Planning Board

Regular Meeting Agenda
April 11, 2022, 6:30 p.m.

1. Call to Order

2. Swearing - In of Newly Appointed Planning Board Member William Chapman

3. Approval of March 14, 2022, Meeting Minutes

4. City Council Actions Update

5. Request to establish R-12(CD) zoning +/- 148.98 acres for a Planned Unit Development of 308 single-family homes and 184 townhomes, by rezoning 2570 S NC 119 (GPIN 9803664499) from R-20; rezoning an adjacent unaddressed property (GPIN 9803752741) from B-2 and R-20 and establishing zoning on a portion of the property not zoned by the City of Mebane; rezoning portions of an adjacent unaddressed property (GPIN 9803578931) from R-20; and, rezoning portions of 2502 S NC 119 (GPIN 9803677687) from B-2 by Leoterra Development, Inc.

   AND

   Request for a Special Use Permit for a Special Purpose Lot to allow for a public sewer pump station on the unaddressed property (GPIN 9803752741) by Leoterra Development, Inc.

6. New Business

7. Adjournment

Planning Board
Minutes to the Meeting
March 14, 2022
6:30 p.m.

The Planning Board meeting was held at the Glendel Stephenson Municipal Building located at 106 E. Washington Street, Mebane, NC 27302 and livestreamed via YouTube. The video can be accessed through the following link: https://www.youtube.com/watch?v=O2ymWXj1pV4

Members Present:

Chairman Edward Tulauskas
Gale Pettiford
Susan Semonite
Kurt Pearson
Keith Hoover

City Staff Present:

Audrey Vogel, Planner
Cy Stober, Development Director
Kirk Montgomery, IT Director
Kyle Smith, PE, Utilities Director
Franz Holt, PE, City Engineer

1. **Call to Order**
   At 6:30 p.m. Chairman Edward Tulauskas called the meeting to order.

2. **Approval of the January 10, 2022, Minutes**
   Gale Pettiford made a motion to approve the meeting minutes. Kurt Pearson seconded the motion which passed unanimously.

3. **City Council Actions Update**
   Cy Stober, Development Director, provided an update on the City Council's recent action at the February and March City Council meeting. This included the introduction of William Chapman, appointed by the City Council on March 7th to fill the vacant position on Planning Board. Mr. Chapman was present at the meeting to observe and will be sworn in to sit on the Board at the April Planning Board Meeting.

4. **Special Use Permit request for a Special Purpose Lot for use as an Elevated Water Storage Tank, a Public Works Utility Facility, on +/-1.39 acres of a +/-5.16-acre property at 1500 South Third Street (GPIN 9814066338), by the City of Mebane**

   The City of Mebane is requesting approval of a Special Use Permit to allow for an Elevated Water Storage Tank (EST) on a +/-1.39-acre parcel of the +/-5.16-acre property at 1500 South Third Street. The EST will store 1 million gallons of water and fulfill goals of the City's adopted Long-Range Utility Plan as well as enhance the City's public safety needs. Special Purpose Lots are detailed in Section 6 of the Mebane Unified Development Ordinance, where they are reserved for utility uses and all dimensional requirements (e.g. setbacks) are waived; the EST will be +/-200' tall. The 20' landscape buffer and driveway criteria apply. Additionally, the EST is subject to the development standards of

Section 4-7.9.H ("Public Works and Public Utility Facilities Essential to the Immediate Area"), which requires fencing and has use-specific regulations regarding noise, dust, and outdoor storage.

The City submitted its site plans and supporting materials for review by the City Technical Review Committee and all materials reflect staff feedback on the application and supporting materials.

Cy Stober provided an overview of the request.

Carolyn Long, resident of 2009 S Third Street, expressed concerns about flooding on her property. Cy Stober responded that her concerns would be addressed during or after the applicant's presentation.

Kyle Smith, P.E. the City of Mebane Utilities Director provided a detailed presentation of the request including the need for the tower and the project site selection and details. During the presentation, he explained that the request would meet the following criteria for a Special Use Permit:

a) Will not materially endanger the public health or safety;
b) Will not substantially injure the value of adjoining or abutting property;
c) Will be in harmony with the area in which it is located; and
d) Will be consistent with the objectives and goals in the City's adopted plans

Kurt Pearson asked if the new water storage facility would open up the possibility of future development to the west of Mebane. Mr. Smith responded that the storage tank will give the City additional volume.

Ed Tulauskas asked for some explanation regarding the pond easement on the property and how it will accommodate runoff on site. Josh Johnson, P.E., of Alley, Williams, Carmen, and King (AWCK) Mebane's contracted stormwater engineer responded that pond on site was originally developed to treat the stormwater for a high-density medical center development. Josh noted that the pond could treat 1.5 acres of development on the subject property and what is being proposed on site is significantly less than that (0.31 acres of impervious). Josh also noted that the pond will require some maintenance, but it has sufficient capacity.

Kurt Pearson asked where Ms. Long lived relative to the site. Josh Johnson responded that her home is just to the west of the site and reference the stream on Ms. Long's property that is related to the drainage issues she is having. Josh indicated that the proposed water tower should not worsen the drainage issues on Carolyn Long's property.

Ed Tulauskas asked if there will be a fence around the tower. Kyle Smith responded that there will be a chain link fence for security and a planted buffer.

Kurt Pearson asked if the tower will be visible from the interstate. Kyle Smith responded that it should be visible and he is planning for it be branded nicely.

Carolyn Long reiterated her concerns about the stream on her property and the damage they have had from erosion and stormwater. City Engineer Franz Holt, P.E. responded that he planned on visiting Ms. Long's property to examine and discuss her concerns further.

Kurt Pearson made a motion to approve the Special Use request for a special purpose lot as presented; and to find that the request is both reasonable and in the public interest because it finds that it:

- Will not materially endanger the public health or safety;
- Will not substantially injure the value of adjoining or abutting property;
- Will be in harmony with the area in which it is located; and
- Will be consistent with the objectives and goals in the City's adopted plans.

Gale Pettiford seconded the motion, which passed unanimously. The request will go before the City Council on Monday, April 4th at 6:00 p.m. Cy Stober noted that the City Council public hearing will be quasi-judicial for special use permits requiring sworn testimony.

5. New Business

a. Cy Stober thanked the Planning Board for getting the word out about the UDO revisions survey. He also informed them about the BGMPO Highway Safety Plan survey.

b. Cy Stober shared that budget workshops are scheduled for March 23 and March 30.

6. Adjournment

The meeting was adjourned at 7:00 p.m.

Agenda Item #5

RZ 22-03

SUP 22-03

Conditional Rezoning & Special Use Request

Hawfields Landing

Presenter
Ashley Ownbey, City Planner

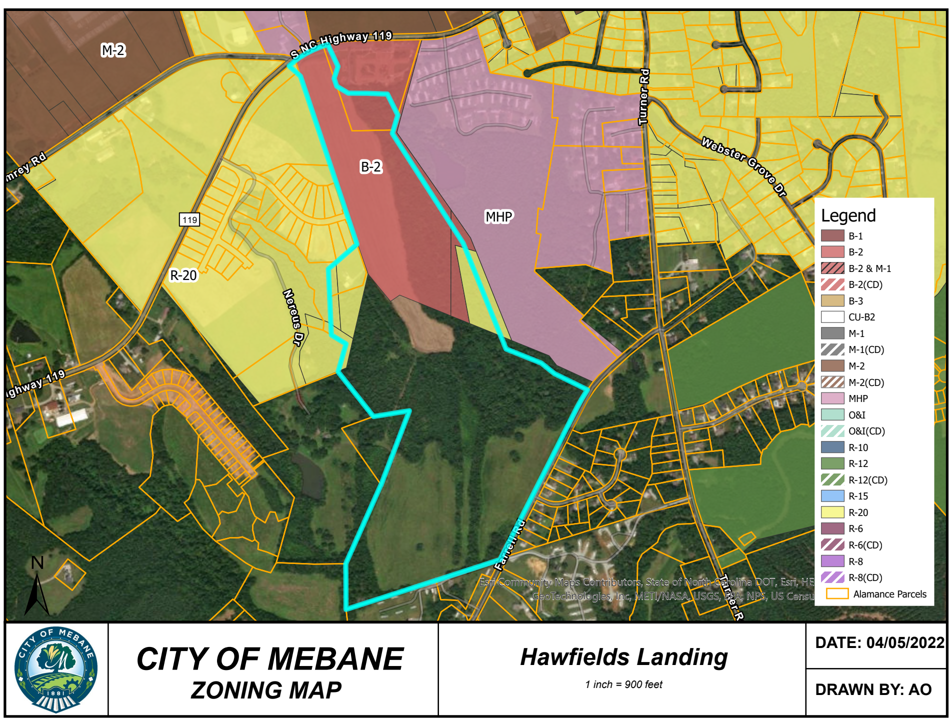
Applicant
Leoterra Mebane, LLC

110-A Shields Park Drive

Kernersville, NC 27284

Public Hearing
Yes ☒ No ☐

Zoning Map



Property
Unaddressed

2502 S NC 119

2570-K S NC 119

GPINs: 9803752741; 9803578931; 9803677687; 9803664499

Proposed Zoning
R-12(CD)

Current Zoning
R-20, B-2, No Zoning

Size
+/-148.98 acres

Surrounding Zoning
R-20, MHP, M-2, R-12

Adjacent Land Uses
Healthcare Facility, Single-Family Residential, Manufactured Home/RV Park, Warehouse

Utilities
To be extended at developer's expense

Floodplain
No

Watershed
No

City Limits
No

Summary

Leoterra Mebane, LLC, is requesting approval to conditionally rezone four (4) properties totaling +/- 148.98 acres located at S NC 119 and Farrell Road. Two of the properties are currently zoned R-20 (Residential District); one property is zoned B-2 (General Business District); and, the largest property is split-zoned R-20 (Residential District) and B-2 (General Business District), with an additional portion of this property outside of the Mebane ETJ and therefore not zoned by Mebane. Annexation of the property is required prior to action on the rezoning request.

The proposed request is to rezone the properties to R-12(CD) (Residential Conditional District) to allow for a Planned Unit Development of 184 townhomes and 308 single-family homes. The properties are in Alamance County outside of the City limits. Leoterra Mebane, LLC, owns the largest property and has all portions of the other properties under contract for purchase, contingent upon approval of the conditional rezoning.

The proposed onsite amenities & dedications include the following:

- The construction of all internal roads with 5' sidewalks;
- The construction of a 10'-wide public, multi-use path along the NC 119 frontage and for a certain distance on Street "A";
- The construction of a swimming pool, cabana, playground, walking path, multi-purpose field, dog park, grill areas, picnic shelter with fire pit, and recreational games, including permanent cornhole stations and pickle ball courts, to exclusively serve development residents.
- The construction of a __-gallons per day public sewer pump station on a special purpose lot to be dedicated to the City of Mebane that will serve the development and the surrounding area's utility needs. Per municipal utility policy, petition for annexation is required to access City water or sewer services. The pump station shall be screened and fenced as required by the City's Unified Development Ordinance (UDO).

Requested waivers:

- The development standards for Planned Unit Developments (PUDs) require side yards of 10' for "individual and unattached buildings". The applicant is requesting a minimum side setback of 5' for single-family, detached homes.
- The development standards for PUDs specify the front setback should be "similar to the underlying zoning district." The R-12 Zoning District front setback is 30'. The applicant is requesting 20' front setbacks for the townhome buildings and single-family, detached homes.
- The development standards for PUDs specify periphery lots adjacent to single-family homes should meet minimum standards for the zoning district. The applicant is not showing any deviation in lot sizes for those on the periphery of the property adjoining residential properties to the west or properties along Farrell Road. Common elements do separate the proposed homes from the existing single-family homes.
- The UDO calculates that the applicant should provide 14.06 acres of public recreation area, and the applicant is requesting to provide 0.51 acres in a multi-use path and a payment *in lieu* of $130,707.

Furthermore, consistent with the Traffic Impact Analysis (TIA) conducted by Ramey Kemp Associates and reviewed by the NCDOT and the City's consulting traffic engineer with VHB, the applicant will be providing the following transportation improvements:

NC 119 and Kimrey Road/Site Driveway

- Install a traffic signal at the intersection of NC 119 & Kimrey Road.
- Provide a right-turn lane on northbound NC 119 with 100' of storage and appropriate taper.
- Provide a left-turn lane on southbound NC 119 with 100' of storage and appropriate taper.
- Construct the site driveway with one ingress lane and two egress lanes, consisting of a shared left/through lane and an exclusive right-turn lane.

NC 119 and Trollingwood-Hawfields Road/Old Hillsborough Road

- Subject to available right-of-way and environmental/cultural constraints, provide a right-turn lane on eastbound Trollingwood-Hawfields Road with 100' of storage and appropriate taper.

The Technical Review Committee (TRC) has reviewed the site plan five (5) times and the applicant has revised the plan and TIA to reflect the comments.

Financial Impact

The developer will be required to make all of the improvements at his own expense.

Recommendation

The Planning staff has reviewed the request for harmony with the zoning of the surrounding area and consistency with the City's adopted plans and recommends approval.

Suggested Motion

1. Motion to approve the R-12(CD) zoning as presented. It is consistent with the objectives and goals in the City's Comprehensive Land Development Plan *Mebane By Design*. Specifically, the request:

   - ☐ Is for a property within the City's G-2 Residential Growth Area (Jones Drive and Mebane Oaks Residential) and is "…seen as an area where future residential growth is likely…" (Mebane CLP, p.78);

   - ☐ Provides a greenway and open space in a developing area and promotes connections to other locations, consistent with Open Space and Natural Resource Protection Goal 4.3 (p. 17, 89, & 90).

2. Motion to approve the Special Use request for a Special Purpose Lot for a public sewer pump station as presented; and

3. Motion to find that the request is both reasonable and in the public interest because it finds that it:

a. Will not materially endanger the public health or safety;
b. Will not substantially injure the value of adjoining or abutting property;
c. Will be in harmony with the area in which it is located; and
d. Will be consistent with the objectives and goals in the City's 2017 Comprehensive Land Development Plan *Mebane By Design*.

OR

4. Motion to **deny** the R-12(CD) rezoning as presented due to a lack of

a. Harmony with the surrounding zoning

OR

b. Consistency with the objectives and goals in the City's 2017 Comprehensive Land Development Plan *Mebane By Design* or any of the City's other adopted plans.

OR

5. Motion to deny the Special Use Permit as presented due to a failure to satisfy any one of the four criteria required for approval (**NOTE: criterion for failure must be specified**)

Attachments

1. Zoning Amendment Application
2. Special Use Permit Application
3. Zoning Map
4. Site Plan
5. Planning Project Report
6. Preliminary Water and Sewer System Approval Letter
7. Technical Memorandum – City Engineering Review
8. Traffic Impact Analysis Recommendations
    a. Traffic Impact Analysis (TIA)
    b. NCDOT Review of TIA
    c. VHB Review of TIA

RECEIVED 12/09/2021

APPLICATION FOR A ZONING AMENDMENT

Application is hereby made for an amendment to the Mebane Zoning Ordinance as follows:

Name of Applicant: Leoterra Development, Inc.

Address of Applicant: 110-A Shields Park Dr. Kernersville, NC 27284

Address and brief description of property to be rezoned: Undeveloped land in county at parcels 174153, 159686, and portoin of 159687. And 177865. ce

Applicant's interest in property: (Owned, leased or otherwise) Contract for purchase

*Do you have any conflicts of interest with: Elected/Appointed Officials, Staff, etc.?

Yes ___ Explain: ______ No No

Type of re-zoning requested: R-12 CD

Sketch attached: Yes Yes No ______

Reason for the requested re-zoning: Develop single family and townhome community

Signed: ______

Date: ______

Action by Planning Board: ______

Public Hearing Date: ______ Action: ______

Zoning Map Corrected: ______

The following items should be included with the application for rezoning when it is returned:

1. Tax Map showing the area that is to be considered for rezoning.
2. Names and addresses of all adjoining property owners within a 300' radius (Include those that are across the street).
3. $300.00 Fee to cover administrative costs.
4. The information is due 15 working days prior to the Planning Board meeting. The Planning Board meets the 2nd Monday of each month at 6:30 p.m. Then the request goes to the City Council for a Public Hearing the following month. The City Council meets the 1st Monday of each month at 6:00 p.m.

APPLICATION FOR A SPECIAL USE PERMIT

Application is hereby made for an amendment to the Mebane Zoning Ordinance as follows:

Name of Applicant: Leoterra Mebane, LLC

Address of Applicant: 110-A Shields Park Drive, Kernersville, NC 27284

Address and brief description of property: S NC 119 HWY, Access to Special Purpose Lot for a proposed sanitary sewer pump station will be provided off of Farrell Road.

Applicant's interest in property: (Owned, leased or otherwise) Owned

*Do you have any conflicts of interest with: Elected/Appointed Officials, Staff, etc.?

Yes ___ Explain: ______ No X

Type of request: Special Purpose Lot

Sketch attached: Yes X No ______

Reason for the request: The Special Purpose Lot is required to serve the Hawfields Landing Subdivision proposed public sewer pumping station.

Signed: ______

Date: 3/10/2022

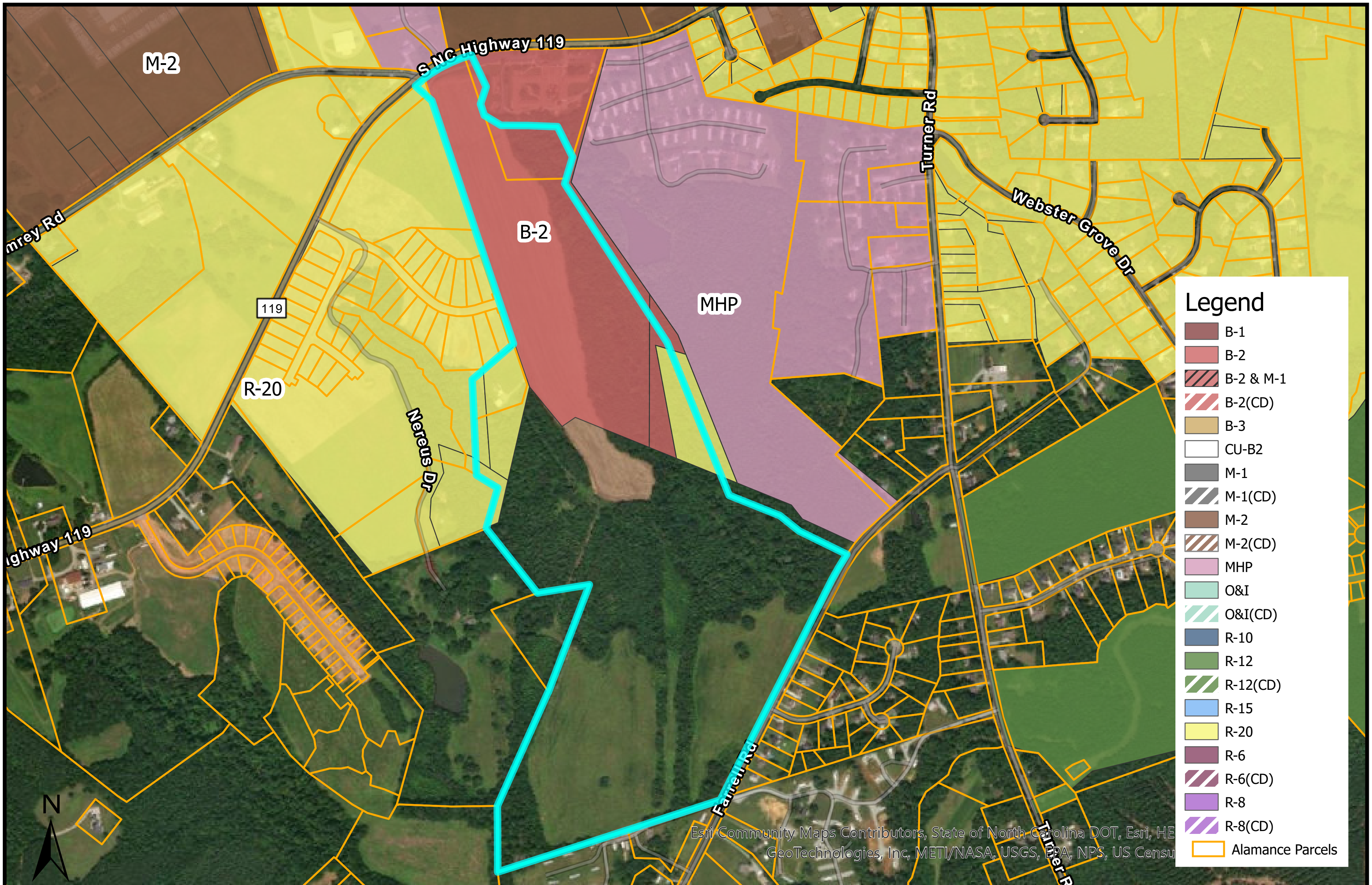
Action by Planning Board: ______

Public Hearing Date: ______ Action: ______

Zoning Map Corrected: ______

The following items should be included with the application for rezoning when it is returned:

1. Tax Map showing the area that is to be considered.
2. Names and addresses of all adjoining property owners within a 300' radius (Include those that are across the street).
3. $400.00 Fee to cover administrative costs.
4. The information is due 15 working days prior to the Planning Board meeting. The Planning Board meets the 2nd Monday of each month at 6:30 p.m. Then the request goes to the City Council for a Public Hearing the following month. The City Council meets the 1st Monday of each month at 6:00 p.m.



CITY OF MEBANE
ZONING MAP

Hawfields Landing

1 inch = 900 feet

DATE: 04/05/2022

DRAWN BY: AO

PARCEL DATA:

PIN # 9803752741, 9803664499, 9803677687(PORTION) & 9803578931(PORTION)
TOTAL ACREAGE: 148.98 AC. +/-
DEED REF: D.B. 4257 PG. 409
D.B. 3982 PG. 238 (PORTION)
D.B. 4260 PG. 852 (PORTION)
D.B. 3937 PG. 569
PLAT REF: P.B. 78, PG. 312-313
EXISTING ZONING: B-2 & R-20 CITY OF MEBANE ETJ & PORTION ALAMANCE COUNTY WITH NO ZONING
EXISTING USE: VACANT & SINGLE FAMILY RESIDENTIAL (159686)
PROPOSED USE: PLANNED UNIT DEVELOPMENT (PUD)
PROPOSED ZONING: R-12(CD) : WITH SINGLE-FAMILY DETACHED & TOWNHOME DWELLING UNITS

QUANTITIY DATA:

A)	TOTAL LF OF STREETS:	17,366 LF
B)	TOTAL LF SIDEWALKS:	
	PUBLIC STREETS:	19,880 LF
	10' MULTI USE PATH:	2,188 LF
	FARRELL ROAD:	1,760 LF
C)	LF STORM DRAINAGE:	23,355 LF
D)	LF WATER LINE	
	12" ONSITE:	6,230 LF
	12" OFFSITE:	5,986 LF
	6" & 8" ONSITE:	10,808 LF
	TOTAL	23,024 LF
E)	LF GRAVITY SEWER	19,760 LF
	LF FORCEMAIN ONSITE:	5,696 LF
	LF FORCEMAIN OFFSITE:	2,185 LF
F)	SERVICE CONNECTIONS	
	SINGLE FAMILY	
	# OF WATER SERVICES	308
	# OF SEWER SERVICES	308
	TOWNHOMES	
	# OF WATER SERVICES	184
	# OF SEWER SERVICES	184
G)	NUMBER OF DRIVEWAYS	
	SINGLE FAMILY:	308
	TOWNHOMES:	184
H)	NUMBER OF ENGINEERED STORMWATER DEVICES:	9 DEVICES

TOTAL # OF BEDROOMS 1784
TOWNHOMES 552
(ASSUMED 3 BEDROOMS PER UNIT FOR TOWNHOMES)
SINGLE FAMILY 1232
(ASSUMED 4 BEDROOMS PER UNIT FOR SINGLE FAMILY)

AREA DATA:

TOTAL SINGLE FAMILY AREA:	116.22 AC
AREA IN LOTS:	54.85 AC
AREA IN SPECIAL PURPOSE LOT (PUMP STATION):	0.21 AC
AREA IN CEMETERY LOT:	0.52 AC
AREA IN R/W:	14.86 AC
TOTAL AREA OPEN SPACE:	45.78 AC
(REC AREA INCLUDED):	(11.15 AC)
(COMMON ELEMENTS, PASSIVE):	(34.63 AC)

EX. AREA 15% OR GREATER SLOPES: 0.71 AC
AREA IN PROP. LANDSCAPE BUFFERS: 4.26 AC
EX. AREA IN STREAM BUFFERS: 14.61 AC

COMMON ELEMENTS REQUIRED: (MIN SQFT - AVG SQFT)# LOTS
(12,000 - 7910)308 LOTS = 28.92 AC
PUBLIC REC AREA REQUIRED: 308 x 1/35 AC = 8.80 AC

TOTAL AREA IN TOWNHOMES:	32.76 AC
AREA IN LOTS:	8.00 AC
AREA IN R/W:	5.60 AC
TOTAL AREA OPEN SPACE:	19.16 AC
(COMMON ELEMENTS, PASSIVE):	(15.40 AC)
(REC AREA):	(3.76 AC)

(REC AREA 5 FROM SINGLE FAMILY SECTION TO BE USED TO MEET REC AREA REQUIREMENT)

COMMON ELEMENTS REQUIRED: (500 SF/UNIT)184 UNITS
500 x 184 = 2.11 AC
PUBLIC REC AREA REQUIRED: 184 x 1/35 AC = 5.26 AC

A PAYMENT IN-LIEU WILL BE REQUIRED FOR PUBLIC RECREATION AREA.
TOTAL PUBLIC RECREATION REQUIRED = 14.06 AC
TOTAL PUBLIC RECREATION PROVIDED = 0.51 AC
(10' MULTI-USE TRAIL)
REMAINING PUBLIC RECREATION REQUIRED = 13.55 AC
PAYMENT IN-LIEU=13.55 AC x $9,646.32 = $130,707.64

Property	Pin #	Assessed Value/AC	Acreage	Weight	
Compass Realty Hawfields, LLC	9803677687	$ 42,748.00	4.31	2.89	$ 123,670.21
Jeanie Kernodle	9803664499	$ 14,051.00	2.59	1.74	$ 24,427.50
Leoterra Mebane, LLC	9803752741	$ 8,562.00	141.99	95.31	$ 816,027.91
Christian Education Society	9803578931	$ 8,389.00	0.09	0.06	$ 506.79
			148.98	100	$ 964,632.41
				Weighted Value/AC	$ 9,646.32

TOTAL SUBDIVISION OPEN SPACE: 64.94 AC
(COMMON ELEMENTS, PASSIVE): 50.03 AC
(REC AREA): 14.91 AC

SINGLE FAMILY LOT DIMENSIONAL DATA PROPOSED:

MIN. LOT SIZE=6,000 S.F.
MIN. LOT WIDTH AT BUILDING LINE = 51'
MIN. LOT WIDTH AT STREET = 35'
FRONT SETBACK: 21' GARAGE TO PROPERTY LINE
20' HOUSE TO PROPERTY LINE
SIDE SETBACK: 5'
SIDE STREET: 15'
REAR SETBACK: 15'
MAXIMUM BUILDING HEIGHT: 35'; TWO STORY MAX.
MAXIMUM LOT BUILDING COVERAGE: 40%

SINGLE FAMILY PARKING DATA:

308 UNITS PROPOSED

REQ'D PARKING 2 SPACES/ UNIT + .5 SPACES/BEDROOM OVER 2
ASSUMING 4 BEDROOM PER UNIT = 3/UNIT = 308 x 3 = 924 REQUIRED

PROP.PARKING = 4 SPACES PER UNIT (2 DRIVEWAY & 2 GARAGE)
308 x 4 = 1232 SPACES PROVIDED

TOWNHOME DIMENSIONAL DATA PROPOSED:

FRONT SETBACK: 20' HOUSE TO PROPERTY LINE/23' GARAGE TO PROPERTY LINE
BUILDING SEPARATION: 20'
SIDE STREET: 15'
REAR SETBACK: 20' PERIMETER PROPERTY LINE
MAXIMUM BUILDING HEIGHT: 35' (TWO STORY)
UNITS 35-39, 40-44, 50-53 & 54-57 FRONT SETBACK WILL BE INCREASED TO MAINTAIN A 25' SEPARATION BETWEEN INTERSECTION SIGHT ESMT. AND FRONT OF GARAGE.

TOWNHOME PARKING DATA:

184 UNITS PROPOSED

REQ'D PARKING 2 SPACES/ UNIT + .5 SPACES/BEDROOM OVER 2
ASSUMING 3 BEDROOM PER UNIT = 2.5/UNIT = 184 x 2.5 = 460 REQUIRED

PROP.PARKING = 2 SPACES PER UNIT (1 DRIVEWAY & 1 GARAGE)
184 x 2 = 368+99 = 468 SPACES PROVIDED

FLOOD INFORMATION:

PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD AREA PER FIRM MAP 3710980300J, DATED 09-06-06.

FLOOD STUDY WILL BE REQUIRED DURING CONSTRUCTION DRAWINGS PROCESS.

