All site driveways shall include a 100' protected stem, as recommend and outlined by the Traffic Impact Analysis. This shall be completed prior to issuance of the certificate of occupancy that creates the demand for the improvement.
5. A right-turn lane with 50' taper shall be provided off Front Street into the development, as recommended by NCDOT and the Town of Clayton. This shall be completed prior to issuance of the certificate of occupancy that creates the demand for the improvement.
6. All parking rows shall terminate in a curbed landscaped island. All terminal islands shall include a minimum of one tree with a minimum caliper of 2.5", pursuant to 155.404(D)(2)(b)(2) of the UDC.

ATTACHMENTS:

- 1) Staff report maps
- 2) Application

- 3) Neighborhood Meeting Materials
- 4) Site Plan
- 5) Traffic Impact Analysis
- 6) NCDOT Letter- TIA
- 7) Wastewater Allocation Request

**TOWN OF CLAYTON
PLANNING BOARD WRITTEN RECOMMENDATION
SPECIAL USE PERMIT**

2017-65-SUP, Spinning Mill Apartments Special Use Permit

On September 24, 2018 the Planning Board heard the above-referenced request and made the following vote:

Recommendation to the Town Council to:

☐ Approve the request with the conditions as noted within the staff report.

☒ Approve the request with the following modified or added conditions:

Approved w/ condition added into
presentation regarding building height

☐ Deny the request.

Recommendation(s) made this 24th day of September, 2018 while in regular session.

Signed:



Robert Ahlert, Planning Board Chair



TOWN OF CLAYTON

Planning Department
111 E. Second Street, Clayton, NC
27520 P.O. Box 879, Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

Wastewater Allocation Request

The Town of Clayton, in an effort to manage and maintain the sewer and water capacity for the Town, requires that this application be completed and submitted to the Town for consideration of a utility allocation.

Application MUST be completed and sealed by a registered engineer unless otherwise approved by staff.

SITE INFORMATION

Name of Project: Spinning Mill Lofts at East Village Acreage of Property: 24.50
County Tag Number: See Attached NC PIN: See Attached
Address/Location: 300 Mill Street

Zoning District: Existing: O&I; B-1; B-3; RE Proposed: B2 - Neighborhood Business
Town Limits / ETJ: ☒ Town Limits ☐ ETJ (Extra-Territorial Jurisdiction)

APPLICANT INFORMATION – Applicant must be a registered engineer unless otherwise approved by Town Engineer

Applicant: Bass, Nixon and Kennedy, Inc.
Mailing Address: 6310 Chapel Hill Rd., Ste. 250, Raleigh, NC 27607
Phone Number: 919-851-4422 Fax: 919-851-8968
Contact Person: Marty D. Bizzell, PE
Email Address: marty.bizzell@bnkinc.com

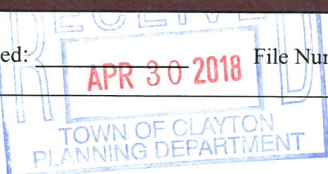
PROPERTY OWNER INFORMATION

Name: WBB, LLC; HCY, LLC; SCA Ventures, LLC; East Village Investments, LLC
Mailing Address: 132 Citation Lane, Smithfield, NC and 227 E. Front St. New Bern, NC 28560-2145
Phone Number: 919-938-1086; 252-670-9370 Fax: N/A
Email Address: thomas@tfonc.com

FOR OFFICE USE ONLY

Date Received: APR 30 2018 File Number: _____ Associated Project Number: _____

June 2015



Page 1 of 6

Spinning Mill Lofts at East Village

County Tag #:

05037009T; 05037008V; 05037009W; 05037009U: 05037011; 05H03197H

NC PIN:

1669.18-30-2104; 1669.18-30-5328; 1669.18-30-8385; 1669.18-30-4740; 1668.06-48-6538; 1669.18-40-2748

PROJECT INFORMATION

Use: ☒ New ☐ Expanded ☒ Change Use Type: ☒ Residential ☒ Non-Residential

Proposed Use(s): Apartments/Restaurant Existing Use(s): Vacant

Invoice shall be mailed to the following:

Developer Name: Spinning Mill Investments, LLC

Mailing Address: P.O. Box 566, Greenville, NC 27835

Phone Number: 252-752-7101 Fax Number: N/A

Email Address: thomas@tfonc.com

ALLOCATION REQUEST

- Use additional sheets if necessary.
- Provide any documentation supporting/justifying the request as an attachment.
- If a phasing / take-down schedule is proposed, include as an attachment.

Residential:

Gross Acreage: _____

Single Family	# of Units	GPD per Unit	Total Requested GPD
1-2 Bedroom Units			
3 Bedroom Units			
>3 Bedroom Units			
Total		-----	

Multi-Family	# of Units	GPD per Unit	Total Requested GPD
1-2 Bedroom Units	232	240	55,682
3 Bedroom Units	23	360	8,280
>3 Bedroom Units			
Total		-----	63,960

Non-Residential: (Design Flow Guideline provided as Appendix A)*

**If design flow deviates from the flow rates presented in Appendix A, provide supporting documentation/justification as an attachment in the form of 12 months of water bills demonstrating gallons per day utilized.*

Gross Acreage: _____

Use	Measurement Unit	# of Units	GPD per Unit	Total Requested GPD
Restaurant/Coffee Shop	gal/seat	50	40	2,000
Total		50	-----	2,000

TOTAL REQUESTED GALLONS PER DAY: 65,960

NOTE TO APPLICANT:

Invoicing:

Invoices are generated on the following schedule:

Non-Residential:

Generated with the application for a Zoning Compliance Permit.

Residential:

Multi-Family / Apartments:

Generated with the application for a Zoning Compliance Permit.

Subdivision / Subdivided Lots:

Generated at Final Plat submittal.

Fee Development:

Development Fees are calculated and invoiced based on the Town of Clayton adopted [Comprehensive List of Fees and Charges](#). Invoiced fees include acreage fees, capacity fees, nutrient offset fees, recreation fees, fees-in-lieu, and electric department lot deposit. Please speak with Town staff with questions.

Approval:

Requests over 10,000 GPD are approved by the Town Council, by resolution. All other requests are approved by the Town Manager.

APPLICANT AFFIDAVIT

I/We, the undersigned, do hereby make application and petition to the Town of Clayton to approve the subject Wastewater Allocation. I hereby certify that I have full legal right to request such action and that the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related material and all attachments become official records of the Planning Department of the Town of Clayton, North Carolina and will not be returned.

Marty D. Bizzell, PE

Print Name


Signature of Applicant

4/26/18

Date

Engineer Seal:



TOWN OF CLAYTON OFFICE USE ONLY:

Approved by: ☐ Town Manager

☐ Town Council (*requests of 10,000 GPD or more require Council approval by resolution*)

The **Town Manager / Town Council (circle one)** has authorized the allocation of _____

gallons per day for project # _____.

Date of Approval: _____

Signed:

Town Manager

If approved by Town Council:

Attach a copy of the resolution and any associated documentation.

APPENDIX A: DESIGN FLOW RATES

The following table from the North Carolina Administrative Code 02T.0114 shall be used to determine the minimum allowable design daily flow of wastewater facilities. Alternatively, the Town in its sole and absolute discretion may calculate the customer's initial average daily wastewater flow based on data from the customer's operations (or from similarly situated customers) with a comparable sanitary sewer system, where such data are available and reasonably current.

Establishment Type	Daily Flow Rate
Barber and Beauty Shops	
Barber Shops	50 gal/chair
Beauty Shops	125 gal/booth or bowl
Businesses, Offices and Factories	
General business and office facilities	25 gal/employee/shift
Factories, excluding industrial waste	25 gal/employee/shift
Factories or businesses with showers or food preparation	35 gal/employee/shift
Warehouse	100 gal/loading bay
Warehouse – self storage (not including caretaker residence)	1 gal/unit
Churches	
Churches without kitchens, day care or camps	3 gal/seat
Churches with kitchen	5 gal/seat
Churches providing day care or camps	25 gal/person (child & employee)
Fire, Rescue and Emergency Response	
Fire or rescue stations without on-site staff	25 gal/person
Fire or rescue stations with on-site staff	50 gal/person/shift
Food and Drink Facilities	
Banquet, dining hall	30 gal/seat
Bars, cocktail lounges	20 gal/seat
Caterers	50 gal/100 sq. ft. floor space
Restaurant, full Service	40 gal/seat
Restaurant, single service articles	20 gal/seat
Restaurant, drive-in	50 gal/car space
Restaurant, carry out only	50 gal/100 sq. ft. floor space
Institutions, dining halls	5 gal/meal
Deli	40 gal/100 sq. ft. floor space
Bakery	10 gal/100 sq. ft. floor space
Meat department, butcher shop or fish market	75 gal/100 sq. ft. floor space
Specialty food stand or kiosk	50 gal/100 sq. ft. floor space
Hotels and Motels	
Hotels, motels and bed & breakfast facilities, without in-room cooking facilities	120 gal/room
Hotels and motels, with in-room cooking facilities	175 gal/room
Resort hotels	200 gal/room
Cottages, cabins	200 gal/unit
Self-service laundry facilities	500 gal/machine
Medical, Dental and Veterinary Facilities	
Medical or dental offices	250 gal/practitioner/shift
Veterinary offices (not including boarding)	250 gal/practitioner/shift
Veterinary hospitals, kennels, animal boarding facilities	20 gal/pen, cage, kennel or stall
Hospitals, medical	300 gal/bed
Hospitals, mental	150 gal/bed
Convalescent, nursing, rest homes without laundry facilities	60 gal/bed
Convalescent, nursing, rest homes with laundry facilities	120 gal/bed
Residential care facilities	60 gal/person

