

**ORANGE COUNTY PLANNING DEPARTMENT  
131 W. MARGARET LANE, SUITE 201  
HILLSBOROUGH, NORTH CAROLINA 27278**



**AGENDA  
ORANGE COUNTY PLANNING BOARD**

**WHITTED MEETING FACILITY  
300 WEST TRYON STREET, SECOND FLOOR  
HILLSBOROUGH, NORTH CAROLINA 27278**

**Wednesday, September 3, 2025**

**Regular Meeting – 7:00 pm**

| <u>No.</u> | <u>Page(s)</u> | <u>Agenda Item</u>                             |
|------------|----------------|--|
| 1.         |                | <b>CALL TO ORDER</b>                           |
| 2.         |                | <b>INFORMATIONAL ITEMS</b>                     |
|            | 4 - 5          | a. Planning Calendar for September and October |
|            | 6 - 7          | b. Land Use Plan 2050 Update                   |
| 3.         |                | <b>APPROVAL OF MINUTES</b>                     |
|            | 8              | July 9, 2025 Ordinance Review Committee Notes  |
|            | 9 - 49         | August 6, 2025 Regular Meeting Minutes         |
| 4.         |                | <b>CONSIDERATION OF ADDITIONS TO AGENDA</b>    |
| 5.         |                | <b>PUBLIC CHARGE</b>                           |
|            |                | <b>Introduction to the Public Charge</b>       |

The Board of County Commissioners, under the authority of North Carolina General Statute, appoints the Orange County Planning Board (OCPB) to uphold the written land development laws of the County. The general purpose of OCPB is to guide and accomplish coordinated and harmonious development. OCPB shall do so in a manner which considers the present and future needs of its residents and businesses through efficient and responsive process that contributes to and promotes the health, safety, and welfare of the overall County. The OCPB will make every effort to uphold a vision of responsive governance and quality public services during our deliberations, decisions, and recommendations.

**Public Charge**

The Planning Board pledges its respect to all present. The Board asks those attending this meeting to conduct themselves in a respectful, courteous manner toward each other, County staff, and Board members. At any time should a member of the Board or the public fail to observe this charge, the Chair will take steps to restore order and decorum. Should it become impossible to restore order and continue the meeting, the Chair will recess the meeting until such time that a genuine commitment to this public charge is observed.

The Planning Board asks that all electronic devices such as cell phones, pagers, and computers should please be turned off or set to silent/vibrate.

Please be kind to everyone.

| No. | Page(s)   | Agenda Item  |
|-----|-----------|--|
| 6.  |           | <b>CHAIR COMMENTS</b>  |
| 7.  | 50 - 271  | <p><b>ZONING ATLAS AMENDMENT (CONDITIONAL DISTRICT)</b> - To review and make a recommendation to the BOCC on a Zoning Atlas Amendment to rezone +/- 78.11 acres (PIN: 9865-87-8090) located at 1039-UT NC 86 North, Hillsborough, within the Hillsborough Township of Orange County. The proposed rezoning is from AR (Agricultural Residential) to R-CD (Residential - Conditional District). The anticipated BOCC public hearing date is November 6, 2025.</p> <p><b>Presenter:</b> Taylor Perschau, Current Planning and Zoning Manager</p> |
| 8.  | 272 - 299 | <p><b>UNIFIED DEVELOPMENT ORDINANCE (UDO) TEXT AMENDMENT – IMPERVIOUS SURFACES, WATERSHED PROTECTION OVERLAY DISTRICTS, AND STREAM BUFFERS</b> - To review and make a recommendation to the BOCC on Planning Director-initiated amendments to the UDO pertaining to impervious surfaces, watershed protection overlay districts, and stream buffers. The anticipated BOCC public hearing date is October 7, 2025.</p> <p><b>Presenter:</b> Christopher Sandt, County Engineer</p>  |
| 9.  |           | <b>ADJOURNMENT</b>   |

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### **Monthly Planning & Inspections Newsletter**

Sign up at <https://www.orangecountync.gov/list.aspx?ListID=408> to receive the monthly communication on happenings in the Planning & Inspections Department.

### **Written Comments**

Interested persons who cannot attend the meeting in-person are invited to submit written comments on agenda items to the Planning Board via email at [planningboard@orangecountync.gov](mailto:planningboard@orangecountync.gov) no later than 3:00 p.m. on the afternoon of the meeting. Please include in the Subject line of the email the title of the agenda item your comment pertains to. Emails sent to this address are viewable on Google Groups: <https://groups.google.com/g/ocplanningboard>

Written comments can also be dropped off at the Planning Department’s offices at 131 W. Margaret Lane, 2<sup>nd</sup> floor, Hillsborough, NC during normal business hours (8:00 a.m. to 5:00 p.m. Monday through Friday). Written comments will be scanned and sent by staff to the email address indicated above.

### Review Process

The Planning Board is an appointed volunteer advisory board which makes recommendations to the Board of County Commissioners (the elected officials). The Board of County Commissioners holds a formal public hearing and makes decisions. Section 2.8 of the County's [Unified Development Ordinance](#) contains a flowchart depicting the review process for rezoning and text amendment applications.

### Planning Board Member Potential Conflict of Interest

It is the duty of every Board member to avoid both conflicts of interest and appearances of conflict. Board members having any conflicts of interest or appearances of conflict with respect to matters before the Board should identify the conflict or appearance of conflict and refrain from undue participation in the matter involved.

As a reminder, NC General Statute § 160D-109 establishes the following standard: Members of appointed boards shall not vote on any advisory or legislative decision regarding a development regulation where the outcome of the matter being considered is reasonably likely to have a direct, substantial, and readily identifiable financial impact on the member. An appointed board member shall not vote on any zoning amendment if the landowner of the property subject to a rezoning petition or the applicant for a text amendment is a person with whom the member has a close familial, business, or other associational relationship.

If any Planning Board member has any concern about a possible conflict related to an agenda item, please notify Planning staff and get in touch directly with a member of the County Attorney's staff before the meeting time to determine whether a conflict exists – and if so, how best to handle the potential conflict.

| September 2025   |         |  |   |  |        |          |
|--|---------|--|---|--|--------|----------|
| Sunday   | Monday  | Tuesday  | Wednesday   | Thursday   | Friday | Saturday |
|  | 1       | 2  | 3   | 4  | 5      | 6        |
|  | HOLIDAY |  | Planning Board Meeting<br>7:00 pm*<br><br>Whitted Bldg.     | BOCC Business Meeting<br>7:00 pm<br><br>Whitted Bldg.            |        |          |
| 7  | 8       | 9  | 10  | 11   | 12     | 13       |
|  |         | BOCC Work Session<br>7:00 pm<br><br>Southern Human Serv Ctr.     | Board of Adjustment Meeting<br>7:00 pm<br><br>Whitted Bldg. |  |        |          |
| 14   | 15      | 16   | 17  | 18   | 19     | 20       |
|  |         | BOCC Business Meeting<br>7:00 pm<br><br>Southern Human Serv Ctr. |   |  |        |          |
| 21   | 22      | 23   | 24  | 25   | 26     | 27       |
|  |         |  |   | Joint Meeting with School Boards<br>7:00 pm<br><br>Whitted Bldg. |        |          |
| 28   | 29      | 30   |   |  |        |          |
|  |         |  |   |  |        |          |
| <b>Notes:</b><br>* Planning Board member attendance required<br>Planning Board meetings are held at Whitted Human Services Building - Donna S. Baker Meeting Room (2nd floor) 300 West Tryon Street Hillsborough, NC 27278 |         |  |   |  |        |          |

| October 2025   |        |   |   |          |        |          |
|--|--------|---|---|----------|--------|----------|
| Sunday   | Monday | Tuesday   | Wednesday   | Thursday | Friday | Saturday |
|  |        |   | 1   | 2        | 3      | 4        |
|  |        |   | Planning Board Meeting<br>7:00 pm*<br><br>Whitted Bldg.     |          |        |          |
| 5  | 6      | 7   | 8   | 9        | 10     | 11       |
|  |        | BOCC Business Meeting<br>7:00 pm<br><br>Whitted Bldg.                             | Board of Adjustment Meeting<br>7:00 pm<br><br>Whitted Bldg. |          |        |          |
| 12   | 13     | 14  | 15  | 16       | 17     | 18       |
|  |        | BOCC Joint Mtg w/ Fire Departments / Work Session<br>7:00 pm<br><br>Whitted Bldg. |   |          |        |          |
| 19   | 20     | 21  | 22  | 23       | 24     | 25       |
|  |        | BOCC Business Meeting<br>7:00 pm<br><br>Southern Human Serv Ctr.                  |   |          |        |          |
| 26   | 27     | 28  | 29  | 30       | 31     |          |
|  |        |   |   |          |        |          |
| <b>Notes:</b><br>* Planning Board member attendance required<br>Planning Board meetings are held at Whitted Human Services Building - Donna S. Baker Meeting Room (2nd floor) 300 West Tryon Street Hillsborough, NC 27278 |        |   |   |          |        |          |

**From:** [Land Use Plan](#)  
**To:** [Land Use Plan](#)  
**Cc:** [Tom Altieri](#); [Perdita Holtz](#); [Cy Stober](#)  
**Subject:** Orange County Land Use Plan 2050 - Project Update  
**Date:** Monday, August 25, 2025 11:12:03 AM  
**Attachments:** [image002.png](#)

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Greetings Planning Board,  
 Please see below update on the LUP 2050 project.  
 Thank you,  
 Tom

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## Orange County Land Use Plan 2050 – Guiding Our Future

On March 11, the Board of County Commissioners (BOCC) received a preliminary draft Land Use Plan 2050. Board review and feedback on the draft was requested to inform any changes to the draft required prior to the opening of the next Community Engagement Window. Subsequently, the Board requested additional background information from County staff for the purpose of further informing its review.

In response to the Board’s request, Informational presentations are to take place at BOCC meetings through November 2025. The BOCC will receive a schedule for these presentations, as well as potential financial impacts of guest presenters, at its August 26 regular BOCC meeting. Following is a link to Board agendas and materials: <https://www.orangecountync.gov/1707/BOCC-Agendas>

Community Engagement Window #3, to unveil a draft Land Use Plan 2050, is anticipated to occur in the spring of next year. Additional information, including robust public notification, will be forthcoming closer to the opening of engagement. To learn more, visit the project website at: <https://www.orangecountylanduseplan.com/> and please direct any questions to County Planning staff at [landuseplan@orangecountync.gov](mailto:landuseplan@orangecountync.gov)

Thank you for your interest and participation in the Land Use Plan 2050 project.



Planning & Inspections Department  
 Long-Range Planning and Administration

(919) 245-2575 (Office)

Address: [131 W. Margaret Lane, Suite 201, P.O. Box 8181, Hillsborough, NC 27278](#)

Orange County Planning Website: <https://orangecountync.gov/792/Planning-Inspections>

Orange County Land Use Plan 2050 Project Website: <https://www.orangecountylanduseplan.com>

Pursuant to North Carolina General Statute 132, correspondence sent and received from this account is a public record and may be disclosed to third parties

**DRAFT Schedule for Comprehensive Land Use Plan Topics Discussion**

| Date                        | Topic  | Presenter  |
|-----------------------------|--|--|
| 9/9/25                      | Land Use Plan Status & Purpose Recap   | Tom Altieri & Cy Stober                                |
| 9/9/25                      | Watershed Regulations  | Chris Sandt, P.E. & Cy Stober                          |
| 9/9/25                      | WASMPBA & Joint Planning Agreement (Rural Buffer)  | Perdita Holtz  |
| 10/14/25                    | Utilities Discussion (NOTE: this will need to be a <b>closed session</b> to protect sensitive information. <u>Meeting in small groups is preferred by staff.</u> ) | Chris Sandt, P.E. & Cy Stober                          |
| 10/14/25 <b>OR</b> 11/11/25 | Hillsborough Utilities Constraints   | Matt Efird and/or Shannan Campbell                     |
| 11/11/25                    | Rural Activity Node Market Analysis  | Tom Altieri & TBD – Have leads RE: market study        |
| 11/14/25 Retreat            | Community Septic & Wastewater Treatment  | Tony Whitaker, P.E., Board of Health                   |
| 11/14/25 Retreat            | Groundwater Resources  | C.J. Cornette, PG, Applied Resource Management, PC     |
| 11/21/25 Retreat            | Conservation Subdivisions  | Perdita Holtz, Cy Stober, & potentially Randall Arendt |
| 11/21/25 Retreat            | Facilitated Discussion RE: next steps  | Trained Facilitator from UNC SOG                       |

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**SUMMARY NOTES**  
**ORANGE COUNTY PLANNING BOARD**  
**JULY 9, 2025**  
**ORDINANCE REVIEW COMMITTEE**

**NOTE: A QUORUM IS NOT REQUIRED FOR ORDINANCE REVIEW COMMITTEE MEETINGS.**

**MEMBERS PRESENT:** Lamar Proctor (Chair), Cheeks Township Representative; Whitney Watson, At-Large Representative; Beth Bronson, At-Large Representative; Statler Gilfillen, Eno Township Representative; Charity Kirk, At-Large Representative.

**STAFF PRESENT:** Cy Stober, Planning & Inspections Director; Patrick Mallett, Deputy Director – Development Services; Taylor Perschau, Current Planning and Zoning Manager; Christopher Sandt, County Engineer; Jack Moran, Planner I.

**AGENDA ITEM 1: CALL TO ORDER**

Meeting began at 7:18 PM.

John Dempsey, a member of the public, addressed the board regarding the impervious surface amendments and to encourage urban stream syndrome research and watershed protection.

**AGENDA ITEM 3: UNIFIED DEVELOPMENT ORDINANCE (UDO) TEXT AMENDMENT – IMPERVIOUS SURFACES, WATERSHED PROTECTION OVERLAY DISTRICTS, AND STREAM BUFFERS -** To review Planning Director-initiated amendments to the UDO pertaining to impervious surfaces, watershed protection overlay districts, and stream buffers.

**PRESENTER:** Christopher Sandt, County Engineer

Christopher Sandt gave a presentation on the proposed impervious surface, watershed protection overlay, and stream buffer amendments.

The board discussed variance application procedure and planning staff's role in creating and presenting variances. Christopher Sandt clarified that the proposed setback amendment would only apply to Lake Orange.

Patrick Mallett presented examples of the impervious surface sliding scale to the board.

The board discussed affordable housing and density in relation to the existing and proposed impervious surface regulations.

**AGENDA ITEM 2: UNIFIED DEVELOPMENT ORDINANCE (UDO) TEXT AMENDMENT – SUBDIVISION REGULATIONS -** To review Planning Director-initiated amendments to the UDO pertaining to subdivision review processes and classifications.

**PRESENTER:** Cy Stober, Planning Director

Cy Stober gave a presentation on the proposed subdivision standards amendment.

The board discussed neighborhood information meetings and site visits; their necessity, as well as the historical requirement for them to be held.

**AGENDA ITEM 4: ADJOURNMENT**

The meeting adjourned at 9:40 PM.

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**MEETING MINUTES  
ORANGE COUNTY PLANNING BOARD  
AUGUST 6, 2025  
REGULAR MEETING**

**MEMBERS PRESENT:** Lamar Proctor (Chair) Cheeks Township, Chris Johnston (Vice-Chair) Hillsborough Township, Meg Millard, Little River Township Representative; Statler Gilfillen, Eno Township Representative; Charity Kirk, At-Large Representative; Delores Bailey, At-Large Representative; Beth Bronson, At-Large Representative; Venkat Yendapalli, Cedar Grove Township Representative; Jonah Garson, At-Large Representative.

**MEMBERS ABSENT:** Whitney Watson, At-Large Representative; Steve Kaufmann, Bingham Township Representative; Liz Kalies, Chapel Hill Township Representative.

**STAFF PRESENT:** Cy Stober, Planning & Inspections Director; Taylor Perschau, Current Planning Manager; Lauren Honeycutt, Planner II; Jack Moran, Planner I

**OTHERS PRESENT:** Donna Crowder, Ward Marotti, Laura Haywood, Joshua Reinke, Don Sever, Danielle Cabral, David Barcal, Beth Trahos, Nicole Steele, Amber Ogrodnik, Betty James, Laura Streitfeld, Elaine Stewart, Kathy Kalanyos, Sarah Wagner, Ralph Warren, Peter Childers, Vicki Childers, John Griffin, Dan Eddleman, Jean Eddleman, David Smith, Joshua Setzer.

**AGENDA ITEM 1: CALL TO ORDER AND ROLL CALL**

The meeting began at 7:01 PM

Lamar Proctor: Good evening, everyone. I'm Lamar Proctor. I'm the Chair of the Planning Board. We are going to go ahead and convene this meeting in the interest of valuing everyone's time, I will just at the start say there is a sign-up sheet. If you want to speak during the public comment section of this matter on our agenda, then you do need to sign up on the sign-up sheet in the back prior to when we start calling people up. For public comment, we give people 3 minutes each, so just be mindful of time if you want to speak publicly on this issue.

**AGENDA ITEM 2: INFORMATION ITEMS**

Lamar Proctor reviewed the upcoming Planning Board and Board of County Commissioners meeting calendars.

**AGENDA ITEM 3: APPROVAL OF MINUTES**

Lamar Proctor: The next item is approval of the June 4th, 2025, regular meeting minutes. Do I have a motion?

Statler Gilfillen: I'll so move to approve it.

Lamar Proctor: Do I have a second?

Venkat Yendapalli: Second.

Lamar Proctor: All in favor say aye.

## DRAFT

52 **MOTION BY** Statler Gilfillen to approve the minutes from June 4th meeting minutes. Seconded by Venkat Yendapalli.

53

54 **MOTION PASSED UNANIMOUSLY**

55

56 Lamar Proctor: Noting that June 4th regular meeting minutes have been unanimously approved. As to  
57 the July 9, 2025, Ordinance Review Committee notes, we have to approve those as well,  
58 or no? Okay.

59

60 **AGENDA ITEM 4: CONSIDERATION OF ADDITIONS TO AGENDA**

61

62 None.

63

64 **AGENDA ITEM 5: PUBLIC CHARGE**

65

66 Lamar Proctor read the Public Charge.

67

68 **AGENDA ITEM 6: CHAIR COMMENTS**

69

70 Lamar Proctor: As to comments, I don't have any comments this evening, so we'll move to the next  
71 agenda item which is the Zoning Atlas Amendment.

72

73 **AGENDA ITEM 7: PLANNING BOARD RULES OF PROCEDURE –** To review and make a recommendation to the  
74 BOCC on a Zoning Atlas Amendment to rezone +/- 61.11 acres (PIN: 9749-42-2010)  
75 located at 3531 NC Highway 54 W, Chapel Hill, within the Bingham Township of Orange  
76 County. The proposed rezoning is from R-1 (Rural Residential) to R-CD (Residential -  
77 Conditional District). The anticipated BOCC public hearing date is October 7, 2025.

78

79 Lauren Honeycutt: Good evening, Board. So, as Lamar went over, this is the Zoning Atlas Amendment for a  
80 conditional district. This is a conditional district zoning which means that the request is  
81 use specific with individualized development conditions and standards. There's a site-  
82 specific plan that is a part of the review and approval process. So, as we went over, this  
83 is at 3531 NC Highway 54 West within the Bingham Township. It's in the Haw River  
84 unprotected watershed, and our applicant tonight is the Forestar Group who is here.  
85 Current zoning is rural residential, and the requested zoning is a residential conditional  
86 district for use for a major subdivision to allow for single-family dwellings. Surrounding  
87 zoning is rural residential, agricultural residential on the other side of 54, local commercial,  
88 and neighborhood commercial. The future land use designation is for the rural community  
89 activity node. This is land focused on designated road intersections which serve as a  
90 crossroads for the surrounding rural community. Uses appropriate here are institutional  
91 uses, things like churches, fire stations as well as smaller commercial uses, and there is  
92 no proposed amendment to this future land use designation. For the conditional district  
93 application, staff reviews for a site-specific plan an environmental assessment, a  
94 biological inventory and any additional information as required by agencies that are  
95 reviewing. This is the site-specific plan that the proposal and approval would be bound to.  
96 Our applicant tonight will overview the plan and be able to answer any questions about it.  
97 As part of the conditional district process, there are also conditions that are allowed to be  
98 imposed. The UDO allows for mutually agreed-upon conditions as part of this process for  
99 addressing compatibility of the proposed development with surrounding property, any  
100 proposed support facilities, so this is roadway improvements, buffers, screening, also  
101 timing of the development, and any other county matters that are reasonable and  
102 appropriate that may be proposed as part of the conditions. The applicant proposes 11

DRAFT

103 conditions which they will go over in their presentation, but these are conditions  
104 addressing things such as the minimum lot size, roadway, and also amenities that are  
105 offered with the subdivision, and so with that, I will turn it over to our applicant tonight to  
106 go over their portion.  
107

108 Beth Trahos: Thank you, Lauren. Good evening, Mr. Chair and Planning Board Members. My name is  
109 Beth Trahos, and I'm an attorney with Fox Rothschild, and I'm here today on behalf of  
110 Forestar Development. I have with me a robust team that has worked closely together on  
111 this project including Laura Haywood and Donna Crowder with Forestar, Don Sever and  
112 Danielle Cabral who are our civil engineers, Rachel Cotter and Nicole Steele who are our  
113 landscape architects, Josh Reinke who is our traffic engineer, Ward Marotti who is our  
114 environmental consultant, and David Barcal who is a civil engineer that focuses on septic  
115 and wastewater issues. We have a knowledgeable team that we've put together to work  
116 on this project that we're bringing forward tonight. We've also worked very closely with  
117 your staff, and you can see how many of us there are. We have called on your staff many  
118 times to ask them for clarification or to help us understand the process or a particular  
119 provision of your code or your comprehensive plan, and they have been thorough and  
120 helpful, kind and patient with us, and so we are very grateful for your planning staff and  
121 want you to know the good folks that work for you, so thank you. What we propose is to  
122 build 43 single-family homes on a 61-acre piece of property owned by the Rigsbee family  
123 on Highway 54 in White Cross. It's very near the Fiesta Grill which I suspect most of you  
124 know where that is. It is a very delicious place to eat dinner, and if you haven't been, I  
125 certainly recommend it, and is something people are familiar with on this stretch of the  
126 roadway. And the Rigsbee family is here tonight sitting in the front row. This property has  
127 been in the Rigsbee family for many generations, and Mrs. Rigsbee has decided that  
128 selling this property now is best for her family. She intends to keep a portion of the  
129 property, the exiting farmhouse along 54 where her daughter lives, and they have kept up  
130 with us and been involved with us carefully because they, too, are future neighbors of this  
131 project, and they have told us that they were pleased with what we have proposed, so  
132 know that we have been held to account by the Rigsbee family. As you heard from your  
133 staff, the property is currently zoned R1, and we propose to zone it residential conditional  
134 district, which, in your comprehensive plan, is one of the districts that's appropriate, given  
135 the land use recommendations here. It also allows us to put forward this very specific  
136 development plan as well as written conditions, so you know for sure what we're going to  
137 build. The comprehensive plan designates this as rural residential with a rural community  
138 activity node, and these homes are appropriate within that comprehensive plan  
139 designation. Our goal in designing this site was to provide much-needed housing while  
140 maintaining the appearance of a rural area and the historic character of White Cross  
141 which we've heard quite a lot about from the Rigsbee family. These concepts are  
142 supported by your comprehensive plan, and there's a lot of detailed analysis in your staff  
143 report. A couple of things to draw your attention to; the historic farmhouse which is visible  
144 from Highway 54 will remain, so that existing appearance will continue, and you can see  
145 the lots are set back from the road and clustered at the center of the site, so open space  
146 can be preserved along the perimeter to provide a transition and to protect the  
147 environmentally sensitive areas, and it's a pretty significant portion of the site. It's 41.1  
148 percent of the total site, a little more than 25 acres, and I would point out that only 43  
149 homes are proposed on the slightly over 61 acres which is less than the roughly one unit  
150 per acre the exiting R1 density would support. I would like to ask Laura Haywood to come  
151 forward and give you a little bit more detail about Forestar's vision for this property, and  
152 then I'll continue to share with you my thoughts. Laura.

## DRAFT

- 153  
154 Laura Haywood: Thank you, Beth. Hi, my name is Laura Haywood, and I'm the entitlements manager at  
155 Forestar Real Estate Group. I am also the project manager for the Rigsbee Project and  
156 have been the one closely working with Carol Rigsbee and her family. I am also a Chapel  
157 Hill resident, so I do live in Orange County as well. I do want to thank you personally on  
158 behalf of myself, the team, and the staff at large for being here tonight and allowing us the  
159 opportunity to present our project to you. There are many aspects of this project that are  
160 very special. We have worked hard to identify what is special about this piece of property  
161 and how we can preserve the feel for the surrounding area, to preserve the natural  
162 environment, and I just would like to take a moment to go through some of the site plan  
163 and the aspects just to become a little familiar. I'm assuming if I walk away from them  
164 microphone, it's not going to pick me up.  
165
- 166 Beth Trahos: Well, you want me to point?  
167
- 168 Laura Haywood: All right. Thank you, Beth. First off, we'll start at the front of the community. We currently  
169 have a well that is drilled and established to support the community. We also have a well  
170 house that we have been working side by side with Peter Sandbeck.  
171
- 172 Chris Johnston: If I could get the location of the well, that'd be really helpful.  
173
- 174 Laura Haywood: Absolutely. Let's go back. My apologies. Sorry, it's disjointed a little bit. Okay, so the  
175 well that we have already established that has been drilled that supports this community is  
176 located where Donna is pointing her finger, and we have been working closely with Peter  
177 Sandbeck which is the cultural resource coordinator for Orange County. We had  
178 communications with him early on in the process. His concern was wanting to maintain  
179 the feel of the old Rigsbee house along with the White Cross Schoolhouse, historical  
180 house there, so our mission was to design this really beautiful well house that would  
181 incorporate architectural components so it would blend. I have already shown this  
182 rendition to Peter and had an extensive conversation which he has expressed that he very  
183 much likes, and so I just wanted to point that out. We also have a mail kiosk on the  
184 property. We'll go to the rendition, and then we'll switch between the maps. This is the  
185 rendition of the mail kiosk that we presented. Couple things to note, one of the staffs'  
186 concerns when we were working through this process was making sure that in which was  
187 fully ADA accessible, and we took that to heart, and so we have provided that in our  
188 rendition to show how it will be ADA accessible. We also incorporated two benches under  
189 the fully enclosed covering of the mail kiosk with the vision that if the school bus uses that  
190 area as a way to pick up and drop off students that the students have a way of sitting  
191 there without being in the rain and snow occasionally, and so we incorporated that as  
192 well. I also presented this to Peter as well, and he really liked the design. Donna can  
193 point out where the mail kiosk is located. I'd also like to point out that in this area, we've  
194 incorporated a dog park. The dog park is in close proximity to the mail kiosk for a couple  
195 reasons. If you can picture it with me, you have mom, dad, maybe both, maybe it's  
196 grandma – I'm not sure – with their children, grandchildren, dropping them off for school,  
197 hopefully that they walk to this bus stop, and that they are able to bring their dogs, maybe  
198 let their dogs run around a little bit, and then once the kids are off, they can jump onto the  
199 trail system that we have incorporated into this community. The trail system is designated  
200 by the bold dotted lines that Donna can point to.  
201
- 202 Donna Crowder: Kind of a light color on this map.

## DRAFT

- 203  
204 Laura Haywood: The trail system is going to be a natural surface trail system. They will not be paved, so I  
205 feel like that's a really great aspect of this community. We also have a sidewalk system  
206 as well incorporated for those who need that accessibility which will be concrete or paved  
207 in some capacity. It will be on just one side of the community, not on both sides of the  
208 road. We also incorporated an open space to the back of the property just for the natural  
209 environment to thrive. I don't know if any of you have been back that way, but I have  
210 been back there a couple of times, and it is a gorgeous piece of this property. I cannot  
211 express that enough. It is a gem to this community, and the stream that runs through that  
212 area has these large boulders, and it's got a meandering stream coming down. It's a very  
213 aesthetically pleasing quiet peaceful place for people to enjoy, and actually, when I saw  
214 that, that's what really moved me. We do have an incorporated small parking area for  
215 those who would like to access the trail and that little piece of property in the back if they  
216 wish to just go and sit and be, so we want to establish that as a place. Just a couple more  
217 things we have incorporated. Instead of a large SCM pond that you see in most  
218 developments, we have incorporated three bio-retention natural filtration storm water  
219 devices that will be planted with natural plantings, so the neighbors around will have  
220 something very aesthetic to look at. Last but not least, we have an area for a gathering  
221 where folks can come and be part of a community and hopefully utilize that space to grill,  
222 hang out with their children, jump on a trail, and so that also is one of our aspects of  
223 creating place in this community. Those are just a couple of highlights that I wanted to  
224 point out for this community, and I think that's all for me.  
225
- 226 Donna Crowder: This would be the gap, an example of the type of structure that we were thinking about  
227 using, and I did want to add one thing that back in that back area, and that plan that we  
228 were looking at was actually the landscape plan, but we're going to have a bird sanctuary  
229 back there and put up several bird boxes. I think we committed to eight at least.  
230
- 231 Beth Trahos: We do have some conditions that provide for additional amenities, and I'll show you those.  
232 You may have read them in your packet, and we are trying to be efficient with your time,  
233 so I'll just hit the highlights. Of course, the proposed site plan is an element of a  
234 commitment. We also included a commitment with regard to the private streets that was  
235 suggested by staff. Minimum lot size is 20,000 square feet. No home should have more  
236 than four bedrooms, and every septic system should be designed to accommodate four  
237 bedrooms. That's the reason for that condition. There will be an HOA that will administer  
238 architectural guidelines. The decorative well house that you have seen in the pictures is a  
239 commitment as well as the mail kiosk which will include benches and a trash can for ease  
240 of use. The private trails shown on the site plan are a commitment, and they will also  
241 include benches along the trail, signs providing scientific information about the flora and  
242 fauna that's found in that area with pictures or images to sort of engage folks in what they  
243 are seeing. The community building structure and gathering area is also a commitment,  
244 and, in addition to that structure, it will have grilling stations and a fire pit, and some  
245 trashcans and pet waste stations and the bird nesting boxes to encourage the proliferation  
246 of species that are seen in that area. Also, the commitment that the septic systems would  
247 be designed to serve those four bedrooms, so it's clear that's the limit, and a commitment  
248 to provide turn lanes, right- and left-hand turn lanes into the community if NCDOT  
249 approves them, and that was a request made by the fire chief in the area. We do have  
250 our traffic engineer, and he did do some analysis and talked with NCDOT. NCDOT did  
251 not suggest the addition of turn lanes, but since that was a request from the fire chief in  
252 the area, we're happy to do that with NCDOT's approval, and so that is an additional

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253 commitment. We are proposing individual septic systems on each lot, and these are  
254 conventional systems, and included in your packet are materials that show layouts on  
255 certain lots to see that they will fit and with all of the associated requirements, and there  
256 are similar systems already operating in Orange County, and we're proposing a  
257 community well. The community well is existing on site. We built it, and it's been  
258 permitted, and it's constructed and operational, and we heard some questions about the  
259 capacity of the well and its impact on other wells in the area in our community meeting  
260 and in our conversations outside of those meetings with folks in the area, and so first, our  
261 employed experts did do actual testing using that new well and two nearby wells, and their  
262 data showed much more water capacity than is needed to serve this community and no  
263 impact on nearby wells. I told you as well that we heard concerns about traffic, and so we  
264 have added those commitments with regard to the turn lanes. These things that we have  
265 added were a result of our conversations not only in the community meeting but outside of  
266 the community meeting with members of the community, some folks that we met at that  
267 meeting and some folks who were brought to our attention through others in the area, and  
268 so we did try to be broad and engage with as many folks as we could. We do see this site  
269 as providing a number of public benefits, and I think chief among them is that Orange  
270 County is growing significantly. People want to move here, and more housing is needed.  
271 We saw, between 2010 and 2020, 15,000 new residents moved into Orange County  
272 which is an 11 percent increase, and so you can see that there is growth. We think this  
273 proposal balances the need for more housing with a desire to maintain that rural  
274 appearance and character, and we hope that you will agree. We would ask for your  
275 support, and our whole team is available to answer any questions, and Mr. Chair, if  
276 appropriate, we'd like to reserve the remainder of our time in case there are other  
277 comments that are appropriate.