PROPOSED 8' SCREENINGS OR SAND ROCK WALKING PATH. IT IS THE INTENT TO PROVIDE ADA ACCESSIBILITY ALONG THE MAIN 8' WALKING PATH. ROUTE TO BE EVALUATED DURING CONSTRUCTION PLANS. NOT ALL SPUR PATHS MAY BE ABLE TO BE ADA ACCESSIBLE DUE TO SLOPES. IF DURING THE CONSTRUCTION PLAN PHASE IT IS DETERMINED THAT THE PATH CAN BE CONSTRUCTED TO MEET ADA ACCESSIBILITY THE PATH WILL BE PAVED AND MAINTAINED BY THE MASTER HOA UNTIL SUCH TIME THAT THE CITY OF MEBANE DEEMS THAT THE TRAIL CAN BECOME A PART OF A LARGER TRAIL NETWORK. AT SUCH TIME THE CITY OF MEBANE MAY ACQUIRE PERMANENT MAINTENANCE OF TRAIL. IF TRAIL IS PAVED, REQUIRED PUBLIC RECREATION FEES WILL BE REVALUATED FOR THE PROJECT

DEVELOPMENT & UTILITY NOTES:

1. ALL NEW UTILITIES TO BE LOCATED UNDERGROUND.
2. ALL PUBLIC UTILITIES AND CONNECTIONS TO PUBLIC UTILITIES SHALL CONFORM TO THE CITY OF MEBANE STANDARDS AND SPECIFICATIONS.
3. FIRE HYDRANT AND VALVE LOCATIONS TO BE SHOWN ON CONSTRUCTION DRAWINGS UPON INPUT FROM THE CITY OF MEBANE FIRE AND ENGINEERING DEPT.
4. ALL UTILITIES AND BMP DEVICES SHOWN ARE PRELIMINARY AND ARE SUBJECT TO CHANGE DURING THE CONSTRUCTION DESIGN PROCESS.
5. EASEMENTS MEETING CITY OF MEBANE STANDARDS SHALL BE LOCATED ON ALL PUBLIC UTILITIES LOCATED OUTSIDE OF RIGHT-OF WAY. NO FENCING OF PUBLIC UTILITY EASEMENTS WILL BE ALLOWED UNLESS OTHERWISE APPROVED BY THE CITY OF MEBANE. A NOTE SHALL BE ADDED TO THE HOA DOCUMENTS TO THIS EXTENT.
6. 10' UTILITY EASEMENT REQUIRED ALONG PUBLIC STREET RIGHT OF WAY.
7. AS A HIGH DENSITY SUBDIVISION THIS DEVELOPMENT SHALL COMPLY WITH NPDES PHASE II STORMWATER REGULATIONS, RIPARIAN BUFFER ORDINANCE AND THE CITY OF MEBANE STORM DRAINAGE DESIGN MANUAL.
8. ANY LANDSCAPE BUFFERS ON PRIVATE LOTS SHALL BE IN EASEMENTS MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.
9. PRESERVED TREE AREAS WILL BE FENCED OFF AND UNDISTURBED DURING CONSTRUCTION.
10. ALL COMMON ELEMENTS ARE THE RESPONSIBILITIES OF THE HOA.
11. OBTAIN NCDOT DRIVEWAY PERMIT FOR PROPOSED ACCESSES FOR NC 119 AND FARRELL ROAD PRIOR TO CONSTRUCTION.
12. OBTAIN NCDOT THREE-PARTY ENCROACHMENT AGREEMENT FOR PROPOSED/STIPULATED WATER AND SEWER CONSTRUCTION AND ANY SIDEWALK, MULTI-USE PATHS AND RELATED APPURTENANCES.
13. PARCEL TO BE ANNEXED INTO THE CITY OF MEBANE CORPORATE LIMITS. ANY AREA OF PARCEL NOT LOCATED IN THE CITY OF MEBANE CORPORATE LIMITS OR ETJ., WILL NEED TO BE ANNEXED BY THE CITY PRIOR TO ANY ZONING ACTION BY THE CITY COUNCIL.
14. FLOOD STUDY WILL BE REQUIRED AT THE CONSTRUCTION DRAWING PHASE
15. OVERALL SUBDIVISION SPEED LIMIT TO BE 25 MPH.
16. UTILITIES TO BE SCREENED WITH EVERGREEN PLANTS (PUMP STATION, TRANSFORMERS, AC UNITS, ETC.)
17. THE CITY OF MEBANE WILL ONLY MAINTAIN ITEMS SUCH AS SIDEWALKS, WATER, SEWER, STREET, PUMP STATIONS AND STORM DRAINS THAT ARE IN PUBLIC RIGHT-OF WAY OR SPECIFICALLY HAVE AN EASEMENT DEDICATED TO THE CITY OF MEBANE FOR OWNERSHIP AND MAINTENANCE OR A DEDICATED PARCEL OF LAND. HOWEVER, ALL LANDSCAPING IS WITH THE HOA TO MAINTAIN EXCEPT WHERE LOCATED ON PUMP STATION PARCEL.
18. LANDSCAPING AND LIGHTING PLANS TO BE PROVIDED WITH CONSTRUCTION DRAWINGS.

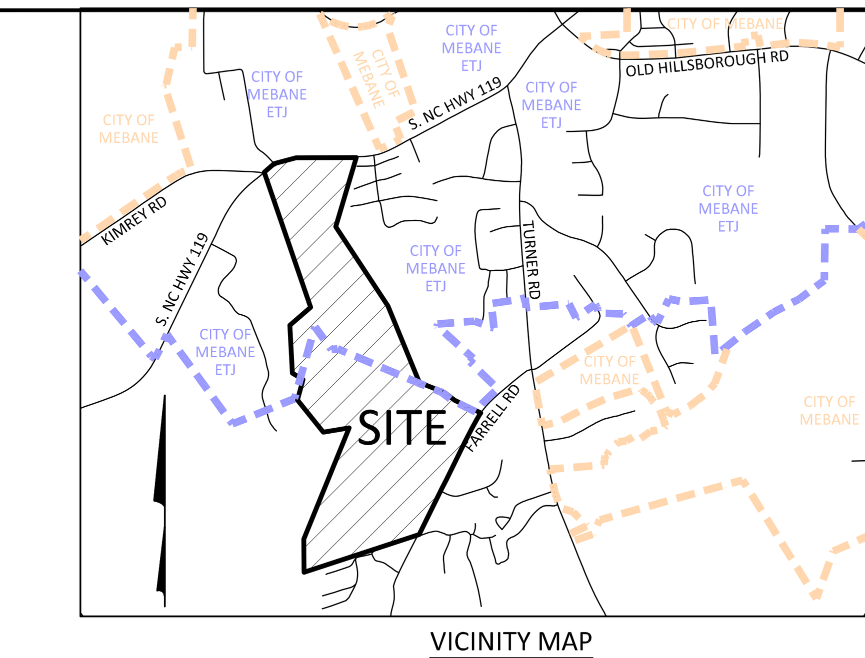
OVERALL UNIT COUNT			
TYPE	QUANTITY	PROPOSED ZONING	DENSITY
SINGLE-FAMILY	308	R-12(CD) SINGLE FAMILY	2.65 UNITS/AC
TOWNHOMES	184	R-12(CD) TOWNHOME	5.62 UNITS/AC
TOTAL	492		
OVERALL DENSITY = 3.30 UNITS/AC			

AREAS:

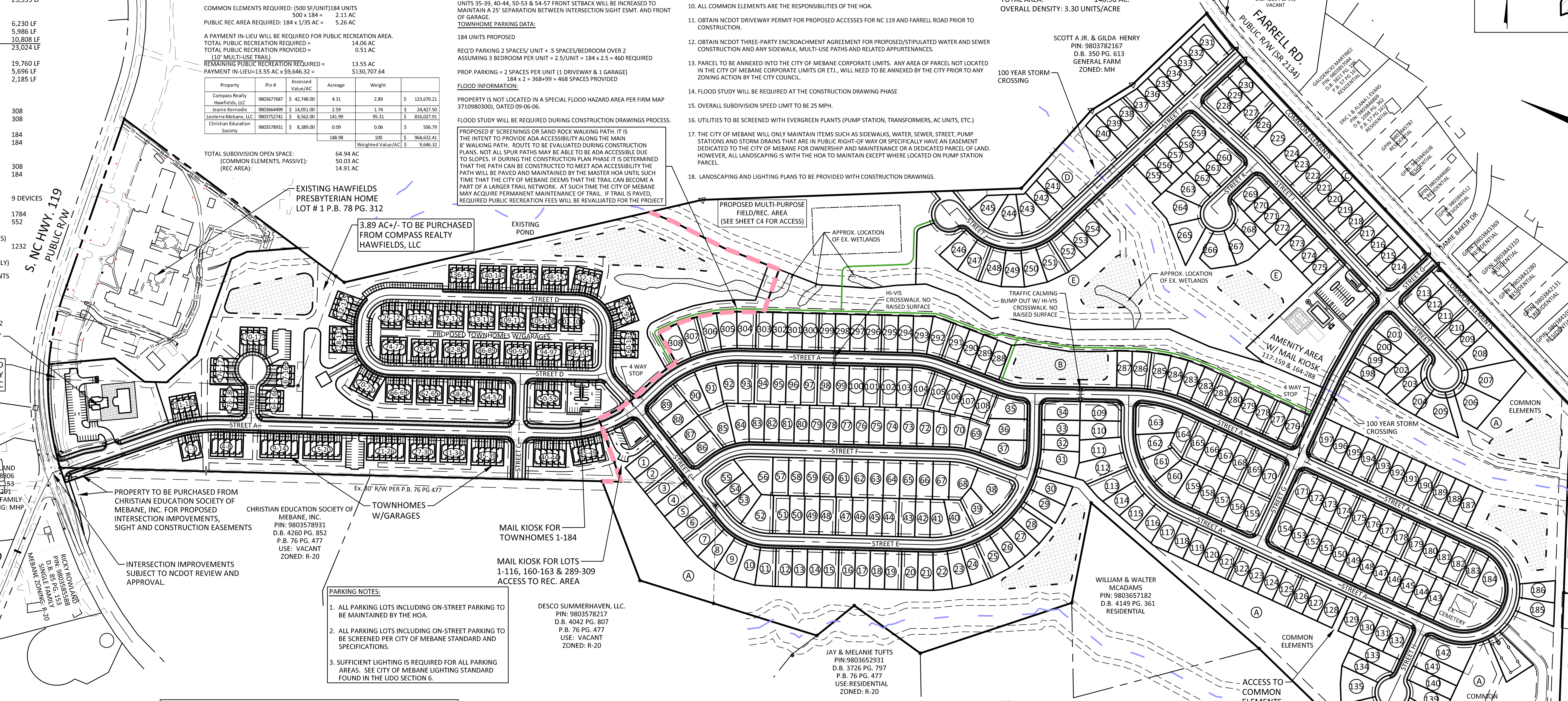
AREA IN SINGLE FAMILY: 116.22 AC.
AREA IN TOWNHOMES: 32.76 AC.
TOTAL AREA: 148.98 AC.
OVERALL DENSITY: 3.30 UNITS/ACRE

NCDOT NOTES:

1. APPROVED NCDOT DRIVEWAY PERMIT REQUIRED FOR PROPOSED STREET CONNECTIONS TO NC 119 OR FERRELL ROAD.
2. APPROVED NCDOT THREE-PARTY ENCROACHMENT AGREEMENT WITH CITY OF MEBANE REQUIRED FOR ANY PROPOSED/STIPULATED SIDEWALK, WATER, AND SEWER CONSTRUCTION WITHIN NCDOT R/W.



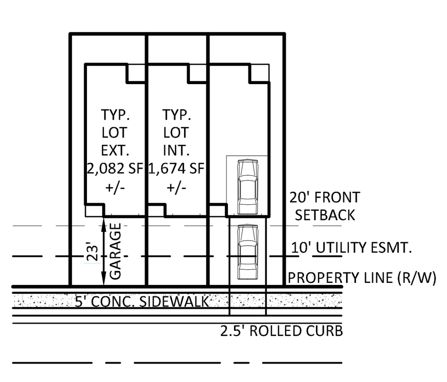
VICINITY MAP
1" = 2000'



PARKING NOTES:

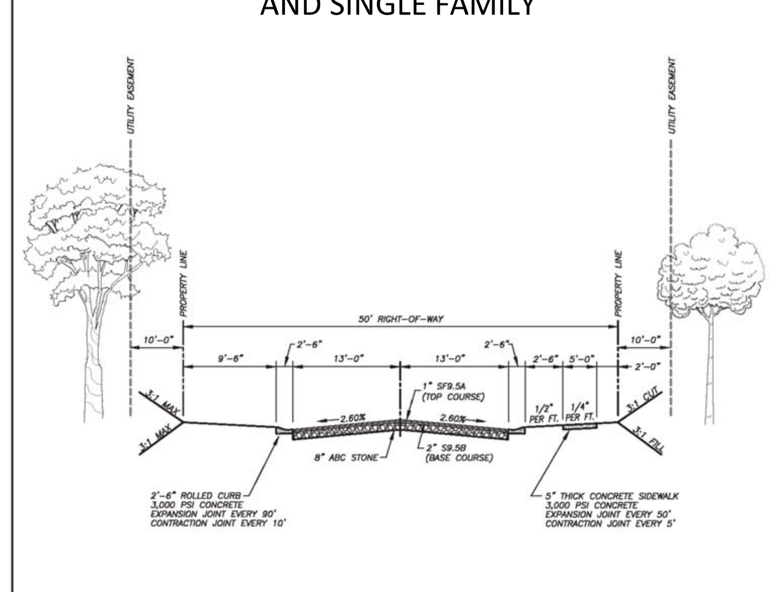
1. ALL PARKING LOTS INCLUDING ON-STREET PARKING TO BE MAINTAINED BY THE HOA.
2. ALL PARKING LOTS INCLUDING ON-STREET PARKING TO BE SCREENED PER CITY OF MEBANE STANDARD AND SPECIFICATIONS.
3. SUFFICIENT LIGHTING IS REQUIRED FOR ALL PARKING AREAS. SEE CITY OF MEBANE LIGHTING STANDARD FOUND IN THE UDO SECTION 6.

UTILITY JURISDICTION			
UTILITY	PUBLIC	PRIVATE	JURISDICTION
WATER	YES		CITY OF MEBANE
SANITARY	YES		CITY OF MEBANE
ROADWAY	YES		CITY OF MEBANE



TYPICAL TOWNHOME LOT LAYOUT
SCALE 1"=50'

FOR TOWNHOMES AND SINGLE FAMILY

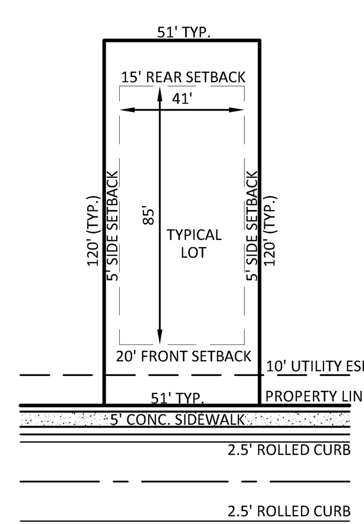


CITY OF MEBANE STANDARD

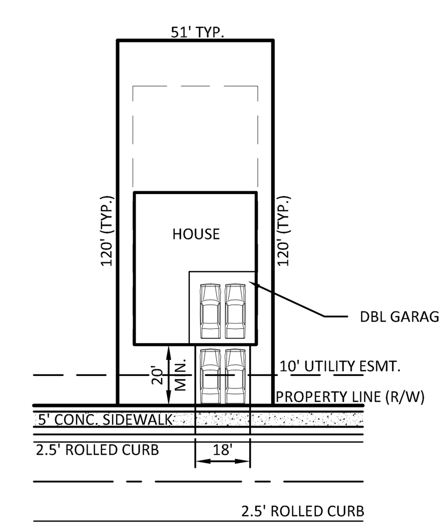
RESIDENTIAL STREET SECTION (50' ROW – 31' B-B)

ST-1

N.T.S. 2/3/2020



TYPICAL SINGLE FAMILY LOT LAYOUT
SCALE 1"=50'



TYPICAL SINGLE FAMILY PARKING LAYOUT
SCALE 1"=50'

SINGLE FAMILY COMMON AREA			
REC. AREA		COMMON ELEMENTS (PASSIVE)	
4	4.81 AC.	A	23.64 AC.
5	3.93 AC.	B	1.12 AC.
6	2.13 AC.	C	0.63 AC.
7	0.28 AC.	D	1.32 AC.
		E	7.92 AC.
TOTAL	11.15 AC.	TOTAL	34.63 AC.

TOWNHOME COMMON AREA			
REC. AREA		COMMON ELEMENTS (PASSIVE)	
1	2.28 AC.	TH*	15.40 AC
2*	0.88 AC.		
3	0.60 AC.		
TOTAL	3.76 AC.	TOTAL	15.40 AC.

RECREATION AREA & COMMON ELEMENTS NOTE:
*AREAS MARKED WITH ASTERISK TO BE USED BY TOWNHOME RESIDENTS ONLY AND MAINTAINED BY THE TOWNHOME SUB-ASSOCIATION. ALL OTHER RECREATION AREAS/COMMON ELEMENTS WILL BE OWNED AND MAINTAINED BY THE MASTER ASSOCIATION FOR USE AND ENJOYMENT OF ALL RESIDENTS.

LEGEND

- WATER METER BOX (WM)
- WATER VALVE (WV)
- STORM MANHOLE (STMH)
- UTILITY POLE
- LIGHT POLE
- GROUND LIGHT
- GUY WIRE
- YARD INLET (YI)
- GAS VALVE
- OVERHEAD POWER LINE
- GAS LINE
- WATER LINE
- UNDERGROUND ELECTRICAL
- FENCE LINE
- WOODLINE (TYP.)
- FIRE HYDRANT (HYD)
- SANITARY SEWER MANHOLE (SSMH)
- CLEAN OUT
- DB DEED BOOK
- PB PLAT BOOK
- PG PAGE
- R/W RIGHT-OF-WAY
- E/P EDGE OF PAVEMENT
- E/G EDGE OF GRAVEL
- CONC CONCRETE
- RCP REINFORCED CONCRETE PIPE
- DI DROP INLET
- CI CURB INLET
- FFE FINISH FLOOR ELEVATION
- BSMT BASEMENT
- TPED TELEPHONE PEDESTAL
- THH TELEPHONE HAND HOLD
- DMUE DRAINAGE MAINTENANCE & UTILITY EASEMENT
- PROP. BMP
- PRODUCT TYPE BOUNDARY

ALL CONSTRUCTION MUST CONFORM TO THE UNDERGROUND UTILITY PROTECTION ACT
811
BEFORE YOU DIG !
CALL 811 N.C. ONE-CALL CENTER
IT'S THE LAW !

GENERAL NOTES:

THIS MAP DOES NOT MEET G.S. 47-30 AND IS NOT FOR RECORDING.

THIS PROPERTY IS SUBJECT TO ANY EASEMENTS, AGREEMENTS, OR RIGHTS-OF-WAY OF RECORD PRIOR TO THE DATE OF THIS MAP AND WHICH WERE NOT VISIBLE AT THE TIME OF INSPECTION.

THIS MAP WAS PREPARED WITH OUT THE BENEFIT OF A TITLE REPORT AND DOES NOT NECESSARILY INDICATE ALL ENCUMBRANCES UPON THIS PROPERTY.

TOPOGRAPHIC INFORMATION TAKEN FROM ALAMANCE COUNTY GIS

BOUNDARY INFORMATION TAKEN FROM BOUNDARY SURVEY BY ALLRED LAND SURVEYING, PLLC

NO SURVEYING OR SUBSURFACE INVESTIGATIONS PERFORMED BY STOLTZFUS ENGINEERING, INC.

GRAPHIC SCALE
0 100 200 400 800
(IN FEET)
1 inch =200 ft.

Aden R. Stoltzfus, PE C-3812
aden@seiengineering.com
336-904-0207
683 Gralin Street
Kernersville, NC 27284

Stoltzfus Engineering Inc.
Civil Engineering Consultants

HAWFIELDS LANDING

OVERALL PRELIMINARY PLAN

PROJECT LOCATION:
STATE: NORTH CAROLINA
COUNTY: ALAMANCE
TOWNSHIP: MELVILLE

PROPERTY OWNER INFORMATION:
LEOTERRA MEBANE, LLC
110-A SHIELDS PARK DRIVE
KERNERSVILLE, NC 27284

NO.	DATE	REVISION NOTE
1	06/04/21	MEBANE COMMENTS
2	08/11/21	MEBANE COMMENTS
3	11/17/21	MEBANE COMMENTS
4	12/17/21	MEBANE COMMENTS
5	03/22/22	MEBANE COMMENTS
6	03/24/22	MEBANE COMMENTS

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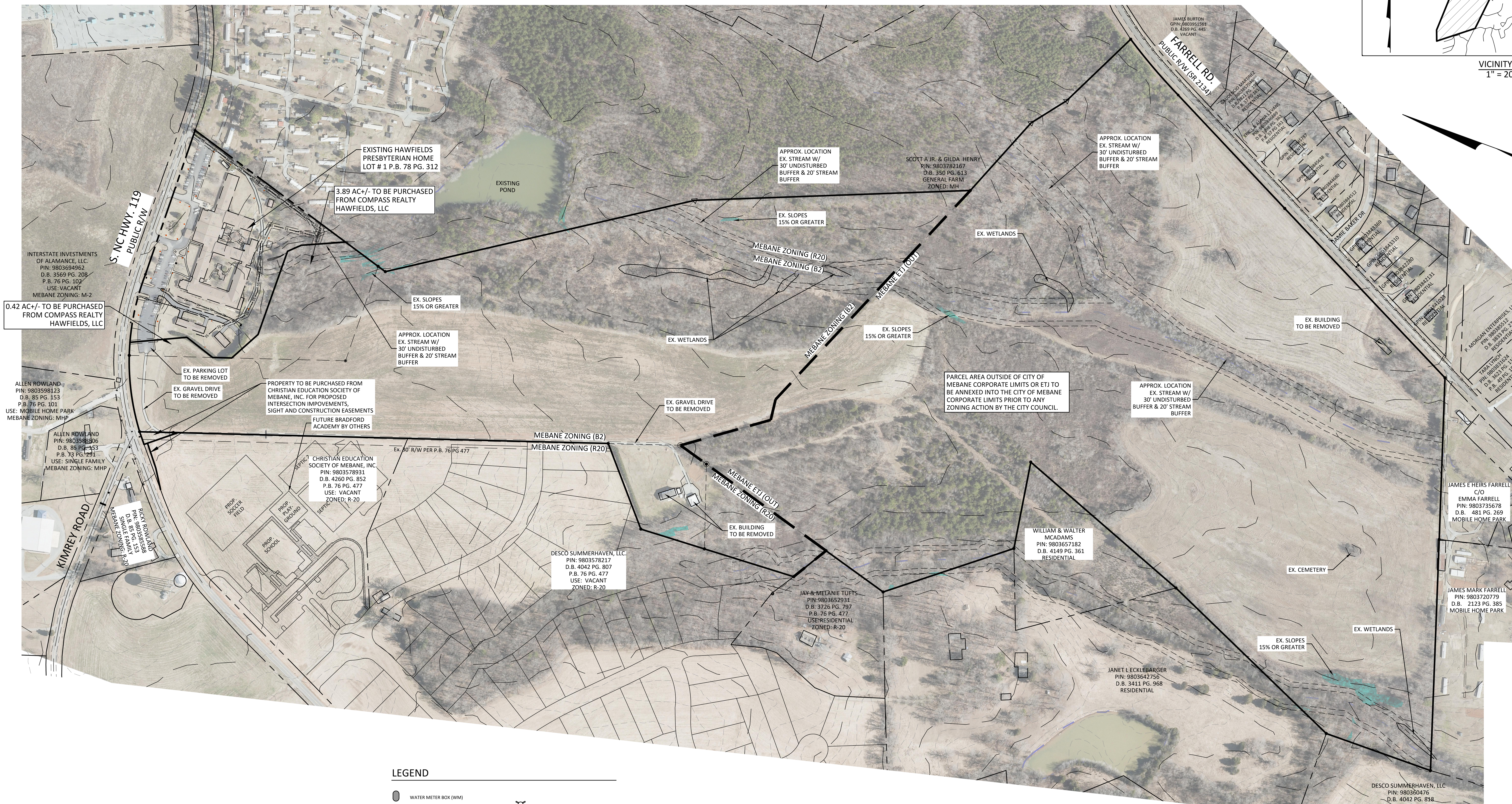
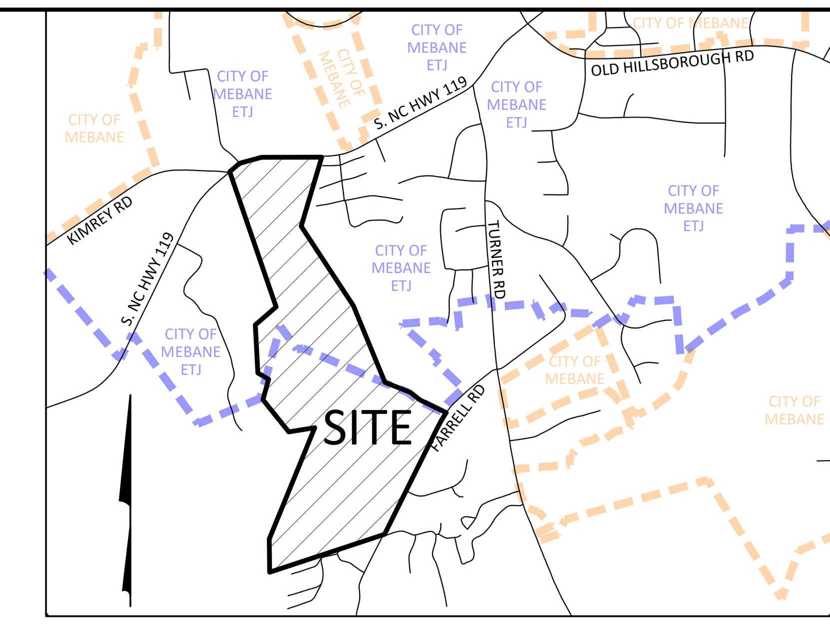
DRAWN BY: SDT
CHECKED BY: ARS
DATE: 11/09/2020
PROJECT NO.: 2201.05
REF. NO.:
SCALE: 1"=200'

NORTH CAROLINA PROFESSIONAL SEAL 026461 ENGINEER ADEN R. STOLTZFUS
03/24/2022

C1





VICINITY MAP
1" = 2000'

LEGEND

- WATER METER BOX (WM)
- WATER VALVE (WV)
- STORM MANHOLE (STMH)
- UTILITY POLE
- LIGHT POLE
- GROUND LIGHT
- GUY WIRE
- YARD INLET (YI)
- GAS VALVE
- OVERHEAD POWER LINE
- GAS LINE
- WATER LINE
- UNDERGROUND ELECTRICAL
- FENCE LINE
- WOODSLINE (TYP.)
- FIRE HYDRANT (HYD)
- SANITARY SEWER MANHOLE (SSMH)
- CLEAN OUT
- DB DEED BOOK
- PB PLAT BOOK
- PG PAGE
- R/W RIGHT-OF-WAY
- E/P EDGE OF PAVEMENT
- E/G EDGE OF GRAVEL
- CONC CONCRETE
- RCP REINFORCED CONCRETE PIPE
- DI DROP INLET
- CI CURB INLET
- FFE FINISH FLOOR ELEVATION
- BSMT BASEMENT
- TPED TELEPHONE PEDESTAL
- THH TELEPHONE HAND HOLD
- DMUE DRAINAGE MAINTENANCE & UTILITY EASEMENT
- PROP. BMP
- 15%+ SLOPES

ALL CONSTRUCTION MUST CONFORM TO THE UNDERGROUND UTILITY PROTECTION ACT

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GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

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Civil Engineering Consultants

HAWFIELDS LANDING

EXISTING CONDITIONS PLAN

PROPERTY OWNER INFORMATION:
LEOTERRA MEBANE, LLC
110-A SHIELDS PARK DRIVE
KERNERSVILLE, NC 27284

PROJECT LOCATION:
STATE: NORTH CAROLINA
COUNTY: ALAMANCE
TOWNSHIP: MELVILLE

NO	DATE	REVISION NOTE
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3	11/17/21	MEBANE COMMENTS
4	12/17/21	MEBANE COMMENTS
5	03/22/22	MEBANE COMMENTS
6	03/24/22	MEBANE COMMENTS

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PROJECT NO.: 2201.05
REF. NO.:
SCALE: 1"=200'

NORTH CAROLINA PROFESSIONAL SEAL 026461 ENGINEER ADEN R. STOLTZFUS 03/24/2022

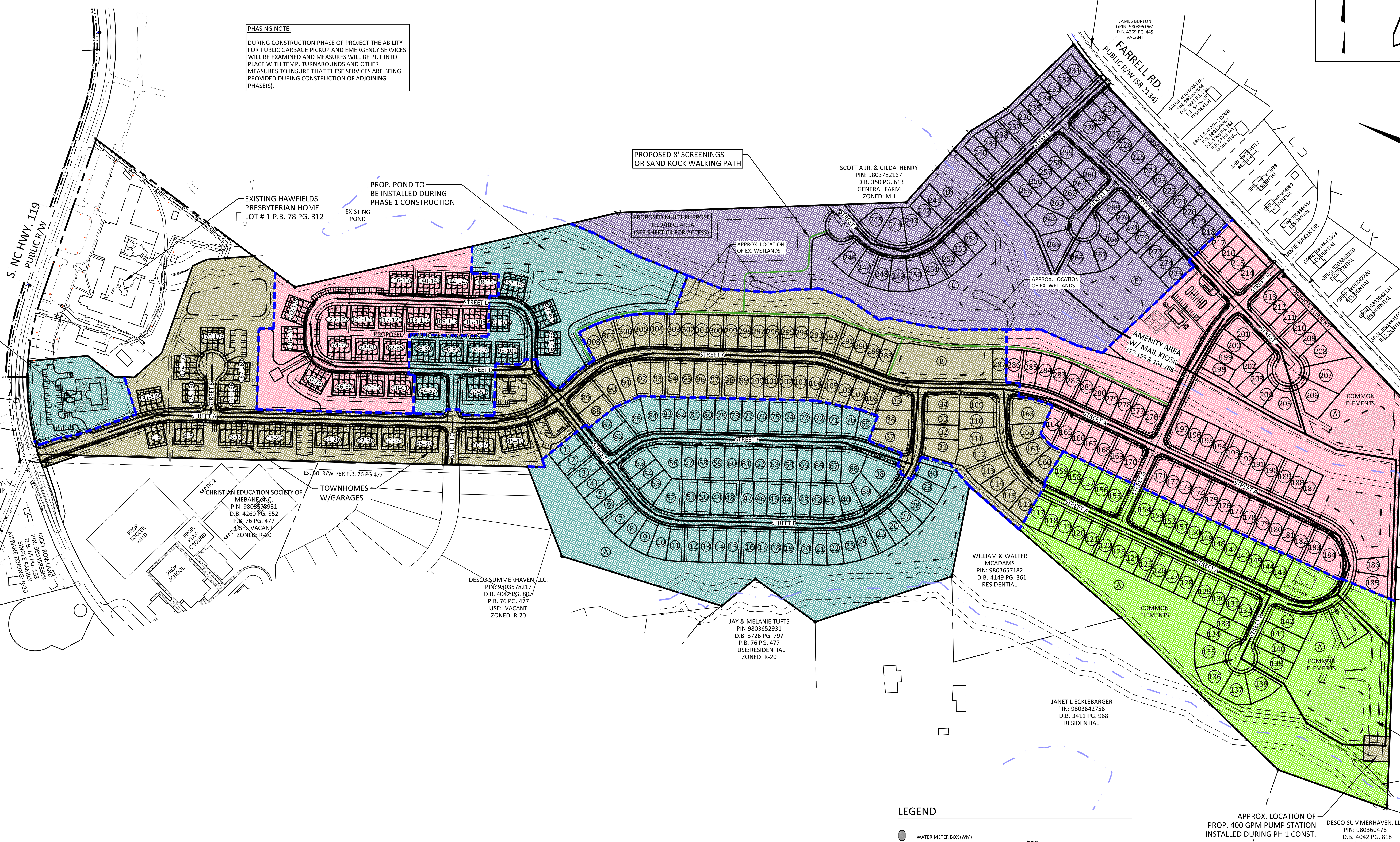
C2

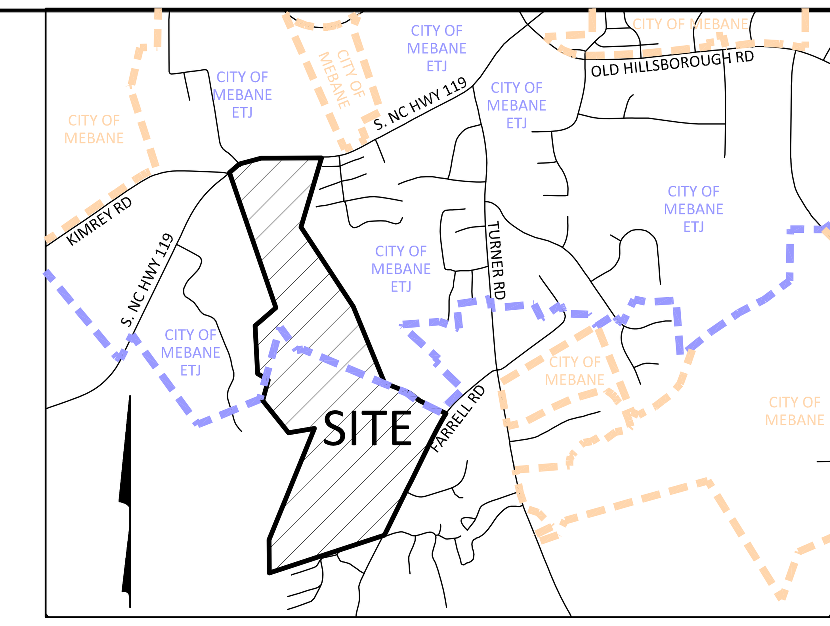
PHASED UNIT COUNT

PHASE	SINGLE FAMILY LOTS	TOWNHOME UNITS	
1	62	70	
2	80	39	
3	65	75	
4	60		
5	43		

PHASING NOTE:

DURING CONSTRUCTION PHASE OF PROJECT THE ABILITY FOR PUBLIC GARBAGE PICKUP AND EMERGENCY SERVICES WILL BE EXAMINED AND MEASURES WILL BE PUT INTO PLACE WITH TEMP. TURNAROUNDS AND OTHER MEASURES TO INSURE THAT THESE SERVICES ARE BEING PROVIDED DURING CONSTRUCTION OF ADJOINING PHASE(S).