Establishment Type	Daily Flow Rate
Parks, Recreation, Camp Grounds, R-V Parks and other Outdoor Activity Facilities	
Campgrounds with comfort station, without water or sewer hookups	75 gal/campsite
Campgrounds with water and sewer hookups	100 gal/campsite
Campground dump station facility	50 gal/space
Construction, hunting or work camps with flush toilets	60 gal/person
Construction, hunting or work camps with chemical or portable toilets	40 gal/person
Parks with restroom facilities	250 gal/plumbing fixture
Summer camps without food preparation or laundry facilities	30 gal/person
Summer camps with food preparation and laundry facilities	60 gal/person
Swimming pools, bathhouses and spas	10 gal/person
Public access restrooms	325 gal/plumbing fixture
Schools, Pre-school and Day Care	
Day care and preschool facilities	25 gal/person (child & employee)
Schools with cafeteria, gym and showers	15 gal/student
Schools with cafeteria	12 gal/student
Schools without cafeteria, gym or showers	10 gal/student
Boarding schools	60 gal/person (student & employee)
Service Stations and Car Wash Facilities	
Service stations, gas stations	250 gal/plumbing fixture
Car wash facilities	1200 gal/bay
Sports Centers	
Bowling center	50 gal/lane
Fitness, exercise, karate or dance center	50 gal/100 sq. ft.
Tennis, racquet ball	50 gal/court
Gymnasium	50 gal/100 sq. ft.
Golf course with only minimal food service	250 gal/plumbing fixture
Country clubs	60 gal/member or patron
Mini golf, putt-putt	250 gal/plumbing fixture
Go-kart, motocross	250 gal/plumbing fixture
Batting cages, driving ranges	250 gal/plumbing fixture
Marinas without bathhouse	10 gal/slip
Marinas with bathhouse	30 gal/slip
Video game arcades, pool halls	250 gal/plumbing fixture
Stadiums, auditoriums, theaters, community centers	5 gal/seat
Stores, Shopping Centers, Malls and Flea Markets	
Auto, boat, recreational vehicle dealerships/showrooms with restrooms	125 gal/plumbing fixture
Convenience stores, with food preparation	60 gal/100 sq. ft.
Convenience stores, without food preparation	250 gal/plumbing fixture
Flea markets	30 gal/stall
Shopping centers and malls with food service	130 gal/1000 sq. ft.
Stores and shopping centers without food service	100 gal/1000 sq. ft.
Transportation Terminals	
Air, bus, train, ferry, port and dock	5 gal/passenger

Source: North Carolina Administrative Code 02T.0114, January 1, 2007

SPINNING MILL LOFTS
SEWER CALCULI

APARTMENT BUILDING		1-Bedroom		2-Bedroom	
ID	# of Units	Flow (240 GPD/Unit)	# of Units	Flow (240 GPD	
1	24	5,760	22	5,280	
2	6	1,440	12	2,880	
3	6	1,440	12	2,880	
4	14	3,360	14	3,360	
5	14	3,360	14	3,360	
6	4	960	8	1,920	
7	6	1,440	16	3,840	
8	18	4,320	18	4,320	
9	12	2,880	12	2,880	
Restaurant/Coffee Shop	50 Seats	40 gal/seat			
Totals					

**Town of Clayton
Resolution Granting Wastewater Treatment Capacity
For Spinning Mill**

WHEREAS, the Town of Clayton operates a wastewater treatment plant known and permitted as the "Little Creek Water Reclamation Facility"; and,

WHEREAS, said facility is permitted to treat a maximum average of 2.5 million gallons daily; and,

WHEREAS, the Town of Clayton holds several interlocal agreements which secure additional wastewater treatment capacity from other available sources; and,

WHEREAS, the North Carolina Department of Environment and Natural Resources (NCDENR) regulates, reviews, and permits flow tributary to newly extended or installed wastewater treatment collection facilities tributary to the Town of Clayton system; and,

WHEREAS, flow from sanitary sewer customers tributary to existing lines owned and operated as part of the Town of Clayton is bound to abide by the permitted average daily flow at the Little Creek Water Reclamation Facility in conjunction with other available sources and consistent with interlocal agreements regarding wastewater treatment.

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE TOWN COUNCIL FOR THE TOWN OF CLAYTON that the following is found:

1. The Town of Clayton has, according to the most recent accounting, sufficient excess and unallocated treatment capacity to approve additional allocation.
2. Such available capacity may be made available to users in accordance with regulatory and legal parameters established to ensure satisfactory treatment plant operation.
3. An allocation for wastewater treatment capacity is granted in the amount of 65,960 GPD to Spinning Mill as outlined in allocation request from Bass, Nixon & Kennedy.; **herewith attached.**
4. Said allocation is approved subject to and conditioned upon review and approval of all required regulatory processes.
5. Said allocation is non transferable, non assignable, and made for the projects as described and for the noted location unless explicitly approved by the Town of Clayton.

6. Said allocation may be revoked or reclaimed in accordance with the policies of the Town of Clayton as adopted or amended now or in the future. No property right is conferred with the granting of an allocation except as otherwise explicitly allowed by policy, ordinance, or action of the Town of Clayton.
7. Said allocation is subject to payment of applicable fees in accordance with adopted ordinances, policies, and fee schedules of the Town of Clayton.

Duly resolved by the Clayton Town Council this 1st day of October, 2018 while in regular session.

Jody L. McLeod
Mayor

ATTEST:

Kimberly A. Moffett, CMC, NCCMC
Town Clerk

**Town of Clayton
Town Council
SUP Motion Sheet**

After considering the competent, material, and substantial evidence presented, including the application and materials of record, I move to (PICK ONE):

- ☐ Approve
- ☐ Deny
- ☐ Approve with Conditions

SUP Application **2018-65-SUP (Spinning Mill)**

This motion is based on the following findings:

1. The application **WILL NOT** materially endanger the public health or safety if located where proposed, and developed according to the plans as submitted and approved.

OR

The application **WILL** materially endanger the public health or safety if located where proposed, and developed according to the plans as submitted and approved. (State evidence supporting finding.)

2. The application **MEETS** all required specifications and **CONFORMS** to the standards and practices of sound land use planning and the Town Code of Ordinances, or other applicable regulations.

OR

The application **DOES NOT MEET** all required specifications and **DOES NOT CONFORM** to the standards and practices of sound land use planning and the Town Code of Ordinances, or other applicable regulations. (State evidence supporting finding.)

Item #6a
2018-65-SUP – Spinning Mill
MOTION FORM

3. The application **WILL NOT** substantially injure the value of adjoining or abutting property, and **WILL NOT** be detrimental to the use or development of adjacent properties or other neighborhood uses.

OR

The application **WILL** substantially injure the value of adjoining or abutting property, and **WILL** be detrimental to the use or development of adjacent properties or other neighborhood uses. (State evidence supporting finding).

4. The application **WILL NOT** adversely affect the adopted plans and policies of the Town, or violate the character of existing standards for development of the adjacent properties.

OR

The application **WILL** adversely affect the adopted plans and policies of the Town, or violate the character of existing standards for development of the adjacent properties. (State evidence supporting finding.)

[If approved with conditions] The applicant meets the above findings subject to the following conditions:

Item #6a
2018-65-SUP – Spinning Mill
MOTION FORM



Town Council Agenda Cover Sheet

Meeting Date

October 1 2018

Agenda Location

New Business

Item Title

Revision to Chapter 50.15 Water and Sewer Tap Replacements

Presenter

Blake Mills, Assistant Public Works and Utilities Director

Summary/Description

The Town Code of Ordinances Chapter 50.15 Water and Sewer Tap Replacements adopted July 20, 1998, requires that the customer pays the cost for the replacement of the sanitary sewer service tap located in the Public ROW. The Town charges the customer up to a maximum cost of \$2,625 for the replacement of the sanitary sewer service tap and the work is performed by Town forces. Staff recommends to include the replacement cost of the sanitary sewer service taps in the commodity charges on the Sewer bill and therefore the customer would not be billed an additional charge when replacement of the existing sanitary sewer service tap is required. The Town Code of Ordinances Chapter 50.15 also states the customer is responsible for the replacement of the individual water service, however, in practice the Town has replaced water services at no charge to the customer. Staff recommends that any customers that have paid the new fee for the replacement of the sanitary sewer service tap, be subject to reimbursement retroactive to July 1, 2018.

The Sewer and Water Enterprise is currently undergoing a rate study and Staff recommends that the replacement costs related to both sanitary sewer service taps and individual water services be included in the rate study.

Requested Action

Approval

Additional Documents to be Included in Agenda Packet

Memo to Town Manager dated September 24, 2018
Revision to Code of Ordinances Chapter 50.15.
Ordinance

Meeting Timeline

Town Council Meeting October 1, 2018



Town of Clayton
Public Works Department
653 NC Hwy, Clayton, NC 27520
P.O. Box 879, Clayton, NC 27528
Phone: 919-553-1530

MEMORANDUM

Date: September 24, 2018
To: Adam Lindsay, Town Manager
From: Blake Mills, Assistant Director of Public Works and Utilities
Copy: Tim Simpson, Director of Public Works and Utilities
SUBJECT: Sanitary Sewer Service Tap Fees

Replacement Cost of the Sanitary Sewer Service Tap

The Town Code of Ordinances Chapter 50.15 (A) requires that the customer pays the cost of the replacement of the sanitary sewer service located in the public ROW. The Town has been following this Ordinance and charging the property owner for the replacement of the sanitary sewer service for over 20 years. Prior to July 1, 2018, the Town charged \$800 for the replacement of the sanitary sewer service (also called a replacement sewer tap fee). On July 1, 2018, the replacement sewer tap fee was raised to \$1,625 plus \$500 each (maximum total of \$2,625) if an asphalt pavement and/or concrete repair is necessary (typically required).