278  
279 Lamar Proctor: Yeah. I have you as, and I think Mr. Stober informed me we'd try to limit these to 30  
280 minutes. You've used 20.

281  
282 Beth Trahos: Okay, more than I thought. We tried to be efficient but maybe we weren't as successful  
283 as we would have liked to have been but thank you so much for your time and your  
284 attention.

285  
286 Beth Bronson: We appreciate the consideration. Thank you.

287  
288 Lamar Proctor: Thank you. What I'd like to do, if the board is okay with it, is go ahead and move into  
289 public comment. I find that I would like to get the input of the public, and any public  
290 speakers before we start asking questions, so we can have that input as well. Is there  
291 any objection to that? Hearing no objection, Cy, do we have a sign-up sheet?

292  
293 Dolores Bailey: Mr. Chair. Just a quick point of that. Are we, then, changing the agenda? And if so, then  
294 we probably should have voted on that.

295  
296 Beth Bronson: All the comments are directed specifically at the agenda item and not general.

297  
298 Cy Stober: The order of cadence of the meeting is at the board's discretion. The agenda just states  
299 that we will consider the matter for recommendation to the board. So, there's no agenda  
300 amendment necessary.

301  
302 Lamar Proctor: Okay. Thank you.

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303  
304 Beth Trahos: I think our team signed up. I think I'm the end of our team, so we don't need to speak, but  
305 unless you would like to hear from us.  
306

307 Lamar Proctor: I'm just looking at the sheet. The direction of the sheet is, and I know people have signed  
308 up who may not want to speak. But if you wish, it says in the last comment, if you wish to  
309 address the board, indicate the agenda item number. So, I'm going to call on those who  
310 put the agenda item number. Indicating that they wanted to speak on this agenda item.  
311 Is it Laura Streitfeld? Come on up.  
312

313 Chris Johnston: And for our public comment, if you wouldn't mind speaking into the microphone, it makes  
314 transcription a lot easier. And also, there's going to be a timer on there for 3 minutes. I'll  
315 start that. You'll just see the little light on there.  
316

317 Laura Streitfeld: Okay. Thank you.  
318

319 Chris Johnston: Whenever you're ready.  
320

321 Laura Streitfeld: I'm Laura Streitfeld. Thank you for hearing my comments tonight. I want to say first  
322 quickly that the statement of inconsistency on Page 138 of your agenda appears to have  
323 an error that should be corrected if you do decide to vote to deny this application. Where  
324 it should say that principal's goals and objectives of the proposed development are  
325 inconsistent, it says that those items are consistent with the proposal. I wanted to call that  
326 to your attention.  
327

328 Lamar Proctor: Thank you.  
329

330 Laura Streitfeld: Having a long-term plan or comprehensive plan has set expectations for property owners  
331 and also has set size limits for lots that appear to be sustainable and fitting to the rural  
332 community. Doubling the number of permitted lot minimum sizes. Cutting in half,  
333 doubling the number of lots, cutting in half for lot size to half acre rather than full-acre lots  
334 raises a lot of concerns for surrounding property owners, and I would like to say for the  
335 Rigsbee family, I do know that folks I've heard from in the community really do support the  
336 family's ability to sell their land and develop it; however, the rezoning is what folks object  
337 to, and I would strongly urge you tonight to consider not approving rezoning. Because  
338 even if built and meeting standards that are set by the county and the state, this  
339 development would still double the amount of lots and double the amount of construction  
340 and post construction run off, stormwater issues. Today, I drove here and drove into  
341 standing water on my rural road where the road had washed away on the side of the road,  
342 and my car almost got stuck and, I can't count the number of flash flood days in the last 2  
343 weeks as well as I'm sure all of you know, folks, who had to evacuate the houses. I do.  
344 Lost everything. Folks who washed off the road and passed away. So, we're living in  
345 times where were vacillating between drought and flood and to approve this rezoning  
346 would be to say we want to have more density in an area that may not be able to handle  
347 it. I also believe that some of the numbers that you've seen are not perhaps as useful as  
348 they could be. Our concern is that, where you could, where it says that this is a  
349 conservation community, the area that's being conserved is largely, there's three  
350 waterways, wetlands and other water features that are already buffered and that area  
351 would be conserved regardless largely. So, to call it a conservation cluster is a concern.  
352 The biggest concerns is that neighbors hear from the developer at the neighborhood

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353 meeting that the developer initially thought of fewer lots and were encouraged by planning  
354 staff to have the highest density possible. That's what the developers told the neighbors,  
355 and we heard this during the Fiddlehead neighborhood meeting as well. This appears  
356 inconsistent with the commissioner's priorities. The commissioners have deliberately  
357 slowed down the comprehensive planning process, and I would just encourage you all at  
358 the time when they're slowing it down to consider whether conservation clusters do fit and  
359 where they fit, not to approve rezoning. Thank you.

360  
361 Lamar Proctor: Thank you. John Griffin?

362  
363 Beth Bronson: Do you want to read like two in a row so that the next person knows they're ready?  
364 Whoever will be after Griffin.

365  
366 Lamar Proctor: Well, I think that's the only two who put the agenda items.

367  
368 Beth Bronson: My bad. I'm sorry.

369  
370 John Griffin: I'm John Griffin. I live at 546 Everett Lane. I share two property lines with the proposed  
371 development. I want to express my concerns about the development as proposed for  
372 conditional rezoning in White Cross, particularly its impacts on water resources and rural  
373 character. First, the septic low outs documented in the application raised some red flags.  
374 43 individual systems installed on roughly 61 acres will clearly threaten tree density, which  
375 not only disrupts wildlife habitat and the county's natural beauty, but also increases storm  
376 water runoff, potentially degrading both soil quality and nearby waterways. Second, I  
377 question the developer's reliability when it comes to abiding Orange County's interests.  
378 This is a company that Preserve Rural Orange reports to have been sued dozens of times  
379 throughout the US for water pollution and negligent construction and business practices.  
380 Given that history, it's difficult to trust that they'll prioritize clean water in quality homes in  
381 White Cross without persistent county oversight. Third, this development undermines the  
382 rural character that defines rural Orange County at White Cross. We can expect  
383 increased noise and air pollution from such a concentrated spike in landscaping, traffic,  
384 and fenced-in dogs as well as significantly increase light pollution, each of which erodes  
385 the quiet, natural environment we all choose to live in and pay high taxes for. Lastly, I'd  
386 like to briefly raise a concern with the well impact report regarding the proposed  
387 community well. Full disclosure, my wife and I chose to participate as one of the two  
388 volunteer wells to add data to the report. However, the conclusion of the report that  
389 nearby wells won't be affected by a 43-home community well is based on a single 24-hour  
390 draw-down test involving only two neighboring wells. I can't yet support those findings  
391 without a much more thorough analysis that considers long-term use, seasonal variation,  
392 drought conditions, 43-plus sprinkler systems in high summer and the likely increase in  
393 demand from future neighboring development. In conclusion, this proposed rezoning and  
394 development demands much deeper scrutiny, and zoning conditions that aim to avert  
395 obvious conflicts with rural Orange County's water resources, quality of housing, and rural  
396 character. Thank you.

397  
398 Lamar Proctor: So, those were the individuals who actually indicated the agenda item. Is there anyone  
399 else who was on this sign-up sheet who wanted to speak? You can raise your hand.  
400 Okay. Hearing none. We will move on to board questions of the applicant. If that's okay  
401 with everyone? All right, Delores, do you want to start?

402

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- 403 Dolores Bailey: I can. Thank you. So, is the applicant going to come back up?  
404
- 405 Beth Trahos: Yes, ma'am.  
406
- 407 Lauren Honeycutt: We have a little bit more on our side from planning. Sorry. This one always gets lost.  
408
- 409 Lamar Proctor: Oh, sorry.  
410
- 411 Lauren Honeycutt: Just before we run into questions because it may help get ahead of some. Notices were  
412 mailed to property owners within 1,000 feet of the parcel on July 23rd, 2 weeks before  
413 today's meeting as well as signs were posted on the subject property and the application  
414 information was posted on our active development page available on our website. We did  
415 complete staff analysis and determined that the application was complete and in  
416 accordance with requirements of the UDO. We looked through the zoning atlas and  
417 unified development ordinates and in that section of what's required there as well as  
418 specifically for conditional districts and our specific use standards that relate to major  
419 subdivision conditional districts. We included how consideration thinking about how the  
420 request relates to the Orange County comprehensive plan and we determined that it is  
421 consistent with the 2030 comprehensive plan, Appendix F, the use that's requested for  
422 the residential conditional district is found in the consistent land-use classifications. The  
423 applicant also provided an environmental impact assessment, and staff reviewed and  
424 determined that there are no significant environmental impacts expected from this project  
425 based on existing conditions. This is where we are at tonight. We are requesting the  
426 planning board hear from the applicant, staff, and public. Review and discuss analysis  
427 and the staff recommendation, and then recommend approval or denial to the board of  
428 county commissioners. Our recommendation as staff is that you receive the rezoning  
429 application, deliberate on the proposal as desired, consider the planning director's  
430 recommendation, which is to make a recommendation to the BOCC on the statement of  
431 consistency, or inconsistency, and my apologies for the error, that one is all on me, and  
432 review the proposed ordinance and make a recommendation in time for the October 7th  
433 BOCC meeting. And so, I'll turn it back to you for your questions.  
434
- 435 Lamar Proctor: All right. Thank you.  
436
- 437 Dolores Bailey: Yes, good evening. Let me just say that we've received several letters in opposition to  
438 this, so I'm trying to get to the bottom of that. Can you tell me from the well was drilled?  
439 You mentioned the well that's a thousand feet down. When was that drilled?  
440
- 441 Beth Trahos: Let me ask. November.  
442
- 443 Dolores Bailey: So, is this already started? Or done? Has this project already started, and we're just  
444 agreeing to it?  
445
- 446 Beth Trahos: No. The well was dug to get an understanding of the capacity, and having the well dug  
447 also allowed for the additional testing that was done and analysis based on comments  
448 received from the community, so, it was to understand what is achievable here.  
449
- 450 Dolores Bailey: It just seemed per the letters that it felt like y'all had already started on this, and this is  
451 going to happen regardless.  
452

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453 Beth Trahos: No, ma'am. We, of course, cannot do that unless the county allows us to. But we wanted  
454 to be sure if the county would allow us to that we would have capacity necessary. And  
455 drilling a well is a significant investment.

456  
457 Dolores Bailey: And is the mall kiosk already up?  
458

459 Beth Trahos: No, ma'am.  
460

461 Dolores Bailey: Okay, that's planned. A couple things about the well. Somebody said that you didn't feel  
462 like it would have an impact on the current wells. So, I'm concerned about that. If you're  
463 putting a well there, and each one of the 43 homes will be attached to that single well.  
464 The one that the community well. You don't think that's going to tap into the natural  
465 source that the residents who already live there are tapped into as well?  
466

467 Beth Trahos: Well, that was a question that was raised. And so, we turned to experts because to do  
468 some research and to coordinate with our neighbors and to do some research to see what  
469 happened. And I'm going to ask Ward, thank you, to come forward, and he is the  
470 gentleman that did this work, and his report is in your packet. And he can provide more  
471 details now.  
472

473 Dolores Bailey: Before we do it, what I just want to say. I'm familiar with communities that are on wells  
474 and the stream that they tap into, so that's what my question is going to be about. What  
475 this community well is tapping into that's different than what everyone else is using now.  
476

477 Ward Marotti: We collected a couple weeks of ambient data of the three wells, the proposed community  
478 well, and the two adjacent single-use wells. One of which was the gentleman's that just  
479 spoke. The other of which was the Rigsbee's existing single use well. We collected a  
480 couple weeks of ambient data prior to the draw down of our proposed community well.  
481

482 Chris Johnston: I apologize, could you define ambient in this situation?  
483

484 Ward Marotti: I was just about to.  
485

486 Chris Johnston: Wonderful. Thank you.  
487

488 Ward Marotti: Ambient data, meaning with no impact or no effects, no withdrawals from us. In other  
489 words, the existing conditions. Document existing conditions with no impact from our use  
490 or testing. After a couple weeks of ambient data were collected, we then did a draw  
491 down, both all the way down to the 660-something feet of the proposed pump depth of the  
492 proposed community well as well as a steady state 2-hour draw down, which the yield of  
493 which was 90 gallons per minute. Steady state draw down means that the level of water  
494 in the well does not change. The volume of water that comes into the well equals the  
495 volume of water that's being pumped out. The surface elevation within the well doesn't  
496 change. So, we did a steady-state test as well as a full draw down test, and there were  
497 no impacts to the adjacent wells as documented by the surface levels that we were  
498 monitoring, both a deep well, which was the Rigsbee's well at approximately 500, I think it  
499 was 505, was the depth of their pump, and based on the landowner that just spoke, we  
500 didn't have any actual permit data for his well, but based on the information he provided, it  
501 was approximately the well and/or pump is approximately 75 feet deep, so we did a  
502 shallow well and a deep well. That is the direct results, and looking at the direct results

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503 before, during, and then 10 days or 2 weeks after that draw down was done, no impacts  
504 were observed in those adjacent well levels. That was the direct data, and the analysis of  
505 the direct data, a hydro geologist on my team is putting those data into a hydro geologic  
506 model that is established by the state of North Carolina to extrapolate and document other  
507 potential impacts, but again, based on the initial results of just the raw data and before,  
508 during, and after, and no documentable impacts to those levels in both the shallow well  
509 and the deep well, adjacent wells, it's very unlikely that the result of that modeling will  
510 have a different outcome, but we'll see what that outcome is when the modeling's  
511 completed. That's underway now.

512  
513 Dolores Bailey: So, what source is the well tapping into?

514  
515 Ward Marotti: Groundwater.

516  
517 Dolores Bailey: And what are the other residents tapping into?

518  
519 Ward Marotti: Likely different aquifers. Because the Rigsbee well is at, again, I think it's 505 feet.

520  
521 Dolores Bailey: Right.

522  
523 Ward Marotti: It could be.

524  
525 Dolores Bailey: So, you didn't have to go down 1,000 feet before you reached this level?

526  
527 Ward Marotti: No, I didn't. No.

528  
529 Dolores Bailey: Okay.

530  
531 Ward Marotti: There's different seams of water in the cross section as you drill down.

532  
533 Dolores Bailey: I'm from a well community so I know what you're talking about, okay?

534  
535 Ward Marotti: Okay. So, there is high potential for disparate sources of ground water and different ones  
536 to be tapped into for different wells, not only at different depths, but in different X, Y  
537 locations as well. You may have the same well depth, but if the aquifer is like this and  
538 goes like that, you may be at the same depth but not in the same aquifer even. And so  
539 that was the intent of having the direct monitoring of adjacent wells was to document  
540 what, if any, impacts to those adjacent wells occurred as a result of draw down of the  
541 proposed well. And like I said that's in your packet. I don't know if it's in an appendix or  
542 what, but the graphs are in what was submitted to you all, and you can see both the  
543 ambient data before we did anything, and then we collected data again for a week or 10  
544 days prior to doing any pump down. Then during the pump down, and then another 10 to  
545 14 days post draw down. And if there was going to be any, based on the hydrologic, or  
546 the geologic research that we did in the area, actually drilled two wells for this site, one of  
547 which came up with no water. Didn't hit an aquifer, but there was geologic data  
548 associated with that, and based on that, it's likely that these are not even touching the  
549 same water tables, or the same aquifers, rather.

550  
551 Dolores Bailey: Okay. I've got others, but I'll let it pass. I'll wait and go through.

552

553 Beth Bronson: I have a related question to the well if you don't mind just staying up there. Yeah, so, can  
554 you explain that like, anomalous drop is at the beginning of the ambient  
555

556 Ward Marotti: Sure.

557

558 Beth Bronson: Graph 1 of the ambient well data.  
559

560 Ward Marotti: Right.

561

562 Beth Bronson: It experiences a dramatic drop.  
563

564 Ward Marotti: No. No idea.

565

566 Beth Bronson: Do you have a general explanation for how that happens, why that happens?  
567

568 Ward Marotti: It could be anything.

569

570 Beth Bronson: Does that look normal?  
571

572 Ward Marotti: It has nothing to with anything that we are associated with. Which is why you collect the  
573 ambient data in the first place to document what conditions are. You'll also see in that  
574 same graph for the Rigsbee's well, a pretty, relative to the other adjacent well, a pretty  
575 large variance. A consistent variance. It drops up and down.  
576

577 Beth Bronson: I am specifically referring to here.  
578

579 Ward Marotti: I'm just pointing out that not only is there that big drop, but you can also notice in that, just  
580 purely speculative answer to that is either on-site use for irrigation or an adjacent user's  
581 use because you can see in that little series that has the substantive vertical drop, there's  
582 also very rapid return.  
583

584 Beth Bronson: Absolutely.  
585

586 Ward Marotti: And so, it's going down, and then filling back up. And again, I can speculate about what  
587 potential causes and sources are, but it has nothing to do with anything.  
588

589 Beth Bronson: Completely speculative. I just didn't know as a professional.  
590

591 Ward Marotti: Yeah. That's what sprang to mind to me when I saw that was an adjacent user or use for  
592 irrigation. The hose was cut on and off and that is to some degree what explained that  
593 rapid rise and then again, a rapid drop in the water surface elevation.  
594

595 Beth Bronson: Okay.  
596

597 Ward Marotti: Good. No, that's a great question. Absolutely.  
598

599 Beth Bronson: Trying to understand that from the hydrologist or hydrologist specialist, what would  
600 account for some certain randomness. See here it drops, or not. And then there, I wanted  
601 to know how many, what is it, gallons per minute? It was?  
602

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603 Ward Marotti: The steady state was 90 gallons per minute.  
604  
605 Beth Bronson: 90. That's right.  
606  
607 Ward Marotti: The proposed use is a maximum. The state requirement is .57 gallons per user, and so  
608 the steady state is almost quadruple the state minimum.  
609  
610 Beth Bronson: No, as a local, I am very aware of the triple A quality of the water around here.  
611  
612 Ward Marotti: So, the steady state is well above what the maximum use per the state threshold is.  
613  
614 Beth Bronson: Certainly. And then in the actual 24-hour testing, was there any like notation or asterisk  
615 about the 100-year flood that was experienced 2 weeks before? Does that have any  
616 impact? In your professional opinion.  
617  
618 Ward Marotti: It would have similar impacts on all the wells, and the point was to document whether  
619 there were not the impacts of precipitation events that would be, to some degree,  
620 consistent between sample sites, but to some degree it wouldn't be because we're talking  
621 about 600 feet down and 70 feet down.  
622  
623 Beth Bronson: Certainly. In those 2 weeks, yeah.  
624  
625 Ward Marotti: Supplies that are dependent more on direct surface water infiltration are going to have a  
626 much more prompt impact based on precipitation events than ones that are 600 feet  
627 through rock.  
628  
629 Beth Bronson: And just to translate for the generic audience members that over those 2 weeks, there's  
630 no chance that the water that came down will have an effect on what's 600 feet below.  
631  
632 Ward Marotti: Oh, I wouldn't say no chance. Unlikely.  
633  
634 Beth Bronson: Unlikely chance. Okay. Thank you very much.  
635  
636 Lamar Proctor: Anyone else?  
637  
638 Meg Millard: My question is kind of like Beth's. It just seems like when you were testing the wells, it  
639 was when we had the most rainfall that we have had in forever. So, the wettest possible  
640 time, which is not the time you worry about your well going dry or your neighbor's well  
641 going dry. And I have lived not far from there, and definitely, there are some well  
642 problems.  
643  
644 Chris Johnston: You mentioned that this was drilled in November, and when did you start the ambient data  
645 collection?  
646  
647 Ward Marotti: June. Specifically started after concerns were raised following the public meeting.  
648  
649 Chris Johnston: Gotcha. Okay.  
650  
651 Meg Millard: But the draw downs on the Griffin well and the Rigsbee well happened in July.  
652

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653 Ward Marotti: Happened in July. That's correct.  
654  
655 Meg Millard: When we had the most rain of forever.  
656  
657 Ward Marotti: It wasn't specifically tied to that precipitation event. That was not intentional.  
658  
659 Meg Millard: No, I'm not proposing that you did that on purpose. It just happens to coincide, and have  
660 you considered doing any further testing because of one brief testing when there's a huge  
661 water impact on the community is.  
662  
663 Beth Trahos: Can I point one thing. The purpose of the testing was not so much the quantity of water,  
664 although the testing showed significantly more than is required, but people were asking  
665 what is the impact on my well?  
666  
667 Ward Marotti: Rough draw down on adjacent well. Exactly.  
668  
669 Beth Trahos: It doesn't matter whether there's a lot of rain or a little, right?  
670  
671 Ward Marotti: Well, the fact that there was no documentation of any noticeable draw down coalesced to  
672 the draw down timing, I would say that's correct.  
673  
674 Beth Trahos: And the other thing I would say is that I, I'll ask you, Ward, and I, myself, I have never  
675 been involved in a case where we actually did well testing. In my experience in almost 30  
676 years somehow as a land use lawyer, I've never seen anybody test wells before.  
677  
678 Ward Marotti: It's typically speculative modeling. Not based on real data.  
679  
680 Beth Trahos: Right. So, the idea that there is data available is unusual as well.  
681  
682 Beth Bronson: Thank you for clarifying.  
683  
684 Lamar Proctor: I was going to generally try and move down, so we don't get in a free for all, but if a  
685 planning board member is asking a question, and you have a follow up that's directly  
686 related to what they're asking, then I think that that's appropriate. Otherwise, I would just  
687 everybody to reserve your questions for your turn. Did you have something related to  
688 wells?  
689  
690 Statler Gilfillen: I'm going to get to septic.  
691  
692 Lamar Proctor: Okay. We'll get to that as a different issue. All right. I was going to move down to  
693 Charity. Is that okay Beth?  
694  
695 Beth Trahos: Yes.  
696  
697 Lamar Proctor: Okay.  
698  
699 Charity Kirk: On Page 121, the fire and life safety was commenting that two separate and approved  
700 apparatus access roads shall be provided when the number of dwelling units exceeds 30  
701 with the exception of all dwelling units are equipped throughout and with approved  
702 automatic sprinkler systems, and the number of dwellings on a single-fire apparatus

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703 access roads shall not be increased unless fire apparatus access roads will connect with  
704 future developments as determined by the fire code official. Like, there's more than 30.  
705 But I didn't quite understand what this meant for this development.  
706

707 Donna Crowder: I'm Donna Crowder, director of entitlements working on this project. Thank you for letting  
708 me talk. The Fire Marshall that made that comment, that was in the first round. And we  
709 responded to that and there was new regulation out there through the state of North  
710 Carolina, and I'm glad to provide that information to you, the general statute, but you do  
711 not have to have two access roads unless you have more than 100 single-family dwellings  
712 and that is the state of North Carolina. The Fire Marshall at one time made that comment,  
713 but that was back in the very beginning, and we sent him the regulations, and he said, oh,  
714 yeah, you're right. So, he agreed with the regulations that was provided, but I would be  
715 glad to provide you with that general statute. I think we can pull it up here tonight. If you  
716 give us a moment, we can find that statute.  
717

718 Cy Stober: If I could provide context, that was the former interim Fire Marshall. We have a new Fire  
719 Marshall. He was quoting from what he thought was the current version of Appendix D of  
720 the state fire code, and Donna is correct that the applicant is correct. That reference was  
721 out of date, and the fire code was changed to increase that from 30 to 100 dwellings by  
722 the state.  
723

724 Charity Kirk: Thank you. On Page 126, just to go over the minor details. From the Department of  
725 Natural and Cultural Resources, it's said there are documents attached, and I didn't see  
726 anything from the Department of Natural and Cultural Resources in my document. I was  
727 wondering what they said.  
728

729 Lauren Honeycutt: All of the documents that we receive from the state clearing house, which is where these  
730 different external agencies comment, are only available through the permit portal, which is  
731 indicated in your abstract. You have to, unfortunately, go through the link in order to view  
732 the full documents just because of the length of the documents.  
733

734 Charity Kirk: So, I need to go to the PDF, not this printout that was sent to me in the mail?  
735

736 Lauren Honeycutt: Correct.  
737

738 Charity Kirk: Okay. I will take a look at that. Where did it say that? I did read lots of stuff.  
739

740 Lauren Honeycutt: It can be a little bit tricky, but the hyperlinks are available in the abstract and the staff  
741 report.  
742

743 Charity Kirk: Okay. I will look out for that from now on. Thank you.  
744

745 Lauren Honeycutt: Yeah. Apologies. It can be a little confusing.  
746

747 Charity Kirk: It's okay. That's why I asked. If this maintained an R1 status, how many lots would be  
748 allowed on this property with the stream and wetlands? Because they're 1-acre lots for  
749 R1, but you have a lot of half-acre lots for this rezoning. So, what is the tradeoff between  
750 the two?  
751

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- 752 Beth Trahos: So, that's an engineering design question. Roughly, one unit to the acre is the R1 zoning  
753 district. This is 61 acres.  
754
- 755 Charity Kirk: Yeah, but some of that land is probably not, you can't build on it anyway because of the  
756 creek and the flood zone.  
757
- 758 Beth Trahos: That's true. However, that area could be included in lots. So, the benefit of the  
759 conservation is you could preserve large areas of open space as a group as compared to  
760 if you individually lot, these things will be included as a part of individual lots, and  
761 oftentimes folks just consider that more of their backyard, and I'm familiar with some  
762 situations where there has been sort of more disturbance of those areas than there should  
763 have been because folks just thought it was their backyard. This allows you to preserve,  
764 the swaths of property together. The exact number of units that could be permitted, you  
765 could bring in probably five engineers, and they'd come up with different numbers. It's an  
766 art to lay them out, and I don't specifically know how many.  
767
- 768 Donna Crowder: I can tell you that in the very beginning we were contemplating it as doing acre lots and  
769 we came up with 50 units, is what we came up with. Because we could cross the creek  
770 into the back, and we could put five or six lots back there, and we had a total of 50. We  
771 met with the planning department. They indicated that Orange County would like to see  
772 smaller lots with more open space. So, that is why we went with the plan that we did and  
773 why we went with smaller lots, and I would say to best point out, if the land is on larger  
774 lots, they own privately, those people can do whatever they want. They can knock down  
775 trees. They can put up fences and this and that, which I know you're probably very aware  
776 about conservation subdivisions, but if it's preserved, you have more land that's going to  
777 be preserved. And that whole area in the back is perfect for wildlife and that is  
778 developable, and I will tell you that the land was suitable. All over the whole subdivision.  
779 Everywhere that wasn't in wetlands had good dirt that we could have put probably more  
780 houses. We chose to go with this conservation subdivision in order to preserve it. So,  
781 that's just to let you know. We couldn't go over 50 lots because of the community well.  
782
- 783 Charity Kirk: What are you expecting the home sizes to be? You say four bedrooms, but like what do  
784 you think the footprint of each. Because I know there's lots of septic everywhere, but it  
785 didn't have an estimate for the footprint.  
786
- 787 Donna Crowder: And there are those examples though that do show the footprint.  
788
- 789 Charity Kirk: Yeah. But it didn't have dimensions.  
790
- 791 Beth Trahos: Yeah, it didn't have dimensions. So, just to be kind of put this record straight. We're a  
792 developer. We're not a builder, so we don't go vertical. And we have not picked a builder  
793 yet. We have several different builders that are interested in it. But we are just a  
794 developer. Full disclosure, we are 65 percent owned by DL Horton, but we are not  
795 obligated to sell these lots to DL Horton, and its quite honestly kind of out of their  
796 wheelhouse. I don't know that they would build on these anyway. I would expect that it  
797 would be a minimum of 2,500 to 3,000 square feet, probably more.  
798
- 799 Charity Kirk: For the footprint?  
800

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801 Donna Crowder: No, for the total house size, but we don't know what the footprint's going to be because  
802 we're just the developer, and we don't know who's going to buy it and what houses they're  
803 going to put.  
804

805 Charity Kirk: Okay.  
806

807 Donna Crowder: David, do you have the dimensions that you used for that? David Barcal, come on.  
808

809 David Barcal: The house boxes that I took from, we had about four different ones shared with us. We  
810 took the largest one. We had to make the most conservative approach when we're laying  
811 these out, and the lots we picked were the weird, funky-shaped lots where you would  
812 have the most difficult trouble in some of them. And the few spots that there wasn't  
813 suitable soil, you'll see one where it was going through, so we chose those lots. I don't  
814 have the square footage on the top of my head.  
815

816 Donna Crowder: But those are just examples anyway, right?  
817

818 David Barcal: Yeah.  
819

820 Charity Kirk: And so, with the conservation subdivision, why did you choose to do half-acre lots rather  
821 than, I mean, it makes more financial sense, but is there any other rationality to do smaller  
822 lots when it's becoming a sort of a question for the community of not matching the existing  
823 area.  
824

825 Beth Trahos: As a land planner, my understanding of the goal of the conservation was to have the  
826 smaller lots, and the smaller the better, so that more area could be preserved in that open  
827 space. And so, I think the balance was, what is a reasonable lot that can accommodate  
828 the individual septic but still allow for the broader area to be preserved. So, this was  
829 where we came down.  
830

831 Charity Kirk: And have you considered offering any of these units or having any of these units be low-  
832 income housing? Or like having a percentage be allotted to low-income housing?  
833

834 Beth Trahos: Our expectation is that this will be a market rate project and given the development costs  
835 in the area, that's our expectation moving forward, so, no.  
836

837 Charity Kirk: Okay. I think I'm done for now.  
838

839 Chris Johnston: Okay. I have no questions. Thank you.  
840

841 Lamar Proctor: So, good evening. So, on Page 121, under general under No. 3. It says R-CD, which is a  
842 residential conditional district. It includes a note for lots outside of a watershed protection  
843 overlay district. The minimum usable lot are for lots that utilize ground absorption  
844 wastewater systems. So that's septic, right?  
845

846 Donna Crowder: I'm sorry. I'm not caught up with you. 121.  
847

848 Lamar Proctor: Page 121. Planning section under the bottom.  
849

850 Donna Crowder: Okay, yes.

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851  
852 Lamar Proctor: So, it's the minimum usable lot area for lots that utilize ground absorption wastewater  
853 system shall be 30,000 square feet for parcels between 40,000 square feet and 1.99  
854 acres in size. And then it says consider the inclusion of the condition addressing that the  
855 proposed lot size is deviating from the minimum and that the parcels will include suitable  
856 septic. I'm reading that right? That there's a concern. And I appreciate the smaller lot  
857 sizes. I think that's the right direction. To concentrate human housing and give more  
858 room to the environment. But how is septic going to work? Am I reading that right? That  
859 there's a concern that the lot size is for septic get problematic.  
860

861 Beth Trahos: And so, there again, we also conducted the experts, and David Barcal is our septic expert,  
862 and he can talk to you about how that would work.  
863

864 David Barcal: Yeah, we've done a preliminary soils analysis on the site that I talked about by a licensed  
865 soil scientist as is mentioned earlier. Pretty much the whole development site was rated  
866 for conventional use which is the highest quality soil you're going to find in this area. And  
867 we did provide a couple of those. We did select those four lots that were going to be  
868 more problematic or the tougher ones to simulate what we could fit in there and what  
869 would work as far as a four-bedroom count, and trying to make sure it fits within what are  
870 the requirements of Orange County's environmental health department and assuming a  
871 lower LTAR value. Which is what we call for the loading rate, so we assume, I believe, a  
872 .25, which is on the low end of a conventional soil. And then we documented in there  
873 what was the type of systems we were assuming. We're assuming 3-foot trench systems.  
874 You can use gravel trench. You can use innovative systems like easy-flow or infiltrator or  
875 TNJ panel, which are panel systems. So, we are able to fit on all four of those four-  
876 bedroom lots.  
877

878 Lamar Proctor: Okay.  
879

880 Cy Stober: Mr. Chair?  
881

882 Lamar Proctor: Yes.  
883

884 Cy Stober: If I may? Just a reminder for the public as well as the board. Regardless of whether the  
885 proposal tonight or application tonight is recommended for approval or denial and  
886 regardless of whether it ultimately is approved or denied by the Board of Commissioners,  
887 that is no assurance of Environmental Health permitting, which is a separate process, so  
888 all of the septic systems would have to be permitted by the county and will be at the  
889 discretion of the Environmental Health Department.  
890

891 Lamar Proctor: That will that be permitted per lot, right?  
892

893 Cy Stober: Correct.  
894

895 Lamar Proctor: So, it could end up that there are only 40 lots or.  
896

897 Statler Gilfillen: Or 20.  
898

899 David Barcal: Yeah. And when you get to a detailed soil analysis, and you actually get boots on the  
900 ground and lay out the actual lines with the house boxes that are proposed.