VICINITY MAP
1" = 2000'

LEGEND

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- WATER VALVE (WV)
- STORM MANHOLE (STMH)
- UTILITY POLE
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- DI DROP INLET
- CI CURB INLET
- FFE FINISH FLOOR ELEVATION
- BSMT BASEMENT
- TPED TELEPHONE PEDESTAL
- THH TELEPHONE HAND HOLD
- DMUE DRAINAGE MAINTENANCE & UTILITY EASEMENT
- PROP. BMP

ALL CONSTRUCTION MUST CONFORM TO THE UNDERGROUND UTILITY PROTECTION ACT

811

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GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)
1 inch = 200 ft.

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Kernersville, NC 27284

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Civil Engineering Consultants

HAWFIELDS LANDING
OVERALL PRELIMINARY PHASING PLAN

PROPERTY OWNER INFORMATION:
LEOTERRA MEBANE, LLC
110-A SHIELDS PARK DRIVE
KERNERSVILLE, NC 27284

PROJECT LOCATION:
STATE: NORTH CAROLINA
COUNTY: ALAMANCE
TOWNSHIP: MELVILLE

NO	DATE	REVISION NOTE
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6	03/24/22	MEBANE COMMENTS

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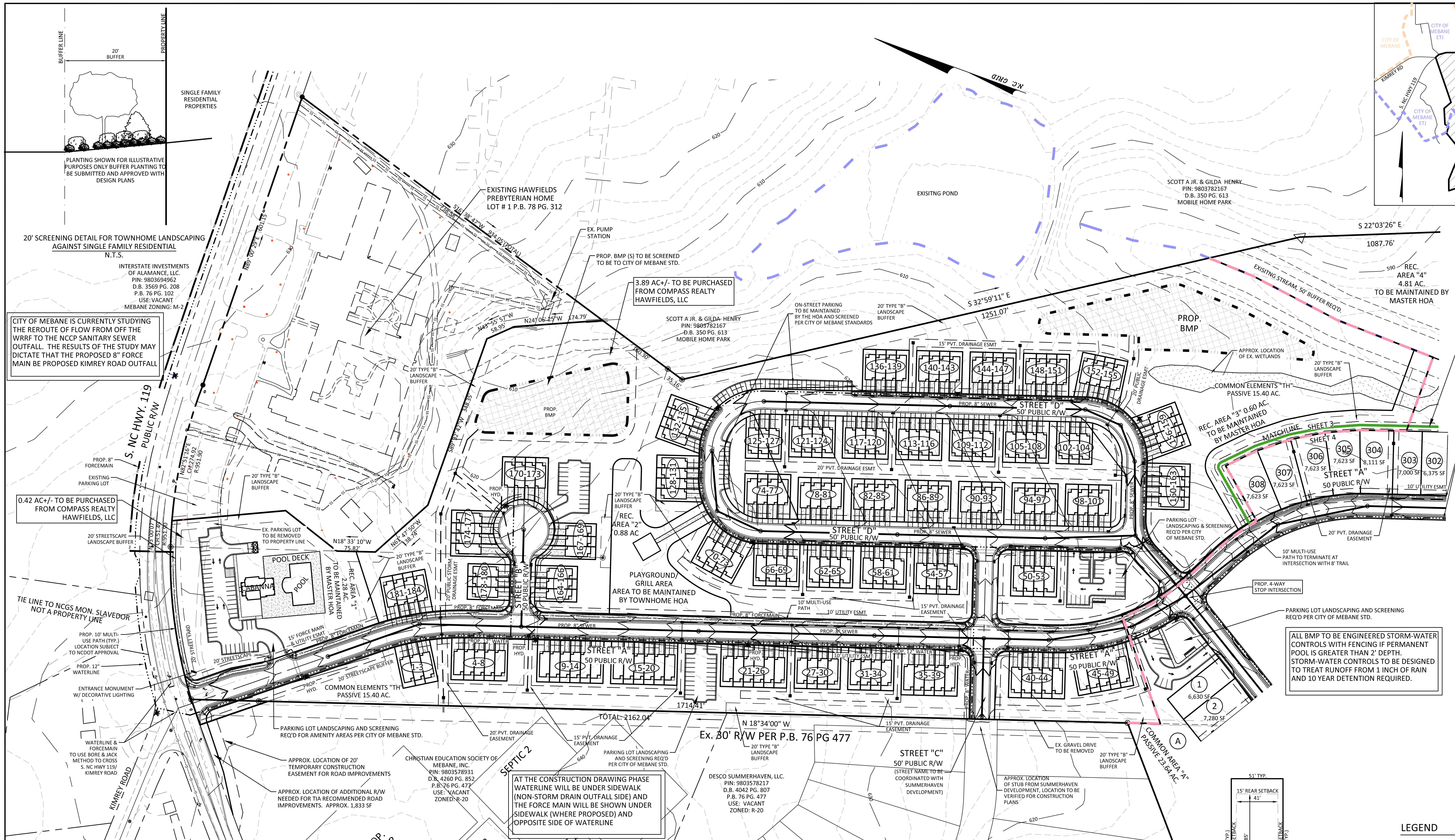
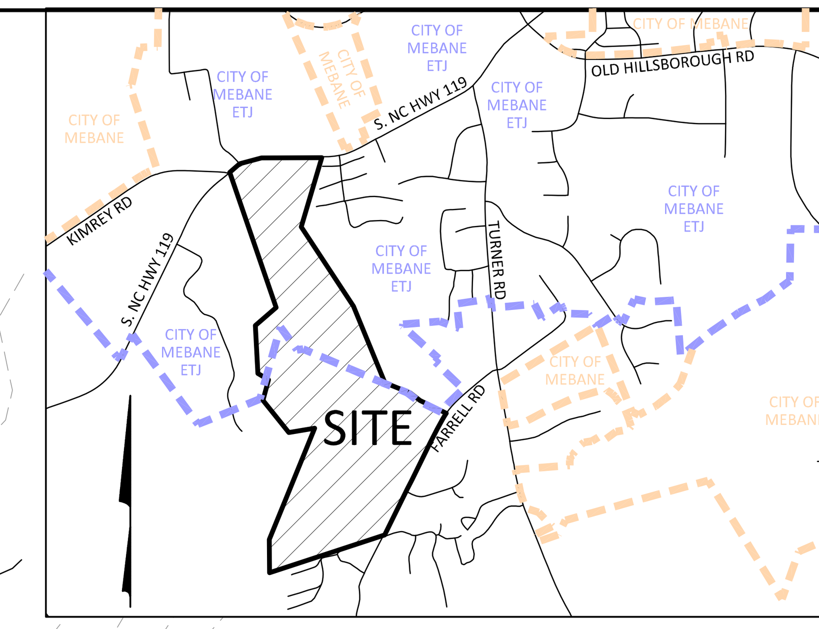
SCALE: 1"=200'

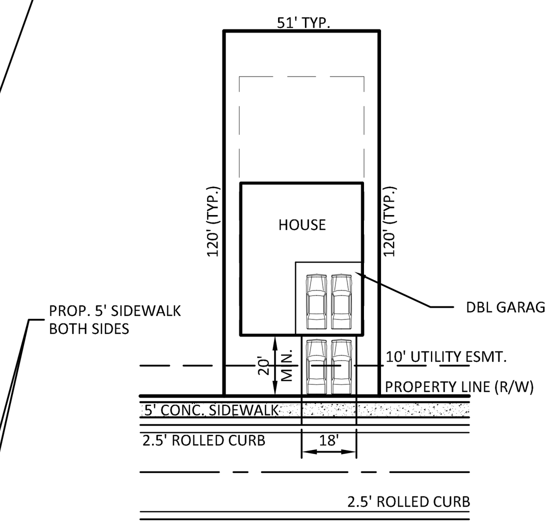
NORTH CAROLINA PROFESSIONAL SEAL ENGINEER ADEN R. STOLTZFUS
03/24/2022

C3





VICINITY MAP
1" = 2000'



TYPICAL SINGLE FAMILY PARKING LAYOUT
SCALE 1"=50'

SINGLE FAMILY COMMON AREA			
REC. AREA		COMMON ELEMENTS (PASSIVE)	
4	4.81 AC.	A	23.64 AC.
5	3.93 AC.	B	1.12 AC.
6	2.13 AC.	C	0.63 AC.
7	0.28 AC.	D	1.32 AC.
		E	7.92 AC.
TOTAL	11.15 AC.	TOTAL	34.63 AC.

TOWNHOME COMMON AREA			
REC. AREA		COMMON ELEMENTS (PASSIVE)	
1	2.28 AC.	TH*	15.40 AC
2*	0.88 AC.		
3	0.60 AC.		
TOTAL	3.76 AC.	TOTAL	15.40 AC.

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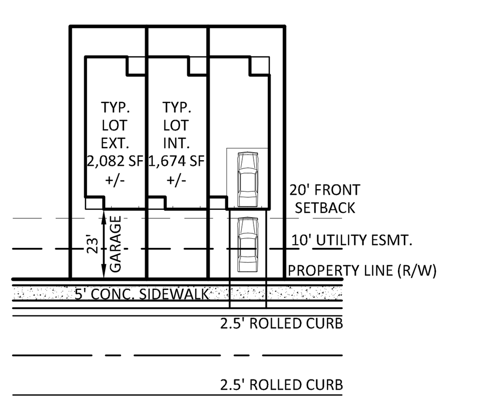
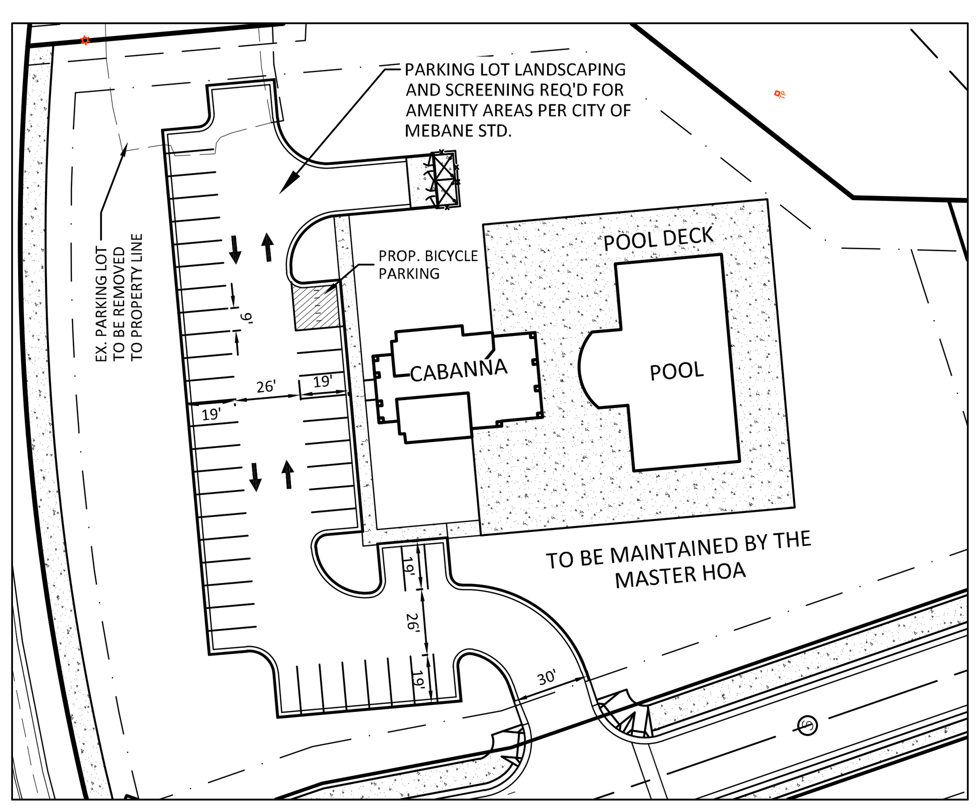
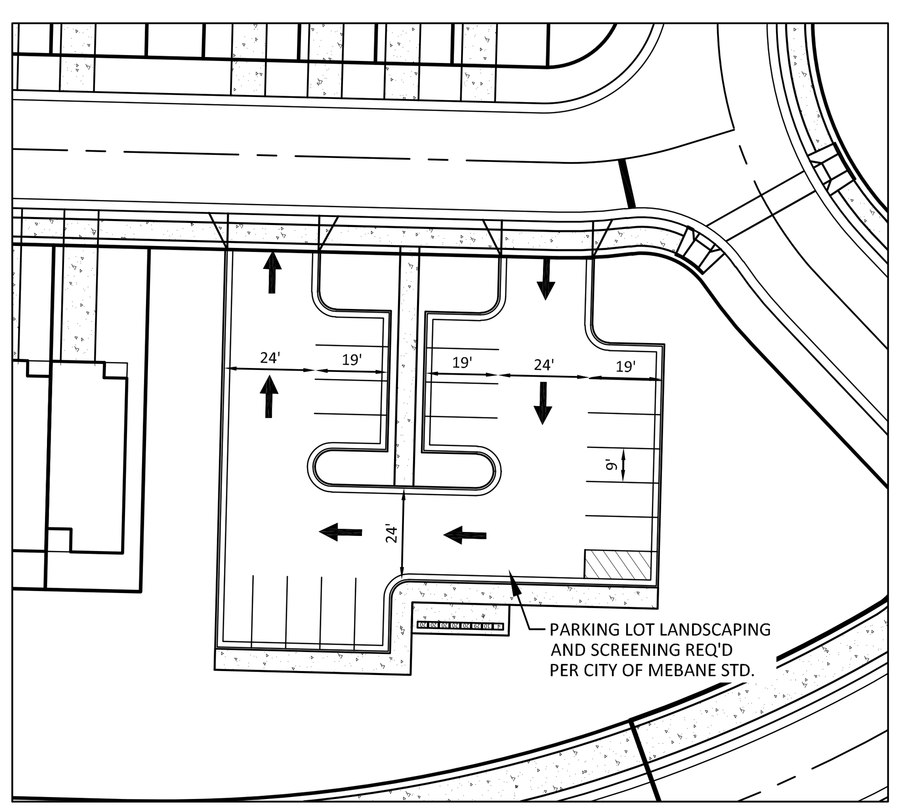


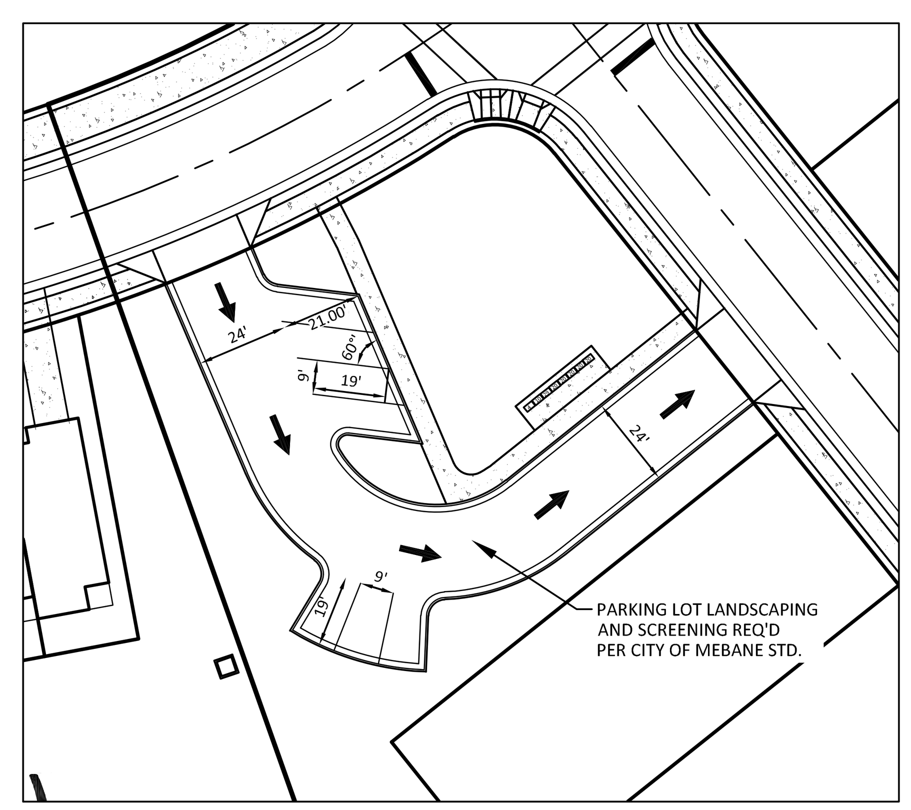
TYPICAL TOWNHOME LOT LAYOUT
SCALE 1"=50'



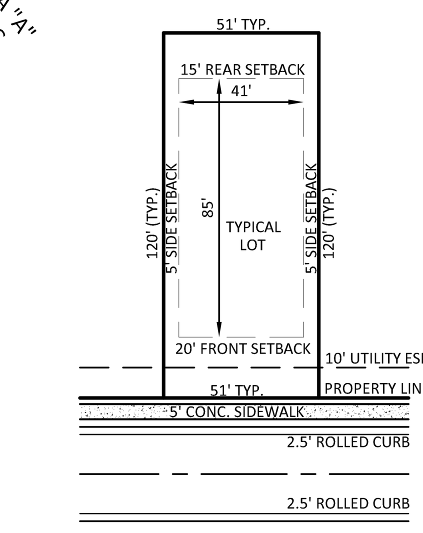
MASTER AMENITY AREA
SCALE: 1"=60'
TO BE CONSTRUCTED DURING PHASE 2



MAIL KIOSK AREA
SCALE: 1"=40'



MAIL KIOSK AREA
SCALE: 1"=40'



TYPICAL SINGLE FAMILY LOT LAYOUT
SCALE 1"=50'

ALL CONSTRUCTION MUST CONFORM TO THE UNDERGROUND UTILITY PROTECTION ACT
BEFORE YOU DIG !
CALL 811 N.C. ONE-CALL CENTER
IT'S THE LAW !

LEGEND

WATER METER BOX (WM)	FIRE HYDRANT (HYD)
WATER VALVE (WV)	SANITARY SEWER MANHOLE (SSMH)
STORM MANHOLE (STMH)	CLEAN OUT
UTILITY POLE	DB DEED BOOK
LIGHT POLE	PB PLAT BOOK
GROUND LIGHT	PG PAGE
GUY WIRE	R/W RIGHT-OF-WAY
YARD INLET (YI)	E/P EDGE OF PAVEMENT
GAS VALVE	E/G EDGE OF GRAVEL
OVERHEAD POWER LINE	CONC CONCRETE
GAS LINE	RCP REINFORCED CONCRETE PIPE
WATER LINE	DI DROP INLET
UNDERGROUND ELECTRICAL	CI CURB INLET
FENCE LINE	FFE FINISH FLOOR ELEVATION
WOODSLINE (TYP.)	BSMT BASEMENT
	TPED TELEPHONE PEDESTAL
	THH TELEPHONE HAND HOLD
	DMUE DRAINAGE MAINTENANCE & UTILITY EASEMENT
	PROP. BMP
	MATCH LINE

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

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HAWFIELDS LANDING

PRELIMINARY SITE PLAN

PROPERTY OWNER INFORMATION:
LEOTERRA MEBANE, LLC
110-A SHIELDS PARK DRIVE
KERNERSVILLE, NC 27284

PROJECT LOCATION:
STATE: NORTH CAROLINA
COUNTY: ALAMANCE
TOWNSHIP: MELVILLE

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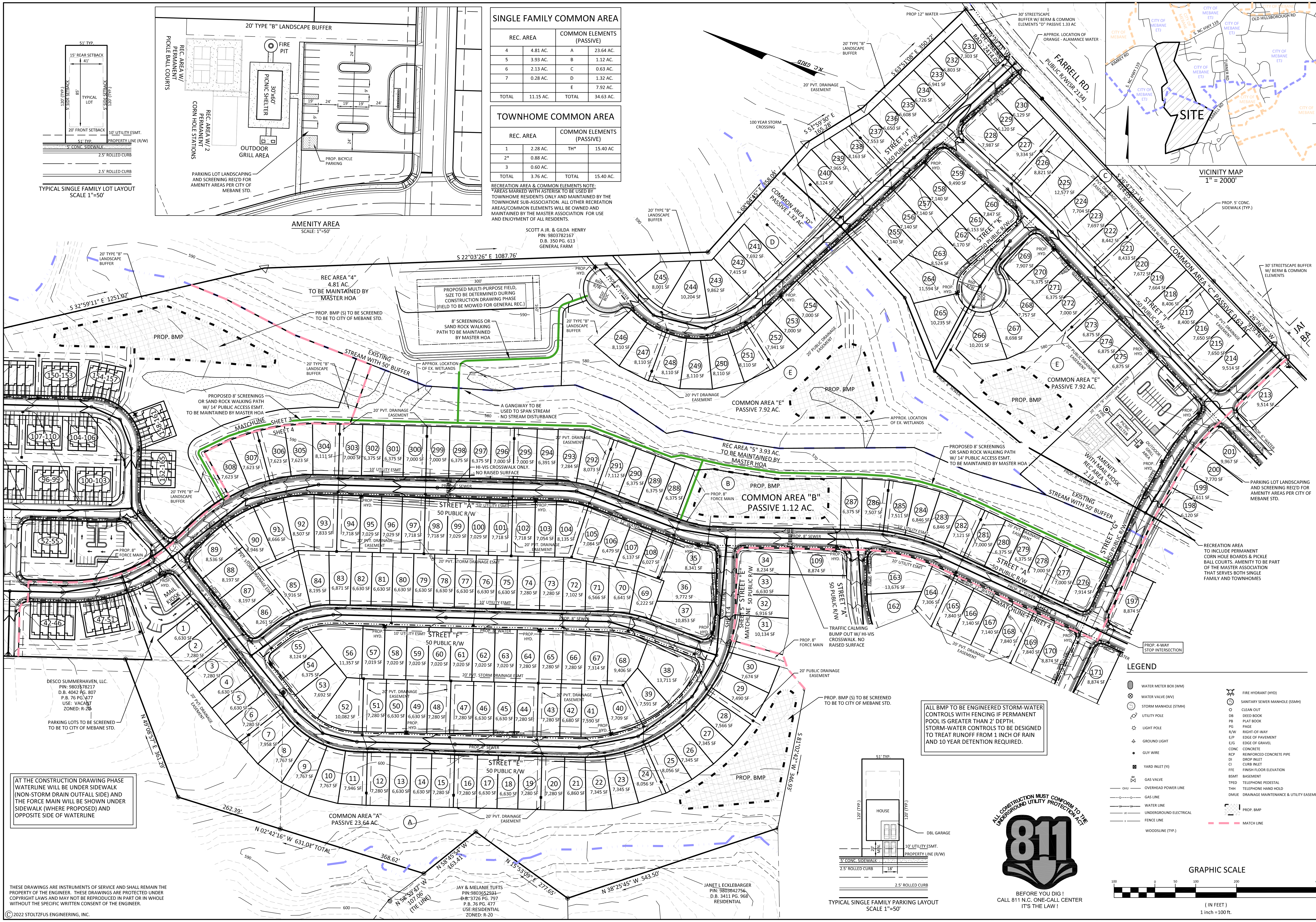
SCALE: 1"=100'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026461 ADEN R. STOLTZFUS
03/24/2022

C4
4 OF 7



SINGLE FAMILY COMMON AREA

REC. AREA		COMMON ELEMENTS (PASSIVE)	
4	4.81 AC.	A	23.64 AC.
5	3.93 AC.	B	1.12 AC.
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TOTAL	11.15 AC.	TOTAL	34.63 AC.

TOWNHOME COMMON AREA

REC. AREA		COMMON ELEMENTS (PASSIVE)	
1	2.28 AC.	TH*	15.40 AC
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TOTAL	3.76 AC.	TOTAL	15.40 AC.

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AT THE CONSTRUCTION DRAWING PHASE WATERLINE WILL BE UNDER SIDEWALK (NON-STORM DRAIN OUTFALL SIDE) AND THE FORCE MAIN WILL BE SHOWN UNDER SIDEWALK (WHERE PROPOSED) AND OPPOSITE SIDE OF WATERLINE

ALL BMP TO BE ENGINEERED STORM-WATER CONTROLS WITH FENCING IF PERMANENT POOL IS GREATER THAN 2' DEPTH. STORM-WATER CONTROLS TO BE DESIGNED TO TREAT RUNOFF FROM 1 INCH OF RAIN AND 10 YEAR DETENTION REQUIRED.

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Stoltzfus Engineering Inc.
Civil Engineering Consultants

HAWFIELDS LANDING

PRELIMINARY SITE PLAN

PROJECT LOCATION:
STATE: NORTH CAROLINA
COUNTY: ALAMANCE
TOWNSHIP: MELVILLE

PROPERTY OWNER INFORMATION:
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110-A SHIELDS PARK DRIVE
KERNERSVILLE, NC 27284

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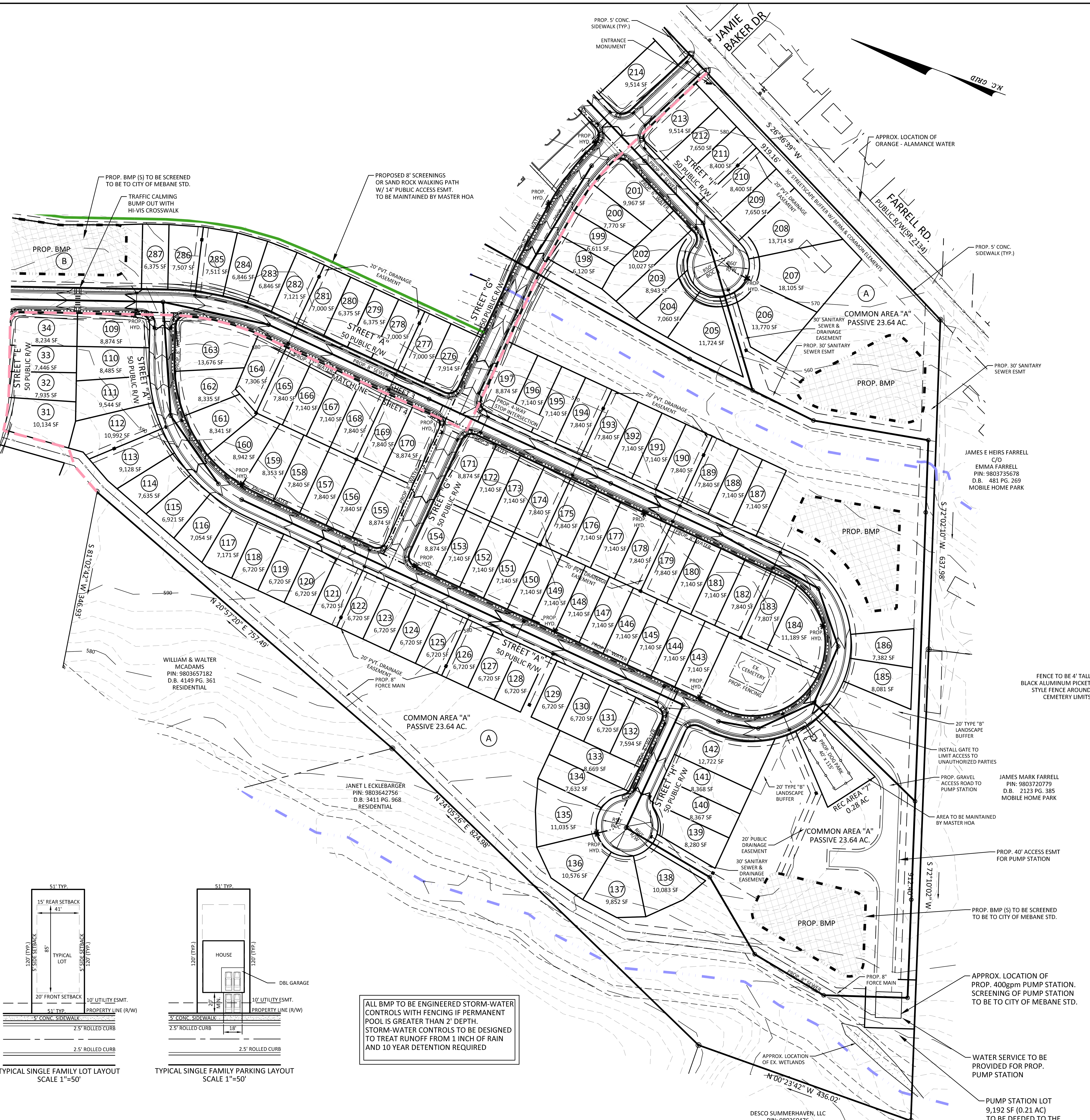
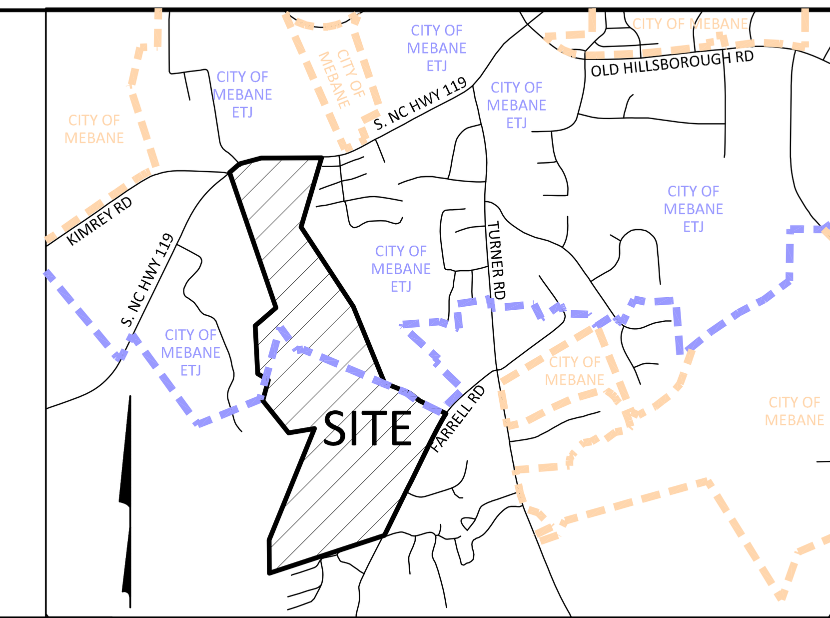
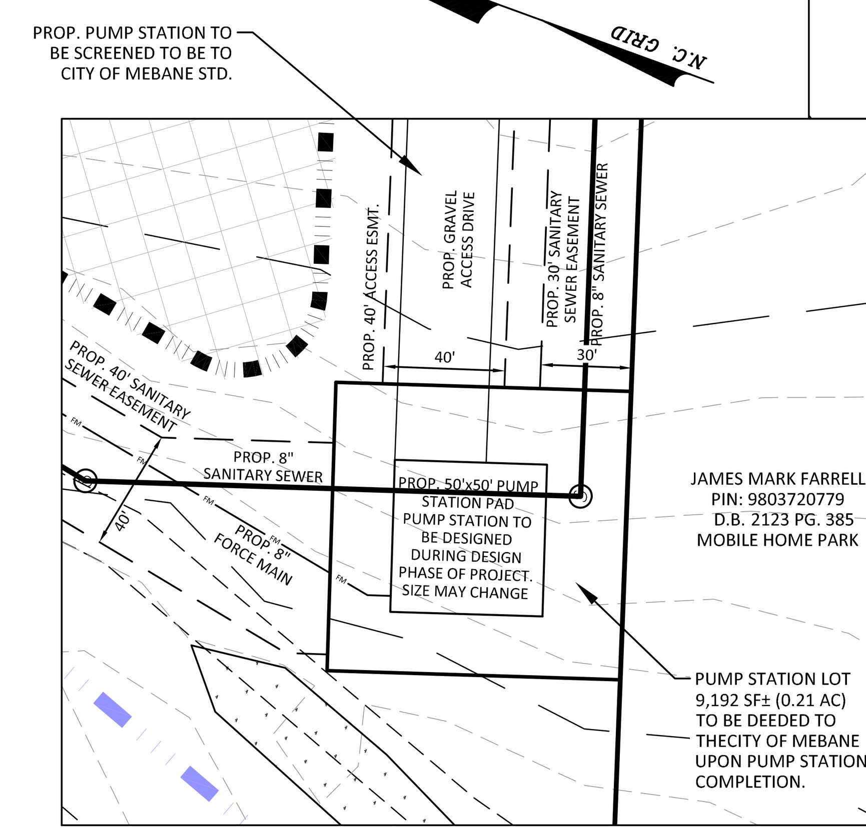
SCALE: 1"=100'