The Town performed a cost audit on recent sanitary sewer service tap replacements. During the period of November 22, 2016 to May 1, 2018 (about 17 months), the Town performed 15 sanitary sewer service tap replacements at an average cost of \$3,579 (labor, equipment and materials). If only the material cost is considered (labor and equipment costs excluded because they are already paid for by both the General Fund and the Water Sewer Fund) the average material cost is \$456.

Recommendation

Staff recommends to include the replacement cost of the sanitary sewer service taps in the commodity charges which would be consistent with how the mainline sanitary sewer infrastructure is handled and also would be consistent with how other municipalities in the area recover costs for the replacement of the sanitary sewer service taps. Staff recommends changing the ordinance to assign responsibility for the replacement of the sanitary sewer service tap to the Town.

The Town Code of Ordinances Chapter 50.15 also states the customer is responsible for the replacement of the individual water service. In practice the Town has replaced water services at no charge to the resident because a leaking water service in the public ROW is before the meter and therefore, the customer is not motivated to fix the water service and the Town bears the cost of the water loss and nuisance caused by water ponding in the ROW. The Public Works Director by Ordinance has the authority to replace the individual water services in the ROW at no cost to the customer because this reduces the maintenance burden on the Town. Staff recommends that the Town include the replacement cost of the individual water service in the future revisions of the sewer and water rates.

The Sewer and Water Enterprise is currently undergoing a rate study and Staff recommends that the replacement costs related to both sanitary sewer service taps and individual water services be included in the rate study.

Recommendation: Code of Ordinance Revisions

The Town Code of Ordinances Chapter 50.15 should be revised as follows:

§ 50.15 WATER AND SEWER TAP REPLACEMENTS.

(A) Costs associated with relocation ~~or replacement~~ of water and/or sewer service taps shall be borne by the customer receiving service in accordance with the fee schedule adopted by the town for such improvements.

(B) *Exceptions.* The only exceptions to the above requirement shall be made by the Public Works Director and shall be based on the criteria contained herein. Exceptions to this policy shall be limited based on budgetary allocation and manpower availability.

(1) In cases where ~~replacement relocation~~ of a service tap would tend to reduce the maintenance or service ~~call burden of on the town-as evidenced by at least two service calls during the preceding twelve months, an exception may be granted.~~

(2) In cases where a service tap crosses private property not under the ownership of the customer and without clear easement for maintenance and access, an exception may be granted. (Ord. 98-07-02, passed 7-20-98; Am. Ord. 2017-03-01, passed 3-6-17)

(C) Costs associated with the replacement of the water and/or sewer service shall be borne by the Town for the portion of the water and/or sewer service located within the Public ROW. The determination of whether the water or sewer service needs repair or complete replacement will be solely made by the Town. Routine maintenance of the sanitary sewer service located on private property and the portion of the sanitary sewer service located within the ROW shall be the responsibility of the customer receiving service. Routine maintenance includes, but is not limited to, cleaning the sanitary sewer service line of blockages and root intrusion. The Town will not be responsible for the cost to remove roots that have intruded the pipe joints caused by trees located within the Public ROW or on private property. Town responsibility for the replacement of the sanitary sewer service tap will be from the connection at the mainline sanitary sewer up to and including the sewer cleanout located at the edge of the ROW. Routine maintenance of the individual water service in the Public ROW from the connection at the watermain up to and including the water meter located at the Public ROW will be the responsibility of the Town.

Recommendations: Customer Refunds - Sanitary Sewer Service Tap Replacement Costs

If the Town Council approves the change to the Town Ordinance that requires the Town to pay for the replacement of the sanitary sewer taps all sanitary sewer tap replacements subject to the new fees of \$1,625 plus \$500 each (for an asphalt and/or concrete pavement repair), Staff recommends that any customers that have paid the new fee, be subject to reimbursement retroactive to July 1, 2018. As of September 24, 2018, the town has replaced one sanitary sewer service tap at the new fee. Any sanitary sewer taps performed prior to July 1, 2018, were at the old fee of \$800, which is only about 22% of the actual cost (i.e. \$800/\$3,579). Since the old fees were only a small fraction of the actual cost and these fees go back over 20 years, Staff recommends the Town treat all these customers equally and not provide any reimbursements.

TOWN OF CLAYTON
Amendment to the Code of Ordinances, Chapter 50

Being hereby adopted by the Town Council for the Town of Clayton, North Carolina, to amend Chapter 50, Section 15 to read as follows:

§ 50.15 WATER AND SEWER TAP REPLACEMENTS.

(A) Costs associated with relocation of water and/or sewer service taps shall be borne by the customer receiving service in accordance with the fee schedule adopted by the town for such improvements.

(B) *Exceptions.* The only exceptions to the above requirement shall be made by the Public Works Director and shall be based on the criteria contained herein. Exceptions to this policy shall be limited based on budgetary allocation and manpower availability.

(1) In cases where relocation of a service tap would tend to reduce the maintenance or service burden on the town.

(2) In cases where a service tap crosses private property not under the ownership of the customer and without clear easement for maintenance and access, an exception may be granted.

(C) Costs associated with the replacement of the water and/or sewer service shall be borne by the Town for the portion of the water and/or sewer service located within the Public ROW. The determination of whether the water or sewer service needs repair or complete replacement will be solely made by the Town. Routine maintenance of the sanitary sewer service located on private property and the portion of the sanitary sewer service located within the ROW shall be the responsibility of the customer receiving service. Routine maintenance includes, but is not limited to, cleaning the sanitary sewer service line of blockages and root intrusion. The Town will not be responsible for the cost to remove roots that have intruded the pipe joints caused by trees located within the Public ROW or on private property. Town responsibility for the replacement of the sanitary sewer service tap will be from the connection at the mainline sanitary sewer up to and including the sewer cleanout located at the edge of the ROW. Routine maintenance of the individual water service in the Public ROW from the connection at the watermain up to and including the water meter located at the Public ROW will be the responsibility of the Town.

Duly adopted this the 1st day of October, 2018 while in regular session.

Michael Grannis
Mayor Pro Tem

ATTEST:

Kimberly A. Moffett, CMC, NCCMC
Town Clerk



Town Council Agenda Cover Sheet

Meeting Date

October 1 2018

Agenda Location

New Business

Item Title

2018-62-SD Kyli Knolls Preliminary Plat

Presenter

Planning Department

Summary/Description

Request for preliminary plat approval to develop 22 single-family residential on 18.56 acres of vacant land. The subject property is zoned Residential-Estate (R-E) and is located off Amelia Church Road, roughly 3,000 feet southeast of the intersection of Amelia Church Road and NC HWY 42 W. The lots are proposed to have a minimum size of 25,000 square feet, as required within the UDC. The applicant is not requesting annexation as a part of this applicant. The development is proposed to be served by public water (Johnston County) and septic systems.



Requested Action

Set Public Hearing

Additional Documents to be Included in Agenda Packet

Application

Meeting Timeline

Planning Board- September 24th

Town Council Work Session- October 1st

Town Council Hearing- October 15th



TOWN OF CLAYTON

Planning Department
111 E. Second Street, Clayton, NC 27520
P.O. Box 879, Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

SUBDIVISION: MAJOR SUBDIVISION (Preliminary Subdivision Plat)

Pursuant to Article 7, §155.706 of the Unified Development Code (UDC), an owner of land within the jurisdiction of the Town (or a duly authorized agent) may petition the Town of Clayton to approve a subdivision of land. Please complete all fields in this application and submit to the Planning Department with all required materials.

Application Fees: **Major Preliminary Subdivision Plat Fee: \$400.00 + \$5.00 per lot**
Advertisement Fee: \$100.00
Modifications to Approved Plans Fee:
Major Modification: \$400.00 + \$5.00 per lot modified
Minor Modification: \$200.00 + \$5.00 per lot modified

See §155.706(F) of the UDC for a definition of Major vs. Minor Subdivisions.
See §155.706(I) for Preliminary Plat approval (major subdivision) process/approval information.
See §155.203(F), (G), and (H) for information on Conventional vs. Open Space Subdivisions.
See §155.706(N) for information on minor and major modifications.
See UDC Article 6 for Subdivision Standards.

SITE INFORMATION

☒ New Major Subdivision
Conventional: _____ Open Space: _____
☐ New Subdivision Master Plan
☐ Modification to Approved Preliminary Plat
Major: _____ Minor: _____

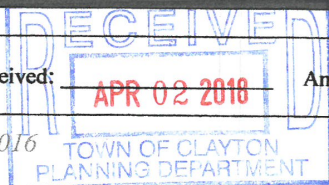
Name of Project: Kyli Knolls Acreage of Property: 18.561
Tag #: 05G03009A NC PIN: 165803-23-2656
Location: Amelia Church Rd.