## DRAFT

- 901  
902 Chris Johnston: But then at that point, it would be potentially a change in the conditional use, and if any  
903 changes had to occur, they'd have to come back to submitting a new plan? Or are there  
904 variances that are allowed if this site doesn't perc right or whatever the case may be.  
905
- 906 Cy Stober: There are minor modifications permitted to me as the director to make administrative  
907 leave. They largely are shifting locations of commitments like their mail kiosk or some of  
908 their amenities. We can modify some of the lot dimensions, provided they don't totally  
909 change the layout. But if they're not able to fulfill the lot and they fall short of the lot count,  
910 that is really a more of a subdivision matter at that point, and they have the approval for  
911 up to, in this case, 40 lots. But if you can't fulfill that then that would be where they're at.  
912 The lots that they're able to permit.  
913
- 914 Chris Johnston: So, their options would be to only have the number of lots that they could permit based on  
915 the septic systems, or if they wanted to readjust it in such a way that it exceeds your  
916 variance allowance, they'd have to then submit again for.  
917
- 918 Cy Stober: Yeah, if it fundamentally alters the character and the layout and design of the subdivision,  
919 the cluster subdivision in this case, they would have to go back through the hearing  
920 process.  
921
- 922 Lamar Proctor: And then I didn't see anything about lighting conditions. I know that one of the important  
923 things in White Cross and in rural Orange County is light pollution, so you're going to have  
924 40-plus potential homes. Are there any ideas or conditions that were discussed as to  
925 lighting to minimize light pollution?  
926
- 927 Beth Trahos: We have not discussed any specific ideas, but if that's a concern, we certainly could do  
928 that. Are you concerned about the houses which those are interior as well, so there's  
929 some separation both from the road and the adjacent neighbors, which would ameliorate  
930 any sort of lighting but also could look to address in some other fashion if there was a  
931 concern by the group.  
932
- 933 Lamar Proctor: Well, I think we've had in the past, and maybe staff can help me out on here. There have  
934 been projects where there were certain like, all the external lights will be down. Pointed  
935 down. Nothing's going up. There are certain angles that they won't be out like this they'll  
936 be pointed down.  
937
- 938 Beth Trahos: Yeah. I'm familiar with those in the context of the amenities, but I don't typically see those  
939 with regard to homes but that's not to say that we couldn't achieve that if it was a concern.  
940
- 941 Chris Johnston: And in some level, that's Duke Energy putting in their poles or doing whatever the case  
942 may be. Is that accurate?  
943
- 944 Cy Stober: We do have lighting standards. They are effectively cut-off lighting. I'm pulling up the  
945 standard in Article 6 right now. They generally do not apply to the actual residences  
946 themselves because we are restricted by state law to not regulate the architecture of  
947 single-family residences. And that is state law. But in terms of street lighting, that would  
948 need to comply with our ordinance. If you could just give me a moment.  
949

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- 950 Lamar Proctor: And while you're looking, I was just thinking of the mail kiosk and the public areas.  
951 Especially because I think the mail kiosk at the front, where there's going to be a  
952 proposed bus stop, I would imagine residents are not going to look favorably on this big,  
953 bright beacon.  
954
- 955 Beth Trahos: We do have some language in that condition about recessed lighting within the mail kiosk.  
956
- 957 Lamar Proctor: And where is that in the conditions?  
958
- 959 Beth Trahos: That's Condition 7. It says in the second sentence, the mail kiosk shall incorporate a  
960 weather covering with recessed lighting for a portion of the site and shall include at least  
961 two benches and one trash can.  
962
- 963 Cy Stober: Section 6.11 of the UDO provides lighting standards, and we require at construction with  
964 construction drawings of full lighting plan at the photo metric data and foot candle data,  
965 and our standards for, again, this is all outdoor lighting, are that they must be .5-foot  
966 candles. The maximum light level permitted along common property lines shall be .25-  
967 foot candles that adjoin any residential zone property line. So, that's exterior to this  
968 development that would include the kiosk and that would include the shelter, and/or .5-  
969 foot candles at any adjoining property line with a non-residential land use. And foot  
970 candle essentially, it's the light given off by a candle, effectively for reference's sake. A  
971 very weak flashlight, a 1980s flashlight, not one that we have today. And of course, wall-  
972 pack features. Wall packs are the lights that you see, usually on the sides of industrial or  
973 like on a loading dock or for a non-residential use. Those have to be cut off as well, and  
974 they must be. This is a standard. All lights shall be shielded in such a way as to direct  
975 light toward the earth's surface and away from reflective surfaces unless otherwise  
976 exempted. And flood lights are generally not permitted unless they can really reassure us  
977 that they're not going to bleed over into adjoining property lines.  
978
- 979 Lamar Proctor: And so that would cover the kiosk and the like.  
980
- 981 Cy Stober: Yeah. And there are specific subdivision standards within Section 6.11.6. That are if any  
982 subdivision, I'm just quoting here, if any subdivision proposes streetlights or other  
983 common or public area outdoor lighting, the final plats, so that's the subdivision plats, not  
984 the site plan that you're reviewing today, shall contain the statement certifying that the  
985 applicable provisions of the outdoor lighting standards as contained in this section of the  
986 UDO shall be adhered to, and again that's .25-foot candles at the property line. And the  
987 required lighting plan, which is a full-photo metric plan, and associated documents shall  
988 be submitted and approved by the planning department prior to installation. Then it must  
989 be reviewed by the staff and approved by the staff for conformance with the ordinance.  
990
- 991 Lamar Proctor: Okay, thank you. And was there any discussion of solar? Is it possible to utilize solar on  
992 any of the public buildings?  
993
- 994 Beth Trahos: We didn't have any discussion about that. It's certainly something that we can discuss,  
995 but it would be atypical in the residential context in my experience.  
996
- 997 Lamar Proctor: Yeah, and I guess the only buildings that are in the site plan that are not residences are  
998 the mail kiosk and then the common area.  
999

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- 1000 Beth Trahos: Yes. And my expectation for that common gathering area is not that it would not have  
1001 electricity.  
1002
- 1003 Lamar Proctor: Okay. I got it. And then your application said that there were no significant trees for  
1004 preservation. Am I remembering that correct? I think on page, was it 84? Does have a  
1005 tree symbol legend and does indicate trees. I didn't know if those are ones that you  
1006 intend to preserve. Because I noticed there, to the west, there are two other housing  
1007 subdivision like properties, and they're pretty well wooded, so I would imagine that the  
1008 people living in this area would like to preserve as much tree cover as possible, so I didn't  
1009 know what your plan was for that.  
1010
- 1011 Nicole Steele: Nicole Steele first of all. You are correct that there is not as many trees on the site, and  
1012 part of that's due to the history of the site and with the forestry program. The 40-some off  
1013 years ago, the family volunteered the use the property for, so most of the significant trees  
1014 on site were already harvested or used for other purposes. It would be the goal to  
1015 preserve what we can and the survey document's what's there. Minimally disturb the land  
1016 and then work around the septic and the house footprint for each lot.  
1017
- 1018 Lamar Proctor: So, looking on that Page 84, the trees in the preserved areas, they would remain, right?  
1019 The woods that are going to be open.  
1020
- 1021 Donna Crowder: Correct. And you can see they're clustered in the existing buffers. around the stream.  
1022 Those are more significant, so obviously, the forestry department did not take those down.  
1023
- 1024 Lamar Proctor: Okay. All right. Then one last question on the turn lanes, is that going to happen, or is  
1025 that subject to DOT approval?  
1026
- 1027 Beth Trahos: That is subject to NCDOT's approval as their road. None of us can do anything without  
1028 their permission. But we do have our traffic engineer here.  
1029
- 1030 Lamar Proctor: And I think that was proposing a right-turn lane coming out going towards east. Towards  
1031 Chapel Hill, and then a left turn lane in the center. Is that correct?  
1032
- 1033 Josh Reinke: Correct. Josh Reinke, with Bolton and Menk. Essentially, the reason we have to put in  
1034 that working is we have to get a driveway permit from DOT, and DOT is going to say, this  
1035 is our road. I find it highly unlikely that they would say, hey, if you're willing to put in turn  
1036 lanes, we don't want that. They didn't require them, but if we're going to offer them up,  
1037 they'd probably say, incorporate that into the design, and they'll want the left-turn lane,  
1038 which would be sort of in the center of the road, and then yes, the right-turn lane going  
1039 into the site. Both turn lanes would be on NC-54 by the access.  
1040
- 1041 Lamar Proctor: And that's the proposed condition, I believe? Correct?  
1042
- 1043 Beth Trahos: It's a condition. Yes, sir.  
1044
- 1045 Josh Reinke: Correct.  
1046
- 1047 Lamar Proctor: If it's approved, then you're going to build them.  
1048
- 1049 Beth Trahos: Well, with DOT approval.

DRAFT

1050  
1051 Lamar Proctor: If DOT approves it.  
1052  
1053 Josh Reinke: That's right.  
1054  
1055 Lamar Proctor: That's what I meant.  
1056  
1057 Josh Reinke: Yes.  
1058  
1059 Dolores Bailey: So, you guys thinking that that's going to abate the fears of the current residents that  
1060 there's already a problem with that left turn, and you're thinking that's going to fix it?  
1061  
1062 Josh Reinke: The purpose of this is to say, there is no capacity issues. We just got a backstory, as  
1063 nothing was required to be done by DOT or county. We did a traffic study anyways. We  
1064 even ran analysis, so it's not even saying it's a low-trip generator. It's below the threshold.  
1065 We ran analysis to see how that would operate. Then nothing was required by DOT.  
1066 Once I seal it and submit it to them, they have to review it. They said, we're not requiring  
1067 any turn lanes. Essentially, this will get traffic safely out of that through movement to  
1068 allow them to turn in. So, the purpose of a traffic study is to mitigate any traffic impacts  
1069 this development would have.  
1070  
1071 Dolores Bailey: Yeah. And I'm just concerned about what the neighbors feel like. Do they feel like this is  
1072 absolutely going to satisfy the problems that they think they're having already?  
1073  
1074 Josh Reinke: I won't speak on behalf of how the neighbors feel, but yeah, go ahead.  
1075  
1076 Beth Trahos: Yeah. I won't speak on that either, but I will say that these turn lanes were specifically  
1077 requested in a letter from the fire chief and so that's why we've added the condition above  
1078 and beyond the requirements not only of your code but of what NCDOT would require. To  
1079 go above and beyond to provide things that we have heard from the community that they  
1080 would like to see.  
1081  
1082 Dolores Bailey: Okay. And I'm just speaking from a comment that was sent to us. That there were some  
1083 concerns about a left turn from this.  
1084  
1085 Beth Trahos: Yes, ma'am.  
1086  
1087 Lamar Proctor: Okay. All right. Thank you.  
1088  
1089 Statler Gilfillen: Both the landscaping and septic system. I'm an architect, and I've dealt with a lot of  
1090 septic systems. They've controlled what we can do on many sites. So, I'm a little bit  
1091 concerned. You said that four of the sites have been tested already. You've done the  
1092 percs on them?  
1093  
1094 David Barcal: No, so there's been a preliminary analysis done on the whole site.  
1095  
1096 Statler Gilfillen: But no formal percs.  
1097

## DRAFT

- 1098 David Barcal: I don't believe you would with the soil classification as conventional, I don't think you'd  
1099 have to do like an actual perc test. It'd just be more of a bore-hole test. But no, we have  
1100 not put formal full reports ready for submittal for each individual lot. No.  
1101
- 1102 Statler Gilfillen: What happens? Those four sites were adjacent to each other?  
1103
- 1104 David Barcal: No, they were all over. They were scattered. I can't remember exactly where they were  
1105 on the site, but they weren't all adjacent to each other, no.  
1106
- 1107 Statler Gilfillen: Okay. What I'm looking at, and it's not trying to be critical here. Maybe this will be helpful.  
1108 You're working with sites that are minimum size with the septic system on it. Basically,  
1109 you can't plant trees on top of a septic system. Is my experience. You're in Orange  
1110 County. Now, that affects the landscaping. I'm hearing throughout how you want to put  
1111 trees and whatever. I'm assuming that the homeowner's organization will have rules to  
1112 control where and how you can landscape and particularly with the septic systems on  
1113 each site, so they don't conflict with each other. Am I right? It may not have been thought  
1114 of, well I'm raising it. This can really make a mess of any development.  
1115
- 1116 David Barcal: The septic permit itself would be the determination, like, you cannot by rule, you can't put  
1117 certain structures, objects within the septic field. So, the septic permit itself would be kind  
1118 of the regulating factor you're talking about.  
1119
- 1120 Dolores Bailey: But I think he's speaking to the fact that if you've got to have a septic system, then you're  
1121 not going to be able to have trees on your lot the way you're anticipating.  
1122
- 1123 Statler Gilfillen: Thank you.  
1124
- 1125 David Barcal: Well, I believe in the landscaping that we're talking about with the project is all done within  
1126 the open space and the public right-of-way area. Not necessarily the homeowner's lot,  
1127 right?  
1128
- 1129 Statler Gilfillen: So, typical homeowners. 5 years go by, they've moved in. They've got a backyard area.  
1130 They want to put a couple trees and bushes in to screen against their neighbors. But that  
1131 may very well be right on top of the septic system and not allowed.  
1132
- 1133 David Barcal: Well, so septic systems we have a natural 10-foot setback we have to be from all property  
1134 lines. So, if you're talking about putting bush and shrubbery along that 10-foot setback,  
1135 there's no issue. We actually, from a septic perspective, we like trees because they do  
1136 help absorb. And, you know, what you do find sometimes is if you do have a mature tree,  
1137 and a homeowner cuts it down with a septic system that's been in there, typically, a lot of  
1138 times, you see that the septic system starts to fail because that tree was acting as a  
1139 natural absorbent. We're putting in an initial system, and then you have a dedicated repair  
1140 system. So, the repair system is just a reserve. It's not built, and you don't have to do  
1141 any clearing or anything in that area.  
1142
- 1143 Statler Gilfillen: So, the real question focused with 40-something units. If you finally get all your  
1144 approvals, and you start to build some of them, and then you got to come in and finally do  
1145 those tests. The septic system does not work on a quarter of your lots, what do you do?  
1146 Financially, that's a disaster.  
1147

## DRAFT

- 1148 David Barcal: Yes, which is why we did the preliminary soils analysis from the licensed soil scientist that.  
1149
- 1150 Statler Gilfillen: That's 10 percent of the lots. Four of them would represent about 10 percent of your lots.  
1151 What if you find that there are other adjacent areas that don't work?  
1152
- 1153 Beth Trahos: The four layouts were to show on how the septic system and repair field and other  
1154 improvements could fit on four of the more difficult lots. That was not the soil that was  
1155 analyzed. The soil analysis was done for the full property.  
1156
- 1157 David Barcal: Yeah. For the full property and it was pretty consistent. It was consistent throughout the  
1158 whole property other than some small pieces. But the majority, I would say the vast  
1159 majority of all these lots, have a 100 percent conventional soil, suitable soil from the  
1160 preliminary soils, and like you said, when we get into detailed analysis when the soil  
1161 scientist does his full analysis on each individual lot, we lay out, we flag each line. It's his  
1162 stamp. It's also my stamp that we have to put on this, so it's our livelihoods, and if it  
1163 doesn't work, we're not putting our stamp on that.  
1164
- 1165 Dolores Bailey: But you haven't done a perc test on any of these?  
1166
- 1167 David Barcal: There's been bore-hole samples done throughout the whole site. Yes. But when the site  
1168 was evaluated, there wasn't a site layout at the time. We'll we always advise our clients  
1169 when we look at it.  
1170
- 1171 Dolores Bailey: I understand the process.  
1172
- 1173 David Barcal: Yeah.  
1174
- 1175 Dolores Bailey: I understand the process.  
1176
- 1177 David Barcal: We do a preliminary soil, so we know if you even have a viable site.  
1178
- 1179 Dolores Bailey: Well, part of that preliminary is what, like I agree with Statler's time, is the perc test. And  
1180 that is so important to know what kind of absorption rate you have in the soil. Not just the  
1181 soil testing.  
1182
- 1183 David Barcal: I believe in this case because of the soil classing and what we're proposing as  
1184 conventional it's just we're not going to do what's called a perc test. That's like an actual  
1185 water-standing test. They're doing that more looking at the actual consistency of the soil.  
1186
- 1187 Statler Gilfillen: My concern is that what you've done is based on the general conditions. Which is very  
1188 good. But when I'm looking at this plan, I'm down to very tight, very specific conditions.  
1189 That the general conditions is, when you get down to the specific may not match. That's  
1190 my concern.  
1191
- 1192 Chris Johnston: But just to confirm, right? So, the applicant is requesting this zoning request and is the  
1193 one that is going to take on the risk of if this does or does not perc, right?  
1194
- 1195 David Barcal: Yes.  
1196

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- 1197 Chris Johnston: What we're asking is does this fit the land-use model that we have and if they decide to do  
1198 this, and you know, they do their 10 percent, and that's perfectly fine, or whatever the  
1199 reasonable metric is, then if it does not work, it's on them, right? At that point they have to  
1200 reassess and readdress.  
1201
- 1202 Statler Gilfillen: Respectfully, I'm going to disagree with you on one philosophical principle. As a member  
1203 of the board, I think we have a certain obligation to try to ethically point out if we see what  
1204 might be a problem long term that could negatively impact them financially in what they're  
1205 doing. Because if it negatively impacts them financially, it negatively impacts all of us to a  
1206 certain degree. I've seen as an architect, many projects left deserted, unfinished because  
1207 somebody didn't plan something in advance. Or think it through in full detail. That's  
1208 where I'm coming from. That's all. And hopefully, what I've asked is at least good food  
1209 for thought before you spend too much money. Make sure that you're safe.  
1210
- 1211 David Barcal: Yeah. That's an excellent point. Thank you.  
1212
- 1213 Beth Trahos: Yeah, thank you.  
1214
- 1215 Lamar Proctor: Any other comments?  
1216
- 1217 Venkat Yendapalli: I'm probably on the same topic here he just discussed. So, you have some of the lots at  
1218 less than half an acre. And you just made a point that you have to leave 10-foot buffers  
1219 along the boundary of each lot. Is that enough room for the primary septic field and the  
1220 repair field? For the four-bedroom home sites is there enough land? Assuming that we  
1221 have the best soil from the area, is there enough lands from the fields? Less the footprint  
1222 of the house and everything else. The driveways and everything else you have to  
1223 exclude. Have you even looked at the concept to plan for these lots? You know if that is  
1224 even possible?  
1225
- 1226 David Barcal: Yeah. That's the four concept plans that we put together.  
1227
- 1228 Venkat Yendapalli: Four?  
1229
- 1230 David Barcal: Four. Four of the tighter sites, I would say. And then also, we've done the due diligence  
1231 of looking at some other 20,000-square foot lots that has same septic requirements in the  
1232 area of Orange County. And then also our experience of doing, we have done other  
1233 subdivisions with 20,000 square foot minimum lots that we've been able to get four-  
1234 bedroom homes in.  
1235
- 1236 Venkat Yendapalli: Two other topics I want to touch on is the impervious surface. How much impervious  
1237 surface are we creating? How much is allowed here? I think probably the planning team  
1238 may have looked into it.  
1239
- 1240 Beth Trahos: With regard to the permitted impervious surface, my recollection is its 24 percent. Is that  
1241 correct?  
1242
- 1243 Don Sever: 24 percent.  
1244
- 1245 Beth Trahos: Yes, is the allowed impervious area.  
1246

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1247 Venkat Yendapalli: So, the storm water ponds created here is designed to capture all that?  
1248

1249 Beth Trahos: This is our civil engineer.  
1250

1251 Venkat Yendapalli: Okay. All right, from a civil engineer as you've done the homework, but every topic is I  
1252 think some of my colleagues already touched on the well capacity. In 43 homes, there  
1253 being one well, don't you think there's no problems there. Anything goes wrong with the  
1254 well, and there's no water coming to 43 homes? Is that a good design, or do you have to  
1255 have, particularly what I've seen in my past experience, is there's more than one well so if  
1256 one well fails, the residents are not left holding an empty bucket.  
1257

1258 Beth Trahos: The analysis, and Ward might come back up and talk about that, but the analysis that he  
1259 found really quadrupled the capacity that the state would require for this site. So, we feel  
1260 like that's good.  
1261

1262 Donna Crowder: Just so you know, I'm not sure if you're familiar with Aqua. It's a private utility company.  
1263

1264 Venkat Yendapalli: I'm familiar with Aqua. Yeah.  
1265

1266 Donna Crowder: Okay, so Aqua has agreed to take over the maintenance and testing and ownership of the  
1267 entire water system. So, in the event that there's failures, they are legally responsible for  
1268 fixing and maintaining and providing water in the event that something happens, in the  
1269 event that the system fails. So, it's not going to be on the homeowner's association to try  
1270 to find a plumber in the middle of the night. Aqua is going to be billing the homeowner  
1271 directly and will be responsible for all the maintenance and making sure that that well is  
1272 doing what it's supposed to. I will say that they do this all over the state for community  
1273 wells everywhere, and there's no backup well. I do want to say that when we originally  
1274 dug the well, we did a draw-down test, and this was back in November, and we had 90  
1275 gallons a minute. So, it's not that this was the first time it came up that we had 90 gallons.  
1276 We already knew he had 90 gallons a minute, and it's very, very deep, so the thing that  
1277 would fail would be a pump, which Aqua would come out and fix in the middle of the night.  
1278 And it's the same thing if you had public water. My husband works for the town of Apex,  
1279 and somebody busts out a water main, and people are out of water, and he has to go out  
1280 there and fix it, so, it's the same type of situation. I just wanted to let you know that that's  
1281 the plan.  
1282

1283 Chris Johnston: Point of clarification. So, you mentioned. I apologize. When we originally talked the draw  
1284 down and tests that you mentioned was in June? You just mentioned.  
1285

1286 Donna Crowder: When we first drew the well, the purpose of drilling the well in the beginning was to make  
1287 sure that we had water and that the project was viable. But part of that testing including  
1288 draw-down tests. So, we had to know that. We initiated a second draw-down test just for  
1289 the purposes of testing to make sure that our neighbors were not going to be affected.  
1290

1291 Chris Johnston: Okay. So, the draw-down test initially. And I apologize. I'm not a hydrologist. I'll just be  
1292 clear. So, the initial draw-down test found similar results as the secondary one, and so  
1293 the reason it wasn't included in the packet was because they were so similar, or? I  
1294 apologize because we asked originally about the November one.  
1295

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1296 Ward Marotti: Yeah, they were just, they were separate tests that. As she said the initial one was to  
1297 determine what the capacity of the well was and ensure that there was sufficient capacity  
1298 to move forward to be where we're standing right now. And then subsequent to that, the  
1299 second test that I spoke about and the graphs in the packet are and the draw-down direct  
1300 results that came from the drilling company were specifically in the context of impacts to  
1301 adjacent single-use wells. So, they're stand-alone data, but what I believe what she was  
1302 conveying was the result with regard to the capacity was essentially the same in both  
1303 November when the precipitation conditions were not what they are today as well as what  
1304 they were when we did it in the context of impacts to adjacent wells.  
1305

1306 Chris Johnston: Okay.  
1307

1308 Beth Trahos: And the purpose of the inclusion of the study in your packet was impacts on adjacent  
1309 wells because that's what our neighbors asked us. Are you going to cause trouble for our  
1310 well, not do you have enough water for your development.  
1311

1312 Ward Marotti: Right.  
1313

1314 Chris Johnston: Gotcha. So, the additional analysis that ended up in our packet specifically had the Griffin  
1315 well in it, and its purpose was to show it wasn't effecting future, or nearby wells, but the  
1316 draw-down test that happened in November was just for the viability of the project.  
1317

1318 Beth Trahos: Correct.  
1319

1320 Ward Marotti: Correct.  
1321

1322 Chris Johnston: Okay. My fault.  
1323

1324 David Barcal: Just, just to correct. The original draw-down test, which we call the 24-hour draw-down  
1325 test is on Page 61 and that's specific to the actual permitting. Ward's test was specific to  
1326 seeing the effects of the other wells. When we do the well permitting with DEQ they  
1327 require this 24 hour.  
1328

1329 Chris Johnston: I apologize. That one didn't have the pretty graph associated with it.  
1330

1331 David Barcal: That's a test that is required from NCPWS. Public water supply. For us to permit, to  
1332 actually permit design the well.  
1333

1334 Chris Johnston: So, you said 61, correct?  
1335

1336 David Barcal: Page 61, yes.  
1337

1338 Beth Trahos: It is.  
1339

1340 Lamar Proctor: So, on the static well level. The says date measured 7/16/25. Is that accurate?  
1341

1342 Ward Marotti: That was the one that we just did. I don't know if the original one is in here or not.  
1343

1344 David Barcal: I apologize. It's the exact same company that's.  
1345

DRAFT

1346 Beth Trahos: Yeah. No, so, just to clarify, you were incorrect. This is actually a copy. So, you thought  
1347 this was the original, but it was not.  
1348

1349 David Barcal: It's so similar to the one we did. So, we got similar results.  
1350

1351 Lamar Proctor: And is 90 gallons per minute going to be sufficient for 40 plus homes?  
1352

1353 Ward Marotti: Yeah, the state requirement is a bit less than half a gallon a minute per user. And so,  
1354 we've got almost quadruple the state minimum.  
1355

1356 Lamar Proctor: Okay. And just a quick follow up on the storm water retention areas. Those are not open  
1357 water.  
1358

1359 Don Sever: Good evening, I'm Don Sever with building consulting.  
1360

1361 Lamar Proctor: So, those aren't open ponds, right?  
1362

1363 Don Sever: That would be bio-retention areas for infiltration. Something similar.  
1364

1365 Lamar Proctor: Okay.  
1366

1367 Don Sever: But not standing water.  
1368

1369 Lamar Proctor: So, just with like natural wetlands?  
1370

1371 Don Sever: Natural vegetation.  
1372

1373 Lamar Proctor: Okay. That was just my follow up. Thank you. All right. Jonah?  
1374

1375 Jonah Garson: I'm good.  
1376

1377 Lamar Proctor: Meg?  
1378

1379 Meg Millard: Oh. I have some questions.  
1380

1381 Beth Trahos: Yes, ma'am.  
1382

1383 Meg Millard: So, for keeping the character of the community and the neighborhood and the rural  
1384 aspects of Orange County, it seems like looking at the satellite view, it's more wooded  
1385 than not. And you would be taking out about 35, 36 acres of trees to put all the houses in  
1386 and all the septic field and all the roads. 10 bird nest boxes seem a little insufficient for  
1387 taking out 35 acres of forest. And what kind of bird species were you thinking of putting  
1388 up boxes for, and who's going to maintain those because they do get worn out.  
1389

1390 Beth Trahos: The condition requires that the HOA maintain them along with the amenities. We did not  
1391 identify specific species in the document, but if there are some in particular that you are  
1392 interested in or knowledgeable about, we can certainly look into those. We are certainly  
1393 trading off some open space for housing, but just as much as maintaining the rural  
1394 character is important, having places for people to live is also important given the growth  
1395 coming to the county, so that's the balance we're trying to achieve.