NORTH CAROLINA PROFESSIONAL SEAL 026461 ENGINEER ADEN R. STOLTZFUS
03/24/2022

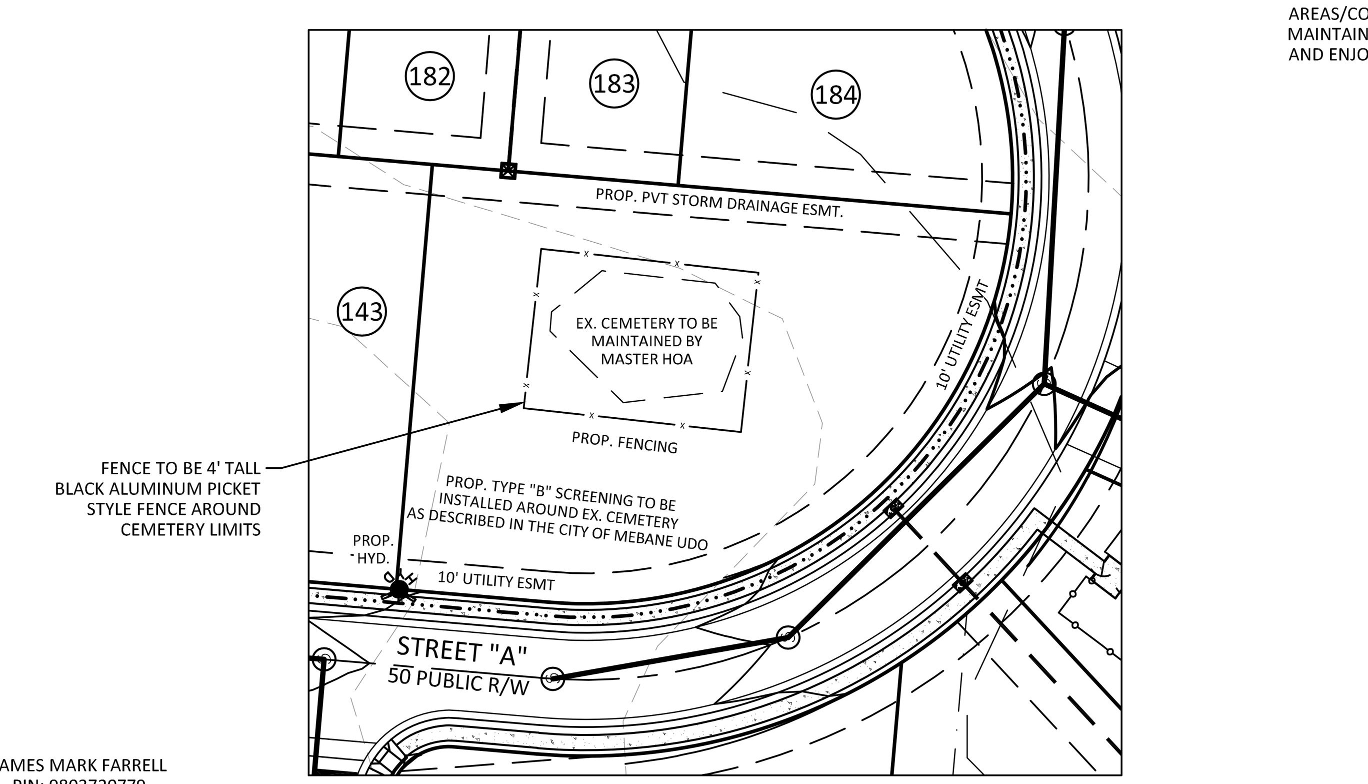




VICINITY MAP
1" = 2000'



SPECIAL PURPOSE LOT "PUMP STATION"
SCALE 1"=50'



SCALE 1"=50'
CEMETERY LOT TO BE MAINTAINED BY THE MASTER HOA

SINGLE FAMILY COMMON AREA			
REC. AREA		COMMON ELEMENTS (PASSIVE)	
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RECREATION AREA & COMMON ELEMENTS NOTE:
*AREAS MARKED WITH ASTERISK TO BE USED BY TOWNHOME RESIDENTS ONLY AND MAINTAINED BY THE TOWNHOME SUB-ASSOCIATION. ALL OTHER RECREATION AREAS/COMMON ELEMENTS WILL BE OWNED AND MAINTAINED BY THE MASTER ASSOCIATION FOR USE AND ENJOYMENT OF ALL RESIDENTS.

TYPICAL SINGLE FAMILY LOT LAYOUT
SCALE 1"=50'

TYPICAL SINGLE FAMILY PARKING LAYOUT
SCALE 1"=50'

ALL BMP TO BE ENGINEERED STORM-WATER CONTROLS WITH FENCING IF PERMANENT POOL IS GREATER THAN 2' DEPTH. STORM-WATER CONTROLS TO BE DESIGNED TO TREAT RUNOFF FROM 1 INCH OF RAIN AND 10 YEAR DETENTION REQUIRED

ALL CONSTRUCTION MUST CONFORM TO THE UNDERGROUND UTILITY PROTECTION ACT
811
BEFORE YOU DIG !
CALL 811 N.C. ONE-CALL CENTER
IT'S THE LAW !

LEGEND

- WATER METER BOX (WM)
- WATER VALVE (WV)
- STORM MANHOLE (STMH)
- UTILITY POLE
- LIGHT POLE
- GROUND LIGHT
- GUY WIRE
- YARD INLET (YI)
- GAS VALVE
- OVERHEAD POWER LINE
- GAS LINE
- WATER LINE
- UNDERGROUND ELECTRICAL
- FENCE LINE
- WOODSLINE (TYP.)
- FIRE HYDRANT (HYD)
- SANITARY SEWER MANHOLE (SSMH)
- CLEAN OUT
- DB DEED BOOK
- PB PLAT BOOK
- PG PAGE
- R/W RIGHT-OF-WAY
- E/P EDGE OF PAVEMENT
- E/G EDGE OF GRAVEL
- CONC CONCRETE
- RCP REINFORCED CONCRETE PIPE
- DI DROP INLET
- CI CURB INLET
- FFE FINISH FLOOR ELEVATION
- BSMT BASEMENT
- TPED TELEPHONE PEDESTAL
- THH TELEPHONE HAND HOLD
- DMUE DRAINAGE MAINTENANCE & UTILITY EASEMENT
- PROP. BMP
- MATCH LINE

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

Aden R. Stoltzfus, PE C-3812
aden@seiengineering.com
336-904-0207
683 Gralin Street
Kernersville, NC 27284
Stoltzfus Engineering Inc.
Civil Engineering Consultants

HAWFIELDS LANDING
PRELIMINARY SITE PLAN

PROPERTY OWNER INFORMATION:
LEOTERRA MEBANE, LLC
110-A SHIELDS PARK DRIVE
KERNERSVILLE, NC 27284

PROJECT LOCATION:
STATE: NORTH CAROLINA
COUNTY: ALAMANCE
TOWNSHIP: MELVILLE

NO.	DATE	REVISION NOTE
2	06/04/21	MEBANE COMMENTS
3	08/11/21	MEBANE COMMENTS
4	11/17/21	MEBANE COMMENTS
5	12/17/21	MEBANE COMMENTS
6	03/22/22	MEBANE COMMENTS
7	03/24/22	MEBANE COMMENTS

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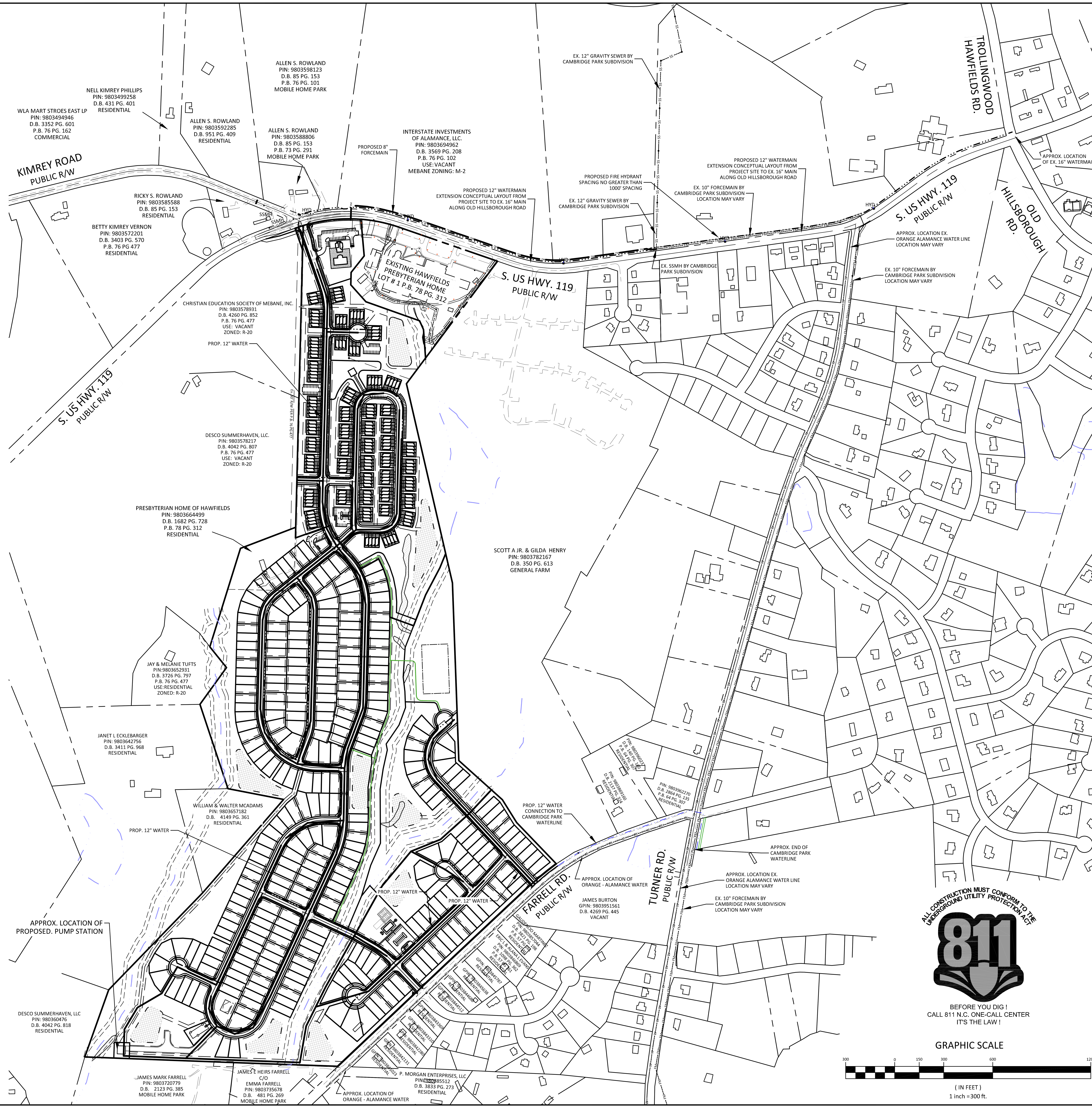
DRAWN BY: SDT
CHECKED BY: ARS
DATE: 11/09/2020
PROJECT NO.: 2201.05
REF. NO.:
SCALE: 1"=100'

NORTH CAROLINA PROFESSIONAL SEAL 026461 ENGINEER ADEN R. STOLTZFUS
03/24/2022

C6



LEGEND

	WATER METER BOX (WM)
	WATER VALVE (WV)
	STORM MANHOLE (STMH)
	UTILITY POLE
	LIGHT POLE
	GROUND LIGHT
	GUY WIRE
	YARD INLET (YI)
GV	GAS VALVE
OHU	OVERHEAD POWER LINE
G	GAS LINE
W	WATER LINE
UE	UNDERGROUND ELECTRICAL
X	FENCE LINE
	WOODSLINE (TYP.)
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CI	CURB INLET
FFE	FINISH FLOOR ELEVATION
BSMT	BASEMENT
TPED	TELEPHONE PEDESTAL
THH	TELEPHONE HAND HOLD
DMUE	DRAINAGE MAINTENANCE & UTILITY EASEMENT
	PROP. BMP
	PRODUCT TYPE BOUNDARY

NOTES:

THIS MAP DOES NOT MEET G.S. 47-30 AND IS NOT FOR RECORDING.

THIS PROPERTY IS SUBJECT TO ANY EASEMENTS, AGREEMENTS, OR RIGHTS-OF-WAY OF RECORD PRIOR TO THE DATE OF THIS MAP AND WHICH WERE NOT VISIBLE AT THE TIME OF INSPECTION.

THIS MAP WAS PREPARED WITH OUT THE BENEFIT OF A TITLE REPORT AND DOES NOT NECESSARILY INDICATE ALL ENCUMBRANCES UPON THIS PROPERTY.

TOPOGRAPHIC INFORMATION TAKEN FROM ALAMANCE COUNTY GIS

BOUNDARY INFORMATION TAKEN FROM BOUNDARY SURVEY BY ALLRED LAND SURVEYING, PLLC

NO SURVEYING OR SUBSURFACE INVESTIGATIONS PERFORMED BY STOLTZFUS ENGINEERING, INC.

THE SANITARY SEWER SHOWN IS APPROXIMATE SIZE AND SUBJECT TO DETAILED STUDY. THE DEVELOPER DOES REQUEST CITY OF MEBANE COMPENSATION FOR INFRASTRUCTURE ABOVE REQUIRED TO SERVE THE PROPOSED PROJECT TO INCLUDE UPSIZE IN WATER AND SANITARY SEWER INFRASTRUCTURE THAT WILL BENEFIT THE SURROUNDING AREA.

ALL CONSTRUCTION MUST CONFORM TO THE UNDERGROUND UTILITY PROTECTION ACT

811

BEFORE YOU DIG !
CALL 811 N.C. ONE-CALL CENTER
IT'S THE LAW !

GRAPHIC SCALE

300 0 150 300 600 1200

(IN FEET)
1 inch = 300 ft.

Aden R. Stoltzfus, PE C-3812
aden@seiengineering.com
336-904-0207
683 Gralin Street
Kernersville, NC 27284

Stoltzfus Engineering Inc.
Civil Engineering Consultants

HAWFIELDS LANDING

PRELIMINARY OFFSITE SEWER & WATER PLAN

PROJECT LOCATION:
STATE: NORTH CAROLINA
COUNTY: ALAMANCE
TOWNSHIP: MELVILLE

PROPERTY OWNER INFORMATION:
LEOTERRA MEBANE, LLC
110-A SHIELDS PARK DRIVE
KERNERSVILLE, NC 27284

NO.	DATE	REVISION NOTE
2	06/04/21	MEBANE COMMENTS
3	08/11/21	MEBANE COMMENTS
4	11/17/21	MEBANE COMMENTS
5	12/17/21	MEBANE COMMENTS
6	03/22/22	MEBANE COMMENTS
7	03/24/22	MEBANE COMMENTS

DRAWING FILE PATH: SEI Projects \2201-05\dwg\MASTER.dwg

DRAWN BY: SDT
CHECKED BY: ARS
DATE: 11/09/2020
PROJECT NO.: 2201.05
REF. NO.:
SCALE: 1"=300'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026461 ADEN R. STOLTZFUS
03/24/2022

PLANNING PROJECT REPORT

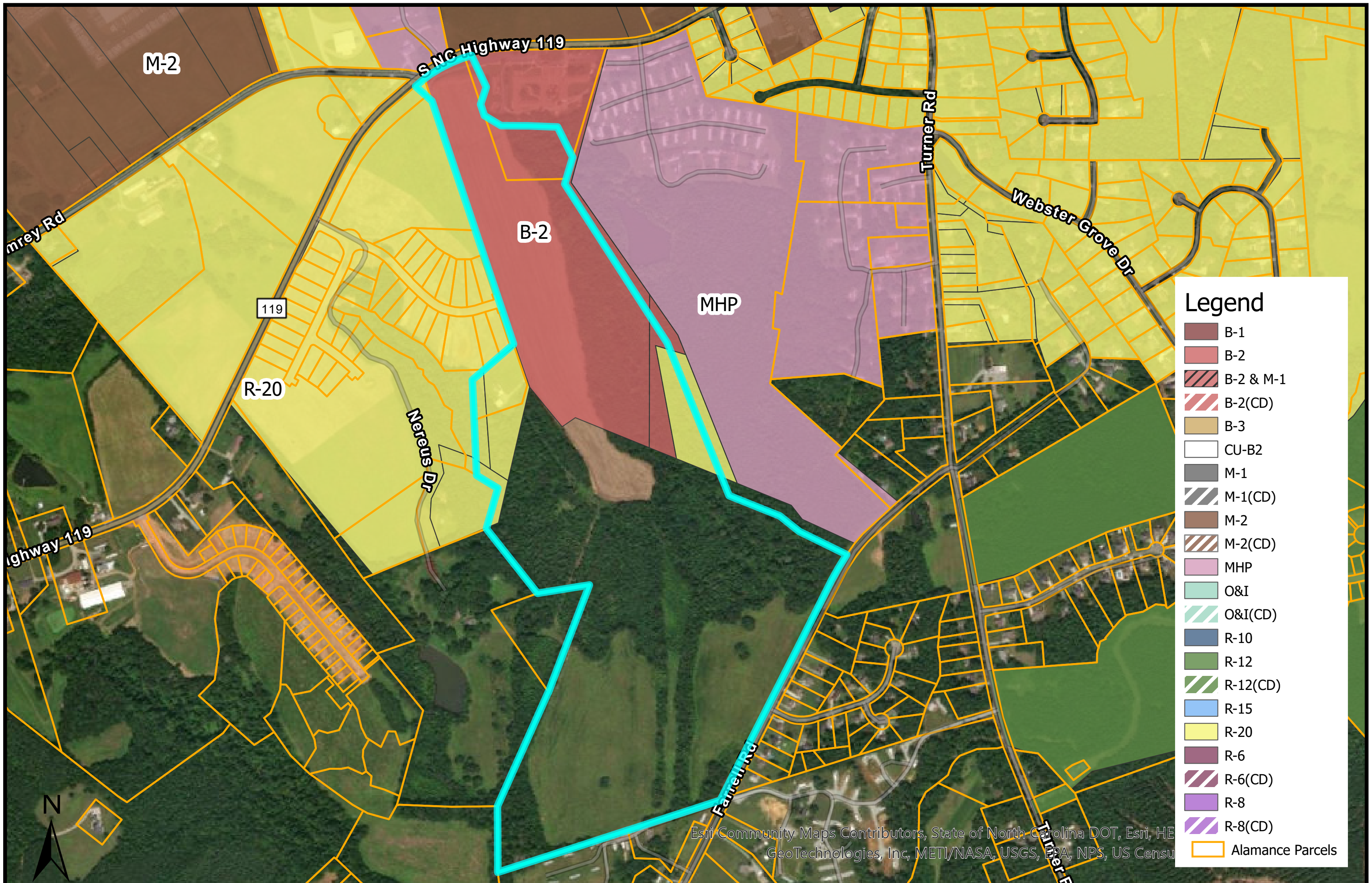
DATE	03/31/22
PROJECT NUMBER	RZ 22-03; SUP 22-03
PROJECT NAME	Hawfields Landing
APPLICANT	Leoterra Mebane, LLC 110-A Shields Park Drive Kernersville, NC 27284

CONTENTS

ZONING REPORT

EXISTING ZONE	B-2 (General Business District); R-20 (Residential District); Portion in Alamance County without Mebane Zoning
REQUESTED ACTION	Rezoning to R-12 (CD) (Residential Conditional District) to allow for a Planned Unit Development (PUD) Application for a Special Use Permit for a Special Purpose Lot to allow for a public sewer pump station
CONDITIONAL ZONE?	☒YES ☐NO
CURRENT LAND USE	Vacant, Forested, & Single-Family Residential
PARCEL SIZE	+/-148.98 acres
PROPERTY OWNERS	Leoterra Mebane, LLC 110-A Shields Park Dr. Kernersville, NC 27284 GPIN: 9803752741 Compass Realty Hawfields, LLC Attn: Todd Nunn 2206 W. Market St. Greensboro, NC 27403 GPIN: 9803677687 Christian Education Society of Mebane, Inc. 417 S. Fourth St. Mebane, NC 27302 GPIN: 9803578931 Jeanie Kernodle 2570-K S. NC Hwy 119 Mebane, NC 27302 GPIN: 9803664499
LEGAL DESCRIPTION	Request to establish R-12(CD) zoning on +/- 148.98 acres for a Planned Unit Development of 308 single-family homes and 184 townhomes, by rezoning 2570 S NC 119 (GPIN 9803664499) from R-20; rezoning an adjacent unaddressed property (GPIN 9803752741) from B-2 and R-20 and establishing zoning on a portion of the property not zoned by the City of Mebane; rezoning portions of an adjacent unaddressed property (GPIN 9803578931) from R-20; and, rezoning portions of 2502 S NC 119 (GPIN 9803677687) from B-2 by Leoterra Development, Inc. Request for a Special Use Permit for a Special Purpose Lot to allow for a public sewer pump station on the unaddressed property (GPIN 9803752741) by Leoterra Development, Inc.
AREA ZONING & DISTRICTS	The surrounding zoning is varied. Properties north of the site are zoned M-2 (Light Manufacturing), MHP (Manufactured Home Park), and R-20 (Residential District). A R-20 (Residential District) zoning district is to the west and a MHP (Manufactured Home Park) zoning district is to the east of the site. Properties south of the site are outside of Mebane's Extraterritorial Jurisdiction and not zoned by Mebane.
SITE HISTORY	Most of the site is either vacant or forested and was formerly used for agriculture. The site includes wetlands and a stream. Additionally, a home and small cemetery are present. The proposal includes rezoning of undeveloped portions of two adjacent properties, with one currently occupied by a healthcare and rehabilitation facility and the other approved for a private school.

STAFF ANALYSIS		
CITY LIMITS?	☐YES ☒NO	
PROPOSED USE BY-RIGHT?	☐YES ☒NO	
SPECIAL USE?	☒YES ☐NO	Required for public sewer pump station
EXISTING UTILITIES?	☐YES ☒NO	The applicant is proposing off-site water and sewer improvements.
POTENTIAL IMPACT OF PROPOSED ZONE	The proposed zoning district will support single-family residential use, consistent with surrounding residential zoning. It is similar to the nearby R-12 zoning for Cambridge Park, a Planned Unit Development with a mix of single-family detached and townhome units. The proposed zoning district introduces greater residential density than the immediately adjacent zoning districts and unzoned properties.	



	CITY OF MEBANE **ZONING MAP**	**Hawfields Landing** *1 inch = 900 feet*	**DATE: 04/05/2022** **DRAWN BY: AO**

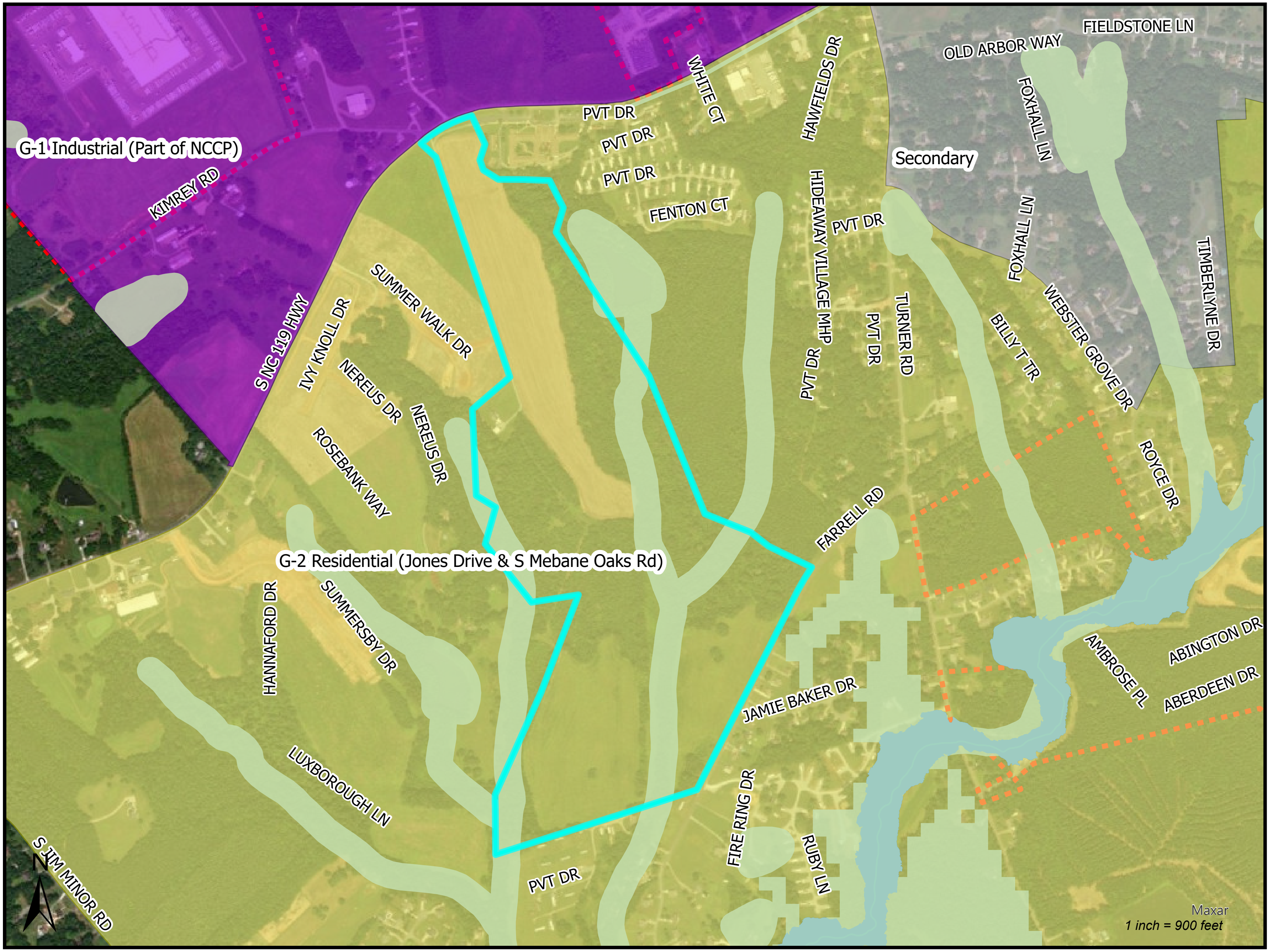
LAND USE REPORT

EXISTING LAND USE	Vacant, Forested, & Single-Family Residential
PROPOSED LAND USE & REQUESTED ACTION	The applicant is requesting a conditional rezoning to develop +/-148.98 acres for a Planned Unit Development that includes 184 townhome units and 308 single-family, detached homes.
PROPOSED ZONING	R-12(CD) (Residential Conditional District)
PARCEL SIZE	+/-148.98 acres
AREA LAND USE	The North Carolina Commerce Park is north of the site, across NC 119, and includes warehouse uses. Manufactured home parks exist to the north, east, and south, along with a RV park south of the site. Recently approved developments are immediately west of the site and include Summerhaven, a residential subdivision with minimum lot sizes of 20,000 square feet; and Bradford Academy, a private school. Additionally, large-lot, single-family residential properties border the site to the west. Single-family residential neighborhoods, with average lot sizes ranging from a half-acre to an acre, are south of the site along Farrell Road. Cambridge Park, a 731-unit Planned Unit Development with townhomes and single-family, detached homes, is south of the site across Turner Road.
ONSITE AMENITIES & DEDICATIONS	The applicant proposes to provide +/-2,188 linear feet of a 10' public multi-use path along the eastern portion of the site's frontage on NC 119 and for a certain distance along one side of Street "A". The applicant is proposing the multi-use path terminate upon connection to an internal walking path. If the walking path can meet ADA requirements and be paved, the applicant is proposing to dedicate it to the City of Mebane as part of the subdivision's public recreational requirements; it will otherwise be surfaced with crushed stone and a HOA maintenance responsibility as a private amenity. The applicant is proposing to construct a public sewer pump station (400 GPM) on a special purpose lot, to be dedicated to the City of Mebane, in the southernmost corner of the lot. The applicant is proposing the following private amenities: swimming pool, cabana, playground, walking path, multi-purpose field, dog park, grill areas, picnic shelter with fire pit, and recreational games, including permanent cornhole stations and pickle ball courts.
WAIVER REQUESTED	☒YES ☐NO
DESCRIPTION OF REQUESTED WAIVER(S)	The development standards for Planned Unit Developments (PUDs) permit deviations from typical lot area, lot coverage, lot width, and building setback requirements. Certain dimensions are specified in the standards and the applicant is requesting waivers from the following:

- The development standards for PUDs require side yards of 10’ for “individual and unattached buildings”. The applicant is requesting a minimum side setback of 5’ for single-family, detached homes.
- The development standards for PUDs specify the front setback should be “similar to the underlying zoning district.” The R-12 Zoning District front setback is 30’. The applicant is requesting 20’ front setbacks for the townhomes and single-family, detached homes.
- The development standards for PUDs specify periphery lots adjacent to single-family homes should meet minimum standards for the zoning district. The applicant is not showing any deviation in lot sizes for those on the periphery of the property adjoining residential properties to the west or properties along Farrell Road. Common elements do separate the proposed homes from existing single-family homes.