Number of Lots (existing): 1 (Proposed) 22 Min Lot Size: 0.498
Zoning District: R-E Electric Provider: _____
Wastewater: ☒ Septic ☐ Sewer (check one) Water: ☐ Well ☒ Public/Private Water (check one)
Recreation/Open Space Requirement: ☐ Fee in lieu ☒ Land Dedication – Acreage: _____

FOR OFFICE USE ONLY

Date Received: APR 02 2018 Amount Paid: \$610.00 File Number: 2018.62-SD

01/06/2016



Page 1 of 17

PROPERTY OWNER INFORMATION

Name: Full Spectrum Custom Homes

Mailing Address: 865 Sands Rd., Benson, NC 27504

Phone Number: 919-422-3325

Fax:

Email Address:

APPLICANT INFORMATION

Applicant: True Line Surveying

Mailing Address: 205 W. Main St., Clayton, NC 27520

Phone Number: 919-359-0427

Fax: 919-359-0428

Contact Person: Curk Lane

Email Address: curk@truelinesurveying.com

REQUIRED INFORMATION (to be submitted with the application)

The following items must accompany the application:

To be completed by the applicant:			To be completed by staff:		
Submit 9 copies of all materials unless otherwise noted or directed by staff	Yes	N/A	Yes	No	N/A
1. A pre-application meeting was held with Town Staff. Date: March 2018	☒				
2. Completed Application	☒				
3. Review Fee and Advertisement Fee	☒				
4. Findings of Fact, signed <i>Not required for minor modifications. Form is included in this packet.</i>	☒	☐			
5. Owner's Consent Form <i>Required if applicant is not the property owner. Included in this packet</i>	☒	☐			
6. Preliminary Plat Subdivision Requirements Checklist form, completed and signed <i>Checklist is included in this packet</i>	☒				
7. Plat sheet(s) meeting requirements of the Requirements Checklist	☒	☐			
8. If subdivision waivers are requested, applicant must attach a separate typed document requesting the waivers. The document must specifically list the waivers requested, including Code references, and must address the 4 considerations outlined in §155.706(l)(7).	☐	☒			
9. Adjacent Property Owners List	☒	☐			
10. Road Name Application <i>Included in this packet</i>	☒	☐			
11. Wastewater allocation request OR verification of wastewater allocation <i>Letter format, to the attention of the Town Manager.</i>	☐	☒			

01/06/2016

Page 2 of 17

12. A signed and sealed Traffic Impact Analysis (required for projects which generate at least 100 vehicle trips at peak hour. See §155.708 of the UDC)	☐	☒			
13. Neighborhood Meeting Notice Letter* (1 copy) See sample letter and meeting requirement, included in this packet. *Not required for minor modifications or subdivisions *Not required for subdivisions that are part of an approved planned development	☒	☐			
14. Neighborhood Meeting summary form* Included in this packet – NOT submitted with application. *Not required for minor modifications or subdivisions *Not required for subdivisions that are part of an approved planned development		☒	Must be submitted after neighborhood meeting is held and at least 10 days prior to Planning Board meeting.		
15. Stamped, addressed, empty envelopes with no return address, using the adjacent property owner list. *Not required for minor modifications This for a public notice of the public hearing mailed by the Town – thus, neighbors will receive both a neighborhood meeting letter from the applicant, and a notice of the hearing from the Town.	☒				

EXPLANATION OF PROJECT

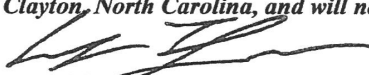
Please provide detailed information concerning all requests. Attach additional sheets if necessary.

We would like to develop a single family residential subdivision on Amelia Church Rd
in accordance with the current UDO.

APPLICANT AFFIDAVIT

I/We, the undersigned, do hereby make application and petition to the Planning Board of the Town of Clayton to approve the subject Subdivision. I hereby certify that I have full legal right to request such action and that the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related material and all attachments become official records of the Planning Department of the Town of Clayton, North Carolina, and will not be returned.

Curk Lane
Print Name


Signature of Applicant

4/2/2018
Date

01/06/2016

Page 3 of 17

FINDINGS OF FACT

Section 155.706(I)(10) of the Unified Development Code requires that certain findings must be made by the Town Council before a Major Subdivision may be approved. Outline below (you may attach additional sheets) how the application addresses each of the following findings:

- (1) That the subdivision meets all required specifications of the town Subdivision Regulations and conforms to the town Unified Development Code.

The proposed subdivision plan meets all required specifications of the town Subdivision Regulations and conforms to the town UDO.

- (2) That the subdivision will not be detrimental to the use or orderly development of other properties in the surrounding area and will not violate the character of existing standards for development of properties in the surrounding area.

The subdivision will not be detrimental to the use or orderly development of other properties in the surrounding area. The subdivision will match existing character of nearby residential subdivisions.

- (3) That the subdivision design will provide for the distribution of traffic in a manner that will avoid or mitigate congestion within the immediate area, will provide for the unified and orderly use of or extension of public infrastructure, and will not materially endanger the environment, public health, safety, or the general welfare.

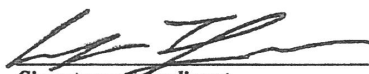
The subdivision design connects to Ameila Church in the only location where the subject property has road frontage also providing a road stub to the north for future connections.

- (4) That the subdivision will not adversely affect the general plans for the orderly growth and development of the town and is consistent with the planning policies adopted by the Town Council.

The subdivision matches current zoning (RE) for a residential subdivision as adopted by the Town Council.

Project Name: Kyli Knolls

Curk Lane
Print Name


Signature of Applicant

4/2/2018
Date

01/06/2016

Page 4 of 17



Town of Clayton
Planning Department
111 E. Second Street, Clayton, NC 27520
P.O. Box 879, Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

OWNER'S CONSENT FORM

Consent is required from the property owner(s) if an agent will act on their behalf. A separate form is required from each owner. Consent is valid for one year from date of notary, unless otherwise specified. All fields must be completed.

Project Name: Kyli Knolls Address or PIN #: 165803-23-2656

AGENT/APPLICANT INFORMATION:

True Line Surveying 205 W. Main St.
(Name - type, print clearly) (Address)
Clayton, NC 27520
(City, State, Zip)

I hereby give CONSENT to the above referenced agent/applicant to act on my behalf, to submit applications and all required materials and documents, and to attend and represent me at all meetings and public hearings pertaining to the following processes (list applicable requests):

Major Subdivision
Final

Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

I hereby certify that I have authority to execute this consent form as/on behalf of the property owner. I understand that any false, inaccurate or incomplete information provided by me or my agent will result in the denial, revocation or administrative withdrawal of this application, request, approval or permits. I further agree to all terms and conditions which may be imposed as part of the approval of this application.

OWNER AUTHORIZATION:

SEAN STRICKLAND 865 SANDERS Rd.
(Name - type, print clearly) (Address)
[Signature] BENSON NC 27504
(Owner's Signature) (City, State, Zip)

STATE OF NC
COUNTY OF Johnston

Sworn and subscribed before me Kristin D. London, a Notary Public for the above State and County, this 31st day of May, 2011.

SEAL



Kristin D. London
Notary Public

My Commission Expires: 7-16-18

October 2013



Town Council Agenda Cover Sheet

Meeting Date

October 1 2018

Agenda Location

New Business

Item Title

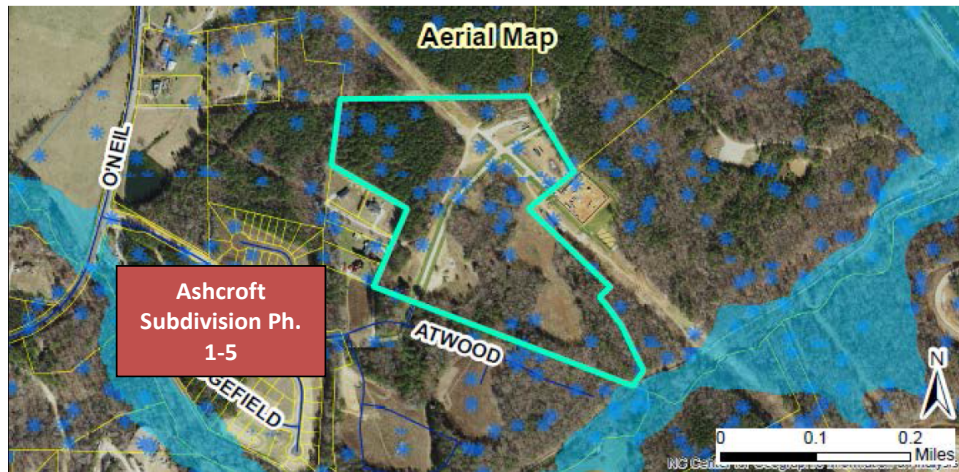
2018-119-PDD Ashcroft Ph. 6 & 7 Planned Development Rezoning

Presenter

Planning Department

Summary/Description

Request to rezone 18.55 acres of land from Residential-Estate (R-E) to Planned Development-Residential (PD-R), to create consistency with the remainder of Ashcroft Subdivision. This application is running concurrently with a preliminary plat modification to add additional residential lots and land to the previously approved Ashcroft Subdivision. The additional property would be accessed via Atwood Drive, which was previously approved as a part of the original Ashcroft Subdivision approval. Ashcroft Subdivision is accessed off North O'Neil Street.



Requested Action

Set Public Hearing

Additional Documents to be Included in Agenda Packet

Application

Meeting Timeline

Planning Board- September 24th

Town Council Work Session- October 1st

Town Council Hearing- October 15th



TOWN OF CLAYTON
Planning Department
111 E. Second St., P.O. Box 879
Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

REZONING APPLICATION

Pursuant to Article 7, Section 155.704 of the Unified Development Code, an owner of land within the jurisdiction of the Town (or a duly authorized agent) may petition the Town Council to amend the Official Zoning Map.

Application Fees: **Standard Rezoning Fee: \$500.00**
Rezoning to Planned Development District Fee: \$1,000.00 + \$5.00 acre
Advertisement Fee: \$100.00
All fees are due when the application is submitted.