1396  
1397 Meg Millard: Okay. And also, I've also driven that stretch of 54 a lot. I don't know how many other  
1398 people on this group have, but that curve is difficult to turn in and out of, especially making  
1399 a left turn towards Chapel Hill. Cars go way above the speed limit. If you're at Fiesta  
1400 Grill, which has a much clearer view of the road, you're still taking your life in everybody  
1401 else's hands, not your own hands when you're trying to turn onto 54. Even if you're  
1402 coming on White Cross Road and turning right towards Chapel Hill, cars come flying  
1403 around that curve. And this is right at the peak of the curve so it's even harder to see, it  
1404 seems to me. I'm not sure how a right-turn lane would help that at all. I don't know if  
1405 anybody else looked at the DOT stuff in here, but they did say 80 percent of the cars  
1406 would be heading towards Chapel Hill, and 20 percent would be turning right, and they  
1407 also said only like 26 cars would be leaving in the morning, and I'm like, they're 43  
1408 households. If those houses are 3,000 square feet, it's going to be at least two people  
1409 working to pay for that house. And then all their teenage drivers as well, so it seems to  
1410 me a lot more than 26 cars will be leaving in the morning. So that concerns me a lot. To  
1411 put that many houses with one exit.  
1412

1413 Josh Reinke: Would you like for me talk about that?  
1414

1415 Meg Millard: Yup, I'd love to hear how you're going to fix that because.  
1416

1417 Josh Reinke: I can explain because I know what it is like if you're not in the transportation world, you'll  
1418 be like, what is this? I hear that all the time. It's like, where do these numbers come  
1419 from? First off, NCDOT follows the Institute of Transportation Engineers guidelines for trip  
1420 generation, so when you say, well how is it possible that there's only X amount of  
1421 vehicles? This is based on pure studies. Studies across the US. Studies saying here it  
1422 is. And they update it about every 2 years saying here's new information. Here are  
1423 trends that changed. Things changed during COVID of patterns of vehicles and things  
1424 like that, and some haven't bounced back completely. But essentially, the trip generation  
1425 itself is based on actual data staying here is what enters and exits during those peak  
1426 times. What we do is we collect data out there in the field saying here's what's going on  
1427 currently. We grow that up to the future saying what is the typical growth. We add in our  
1428 site traffic when we do analysis, which once again, not required, but we did analysis to  
1429 see how that would operate. So, it is kind of conservative. You're assuming that peak  
1430 hour of what's going on out there now is the exact same peak hour. And it's pretty  
1431 common with residential that it is. You know, peak hours are driven by employment,  
1432 schools, things like that, so you are studying when schools are in session and all, so that's  
1433 where that data comes from. DOT says you will use the Institute of Transportation  
1434 Engineers unless it is of some very unusual land use. I work on certain projects like Novo  
1435 Nordisk is one that I'm working on. There is nothing like the Novo Nordisk site, so we had  
1436 to collect data at their existing things like that where it might be abnormal, but for  
1437 residential, that's the guidelines we're using there. To address some of the concerns  
1438 about the curvature in the road and such, and how would turn lanes help that. So,  
1439 essentially, when they go for a driveway permit, it gets more into like we were hearing  
1440 there's preliminary stuff. It gets into the real designs. They have site distance standards  
1441 where you're saying, here is how it'll actually operate. You are sitting there waiting to turn  
1442 out, turn in, whatever, and they need to meet NCDOT standards. It's based on speeds,  
1443 things like that. They do buffer out conservatively. It's not based on speed limit. It's  
1444 based on a design speed, which is typically higher than that. So, that is how you say, we  
1445 want to make sure cars can safely turn out of there, whether it's vertical or a horizontal

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- 1446 curvature, the alignment of the road. All that will come into the design of the driveway  
1447 permit, and DOT will require them to consider that. The turn lanes, once again, this is not  
1448 just, you're plunking a little bit of pavement. You have the tapers. You have the storage.  
1449 That's to get those cars safely out of that through movement, so you don't have the rear-  
1450 end accidents. I know that's the concern of neighbors. If you have your own individual  
1451 driveway, you probably don't have a turn lane, and you're terrified when somebody's  
1452 coming up behind you quick, and you're waiting to turn left, waiting for a gap in traffic.  
1453 That's the good thing with when you have a cluster of homes here is there is the  
1454 possibility that they say, well that's more than one vehicle. We're concerned about that.  
1455 We want a turn lane. So, putting in these turn lanes will remove that traffic from the  
1456 through. Get them safely in where they can transition so they're not having to hit the  
1457 brakes and have somebody hit him from behind. They're going to be able to be in turn  
1458 lanes and then have that peace of mind and not do a risky turn in front of somebody  
1459 because they know people are backing up behind them or anything like that. So, that is  
1460 why the turn lanes are important and how they would see.
- 1461
- 1462 Meg Millard: That doesn't help turning left out of the neighborhood.
- 1463
- 1464 Josh Reinke: Well, left out would be the site distance where you say I know I can safely move that. If  
1465 you added laneage there, it wouldn't help that. It would make sure you didn't have as  
1466 much queuing into the site, which is expected to be fairly minimal here based on those  
1467 volumes as that is something we looked at. And yes, you will have to wait for a gap in  
1468 traffic on the main line, but it doesn't queue up, or it's any safety concern. It's on the site.  
1469 You're not going to get rear ended. You're going to have neighbors that know that they're  
1470 coming up to a stop sign, and then they're going to wait to come out of there. It's mainly  
1471 54 that is safety concerns. Like I said, capacity. That's not really the issue of why the  
1472 turn lanes are being put in. That is more of a safety thing with just the speeds and things  
1473 like that on 54 and the volumes on 54.
- 1474
- 1475 Meg Millard: Okay. And the last thing I have a just septic concern as well, like many others in this  
1476 group. It seems like a lot of houses in a small area. They're definitely compacted, and  
1477 the samples that you gave had a lot of the area of the lots covered by a septic field, and  
1478 that does mean less places people can do a lot of things in their yard. Have you  
1479 considered reducing the number of houses and making the lots a little bigger?
- 1480
- 1481 Beth Trahos: Well, I think our thought was that the lots are smaller, but in my world, building houses all  
1482 around the triangle, these are actually quite large for Raleigh or Durham for instance, but  
1483 the benefit of this conservation is that there's open space that folks can use for those  
1484 recreational purposes. And so, we've tried to make that common space a place where  
1485 folks can also gather or walk on the trails, so that there are other opportunities beyond  
1486 their individual lot, which benefit more folks.
- 1487
- 1488 Meg Millard: But it's still a lot of septic tanks.
- 1489
- 1490 Beth Trahos: Well, I think the septic tanks are the same size regardless of the size of the lot.
- 1491
- 1492 Meg Millard: Right. But if you had a 3/4-acre lot, you would have fewer lots, so there would be fewer  
1493 septic systems on the property.
- 1494
- 1495 Beth Trahos: And fewer places for people to live as well.

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- 1496  
1497 Meg Millard: Right.  
1498  
1499 Beth Trahos: You're trying to create that balance here. People want to live in Orange County, and  
1500 they're going to find a way to live here. What we're proposing to you is that this is a gentle  
1501 way that actually doesn't allow for additional units. But it allows for more clustering and  
1502 could create 43 homes for families to live in this area. We think that's a public benefit.  
1503  
1504 Dolores Bailey: Lamar can I ask a quick question?  
1505  
1506 Lamar Proctor: Sure.  
1507  
1508 Dolores Bailey: Can you tell us what you all imagine your typical family is going to be able to afford in this  
1509 neighborhood?  
1510  
1511 Beth Trahos: I can't tell you what the prices of the homes would be. Again, Forestar is a developer they  
1512 don't actually build them.  
1513  
1514 Dolores Bailey: They don't have an approximately square footage cost, though? Approximately? A  
1515 range.  
1516  
1517 Beth Trahos: They don't build them. But they would be market-rate housing for sure. And I would  
1518 expect if would be families in this area, so folks with kids of varying ages. I certainly see it  
1519 as a desirable and attractive area, and I see the amenities as things that would be of  
1520 interest to me with my family and kids.  
1521  
1522 Dolores Bailey: And just a real quick point for you. In Orange County, the biggest housing need is for  
1523 those families that make 50,000 and below. But it doesn't sound like this subdivision  
1524 would be for them.  
1525  
1526 Beth Trahos: Likely not. It would be a market-rate community. But my understanding is that there are  
1527 needs for houses at all levels throughout the triangle. And with the growth that y'all are  
1528 seeing. Just even that 2010 to 2020 before folks started moving because of COVID,  
1529 15,000 more people, 11 percent of the population. My view is that's continuing with  
1530 everything that I'm seeing throughout the area. We hope you will find that this is a  
1531 balance that you can live with. Enough of the environmental protections. Enough of the  
1532 open space and amenities and some opportunity for homes.  
1533  
1534 Lamar Proctor: Any other questions?  
1535  
1536 Beth Bronson: Sorry. Yeah, sorry, I didn't get a chance to ask. Besides the well and septic. I share a lot  
1537 of the same concerns with the septic just because of the density hasn't been necessarily  
1538 tested out here in this rural area, and as far as comparison lots, all of the other lots in the  
1539 area are reflective of R1 zoning. Is that accurate?  
1540  
1541 Beth Trahos: There are, in the power point, there are existing septic systems on 20,000-square foot lots  
1542 in Orange County. And some of them actually, I believe built in the 60s and 70s.  
1543  
1544 Beth Bronson: Yes. I saw that part. I meant like within that area. Within that intersection of White  
1545 Cross. Between White Cross and Orange Grove?

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1546  
1547 Beth Trahos: To my knowledge, I don't know. There are some smaller lots there. I certainly see them  
1548 throughout the triangle, functioning well, and I think David shared that, his experience too.  
1549

1550 Beth Bronson: Certainly yes. I mean, again, I'm not an expert in that, and I would absolutely defer it to  
1551 the permitting experts to provide that information to you. But it does kind of raise the  
1552 question. In the application, I see that it changed from like 40 houses, or 40 lots to 41 to  
1553 43. And now, I believe the application is for 45? Home lots?  
1554

1555 Beth Trahos: There were some iterations of the application as we were finalizing our design, and with  
1556 the just sheer number of consultants that we brought in to make sure we were covering  
1557 every aspect, some folks picked up an earlier number of lots, so you do see that. What is  
1558 proposed is 43 lots. That is on your plan and that plan is a committed element that.  
1559

1560 Beth Bronson: 43 is the committed.  
1561

1562 Beth Trahos: Yup.  
1563

1564 Beth Bronson: And just throughout the process, it started as 40 that were mapped out.  
1565

1566 Beth Trahos: Yes, I think that was an error, and some folks picked up on someone else's error, and  
1567 then it sort of snowballed, and so yes. You do see some different numbers, but the  
1568 answer is 43.  
1569

1570 Beth Bronson: Okay. I'm sorry. One of the consultants was referring to the density for this conservation  
1571 neighborhood that the idea that they could have developed across the stream, and there  
1572 could be more spread out, and the choice was to create a more dense lot and smaller lot  
1573 sizes for the community feel, but I would pause at that. I would think it'd be much more  
1574 affordable if you're going to be running a community well line throughout the  
1575 neighborhood to not cross a stream or a protected water area. I just wanted to point that  
1576 out, out of necessity, I think it's important that when applicants are presenting these  
1577 concept plans that you are taking advantage. And I think that this application does that.  
1578 Is that it reflects a thoughtful process, and yes, it's more cost effective to do this, but it's  
1579 also environmentally beneficial to stay away from the stream ways, and so, it's just not a  
1580 reasoning, I think, for what could have been done. And then if the DOT application is  
1581 approved, one of the conditions was that they would provide the right-turn lane, and then I  
1582 don't understand necessarily how the center lane would work if it was approved. Do you  
1583 have anybody to speak to that?  
1584

1585 Beth Trahos: Well, Josh can speak to that, but I can tell you the short answer, which may be what  
1586 you're after is one is a right-turn lane into the site, and one is a left-turn into the site from  
1587 the center.  
1588

1589 Charity Kirk: So, the road's going to be widened slightly?  
1590

1591 Beth Bronson: That's what I'm asking about the center. Maybe you can explain that to me.  
1592

1593 Josh Reinke: Absolutely. Yeah. So, it would likely be symmetrical, and I'm not a designer, but typically,  
1594 you're looking to keep it within the existing right-of-way, and yes, you would have to widen  
1595 the road to get that center turn lane in, so while right-turn lane is just kind of on the side of

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1596 the site itself, so you're just impacting how far you're going into that. The center or left-  
1597 turn lane there would be, we're going to widen on each side and kind of taper it down  
1598 further down the road, so it will be a wider section of road there to allow for them to, like I  
1599 said, taper so you can slowly transition into that. You don't just all of a sudden have wider  
1600 pavement here.  
1601

1602 Beth Bronson: And this would be for primarily people coming westbound, or eastbound from Alamance  
1603 County. Basically, coming from Alamance toward Carrboro? Right?  
1604

1605 Josh Reinke: Yes.  
1606

1607 Beth Bronson: Coming from the rural area to town.  
1608

1609 Josh Reinke: Yes.  
1610

1611 Beth Bronson: Or, as Meg was saying the left-turn lane out of the neighborhood. Right?  
1612

1613 Josh Reinke: Well, not out of. It's going into the neighborhood to get traffic out of the through  
1614 movement along 54. So, like I said, it's a safety thing. It's to say we know 54. We know  
1615 people are moving fast. We know you've got now people that are going to be turning into  
1616 the subdivision. You don't want them just stopping and waiting for gaps in the traffic. You  
1617 want them to be able to and to be in a safe turn lane where people could be going around  
1618 them in the through lane essentially.  
1619

1620 Beth Bronson: Absolutely. And all that to point out that it is not for turning left out of the neighborhood,  
1621 right? Like, there would be no center lane to transition from the westbound to the  
1622 eastbound  
1623

1624 Josh Reinke: Oh, no. A lot of people think those two-way left-turn lanes are a way to safely get into the  
1625 flow of traffic when you're leaving. That is not what those are for. And I get it that people  
1626 do it.  
1627

1628 Beth Bronson: Welcome to the road county.  
1629

1630 Josh Reinke: That is very unsafe, and that is not what two left-turn lanes are for. I was thinking you  
1631 meant, are we widening the driveway? I was like, no, there's no need for that. You are  
1632 correct. That is solely to get in there, and it would taper down on the other side, so it  
1633 would not be appealing to be like, ooh, I can use that to accelerate. No, you would want to  
1634 wait for gaps in traffic, which is the safe thing, but now I understand what you're saying,  
1635 and I was like, yes, I've heard that a million times where people are like, well, I use that.  
1636 That's very bad because something might be coming right at you at that point if you're  
1637 using a two way left-turn lane or anything. So, this would be as you're turning left, it would  
1638 be very quickly tapering down and not, like, I have a lane for a while and then I can merge  
1639 in because there is no need to extend that left. It's to get into the site.  
1640

1641 Beth Bronson: So, if approved, would it be funded by DOT or would it be funded by the developer?  
1642

1643 Josh Reinke: Funded by the developer.  
1644

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- 1645 Dolores Bailey: I guess that the application was put in, and DOT said, yeah, sure for the right-hand turn  
1646 lane, but we don't see a reason to have the center lane. Would that be an option for the  
1647 DOT to recommend?  
1648
- 1649 Josh Reinke: It could be, because I never want to speak on behalf of the DOT, but it is unlikely because  
1650 it is typically the left turn that is the less safe. You're kind of a sitting duck. You're waiting  
1651 for traffic. A right turn, you're slowing down to make that turn, but a left, you might be  
1652 waiting for opposing traffic to get by you, and you're sitting there and the longer you sit  
1653 there, if people are coming up quickly, the more likely there is to be a rear-end crash or  
1654 something like that. So, it is unlikely, unless if it were something that when it comes to the  
1655 design, that there's no way you could fit it in the existing right of way. You need to get  
1656 land from neighbors, and they say, I absolutely will not. Then it could come up there, but it  
1657 is unlikely, and I think it would fit within the right of way. They go for symmetrical widening,  
1658 so it doesn't impact either side too much.  
1659
- 1660 Beth Bronson: Fine, and to that point of the existing right of way, does the parcel have enough right of  
1661 way to create that right turn lane on the property? On the parcel, without needing DOT  
1662 approval.  
1663
- 1664 Josh Reinke: Yes.  
1665
- 1666 Beth Bronson: Okay, so theoretically, that could be a condition of the application, I would think, if it is  
1667 possible, that regardless of DOT approval, that that right turn lane is still included.  
1668
- 1669 Josh Reinke: Well, it's still their road, so that's why we need DOT, NC 54 is a main road, so we need  
1670 their approval of that. And I think it's likely, but it's still technically even though we have a  
1671 turn lane into our site and outside, if it's within a public roadway connected to theirs, it's  
1672 theirs. But like I said, the likelihood that Chuck Edwards will say yes, that sounds great is  
1673 very high, but I'm not him, and we do need their approval and we would show that in the  
1674 driveway permit because that's when it does get into the design and things like that.  
1675
- 1676 Beth Bronson: Thank you. Yeah, and in some of the discussion about the septic fields and the  
1677 gentleman that was explaining how mature trees do actually pose a benefit to the septic  
1678 lines because it acts as absorption, and this gets back to Chair Proctor's question about  
1679 tree preservation specifically, and I may have missed the answer to this question, but  
1680 where the tree preservation plan was in the application?  
1681
- 1682 Lamar Proctor: There isn't one. It'll be in the open areas because I think given the lot size and correct me  
1683 if I'm wrong it was dairy pasture, and then it was wooded, and then it was forested, so  
1684 what's left is really new growth, and so given the lot size and the septic requirements,  
1685 there's not going to be a lot of trees, if any, on the lots themselves, but the intent I think  
1686 was to preserve in the open areas the trees that exist there now.  
1687
- 1688 Beth Bronson: Would you like to confirm that?  
1689
- 1690 David Barcal: I would just say, from the septic side, again, the repair field is not actually going in, so if  
1691 the homeowner chooses to keep those trees in the repair area, they could.  
1692
- 1693 Beth Bronson: And how does the homeowner choose if it was going to be bulldozed to be constructed in  
1694 the first place?

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1695  
1696 David Barcal: I believe our project is just the public improvements and then since they're turning it over  
1697 to the home builder, the home builder would develop the lots.  
1698

1699 Beth Trahos And they only install the actual septic field. The repair area is where another septic field  
1700 could go in the future, but it's not needed immediately. So that's the thought. There could  
1701 be trees where there's no septic field today. In the future, if they have to install a septic  
1702 field.  
1703

1704 Beth Bronson: I guess I'm trying to find a way to encourage, once it's handed over to the home builder, to  
1705 actively do that tree preservation when they're working with the home builder. I don't  
1706 know how that would work into a covenant. And I understand that wouldn't be yours.  
1707

1708 David Barcal Sorry. I don't want to speak for a home builder, but to me, doing less work is the goal. So  
1709 bulldozing trees is more work, so if I can only clear what I have to clear, that's more  
1710 benefit from the home builder. I would assume from their perspective, they would want to  
1711 do the least amount of work.  
1712

1713 Beth Bronson: It's definitely one perspective on it. The other one is if you just clear a blank slate, then  
1714 you have enough room.  
1715

1716 David Barcal If the homebuyer says hey, I will pay you extra to clear it.  
1717

1718 Beth Bronson: Yeah. Homeowner rights. I do understand. Thank you very much. I appreciate that for  
1719 clarifying. Is there a possibility to get a, I guess with the open space because it's so large  
1720 and because there wouldn't really be a need to do any kind of identification.  
1721

1722 Lamar Proctor Yeah. I don't think there's a condition that's workable in terms of that.  
1723

1724 Beth Bronson: And then, I guess there was one last thing about the neighborhood activity, the community  
1725 node. Was that referenced in this application?  
1726

1727 Charity Kirk: The White Cross one?  
1728

1729 Beth Bronson: The White Cross, yeah.  
1730

1731 Charity Kirk: It's nearby, but it's not on this property.  
1732

1733 Beth Bronson: Okay, and it's not referenced as part of the statement of consistency? That's what I'm  
1734 wanting to make sure.  
1735

1736 Lamar Proctor: Well, it's referenced because it's a nearby rural activity node, I think.  
1737

1738 Beth Bronson: Yeah. For commercial.  
1739

1740 Charity Kirk: Well, they're trying to put some density in these.  
1741

1742 Beth Bronson: Definition of the community activity node is for commercial specifically, so it wouldn't  
1743 really, at all, apply to a subdivision. Even if it was a major subdivision.  
1744

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- 1745 Charity Kirk: You're welcome to read that.  
1746
- 1747 Dolores Bailey: Yes. And I guess this question is now directed at staff is because that property, and I  
1748 know that this is going to change, because there's a comprehensive plan coming, and so  
1749 therefore, if the new comprehensive plan was adopted, this may change. But right now,  
1750 there's an allotted acreage for commercial activity out there in that intersection. And I  
1751 know this came up a couple years ago when there was a rural residential wanting to  
1752 become commercial activity. Basically, there's an allotment of acreage, and so by the  
1753 idea of this parcel removing itself from commercial potential, does that just eliminate the  
1754 acreage available for commercial development?  
1755
- 1756 Cy Stober: No. It's a flat acreage. It's not proportional, so what it would theoretically result in is more  
1757 pressure on the remaining properties to potentially be developed for non-residential  
1758 purposes, because there would be less gross acreage to develop for non-residential  
1759 purposes. All of these properties would have to go through a hearing process and be  
1760 rezoned, or this subject property would should it come before us as a non-residential  
1761 proposal, so we'd be at a hearing anyway, but it does take acreage out of the activity  
1762 node that theoretically could be developed for non-residential purposes. So, there's less  
1763 gross acreage, but it doesn't affect that hard, firm number that can be developed for non-  
1764 residential purposes and per our comp plan. I'm not sure if that makes sense. I hope it  
1765 does.  
1766
- 1767 Beth Bronson: No, it does. Yeah. It's just an overly direct question, I guess, but yes, would allow other  
1768 properties that would now have additional acreage knowing that that property was no  
1769 longer available for commercial. It could now go to other areas or other parcels.  
1770
- 1771 Cy Stober: Yeah. If you do the simple math, your denominator just got smaller.  
1772
- 1773 Beth Bronson: Yes. Thank you.  
1774
- 1775 Lamar Proctor: Did you have another question, Charity?  
1776
- 1777 Charity Kirk: Well, it's kind of a question-statement, and it comes off the bird box thing, especially since  
1778 you don't know what birds you're trying to support, and bird boxes only support birds at  
1779 particular times of the season. Native plants are what support birds, and I know you are  
1780 going to be required to plant native plants, but I would encourage you to plant a diversity  
1781 of native plants, and consider buffers, meadows, as well as forest edges. The Audubon  
1782 Society has wonderful volunteers and services that can help support the birds in the area.  
1783 But landscapers tend to know stuff too, so I'm just assuming you do.  
1784
- 1785 Lamar Proctor: All right, any discussion amongst the Board about any conditions or any other aspect?  
1786
- 1787 Cy Stober: Mr. Chair, we have had one member of the public ask staff if they may be allowed to  
1788 speak before the Board. It would be at your discretion.  
1789
- 1790 Lamar Proctor: And who is that?  
1791
- 1792 Cy Stober: I'm afraid I don't know.  
1793
- 1794 Lamar Proctor: Oh. If you could raise your hand?

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1795  
1796 Joshua Setzer: I'm an hour late, so I want to add my name to the list, if possible.  
1797  
1798 Beth Bronson: Did you want to speak?  
1799  
1800 Joshua Setzer: I assumed there would be a public comment window, and I just want to be added to the  
1801 list.  
1802  
1803 Lamar Proctor: Yeah, we already had it, so we're discussing whether to give you time. What's your  
1804 name?  
1805  
1806 Chris Johnston: He's not on the list. He was an hour late.  
1807  
1808 Lamar Proctor: Oh, okay. Is there any objection to giving him 3 minutes?  
1809  
1810 Beth Bronson: No.  
1811  
1812 Lamar Proctor: No. All right, come on up.  
1813  
1814 Joshua Setzer: I apologize. I actually didn't know the public comment already happened. I didn't mean to.  
1815 I do appreciate it.  
1816  
1817 Chris Johnston: So, just to confirm, please state your name, and then I'm going to push this button, and  
1818 then a light's going to show up, and that will be your timer.  
1819  
1820 Joshua Setzer: Sounds good. Thank you all so much. I didn't mean to inconvenience. My name is  
1821 Joshua Setzer. I live in the Collins Creek Community, which is the neighborhood off the  
1822 north side of the proposed development. Just a little bit about our community. You may  
1823 have already heard some of it, but I don't know the exact number of houses, in the  
1824 neighborhood I think 30 or so. All gravel drive, no streetlights whatsoever. What I wanted  
1825 to share, I appreciated some of the comments and questions around biodiversity,  
1826 specifically. I wanted to share a little bit about the level of biodiversity, the level of density  
1827 we have in our neighborhood, which is quite a bit smaller than it appears to be supporting.  
1828 I actually have a list that's been maintained for quite some time. It was started by a  
1829 gentleman named Norm Christensen, who lived in our neighborhood for 20 years and was  
1830 one of the founding deans of the Nicholas School for the Environment at Duke, and is an  
1831 esteemed botanist, and so the list that he passed on; we have 11 known amphibians, at  
1832 least 12 lizards and snakes, possums, shrews, minks, 3 species of bats, probably more,  
1833 moles, voles, white-footed deer, mice, squirrels, chipmunks, flying squirrels, rabbits,  
1834 coyotes, red fox, raccoon, striped skunk, we've seen bobcats multiple times in the  
1835 neighborhood, including recently. Obviously, white-tail deer. We've actually seen juvenile  
1836 black bear and photographed them in the neighborhood. That happens seasonally, but  
1837 it's quite interesting. And then the birds. I did want to talk about. We have blackbirds,  
1838 five species of golds beaks, chickadees, titmice, corvids, cuckoos, ducks and geese, at  
1839 least 5 species of finch, gnat catchers, we have hawks, herons, hummingbirds, kingwits,  
1840 let's see, nuthatches, 3 or 4 species of owls. We see wild turkey periodically, we also  
1841 have 5 species of tyrant flycatcher, which is pretty interesting. Thrushes, vireos, obviously  
1842 vultures, cedar ox wings, 5 or 6 species of warbler, 7 species of woodpecker, and so on  
1843 and so forth. So, it's at least 73 known species in the neighborhood. I wanted the record  
1844 to just kind of reflect that level of biodiversity and would urge the Board to consider how

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- 1845 the level and density that is currently allowed in this area has allowed a tremendous  
1846 amount of biodiversity to be maintained, and how higher density would adversely affect  
1847 that. Thank you very much.
- 1848
- 1849 Lamar Proctor: Thank you. And Mr. Setzer, I'm just going to have this list, if you could continue filling it  
1850 out, so we have a record.
- 1851
- 1852 Joshua Setzer: Absolutely. Thank you again.
- 1853
- 1854 Lamar Proctor: Thank you. So, any discussion amongst the Board? I'll just say this is the direction that I  
1855 think the Board of County Commissioners wanted to move in terms of residential  
1856 development in terms of concentrating homes and leaving more open space, but I also  
1857 recognize that you are, as the applicant pointed out, you're providing homes, but you're  
1858 losing that space, that natural space where the homes are going to be, so it's a constant  
1859 tradeoff. I just say that for what it's worth, and the recognition that development comes at  
1860 some price, but it also provides some benefit. I do think that in terms of conditional  
1861 districts and what we see in subdivisions, there was thought put into this in terms of trying  
1862 to concentrate the housing and leave more open space, which I think is a benefit. I just  
1863 say it for what it's worth. I welcome any comments or discussion, or any motions as to the  
1864 statement of consistency in Attachment 6, or the statement of inconsistency in Attachment  
1865 7.
- 1866
- 1867 Charity Kirk: I would agree with you in that I think this is probably preferable over the status quo of  
1868 spreading things out. There is an area for wildlife. I would prefer, just personally, I would  
1869 prefer the lot sizes to be bigger and the number of houses to be smaller, but I understand  
1870 where it's coming from and the alternative, and I think this is preferable to the alternative  
1871 potential.
- 1872
- 1873 Meg Millard: Clustering is a nice idea, and having some open space is a nice idea, but I don't know  
1874 why you have to pack as many houses as 43 in the buildable area, and that it could be  
1875 less if you were really considering the rural character. I mean, if we're really trying to  
1876 preserve things in the rural areas of Orange County.
- 1877
- 1878 Charity Kirk: What would you think would be a better number?
- 1879
- 1880 Meg Millard: Well, if the buildable land that they're proposing to build on is 35 acres, if you did 35  
1881 homes instead of 43. Just drop it down some.
- 1882
- 1883 Chris Johnston: Just to confirm, Cy, given the R1 designation, how many homes would you fit in at the  
1884 current rate by right? Sorry to put you on the spot there.
- 1885
- 1886 Taylor Perschau: If the subject parcel is 63 acres, the current zoning is rural residential, minimum lot size is  
1887 40,000 square feet, which is .92 acres.
- 1888
- 1889 Lamar Proctor: Okay.
- 1890
- 1891 Charity Kirk: So, you could fit about 60 homes potentially, but there's the stream.
- 1892
- 1893 Beth Bronson: If you consider what they were developing, the 35 acres, it would be 35 homes.
- 1894

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- 1895 Dolores Bailey: Changing the zoning would change this how?  
1896
- 1897 Taylor Perschau: Proposing greater than 20 lots requires this rezoning request.  
1898
- 1899 Lamar Proctor: I mean, they could subdivide the parcel and do the one house per acre within R1 as of  
1900 right.  
1901
- 1902 Chris Johnston: Sure. But the conservation district, the benefit is you have the entire chunk that is being  
1903 left alone, more or less, right, so you're smushing it, yes, but arguably, a person who is  
1904 purchasing this lot understands what they're purchasing when they go into something like  
1905 this, and if no one purchases it, I keep coming back to the developer is developing, they  
1906 have presented a plan, does it fit with what we're looking for. We're not developers. I'm  
1907 not a developer at least.  
1908
- 1909 Dolores Bailey: I am.  
1910
- 1911 Chris Johnston: You are. That's why I said I am, I'm sorry. Dolores is a developer. I defer to her on most  
1912 things, but what I'm saying is this is the project that's been presented to us. Does it fit  
1913 with what we're trying to do here in the county, does it adhere to what we're doing, and  
1914 really, do the conditions that they've asked for, because everything else applies, do the  
1915 conditions that they ask for fit with what we're trying to do.  
1916
- 1917 Lamar Proctor: Consistent with the comprehensive plan.  
1918
- 1919 Chris Johnston: Right. Exactly. Everything else applies. It's just the conditions that we have to look at,  
1920 and do they fit as far as I'm aware.  
1921
- 1922 Lamar Proctor: Then I did hear some concern about the bird box. So, we can propose changes to the  
1923 conditions.  
1924
- 1925 Chris Johnston: Is the bird box a condition?  
1926
- 1927 Lamar Proctor: Yes. There's 10 in the conditions.  
1928
- 1929 Chris Johnston: Gotcha.  
1930
- 1931 Charity Kirk: I think it's ridiculous that they're in the conditions, but what are someone else's thoughts.  
1932
- 1933 Lamar Proctor: Well, I'm just pointing it out that they're going to have to maintain those 10. That's part of  
1934 the conditions.  
1935
- 1936 Charity Kirk: I would rather have them plant a diversity of native plants and go have a fire meadow to  
1937 support, do something that rather than bird boxes. That's just me.  
1938
- 1939 Lamar Proctor: That's covered in the landscaping, right? In the UDO on the landscaping.  
1940
- 1941 Charity Kirk: Yeah, and we can't. We can't do too much more than that.  
1942
- 1943 Beth Bronson: We could ask for it to be within the HOA regulations.  
1944