A payment *in lieu* of providing 13.55 acres of required recreational space, with the note this payment may be re-evaluated if a paved, internal walking path is possible.

CONSISTENCY WITH *MEBANE BY DESIGN* STRATEGY	
LAND USE GROWTH STRATEGY DESIGNATION(S)	G-2 Residential Growth Area (Jones Drive & South Mebane Oaks Road) Conservation Area
MEBANE BY DESIGN GOALS & OBJECTIVES SUPPORTED	OPEN SPACE AND NATURAL RESOURCE PROTECTION 4.3 Support park, greenway, and open space expansion in developed and developing areas, prioritizing connectivity between each location.
MEBANE BY DESIGN GOALS & OBJECTIVES <u>NOT</u> SUPPORTED	

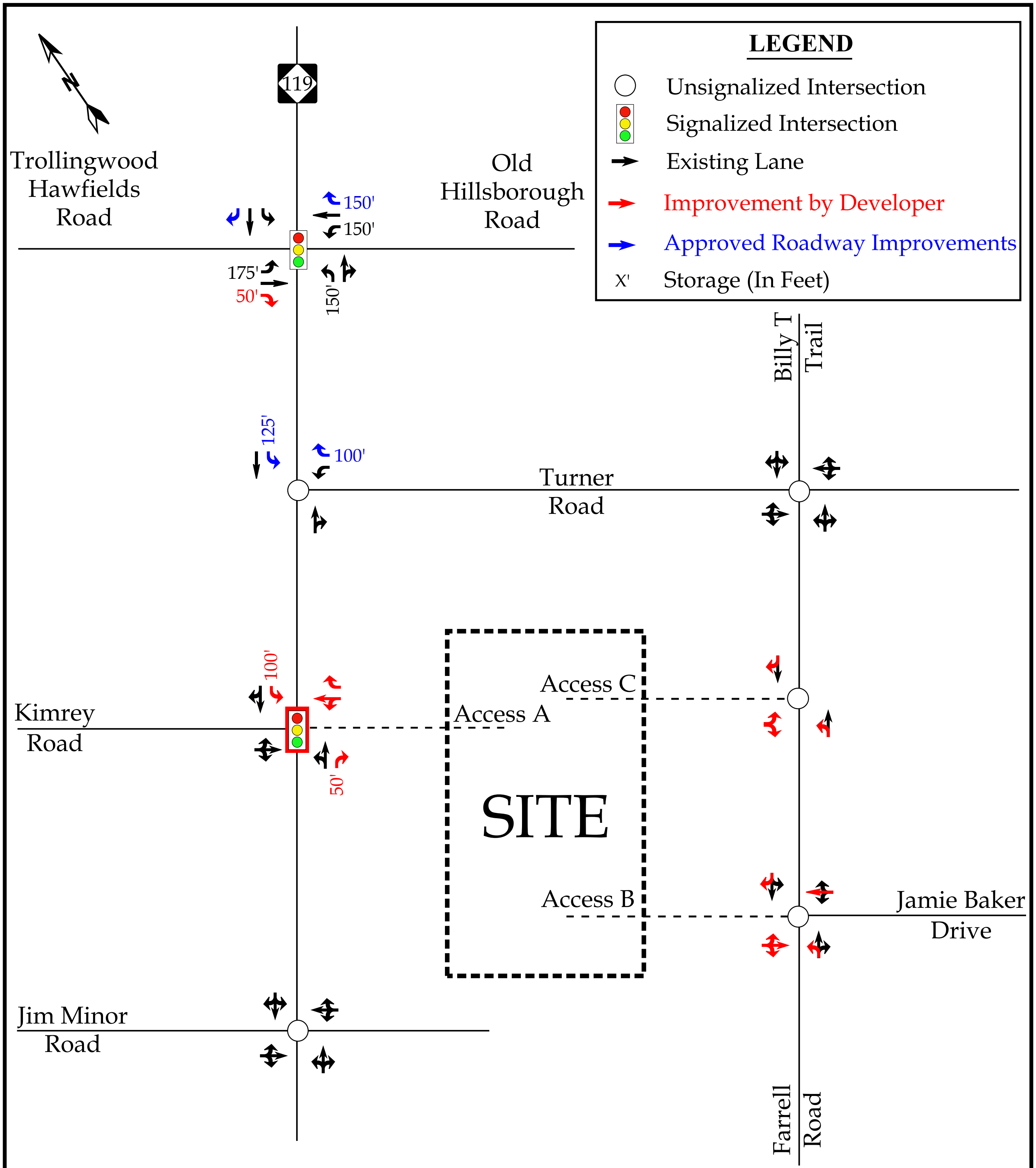

G-1 Industrial (Part of NCCP)
G-2 Residential (Jones Drive & S Mebane Oaks Rd)
Secondary
KIMREY RD
S NC 119 HWY
PVT DR
PVT DR
PVT DR
WHITE CT
HAWFIELDS DR
FENTON CT
OLD ARBOR WAY
FIELDSTONE LN
FOXHALL LN
FOXHALL LN
HIDEAWAY VILLAGE MHP
PVT DR
PVT DR
PVT DR
TURNER RD
BILLY T TR
WEBSTER GROVE DR
TIMBERLYNE DR
SUMMER WALK DR
IVY KNOLL DR
NEREUS DR
NEREUS DR
ROSEBANK WAY
ROYCE DR
FARRELL RD
HANNAFORD DR
SUMMERSBY DR
JAMIE BAKER DR
AMBROSE PL
ABINGTON DR
ABERDEEN DR
LUXBOROUGH LN
FIRE RING DR
RUBY LN
PVT DR
S JIM MINOR RD
N
Maxar
1 inch = 900 feet

UTILITIES REPORT

AVAILABLE UTILITIES	☒YES ☐NO
PROPOSED UTILITY NEEDS	Per the memorandum from Franz Holt of AWCK, the project has an estimated domestic water and sewer demand of 73,800 gallons per day (gpd) to support the development's 492 dwelling units. The estimated sewer demand of 73,800 gpd is according to historical data. Per the NCDEQ 2T rules, the permitted wastewater flow totals 214,080 gpd for all residences. Water service requires off-site extension of a 12-inch public water main along NC 119 and connections to improvements of the Cambridge Park subdivision. Internal water lines will be 8-inch, with 6-inch lines on short cul-de-sacs. Sewer service requires construction of a public sewer pump station, 8-inch force main, and 8-inch gravity collection system. The pump station has a design capacity of 230,400 gpd, with allowance for an increase in capacity with the change of pump impeller size only. The public sewer pump station will be constructed on a Special Purpose Lot, with adequate screening, fencing, and access easements. All on- and off-site water and sewer lines and pump station improvements will be City-maintained when completed in accordance with requirements.
UTILITIES PROVIDED BY APPLICANT	Applicant has pledged to provide all on-site utilities, including a publicly-dedicated sewer pump station as described in AWCK's Technical Memo.
MUNICIPAL CAPACITY TO ABSORB PROJECT	The City has adequate water & sewer supply to meet the domestic and fire flow demands of the project. Per City policy to limit accumulated paper flow, the permitting of wastewater will be by individual phase, with 50% of home starts (paid system development fees) before permitting the next phase. Additionally, the City is pursuing a flow reduction study to reduce the State's 120 GPD per bedroom to 80 GPD per bedroom to match with Mebane's Water Resource Recovery Facility.
CONSISTENCY WITH MEBANE LONG RANGE UTILITY PLAN?	☒YES ☐NO
ADEQUATE STORMWATER CONTROL?	☒YES ☐NO
INNOVATIVE STORMWATER MANAGEMENT?	☐YES ☒NO
TRANSPORTATION NETWORK STATUS	
CURRENT CONDITIONS	The proposed development includes three driveway connections, with one on S NC Hwy 119 and two on Farrell Road.

	North Carolina 119 is a primary north-south route in the Mebane area, operating as a two-lane undivided highway between Trollingwood-Hawfields Road and Kimrey Road. In 2019, the average daily traffic volume in this area was 12,500 trips. North of the subject property, NC 119 registers a Safety Score of 66.7, reflecting a history of traffic incidents. South of the site, the Safety Score slightly improves to 55.5. This stretch of NC 119 is currently operating at a Level of Service D, which is expected to degrade in the next twenty years due to the presence of the new Alamance County high school. By 2026, the NCDOT is expected to complete a project to widen NC 119 north of Trollingwood-Hawfields Road/Old Hillsborough Road. Additionally, the developer of Cambridge Park is expected to provide improvements at the Trollingwood-Hawfields Road/Old Hillsborough Road intersection and construct an exclusive southbound left turn lane at the intersection with Turner Road. Farrell Road and Turner Road are state-maintained secondary routes. NCDOT average daily traffic counts are only available for the portion of Turner Road between NC 119 and Webster Grove Drive, which recorded 2,700 daily trips in 2019. The TIA estimates 500 daily trips on Farrell Road during 2019. Turner Road has a poor safety score of 66.8 and recorded a fatal crash involving a pedestrian in 2020. The developers of Cambridge Park are to install a westbound left-turn lane on Turner Road at the intersection with NC 119.
TRAFFIC IMPACT ANALYSIS REQUIRED?	☒YES ☐NO
DESCRIPTION OR RECOMMENDED IMPROVEMENTS	The TIA forecasts the NC 119 and Kimrey Road intersection to degrade in service under the “Build” scenario forecast. The applicant will install a traffic signal, provide a southbound left-turn lane with 100’ of storage, and a northbound right-turn lane with 100’ of storage at the intersection of NC 119 and the site driveway. Subject to available right-of-way and environmental/cultural constraints, the applicant will provide an eastbound right-turn lane with 100’ of storage at the intersection of NC 119 and Trollingwood-Hawfields/Old Hillsborough Road. The applicant will construct the site driveway at NC 119 with one ingress and two egress lanes, consisting of a shared left/through lane and an exclusive right-turn lane.
CONSISTENCY WITH THE MEBANE BICYCLE AND	☒YES ☐NO

PEDESTRIAN TRANSPORTATION PLAN?	
MULTIMODAL IMPROVEMENTS PROVIDED BY APPLICANT?	☒YES ☐NO
DESCRIPTION OF MULTIMODAL IMPROVEMENTS	The applicant proposes to provide +/-2,188 linear feet of a 10’ public multi-use path, including along frontage with NC 119 as required by the City of Mebane *Bicycle and Pedestrian Transportation Plan*. The multi-use path will continue for a certain distance along Street “A”. The applicant is proposing internal traffic calming, including four-way stop conditions and high-visibility crosswalks on Street “A”.



Moving forward.

RAMEY KEMP ASSOCIATES

Hawfields Landing Mebane, NC	Recommended Lane Configurations	
	Scale: Not to Scale	Figure E-1

STAFF RECOMMENDATION

STAFF ZONING RECOMMENDATION	☒ APPROVE ☐ DISAPPROVE
STAFF SPECIAL USE FINDING	☒ CONSISTENT ☐ NOT CONSISTENT……………….WITH *MEBANE BY DESIGN*
RATIONALE	The proposed development "Hawfields Landing" is consistent with the guidance provided within *Mebane By Design*, the Mebane Comprehensive Land Development Plan. Specifically, the site is in a residential growth strategy area and serves Goal 4.3. The proposed project will be developed as a Planned Unit Development and is in harmony with the single-family residential uses of nearby properties. The Special Purpose Lot supporting this residential growth shall be screened and fenced in accordance with the City's UDO and is consistent with the City's adopted plans, including the Long-Range Utility Plan.

PUBLIC INTEREST CONFORMANCE?	
ENDANGER PUBLIC HEALTH OR SAFETY?	☐YES ☐NO
SUBSTANTIALLY INJURE THE VALUE OF ADJOINING OR ABUTTING PROPERTY?	☐YES ☐NO
HARMONIOUS WITH THE AREA IN WHICH IT IS LOCATED?	☐YES ☐NO

CONSISTENT WITH *MEBANE BY DESIGN*, THE MUNICIPAL COMPREHENSIVE LAND DEVELOPMENT PLAN?	☐ The application is consistent with the objectives and policies for growth and development contained in the City of Mebane Comprehensive Land Development Plan, *Mebane By Design*, and, as such, has been recommended for approval. ☐ The application is not fully consistent with the objectives and policies for growth and development of the City of Mebane Comprehensive Land Development Plan, *Mebane By Design*, but is otherwise in the public interest and has been recommended for approval. The Comprehensive Land Development Plan must be amended to reflect this approval and ensure consistency for the City of Mebane's long-range planning objectives and policies. ☐ The application is not consistent with the objectives and policies for growth and development of the City of Mebane Comprehensive Land Development Plan, *Mebane By Design*, and, as such, has been recommended for denial.

April 6, 2022

Aden Stoltzfus, PE
Stoltzfus Engineering Inc.
683 Gralin Street
Kernersville, NC 27284

Subject: Hawfields Landing – Water and Sewer System

Regarding the subject Preliminary Subdivision Plans and in accordance with the UDO, this letter indicates that I have reviewed the preliminary water and sewer system layout and find it acceptable and meets City standards based on the following:

A. Water system – The developer plans to extend a public 12-inch water main along 119 from the intersection with Hawfields Trollingwood Road. The 12-inch line will loop through the development, Farrell Road, and Turner Road connecting with the Cambridge Park water line extension when completed. Other internal water lines will be 8-inch with 6-inch lines on short cul-de-sacs. The city does not need the proposed 8-inch stub to Summerhaven served by Orange-Alamance Water System, Inc. All on and off-site water lines will be public, and city maintained when completed. The City has adequate water capacity available to meet the domestic demand at approximately 73,800 gallons per day (gpd) at 150 gpd per residence and fire flow requirements.

B. Sanitary Sewer system – The developer plans to serve the project with a 400 gallon per minute (gpm) public pump station, an 8-inch force main, and 8-inch gravity collection system. The pump station will have a design capacity of 230,400 gpd. However, the design shall allow for an increase in capacity (1.5 times initial capacity) with the change of pump impeller size only. All on and off-site sewer line and pump station improvements will be city maintained when completed. The proposed pump station requires its own "***special purpose lot***" with adequate landscape buffering, fencing, access easement, as shown with the plans. The construction design must also ensure that equipment-producing noise or sound more than seventy decibels shall be located no closer than one hundred feet to the nearest residence.

   The permitted wastewater flow based on 184 3-bedroom townhomes at 360 gpd or 120 gpd per bedroom per NCDEQ 2t rules is 66,240 gpd. Additionally, the 308 4-bedroom homes at 480 gallons per day or 120 gpd per bedroom per NCDEQ 2t rules totals 147,800 gpd for a grand total of 214,080 gpd for all proposed residences. Based on a historical water usage of less than 150 gpd per residence the anticipated sewer flow when tributary is approximately 73,800 gallons per day.

   Wastewater will flow through Mebane and Graham sewer lines and receive treatment at the Graham WWTP per interlocal agreement which allows for 0.75 million gallons per day. Per city policy to limit accumulated paper flow the permitting of wastewater will be by individual phase with 50% home starts (paid system development fees) before permitting the next phase. In addition, the city is pursuing a flow reduction study to reduce the state's 120 gpd per bedroom to 80 gpd per bedroom to match Mebane's Water Resource Recovery Facility.

If there are any questions, please let me know.

Sincerely,

Franz K. Holt

Franz K. Holt, City Engineer

CC: Cy Stober, Development Director
Kyle Smith, Utilities Director

Technical Memorandum

Date: April 5, 2022
To: Cy Stober, Development Director
From: Franz K. Holt, P.E.
Subject: Hawfields Landing – City Engineering review

The Engineering Department has reviewed preliminary plans for Hawfields Landing Subdivision dated March 24, 2022, prepared by Aden Stoltzfus with Stoltzfus Engineering Inc. located in Kernersville, NC. Our technical review comments are as follows:

A. General

The Hawfields Landing Subdivision is a proposed 492 unit phased residential development which includes 184 townhomes (attached) and 308 single family homes (non-attached) on 149-acres located south of S. NC Hwy. 119 (119) near Kimrey Road Intersection.

The project includes stormwater management controls (SCMs) as planned built upon area exceeds 24%. The city requires fencing SCMs with two feet of pool depth. Proposed SCMs will treat the runoff from a 1-inch rain with 10-year peak flow detention. The city will also require a flood study with the construction plan submittal which may result in greater detention requirements.

Water service requires off-site extension of a 12-inch water line along 119 from the intersection with Hawfields Trollingwood Road and in agreement with the city's long range utility plan. In addition, the city requires these proposed improvements looped through the development and connecting to the Cambridge Park improvements on Turner Road. Typical oversizing review will occur for water line sizes greater than project need per city policy.

Sewer service requires a sewer pump station at the low point on site. The proposed pump station and related sewer force main (which proposes to discharge at the same location of the Cambridge Park force main discharges on 119) is also in agreement with the city's long range utility plan. The city requires public pump stations being located on a special purpose lot with landscape buffers, fencing, an appropriate lot size and access, and sound or noise limitations. The public pump station will be able to serve other property draining to it and city maintained when completed.

Proposed internal streets are to be public and to the city standard of 31-ft. b-b roll curb for and gutter section for local residential streets. The preliminary plans show sidewalks on both sides of the streets that connect 119 to Farrell Road and on one side of all other streets. A ten' wide multi-use path will extend along the 119 frontage, along proposed Street A, and terminate at the intersection with the proposed eight' wide trail. Roadway connections are at 119, Farrell Road, and the adjacent Summerhaven residential subdivision.

The developer will need to acquire easements for proposed off-site utility improvements. In addition, the developer will need to acquire easements and or right-of-way may for the proposed turn lane and signal improvements on 119.

The developer will apply for NCDOT driveway permits and encroachment agreements for related improvements and street connections.

Amenities include a pool, internal walking path, play field, picnic shelter, outdoor grill, fire pit, corn hole and pickle ball courts all being private, and HOA maintained.

Any proposed stream and wetland impacts will require USACE and NCDEQ approvals. The City of Mebane conducts review and authorization of any proposed buffer impacts.

An existing private cemetery is located on site and will have its own dedicated lot with a fence around the grave sites.

B. Water and Sewer System Layout

Regarding the subject Preliminary Subdivision Plans and in accordance with the UDO, I have reviewed the preliminary water and sewer system layout and find it acceptable and meets City standards based on the following:

1. Water system – The developer plans to extend a public 12-inch water main along 119 from the intersection with Hawfields Trollingwood Road. The 12-inch line will loop through the development, Farrell Road, and Turner Road connecting with the Cambridge Park water line extension when completed. Other internal water lines will be 8-inch with 6-inch lines on short cul-de-sacs. The city does not need the proposed 8-inch stub to Summerhaven served by Orange-Alamance Water System, Inc. All on and off-site water lines will be public, and city maintained when completed. The City has adequate water capacity available to meet the domestic demand at approximately 73,800 gallons per day (gpd) at 150 gpd per residential unit and fire flow requirements.

2. Sanitary Sewer system – The developer plans to serve the project with a 400 gallon per minute (gpm) public pump station and an 8-inch force main and 8-inch gravity collection system. The pump station will have a design capacity of 230,400 gpd. However, the design shall allow for an increase in capacity (1.5 times initial capacity) with the change of pump impeller size only. All on and off-site sewer line and pump station improvements will be city maintained when completed. The proposed pump station requires its own "***special purpose lot***" with adequate landscape buffers, fencing, access easement, as shown with the plans. The construction design must also ensure that equipment-producing noise or sound more than seventy decibels shall be located no closer than one hundred feet to the nearest residence.

The permitted wastewater flow based on 184 3-bedroom townhomes at 360 gpd or 120 gpd per bedroom per NCDEQ 2t rules is 66,240 gpd. Additionally, the 308 4-bedroom homes at 480 gallons per day or 120 gpd per bedroom per NCDEQ 2t rules totals 147,800 gpd for a grand total of 214,080 gpd for all proposed residences. Based on a historical water usage of less than 150 gpd per home the anticipated sewer flow when tributary is approximately 73,800 gallons per day.

Wastewater will flow through Mebane and Graham sewer lines and receive treatment at the Graham WWTP per interlocal agreement (which allows for 0.75 million gallons per day). Per city policy to limit accumulated paper flow the permitting of wastewater will be by individual phase with 50% home starts (paid system development fees) before permitting the next phase. In addition, the city is pursuing a flow reduction study to reduce the state's 120 gpd per bedroom to 80 gpd per bedroom to match Mebane's Water Resource Recovery Facility.

C. Watershed Overlay District and Phase II Stormwater Requirements

1. Watershed Overlay District requirements provided under Sec. 5.2 of the UDO.
   These requirements in the UDO are for the Back-Creek Watershed, which includes the Graham-Mebane Lake. The Hawfields Landing project is tributary to Haw Creek, a Class V watershed and the Watershed Overlay District requirements do not apply to this project. This type of watershed classification (Class V) does not have density restrictions or built upon restrictions as required for the Graham-Mebane Lake watershed.

2. Phase II Stormwater Post Construction Ordinance
   Sec. 5.4 in the UDO provides standards for Storm Water Management and 5.4.F requires compliance with the Mebane Post Construction Runoff Ordinance (which is a stand-alone ordinance titled the Phase II Stormwater Post Construction Ordinance (SPCO)). The standards in the UDO are general standards as the Ordinance itself provides detailed standards. The SPCO does apply to this project as it will disturb more than one acre of land and will have built upon area more than 24% of the site. The project proposes nine engineered storm water control devices (noted as bmps on plans) which will require fencing if constructed as wet ponds or if bio retention, sand filter, and or wetlands storing two feet or more of surface water. These devices are HOA maintained with financial guarantees provided to the City to ensure maintenance.

D. Storm Drainage System

Sec. 5-4. D. in the UDO provides requirements for storm drainage systems. The preliminary site plans include a preliminary piping layout that indicates certain pipe locations, inlets, and discharge points to engineered storm water control devices.

E. Street Access and TIA

All internal streets are to be public, and city maintained when completed. The city standard for local residential streets is a 31-ft. b-b roll curb and gutter section. Street connections are to 119, Farrell Road, and Summerhaven residential subdivision. Sidewalks and multi-sue paths shown will be city maintained when completed.

The developer provided a Traffic Impact Analysis required for the project. City and NCDOT review agree with the recommended improvements as follows:

NC 119 and Trollingwood Hawfields Road/Old Hillsborough Road

- Subject to available right of way and environmental constraints, provide an exclusive eastbound right-turn lane with one hundred feet of storage and appropriate deceleration taper.

NC 119 and Kimrey Road

- Install traffic signal.
- Provide an exclusive northbound right-turn lane on NC 119 with one hundred feet of storage and appropriate deceleration taper.
- Provide exclusive northbound and southbound left-turn lanes on NC 119 with one hundred feet of storage and appropriate transitions.
- Construct Access A with one ingress lane and two egress lanes consisting of a shared left/through lane and an exclusive right-turn lane.

Farrell Road and Jamie Baker Drive/Access B

- Construct Access B with one ingress lane and one egress lane under stop control.

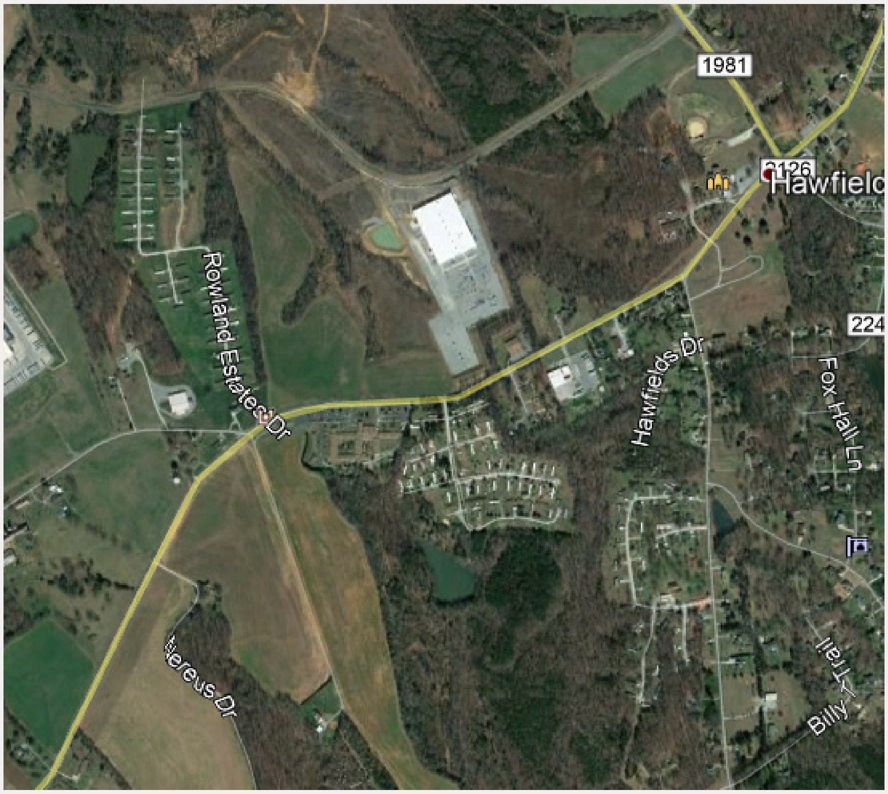
Farrell Road and Access C

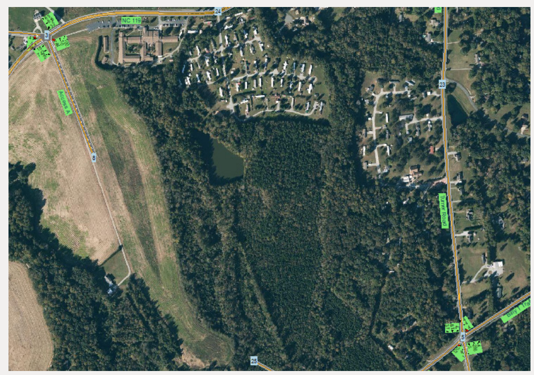
- Construct Access C with one ingress lane and one egress lane under stop control.

F. Construction Plan Submittal

The UDO indicates that construction plans for all street facilities, including water and sewer facilities, shall follow preliminary plat or site plan approval (not at this stage). The provided utility plan shows the proposed water lines, sewer lines, and storm drainage and stormwater management devices to indicate that the project is feasible for utility service and providing stormwater management. Appendix E of the UDO includes a Construction Document checklist. The project engineer provides this check list with construction plan submittal. Based on city engineering review of the referenced preliminary site plans, it is my opinion that said plans are in substantial compliance with the UDO.

RAMEY KEMP ASSOCIATES
Moving forward.





Hawfields Landing
Mebane, NC
Traffic Impact Analysis

rameykemp.com

Transportation
Consulting
that moves us
forward.

TRAFFIC IMPACT ANALYSIS

FOR

HAWFIELDS LANDING

LOCATED

IN

MEBANE, NC

Prepared For:
Agency Partners, LLC
P.O. Box 667
Elon, NC 27244

Prepared By:
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
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ENGINEER
CHASE T. SMITH
2-14-2022

February 2022

RKA Project No. 22062

Prepared By: AMI

Reviewed By: CTS

TRAFFIC IMPACT ANALYSIS
HAWFIELDS LANDING
MEBANE, NORTH CAROLINA

EXECUTIVE SUMMARY

This report summarizes the findings of the Traffic Impact Study (TIA) that was conducted for the proposed Hawfields Landing development to be located south of NC 119 and west of Turner Road in Mebane, North Carolina. The purpose of this study is to determine the potential impact to the surrounding transportation system caused by the traffic generated by the development.

The proposed development, anticipated to be completed in 2025, is assumed to consist of up to 351 single family homes and 160 townhomes. Access to the proposed development is to be provided via three (3) new full movement driveway connections: one (1) on NC 119 [located opposite Kimrey Road] and two (2) on Farrell Road [one located opposite Jamie Baker Drive and the other located approximately 1,000 feet to the north]

It is estimated that the proposed development could generate up to 4,470 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 329 trips (80 entering and 249 exiting) will occur during the weekday AM peak hour and 429 trips (271 entering and 158 exiting) will occur during the weekday PM peak hour.

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

- NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road (signalized)
- NC 119 and Turner Road (unsignalized)
- NC 119 and Kimrey Road (unsignalized)
- NC 119 and Jim Minor Road (unsignalized)
- Turner Road and Farrell Road / Billy T Trail (unsignalized)
- Farrell Road and Jamie Baker Drive (unsignalized)

Through coordination with the City and NCDOT, it was determined that there are six (6) adjacent developments that could affect the study area upon build out of the proposed development and should be accounted for in this study.

Several scenarios were analyzed using traffic analysis software, Synchro 10. Traffic operations during the AM and PM peak hours were modeled for each scenario. The results of each scenario were compared in order to determine impacts from background traffic growth and the proposed development. The following scenarios were modeled: 2021 Existing Traffic Conditions, 2025 No-Build Traffic Conditions, and 2025 Build Traffic Conditions.

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 E-1 for an illustration of the recommended lane configuration for the proposed development.

NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road

- Provide an exclusive eastbound right-turn lane with at least 50 feet of storage and appropriate taper.

NC 119 and Kimrey Road / Access A

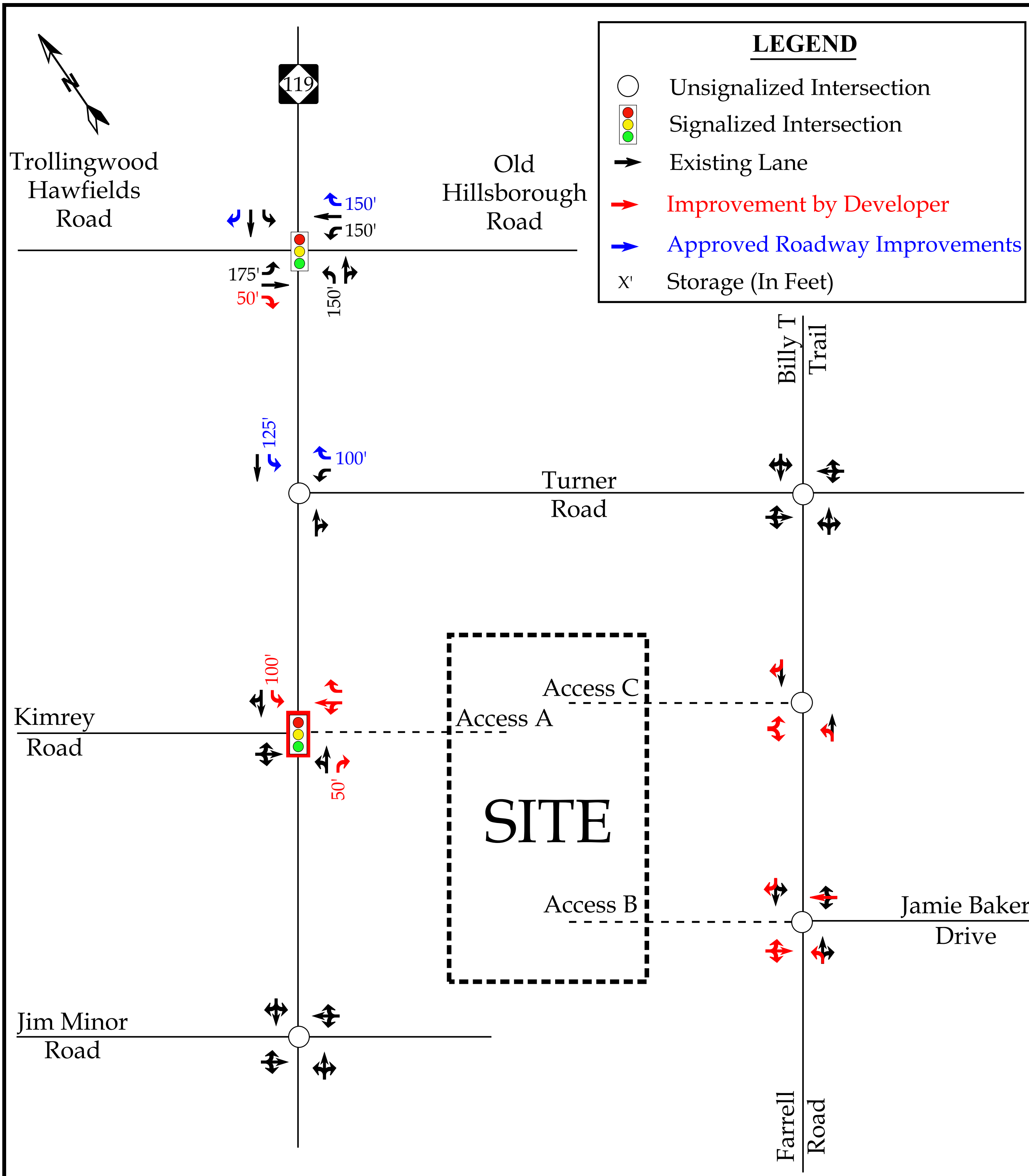
- Install traffic signal.
- Provide an exclusive northbound right-turn lane on NC 119 with at least 50 feet of storage and appropriate taper.
- Provide an exclusive southbound left-turn lane on NC 119 with at least 100 feet of storage and appropriate decel and taper.
- Construct Access A with one ingress lane and two egress lanes striped as a shared left/through lane and an exclusive right-turn lane.