Note on Planned Developments: Requests to rezone to a Planned Development District must be accompanied by a Master Plan submittal. Master Plans are approved as Preliminary Subdivision Plats – please submit a concurrent Preliminary Subdivision Plat application and Master Plan.

SITE INFORMATION

Name of Project: Ashcroft Phase 6 & 7 Acreage of Property: 18.55 ACS
County Tag Number: 05H02200B/05H02015A NC PIN: 166900-76-7638/166900-75-4535
Address/Location: Atwood Drive, Clayton
Existing Zoning District: RE/PD-R
Proposed Zoning District: PDR

APPLICANT INFORMATION

Applicant: Adams & Hodge Engineering, PC
Mailing Address: 314 E. Main Street Clayton, NC 27520
Phone Number: 919-763-7278 Fax: N/A
Contact Person: Donnie Adams
Email Address: dennie@adamsandhodge.com

FOR OFFICE USE ONLY

Date Received:

Amount Paid:

File Number:

October 2017

Page 1 of 10

RECEIVED
JUL 02 2018
TOWN OF CLAYTON
PLANNING DEPARTMENT

PROPERTY OWNER INFORMATION

Name: Gattis Lee Heirs/Ashcroft Partners, LLC

Mailing Address: 114 W.Main Street Clayton NC 27520

Phone Number: 919-422-6815

Fax: N/A

Email Address: reid@one27homes.com

EXPLANATION OF PROJECT

Please provide detailed information concerning all requests. Attach additional sheets if necessary.

The rezoning request is for additional property to be added to the Ashcroft PD-R

REQUIRED INFORMATION (to be submitted with the application)

The following items must accompany a Rezoning application.

To be completed by the applicant:			For staff use only:		
<i>Submit 9 copies of all materials unless otherwise noted or directed by staff</i>	Yes	N/A	Yes	No	N/A
1. A pre-application conference was held with Town of Clayton staff. Date: <u>5-16-2018</u>	•				
2. Review Fee (\$500 for standard rezoning <u>OR</u> \$1,000 + \$5.00/acre for Planned Developments) and Advertisement Fee (\$100)	•				
3. Completed application	•				
4. Owner's Consent Form <i>Required if applicant is not property owner.</i>	•				
5. A signed and sealed boundary survey (not more than a year old unless otherwise approved by the Planning Department).					
6. <i>If property to be rezoned is a portion of a parcel:</i> - Property legal description typed (10 pt. font or greater, and also submitted electronically in MS Word format.) - Plat showing property to be rezoned, matching legal description.					
7. Adjacent property owners list	•				
8. Neighborhood meeting notice letter (1 copy) <i>See sample letter and meeting requirements included in this packet</i>					
9. Neighborhood meeting summary form (1 copy) <i>Included in this packet</i>	Must be submitted after neighborhood meeting is held and at least 10 days prior to Planning Board meeting.				
10. Stamped, addressed, empty envelopes with no return address, using the adjacent property owner list (1 set) <i>This for a public notice of the public hearing mailed by the Town – thus, neighbors will receive both a neighborhood meeting letter from the applicant, and a notice of the hearing from the Town.</i>	•				

APPROVAL CRITERIA

All applications for a Rezoning must address the following findings:

1. Consistency with the adopted plans of the Town.
The proposed plan will be consistent with adopted plans of the town and will provide a mixture of residential units.

2. Suitability of the subject property for uses permitted by the current vs. the proposed district.
A portion of the property is currently located in the town limits and is undeveloped. The remaining portion is in the Town's ETJ and will need to be annexed. Rezoning this property will allow for orderly development as well as an extension of Ashcroft.

3. Whether the proposed change tends to improve the balance of uses, or meets specific demand in the Town.
The proposed zoning change will allow flexibility in development to facilitate better overall use of the property.

4. The capacity of adequate public facilities and services including schools, roads, recreation facilities, wastewater treatment, potable water supply and stormwater drainage facilities is available for the proposed use.
This property is adjacent to an existing planned development and adjacent to current Town Limits. As such the town has anticipated the proposed density.

5. It has been determined that the legal purposes for which zoning exists are not violated.
The legal purposes for zoning have not been violated.

6. It has been determined that there will be no adverse effect upon adjoining property owners unless such effect can be justified by the overwhelming public good or welfare.
The rezoning should have a positive effect instead of a negative.

7. It has been determined that no one property owner or small group of property owners will benefit materially from the change to the detriment of the general public.
This change will benefit the general public.

APPLICANT AFFIDAVIT

I/We, the undersigned, do hereby make application and petition to the Town Council of the Town of Clayton to amend the Zoning Ordinance and change the Official Zoning Map of the Town of Clayton as requested. I hereby certify that I have full legal right to request such action and that the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related material and all attachments become official records of the Planning Department of the Town of Clayton, North Carolina, and will not be returned.

Adams & Hodge Engineering
Print Name

[Signature]
Signature of Applicant

6/1/2018
Date



Town Council Agenda Cover Sheet

Meeting Date

October 1 2018

Agenda Location

New Business

Item Title

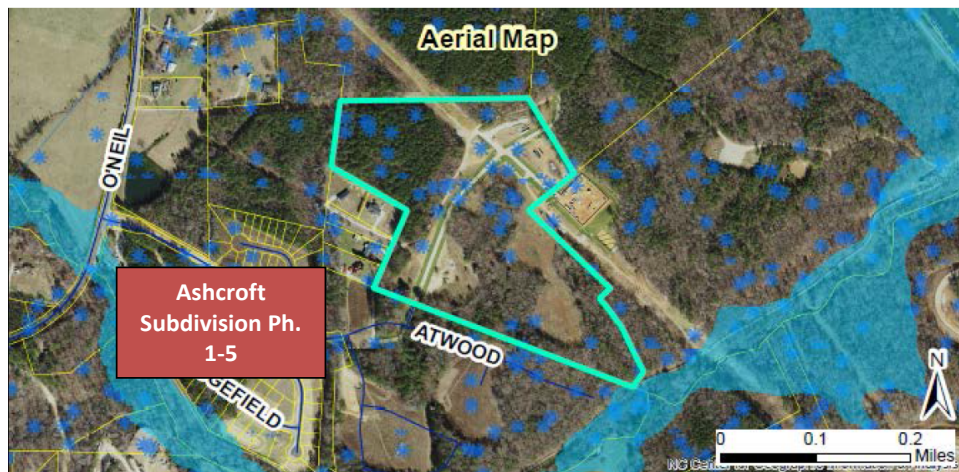
2018-120-SD Ashcroft Ph. 6 & 7 Preliminary Plat Major Modification

Presenter

Planning Department

Summary/Description

Request for a major modification to a previously approved preliminary plat (PSD 2013-51, Ashcroft Subdivision) to add 18.55 acres of land and 56 single-family residential lots. The subdivision was originally approved for Phases 1-5 in 2013. The additional units proposed as a part of this modification will make up Phases 6 and 7, and will be accessed via Atwood Drive, which was approved as a part of the original preliminary plat. If approved, the total lot count within Ashcroft Subdivision would increase to 195 lots. The property is zoned Residential-Estate (R-E), but the applicant has submitted a Rezoning application to run concurrently with this request in order to rezone the property to Planned Development-Residential (PD-R). The subdivision is accessed off North O'Neil Street.



Requested Action

Set Public Hearing

Additional Documents to be Included in Agenda Packet

Application

Meeting Timeline

Planning Board- September 24th

Town Council Work Session- October 1st

Town Council Hearing- October 15th



TOWN OF CLAYTON

Planning Department

111 E. Second Street, Clayton, NC 27520

P.O. Box 879, Clayton, NC 27528

Phone: 919-553-5002

Fax: 919-553-1720

SUBDIVISION: MAJOR SUBDIVISION (Preliminary Subdivision Plat)

Pursuant to Article 7, §155.706 of the Unified Development Code (UDC), an owner of land within the jurisdiction of the Town (or a duly authorized agent) may petition the Town of Clayton to approve a subdivision of land. Please complete all fields in this application and submit to the Planning Department with all required materials.

Application Fees: **Major Preliminary Subdivision Plat Fee: \$400.00 + \$5.00 per lot**

Advertisement Fee: \$100.00

Modifications to Approved Plans Fee:

Major Modification: \$400.00 + \$5.00 per lot modified

Minor Modification: \$200.00 + \$5.00 per lot modified

See §155.706(F) of the UDC for a definition of Major vs. Minor Subdivisions.

See §155.706(I) for Preliminary Plat approval (major subdivision) process/approval information.

See §155.203(F), (G), and (H) for information on Conventional vs. Open Space Subdivisions.

See §155.706(N) for information on minor and major modifications.

See UDC Article 6 for Subdivision Standards.