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1945 Lamar Proctor: I wouldn't.  
1946  
1947 Cy Stober: If I may, HOA covenants are not enforceable by County staff.  
1948  
1949 Chris Johnston: Right. If someone such as myself, were to say this follows the acceptable use per the, I  
1950 think at a certain point, we have to make a motion and put the cards on the table, right.  
1951 Are we at the point where we're willing to accept this, and if it doesn't pass, then it doesn't  
1952 pass, and we go from there.  
1953  
1954 Lamar Proctor: Yeah. I'm willing to entertain a motion.  
1955  
1956 Chris Johnston: Does anyone disagree with that? Dolores?  
1957  
1958 Beth Bronson: Yeah, I mean I, as far as conversation goes, I think there's a concern for density, and if  
1959 that is consistent with the motions.  
1960  
1961 Statler Gilfillen: Put the motion up.  
1962  
1963 Chris Johnston: Okay, so I am always terrible at this, and yet, here I am doing it again. I make a motion  
1964 that per Page 137, Attachment 6.  
1965  
1966 Lamar Proctor: Oh, you're doing the inconsistency.  
1967  
1968 Chris Johnston: No, I'm doing consistent.  
1969  
1970 Lamar Proctor: I will say on Page 130, there is one typo on Number 3. It says the minimum lot size M-E  
1971 to 20, 000 square feet. That should be B. I don't know if we need to make that  
1972 amendment, or if that's just typographical.  
1973  
1974 Cy Stober: Please make the amendment.  
1975  
1976 Lamar Proctor: Motion to adopt the Statement of Consistency in Attachment 6 with the amendment that  
1977 Number 3, the word "me" will be changed to "be".  
1978  
1979 Chris Johnston: Yes. So motioned.  
1980  
1981 Lamar Proctor: Is there a second?  
1982  
1983 Statler Gilfillen: I'll second that one.  
1984  
1985 Lamar Proctor: All right. All in favor of adopting the Statement of Consistency in Attachment 6 to find that  
1986 the proposed zoning atlas map amendment is consistent with the 2030 Comprehensive  
1987 Plan and make that recommendation to the Board of County Commissioners. Raise your  
1988 hand and say Aye with that amendment to Number 3.  
1989  
1990 **MOTION BY** Chris Johnston to approve the statement of consistency. Seconded by Statler Gilfillen.  
1991  
1992 **MOTION PASSED 6-3:** Dolores Bailey, Beth Bronson, and Meg Millard opposed.  
1993

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- 1994 Lamar Proctor: And then I believe that for record purposes we want the opposed to state their reasons for  
1995 the opposition.  
1996
- 1997 Meg Millard: I don't think it's consistent with the rural character.  
1998
- 1999 Lamar Proctor: Okay. Beth?  
2000
- 2001 Beth Bronson: I agree that I did not find a lot density of 20,000 square foot lots to be consistent with the  
2002 area, as well as the preservation of community character. Land goal Number 3, is it?  
2003 Planning principle Number 3, or Land Use Goal Number 3, and Planning Principle  
2004 Number 8. From the comprehensive 2030 plan.  
2005
- 2006 Lamar Proctor: All right.  
2007
- 2008 Dolores Bailey: I agree that I do not find it consistent with the conservation plan.  
2009
- 2010 Lamar Proctor: All right. Is that sufficient, Cy?  
2011
- 2012 Cy Stober: Thank you Mr. Chair.  
2013
- 2014 **AGENDA ITEM 8: ADJOURNMENT**  
2015
- 2016 Lamar Proctor: All right. Do I have a motion for adjournment? Is there anything else before we adjourn?  
2017
- 2018 Cy Stober: Just a note that this is at present scheduled for public hearing at the October 7th Board of  
2019 Commissioners Meeting.  
2020
- 2021 Lamar Proctor: Okay, so for those interested in the public, this will proceed on to the Board of County  
2022 Commissioners on that date. Motion to adjourn?  
2023
- 2024 Beth Bronson: Motion to adjourn.  
2025
- 2026 Lamar Proctor: Second?  
2027
- 2028 Statler Gilfillen: Yep.  
2029
- 2030 Lamar Proctor: And all in favor? Unanimous. All right.  
2031
- 2032 **MOTION BY** Beth Bronson to adjourn the meeting. Seconded by Statler Gilfillen.  
2033
- 2034 **MOTION PASSED UNANIMOUSLY**  
2035
- 2036 The meeting adjourned at 9:25 PM

**ORANGE COUNTY  
PLANNING BOARD  
ACTION AGENDA ITEM ABSTRACT  
Meeting Date: September 3, 2025**

**Action Agenda  
Item No. 7**

**SUBJECT:** Application for Zoning Atlas Amendment – 1039-UT NC 86 N, Hillsborough, Hillsborough Township

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**DEPARTMENT:** Planning and Inspections

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**ATTACHMENTS:**

1. Application, including Site Plan and Supplemental Materials
2. Staff Report
3. Notification Materials and Certification
4. Neighborhood Information Meeting Materials
5. Development Advisory Committee and Courtesy Review Comments
6. Statements of Consistency and Inconsistency
7. Draft Ordinance, Including Proposed Conditions

**INFORMATION CONTACT:**

Taylor Perschau, Current Planning and Zoning Manager, 919-245-2597  
Cy Stober, Planning & Inspections Director, (919) 245-2592

**PURPOSE:** To review and make a recommendation to the Board of County Commissioners (BOCC) on a Zoning Atlas Amendment to rezone +/- 78.11 acres (PIN: 9865-87-8090) located at 1039-UT NC 86 North, Hillsborough, within the Hillsborough Township of Orange County. The proposed rezoning is:

**FROM:** AR (Agricultural Residential)

**TO:** R-CD (Residential - Conditional District)

**BACKGROUND:** A Conditional Zoning Atlas Amendment application (Attachment 1) was received from Forestar Group, Inc., on behalf of Amy Powell, et al., proposing to rezone approximately 78.11 acres of property at 1039-UT NC 86 North, Hillsborough, to allow for development of a 49-lot Conservation Cluster subdivision for single-family dwellings. The Staff Report in Attachment 2 contains additional information, maps, and analysis with regard to the application's consistency with County adopted plans. Approval of a site-specific plan is part of the conditional district rezoning process, and the site plan and any agreed-upon conditions are binding to the development permitted for the zoning district. All application materials can be found on the [Orange County Permit Portal](#).

**Basic Review Process:** A conditional district rezoning application requires submission of a site plan and other documents, in accordance with Section 2.9.1(C) of the Orange County Unified Development Ordinance (UDO). Sections 2.8 and 2.9 of the Orange County UDO require the following review:

- **FIRST ACTION** – Applicant holds a Neighborhood Information Meeting (NIM).

*STAFF COMMENT:* The NIM was held on May 29, 2025 at 7:00 p.m. at Eno River Academy, 1100 NC 57, Hillsborough, NC 27278.

- **SECOND ACTION** – The Planning Board reviews the application at a regular meeting and makes a recommendation to the BOCC.

*STAFF COMMENT:* The Planning Board will review this application at its regular meeting on September 3, 2025.

- **THIRD ACTION** – The BOCC receives the Planning Board and staff recommendations at an advertised public hearing and makes a decision on the application.

*STAFF COMMENT:* The public hearing is anticipated to be held on November 6, 2025.

Per Section 2.9.1(F)(3) of the UDO, mutually agreed upon conditions can be imposed as part of this process if they address:

- a. The compatibility of the proposed development with surrounding property,
- b. Proposed support facilities (i.e. roadways, and access points, screening and buffer areas, the timing of development, etc.), and/or
- c. All other matters the County may find reasonable and appropriate, or the petitioner may propose.

A formal site plan is required as part of a conditional rezoning application and has been submitted with the full application materials from the Forestar Group, Inc. (Attachment 1). Forestar Group, Inc. have initiated a Zoning Atlas Amendment in order allow for future development of a 49-lot subdivision for single-family dwellings. Additional background information related to this request is contained in the Staff Report (Attachment 2).

The applicant has submitted conditions for consideration by the BOCC, as included in the Ordinance in Attachment 7.

Public Notification: In accordance with Section 2.8.7 of the UDO, notices of the Planning Board meeting were mailed via first class mail to property owners within 1,000 ft. of the subject parcel. These notices were mailed on August 20, 2025, 14 days before the meeting. Staff also posted the subject parcel with a sign on August 20, 2025, 14 days before the meeting. See Attachment 3 for the notification materials.

Planning Director's Recommendation:

The Planning Director recommends that the Planning Board:

- 1) Consider the matter for action;
- 2) Acknowledge that legally sufficient public notice was given for the application and this meeting, in accordance with State and Orange County laws;
- 3) Review the staff report (Attachment 2), featuring analyses of compliance with the UDO, impact to the surrounding area, safety and efficiency of land use, and consistency with the county's adopted plans;
- 4) Allow for the applicant's request by presentation of materials;
- 5) Allow for public comments; and
- 6) Recommend the BOCC approve the Statement of Consistency (Attachment 6) and the proposed Ordinance (Attachment 7)

**OR**

Recommend the BOCC deny the application, as reflected in the Statement of Inconsistency (Attachment 6).

**FINANCIAL IMPACT:** This request has been reviewed by various County departments who have determined that the approval of the request would not create the need for additional funding for the provision of County services. Costs associated with advertising, including the public hearing notice and mailings, were paid from the 2025-26 Planning and Inspections Department budget.

**RECOMMENDATION:** The Planning Director recommends the Board:

1. Receive the rezoning application,
2. Deliberate on the proposal as desired,
3. Consider the Planning Director's recommendation, and
4. Make a recommendation to the BOCC on the Statement of Consistency or the Statement of Inconsistency (Attachment 6), and the proposed Ordinance (Attachment 7) in time for the **November 6, 2025** BOCC meeting.

## Attachment 1



Orange County Planning & Inspections Department  
 131 W. Margaret Lane, Suite 200, Hillsborough, NC 27278  
 919-245-2575 or [planningapps@orangecountync.gov](mailto:planningapps@orangecountync.gov)

### Zoning Atlas Amendment – Rezoning Application

Please check all applicable boxes and complete the required documentation. Additional information and submittal requirements are contained in Sections 2.8 and 2.9 of the Unified Development Ordinance (UDO).

If completing by hand, please use black or blue ink.

**\* Please fill out all required fields**

Date: 02/24/2025 Rezoning Request:  Conventional District  Conditional District

#### Contact Information\*

Property Owner(s): PLEASE SEE LIST OF PROPERTY OWNERS ATTACHED HERETO AS EXHIBIT A

Mailing Address: PLEASE SEE LIST OF PROPERTY OWNERS ATTACHED HERETO AS EXHIBIT A

Phone: SEE EXHIBIT A

Email: SEE EXHIBIT A

Applicant (if different than property owner): FORESTAR C/O LAURA HAYWOOD

Mailing Address: 8041 ARCO CORPORATE DRIVE, SUITE 110, RALEIGH NC 27617

Phone: (720) 226-4200

Email: laurahaywood@forestar.com

#### Property Information\*

Parcel ID Number (PIN): 9865878090

Total Acreage: 79.76

Address: HWY 86N, HILLSBOROUGH, NC 27278

Future Land Use Map Classification: RURAL INDUSTRIAL ACTIVITY NODE, AGRICULTURAL RESIDENTIAL

Current Zoning Designation: AR

Requested Zoning Designation: R-CD

If applicant/owner are different people, include a signed, notarized, statement indicating that the owner has authorized the applicant to submit the request. In cases where there are multiple property owners, please attach an additional document containing their signatures authorizing the submission of the application or other legal documentation establishing the applicants' right to file on their behalf.

#### Other Submittal Requirements\*

##### Conventional District Rezoning Application

Based on Section 2.8.3 of the Unified Development Ordinance (UDO):

- A map, at a legible scale, showing the property(s) subject to the request. A map may be procured at the Planning Department for a fee in accordance with the adopted Orange County Fee Schedule.
- A legal description of the property(s) proposed for rezoning.
- A list showing the names and addresses of all adjacent property owners within 1000-feet of the subject property.
- A detailed narrative denoting the following:
  - i. The alleged error in the Zoning Atlas (if any) that will be corrected by the proposed request.

- ii. The changed, or changing, conditions (if any) that makes the proposed amendment reasonable necessary to promote the public health, safety, and general welfare.
- iii. How the proposed amendment is consistent with, or carries out the intent and purpose of the adopted Orange County Comprehensive Plan, or part thereof.

The filing fee per the adopted Orange County fee schedule.

**Conditional District Rezoning Application**

Based on Section 2.9.2 (C) of the Unified Development Ordinance (UDO):

- A site plan prepared in accordance with the provisions of Section 2.5 of the UDO. Applications for a Master Plan Development (MPD) Conditional District (CD) shall adhere to the site plan preparation requirements outlined in Section 6.7 of the UDO.
- All CD applications, regardless of type, shall include a detailed landscape plan showing the location of on-site significant trees; proposed screening, buffers, and landscaping; and any proposed treatment of any existing natural features.
- A detailed description of the proposed use of property including an outline of the proposed development. This will include a detailed summary of proposed utility services. The utility service plan for applications for a Home Park (HP) CD shall specify if the proposed services are temporary or permanent connections.
- A detailed traffic survey, regardless of estimated daily trips, prepared in accordance with North Carolina Department of Transportation requirements and Section 6.17 of the UDO.
- The appropriate environmental document(s) prepared in accordance with Section 6.16 of the UDO.
- A schedule of construction of all elements of the proposal.
- Other information identified during the pre-application conference deemed essential to demonstrate the project's compliance with these regulations.
- The filing fee per the adopted Orange County fee schedule.

**Certification and Signatures\***

I (we), the undersigned, have been made aware of the process for the review and action associated with a UDO Zoning Atlas Amendment application and understand only completed applications, containing all information required by the Orange County UDO, shall be reviewed and acted upon by the County. Further I (we) understand that any assistance I (we) may receive from County staff in preparing this application in no way guarantees a favorable recommendation by staff on the merits of this proposal nor does it guarantee an approval of the proposed atlas amendment by the County.

Amy Lynn Powell                      02/28/2025  
**Owner Signature(s)**

Sandra Gaywood - Forestar  
**Applicant Signature** (if different from owner)

\_\_\_\_\_  
**Date**

03/07/2025  
**Date**

Exhibit A  
Property Owners

Estate of Lanie Brown (B.) Powell, c/o Hughes B. Powell Jr., Executor  
P.O. Box 636  
Smithfield, North Carolina 27577  
919.901.5374  
[Powellhugh8@gmail.com](mailto:Powellhugh8@gmail.com)

Amy L. Powell  
1234 Aken Street  
Port Charlotte, FL 33952  
910.895.1500  
[amylynnpowell@icloud.com](mailto:amylynnpowell@icloud.com)

Jenny Powell Parks and Russell Micheal Parks  
560 Parkertown Road  
Four Oaks, NC 27524  
919.963.3733

### Rezoning Authorization Form

I, Amy L. Powell (aka Amy Powell), one of the fee simple owners of property located on 1101 State Highway 86 N, totaling approximately 78.11 acres and known by Orange County PIN 9865-87-8090, hereby petition Orange County to amend the zoning atlas- rezone- from R1 to R-CD in an application with Forestar, Inc. as Applicant.

I certify that I have examined the application and it is true and accurate to the best of my knowledge.

Amy L. Powell  
Amy L. Powell

Date: 02-26-2025

Charlotte COUNTY, <sup>Florida</sup> ~~NORTH CAROLINA~~ Am

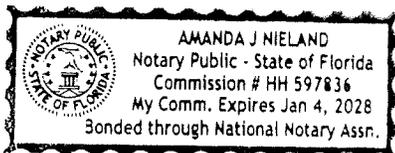
SWORN TO AND SUBSCRIBED before me this the 26 day of 02, 2025.

[Official Seal]

Amanda J. Nieland  
Signature of Notary Public

Amanda J. Nieland  
Printed Name of Notary Public

My commission expires: 01-04-2028



### Rezoning Authorization Form

I, Hugh B. Powell, Jr. Executor of the Estate of Lanie Brown (B.) Powell, one of the fee simple owners of property located on 1101 State Highway 86 N, totaling approximately 78.11 acres and known by Orange County PIN 9865-87-8090, hereby petition Orange County to amend the zoning atlas- rezone- from R1 to R-CD in an application with Forestar, Inc. as Applicant.

I certify that I have examined the application and it is true and accurate to the best of my knowledge.

Hugh B Powell Jr  
Hugh B. Powell, Jr. Executor of the Estate of Lanie Brown (B.) Powell

Date: 2-26-2025

SWORN TO AND SUBSCRIBED before me this the 26<sup>th</sup> day of February, 2025.

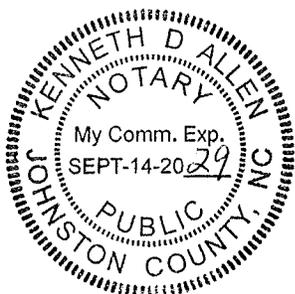
Johnston COUNTY, NORTH CAROLINA

[Official Seal]

Kenneth D Allen  
Signature of Notary Public

Kenneth D Allen  
Printed Name of Notary Public

My commission expires: 09-14-2029



### Rezoning Authorization Form

I, Jenny Powell Parks (aka Jenny E. Powell Asmo, aka Jenny Powell, aka Jenny Eva Powell, aka Jenny E. Powell, aka Jenny Powell Asmo), one of the fee simple owners of property located on 1101 State Highway 86 N, totaling approximately 78.11 acres and known by Orange County PIN 9865-87-8090 hereby petition Orange County to amend the zoning atlas- rezone- from R1 to R-CD in an application with Forestar, Inc. as Applicant.

I certify that I have examined the application and it is true and accurate to the best of my knowledge.

Jenny Powell Parks  
Jenny Powell Parks

Date: 2-26-2025

Johnston COUNTY, NORTH CAROLINA

SWORN TO AND SUBSCRIBED before me this the 26<sup>th</sup> day of February, 2025.

[Official Seal]

Kenneth D Allen  
Signature of Notary Public

Kenneth D Allen  
Printed Name of Notary Public

My commission expires: 09-14-2029



### Rezoning Authorization Form

I, Russell Michael Parks, one of the fee simple owners of property located on 1101 State Highway 86 N, totaling approximately 78.11 acres and known by Orange County PIN 9865-87-8090 hereby petition Orange County to amend the zoning atlas- rezone- from R1 to R-CD in an application with Forestar, Inc. as Applicant.

I certify that I have examined the application and it is true and accurate to the best of my knowledge.

Russell Michael Parks

Russell Michael Parks

Date: 2-26-2025

Johnston COUNTY, NORTH CAROLINA

SWORN TO AND SUBSCRIBED before me this the 26<sup>th</sup> day of February, 2025.

[Official Seal]

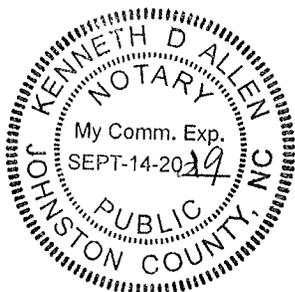
Kenneth D Allen

Signature of Notary Public

Kenneth D Allen

Printed Name of Notary Public

My commission expires: 09-14-2028



Canoy Surveying  
 Adam Canoy, PLS  
 1154 Shonele Ln  
 Stem, NC 27581  
 984.377.2626  
[canoysurveying@gmail.com](mailto:canoysurveying@gmail.com)



### Legal Description of PIN # 9865878090, Hillsborough NC

Metes and Bounds for PIN # 9865878090, Hillsborough NC:

Commencing at a NCGS Monument "SATTERFIELD" (PID: FY2207) being North Carolina grid coordinates N:856494.74, E:1967959.66 Nad83(2011);

Thence N 84°03'11" E a distance of 348.58' to an IRON PIPE FOUND being the true point of Beginning;

Thence N 86°22'19" E a distance of 218.14' along and with Property of Robert Medred Deed Book 1881 Page 238 to an IRON PIPE FOUND;

Thence N 16°20'29" W a distance of 993.62' along and with Property of Robert Medred Deed Book 1881 Page 238 to an IRON PIPE FOUND ;

Thence S 73°41'39" W along and with Property of Robert Medred Deed Book 1881 Page 238 a distance of 542.56' through an IRON PIPE FOUND 512.56' to a COMPUTED POINT in the center of NC highway 86;

Thence N 16°11'31" W along and with the centerline of NC highway 86 distance of 413.52' to a COMPUTED POINT ;

Thence N 66°19'31" E a distance of 242.62' through an IRON PIPE FOUND at 30.61' along and with Ruth B Ferguson Deed Book 2093 Page 178 to a STONE;

Thence N 42°20'54" E along and with Ruth B Ferguson Deed Book 2093 Page 178 a distance of 777.02' to a COMPUTED POINT in the centerline of the creek;

Thence S 88°38'13" E along and with Ruth B Ferguson Deed Book 2093 Page 178 and Stroud's Creek Homeowners Association Deed Book 6416 Page 318 a distance of 1291.62' to an IRON PIPE FOUND;

Thence S 01°32'26" W along and with Eno River Academy Holdings Inc Deed Book 6664 Page 1162 a distance of 1984.26' to an IRON PIPE FOUND;

Thence S 88°01'59" E along and with Eno River Academy Holdings Inc Deed Book 6664 Page 1162 a distance of 499.00' to a REBAR FND;

Thence S 04°30'24" W along and with Sarah Catherine W Cheek Estate file 22-E Page 569 a distance of 15.52' to a Computed Point;

Thence N 88°17'01" W along and with Sarah Catherine W Cheek Estate file 22-E Page 569, 14and1Properties LLC Deed Book 4422 Page 171, 14and1Properties LLC Deed Book 6638 Page 1248, Charles G Miller and Juli-Carlie Rice Deed Book 6633 Page 1324 a distance of 749.74' to a IRON PIPE FOUND;

Thence S 01°23'38" W along and with Charles G Miller and Juli-Carlie Rice Deed Book 6633 Page 1324 a distance of 363.71' to a IRON PIPE FOUND;

Canoy Surveying  
Adam Canoy, PLS  
1154 Shonele Ln  
Stem, NC 27581  
984.377.2626  
[canoysurveying@gmail.com](mailto:canoysurveying@gmail.com)



Thence S 74°25'01" W along and with David Allan Cook Deed Book 6840 Page 1799, James William Dodson and Pamela Oakley Dodson Deed Book 475 Page 639, Sandra H Reynolds Deed Book 5463 Page 562, Richard D Lloyd and Linda P Lloyd Deed Book 387 Page 562, Richard D Lloyd and Linda P Lloyd Deed Book 306 Page 340, and James E Dunn and Barbara L Dunn Deed Book 2651 Page 549 a distance of 1172.68' passing through IRON PIPES AT 243.32', 381.85', 437,657.57', and an angle iron at 1141.35' to a Computed Point in the center of NC Highway 86 ;

Thence N 16°06'26" W along and with the centerline of the road a distance of 373.21' to a Computed point;

Thence N 73°39'28" E along and with R.R. Brown and Eva P Brown Deed Book 136 Page 272 a distance of 541.89' passing through an IRON PIPE at 30.00' to an IRON PIPE FOUND;

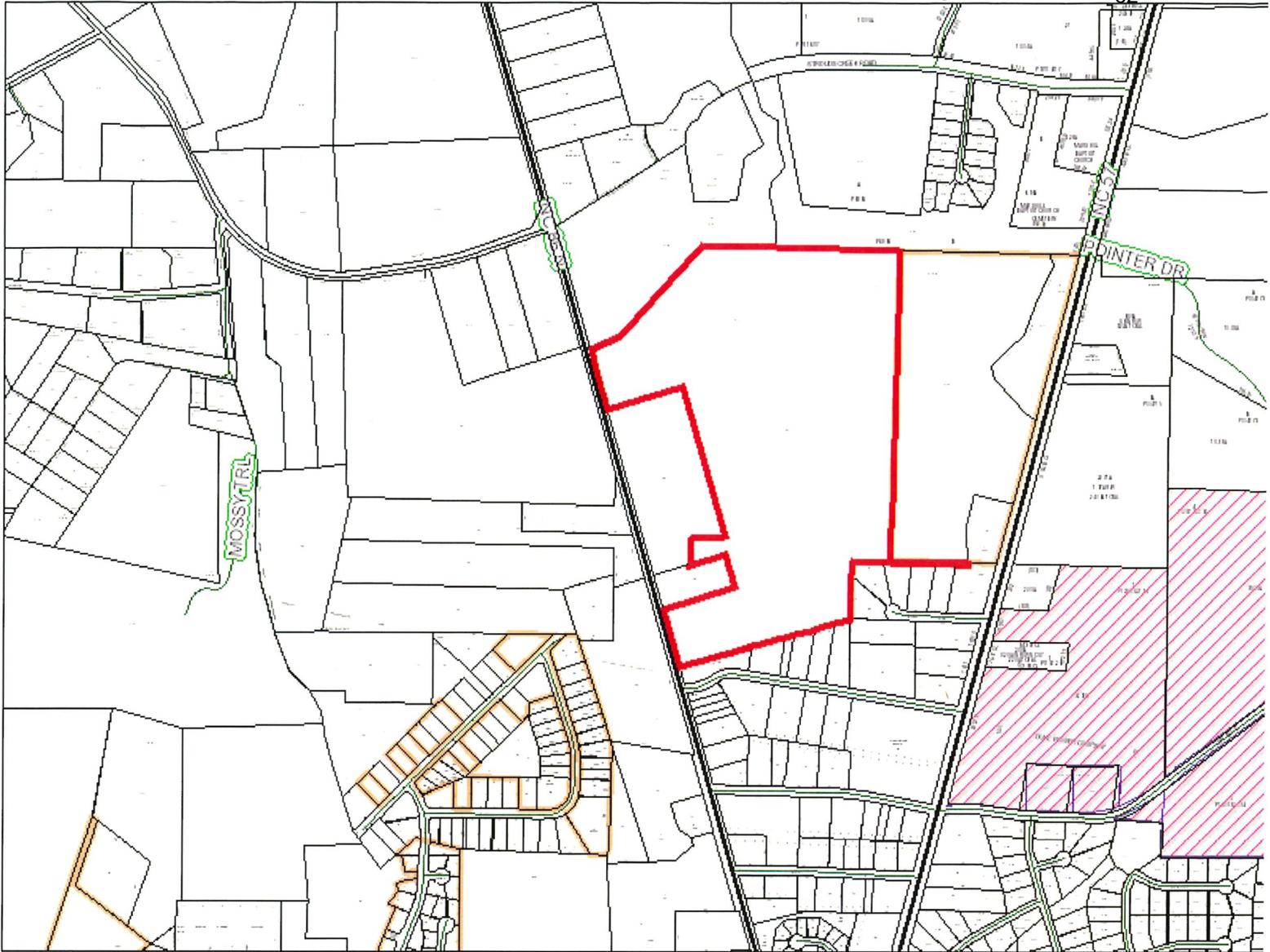
Thence N 16°20'33" W along and with R.R. Brown and Eva P Brown Deed Book 136 Page 272 a distance of 219.77' to an IRON PIPE FOUND;

Thence S 73°37'14" W along and with R.R. Brown and Eva P Brown Deed Book 136 Page 272 a distance of 272.60' to an IRON PIPE FOUND;

Thence N 03°48'58" E along and with Property of Robert Medred Deed Book 1881 Page 238 a distance of 174.62' to an IRON PIPE FOUND;

which is the point of beginning,

having an area of 79.76 acres total.



March 4, 2025

This map contains parcels prepared for the inventory of real property within Orange County, and is compiled from recorded deed, plats, and other Users of this map are hereby notified that the aforementioned public primary information sources should be consulted for verification of the information. The county and its mapping companies assume no legal responsibility for the information on this map.

**PIN: 9865878090**

OWNER 1: BROWN AMY L ET AL  
 OWNER 2: POWELL JENNY  
 ADDRESS 1: 560 PARKERTOWN RD  
 ADDRESS 2:  
 CITY: FOUR OAKS  
 STATE, ZIP: NC 27524  
 LEGAL DESC: E/S HWY 86 NORTH

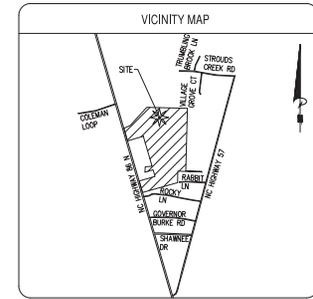
SIZE: 78.11 A  
 DEED REF:  
 RATECODE: 00  
 TOWNSHIP: HILLSBOROUGH  
 BLDG SQFT:  
 YEAR BUILT:

BUILDING COUNT:  
 LAND VALUE: 0  
 BLDG\_VALUE: 0  
 USE VALUE:  
 TOTAL VALUE:  
 DATE SOLD: 06/11/2024  
 TAX STAMPS:

# SITE PLAN DOCUMENTS

## Proposed HWY 86 SUBDIVISION

### NC Hwy 86 N Hillsborough, North Carolina Orange County



**DEVELOPER**  
Forestar, Inc.  
Attn. Laura Haywood  
8041 Arco Corporate Drive  
Raleigh, NC 27617  
(919) 804-7220  
laurahaywood@forestar.com

**SURVEY**  
Canoy Surveying  
1154 Shonele Ln  
Stem, NC 27581  
(984) 377-2626  
canoyssurveying@gmail.com

**ENVIRONMENTAL CONSULTANT**  
Spangler Environmental, Inc.  
4338 Bland Road  
Raleigh, NC 27609  
(980)308-9888  
ward@spanglerenvironmental.com

**TRAFFIC CONSULTANT**  
Bolton & Menk, Inc.  
418 S Dawson Street  
Raleigh, NC 27596  
(919) 719-1800  
allison.wise@bolton-menk.com

**WELL DESIGNER**  
MacCONNELL & Associates, P.C.  
501 Cascade Pointe Lane  
Suite 103  
Cary, NC 27513  
(919) 467-1239  
david@mcconnellandassoc.com

**LANDSCAPE ARCHITECT**  
Weston & Sampson Engineers, Inc  
424 S. Dawson Street  
Raleigh, NC 27601  
(978) 532-1900  
steeler.nicole@wseinc.com

**CIVIL ENGINEER**  
Bowman North Carolina, Ltd.  
4006 Barrett Drive  
Suite 104  
Raleigh, NC 27609  
(919) 553-6570  
donald.sever@bowman.com  
FIRM# F-1445

**CURRENT PROPERTY OWNERS**  
Estate of Lanie Brown (B.) Powell  
C/O Hughes B. Powell Jr., Executor  
P.O Box 636  
Smithfield, NC 27577  
(919) 901-5374

Amy L. Powell  
1234 Aken Street  
Port Charlotte, FL 33952  
910.895.1500  
  
Jenny Powell Parks and Russell Michael Parks  
560 Parkertown Road  
Four Oaks, NC 27524  
919.963.3733

| DEVELOPMENT DATA                                      |                                    |
|---|------------------------------------|
| LOCATION:   | HWY 86 N<br>HILLSBOROUGH, NC 27278 |
| COUNTY:   | ORANGE COUNTY                      |
| PERM:   | 8965878986                         |
| FEED BOOK/PAGE:                                       | 1847 / 714                         |
| CURRENT ZONING:                                       | AR                                 |
| PROPOSED ZONING:                                      | R-10                               |
| ACREAGE:  | 175.78 AC                          |
| LAND CLASS:   | VACANT                             |
| W/SHED:   | LOWER END UNPROTECTED              |
| LOWER END UNPROTECTED HAS NO IMPERVIOUS SURFACE LIMIT |                                    |
| PROPOSED USE:   | SINGLE FAMILY RESIDENTIAL          |
| ESTIMATED TRAFFIC GENERATED:                          | 524 TRIPS/DAY                      |
| PROPOSED MINIMUM BUILDING SETBACKS                    |                                    |
| FRONT YARD:   | 20'                                |
| SIDE YARD:  | 10'                                |
| REAR YARD:  | 15'                                |
| CORNER YARD:  | 20'                                |
| MAXIMUM HEIGHT:                                       | 40 FT                              |
| MINIMUM WIDTH:  | 7'-2" FROM STREET LEVEL            |
| LOT ACREAGE   |                                    |
| TOTAL NUMBER PROPOSED LOTS:                           | 48                                 |
| MAXIMUM PROPOSED DENSITY:                             | 0.61 UNITS PER ACRE                |
| MINIMUM PROPOSED LOT SIZE:                            | 28,000 SF                          |
| MINIMUM PROPOSED LOT WIDTH:                           | 80 FT                              |
| OPEN SPACE PROVIDED:                                  | 42.25 ACRES                        |
| 1% OPEN SPACE PROVIDED:                               | 153,976                            |

**COMMITMENTS**

PLEASE SEE THE NARRATIVE OF ZONING CONDITIONS OFFERED INCLUDED IN THE SUBMITTAL PACKAGE

**FIRE & LIFE SAFETY DIVISION: CHRIS PENDERGRASS**  
(919) 245-6125  
cpendergrass@orangecountync.gov  
  
**SHERIFF: CHARLES S. BLACKWOOD**  
(919)245-2900  
csblackwood@orangecountync.gov

**UTILITY PROVIDERS**  
ELECTRICITY – DUKE ENERGY  
WATER – PRIVATE COMPANY (TBD)  
SEPTIC – ON LOT  
NATURAL GAS – PUBLIC SERVICE COMPANY OF NORTH CAROLINA

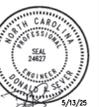
**SOLID DISPOSAL SERVICES:**  
ORANGE COUNTY WASTE MANAGEMENT



Bowman North Carolina, Ltd.  
4006 BARRETT DR  
Suite 104  
RALEIGH, NC 27609  
Phone: (919)553-6570  
bowman.com  
Bowman North Carolina, Ltd.