Farrell Road and Jamie Baker Drive / Access B

- Construct Access B with one ingress lane and one egress lane.

Farrell Road and Access C

- Construct Access C with one ingress lane and one egress lane.



Moving forward.

RKA

RAMEY KEMP ASSOCIATES

Hawfields Landing
Mebane, NC

Recommended Lane Configurations

Scale: Not to Scale | Figure E-1

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Appendix K:	Capacity Calculations – Farrell Road and Access C
Appendix L:	SimTraffic Queueing Reports
Appendix M:	Signal Warrant Analysis

Due to the size of the document, technical appendix items can be viewed and downloaded through the following link:

https://cityofmebane.sharefile.com/d-s5d494b331c29403ba8de5f2a9c19c785

TRAFFIC IMPACT ANALYSIS
HAWFIELDS LANDING
MEBANE, NORTH CAROLINA

1. INTRODUCTION

The contents of this report present the findings of the Traffic Impact Analysis (TIA) conducted for the proposed Hawfields Landing development to be located south of NC 119 and west of Turner Road in Mebane, 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 proposed development, anticipated to be completed in 2025, is assumed to consist of up to 351 single family homes and 160 townhomes.

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

- 2021 Existing Traffic Conditions
- 2025 No-Build Traffic Conditions
- 2025 Build Traffic Conditions

1.1. Site Location and Study Area

The development is proposed to be located between NC 119 and Farrell Road in Mebane, 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 City of Mebane (City) and consists of the following existing intersections:

- NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road (signalized)
- NC 119 and Turner Road (unsignalized)
- NC 119 and Kimrey Road (unsignalized)
- NC 119 and Jim Minor Road (unsignalized)
- Turner Road and Farrell Road / Billy T Trail (unsignalized)

- Farrell Road and Jamie Baker Drive (unsignalized)

Refer to Appendix A for the approved scoping documentation.

1.2. Proposed Land Use and Site Access

The proposed development, anticipated to be completed in 2025, is assumed to consist of up to 351 single family homes and 160 apartments. Access to the proposed development is to be provided via three (3) new full movement driveway connections: one (1) on NC 119 [located opposite Kimrey Road] and two (2) on Farrell Road [one located opposite Jamie Baker Drive and the other located approximately 1,000 feet to the north]. 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. The Audrey W Garrett Elementary School and Hawfields Middle School are located to the north of Old Hillsborough Road and east of NC 119 in close proximity of the study area. Two large distribution centers are located on Senator Ralph Scott Parkway [off of Trollingwood Hawfields Road]. Residential land uses are located throughout the study area but are most dense east and south of the property along Turner Road and Jim Minor Road.

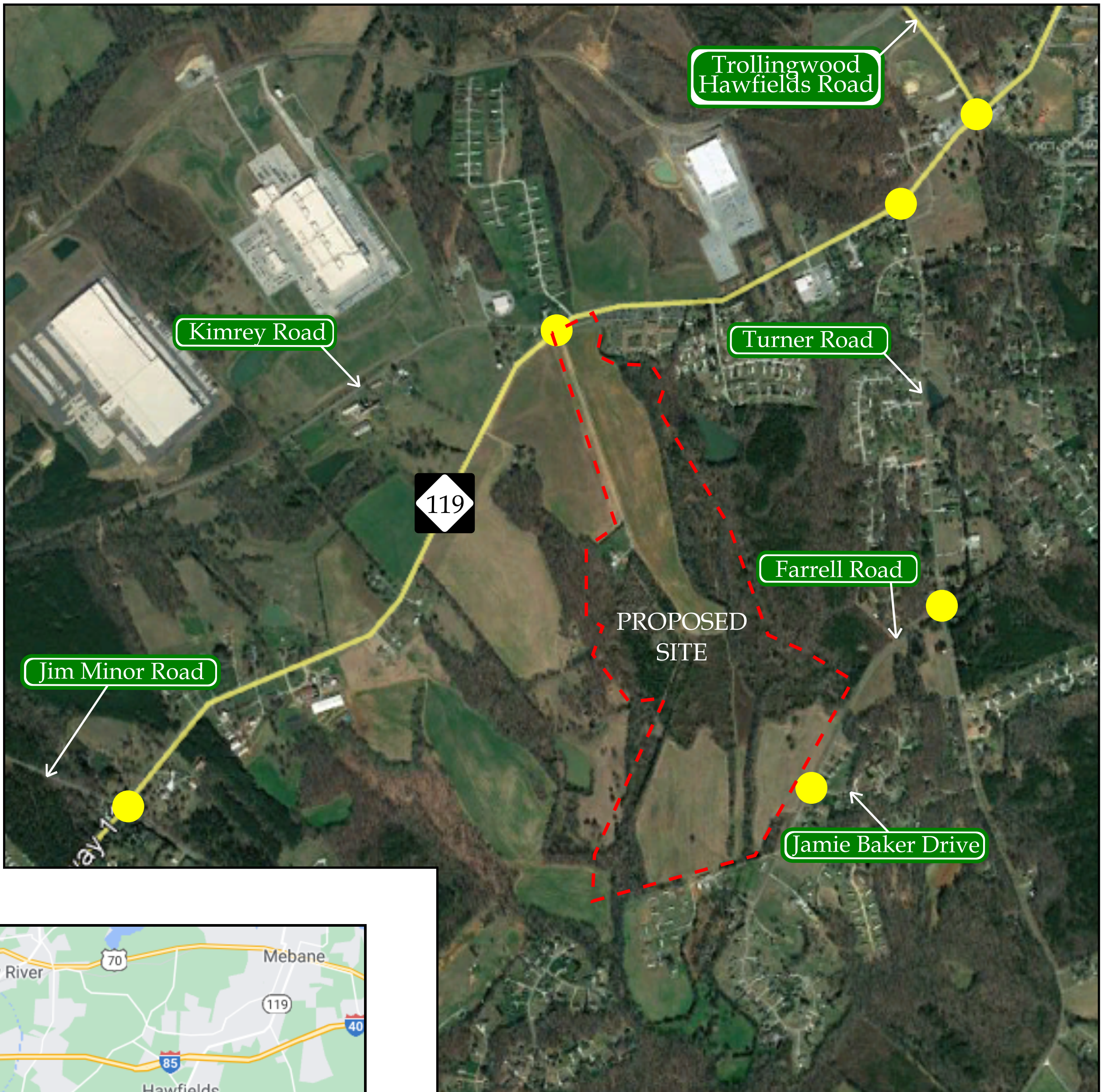
1.4. Existing Roadways

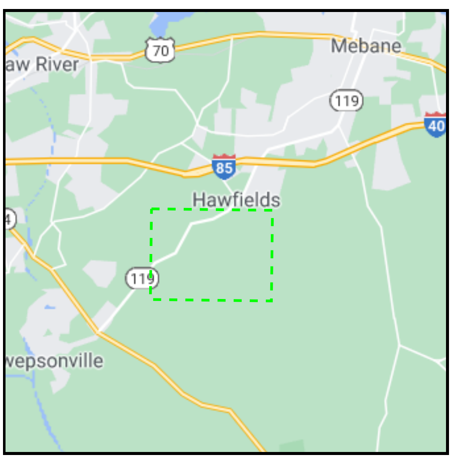
Existing lane configurations (number of traffic lanes on each intersection approach), lane widths, storage capacities, and other intersection and roadway information within the study area are shown in Figure 3. Table 1 provides a summary of this information, as well.

Table 1: Existing Roadway Inventory

Road Name	Route Number	Typical Cross Section	Speed Limit	Maintained By	2019 AADT (vpd)
NC 119	NC 119	2-lane undivided	40 mph	NCDOT	12,500
Trollingwood Hawfields Road	SR 1984	2-lane undivided	45 mph	NCDOT	10,000
Old Hillsborough Road	SR 2126	2-lane undivided	45 mph	NCDOT	7,400
Turner Road	SR 2133	2-lane undivided	45 mph	NCDOT	2,700
Kimrey Road	SR 2125	2-lane undivided	45 mph (assumed)	NCDOT	1230*
Jim Minor Road	SR 2135	2-lane undivided	45 mph	NCDOT	2,100
Farrell Road	SR 2134	2-lane undivided	40 mph	NCDOT	500*
Jamie Baker Drive	SR 2612	2-lane undivided	25 mph (assumed)	NCDOT	80*
Billy T Trail	N/A	2-lane undivided	25 mph (assumed)	City	70*

*ADT based on the traffic counts from 2021 and assuming the weekday PM peak hour volume is 10% of the average daily traffic.





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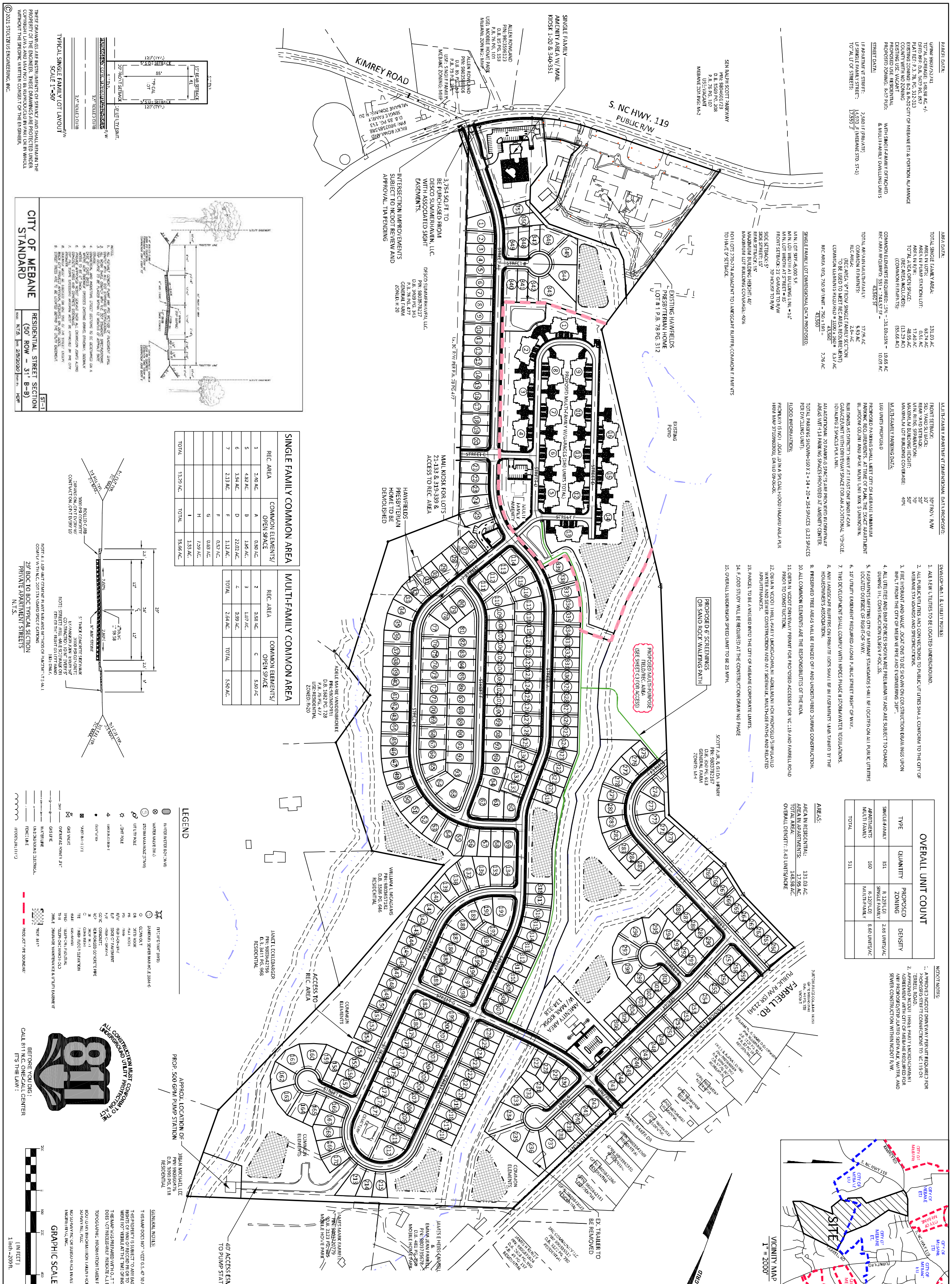
LEGEND

Proposed Site Location
Study Intersection
Study Area

Moving forward. RKA RAMEY KEMP ASSOCIATES	Hawfields Landing Mebane, NC	Site Location Map
		Scale: Not to Scale | Figure 1



NO.	DATE	REVISION NOTE
1	02/12/21	MEBANE COMMENTS
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3		
4		
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DRAWN BY: SDT
CHECKED BY: ARS
DATE: 11/09/2020
PROJECT NO.: 2201.05
REF. NO.:
SCALE: 1"=200'

HAWFIELDS LANDING

OVERALL CONCEPTUAL SITE PLAN

PROJECT LOCATION:
STATE: NORTH CAROLINA
COUNTY: ALAMANCE
TOWNSHIP: MELVILLE

PROPERTY OWNER INFORMATION:
AGENCY PARTNERS, LLC
537 HUFFMAN MILL ROAD, SUITE E
BURLINGTON, NC 27215

Stoltzfus Engineering Inc.
Civil Engineering Consultants

Aden R. Stoltzfus, PE C-3812
aden@seiengineering.com
336-904-0207
747 Park Lawn Court
Kernersville, NC 27284

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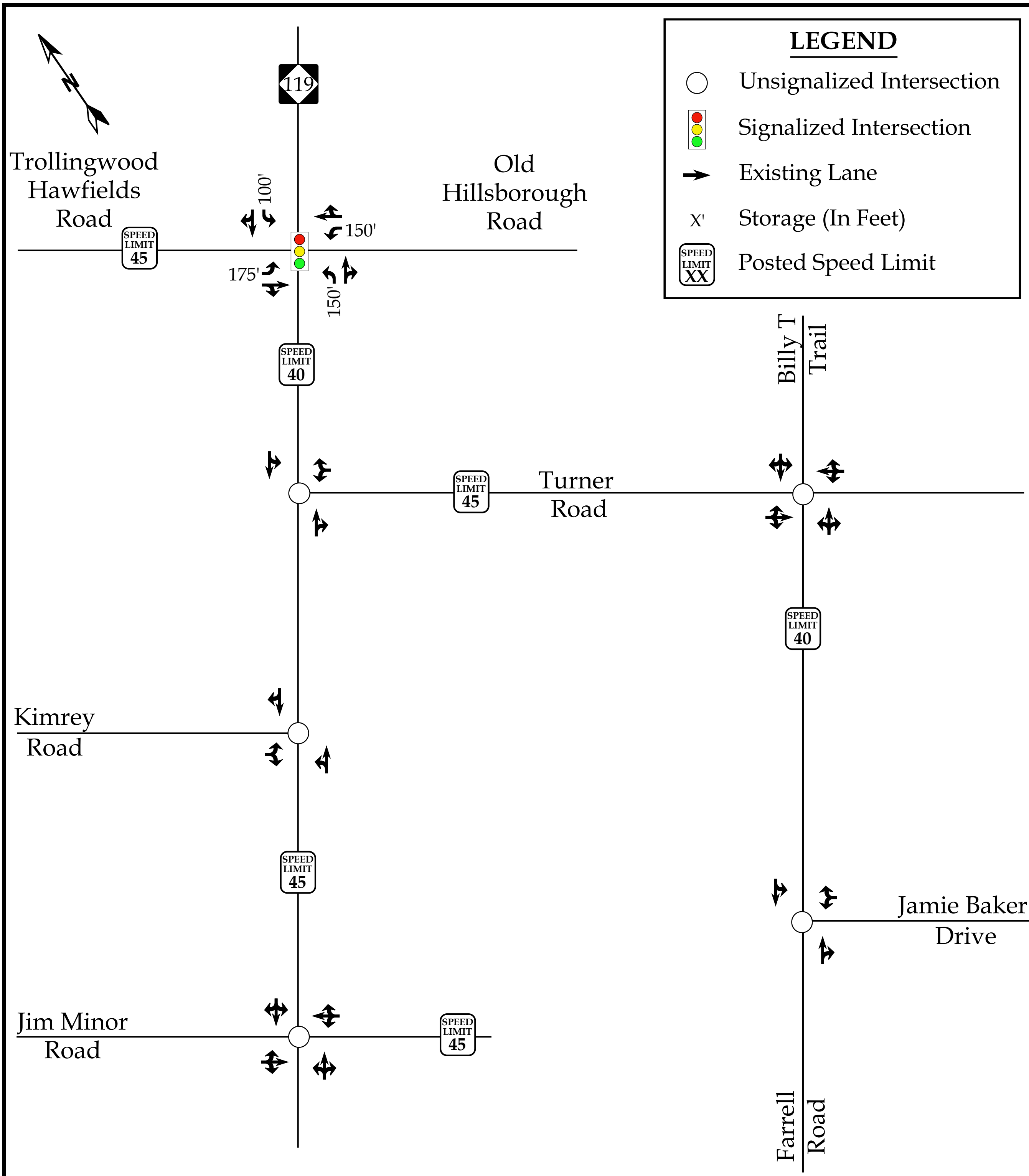
1 OF 5



Moving forward.
RKA
RAMEY KEMP ASSOCIATES

Hawfields Landing
Mebane, NC

2021 Existing
Lane Configurations

Scale: Not to Scale

Figure 3

2. 2021 EXISTING PEAK HOUR CONDITIONS

2.1. 2021 Existing Peak Hour Traffic Volumes

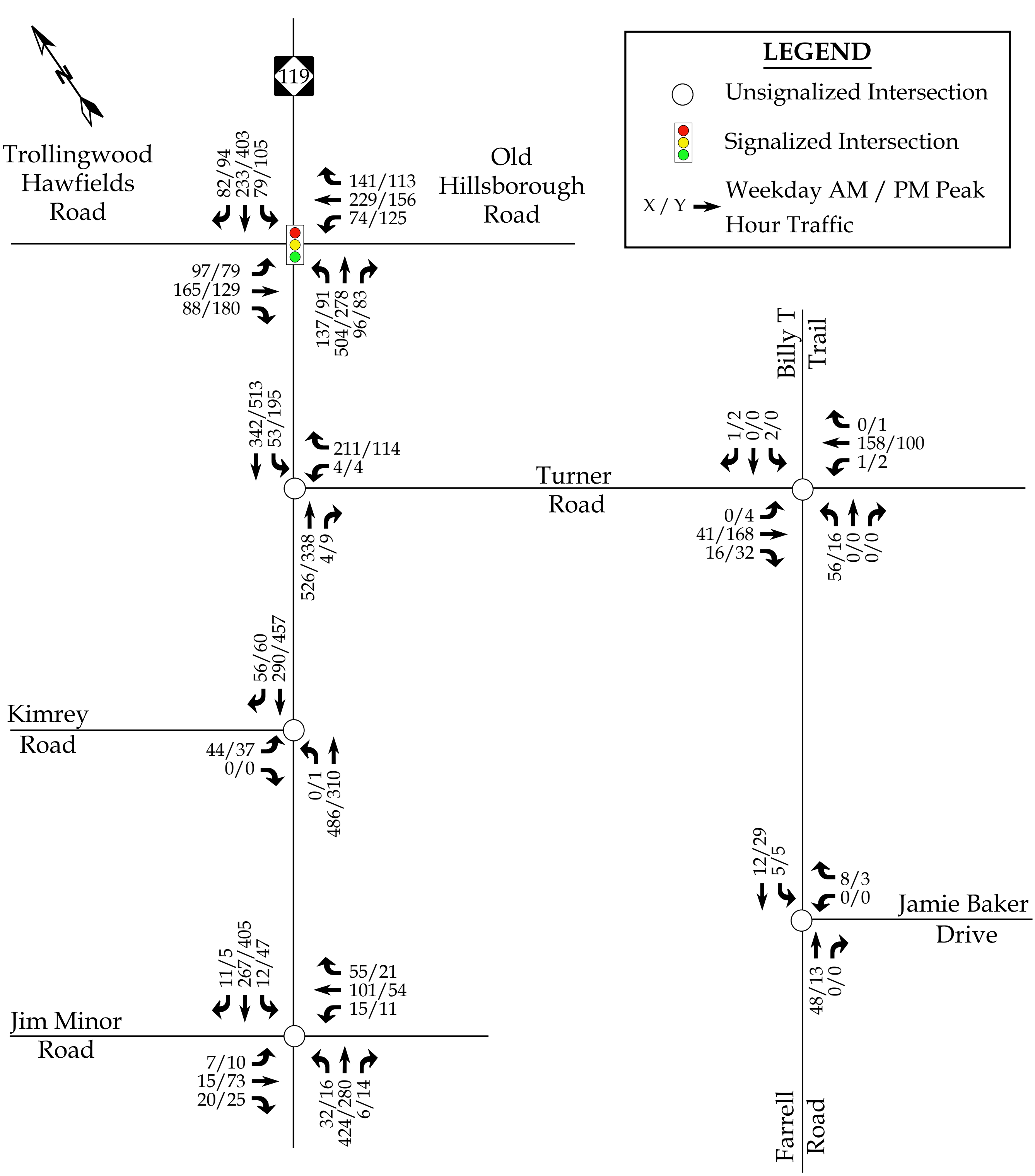
Existing peak hour traffic volumes were determined based on traffic counts conducted at the study intersections listed below, in October of 2017 or 2018 during typical weekday AM (7:00 AM – 9:00 AM) and PM (4:00 PM – 6:00 PM) peak periods:

- NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road (10/16/18)
- NC 119 and Turner Road (10/10/17)
- NC 119 and Kimrey Road (10/16/18)
- NC 119 and Jim Minor Road (10/16/18)
- Turner Road and Farrell Road / Billy T Trail (10/25/17)
- Farrell Road and Jamie Baker Drive (10/25/17)

All counts were projected to 2021 with an annual growth rate of 1%. Weekday AM and PM traffic volumes were balanced between study intersections. Refer to Figure 4 for the 2021 existing 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 2021 Existing Peak Hour Traffic Conditions

The 2021 existing 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.



Moving forward.

RAMEY KEMP ASSOCIATES

Hawfields Landing
Mebane, NC

2021 Existing
Peak Hour Traffic

Scale: Not to Scale

Figure 4

3. 2025 NO-BUILD PEAK HOUR CONDITIONS

In order to account for growth of traffic and subsequent traffic conditions at a future year, no-build traffic projections are needed. No-build 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. No-build 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 City and NCDOT, it was determined that an annual growth rate of 1% would be used to generate 2025 projected weekday AM and PM peak hour traffic volumes. Refer to Figure 5 for the 2025 projected peak hour traffic volumes.

3.2. Adjacent Development Traffic

Through coordination with the City and NCDOT, it was determined that there are six (6) adjacent developments that could affect the study area upon build out of the proposed development and should be accounted for in this study: Cambridge Park (residential), The Meadows (residential), Magnolia Glen (residential), Bradford Academy (school), Summerhaven Subdivision (residential) and Alamance County High School. Peak hour traffic associated with each of the adjacent developments was determined based on each developments TIA's and distributed to the roadway network accordingly. It should be noted that dismissal peak times for Bradford Academy and Alamance County High School are outside of the 4pm – 6pm PM peak hour, therefore only AM peak site trips were included. Total adjacent development traffic is illustrated in Figure 6. Adjacent development information can be found in Appendix D.

3.3. Future Roadway Improvements

Based on the traffic studies for the aforementioned adjacent developments and information provided by NCDOT, the following improvements were assumed to be in place at the study intersections upon full build out of the proposed development, and therefore were included in all future analyses:

NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road

- Extend the existing southbound left turn lane on NC 119 to provide 225 feet of full storage and appropriate transitions [Cambridge Park TIA].
- Construct an exclusive westbound right turn lane on Old Hillsborough Road with 150 feet of full storage and appropriate deceleration taper [Cambridge Park TIA].
- Widen NC 119, north of Trollingwood Hawfields Road / Old Hillsborough Road to allow for a full southbound right turn lane {NCDOT State Transportation Improvement Program (STIP) project U-6013].

NC 119 and Turner Road

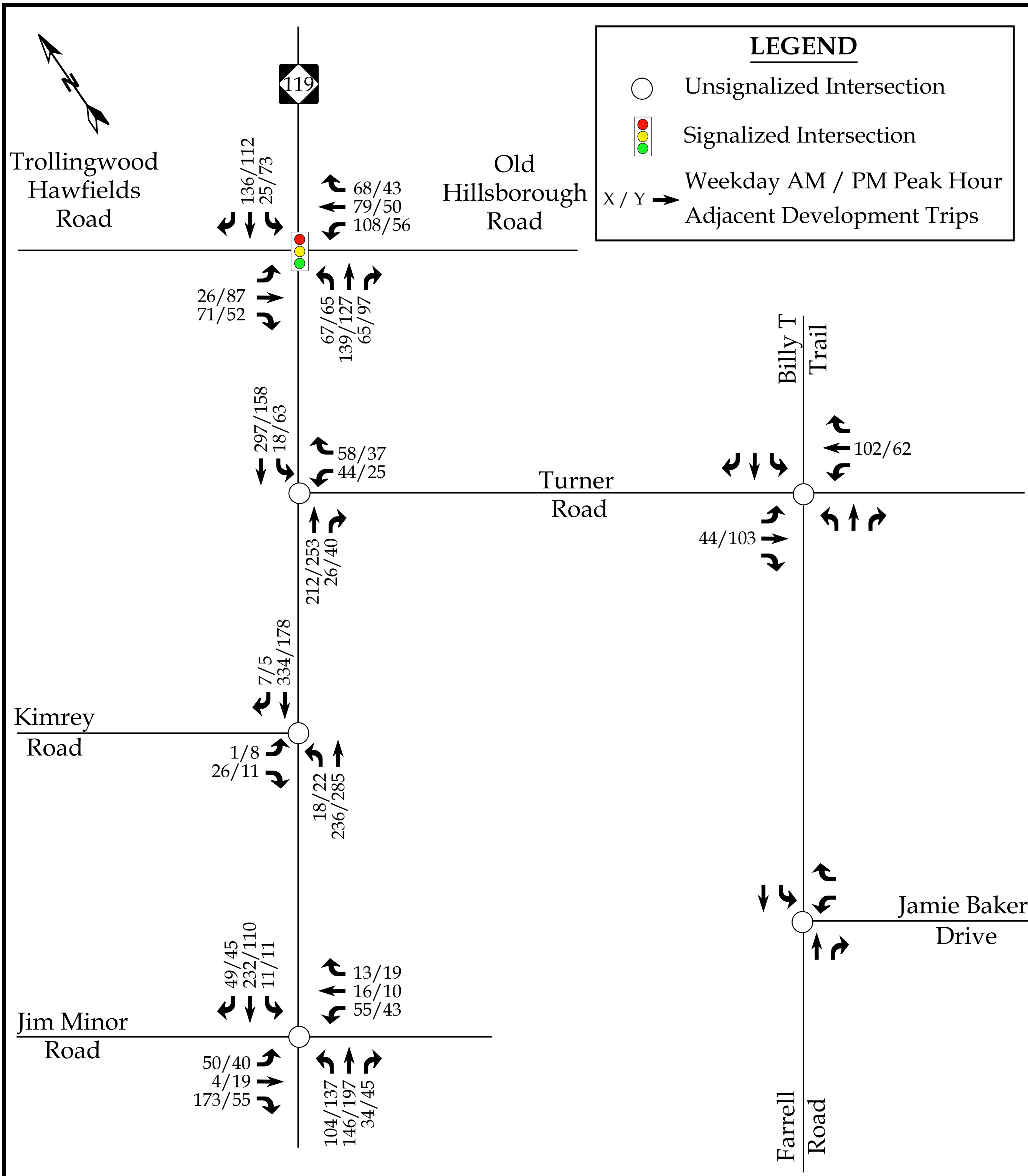
- Construct an exclusive westbound right turn lane on Turner Road with 100 feet of full storage and appropriate deceleration taper [Cambridge Park TIA].
- Construct an exclusive southbound left turn lane on NC 119 with 125 feet of full storage and appropriate transitions [Cambridge Park TIA].

3.4. 2025 No-Build Peak Hour Traffic Volumes

The 2025 no-build traffic volumes were determined by adding the adjacent development trips to the 2025 projected traffic volumes. Refer to Figure 7 for an illustration of the 2025 no-build peak hour traffic volumes at the study intersections.

3.5. Analysis of 2025 No-Build Peak Hour Traffic Conditions

The 2025 no-build 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.