SITE INFORMATION

☐ New Major Subdivision

Conventional: _____ Open Space: _____

☒ Modification to Approved Preliminary Plat

Major: x _____ Minor: _____

☐ New Subdivision Master Plan

Name of Project: Ashcroft Phases 6 & 7 Acreage of Property: 18.55 ACS

Tag #: 05H02200B / 0502015A NC PIN: 166900-76-7638 / 166900-75-4535

Location: Off Atwood Drive in Ashcroft Subdivision

Number of Lots (existing): 139 (Proposed) 56 Min Lot Size: 6.00 SF

Zoning District: PD-R Electric Provider: Town of Clayton

Wastewater: ☐ Septic

☒ Sewer (check one)

☐ Well

Water: ☒ Public/Private Water (check one)

Recreation/Open Space Requirement: ☐ Fee in lieu ☒ Land Dedication – Acreage: 5.43 ACS

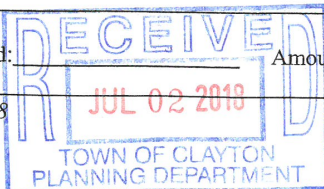
FOR OFFICE USE ONLY

Date Received: _____

Amount Paid: \$ 850

File Number: 2018-120-5D

June 2018



Page 1 of 13

PROPERTY OWNER INFORMATION

Name: Ashcroft Partners, LLC

Mailing Address: 114 W. Main St, Clayton, NC 27520

Phone Number: 919-422-6815

Fax: N/A

Email Address: reid@one27homes.com

APPLICANT INFORMATION

Applicant: Adams & Hodge Engineering, PC

Mailing Address: 314 E. Main St, Clayton, NC

Phone Number: 919-763-7278

Fax: N/A

Contact Person: Donnie Adams

Email Address: donnie@adamsandhodge.com

REQUIRED INFORMATION (to be submitted with the application)*The following items must accompany the application:*

To be completed by the applicant:			To be completed by staff:		
<i>Submit 9 copies of all materials unless otherwise noted or directed by staff</i>	Yes	N/A	Yes	No	N/A
1. A pre-application meeting was held with Town Staff. Date: <u>05/16/18</u>	✓				
2. Completed Application	✓				
3. Review Fee and Advertisement Fee	✓				
4. Findings of Fact, signed <i>Not required for minor modifications. Form is included in this packet.</i>	✓				
5. Owner's Consent Form <i>Required if applicant is not the property owner. Included in this packet</i>	✓				
6. Preliminary Plat Subdivision Requirements Checklist form, completed and signed <i>Checklist is included in this packet</i>	✓				
7. Plat sheet(s) meeting requirements of the Requirements Checklist	✓				
8. If subdivision waivers are requested, applicant must attach a separate typed document requesting the waivers. The document must specifically list the waivers requested, including Code references, and must address the 4 considerations outlined in §155.706(I)(7).		✓			
9. Adjacent Property Owners List	✓				
10. Road Name Application <i>Included in this packet</i>	✓				
11. Wastewater allocation request OR verification of wastewater allocation <i>Letter format, to the attention of the Town Manager.</i>	✓				

12. A signed and sealed Traffic Impact Analysis (required for projects which generate at least 100 vehicle trips at peak hour. See §155.708 of the UDC)				
13. Neighborhood Meeting Notice Letter* (1 copy) See sample letter and meeting requirement, included in this packet. *Not required for minor modifications or subdivisions *Not required for subdivisions that are part of an approved planned development	✓			
14. Neighborhood Meeting summary form* Included in this packet – NOT submitted with application. *Not required for minor modifications or subdivisions *Not required for subdivisions that are part of an approved planned development			Must be submitted after neighborhood meeting is held and at least 10 days prior to Planning Board meeting.	
15. Stamped, addressed, empty envelopes with no return address, using the adjacent property owner list. *Not required for minor modifications This for a public notice of the public hearing mailed by the Town – thus, neighbors will receive both a neighborhood meeting letter from the applicant, and a notice of the hearing from the Town.	✓			

EXPLANATION OF PROJECT

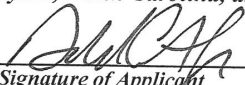
Please provide detailed information concerning all requests. Attach additional sheets if necessary.

This project includes minor modifications to the current Ashcroft PDR as well as the addition of the approximately 18.55 acres. The minor modification and additional property will be developed to generate 56 new single family lots resulting in a total of 195 lots in Ashcroft. This addition will be developed in a manner comparable and consistent with the current phases of Ashcroft.

APPLICANT AFFIDAVIT

I/We, the undersigned, do hereby make application and petition to the Planning Board of the Town of Clayton to approve the subject Subdivision. I hereby certify that I have full legal right to request such action and that the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related material and all attachments become official records of the Planning Department of the Town of Clayton, North Carolina, and will not be returned.

Adams & Hodge Engineering
Print Name


Signature of Applicant

6/29/2018
Date

June 2018

Page 3 of 13

FINDINGS OF FACT

Section 155.706(I)(10) of the Unified Development Code requires that certain findings must be made by the Town Council before a Major Subdivision may be approved. Outline below (you may attach additional sheets) how the application addresses each of the following findings:

- (1) That the subdivision meets all required specifications of the town Subdivision Regulations and conforms to the town Unified Development Code.

The subdivision meets all applicable regulations and conforms to the UDO.

- (2) That the subdivision will not be detrimental to the use or orderly development of other properties in the surrounding area and will not violate the character of existing standards for development of properties in the surrounding area.

The subdivision design is such that it will be beneficial to orderly development on adjacent tracts.

- (3) That the subdivision design will provide for the distribution of traffic in a manner that will avoid or mitigate congestion within the immediate area, will provide for the unified and orderly use of or extension of public infrastructure, and will not materially endanger the environment, public health, safety, or the general welfare.

The subdivision is designed to provide proper traffic flow within the neighborhood and provides a continuation of the existing street system as well as two stub roads for possible future development.

- (4) That the subdivision will not adversely affect the general plans for the orderly growth and development of the town and is consistent with the planning policies adopted by the Town Council.

This subdivision is consistent with the orderly growth and development pattern of the town.

Project Name: Ashcroft Phases 6 & 7

Adams & Hodge Engineering

Print Name


Signature of Applicant

6/29/2018
Date

June 2018

Page 4 of 13



Town Council Agenda Cover Sheet

Meeting Date

October 1 2018

Agenda Location

New Business

Item Title

2018-121-SUP Villages at Parkview Special Use Permit Major Modification

Presenter

Planning Department

Summary/Description

Request for a major modification to a previously approved Special Use Permit (2017-172-SUP, Goodson Tract) from 2018, to add additional land and townhome units to the proposed subdivision. The original Special Use Permit was approved in 2017 for 68 townhome units on 7 acres of land. The applicant has since acquired additional land to the south, and is now requesting to modify the Special Use Permit to add 3.85 and 35 additional townhome lots. A major modification to the previously approved preliminary plat is running concurrently with this request.



Requested Action

Set Public Hearing

Additional Documents to be Included in Agenda Packet

Application

Meeting Timeline

Planning Board- September 24th

Town Council Work Session- October 1st

Town Council Hearing- October 15th



TOWN OF CLAYTON

Planning Department
111 E. Second Street, Clayton, NC 27520
P.O. Box 879, Clayton, NC 27528
Phone: 919-553-5002
Fax: 919-553-1720

SPECIAL USE APPLICATION

Pursuant to Article 7, Section 155.711 of the Unified Development Code, an owner of land within the jurisdiction of the Town (or a duly authorized agent) may petition the Town Council to allow a Special Use. Special Uses are uses that may be appropriate in a particular district, but have the potential to create incompatibilities with adjacent uses.

Application Fee: \$400.00.

Advertisement Fee: \$100.00.

All fees are due when the application is submitted.

Please note that Section 155.702(B) of the Unified Development Code requires a Neighborhood Meeting for all Special Use Permit applications.

APPLICATION TYPE

☐ New Special Use Permit

☒ Major Modification to an approved SUP

Permit Modified: _____

SITE INFORMATION

Name of Project: The Village at Parkview Phases 9-16 Acreage of Property: 3.85 ACS
Parcel ID Number: NCPIN 166909-06-1495 / 166909-06-1265 Tax ID: TAG 05H02199C / 05H02198
Deed Book: 5130 / 3003 Deed Page(s): 112 / 637
Address/Location: 352 City Road, Clayton, NC 27520

Existing Use: Single Family Residential Proposed Use: Townhomes (R-10 SUP)
Is project within a Planned Development? ☒ No ☐ Yes
Planned Development District (if applicable): N/A
Is project within an Overlay District: ☒ No ☐ Yes
Overlay District (if applicable): N/A

OFFICE USE ONLY

Date Received: _____

Amount Paid: \$ 600

Permit Number: 2018-121-SUP

version 01/06/2016 OF CLAYTON
PLANNING DEPARTMENT

Page 1 of 9

PROPERTY OWNER INFORMATIONName: Sam's Branch, LLC / Delila R B Thompson Living TrustMailing Address: 114 W. Main Street, Clayton NC 27520 / 8013 Old Stage Rd., Raleigh, NC 27603Phone Number: 919-422-6815 Fax: N/AEmail Address: reid@one27homes.com**APPLICANT INFORMATION**Applicant: Adams & Hodge Engineering, PCMailing Address: 314 E. Main Street Clayton, NC 27520Phone Number: 919-763-7278 Fax: N/AContact Person: Donnie AdamsEmail Address: donnie@adamsandhodge.com**REQUIRED INFORMATION (to be submitted with the application)***The following items must accompany a Conditional Use Permit (CUP) application.*

To be completed by the applicant:			To be completed by staff:		
	Yes	N/A	Yes	No	N/A
1. A pre-application conference was held with Town of Clayton staff. Date: _____	☒	☐			
2. Review Fee (\$400) and Application Fee (\$100)	☒	☐			
3. Completed application (9 copies)	☒	☐			
4. Owner's Consent Form (9 copies)	☒	☐			
5. Adjacent property owners list (9 copies)	☒	☐			
6. Wastewater allocation request OR verification of wastewater allocation (9 copies)	☒	☐			
7. Signed and sealed traffic impact analysis (2 copies)	☐	☐	<i>In Progress</i>		
8. If applicant is concurrently applying for site plan approval, a copy of the proposed site plan.	☒	☐			
9. Neighborhood meeting notice letter (9 copies) <i>See sample letter and meeting requirements included in this packet</i>	May be provided at time of submittal if meeting date is known – otherwise must be submitted by email or mail on date the letter is mailed out.				
10. Set of stamped, addressed envelopes using the adjacent property owners list	May be provided at time of submittal OR no later than 25 days prior to the Town Council meeting.				
11. Neighborhood meeting summary form (9 copies) <i>Form is included in this packet</i>	Must be submitted after neighborhood meeting is held and at least 10 days prior to Planning Board meeting.				