COVER SHEET  
Hwy 86  
HIGHWAY 86 N  
HILLSBOROUGH, NC  
ORANGE COUNTY

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION



PLAN STATUS

| DATE              | DESCRIPTION |
|-------------------|-------------|
| DC                | DC DS       |
| DESIGN            | DRAWN CHKD  |
| SCALE             | 1" = 1"     |
| FILE No.          |             |
| DATE MAY 13, 2024 |             |

FILE No.  
C-1.0

| Index of Drawings |                               |
|-------------------|-------------------------------|
| Sheet Number      | Sheet Title                   |
| C1.0              | COVER SHEET                   |
| C2.0              | EXISTING CONDITIONS           |
| C3.1              | EXISTING OPEN SPACE AREAS     |
| C4.0              | PRELIMINARY SITE PLAN         |
| L100              | LANDSCAPE AND OPEN SPACE PLAN |
| 1000              | CONCEPT PLAN RENDERING        |



Know what's below.  
Call before you dig.



**TREE SYMBOL LEGEND**

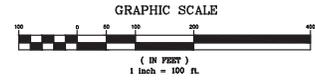
- OAK
- MAPLE
- POPLAR
- SWEETGUM
- HICKORY
- ELM
- PINE

INDIVIDUAL TREES IDENTIFIED WERE ALL HARDWOOD SPECIES GREATER THAN 10" DBH AND PINE SPECIES GREATER THAN 14" DBH ANYWHERE ON SITE, OR ALL TREES GREATER THAN 12" IN ANY PROTECTED BUFFER AREA.



THIS PROPERTY WAS PREVIOUSLY OPEN FIELD OR PASTURE LAND IN THE CENTER OF THE SITE. A MAJORITY OF LARGE TREES ALONG THE EDGES WERE DESTROYED BY AN F3 TORNADO IN 1992. EVIDENCE OF THIS DAMAGE IS STILL VISIBLE TODAY WITH THE NUMBER OF FALLEN TREES AND NATURAL SPORES SCATTERED IN THE WOODED AREAS. THE EXISTING TREES TO REMAIN ON SITE ARE PREDOMINATELY SMALL HARDWOODS RANGING FROM APPROXIMATELY 20" TO 28" DBH. NO UNIQUE OR EXCEPTIONALLY LARGE TREES HAVE BEEN IDENTIFIED IN AREAS THAT ARE PROPOSED TO BE DEVELOPED.

TOTAL SITE AREA: 78.3 ACRES  
 PRIMARY OPEN SPACE: 17.4 ACRES (22.25%)

Grid file name: P:\Photo\Forester Group\DN25-0271-Hwy 86 Subdivision\04-CAD\02-Conditional District\2.1 EXISTING OPEN SPACE.dwg

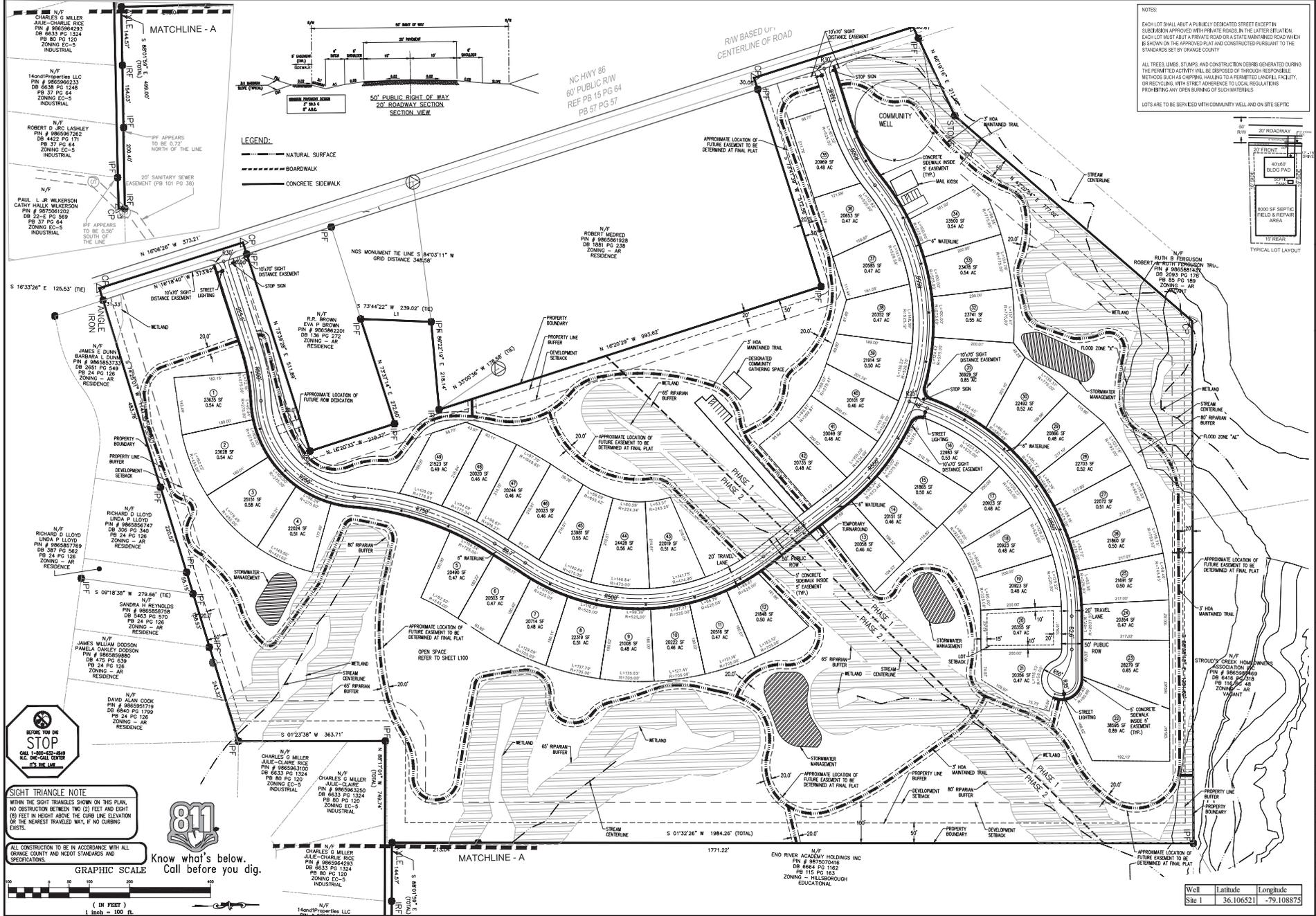
**Bowman**

Bowman North Carolina Ltd.  
 4008 BARRETT DR  
 SUITE 104  
 RALEIGH, NC 27609  
 Phone: (919) 853-8079  
 bowman.com  
 Bowman North Carolina Ltd.

EXISTING OPEN SPACE AREA PLAN  
 Highway 86  
 HILLSBOROUGH, NC  
 ORANGE COUNTY

**Watershed Partners**  
 Water & Land Engineers, Inc.  
 401 S. Church Street  
 Hillsborough, NC 27540  
 P: 919.286.7100  
 www.watershedpartners.com

| PLAN STATUS           |             |         |
|-----------------------|-------------|---------|
| DATE                  | DESCRIPTION | RC      |
| NS DESIGN             | NS DRAWN    | RC CHKD |
| SCALE: AS SHOWN       |             |         |
| JOB No. 220242-01-002 |             |         |
| DATE MAY 13, 2025     |             |         |
| FILE No.              |             |         |
| SHEET                 |             | C2.1    |



NOTES:

EACH LOT SHALL ABUT A PUBLICLY DEDICATED STREET EXCEPT IN SUBDIVISION APPROVED WITH PRIVATE ROADS. IN THE LATTER SITUATION, EACH LOT MUST ABUT A PRIVATE ROAD OR A STATE MAINTAINED ROAD WHICH IS SHOWN ON THE APPROVED PLAT AND CONSTRUCTED PURSUANT TO THE STANDARDS SET BY ORANGE COUNTY.

ALL TREES LIMBS, STUMPS, AND CONSTRUCTION DEBRIS GENERATED DURING THE PERMITTED ACTIVITY SHALL BE REMOVED BY THROUGH-RESERVABLE METHODS SUCH AS CHIPPING, HAULING TO A PERMITTED LANDFILL FACILITY, OR RECYCLING, WITH STREET ADHERENCE TO LOCAL REGULATIONS. PROHIBITING ANY OPEN BURNING OF SUCH MATERIALS.

LOTS ARE TO BE SERVICED WITH COMMUNITY WELL AND ON SITE SEPTIC.



LEGEND:

— NATURAL SURFACE

— BOARDWALK

— CONCRETE SIDEWALK

**STOP**

BEFORE YOU GO

CALL 1-800-452-6848

K.C. ONE-CALL CENTER

ITS BE THE WAY

**SIGHT TRIANGLE NOTE**

WITHIN THE SIGHT TRIANGLES SHOWN ON THIS PLAN, NO OBSTRUCTION BETWEEN TWO (2) FEET AND EIGHT (8) FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION OR THE NEAREST TRAVELED WAY, IF NO CURBING EXISTS.

ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL ORANGE COUNTY AND NCDOT STANDARDS AND SPECIFICATIONS.

**811**

Know what's below.  
Call before you dig.

GRAPHIC SCALE

1 inch = 100 feet

**Bowman**

Bowman North Carolina, Ltd.

4008 BARRETT DR  
Suite 104  
RALEIGH, NC 27609  
Phone: (919)555-8579  
bowman.com  
Bowman North Carolina, Ltd.

PRELIMINARY PLAN OF

Hwy 86

HIGHWAY 86 N.C.

HILLSBOROUGH, NC

ORANGE COUNTY

PRELIMINARY  
DO NOT  
USE FOR  
CONSTRUCTION



PLAN STATUS

| DATE                  | DESCRIPTION |
|-----------------------|-------------|
| DC DESIGN             | DC DRAIN    |
| SCALE: 1/8" = 1'-0"   | CHS         |
| JOB No. 220242-01-002 |             |
| DATE MAY 13, 2024     |             |
| FILE No.              |             |

| Well   | Latitude  | Longitude  |
|--------|-----------|------------|
| Site 1 | 36.106521 | -79.108875 |

**TREE PROTECTION**

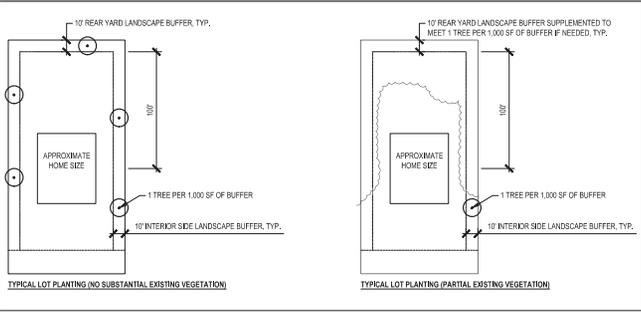
**NOTES:**

1. Locate critical areas (such as flood plains, steep slopes and wetlands) and determine trees in their natural condition or only partially cut.
2. Select trees to be preserved before siting roads, buildings or other structures.
3. Minimize branching in areas with trees.
4. Place several utilities in the same trench.
5. Prohibit or restrict access to tree protection zones (TPZ). Post "No-Cut" signs on all sides of fencing and do not allow construction equipment or materials into TPZ.
6. Monitor trees using a professional or train your staff to monitor tree health during and after construction on a regular, frequent basis.
7. Assign a crew member to visually TPZ fence integrity checks. Repair and replace TPZ fencing as needed.

**MAINTENANCE:**

1. Remove any damaged trees, in spite of preservation, where damage to ground has been noted. In such cases, repair any damage to the crown, trunk, or root system immediately.
2. Repair cuts by cutting off the damaged areas and planting them with like plant. Spread post holes or root topped over exposed roots.
3. Repair damage to bark by trimming around the damaged area, taper the cut to provide drainage and seal the tree joint.
4. Cut off all damaged live limbs above the live crown at all points in main branch. Use three separate cuts to avoid peeling bark from healthy areas of the tree.

| TREEM DIAMETER | GOOD PROTECTION | BETTER PROTECTION | BEST PROTECTION |
|----------------|-----------------|-------------------|-----------------|
| 8 INCHES       | 10 FEET         | 12 FEET           | 15 FEET         |
| 12 INCHES      | 15 FEET         | 18 FEET           | 21 FEET         |
| 18 INCHES      | 20 FEET         | 24 FEET           | 28 FEET         |
| 24 INCHES      | 25 FEET         | 30 FEET           | 35 FEET         |



**TREE SYMBOL LEGEND**

- OAK
- MAPLE
- POPLAR
- SWEETGUM
- HICKORY
- ELM
- PINE

**LEGEND**

- SIDEWALK
- TRAIL
- PRIMARY TREE PROTECTION AREA
- SECONDARY TREE PROTECTION AREA
- STREET TREE (85 O.C.)

**INDIVIDUAL TREES IDENTIFIED WERE ALL HARDWOOD SPECIES GREATER THAN 10" DBH AND PINE SPECIES GREATER THAN 4" DBH ANYWHERE ON SITE, OR ALL TREES GREATER THAN 12" IN ANY PROTECTED BUFFER AREA.**



**811**  
Know what's below.  
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Call the name: P:\Private\Forester Group\ENR25-0271-Hwy 86 Subdivision\06-CAD\02-Conditional District\L100 PLANTING.dwg

**Bowman**

Bowman North Carolina Ltd.  
4008 BARRETT DR  
Suite 104  
RALEIGH, NC 27609  
Phone: (919) 853-6079  
bowman.com

**LANDSCAPE & OPEN SPACE PLAN**

Hwy 86  
HIGHWAY 86 N  
HILLSBOROUGH, NC ORANGE COUNTY

**Water & Energy**

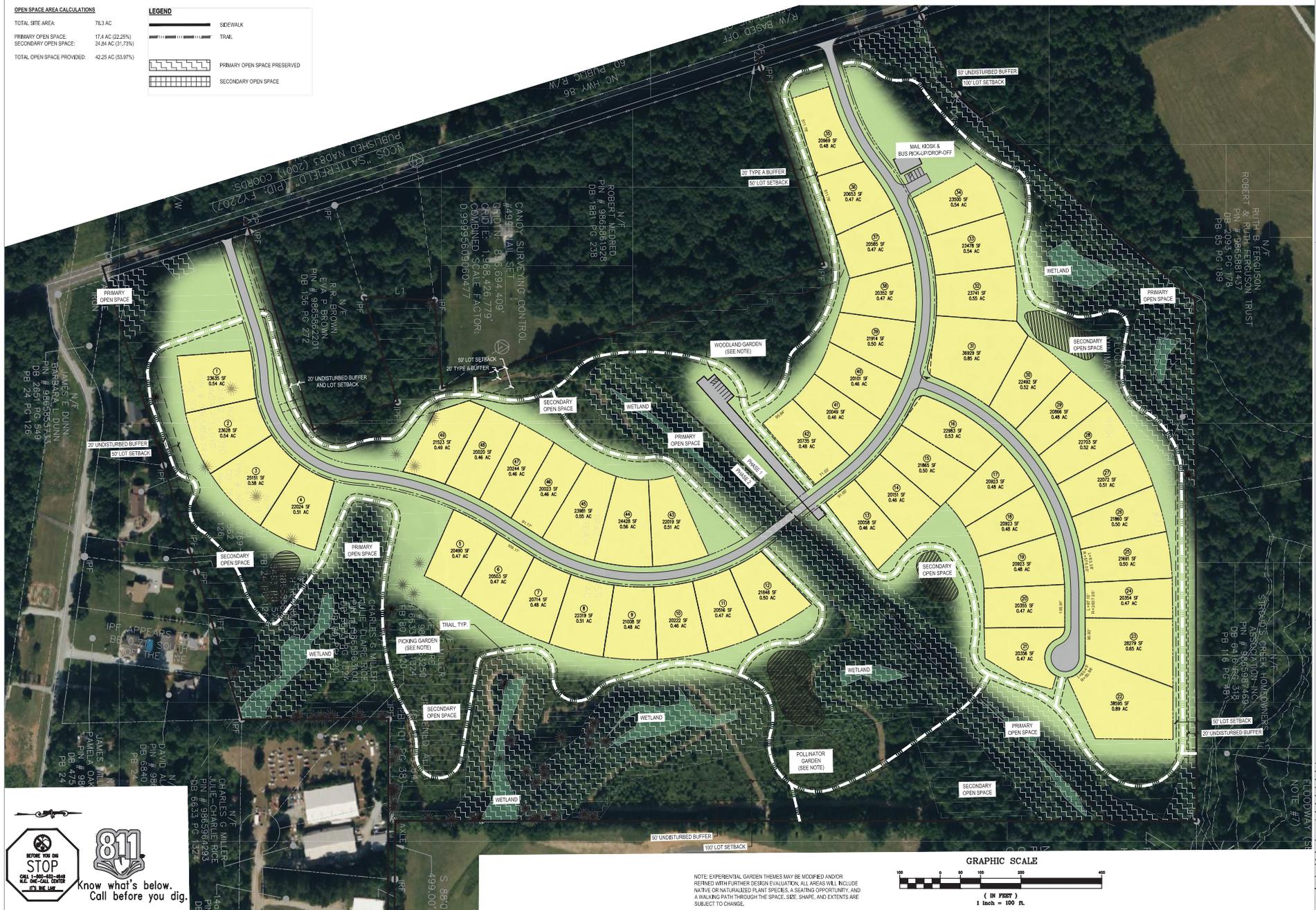
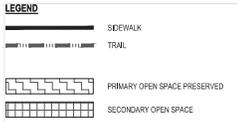
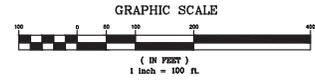
Water & Energy Engineers, Inc.  
420 S. Capital Street  
Raleigh, NC 27601  
www.waterandenergy.com

**PLAN STATUS**

|           |               |      |    |
|-----------|---------------|------|----|
| DATE      | DESCRIPTION   | NS   | RC |
| NS DESIGN | DRAWN         | CHKD |    |
| SCALE     | AS SHOWN      |      |    |
| JOB No.   | 220242-01-002 |      |    |
| DATE      | May 13, 2025  |      |    |
| FILE No.  |               |      |    |
| SHEET     | L100          |      |    |

**OPEN SPACE AREA CALCULATIONS**

|                            |                   |
|----------------------------|-------------------|
| TOTAL SITE AREA:           | 78.3 AC           |
| PRIMARY OPEN SPACE:        | 17.4 AC (22.22%)  |
| SECONDARY OPEN SPACE:      | 34.84 AC (44.51%) |
| TOTAL OPEN SPACE PROVIDED: | 42.25 AC (53.97%) |

NOTE: EXPERIMENTAL GARDEN THEMES MAY BE MODIFIED AND/OR REFINED WITH FURTHER DESIGN EVALUATION. ALL AREAS WILL INCLUDE NATIVE OR NATURALIZED PLANT SPECIES, A SEATING OPPORTUNITY, AND A WALKING PATH THROUGH THE SPACE. SIZE, SHAPE, AND EXTENTS ARE SUBJECT TO CHANGE.

Grid file name: P:\Private\Forester Group\1025-0271-Hwy 86 Subdivision\04-CAD\02-Condition District\1000\_OPEN\_SPACE.dwg

**Bowman**

Bowman North Carolina Ltd.  
4008 BARRETT DR  
Suite 104  
RALEIGH, NC 27609  
Phone: (919) 853-8079  
bowman.com  
Bowman North Carolina Ltd.

CONCEPT OPEN SPACE RENDERING

Hwy 86  
HIGHWAY 86 N  
HILLSBOROUGH, NC ORANGE COUNTY

**Water & Landmark**

Water & Landmark Engineers, Inc.  
421 S. Church Street  
Raleigh, NC 27601  
712.522.9900  
www.waterandlandmark.com

| PLAN STATUS           |             |         |
|-----------------------|-------------|---------|
| DATE                  | DESCRIPTION | RC      |
| NS DESIGN             | NS DRAWN    | RC CHKD |
| SCALE                 | 1" = 100'   |         |
| JOB No. 220242-01-002 |             |         |
| DATE MAY 13, 2025     |             |         |
| FILE No.              |             |         |
| SHEET L000            |             |         |

## APPLICATION DESCRIPTION

Hwy 86 Subdivision

Property Located at Hwy 86N

Hillsborough, NC 27278

County PIN 9865878090 / Approximately 79.76 Acres

The Applicant, Forestar C/O Laura Haywood, seeks to rezone an approximately 79.76 acres parcel of land located on Hwy 86N, approximately 3000' north of Hwy 57 Intersection. The Property is undeveloped, owned by the sellers: Lanie B. Powell, Amy L. Powell, Jenny Powell Parks and Russell Micheal Parks. The current zoning is AR, Rural Residential, and the proposed zoning is R-CD, Residential Conditional District. The proposed development consists of approximately 49 single family units, each with a minimum of 20,000 SF lot. A NCDOT rural roadway section with 20' pavement and roadside ditches are proposed. Various amenities will be scattered throughout the subdivision including using constructed wetlands as stormwater management features, blending with the natural wetlands located on the site. A mail Kiosk, natural trails and community gathering spaces are proposed. On site septic and community well are anticipated. The proposed open space provided is 61.7%, maintaining a visually appealing design that complements the surrounding neighborhood and preserves the natural aspects of the region.

The anticipated future growth in the north portion of Orange County makes the property an ideal location for a subdivision that would serve the existing community and anticipated future growth. With easy access to schools, stores and restaurants nearby this location is ideal for a new development. Moreover, as shown in the more detailed plans for the Property which accompany the Application, the proposed subdivision is designed to fit in with the character of the area. The site has been designed to address concerns regarding traffic patterns on NC Highway 86, and there will be no adverse impact on existing traffic in the area. Furthermore, the site has been designed to comply with all applicable stormwater management requirements so that neighboring and nearby properties will not be negatively affected by stormwater post-development.

The design and scale of the proposed subdivision is intended to be consistent with the character of the surrounding area, and not to dwarf the existing neighboring uses. The large

lot sizes, natural trails and open space provided are intended to blend in with the existing environment and serve the existing community with access to natural trails. The proposed site development has been designed with the existing built and natural environment of the area.

### **Justification Statement in Support of Atlas Map Amendment**

The subject property is approximately 80 acres located along Highway 86 south of the intersection with Blackman Lane/ Coleman Loop. It is immediately adjacent to the Eno River Academy. Pathways Elementary School, Mars Baptist Church and a small residential subdivision are located to the north/northeast of the subject property. Other area land uses include Tobacco Road Heating & Air, Ace Asphalt, Thalle Construction Company, Miller Sport, Holy Family Catholic Church, Orange County Public Transportation, Fairview Park, Vertical Church, homes on large and small lots and vacant property. An indoor pickleball facility is planned north of Eno River Academy. Properties in the immediate vicinity of the site are no longer actively farmed.

The subject property is adjacent to the Town of Hillsborough's ETJ and less than two miles north of Historic Hillsborough. Hillsborough is the fastest growing town in Orange County, and the demand for housing in the area continues to increase. The subject property provides easy access to downtown restaurants, breweries and bars, shopping, recreational amenities like the Hillsborough Riverwalk and Fairview Park, schools, a library, the courthouse and the other amenities of Historic Hillsborough.

The Future Land Use Map of the 2030 Comprehensive plan ("2030 Comprehensive Plan), which was adopted in 2008, designates the northern portion of this property as part of the "Rural Industrial Activity Node" and the remainder as "Agricultural Residential". Both of these designations focus on active agricultural land uses, which no longer predominate in this area. In fact, traditional agricultural uses may conflict with the many schools and churches now existing in the immediate area. This area is changing with the growth of Hillsborough.

The Town of Hillsborough/ Orange County Central Orange Coordinated Area Land Use Plan ("COCO Plan") acknowledges the changes to this area. The Future Land Use classifications set out therein identify the subject property as appropriate for Mixed Residential Neighborhood. Mixed Residential is described as containing "a single or variety of dwelling types and densities or may integrate a variety of supportive commercial, public and semi-public uses and open or public space." The COCO Plan reflects the development pattern we propose today.

The subject property is zoned Agricultural Residential ("AR"). The purpose of the AR district is to assist in the preservation of land suitable for farming uses. The subject property is not currently farmed, and landowners in this area are already opting out of farming uses in favor of residential and residential-related uses such as HVAC repair, auto service uses, schools, churches and parks. Changing circumstances in this area of Orange County make the proposed Zoning Atlas amendment reasonably necessary to promote the public health, safety and general welfare.

We envision homes that are nestled together to create a cohesive neighborhood surrounded by old growth forests to explore through a system of natural-surface trails. The rural feel of the community is maintained given the preservation of substantial common open space. Outdoor recreation, cultural and historical education will be at the heart of the neighborhood. The neighborhood will be served by a shared well with ample water supply and individual septic management systems.

We propose approximately 49 homes, situated on lots that average a half-acre. This site design allows more than 60% of the site to remain in common open space, outside of individual lots. By clustering homes and maintaining common open space is encouraged by the 2030 Comprehensive Plan.

We propose a robust network of natural-surface trails will lead walkers, runners and hikers alike through the woodlands around the community perimeter. Trails will continue along the creek that bisects the property, encouraging children to play in nature. We envision educational placards along the trails and at the gathering spaces covering topics from native flora and fauna found on the property, local history such as the nearby Scots-Welsh Heritage Byway, and environmental science like the function of the natural wetlands and planned bio-retention areas. An incorporated outdoor pavilion is imagined for residents to relax, read, gather for community events or host an outdoor dinner party.

The proposed amendment respects the rural heritage of the area while acknowledging Hillsborough's growth in this area. We respectfully request your support for this Atlas Amendment.

P.O. Box 129  
Morrisville, NC 27560

(919) 467-1239



501 Cascade Pointe Lane  
Suite 103  
Cary, NC 27513  
[www.macconnellandassoc.com](http://www.macconnellandassoc.com)

## **MacCONNELL & Associates, P.C.**

"Engineering Today For Tomorrow's Future"

### **Water Narrative**

The potable water system for the proposed development will consist of one onsite community well to supply water for the development. The design basis is to provide high quality potable water for the future residents of the Hwy 86 property subdivision. The design is based on minimum NCDEQ standards and regulations. The system is sized for 49 single-family detached residences. The system is sized for residential peak flows per NCDEQ guidelines.

The system will consist of a well house, well pump, hydropneumatic tank, liquid chlorine disinfection, valving and appurtenance. The water will be disinfected with liquid chlorine. The water will be stored in a hydropneumatics storage tank that will provide the necessary storage required and regulate the pressure of the distribution system.

### **Septic Narrative**

The subdivision proposed disposing of wastewater effluent by individual onsite systems designed to 15A NCAC 18E Wastewater Treatment and Dispersal systems and Orange County Rules for Onsite Wastewater Treatment and Dispersal Systems. Based on a preliminary soils analysis, each site is anticipated to utilize conventional disposal methods (trench systems). Each home will have a septic tank sized for the proposed number of bedrooms and if necessary, a pump tank. Influent will flow into the septic which will provide both treatment and solids removal. An effluent filter will be installed at the outlet end to prevent solids from leaving the tank. It will then either gravity to the drain field or flow into a pump tank. The pump tank if required will house the equipment required to pump the septic tank effluent to the pressure manifold which will proportionally direct the effluent to the drain field.

# RECONNAISSANCE SOIL & SITE EVALUATION

Hwy 86 N – Brown Tract  
Hillsborough, Orange County, NC  
Earthy Elements Job Number: 24-032

Prepared For:

Forestar  
8041 Arco Corporate Drive, #110  
Raleigh, NC 27617

Prepared By:



Earthy Elements Soil Consulting, PLLC  
PO Box 12131  
Durham, NC 27709

March 19, 2024



Evan T. Morgan, LSS

## INTRODUCTION & SITE DESCRIPTION

A Reconnaissance Soil & Site Evaluation was performed on an approximately 78.11-acre tract located on Hwy 86 N in Hillsborough, Orange County, NC (PIN: 9865878090). Earthly Elements Soil Consulting, PLLC (Earthly Elements) was retained to evaluate the soil and site conditions and identify suitable areas for placement of on-site subsurface wastewater systems for single-family residences. The property was evaluated in accordance with Orange County and North Carolina wastewater regulations “Orange County Regulations for Wastewater Treatment and Disposal Systems”, January 1, 2024, and “15A NCAC 18E – Wastewater Treatment and Dispersal Systems – Version 1 – November 9, 2023”, effective January 1, 2024.

The site was mixed between mature hardwoods and early successional growth. Surface water features were identified. A four-bedroom single family residence with a design daily flow of 480 gallons per day (GPD) is assumed for this report.