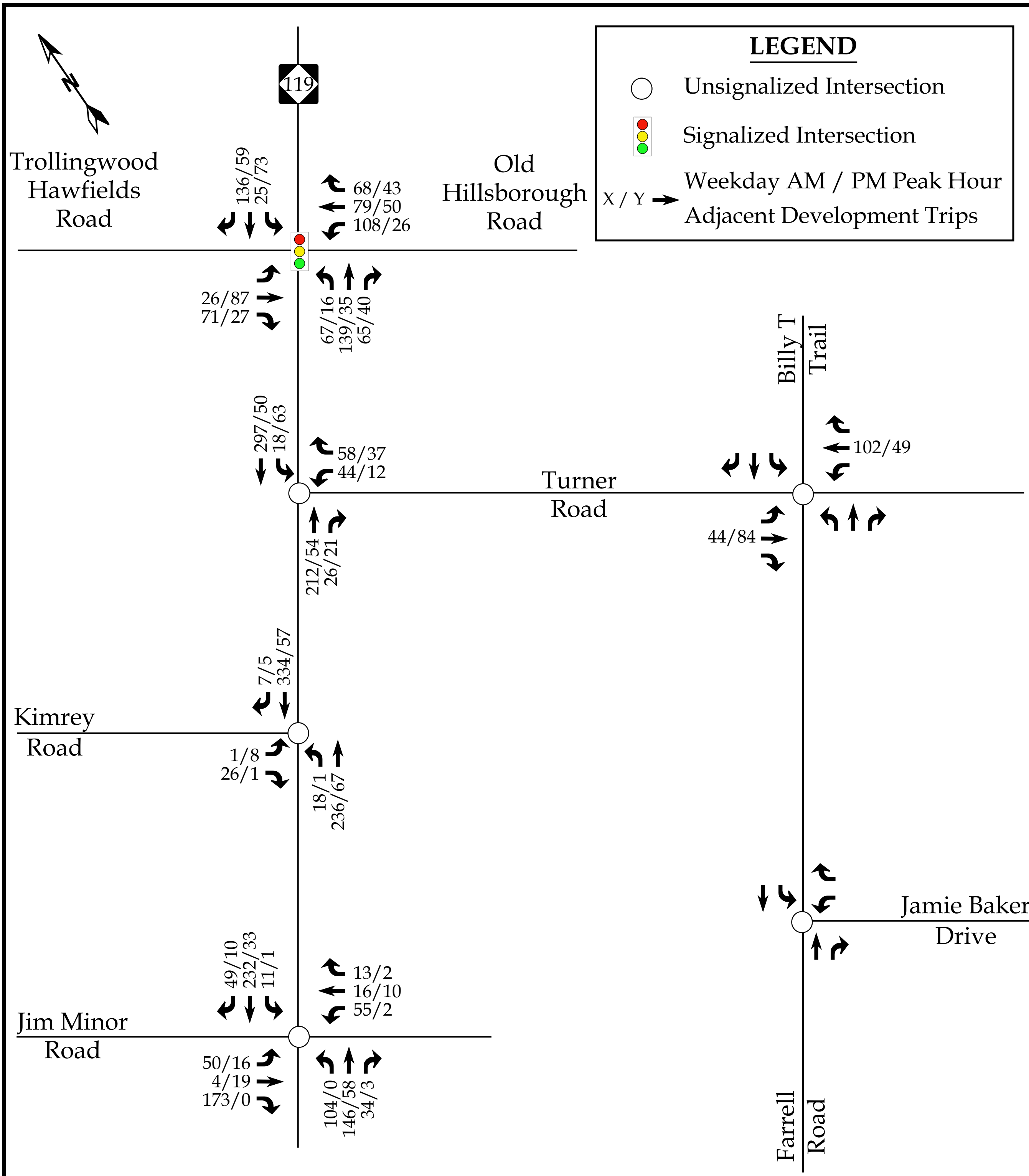


Hawfields Landing
Mebane, NC

Peak Hour Adjacent Developement Trips

Scale: Not to Scale

Figure 6



Moving forward.

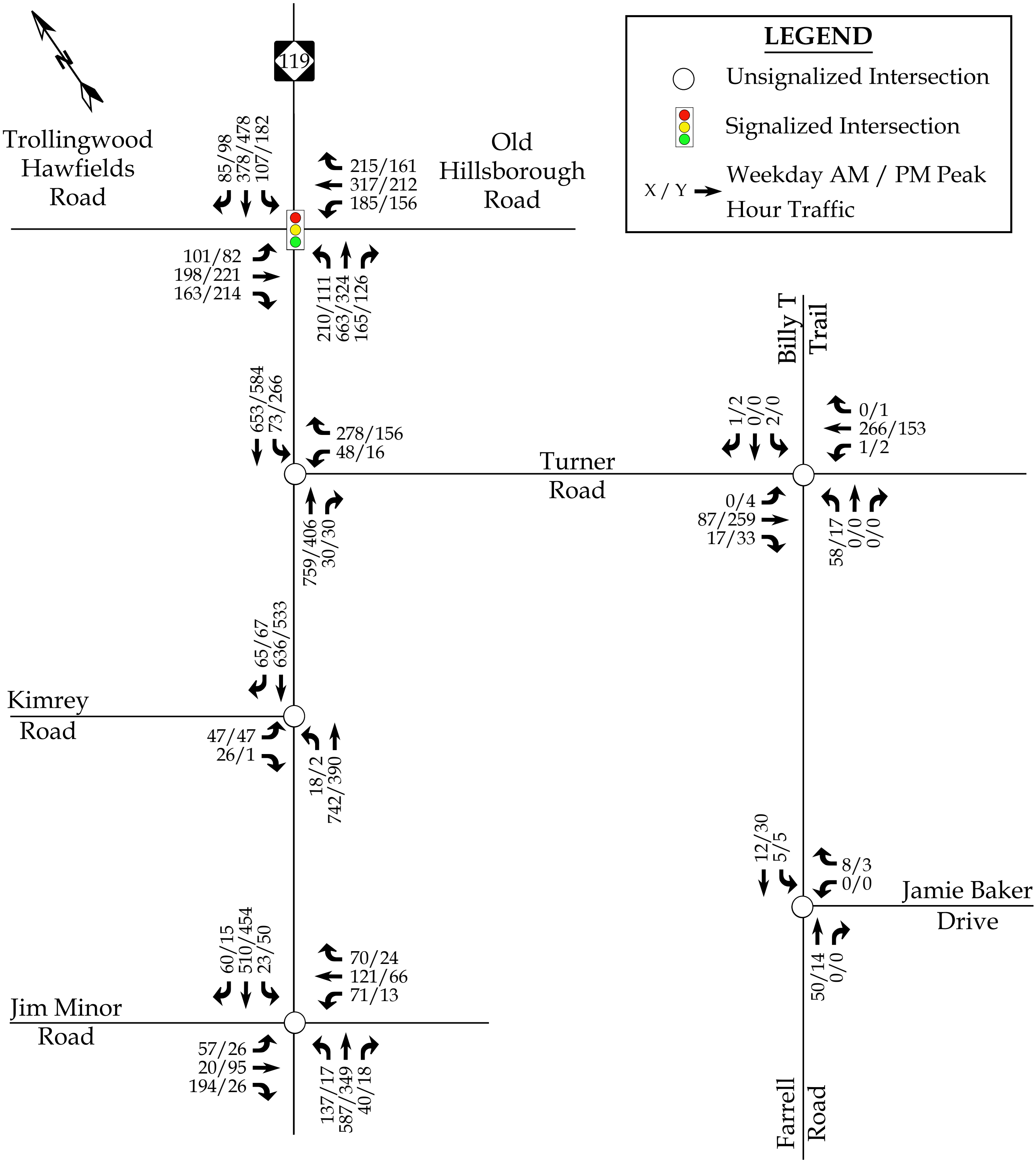
RAMEY KEMP ASSOCIATES

Hawfields Landing
Mebane, NC

Peak Hour Adjacent Developement Trips

Scale: Not to Scale

Figure 6



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Hawfields Landing Mebane, NC	2025 No-Build Peak Hour Traffic	
	Scale: Not to Scale	Figure 7

4. SITE TRIP GENERATION AND DISTRIBUTION

4.1. Trip Generation

The proposed development is assumed to consist of up to 351 single family homes and 160 townhomes. 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)	Weekday AM Peak Hour Trips (vph)		Weekday PM Peak Hour Trips (vph)	
			Enter	Exit	Enter	Exit
Single-Family Detached Housing (210)	351 DU	3,301	63	191	214	125
Low-Rise Multifamily Housing (220)	160 DU	1,169	17	58	57	33
Total Trips		**4,470**	**80**	**249**	**271**	**158**

*Utilizing methodology contained in the NCHRP Report 684.

It is estimated that the proposed development could generate up to 4,470 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 329 trips (80 entering and 249 exiting) will occur during the weekday AM peak hour and 429 trips (271 entering and 158 exiting) will occur during the weekday PM peak hour.

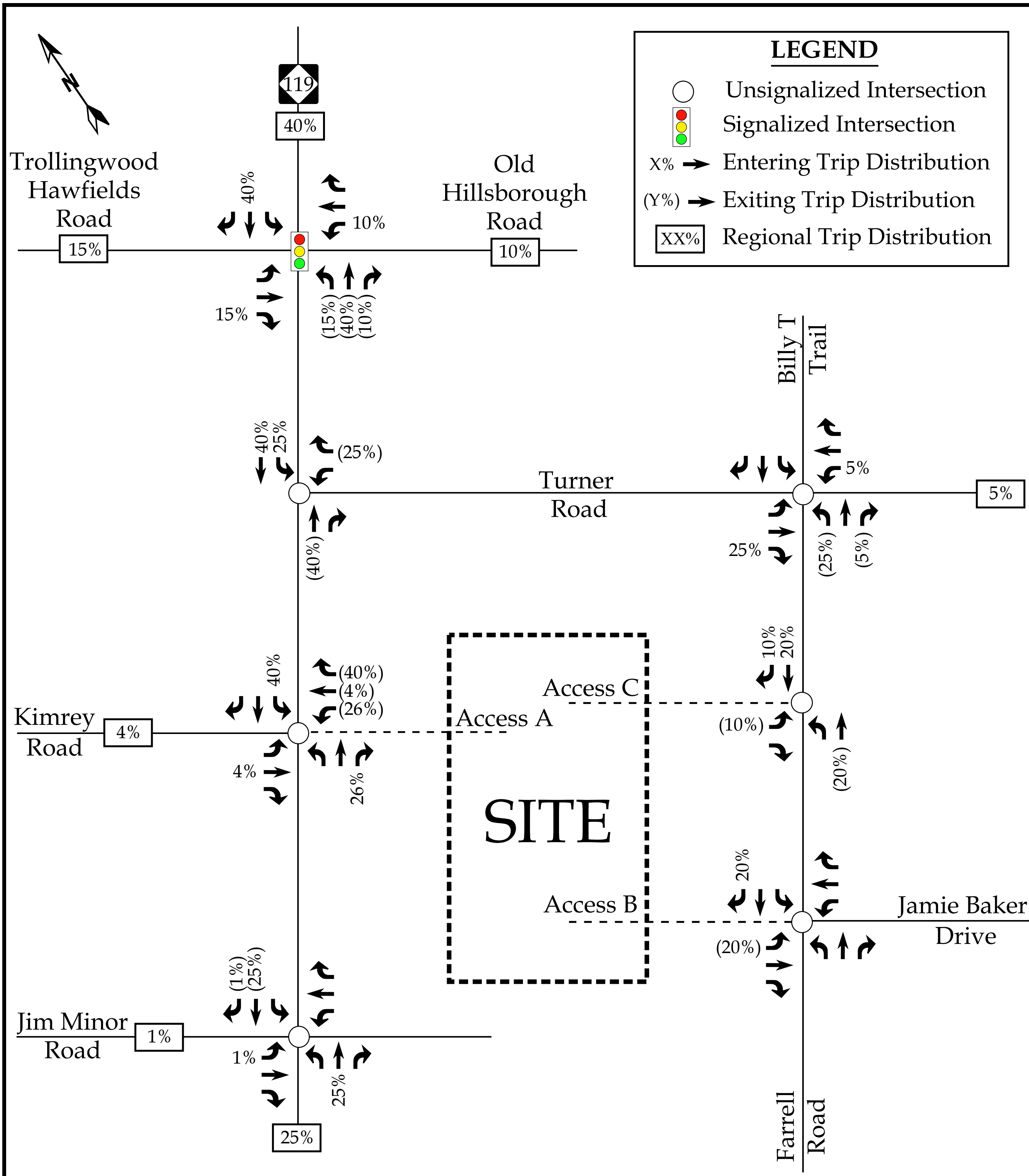
4.2. Site Trip Distribution and Assignment

Trip distribution percentages used in assigning site traffic for this development were estimated based on a combination of existing traffic patterns and engineering judgment.

It is estimated that the site trips will be regionally distributed as follows:

- 40% to/from the north via NC 119
- 25% to/from the south via NC 119
- 15% to/from the west via Trollingwood Hawfields Road
- 10% to/from the east via Old Hillsborough Road
- 4% to/from the west via Kimrey Road
- 1% to/from the west via Jim Minor Road
- 5% to/from the east via Turner Road

Refer to Figures 8 and 9 for illustrations of the site trip distribution and assignment, respectively.



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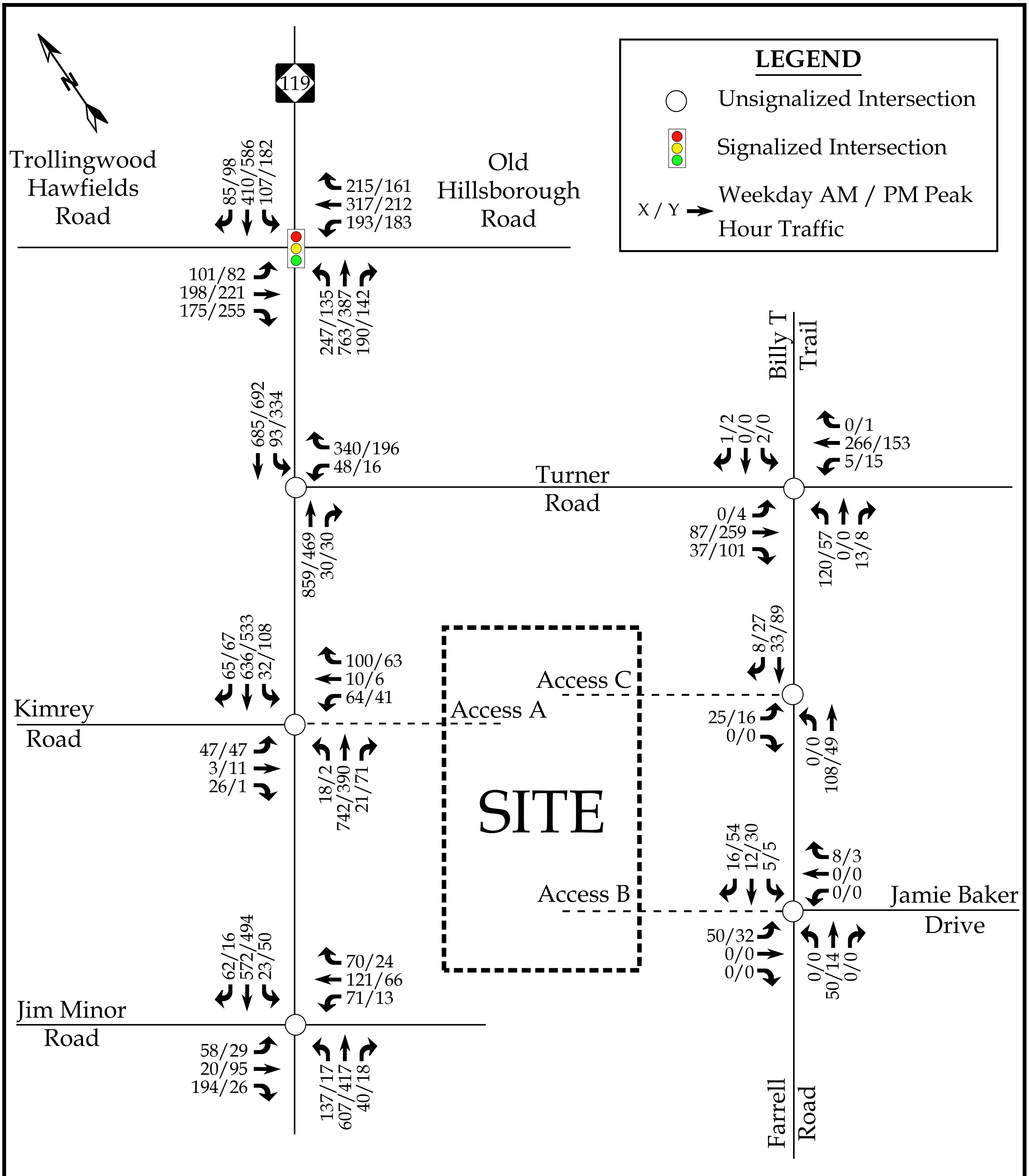
Hawfields Landing
Mebane, NC

Site Trip Distribution

Scale: Not to Scale

Figure 8



Moving forward.

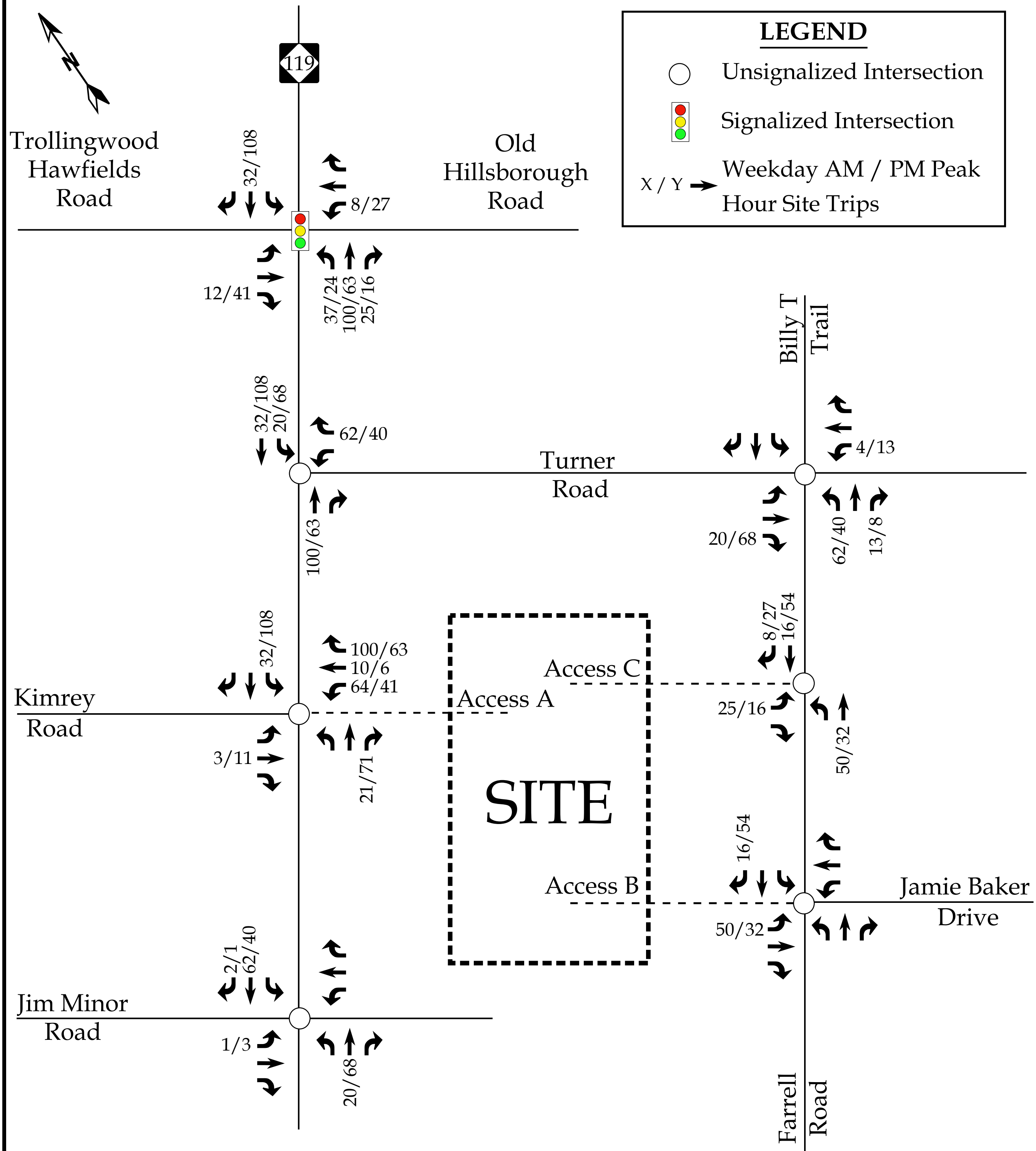
RAMEY KEMP ASSOCIATES

Hawfields Landing
Mebane, NC

2025 Build
Peak Hour Traffic

Scale: Not to Scale

Figure 10



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RKA RAMEY KEMP ASSOCIATES

Hawfields Landing
Mebane, NC

Site Trip Assignment

Scale: Not to Scale

Figure 9

5. 2025 BUILD TRAFFIC CONDITIONS

5.1. 2025 Build Peak Hour Traffic Volumes

To estimate traffic conditions with the site fully built-out, the total site trips were added to the 2025 no-build traffic volumes. Refer to Figure 10 for an illustration of the 2025 build peak hour traffic volumes with the proposed site fully developed.

5.2. Analysis of 2025 Build Peak Hour Traffic Conditions

Study intersections were analyzed with the 2025 build traffic volumes using the same methodology previously discussed for existing and no-build traffic conditions. 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 *Highway Capacity Manual* (HCM), 6th Edition 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 10.3), 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. NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road

The existing signalized intersection was analyzed under all traffic conditions with the lane configurations and traffic control shown in Table 4. Refer to Table 4 for a summary of the analysis results. Refer to Appendix E for the Synchro capacity analysis reports and Appendix L for SimTraffic queue reports.

Table 4: Analysis Summary of NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	**Overall (seconds)**	**Approach**	**Overall (seconds)**
2021 Existing	EB	1 LT, TH-RT	D (36.3)	D (39.4)	D (46.5)	C (34.3)
	WB	1 LT, TH-RT	D (54.9)		D (37.4)	
	NB	1 LT, TH-RT	D (38.3)		C (26.4)	
	SB	1 LT, TH-RT	C (26.6)		C (30.3)	
2025 No-Build	EB	1 LT, TH-RT	F (115.3)	F (83.9)	E (73.2)	E (60.8)
	WB	1 LT, 1 TH, *1 RT*	E (79.5)		D (49.5)	
	NB	1 LT, TH-RT	F (85.2)		E (68.6)	
	SB	1 LT, 1 TH, 1 RT	E (61.5)		D (54.6)	
2025 Build	EB	1 LT, TH-RT	F (155.4)	F (104.5)	F (93.3)	F (82.2)
	WB	1 LT, 1 TH, *1 RT*	F (96.4)		E (63.5)	
	NB	1 LT, TH-RT	F (109.4)		F (93.0)	
	SB	1 LT, 1 TH, 1 RT	E (64.5)		F (78.9)	
2025 Build – Improvements	EB	1 LT, TH, **1 RT**	F (101.7)	F (81.1)	D (54.2)	D (51.3)
	WB	1 LT, 1 TH, *1 RT*	F (103.1)		D (49.1)	
	NB	1 LT, TH-RT	E (73.2)		E (55.6)	
	SB	1 LT, 1 TH, 1 RT	D (54.3)		D (47.6)	

NC 119 = NB / SB, Trollingwood Hawfields Road / Old Hillsborough Road = EB / WB
- *Improvement recommended in an approved development TIA.*
- Improvement from STIP U-6013
- **Proposed improvements and/or revised lane configurations denoted in bold.**

Capacity analysis indicated that under existing conditions, the overall intersection and approaches operate at LOS D or better during the AM and PM peak hours.

Under no-build traffic conditions [with the addition of the adjacent development traffic volumes], the overall intersection is expected to operate at LOS F and LOS E during the AM and PM peak hours, respectively. All intersection approaches are expected to operate at LOS E or better with the exception of the northbound approach of NC 119 during the PM peak hour. Significant queuing issues are expected during the AM and PM peak hours under no-build traffic conditions.

Under build traffic conditions [with the addition of the proposed development traffic], the overall intersection is expected to operate at LOS F during the AM and PM peak hours. Additionally, each intersection approach is expected to experience increased delays and less than desirable levels of operation.

Due to the increased delays and expected less than desirable levels of operation, mitigation was considered at this intersection. With the addition of an exclusive eastbound right turn lane on the eastbound approach of Trollingwood-Hawfields Road, the signalized intersection and its approaches are expected operate at similar levels as those expected under no-build conditions. This improvement is pending SHPO and NCDOT approval due to existing right of way constraints.

Although the intersection is expected to operate at a less than desirable level of operation, this is only expected to last for a short time during the AM peak hour that correlates with the student drop-off times for the surrounding schools; therefore, no additional improvements are recommended.

7.2. NC 119 and Turner Road

The existing unsignalized intersection was analyzed under all traffic conditions with the lane configurations and traffic control shown in Table 5. Refer to Table 5 for a summary of the analysis results. Refer to Appendix F for the Synchro capacity analysis reports and Appendix L for SimTraffic queue reports.

Table 5: Analysis Summary of NC 119 and Turner Road

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	WB[2] NB SB[1]	1 LT-RT 1 TH-RT 1 LT-TH	C (18.7) -- A (8.9)	N/A	B (13.1) -- A (8.8)	N/A
2025 No-Build	WB[2] NB SB[1]	1 LT, *1 RT* 1 TH-RT *1 LT*, 1 TH	F (61.7) -- B (10.2)	N/A	C (18.7) -- A (9.6)	N/A
2025 Build	WB[2] NB SB[1]	1 LT, *1 RT* 1 TH-RT *1 LT*, 1 TH	F (167.7) -- B (11.0)	N/A	D (26.8) -- B (10.6)	N/A

NC 119 = NB / SB, Turner Road = WB

- *Improvement recommended in an approved development TIA.*
- **Proposed improvements and/or revised lane configurations denoted in bold.**

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

Capacity analysis indicates that under existing conditions, the major street left turn movement operates at LOS A during the AM and PM peak hours. Additionally, the minor street approach stop-controlled approach is expected to operate at LOS C or better during the AM and PM peak hours.

Under no-build traffic conditions [with the addition of the adjacent development traffic volumes], the major street left turn movement is expected to at LOS B or better during the AM and PM peak hours. Additionally, the minor street approach is expected to operate at LOS F during the AM peak hour and LOS C during the PM peak hour. There is expected to be significant queuing issues during the AM peak hour under no-build traffic conditions. It should be noted that northbound queues at the signalized intersection are expected to queue into the intersection of NC 119 and Turner Road and cause significant westbound queues along Turner Road.

Under build traffic conditions [with the addition of the proposed development traffic], the major street left turn movement is expected to at LOS B during the AM and PM peak hours. Additionally, the minor street approach is expected to continue operating at LOS F during the AM peak hour and is expected to operate at an acceptable LOS D during the PM peak hour.

Although the stop-controlled approach is expected to operate at a less than desirable level of operation, this is only expected to last for a short time during the AM peak hour that correlates with the student drop-off times for the surrounding schools; therefore, no additional improvements are recommended.

It should be mentioned that a traffic signal warrant analysis [as requested by the City] was completed for this intersection. Under no-build traffic conditions [without the proposed developments site trips], a signal is warranted. Therefore, NCDOT and the City should consider the installation of a traffic signal. See Appendix M for the traffic signal warrant calculations.

7.3. NC 119 and Kimrey Road/Access A

The existing unsignalized intersection of was analyzed under all traffic conditions with the lane configurations and traffic control shown in Table 6. Refer to Table 6 for a summary of the analysis results. Refer to Appendix G for the Synchro capacity analysis reports and Appendix L for SimTraffic queue reports.

Table 6: Analysis Summary of NC 119 and Kimrey Road/Access A

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	EB[2] NB[1] SB	1 LT-RT 1 LT-TH 1 TH-RT	C (18.4) A (8.1) --	N/A	C (18.2) A (8.6) --	N/A
2025 No-Build	EB[2] NB[1] SB	1 LT-RT 1 LT-TH 1 TH-RT	F (54.2) A (9.4) --	N/A	C (23.2) A (8.9) --	N/A
2025 Build	EB[2] WB[2] NB[1] SB[1]	1 LT-TH-RT 1 LT-TH, **1 RT** 1 LT-TH, **1 RT** **1 LT**, 1 TH-RT	F (395.9) F (149.6) A (9.4) A (9.8)	N/A	F (92.2) D (32.6) A (8.9) A (8.9)	N/A
2025 Build - Improvements **(Signal)**	EB[2] WB[2] NB[1] SB[1]	1 LT-TH-RT 1 LT-TH, **1 RT** 1 LT-TH, **1 RT** **1 LT**, 1 TH-RT	D (47.2) C (29.2) C (21.5) B (11.6)	B (19.2)	D (37.2) B (18.2) C (21.2) B (16.8)	B (19.4)

NC 119 = NB / SB, Kimrey Road = EB, Access A = WB
- **Proposed improvements and/or revised lane configurations denoted in bold.**
1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Capacity analysis indicates that the major street left turn movements are expected to operate at LOS A during the AM and PM peak hours under all traffic conditions.

Under existing traffic conditions, the minor street approach of Kimrey Road operates at LOS C during the AM and PM peak hours.

Under no-build traffic conditions [with the addition of the adjacent development traffic volumes], the minor street approach of Kimrey Road is expected to operate at LOS F during the AM peak hour and LOS C during the PM peak hours.

Under build traffic conditions [with the addition of the proposed development traffic], the minor street approach of Kimrey Road is expected to operate at LOS F during the AM and PM peak hours, while the minor street approach of the proposed site access is expected to operate at LOS F and LOS D during the AM and PM peak hours, respectively.

Exclusive northbound right and southbound left turn lanes on NC 119 were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways* and are warranted on both approaches.

Although heavy delays could be expected for the side-street approaches during the AM and PM peak hours, this is only expected to last for a short time during the AM peak hour that correlates with the student drop-off times for the surrounding schools. Additionally, based on the SimTraffic Performance Reports [which takes into accounts gaps created by nearby signals], delays are not expected to exceed 68.0 seconds under build traffic conditions. Excessive queues are also not expected to be an issue at this intersection; therefore, additional improvements were not recommended.

It should be mentioned that a traffic signal warrant analysis [as requested by the City] was completed for this intersection. Under build traffic conditions, a signal is warranted. Therefore, a traffic signal is recommended. With the traffic signal, the overall intersection is expected to operate at LOS B during the build improvement traffic conditions for the AM and PM peak hours. See Appendix M for the traffic signal warrant calculations.

7.4. NC 119 and Jim Minor Road

The existing unsignalized intersection was analyzed under all traffic conditions with the existing lane configurations and traffic control shown in Table 7. Refer to Table 7 for a summary of the analysis results. Refer to Appendix H for the Synchro capacity analysis reports and Appendix L for Simtraffic queue reports.

Table 7: Analysis Summary of NC 119 and Jim Minor Road

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	EB[2] WB[2] NB[1] SB[1]	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	C (18.5) D (31.3) A (8.0) A (8.4)	N/A	D (27.6) C (24.9) A (8.3) A (8.0)	N/A
2025 No-Build	EB[2] WB[2] NB[1] SB[1]	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	* F (2276.6) A (9.5) A (9.1)	N/A	F (73.9) E (42.7) A (8.5) A (8.3)	N/A
2025 Build	EB[2] WB[2] NB[1] SB[1]	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	* F (3109.2) A (9.9) A (9.2)	N/A	F (140) F (66.3) A (8.7) A (8.5)	N/A

NC 119 = NB / SB, Jim Minor Road = EB / WB
- **Proposed improvements and/or revised lane configurations denoted in bold.**

*Due to limitations of Synchro, LOS could not be calculated.
1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Capacity analysis indicates that the major street left turn movements are expected to operate at LOS A during the AM and PM peak hours under all traffic conditions.