Note: More information may be requested by the Planning Department depending on the project

REQUIRED FINDINGS OF FACT

Section 155.711(I) of the Unified Land Development Code requires applications for a Special Use to address the following findings. The burden of proof is on the applicant and failure to adequately address the findings may result in denial of the application. Please attach additional pages if necessary.

1. That the application will not materially endanger the public health or safety if located where proposed, and developed according to the plans as submitted and approved.

The subdivision is designed to provide proper traffic flow within the neighborhood and provides appropriate points of connection to the existing street system for safe ingress and egress.

2. That the application meets all required specifications and conforms to the standards and practices of sound land use planning and the Town Code of Ordinances and other applicable regulations.

This subdivision has been designed with sound land use planning practices and conforms to the Town U.D.O. and applicable regulations.

3. That the application will not substantially injure the value of adjoining or abutting property, and will not be detrimental to the use or development of adjacent properties or other neighborhood uses.

The proposed use is consistent with approved use for adjacent tract. It will be a maintenance free neighborhood and should have a positive impact on the general area.

4. That the application will not adversely affect the adopted plans and policies of the Town, or violate the character of existing standards for development of the adjacent properties.

This subdivision is consistent with the orderly growth and development pattern of the Town.

EXPLANATION OF PROJECT

Please provide detailed information concerning all requests. Attach additional sheets if necessary.

This project is a 39 townhome units extension of the adjacent approved subdivision/special use (2017-171-SD).

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be a standard notebook page.

APPLICANT AFFIDAVIT

I/We, the undersigned, do hereby make application and petition to the Town Council of the Town of Clayton to approve the subject Special Use Permit. I hereby certify that I have full legal right to request such action and that the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related material and all attachments become official records of the Planning Department of the Town of Clayton, North Carolina, and will not be returned.

ADAMS & HOGGE ENGINEERING
Print Name


Signature of Applicant

6/1/2018
Date



TOWN OF CLAYTON

Planning Department

111 E. Second Street, Clayton, NC 27520

P.O. Box 879, Clayton, NC 27528

Phone: 919-553-5002

Fax: 919-553-1720

OWNER'S CONSENT FORM

Consent is required from the property owner(s) if an agent will act on their behalf. A separate form is required from each owner. Consent is valid for one year from date of notary, unless otherwise specified. All fields must be completed.

Project Name: The Village at Parkview Ph 9-16 Address or PIN #: 300 City Road, Clayton
05402148

AGENT/APPLICANT INFORMATION:

Adams & Hodge Engineering, PC
(Name - type, print clearly)

314 E. Main St.
(Address)

Clayton, NC 27520
(City, State, Zip)

I hereby give CONSENT to the above referenced agent/applicant to act on my behalf, to submit applications and all required materials and documents, and to attend and represent me at all meetings and public hearings pertaining to the following processes (list applicable requests):

Rezoning
Major Subdivision

Final Plans
Construction Plans

Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

I hereby certify that I have authority to execute this consent form as/on behalf of the property owner. I understand that any false, inaccurate or incomplete information provided by me or my agent will result in the denial, revocation or administrative withdrawal of this application, request, approval or permits. I further agree to all terms and conditions which may be imposed as part of the approval of this application.

OWNER AUTHORIZATION:

Delila B Thompson
Carol Boyette, Trustee Living Trust
(Name - type, print clearly)

8011 Old Stage Rd
(Address)

Carol J. Boyette, Trustee
(Owner's Signature)

Raleigh NC 27603
(City, State, Zip)

STATE OF North Carolina
COUNTY OF Wake

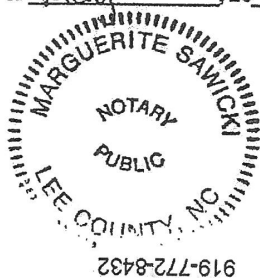
Sworn and subscribed before me Marguerite Sawicki, a Notary Public for the above State and County, this the 17 day of May, 2018.

SEAL

Marguerite Sawicki
Notary Public

My Commission Expires: 11-1-2022

October 2013



p.1

Clyde and Carol Boyette

May 17 18, 04:31p



TOWN OF CLAYTON
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Clayton, NC 27528
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Project Name: The Village at Parkview JPN9-16 Address or PIN #: 166909-06-1495

AGENT/APPLICANT INFORMATION:

Adams & Hodge Engineering, PC 314 E. Main St.
(Name - type, print clearly) (Address)
Clayton, NC 27520
(City, State, Zip)

I hereby give **CONSENT** to the above referenced agent/applicant to act on my behalf, to submit applications and all required materials and documents, and to attend and represent me at all meetings and public hearings pertaining to the following processes (*list applicable requests*):

REZONING FINAL PLATS
MAJOR SUBDIVISION CONSTRUCTION PLANS

Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

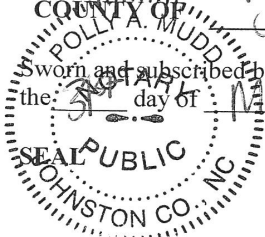
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OWNER AUTHORIZATION:

SAMS BRANCH LLC 114 W. MAIN ST
(Name - type, print clearly) (Address)
[Signature] CLAYTON, NC 27520
(Owner's Signature) (City, State, Zip)

STATE OF North Carolina
COUNTY OF Johnston

Sworn and subscribed before me the 15 day of May, 2018, Polly A. Mudd, a Notary Public for the above State and County, this



[Signature]
Notary Public

My Commission Expires: June 18, 2020

January 2018



Town Council Agenda Cover Sheet

Meeting Date

October 1 2018

Agenda Location

New Business

Item Title

2018-122-SD Villages at Parkview Preliminary Plat Major Modification

Presenter

Planning Department

Summary/Description

Request for a major modification to a previously approved preliminary plat (2017-171-SD Goodson Tract) to add additional land and lots. The original preliminary plat was approved for 68 townhome units (Phases 1-8). This modification would add 3.85 additional acres to the original plan, along with 35 new townhome units (Phases 9-16). The subject properties are located off City Road, adjacent to Legend Park and across from Parkview Subdivision. The properties are zoned Residential-10 (R-10). Eight new buildings are proposed as a part of this addition, along with one additional access point off City Road. A modification to the originally approved Special Use Permit application is running concurrently with this request, to allow the use of townhomes on the new subject properties.



Requested Action

Set Public Hearing

Additional Documents to be Included in Agenda Packet

Application

Meeting Timeline

Planning Board- September 24th

Town Council Work Session- October 1st

Town Council Hearing- October 15th



TOWN OF CLAYTON
Planning Department

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SUBDIVISION: MAJOR SUBDIVISION (Preliminary Subdivision Plat)

Pursuant to Article 7, §155.706 of the Unified Development Code (UDC), an owner of land within the jurisdiction of the Town (or a duly authorized agent) may petition the Town of Clayton to approve a subdivision of land. Please complete all fields in this application and submit to the Planning Department with all required materials.

Application Fees: **Major Preliminary Subdivision Plat Fee: \$400.00 + \$5.00 per lot**
Advertisement Fee: \$100.00

Modifications to Approved Plans Fee:

Major Modification: \$400.00 + \$5.00 per lot modified

Minor Modification: \$200.00 + \$5.00 per lot modified

See §155.706(F) of the UDC for a definition of Major vs. Minor Subdivisions.

See §155.706(I) for Preliminary Plat approval (major subdivision) process/approval information.

See §155.203(F), (G), and (H) for information on Conventional vs. Open Space Subdivisions.

See §155.706(N) for information on minor and major modifications.

See UDC Article 6 for Subdivision Standards.

SITE INFORMATION

☐ New Major Subdivision

Conventional: _____ Open Space: _____

☒ Modification to Approved Preliminary Plat

Major: 2017-171-SD Minor: _____

☐ New Subdivision Master Plan

Name of Project: The Village at Parkview Ph 9-16 7.00 ACS Previous Submittal
Acreage of Property: 3.85 ACS

Tag #: 05H02199C & 05H02198 NC PIN: 166909-06-1495 & 166909-06-1265

Location: 352 City Road, Clayton, NC 27520

Number of Lots (existing): 2 (Proposed) 39 total Min Lot Size: 1250 SF

Zoning District: R-10 Electric Provider: Town of Clayton

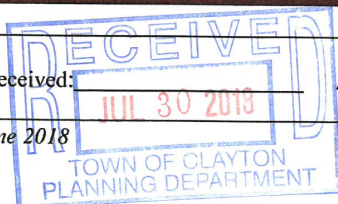
Wastewater: ☐ Septic ☒ Sewer (check one) Water: ☐ Well ☒ Public/Private Water (check one)

Recreation/Open Space Requirement: ☒ Fee in lieu ☐ Land Dedication – Acreage: _____