## INVESTIGATION METHODOLOGY

The field survey was conducted on March 8 and 13-14, 2024, by Evan T. Morgan, LSS. Soil borings were advanced with hand-augers and soil color determined using a Munsell Soil Color Chart. Observations of the landscape as well as soil properties (depth, texture, structure, soil wetness, restrictive horizons, etc.) were recorded. Soil borings were described per the USDA-NRCS, *Field Book for Describing and Sampling Soils, Version 3.0*. Soil boring locations were marked with blue ribbon flagging when feasible.

## DISCUSSION

Three areas of soil rated as Suitable for Conventional or Low-Profile Chamber Systems were identified across the tract. A long-term acceptance rate (LTAR) in the range of 0.25 to 0.3 GPD/sq-ft is anticipated for these soil units. As such, a four-bedroom single-family residence with a design daily flow of 480 GPD would require approximately 7,000 to 9,000 sq-ft to support the initial system and 100% repair area utilizing 400 to 480 linear feet of accepted system drainline per initial and repair system. Systems sited in areas with soil depths suitable for Low-Profile Chamber systems would require 25% more drainline.

Ten areas of soil rated as Suitable for Subsurface Drip systems were identified across the tract. A LTAR in the range of 0.1 to 0.15 GPD/sq-ft is anticipated for these soil units. As such, a four-bedroom single-family residence with a design daily flow of 480 GPD would require approximately 7,000 to 10,000 sq-ft to support the initial system and 100% repair area utilizing 1,600 to 2,400 linear feet of drip tubing drainline per initial and repair system. LTAR's for subsurface drip systems must be substantiated by in-situ saturated hydraulic conductivity testing. Subsurface drip systems require a Special Site Evaluation by a LSS and a design by a Professional Engineer to permit and install. These areas are recommended to be allocated for repair areas or home sites.

Additional details for the soil units are appended.

Surface water was identified across the tract that will require a minimum of a 50-foot setback to septic system components. The location of these features is approximated onto Figure 1

Areas of Unsuitable Landscape were observed throughout the tract and include drainageways, concave landforms, ruts, hummocks, utilities, existing buildings, surface water and surface water setbacks, and other areas not suitable for the installation of septic drain lines.

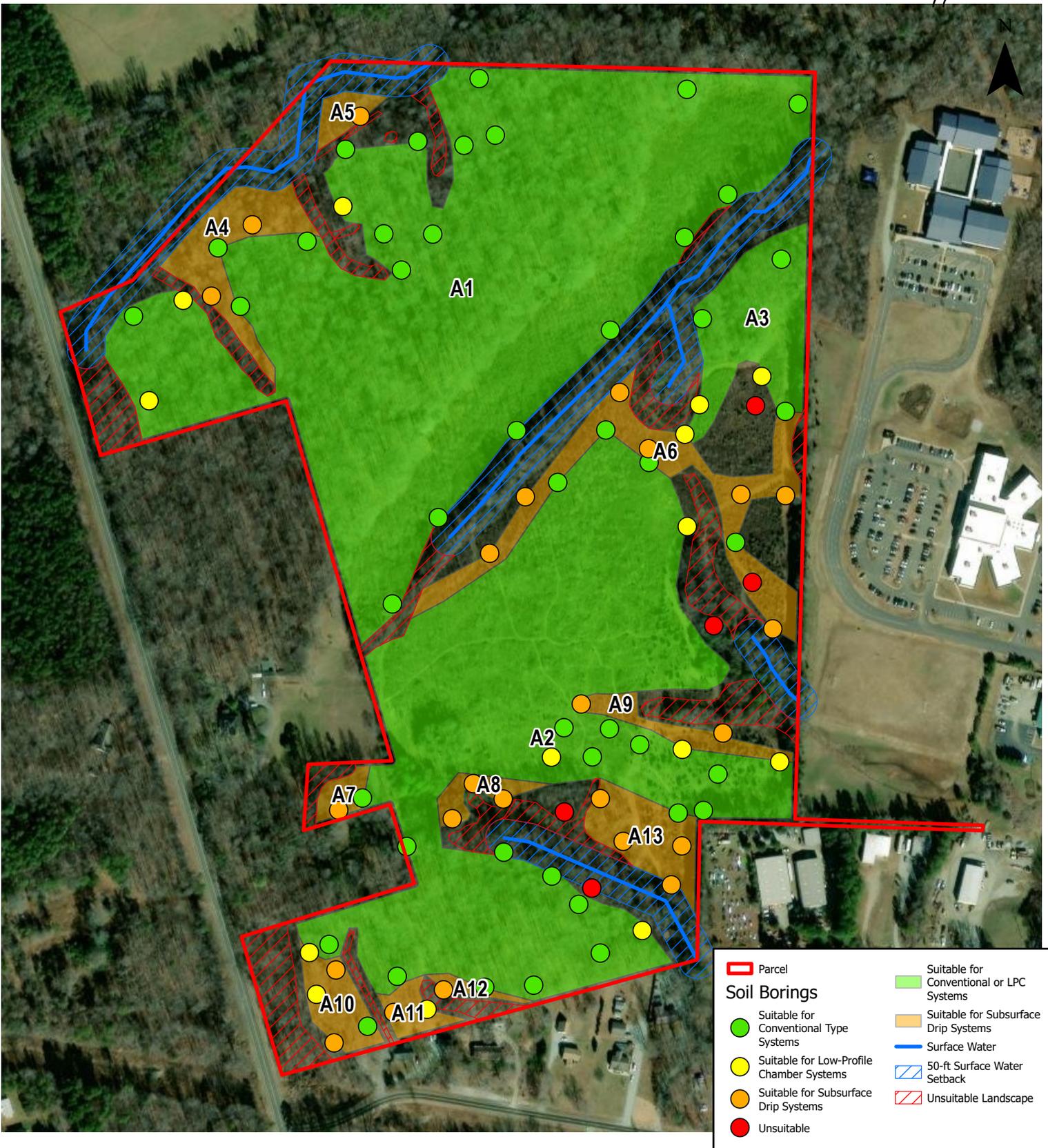
The soil units identified for proposed septic drainfields shall not be impacted by home sites, pools, garages, or other buildings and shall not be mechanically altered from the natural lay of the land. Septic system drainlines are installed along the natural ground contours and any disturbance to the contouring could change a site's functionality. As such, site disturbance shall be extremely limited to not render any areas unusable or require more expensive system types.

System type, total drainline length and square footage requirements would be determined when the lot layout is finalized. Specific drainline length requirements, trench installation depth, drainline type and soil caps will all vary based upon the individual lot LTARs and usable soil depths.

## **CONCLUSION**

The findings presented herein represent Earthly Elements' professional opinion based on our Reconnaissance Soil and Site evaluation and knowledge of the current laws and rules governing on-site wastewater systems in Orange County and North Carolina. Areas of Suitable soil was identified across the tract that can support initial and repair septic drainfields for single-family residences. Earthly Elements can provide septic system layouts, system designs and septic permitting assistance during the subdivision planning process, if desired.

Soils naturally change across a landscape and contain many inclusions. As such, attempts to quantify them are not always precise and exact. Due to this inherent variability of soils and the subjectivity when determining limiting factors, there is no guarantee that a regulating authority will agree with the findings of this report. Any concurrence with the findings of this report will be made by Orange County at the time of Improvement Permit application. This report does not meet the requirements of SL 2023-90 a2-a6 or an Engineer Option Permit.



Reconnaissance Soil & Site Evaluation

Hwy 86 N - Brown Tract

Orange County, North Carolina

Date: March 2024

Job #: 24-032

1" = 350'

Figure 1

| <b>Soil Unit Name</b> | <b>Drainline Type</b> | <b>Square Footage</b> |
|-----------------------|-----------------------|-----------------------|
| A1                    | Conventional/LPC      | 1,187,930             |
| A2                    | Conventional/LPC      | 848,723               |
| A3                    | Conventional/LPC      | 108,740               |
| A4                    | Subsurface Drip       | 65,163                |
| A5                    | Subsurface Drip       | 14,878                |
| A6                    | Subsurface Drip       | 118,625               |
| A7                    | Subsurface Drip       | 13,183                |
| A8                    | Subsurface Drip       | 16,662                |
| A9                    | Subsurface Drip       | 26,656                |
| A10                   | Subsurface Drip       | 34,850                |
| A11                   | Subsurface Drip       | 17,022                |
| A12                   | Subsurface Drip       | 6,851                 |
| A13                   | Subsurface Drip       | 53,422                |

# Bowman

## Letter of Transmittal

4006 Barrett Drive, Suite 104  
Raleigh, North Carolina, 27609  
(919) 553-6570  
bowman.com

Date: August 22, 2025 Job Number: 2220242-01-002

Project Name: Hwy 86 Subdivision

To: **Orange County Planning and Inspections Department - Taylor Perschau**  
131 W. Margaret Lane, Suite 201, P.O. Box 8181  
Hillsborough, NC 27278|| 919-245-2598

We are sending these by

- U.S. Mail
  UPS
  Hand Delivery  
 Other e-mail

We are sending you

- Attached
  Under separate cover via \_\_\_\_\_ the following items:  
 Shop drawings
  Prints/Plans
  Samples
  Specifications
  Change Orders  
 Other \_\_\_\_\_

| Copies | Date    | No. | Description   |
|--------|---------|-----|---|
| 1      | 8/22/25 |     | Full-Size Site Plan Set (Cover sheet, Existing Conditions, Existing Open Space Areas, Site Plan, Landscape & Open Space, Concept Plan Rendering)  |
| 1      | 8/22/25 |     | Statement of Compliance Letter, Conditions Offered, Soils Report, Preliminary Well site Approval, Well Permit 2025, Pump Test Results 2025, Water Analysis, Final Executive Summary Well Analysis, Septic Concept Designs |
|        |         |     |   |
|        |         |     |   |
|        |         |     |   |
|        |         |     |   |
|        |         |     |   |

These are transmitted as checked below:

- For your use
  Approved as submitted
  Resubmit
  Copies for approval  
 As requested
  Approved as noted
  Submit
  Copies for distribution  
 For review and comment
  Returned for corrections
  Return
  Corrected prints

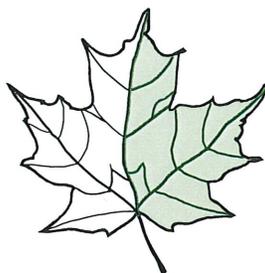
Remarks:

Copy to: \_\_\_\_\_

Signed:   
\_\_\_\_\_  
Danielle Cabral, EI

P. O. Box 129  
Morrisville, NC 27560

919-467-1239



**MACCONNELL  
& ASSOCIATES, P.C.**

501 Cascade Pointe Lane  
Suite 103  
Cary, NC 27513

Fax 919-319-6510

August 23, 2024

Ms. Melody Markert  
Environmental Engineer  
NC DEQ - Division of Water Resources – Public Water Supply Section  
1628 Mail Service Center  
Raleigh, North Carolina 27699-1617

Re: Hwy 86 Property  
PIN: 9865878090  
Preliminary Well Site Approval  
Project No: C23803.00

Dear Ms. Markert:

Please find signed document indicating that the owner and applicant understand the North Carolina Rules Governing Public Water Systems (15A NCAC 18C) and have done their due diligence to ensure the proposed well site complies with all rules, drainage requirements and setbacks stated in 15A NCAC 18C. The owner will ensure that the lot is graded or sloped so that the surface water is diverted away from the wellhead and that the lot is not located within the 100-year floodplain and not subject to flooding in accordance with rule 0.203(4). The setback requirements are summarized below:

| <b>Distance<br/>(in feet)</b> | <b>Potential Sources of Pollution</b>  |
|-------------------------------|--|
| 100                           | <ul style="list-style-type: none"> <li>• From any sanitary sewage disposal system, sewer, or sewer pipe (unless sewer is constructed of water main materials and joints, in which the sewer pipe shall be at least 50 feet from the well.</li> <li>• From buildings, mobile homes, permanent structures, animal house or lots, cultivated areas to which chemicals are applied.</li> <li>• From surface water</li> <li>• From chemical or petroleum fuel underground storage tank with secondary containment</li> <li>• From any other potential source of pollution not listed in this table</li> </ul> |
| 200                           | <ul style="list-style-type: none"> <li>• From a subsurface sanitary sewage treatment and disposal system designed for 3,000 or more gallons of wastewater a day, unless your well water source is a confined aquifer</li> </ul>  |
| 300                           | <ul style="list-style-type: none"> <li>• From any cemetery or burial ground</li> </ul>   |
| 500                           | <ul style="list-style-type: none"> <li>• From a septage disposal site</li> <li>• From a chemical or petroleum fuel underground storage tank without secondary containment.</li> <li>• From the boundary of a ground water contamination area.</li> <li>• From a sanitary landfill or non-permitted non-hazardous solid waste disposal site</li> </ul>  |
| 1,000                         | <ul style="list-style-type: none"> <li>• From a hazardous waste disposal site or in any location which conflicts with the North Carolina Hazardous Waste Management Rules cited in NCAC 13A</li> </ul>   |

Owner/Representative Signature:  Date: 8/23/24

Applicant Signature:  Date: 8/23/24  
(David Barcal)

## Narrative of Zoning Conditions Offered R-CD

The property owner hereby offers, consents to and agrees to abide by the conditions written below, if the rezoning is approved.

1. The subject property shall be developed in accordance with the proposed site plan submitted as part of this application (“Site Plan”).
2. The minimum lot size is 20,000 square feet. This deviates from the minimum in UDO Section 3.8. Suitable septic shall be provided on each parcel.
3. The property shall contain at least three (3) experiential gardens as shown on Site Plan as the Woodland Garden, the Picking Garden and the Pollinator Garden (each a “Garden” and collectively the “Gardens”). A landscape plan for each Garden shall be prepared by a landscape architect at the time of final plat to fulfill the theme of that Garden. Each Garden shall contain a seating opportunity such as a bench, chair or hammock. The Gardens shall be dedicated to and maintained by the Homeowner’s Association; however, nothing herein shall prevent the Homeowner’s Association from altering the planting plan of each Garden in the future.
4. Where supplementation of perimeter plantings is required, native plant materials appropriate for the growing environment in that area shall be utilized.
5. An ADA-compliant, open-air mail kiosk will incorporate a weather covering with recessed lighting.
6. Trails shall provide access to the Designated Community Gathering Space and each Garden as shown on the Site Plan. The length of the trails located on the subject property shall combined total at least 9,000 linear feet. Trail surfaces shall be aggregate or natural surface (not paved with concrete or asphalt) to minimize impacts to the existing environment and limit impervious surfaces. Boardwalks shall be utilized where the proposed trail crosses the wetlands as shown on the Site Plan, if permitted by Federal and State agencies. At least five (5) wayfinding signs shall be located along the trail to guide walkers to the Gardens and the Designated Community Gathering Area. The trail and associated amenities described in this section shall be maintained by the Homeowner’s Association. The precise location and alignment of the trails will be determined at final plat.
7. The Designated Community Gathering Space shall contain at least one (1) sculptural art piece and at least three (3) seating opportunities such as benches, chairs or hammocks, all to be maintained by the Homeowner’s Association.
8. Individual septic systems meeting Orange County Health Department requirements will be provided on each lot. Septic systems shall be designed to serve up to a four (4) bedroom home.

9. No home shall contain more than four (4) bedrooms.
10. Lighting in common areas of the Community shall comply with the requirements UDO Section 6.11.6, which promotes Dark Sky Preservation.

# RECONNAISSANCE SOIL & SITE EVALUATION

Hwy 86 N – Brown Tract  
Hillsborough, Orange County, NC  
Earthly Elements Job Number: 24-032

Prepared For:

Forestar  
8041 Arco Corporate Drive, #110  
Raleigh, NC 27617

Prepared By:



Earthly Elements Soil Consulting, PLLC  
PO Box 12131  
Durham, NC 27709

March 19, 2024



Evan T. Morgan, LSS

## INTRODUCTION & SITE DESCRIPTION

A Reconnaissance Soil & Site Evaluation was performed on an approximately 78.11-acre tract located on Hwy 86 N in Hillsborough, Orange County, NC (PIN: 9865878090). Earthly Elements Soil Consulting, PLLC (Earthly Elements) was retained to evaluate the soil and site conditions and identify suitable areas for placement of on-site subsurface wastewater systems for single-family residences. The property was evaluated in accordance with Orange County and North Carolina wastewater regulations “Orange County Regulations for Wastewater Treatment and Disposal Systems”, January 1, 2024, and “15A NCAC 18E – Wastewater Treatment and Dispersal Systems – Version 1 – November 9, 2023”, effective January 1, 2024.

The site was mixed between mature hardwoods and early successional growth. Surface water features were identified. A four-bedroom single family residence with a design daily flow of 480 gallons per day (GPD) is assumed for this report.

## INVESTIGATION METHODOLOGY

The field survey was conducted on March 8 and 13-14, 2024, by Evan T. Morgan, LSS. Soil borings were advanced with hand-augers and soil color determined using a Munsell Soil Color Chart. Observations of the landscape as well as soil properties (depth, texture, structure, soil wetness, restrictive horizons, etc.) were recorded. Soil borings were described per the USDA-NRCS, *Field Book for Describing and Sampling Soils, Version 3.0*. Soil boring locations were marked with blue ribbon flagging when feasible.

## DISCUSSION

Three areas of soil rated as Suitable for Conventional or Low-Profile Chamber Systems were identified across the tract. A long-term acceptance rate (LTAR) in the range of 0.25 to 0.3 GPD/sq-ft is anticipated for these soil units. As such, a four-bedroom single-family residence with a design daily flow of 480 GPD would require approximately 7,000 to 9,000 sq-ft to support the initial system and 100% repair area utilizing 400 to 480 linear feet of accepted system drainline per initial and repair system. Systems sited in areas with soil depths suitable for Low-Profile Chamber systems would require 25% more drainline.

Ten areas of soil rated as Suitable for Subsurface Drip systems were identified across the tract. A LTAR in the range of 0.1 to 0.15 GPD/sq-ft is anticipated for these soil units. As such, a four-bedroom single-family residence with a design daily flow of 480 GPD would require approximately 7,000 to 10,000 sq-ft to support the initial system and 100% repair area utilizing 1,600 to 2,400 linear feet of drip tubing drainline per initial and repair system. LTAR's for subsurface drip systems must be substantiated by in-situ saturated hydraulic conductivity testing. Subsurface drip systems require a Special Site Evaluation by a LSS and a design by a Professional Engineer to permit and install. These areas are recommended to be allocated for repair areas or home sites.

Additional details for the soil units are appended.

Surface water was identified across the tract that will require a minimum of a 50-foot setback to septic system components. The location of these features is approximated onto Figure 1

Areas of Unsuitable Landscape were observed throughout the tract and include drainageways, concave landforms, ruts, hummocks, utilities, existing buildings, surface water and surface water setbacks, and other areas not suitable for the installation of septic drain lines.

The soil units identified for proposed septic drainfields shall not be impacted by home sites, pools, garages, or other buildings and shall not be mechanically altered from the natural lay of the land. Septic system drainlines are installed along the natural ground contours and any disturbance to the contouring could change a site's functionality. As such, site disturbance shall be extremely limited to not render any areas unusable or require more expensive system types.

System type, total drainline length and square footage requirements would be determined when the lot layout is finalized. Specific drainline length requirements, trench installation depth, drainline type and soil caps will all vary based upon the individual lot LTARs and usable soil depths.

## **CONCLUSION**

The findings presented herein represent Earthly Elements' professional opinion based on our Reconnaissance Soil and Site evaluation and knowledge of the current laws and rules governing on-site wastewater systems in Orange County and North Carolina. Areas of Suitable soil was identified across the tract that can support initial and repair septic drainfields for single-family residences. Earthly Elements can provide septic system layouts, system designs and septic permitting assistance during the subdivision planning process, if desired.

Soils naturally change across a landscape and contain many inclusions. As such, attempts to quantify them are not always precise and exact. Due to this inherent variability of soils and the subjectivity when determining limiting factors, there is no guarantee that a regulating authority will agree with the findings of this report. Any concurrence with the findings of this report will be made by Orange County at the time of Improvement Permit application. This report does not meet the requirements of SL 2023-90 a2-a6 or an Engineer Option Permit.



|  |  |
|--|--|
| Parcel                                   | Suitable for Conventional or LPC Systems |
| Suitable for Conventional Type Systems   | Suitable for Subsurface Drip Systems     |
| Suitable for Low-Profile Chamber Systems | Surface Water                            |
| Suitable for Subsurface Drip Systems     | 50-ft Surface Water Setback              |
| Unsuitable                               | Unsuitable Landscape                     |



Reconnaissance Soil & Site Evaluation

Hwy 86 N - Brown Tract

Orange County, North Carolina

Date: March 2024

Job #: 24-032

1" = 350'

Figure 1

| <b>Soil Unit Name</b> | <b>Drainline Type</b> | <b>Square Footage</b> |
|-----------------------|-----------------------|-----------------------|
| A1                    | Conventional/LPC      | 1,187,930             |
| A2                    | Conventional/LPC      | 848,723               |
| A3                    | Conventional/LPC      | 108,740               |
| A4                    | Subsurface Drip       | 65,163                |
| A5                    | Subsurface Drip       | 14,878                |
| A6                    | Subsurface Drip       | 118,625               |
| A7                    | Subsurface Drip       | 13,183                |
| A8                    | Subsurface Drip       | 16,662                |
| A9                    | Subsurface Drip       | 26,656                |
| A10                   | Subsurface Drip       | 34,850                |
| A11                   | Subsurface Drip       | 17,022                |
| A12                   | Subsurface Drip       | 6,851                 |
| A13                   | Subsurface Drip       | 53,422                |

ROY COOPER  
Governor

ELIZABETH S. BISER  
Secretary

RICHARD E. ROGERS, JR.  
Director



NORTH CAROLINA  
Environmental Quality

September 12, 2024

Lanie Powell and Eva Brown  
P.O. Box 1391  
Smithfield, NC 27577

Re: Preliminary Well Site Approvals  
Hwy 86 Property Potable Water System  
Water System No.: NC4068033  
Orange County

Dear Ms. Powell and Ms. Brown:

On July 1, 2024, Melody Markert with the NC Department of Environmental Quality Public Water Supply (PWS) Section met with Tyler MacConnell and conducted a preliminary investigation of the proposed well sites listed below and shown on the attached drawing provided by the engineer. The proposed wells have been assigned Water System Facility (WSF) Identification Numbers and Sampling Point Codes as indicated below.

| WSF ID No. | Sampling Point Code | Description of Well Site   | Preliminary Latitude and Longitude   |
|------------|---------------------|--|--------------------------------------|
| W01        | RW1                 | 100' radius around the proposed well location (Well #1) at the preliminary coordinates, located on Lot 1.  | 35° 06' 23.48" N<br>79° 06' 31.95" W |
| W02        | RW2                 | 100' radius around the proposed well location (Well #2) at the preliminary coordinates, located on Lot 33. | 35° 06' 9.62" N<br>79° 06' 21.31" W  |
| W03        | RW3                 | 100' radius around the proposed well location (Well #3) at the preliminary coordinates, located on Lot 32. | 35° 06' 5.63" N<br>79° 06' 25.60" W  |

This letter is provided by the PWS Section, in accordance with Rule .0305(b) of the *Rules Governing Public Water Systems* (15A NCAC 18C), to provide permission to drill wells at the listed sites in order to establish the quality and quantity of water and the suitability of the wells as sources for a public water system.

**The proposed wells must be drilled within 24 months of the date of this letter. If not drilled within this 24-month period, this Preliminary Well Site Approval letter is void and permission to drill the wells is no longer valid. To regain permission to drill the wells, PWS Section staff**



North Carolina Department of Environmental Quality | Division of Water Resources  
Raleigh Regional Office | 3800 Barrett Drive | Raleigh, North Carolina 27609  
919.791.4200

**must revisit the proposed sites to conduct an investigation and issue a new preliminary well site approval letter before the wells may be drilled.**

In addition, this “Preliminary Well Site Approval” is to acknowledge that according to the information and documentation provided, we understand that the proposed wells are located on lots so that the area within 100 feet of the wells is owned or controlled by the person supplying the water and that the supplier of water will protect the well lots from potential sources of pollution and construct landscape features for drainage and diversion of pollution as required in 15A NCAC 18C .0203(a)(1). Furthermore, we understand that Donna Crowder and David Barcal per letter dated August, 23, 2024, have determined that the proposed well locations satisfy the minimum horizontal separation distances specified in 15A NCAC 18C .0203(a)(2) and summarized in the following table:

| Distance (ft) | Potential Source of Pollution   |
|---------------|---|
| 100           | <ul style="list-style-type: none"> <li>• From any sanitary sewage disposal system, sewer, or sewer pipe unless sewer is constructed of water main materials and joints, in which the sewer pipe shall be at least 50 feet from the well.</li> <li>• From buildings, mobile homes, permanent structures, animal houses or lots, cultivated areas to which chemicals are applied.</li> <li>• From surface water.</li> <li>• From a chemical or petroleum fuel underground storage tank with secondary containment.</li> <li>• From any other potential source of pollution not listed in this table.</li> </ul> |
| 200           | <ul style="list-style-type: none"> <li>• From a subsurface sanitary sewage treatment and disposal system designed for 3,000 or more gallons of wastewater a day, unless your well water source is a confined aquifer.</li> </ul>  |
| 300           | <ul style="list-style-type: none"> <li>• From any cemetery or burial ground.</li> </ul>   |
| 500           | <ul style="list-style-type: none"> <li>• From a septage disposal site.</li> <li>• From a chemical or petroleum fuel underground storage tank without secondary containment.</li> <li>• From the boundary of a ground water contamination area.</li> <li>• From a sanitary landfill or non-permitted non-hazardous solid waste disposal site.</li> </ul>   |
| 1,000         | <ul style="list-style-type: none"> <li>• From a hazardous waste disposal site or in any location which conflicts with the North Carolina Hazardous Waste Management Rules cited as 15A NCAC 13A.</li> </ul>   |

We also understand that the owner will ensure that the lots are graded or sloped so that surface water is diverted away from the wellheads and that the wells shall not have greater than a 1 percent annual chance of flooding in accordance with 15A NCAC 18C .0203(a)(4).

**PWS Section “Authorization to Construct” and “Final Approval”**

Subsequent to well drilling and evaluating water quality and quantity (i.e., collecting and analyzing samples and performing a 24-hour well drawdown test) the owner must submit an “Application for Approval of Engineering Plans and Specifications For Water Supply Systems” to document proposed well completion (i.e., selected pump, wellhead and well house details) and associated transmission lines, treatment and/or storage facilities and other critical information about the public water system. In accordance with 15A NCAC 18C .0305(a), no construction shall be undertaken until the PWS Section issues an “Authorization to Construct” letter. In addition, in accordance with 15A NCAC 18C .0309(a), the new wells and all associated treatment, storage or transmission/distribution lines



shall not be placed into service until the PWS Section has issued a "Final Approval." These steps are described in the Engineering Planning and Development Guidance Document available at [https://files.nc.gov/ncdeq/Water%20Resources/files/pws/planreview/EPD\\_Guidance\\_July2019.pdf](https://files.nc.gov/ncdeq/Water%20Resources/files/pws/planreview/EPD_Guidance_July2019.pdf)

Be aware that plans, specifications and reports for the new wells must be certified by a Professional Engineer. Therefore, it is recommended that a Professional Engineer or Licensed Geologist (or their designated representative) experienced in the construction of water supply wells, conduct on-site monitoring of well construction. At a minimum, certain critical phases of well construction such as installation and grouting of casing should be monitored. In many situations it may be necessary to go beyond the minimum requirements in order to protect the public health and ground water resources.

### Other Agency Approvals Required

This PWS Section "Preliminary Well Site Approval" letter does not address other agency applicable rules and requirements pertaining to well construction and registration.

Local county well construction rules and ordinances may include additional requirements.