Under existing traffic conditions, the minor street approaches of Jim Minor Road operate at LOS D or better.

Under no-build traffic conditions [with the addition of the adjacent development traffic volumes], the minor street approaches of Jim Minor Road are expected to experience significant and operate at LOS E or LOS F during the AM and PM peak hours.

Although the proposed development is expected to add traffic to this intersection under build traffic conditions, it is only expected to contribute approximately 4% and 9% of the total traffic at the intersection during the AM and PM peak hours, respectively. Due to the excessive delays expected with the construction of the two new nearby schools, and the relatively low traffic volume impact from the proposed development, no improvements are being recommended. Additionally, due to historical properties located adjacent to the intersection, limited right-of-way is anticipated.

It should be mentioned that a traffic signal warrant analysis [as requested by the City] was completed for this intersection. Under no-build traffic conditions [without the proposed developments site trips], a signal is warranted. Therefore, NCDOT and the City should consider the installation of a traffic signal. See Appendix M for the traffic signal warrant calculations.

7.5. Turner Road and Farrell Road/Billy T Trail

The existing unsignalized intersection was analyzed under all traffic conditions with the existing lane configurations and traffic control in Table 8. Refer to Table 8 for a summary of the analysis results. Refer to Appendix I for the Synchro capacity analysis reports and Appendix L for Simtraffic queue reports.

Table 8: Analysis Summary of Turner Road and Farrell Road/Billy T Trail

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	EB[1] WB[1] NB[2] SB[2]	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	A (7.6) A (7.3) B (10.7) B (10.1)	N/A	A (7.4) A (7.7) B (11.0) A (8.8)	N/A
2025 No-Build	EB[1] WB[1] NB[2] SB[2]	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	A (7.9) A (7.5) B (12.6) B (11.4)	N/A	A (7.6) A (7.9) B (12.6) B (11.7)	N/A
2025 Build	EB[1] WB[1] NB[2] SB[2]	1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT 1 LT-TH-RT	A (7.9) A (7.5) B (14.3) B (11.5)	N/A	A (7.6) A (8.2) B (14.8) B (12.4)	N/A

Turner Road = EB / WB, Farrell Road / Billy T Trail = NB / SB

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

Capacity analysis indicates that the major street left turn movements and the minor street approaches are expected to operate at LOS B or better during the AM and PM peak hours, respectively.

Due to minimal impacts of the site trips to the intersection, no improvements are recommended.

7.6. Farrell Road and Jamie Baker Drive/Access B

The existing unsignalized intersection was analyzed under all traffic conditions with the lane configurations and traffic control shown in Table 9. Refer to Table 9 for a summary of the analysis results. Refer to Appendix J for the Synchro capacity analysis reports and Appendix L for SimTraffic queue reports.

Table 9: Analysis Summary of Farrell Road and Jamie Baker Drive/Access B

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2021 Existing	WB[2] NB SB[1]	1 LT-RT 1 TH-RT 1 LT-TH	A (8.7) -- A (7.3)	N/A	A (8.4) -- A (7.3)	N/A
2025 No-Build	WB[2] NB SB[1]	1 LT-RT 1 TH-RT 1 LT-TH	A (8.7) -- A (7.3)	N/A	A (8.6) -- A (7.3)	N/A
2025 Build	EB[2] WB[2] NB[1] SB[1]	**1 LT-TH-RT** 1 LT-**TH**-RT **1 LT**-TH-RT 1 LT-TH-**RT**	A (9.5) A (9.1) A (7.3) A (7.3)	N/A	A (9.4) A (9.2) A (7.4) A (7.3)	N/A

Farrell Road = NB / SB, Farrell Road = WB, Access B = EB
Proposed improvements and/or revised lane configurations denoted in bold.
1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach.

Capacity analysis indicates that the major street left turn movements and the side street approaches are expected to operate at LOS A during the AM and PM peak hours under all traffic conditions.

Turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways* and are not warranted based on AM and PM peak hour traffic volumes.

7.7. Farrell Road and Access C

The proposed unsignalized intersection of Farrell Road and Access C was analyzed under 2025 build traffic conditions with the lane configurations and traffic control shown in Table 10. Refer to Table 10 for a summary of the analysis results. Refer to Appendix K for the Synchro capacity analysis reports and Appendix L for SimTraffic queue reports.

Table 10: Analysis Summary of Farrell Road and Access C

ANALYSIS SCENARIO	APPROACH	LANE CONFIGURATIONS	WEEKDAY AM PEAK HOUR LEVEL OF SERVICE		WEEKDAY PM PEAK HOUR LEVEL OF SERVICE	
			Approach	Overall (seconds)	Approach	Overall (seconds)
2025 Build	EB[2] NB SB[1]	**1 LT-RT** **1 LT**-TH 1 TH-**RT**	A (9.4) A (7.3) --	N/A	A (9.4) A (7.5) ---	N/A

Farrell Road = NB / SB, Access C = EB
Proposed improvements and/or revised lane configurations denoted in bold.
1. Level of service for major-street left-turn movement.
2. Level of service for minor-street approach

Capacity analysis of 2025 build traffic conditions indicates that the major-street left turn movements and the side-street approach of Access C are expected to operate at LOS A during the weekday AM and PM peak hours.

Turn lanes were considered based on the NCDOT *Policy on Street and Driveway Access to North Carolina Highways* and are not warranted based on AM and PM peak hour traffic volumes.

8. CONCLUSIONS

This TIA was conducted to determine the potential traffic impacts of the proposed Hawfields Landing development to be located south of NC 119 and west of Turner Road in Mebane, North Carolina. The proposed development, anticipated to be completed in 2025, is assumed to consist of up to 351 single family homes and 160 townhomes. Access to the proposed development is to be provided via three (3) new full movement driveway connections: one (1) on NC 119 [located opposite Kimrey Road] and two (2) on Farrell Road [one located opposite Jamie Baker Drive and the other located approximately 1,000 feet to the north].

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

- 2021 Existing Traffic Conditions
- 2025 No-Build Traffic Conditions
- 2025 Build Traffic Conditions

Trip Generation

It is estimated that the proposed development could generate up to 4,470 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 329 trips (80 entering and 249 exiting) will occur during the weekday AM peak hour and 429 trips (271 entering and 158 exiting) will occur during the weekday PM peak hour.

Multimodal Analysis

Based on coordination with the City, it was noted that there is no transit system in the area; therefore, the transit mode was not taken into account for this study. There are currently no accommodations for pedestrian and bicycle modes on NC 119. Based on information provided by the developer, in order to accommodate the pedestrian and bicycle modes, sidewalks will be provided internally within the site as well as along the entire frontage of the subject property on NC 119.

Adjustments to Analysis Guidelines

Capacity analysis at all study intersections was completed according to 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 intersections listed below. A summary of the study area intersections that are expected to need improvements are as follows:

NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road

Under no-build traffic conditions [with the addition of the adjacent development traffic volumes], the overall intersection is expected to operate at LOS F and LOS E during the AM and PM peak hours, respectively. All intersection approaches are expected to operate at LOS E or better with the exception of the northbound approach of NC 119 during the PM peak hour. Significant queuing issues are expected during the AM and PM peak hours under no-build traffic conditions.

Under build traffic conditions [with the addition of the proposed development traffic], the overall intersection is expected to operate at LOS F during the AM and PM peak hours. Additionally, each intersection approach is expected to experience increased delays and less than desirable levels of operation.

With the addition of an exclusive eastbound right turn lane on the eastbound approach of Trollingwood-Hawfields Road, the signalized intersection and its approaches are expected operate at similar levels as those expected under no-build conditions.

NC 119 and Turner Road

Under no-build traffic conditions [with the addition of the adjacent development traffic volumes], the major street left turn movement is expected to at LOS B or better during the AM and PM peak hours. Additionally, the minor street approach is expected to operate at LOS F during the AM peak hour and LOS C during the PM peak hour. There is expected to be significant queuing issues during the AM peak hour under no-build traffic conditions. It should be noted that northbound queues at the signalized intersection are expected to queue into the intersection of NC 119 and Turner Road and cause significant westbound queues along Turner Road.

Under build traffic conditions [with the addition of the proposed development traffic], the major street left turn movement is expected to at LOS B during the AM and PM peak hours. Additionally, the minor street approach is expected to continue operating at LOS F during the AM peak hour and is expected to operate at an acceptable LOS D during the PM peak hour.

NC 119 and Kimrey Road / Access A

Under no-build traffic conditions [with the addition of the adjacent development traffic volumes], the minor street approach of Kimrey Road is expected to operate at LOS F during the AM peak hour and LOS C during the PM peak hours.

Under build traffic conditions [with the addition of the proposed development traffic], the minor street approach of Kimrey Road is expected to operate at LOS F during the AM and PM peak hours, while the minor street approach of the proposed site access is expected to operate at LOS F and LOS D during the AM and PM peak hours, respectively.

A traffic signal warrant analysis was completed for this intersection. Under build traffic conditions and a signal is warranted.

NC 119 and Jim Minor Road

Under no-build traffic conditions [with the addition of the adjacent development traffic volumes], the minor street approaches of Jim Minor Road are expected to experience significant and operate at LOS E or LOS F during the AM and PM peak hours.

The proposed development is only expected to contribute approximately 4% and 9% of the total traffic at the intersection during the AM and PM peak hours, respectively.

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

NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road

- Provide an exclusive eastbound right-turn lane with at least 50 feet of storage and appropriate taper.

NC 119 and Kimrey Road / Access A

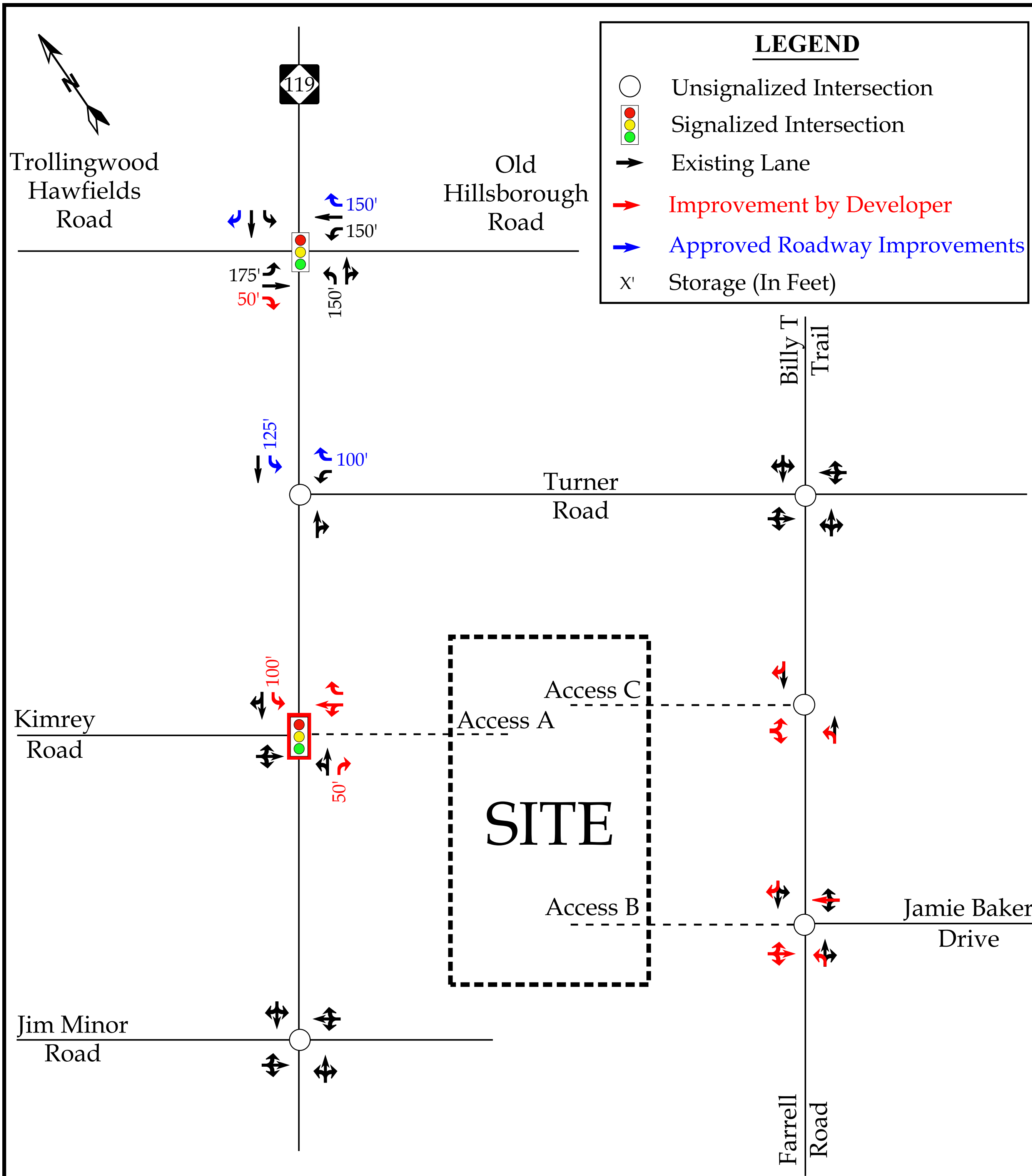
- Install traffic signal.
- Provide an exclusive northbound right-turn lane on NC 119 with at least 50 feet of storage and appropriate taper.
- Provide an exclusive southbound left-turn lane on NC 119 with at least 100 feet of storage and appropriate decel and taper.
- Construct Access A with one ingress lane and two egress lanes striped as a shared left/through lane and an exclusive right-turn lane.

Farrell Road and Jamie Baker Drive / Access B

- Construct Access A with one ingress lane and one egress lane.

Farrell Road and Access C

- Construct Access C with one ingress lane and one egress lane.



Moving forward.

RAMEY KEMP ASSOCIATES

Hawfields Landing
Mebane, NC

Recommended Lane Configurations

Scale: Not to Scale

Figure 11

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

March 23, 2022

ALAMANCE COUNTY

Chase Smith, PE
Ramey Kemp & Associates, Inc.
5808 Faringdon Place, Suite 100
Raleigh, NC 27609

Subject: Proposed Hawfields Landing Located on NC 119 and Farrell Road (SR 2134).
Review of TIA Dated February 2022

Dear Mr. Smith,

NCDOT staff has completed a collaborative review with the City of Mebane of the above subject. Based on the information provided we offer the following comments with regards to the State Road network.

General:

The proposed development is to be located south of NC 119 and west of Turner Road in Mebane, North Carolina. This site will consist of up to 351 single family homes and 160 apartments and would be accessed via three site driveways: one along NC 119 and two along Farrell Road. This site is expected to generate approximately 4,470 new daily trips at full build-out in 2025.

NCDOT Committed Improvements:

NCDOT Transportation Improvement Project U-6013 includes widening NC 119 to multi-lanes, north of Trollingwood Hawfields Road / Old Hillsborough Road. This project is scheduled to let in 2023 with completion in 2026.

This improvement was considered in future analysis scenarios.

Future Roadway Improvements By Others:

At the intersection of NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road, extend the existing southbound left turn lane on NC 119 to provide 225 feet of full storage and appropriate transitions and construct an exclusive westbound right turn lane on Old Hillsborough Road with 150 feet of full storage and appropriate deceleration taper as part of the Cambridge Park project.

At the intersection of NC 119 and Turner Road, construct an exclusive westbound right turn lane on Turner Road with 100 feet of full storage and appropriate deceleration taper and construct an exclusive southbound left turn lane on NC 119 with 125 feet of full storage and appropriate transitions as part of the Cambridge Park project.

These improvements were considered in future analysis scenarios.

Findings and Requirements:

Based on the information provided, the developer will be required to construct the following road improvements to mitigate the anticipated impacts of site traffic.

NC 119 and Trollingwood Hawfields Road / Old Hillsborough Road

- Subject to available right of way and environmental constraints, provide an exclusive eastbound right-turn lane with 100 feet of storage and appropriate deceleration taper.

NC 119 and Kimrey Road / Access A

- Install traffic signal.
- Provide an exclusive northbound right-turn lane on NC 119 with 100 feet of storage and appropriate deceleration taper.
- Provide exclusive northbound and southbound left-turn lanes on NC 119 with 100 feet of storage and appropriate transitions.
- Construct Access A with one ingress lane and two egress lanes consisting of a shared left/through lane and an exclusive right-turn lane.

Farrell Road and Jamie Baker Drive / Access B

- Construct Access B with one ingress lane and one egress lane under stop control.

Farrell Road and Access C

- Construct Access C with one ingress lane and one egress lane under stop control.

Multi-modal and Streetscape Enhancements:

Any locally stipulated multi-modal enhancements including but not limited to sidewalk, bike lanes, bus pull offs, lighting, landscaping etc. on State maintained routes are subject to NCDOT requirements and approval through the encroachment process.

General Requirements:

It is necessary to obtain an approved driveway permit and/or encroachment agreement(s) prior to performing work on the NCDOT right of way. As a condition of the permit, the permitee shall be responsible for design and construction of the above stipulated improvements in accordance with NCDOT requirements. An approved permit will be issued upon receipt of approved site plan, roadway and signal construction plans as needed, inspection fee, and any necessary performance and indemnity bonds.

The applicant shall dedicate any additional right of way necessary to accommodate the required road improvements or future improvements as stipulated.

All pavement markings shall be long life thermoplastic. Pavement markers shall be installed if they previously existed on the roadway.

The permitee shall be responsible for the installation and relocation of any additional highway signs that may be necessary due to these improvements and shall comply with the requirements of the MUTCD.

Feel free to contact me if you have any questions.

Sincerely,

JH

C. N. Edwards Jr., PE
District Engineer

CNE/jlh
Cc: W.R. Archer, III, PE, Division Engineer
D.M. McPherson, Division Traffic Engineer
Brian Thomas, Congestion Management
City of Mebane

Memorandum

To: Cy Stober, AICP
Development Director
City of Mebane
106 East Washington Street
Mebane, NC 27302

From: Baohong Wan, PhD, PE

Date: March 30, 2022

Project #: 39160.00

Re: Hawfields Landing TIA – 2nd Review
Mebane, NC

A revised Traffic Impact Analysis (TIA) was prepared by Ramey Kemp & Associates (RKA) for the proposed Hawfields Landing development located south of NC 119 and west of Turner Road in Mebane, North Carolina. VHB is contracted by the City of Mebane to conduct an independent review of the Hawfields Landing TIA. This memo provides a summary of critical findings, followed by a detailed review of the study process and analysis results.

List of Mitigation Recommendations

The following items in red should be considered in addition to mitigation measures that have been identified within the Hawfields Landing TIA.

- NC 119 and Trollingwood Hawfields Road/Old Hillsborough Road (signalized)
  - Provide a right-turn lane on eastbound Trollingwood Hawfields Road with 100′ of storage and appropriate taper
  - Intersection widening on the church side of Trollingwood Hawfield Road could be constrained due to right-of-way and utility concerns. As a result, the applicant may need to consider widening on the opposite site or symmetric widening to fit the required right-turn lane. The Old Hillsborough Road approach may need to be modified to accommodate potential lane shift. Traffic signal modification may also be needed to accommodate the geometric changes.
- NC 119 and Kimrey Road/Access A (signalized full movement intersection)
  - Provide a right-turn lane on northbound NC 119 with 100 feet of storage and appropriate taper.
  - Provide a left-turn lane on southbound NC 119 with 100 feet of storage and appropriate taper.
  - Construct Access A with one ingress lane and two egress lanes, striped as a shared left/through lane and an exclusive right-turn lane, with an internal protected stem (IPS) length of 200 feet.
  - Install a traffic signal.
- Farrell Road and Jamie Baker Drive / Access B (unsignalized)
  - Construct Access B with one ingress lane and one egress lane.
- Farrell Road and Access C (unsignalized)
  - Construct Access C with one ingress lane and one egress lane.
- Multimodal Considerations: Compliance of multimodal transportation requirements should be examined to ensure adequacy of pedestrian, bike, and transit facilities along internal streets and roadways along the property frontage.

Additional Comments (For Information Only)

- The intersection of NC 119 and Jim Minor Road is outside the City of Mebane ETJ, and it has been flagged by NCDOT for potential frontal impact crash concerns, although funding for improvements is uncertain at this time.

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- NC 119 at Turner Road. Once the committed turn lanes are constructed by Cambridge Park at this intersection, a traffic signal may no longer be warranted due to shift of warrant threshold and discount of right-turn vehicles with improvement in operations. Widening to the north and west sides may be desired at this intersection to avoid disturbance to the cemetery.

Development Plan

The proposed development is anticipated to consist of up to 351 single-family homes and 160 apartments. Access to the proposed site is to be provided via one (1) full movement/RCI driveway on NC 119 and two (2) full movement driveways on Farrell Road.

Study Area and Analysis Scenarios

The TIA included the following intersections through coordination with NCDOT and the City of Mebane:

- NC 119 and Trollingwood Hawfields Road/Old Hillsborough Road (signalized)
- NC 119 and Turner Road (unsignalized)
- NC 119 and Kimrey Road (unsignalized)
- NC 119 and Jim Minor Road (unsignalized)
- Turner Road and Farrell Road/Billy T Trail (unsignalized)
- Farrell Road and Jamie Baker Drive (unsignalized)

The buildout is expected to occur in 2025. The TIA included capacity analyses during the weekday AM and PM peak hours under the following scenarios:

- Existing Year (2021)
- No-Build (2025)
- Build (2025)

Existing Volume and Background Assumptions

Existing (2021) analysis was conducted based on traffic counts conducted in October 2017 and October 2018 during typical weekday AM (7 to 9 AM) and PM (4 to 6 PM) peak hours. All counts were grown to the existing year (2021) utilizing a one percent (1%) annually compounded growth rate.

The No-Build (2025) scenario included an annual growth rate of one percent (1%) between the existing year (2021) and the future analysis year (2025), as well as site traffic associated with the following six (6) adjacent developments:

- Cambridge Park (residential)
- The Meadows (residential)
- Magnolia Glen (residential)
- Bradford Academy (institutional)
- Summerhaven Subdivision (residential)
- Alamance County High School (institutional)

Based on coordination with the NCDOT and the Town, it was determined that the following roadway improvements associated with the background developments should be considered with this study:

<u>NC 119 and Trollingwood Hawfields Road/Old Hillsborough Road</u>

- Extend the existing southbound left-turn lane to provide at least 225 feet of storage and appropriate taper (Cambridge Park TIA)
- Construct a westbound right-turn lane with 150 feet of storage and appropriate taper (Cambridge Park TIA)
- Widen NC 119, north of Trollingwood Hawfields Road/Old Hillsborough Road to allow for a continuous southbound right-turn lane (NCDOT STIP Project No. U-6013)

<u>NC 119 and Turner Road</u>

- Construct a westbound right-turn lane with 100 feet of storage and appropriate taper (Cambridge Park TIA).
- Construct a southbound left-turn lane with 125 feet of storage and appropriate taper (Cambridge Park TIA)

Trip Generation & Distribution

Trip generation potential was determined based on methodology outlined in the *ITE Trip Generation Manual, 10th Edition*. ITE Land Use Code (LUC) 210 (Single-Family Detached Housing) and LUC 220 (Low-Rise Multifamily Housing) were used based on the proposed land uses. Based on the TIA, the proposed development is projected to generate 4,470 vehicles per day on a typical weekday with 329 AM peak hour trips (80 entering, 249 exiting) and 429 PM peak hour trips (271 entering, 158 exiting).

Based on a combination of existing traffic patterns, coordination with the site team, population centers adjacent to the study area, and engineering judgment, passenger vehicle site traffic for this development were distributed as follows:

- 40% to/from the east via NC 119
- 25% to/from the west via NC 119
- 15% to/from the west via Trollingwood Hawfields Road
- 10% to/from the east via Old Hillsborough Road
- 4% to/from the west via Kimrey Road
- 1% to/from the west via Jim Minor Road
- 5% to/from the east via Turner Road

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Capacity Analysis Results

Capacity analyses were performed using Synchro based on the Highway Capacity Manual method. Capacity analyses in the TIA were conducted following the NCDOT Congestion Management Capacity Analysis Guidelines. LOS, delay, and queue are reported and summarized for stop-controlled approaches at unsignalized intersections.

The analysis results and mitigation determinations are summarized below for each individual intersection. Individual approach level of service and delay should be summarized for stop-controlled approach at unsignalized intersections.

NC 119 and Trollingwood Hawfields Road/Old Hillsborough Road

Intersection and Approach	Traffic Control	Existing (2021)		No-Build (2025)		Build (2025)		Build (2025) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
NC 119 and Trollingwood Hawfields Road/ Old Hillsborough Road	Signalized	**D (39.4)**	**C (34.3)**	**F (83.9)**	**E (60.8)**	**F (104.5)**	**F (82.2)**	**F (81.1)**	**D (51.3)**
Eastbound		D-36.3	D-46.5	F-115.3	E-73.2	F-155.4	F-93.3	F-101.7	D-54.2
Westbound		D-54.9	D-37.4	E-79.5	D-49.5	F-96.4	E-63.5	F-103.1	D-49.1
Northbound		D-38.3	C-26.4	F-85.2	E-68.6	F-109.4	F-93.0	E-73.2	E-55.6
Southbound		C-26.6	C-30.3	E-61.5	D-54.6	E-64.5	E-78.9	D-54.3	D-47.6

The TIA indicated that this intersection is expected to operate at LOS F during the AM peak hour and LOS E during the PM peak hour under the No-Build conditions despite the transportation improvements planned by NCDOT and nearby developments. The addition of site trips is expected to cause delay increases, and the intersection is projected to operate at LOS F during both peak hours under the buildout conditions. The following improvement was recommended in the TIA for the intersection:

- Construct an exclusive eastbound right-turn lane with at least 50 feet of storage and appropriate taper.

Since 95th percentile queue length for the eastbound right-turn movement will exceed 250 feet during peak hours, the storage for the proposed eastbound right-turn lane should be extended to at least 100 feet.

NC 119 and Kimrey Road/Access A

Intersection and Approach	Traffic Control	Existing (2021)		No-Build (2025)		Build (2025)		Build (2025) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
NC 119 and Kimrey Road/Access A	Unsignalized	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Eastbound		C-18.4	C-18.2	F-54.2	C-23.2	F-391.1	F-92.2	F-391.1	F-92.2
Westbound		---	---	---	---	F-149.6	D-32.6	F-149.6	D-32.6

The TIA indicated that this planned site access is expected to operate at LOS F during the AM peak hour and LOS D during the PM peak hour under the Build conditions, and Kimrey Road is expected to operate at LOS F during both peak hours with the site access in place. The following improvements were recommended in the TIA for the intersection:

- Construct a right-turn lane on northbound NC 119 with at least 50 feet of storage and appropriate taper.
- Construct a left-turn lane on southbound NC 119 with at least 100 feet of storage and appropriate taper.
- Construct Access A with one ingress lane and two egress lanes striped as a shared left/through lane and an exclusive right-turn lane.

Based on queueing analysis along Access A, an internal protected stem length of 200 feet should be provided. In addition, the signal warrant analysis included in the revised TIA indicates a traffic signal is not fully warranted at this

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location. Nevertheless, installation of a traffic signal should be considered due to the horizontal curve along NC 119 and the skewed intersection angle at Access A/Kimrey Road.

Farrell Road and Jamie Baker Drive/Access B

Intersection and Approach	Traffic Control	Existing (2021)		No-Build (2025)		Build (2025)		Build (2025) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
Farrell Road and Jamie Baker Drive/Access B	Unsignalized	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Eastbound		---	---	---	---	A-9.5	A-9.4	A-9.5	A-9.4
Westbound		A-8.7	A-8.4	A-8.7	A-8.6	A-9.1	A-9.2	A-9.1	A-9.2

The TIA indicated that this planned site access is expected to operate at LOS A under the Build conditions. The future estimated AADT along Farrell Road is expected to be well under 4,000 vehicles per day (vpd); therefore, no turn lane improvements are recommended at this intersection. The following improvements were recommended in the TIA for the intersection:

- Construct Access B with one ingress lane and one egress lane.

Farrell Road and Access C

Intersection and Approach	Traffic Control	Existing (2021)		No-Build (2025)		Build (2025)		Build (2025) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
Farrell Road and Access C	Unsignalized	**-**	**-**	**-**	**-**	**N/A**	**N/A**	**N/A**	**N/A**
Eastbound		---	---	---	---	A-9.4	A-9.4	A-9.4	A-9.4

The TIA indicated that this planned site access is expected to operate at LOS A under the Build conditions. The future estimated AADT along Farrell Road is expected to be well under 4,000 vpd; therefore, no turn lane improvements are recommended at this intersection. The results and determinations appear satisfactory. The following improvements were recommended in the TIA for the intersection:

- Construct Access C with one ingress lane and one egress lane.

NC 119 and Turner Road

Intersection and Approach	Traffic Control	Existing (2021)		No-Build (2025)		Build (2025)		Build (2025) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
NC 119 and Turner Road	Unsignalized	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Westbound		C-18.7	B-13.1	F-61.7	C-18.7	F-167.7	D-26.8	F-167.7	D-26.8

The TIA indicated that stop-controlled Turner Road is expected to operate at LOS F during the AM peak hour and LOS D during the PM peak hour under the future year conditions despite the committed turn lane improvements by Cambridge Park. As shown in the signal warrant analysis included in the revised TIA, a traffic signal is warranted under the future year conditions. However, cnce the committed turn lanes are constructed by Cambridge Park at this intersection, a traffic signal may no longer be warranted due to shift of warrant threshold and discount of right-turn vehicles. Therefore, a traffic signal is not required to be constructed at this time. Widening to the north and west sides may be desired at this intersection to avoid disturbance to the cemetery.

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NC 119 and Jim Minor Road

Intersection and Approach	Traffic Control	Existing (2021)		No-Build (2025)		Build (2025)		Build (2025) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
NC 119 and Jim Minor Road	Unsignalized	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Eastbound		C-18.5	D-27.6	---	F-73.9	---	F-140.0	---	F-140.0
Westbound		D-31.3	C-24.9	F-2276.6	E-42.7	F-3109.2	F-66.3	F-3109.2	F-66.3

The TIA indicated that this intersection is expected to operate at LOS F during both peak hours under the No-Build and Build conditions. As shown in the signal warrant analysis included in the revised TIA, a traffic signal is warranted under the future year conditions. However, traffic congestion is mostly related with school traffic at this intersection. since the intersection of NC 119 and Jim Minor Road is outside the City's ETJ, improvements are not by this development. It should be noted that this intersection has been flagged by NCDOT for potential frontal impact crash concerns, although funding for improvements is uncertain at this time.

Turner Road and Farrell Road/Billy T Trail

Intersection and Approach	Traffic Control	Existing (2021)		No-Build (2025)		Build (2025)		Build (2025) with Improvements	
		AM	PM	AM	PM	AM	PM	AM	PM
Turner Road and Farrell Road/ Billy T Trail	Unsignalized	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Northbound		B-10.7	B-11.0	B-12.6	B-12.6	B-14.3	B-14.8	B-14.3	B-14.8
Southbound		B-10.1	A-8.8	B-11.4	B-11.7	B-11.5	B-12.4	B-11.5	B-12.4

The stop-controlled approaches at this intersection are expected to operate at LOS B during both peak hours under the No-Build and Build conditions. No improvements should be required at this intersection.

Cc: C. N. Edwards Jr., PE, NCDOT Highway Division 7 District 1