FOR OFFICE USE ONLY

Date Received: _____ Amount Paid: _____ File Number: _____

June 2018



Page 1 of 13

PROPERTY OWNER INFORMATIONName: Sam's Branch LLC/Delila R B Thompson Living TrustMailing Address: 114 Main Street, Clayton, NC 27520 / 8013 Old Stage Rd., Raleigh, NC 27603Phone Number: 919-422-6815 Fax: N/AEmail Address: reid@one27homes.com**APPLICANT INFORMATION**Applicant: Adams & Hodge Engineering, PCMailing Address: 314 East Main St., Clayton, NC 27520Phone Number: 919-763-7278 Fax: N/AContact Person: Donnie AdamsEmail Address: donnie@adamsandhodge.com**REQUIRED INFORMATION (to be submitted with the application)***The following items must accompany the application:*

To be completed by the applicant:			To be completed by staff:		
<i>Submit 9 copies of all materials unless otherwise noted or directed by staff</i>	Yes	N/A	Yes	No	N/A
1. A pre-application meeting was held with Town Staff. Date: <u>05/16/2018</u>	✓				
2. Completed Application	✓				
3. Review Fee and Advertisement Fee	✓				
4. Findings of Fact, signed <i>Not required for minor modifications. Form is included in this packet.</i>	✓				
5. Owner's Consent Form <i>Required if applicant is not the property owner. Included in this packet</i>	✓				
6. Preliminary Plat Subdivision Requirements Checklist form, completed and signed <i>Checklist is included in this packet</i>	✓				
7. Plat sheet(s) meeting requirements of the Requirements Checklist	✓				
8. If subdivision waivers are requested, applicant must attach a separate typed document requesting the waivers. The document must specifically list the waivers requested, including Code references, and must address the 4 considerations outlined in §155.706(I)(7).		✓			
9. Adjacent Property Owners List	✓				
10. Road Name Application <i>Included in this packet</i>	✓				
11. Wastewater allocation request OR verification of wastewater allocation <i>Letter format, to the attention of the Town Manager.</i>	✓				

FINDINGS OF FACT

Section 155.706(I)(10) of the Unified Development Code requires that certain findings must be made by the Town Council before a Major Subdivision may be approved. Outline below (you may attach additional sheets) how the application addresses each of the following findings:

- (1) That the subdivision meets all required specifications of the town Subdivision Regulations and conforms to the town Unified Development Code.

See attached sheets

- (2) That the subdivision will not be detrimental to the use or orderly development of other properties in the surrounding area and will not violate the character of existing standards for development of properties in the surrounding area.

See attached sheets

- (3) That the subdivision design will provide for the distribution of traffic in a manner that will avoid or mitigate congestion within the immediate area, will provide for the unified and orderly use of or extension of public infrastructure, and will not materially endanger the environment, public health, safety, or the general welfare.

See attached sheets

- (4) That the subdivision will not adversely affect the general plans for the orderly growth and development of the town and is consistent with the planning policies adopted by the Town Council.

See attached sheets

Project Name: The Village at Parkview Phases 9-16

ADAMS & HODGE
Print Name

[Signature]
Signature of Applicant

07/27/18
Date

June 2018

Page 4 of 13

General Note: The Town of Clayton in February 2018 approved a townhome subdivision, on 7 ac. that is generally shown as Phase 1-8 (68 units) on the master plan. Since the time of that approval an additional 3.85 ac of land has been acquired and now the Town has been petitioned to amend the previously approved plan to include an additional 35 townhomes. This addition constitutes a major change to the approved plan, thus necessitating this resubmission.

Item No.1 *That the subdivision meets all required specifications of the Town Subdivision Regulations and conforms to the town Unified Development Codes.*

The subdivision meets or exceeds all applicable development standards that are established in the Subdivision Regulations and the Unified Development Code. Streets are designed in accordance with the Town standards so as to provide a development with safe streets for both vehicles and pedestrians. Public utilities are designed so as to provide adequate water for consumption as well as fire protection while the sewer collection system is designed to protect the health and welfare of the public. Area lighting is provided so as to provide a safe environment for the residents. Storm water management facilities have been incorporated into the design so as to manage the volume of storm water as well as the quality of the storm water discharged for the site. Erosion control has been incorporated into the design of the physical improvements during construction so as to minimize off site discharge of sediments. Passive and active recreation opportunities have been provided through open space, resource conservation areas (RCA) or indirectly through recreational assessment fees. By incorporating buffers, resource conservation areas, open space and landscaping the aesthetic quality of the development and well as adjacent properties is maintained.

Item No. 2 *That the subdivision will not be detrimental to the use of orderly development of other properties in the surrounding area and will not violate the character of existing standards for development of properties in the surrounding area.*

Since Phases 1-8 of the townhome subdivision were previously approved by the Town, the additional 35 units in Phases 9-16 will be no more than a continuation of the existing development with the same orderly development concepts and architectural styles. To the west across City Road there already exists a townhome subdivision as well as a single-family subdivision (Parkview) that incorporates a similar development/architectural style. By having similar development concepts and architectural style the proposed townhome subdivision will further enhance the area in developing a neighborhood identity. To the north lies Sams Branch and Legend Park which afford the townhome subdivision a great public recreational opportunity, by providing both active and passive recreation. Combine the municipal recreational opportunities with the resource conservation areas and the open space proposed for the townhome subdivision and the development of a neighborhood concept will be further enhanced. To the east and to the south of the proposed townhome subdivision the land is very steep and is protected by riparian buffers associated with an existing stream and/or pond, thus only further enhancing the aesthetic quality of developing a neighborhood concept and identity with the proposed development. In order to facilitate expansion of the neighborhood concept into adjacent properties the proposed townhome subdivision provides street and utility terminations so as to facilitate potential future development on adjacent properties.

Item No. 3 That the subdivision design will provide for the distribution of traffic in a manner that will avoid or mitigate congestion within the immediate area, will provide for the unifies and orderly use of or extension of public infrastructure, and will not materially endanger the environment, public health, safety, or the general welfare.

The distribution of traffic associated with the townhome subdivision has been addressed through a traffic impact analysis which states that Phases 1-8 could be adequately served by the extension of Street A to access the property and making the intersection of Street A and City Road a full movement intersection. In order to facilitate the additional development of 35 townhome units a second access point (right in and right out only) was located to the south on City Road. To further address future expansion of the road system, Street A was stubbed out to facilitate expansion of the road system serving Legend Park. In a similar manner Streets C and E have been stubbed out to the property line in order to facilitate future development on adjacent tracts of land. Utilities have been so terminated in such a manner as to facilitate future extensions associated with Streets A, C and E with minimal impact to other site improvements. Care has been exercised in the townhome subdivision to protect the environment by prudent use of buffers, resource conservation areas and landscaping. The public's safety and health have been addressed by providing public water and sewer that meet Town and State requirements. Storm water quality has been addressed during construction with erosion control measures and in the long term with storm water management facilities that address not only the quality of the water but also the quantity of water. Streets are so designed as to be safe for pedestrians and vehicles alike by providing adequate separation, traffic control and lighting. The public's health and welfare are further addressed by the townhome subdivision providing passive and active recreation opportunities on site as well as offsite via municipal recreation facilities.

Item No. 4 That the subdivision will not adversely affect the general plans for the orderly growth and development of the town and is consistent with the planning policies adopted by the Town Council.

The proposed development is in compliance with the Town of Clayton Comprehensive Plan 2040. In the Plan the area of the townhome subdivision is designated as Downtown Residential (DR) land use. The DR land use encourages higher density residential development by using multifamily developments (apartments and townhomes) that have high density ratios (12 to 20 units/ac). The proposed development has a total acreage of 10.85 ac with 2.47 ac of resource conservation area or 8.38 ac of developable land. When the density is calculated at build out using 103 units the density ration is 12.29 units per acre of developable land. The proposed townhome development will go a long way in addressing the multifamily residential component envisioned in the Comprehensive Plan 2040 and will complement the existing townhome/single family development that already existing in Parkview Subdivision.



TOWN OF CLAYTON

Planning Department

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Project Name: The Village at Parkview Ph 9-16 Address or PIN #: 300 City Road, Clayton
05H02148

AGENT/APPLICANT INFORMATION:

Adams & Hodge Engineering, PC
(Name - type, print clearly)

314 E. Main St.

(Address)

Clayton, NC 27520

(City, State, Zip)

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Major Subdivision

Final Plats
Construction Plans

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OWNER AUTHORIZATION: Delila B Thompson

Carol Boyette, Trustee Living Trust
(Name - type, print clearly)

8011 Old Stage Rd
(Address)

Carol S. Boyette, Trustee
(Owner's Signature)

Raleigh NC 27603
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STATE OF North Carolina
COUNTY OF Wake

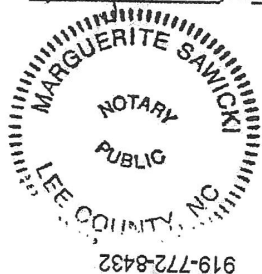
Sworn and subscribed before me Marguerite Sawicki, a Notary Public for the above State and County, this the 17 day of May, 2018.

SEAL

Marguerite Sawicki
Notary Public

My Commission Expires: 11-1-2022

October 2013



p.1

Clyde and Carol Boyette

May 17 18:04:31p



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(Name - type, print clearly) (Address)
Clayton, NC 27520
(City, State, Zip)

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OWNER AUTHORIZATION:

SAMS BRANCH LLC 114 W. Main St
(Name - type, print clearly) (Address)
[Signature] CLAYTON, NC 27520
(Owner's Signature) (City, State, Zip)

STATE OF North Carolina
COUNTY OF Johnston

Sworn and subscribed before me the 5th day of May, 2018, Polly A. Mudd, a Notary Public for the above State and County, this

[Signature]
Notary Public

My Commission Expires: June 18, 2020

January 2018