Well construction must meet the standards specified in the *Well Construction Standards* (15A NCAC 2C). Be aware that these rules require a permit to be obtained from the Water Quality Regional Operations Section of the Division of Water Resources before the well is constructed if it is anticipated that the new well will be part of a water system with a design capacity of 100,000 gallons per day or greater. In addition, these rules require that wells be constructed by a properly certified well driller. For more information, call 919-707-3668 or go to:

<https://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/ground-water-protection/well-program#largecapwell>

Sincerely,



Rebecca Sadosky, Ph.D., Chief  
Public Water Supply Section  
Division of Water Resources

Enclosures

Cc: Regional Files - PWS Section  
Central Files - PWS Section  
Orange County Health Department  
Cricket Corwin, E.I., MacConnell & Associates - by email  
David Barcal, P.E., MacConnell & Associates - by email  
Laura Haywood, Forestar Group - by email  
Donna Crowder, Forestar Group - by email





**NOTES**

PARCEL NO.: 986557890  
 ZONING: AR  
 TOWNSHIP: HILLSBOROUGH  
 WATER SUPPLY WATCHED:  
 MINIMUM REQUIRED LOT AREA:  
 MINIMUM REQUIRED FRONT SETBACK:  
 MINIMUM REQUIRED SIDE SETBACK:  
 MINIMUM REQUIRED REAR SETBACK:  
 MAXIMUM BUILDING HEIGHT:  
 NET DENSITY: 42 UNITS / 79.2 AC = 0.53 UNITS/AC  
 RECREATION SPACE RATIO REQUIRED:  
 RECREATION SPACE PROPOSED:  
 IMPERVIOUS SURFACE LIMIT:

LOWER END (UNPROTECTED)  
 40,000 SQ.FT.  
 40 FT  
 20 FT  
 25 FT  
 42 UNITS  
 0.53 UNITS/AC  
 0.028 (86,598 SF)  
 .052 (180,198 SF)  
 24% (827,988 SF)

**SITE DATA SUMMARY**

PARCEL NO.: 986557890  
 ZONING: AR  
 TOWNSHIP: HILLSBOROUGH  
 WATER SUPPLY WATCHED:  
 MINIMUM REQUIRED LOT AREA:  
 MINIMUM REQUIRED FRONT SETBACK:  
 MINIMUM REQUIRED SIDE SETBACK:  
 MINIMUM REQUIRED REAR SETBACK:  
 MAXIMUM BUILDING HEIGHT:  
 NET DENSITY: 42 UNITS / 79.2 AC = 0.53 UNITS/AC  
 RECREATION SPACE RATIO REQUIRED:  
 RECREATION SPACE PROPOSED:  
 IMPERVIOUS SURFACE LIMIT:

LOWER END (UNPROTECTED)  
 40,000 SQ.FT.  
 40 FT  
 20 FT  
 25 FT  
 42 UNITS  
 0.53 UNITS/AC  
 0.028 (86,598 SF)  
 .052 (180,198 SF)  
 24% (827,988 SF)

**SITE INVENTORY LEGEND**

- PERIMETER BUFFER
- SPRINKLER BUFFER
- SPRINKLER POUNDS (SCLAS)
- CONSERVATION - OPEN SPACE



GRAPHIC SCALE: 1" = 150'

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |
|     |      |             |
|     |      |             |

PROJECT MANAGER: PROJECT ENGINEER:  
 DRAWN BY: CAC  
 CHECKED BY: CAC  
 DATE: 04/24/2024

PRELIMINARY  
 NOT FOR CONSTRUCTION

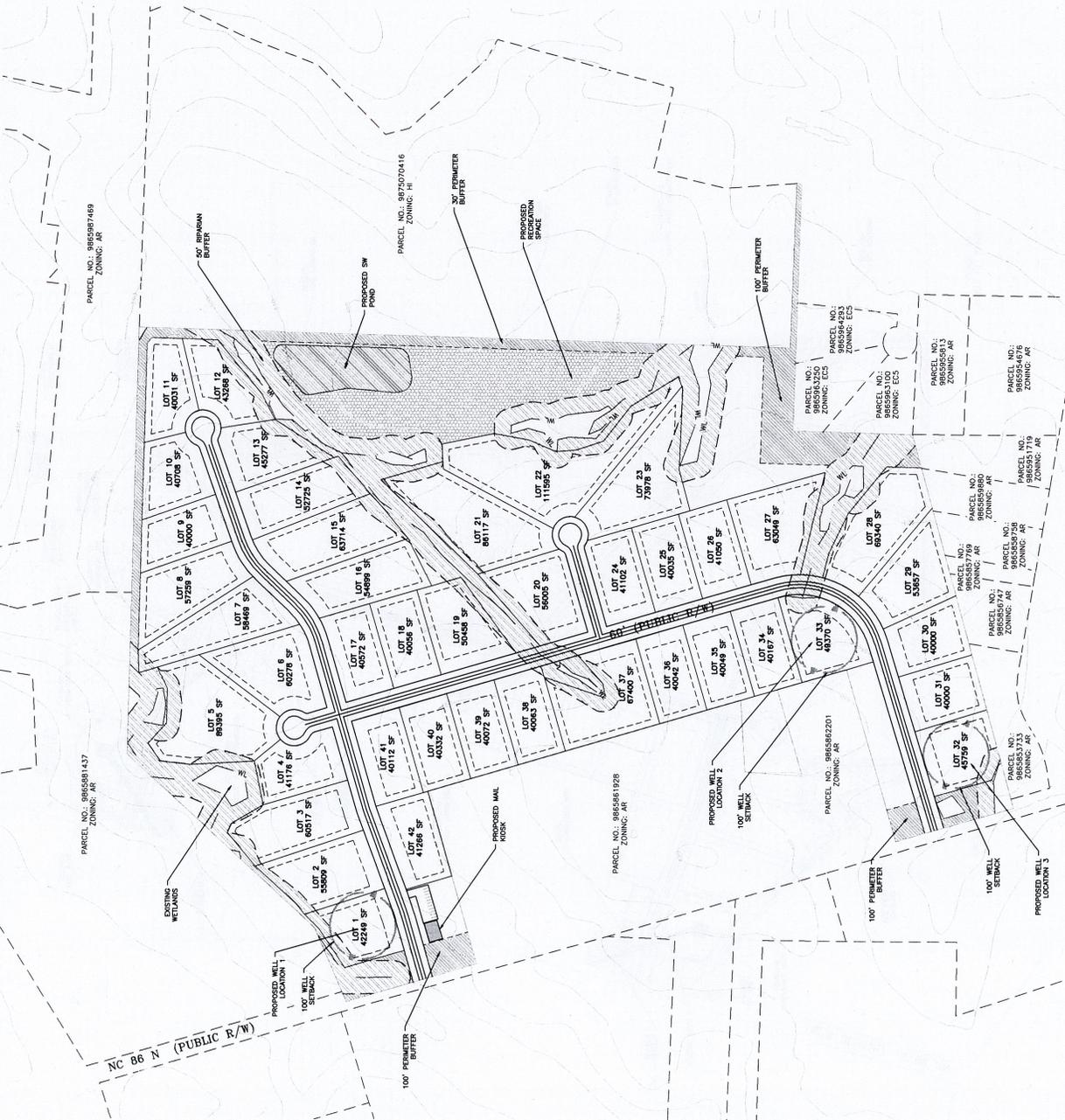
MacCONNELL & Associates, P.C.  
 801 GARY NORTH CAROLINA 27515  
 LICENSE MORRISVILLE NORTH CAROLINA 27666  
 No. C-1089 TEL: (919) 487-1239 FAX: (919) 318-6510

FORESTAR GROUP, INC.  
 HWY 86 PROPERTY

ORANGE COUNTY, NC

SITE PLAN

PROJECT NUMBER: C23803.00  
 DRAWING NUMBER: C-101



FOR REVIEW ONLY  
 NOT RELEASED FOR  
 CONSTRUCTION

**NOTES**

**SITE DATA SUMMARY**

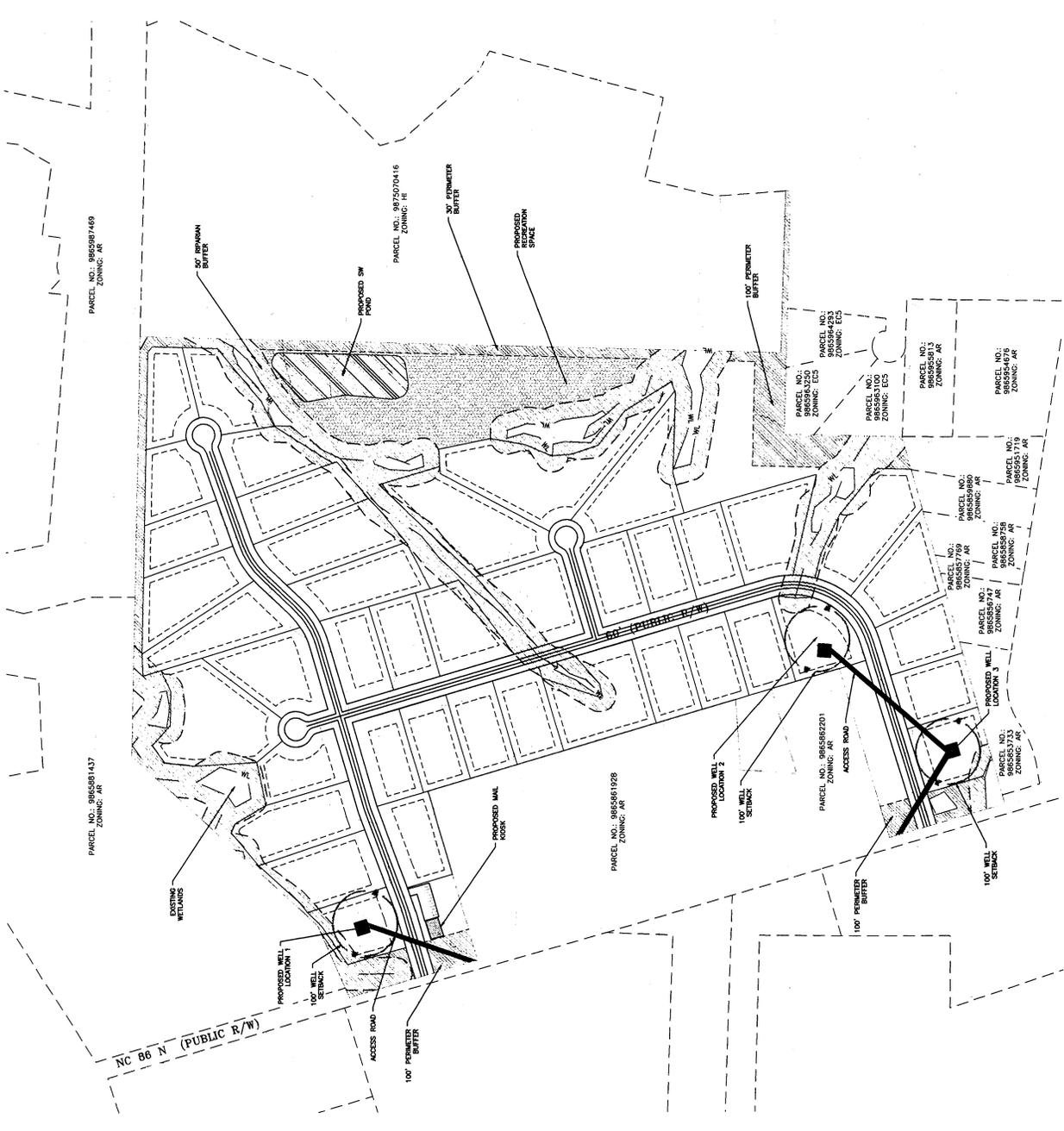
PARCEL NO.: 986507090  
 ZONING: AR  
 TOTAL SITE AREA: 79.2 AC  
 TOWNSHIP: HILLSBOROUGH  
 WATER SUPPLY WATERSHED: LOWER END (UNPROTECTED)  
 MINIMUM REQUIRED LOT AREA: 40,000 SQ.FT.  
 MINIMUM REQUIRED LOT WIDTH: 150 FT.  
 MINIMUM REQUIRED FRONT SETBACK: 40 FT.  
 MINIMUM REQUIRED REAR SETBACK: 20 FT.  
 MINIMUM REQUIRED SIDE SETBACK: 20 FT.  
 MAXIMUM BUILDING HEIGHT: 25 FT.  
 TOTAL UNITS: 42 UNITS / 79.2 AC = 0.53 UNITS/AC  
 NET DENSITY: .028 (986,598 SF)  
 RECREATION SPACE RATIO REQUIRED: .052 (180,196 SF)  
 RECREATION SPACE PROPOSED: .024 (927,988 SF)  
 IMPERVIOUS SURFACE LIMIT: 24% (927,988 SF)

**IMPERVIOUS CALCULATIONS**

MAXIMUM IMPERVIOUS SURFACE AREA (MSA): 4,200 SF  
 BLDG/DRIVEWAY PER LOT (ASSUMED): 176,400 SF  
 IMPERVIOUS ONSITE (42 UNITS): 286,435 SF  
 RIGHT-OF-WAY IMPERVIOUS: 7,829 SF  
 MISC IMPERVIOUS: 480,864 SF  
 TOTAL IMPERVIOUS: 3,449,932 SF (79.2 AC)  
 TOTAL PROPOSED IMPERVIOUS: 480,864 SF (11.0 AC) = 13.9%

| Well   | Latitude   | Longitude   |
|--------|------------|-------------|
| Site 1 | 36.106521  | -79.108875  |
| Site 2 | 36.1026729 | -79.1059203 |
| Site 3 | 36.1015628 | -79.1071124 |

Access Road Disturbance  
 18,322 SF

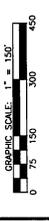


**LEGEND**

- INDEX CONTOUR
- INTERIMMEDIATE CONTOUR
- PROPERTY LINE
- POND
- RIGHT-OF-WAY
- CREEK
- EX. BATTERY SINK
- EX. WATER LINE
- EX. SANITARY SEWER
- EX. WATER MAIN
- EX. GAS LINE
- EX. FIBER OPTIC
- EX. OTHER UTILITY

**SITE INVENTORY LEGEND**

- PERIMETER BUFFER
- MINIMUM BUFFER
- STORMWATER POND (POND)
- CONSTRUCTION - OPEN SPACE



REVISIONS

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |
|     |      |             |

PROJECT MANAGER: PROJECT ENGINEER:  
 JOB NO.:  
 DRAWING NO.:  
 CHECKED BY:  
 DATE: 08/20/2024

**PRELIMINARY**  
 FOR REVIEW ONLY  
 NOT FOR CONSTRUCTION

**MacCONNELL & Associates, P. C.**  
 801 CASCADE POINTE LANE, SUITE 100  
 WILMINGTON, NORTH CAROLINA 27415  
 TEL: (910) 762-1234 FAX: (910) 762-1234

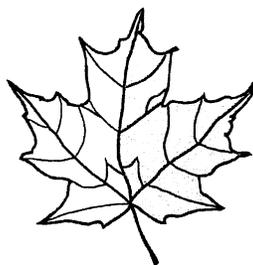
**FORESTAR GROUP, INC.**  
 HWY 86 PROPERTY  
 ORANGE COUNTY, NC

PROJECT NUMBER: **C23803.00**  
 DRAWING NUMBER: **C-102**

**FOR REVIEW ONLY**  
 NOT RELEASED FOR CONSTRUCTION

P. O. Box 129  
Morrisville, NC 27560

919-467-1239



**MACCONNELL  
& ASSOCIATES, P.C.**

501 Cascade Pointe Lane  
Suite 103  
Cary, NC 27513

Fax 919-319-6510

August 23, 2024

Ms. Melody Markert  
Environmental Engineer  
NC DEQ - Division of Water Resources – Public Water Supply Section  
1628 Mail Service Center  
Raleigh, North Carolina 27699-1617

Re: Hwy 86 Property  
PIN: 9865878090  
Preliminary Well Site Approval  
Project No: C23803.00

Dear Ms. Markert:

Please find signed document indicating that the owner and applicant understand the North Carolina Rules Governing Public Water Systems (15A NCAC 18C) and have done their due diligence to ensure the proposed well site complies with all rules, drainage requirements and setbacks stated in 15A NCAC 18C. The owner will ensure that the lot is graded or sloped so that the surface water is diverted away from the wellhead and that the lot is not located within the 100-year floodplain and not subject to flooding in accordance with rule 0.203(4). The setback requirements are summarized below:

| <b>Distance<br/>(in feet)</b> | <b>Potential Sources of Pollution</b>  |
|-------------------------------|--|
| 100                           | <ul style="list-style-type: none"> <li>• From any sanitary sewage disposal system, sewer, or sewer pipe (unless sewer is constructed of water main materials and joints, in which the sewer pipe shall be at least 50 feet from the well.</li> <li>• From buildings, mobile homes, permanent structures, animal house or lots, cultivated areas to which chemicals are applied.</li> <li>• From surface water</li> <li>• From chemical or petroleum fuel underground storage tank with secondary containment</li> <li>• From any other potential source of pollution not listed in this table</li> </ul> |
| 200                           | <ul style="list-style-type: none"> <li>• From a subsurface sanitary sewage treatment and disposal system designed for 3,000 or more gallons of wastewater a day, unless your well water source is a confined aquifer</li> </ul>  |
| 300                           | <ul style="list-style-type: none"> <li>• From any cemetery or burial ground</li> </ul>   |
| 500                           | <ul style="list-style-type: none"> <li>• From a septage disposal site</li> <li>• From a chemical or petroleum fuel underground storage tank without secondary containment.</li> <li>• From the boundary of a ground water contamination area.</li> <li>• From a sanitary landfill or non-permitted non-hazardous solid waste disposal site</li> </ul>  |
| 1,000                         | <ul style="list-style-type: none"> <li>• From a hazardous waste disposal site or in any location which conflicts with the North Carolina Hazardous Waste Management Rules cited in NCAC 13A</li> </ul>   |

Owner/Representative Signature:  Date: 8/23/24

Applicant Signature:  Date: 8/23/24  
(David Barcal)

(919) 245-2360



131 West Margaret Lane  
Unit 100  
P.O. Box 8181  
Hillsborough, NC 27278

# WELL PERMIT

Parcel Number : 9865878090  
Application Date : 07/09/2024  
Permit Number : W24-0165

Property Description : E/S HWY 86 NORTH  
Property Address : 1033-UT NC 86 N  
HILLSBOROUGH, NC 27278

Applicant : Laura Haywood  
Address : 8041 Arco Corporate Drive Suite 110  
Unit Suite 110  
Raleigh, NC 27617  
Phone : (919) 804-7220  
Email : laurahaywood@forestar.com

Owner: Wayne Honeycutt  
Address:  
Phone: (704) 576-2476  
Email: whoneycutt@dickensmithener.com

Well Type : Community Well  
Well Class : New

Lot Size : 78.30  
Sewage Disposal : On-site System

## PERMIT CONDITIONS

### Comments / Conditions :

| Condition     | Description   | Comment   |
|---------------|---|---|
| 8001 Wellhead | Wellhead must meet current NC & OCHD specifications before COC may be issued. |   |
| General       | EH General Condition  | A preliminary well site approval letter is required from NC DEQ prior to drilling.  |
| General       | Preliminary Well Site Approval for NC DEQ Division on Water Resources         | Well must be drilled in accordance with 15A NCAC 18C .0203 regulations regarding Public Well Water Supplies. Once completed the well will be subject to regulations outlined in 15A NCAC 18C .0300 & .0400. |

This Permit serves as the plan required for constructing, or repairing a water well for drinking, irrigation, or geothermal installations. The Building Inspection and Planning agencies in your jurisdiction may require this Permit for your project.

Wells must be constructed, repaired, and abandoned by a person who holds a valid certification from the State and in accordance with the Groundwater Protection Rules as adopted by the Orange County Board of Health. The certified contractor must have a physical copy of this Permit during the time of installation.

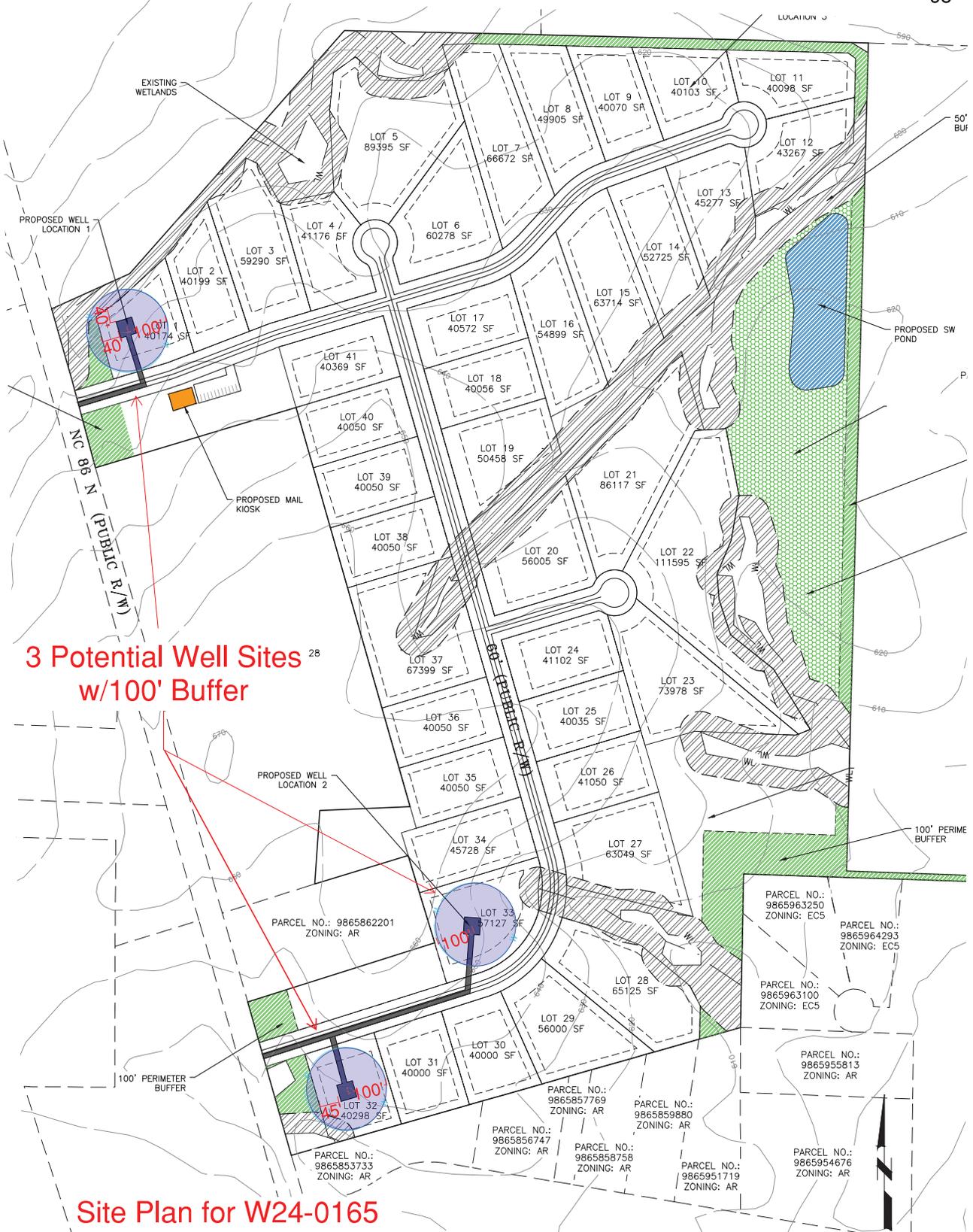
Refer to the attached site plan showing the system and the proposed structures and other site conditions. The well siting is based on setback distances from known or planned features and does not indicate nor guarantee that the quantity or quality of water will be provided by a well constructed in that area.

Any changes to the site that affects setbacks shall result in the revocation or revision of the Permit. Construction of the well outside of the permitted area may result in Denial of the Certificate of Completion. Mark property lines.

ISSUED : 10/01/2024

  
\_\_\_\_\_  
Ian Olson  
ENVIRONMENTAL HEALTH SPECIALIST

EXPIRES : 10/01/2029



**3 Potential Well Sites  
w/100' Buffer**

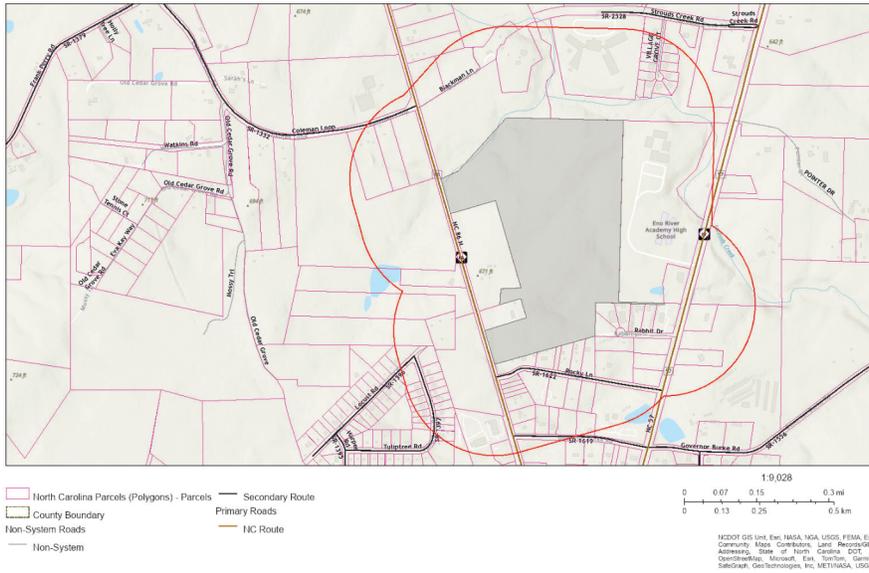
**Site Plan for W24-0165  
1033-UT NC 86N  
PIN: 9865878090  
Created by I. Olson  
OCHD  
10/2/2024**

 **WPDT Screening Report**

**Area of Interest (AOI) Information**

Area : 15,900,506.77 ft<sup>2</sup>

Oct 2 2024 17:48:34 Eastern Daylight Time



about:blank

1/2

10/2/24, 5:49 PM

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All North Carolina Department of Environmental Quality (NCDEQ) GIS data is expressly provided "AS IS" and "WITH ALL FAULTS". The NCDEQ makes no warranty of any kind, express or implied, concerning this information, including but not limited to any warranties of merchantability or fitness for any particular purpose. The NCDEQ assumes no responsibility or legal liability concerning the Data's accuracy, reliability, completeness, timeliness, or usefulness. The data is not intended to constitute advice nor is it to be used as a substitute for specific advice from a professional. Users should not act (or refrain from acting) based upon information in the Data without independently verifying the information and obtaining any necessary professional advice. Users are solely responsible for ensuring the accuracy, currency and other qualities of any products derived from or in connection with the NCDEQ's Data. The Data is collected from various sources and may be modified over time without notice to improve spatial and attribute accuracy. The NCDEQ disclaims responsibility for the spatial accuracy and attribution of GIS features and makes no warranty concerning same.

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2/2

**SECTION .0200 – LOCATION OF SOURCES OF PUBLIC WATER SUPPLIES****15A NCAC 18C .0201 SURFACE SUPPLIES FOR PUBLIC WATER SYSTEMS**

- (a) A surface supply may be used for a community or a non-transient, non-community water system with disinfection and without filtration if it complies with the provisions of this Section and Rule .2005 of this Subchapter.
- (b) Such water supply shall be derived from uninhabited wooded areas.
- (c) The entire watershed shall be either owned or controlled by the person supplying the water or be under the control of the federal or state government; however, no such new water supply shall be created except where the water system owner shall own in its entirety the watershed from which the water will be obtained.
- (d) The water after disinfection shall be of potable quality as determined by bacteriological and chemical tests performed by a certified laboratory. The presence of contaminants shall not exceed the limits set forth in Section .1500 of this Subchapter.
- (e) The water source shall have a WS-I classification as established by the Environmental Management Commission and shall meet the quality standards for that classification, codified in 15A NCAC 02B. Copies are available for public inspection as set forth in Rule .0102 of this Subchapter.

*History Note: Authority G.S. 130A-315; 130A-318; P.L. 93-523; Eff. January 1, 1977; Readopted Eff. December 5, 1977; Amended Eff. April 1, 2014; July 1, 1994; February 1, 1987; September 1, 1979; Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. November 23, 2015.*

**15A NCAC 18C .0202 SURFACE SUPPLIES FROM CLASSIFIED WATERSHEDS**

Any surface water that is to receive treatment for removal of dissolved matter or suspended matter in order to be used for a public water system shall be obtained from a source that meets the WS-I, WS-II, WS-III, WS-IV or WS-V stream classification standards established by the Environmental Management Commission codified in 15A NCAC 02B. Copies are available for public inspection as set forth in Rule .0102(a) of this Subchapter.

*History Note: Authority G.S. 130A-315; 130A-318; P.L. 93-523; Eff. January 1, 1977; Readopted Eff. December 5, 1977; Amended Eff. April 1, 2014; July 1, 1994; September 1, 1990; February 1, 1987; September 1, 1979; Readopted Eff. July 1, 2019.*

**15A NCAC 18C .0203 PUBLIC WELL WATER SUPPLIES**

(a) A site or sites for a water supply well to be used as a community or non-transient, non-community water system shall be investigated by an authorized representative of the Department prior to approval. Approval by the Department is required in addition to any approval or permit issued by any other state agency. The site shall meet the following requirements at the time of approval:

- (1) The well shall be located on a lot so that the area within 100 feet of the well is owned or controlled by the person supplying the water. The supplier of water shall be able to protect the well lot from potential sources of pollution and to construct landscape features for drainage and diversion of pollution.
- (2) The minimum horizontal separation between the well and known potential sources of pollution shall be as follows:
  - (A) 100 feet from any sanitary sewage disposal system, sewer, or a sewer pipe unless the sewer is constructed of water main materials and joints, in which case the sewer pipe shall be at least 50 feet from the well;
  - (B) 200 feet from a subsurface sanitary sewage treatment and disposal system designed for 3000 or more gallons of wastewater a day flows, unless the well water source is from a confined aquifer;
  - (C) 500 feet from a septage disposal site;

- (D) 100 feet from buildings, mobile homes, permanent structures, animal houses or lots, or cultivated areas to which chemicals are applied;
  - (E) 100 feet from surface water;
  - (F) 100 feet from a chemical or petroleum fuel underground storage tank with secondary containment;
  - (G) 500 feet from a chemical or petroleum fuel underground storage tank without secondary containment;
  - (H) 500 feet from the boundary of a ground water contamination area;
  - (I) 500 feet from a sanitary landfill or non-permitted non-hazardous solid waste disposal site;
  - (J) 1000 feet from a hazardous waste disposal site or in any location that conflicts with the North Carolina Hazardous Waste Management Rules cited as 15A NCAC 13A;
  - (K) 300 feet from a cemetery or burial ground; and
  - (L) 100 feet from any other potential source of pollution.
- (3) The Department may require greater separation distances or impose other protective measures if necessary to protect the well from pollution, taking into consideration factors such as:
- (A) the hazard or health risk associated with the source of pollution;
  - (B) the proximity of the potential source to the well;
  - (C) the type of material, facility, or circumstance that poses the source or potential source of pollution;
  - (D) the volume or size of the source or potential source of pollution;
  - (E) hydrogeological features of the site that could affect the movement of contaminants to the source water;
  - (F) the effect that well operation might have on the movement of contamination; and
  - (G) the feasibility of providing additional separation distances or protective measures.
- (4) The lot shall be graded or sloped so that surface water is diverted away from the wellhead. The well shall not have greater than a one percent annual chance of flooding.
- (5) If a supplier of water demonstrates that it is impracticable, taking into consideration feasibility and cost, to locate water from any other approved source and an existing well can no longer provide water that meets the requirements of this Subchapter, a representative of the Division may approve a variance for a smaller well lot and reduced separation distances to meet existing demands. Additional monitoring under this Part or other conditions shall be imposed if necessary to mitigate the increased risk from the variance.
- (b) The Division of Water Resources may grant a variance from the minimum horizontal separation distances for public water supply wells set out in Parts (a)(2)(D) and (E) of this Rule.
- (1) Such variance shall require the following findings:
    - (A) the well supplies water to a non-community water system as defined in G.S. 130A-313(10)(b) or supplies water to a business or institution, such as a school, that has become a non-community water system through an increase in the number of people served by the well;
    - (B) it is impracticable, taking into consideration feasibility and cost, for the public water system to comply with the minimum horizontal separation distance set out in Parts (a)(2)(D) and (E) of this Rule;
    - (C) there is no reasonable alternative source of drinking water available to the public water supply system and;
    - (D) the granting of the variance will not result in an unreasonable risk to public health.
  - (2) Such variance shall require that the non-community public water supply well meet the following requirements:
    - (A) the well shall comply with the minimum horizontal separation distances set out in Parts (a)(2)(D) and (E) of this Rule to the maximum extent practicable;
    - (B) the well shall meet a minimum horizontal separation distance of 25 feet from a building, mobile home, or other permanent structure that is not used primarily to house animals;
    - (C) the well shall meet a minimum horizontal separation distance of 100 feet from any animal house or feedlot and from cultivated areas to which chemicals are applied;
    - (D) the well shall meet a minimum horizontal separation distance of 50 feet from surface water;

- and  
(E) the well shall comply with all other requirements for public well water supplies set out in Paragraph (a) of this Rule.

*History Note: Authority G.S. 130A-315; 130A-318; P.L. 93-523; S.L. 2011-394;  
Eff. January 1, 1977;  
Readopted Eff. December 5, 1977;  
Amended Eff. July 7, 2014; July 1, 1994; September 1, 1990; September 1, 1979;  
Readopted Eff. July 1, 2019.*

NORTH CAROLINA  
 DEPARTMENT OF ENVIRONMENT, HEALTH, & NATURAL RESOURCES  
 DIVISION OF ENVIROMENT MANAGEMENT  
 GROUNDWATER SECTION  
 P. O. BOX- RALEIGH, N.C. 27611  
 (919) 733-3221

PUMP TEST  
 RECORD

METER  
 START: 14,784,306.0  
 STOP: 14,913,961.5  
 TOTAL: 129,655.5 GALLONS

TEST CONDUCTED BY: YADKIN WELL COMPANY, INC. WELL CONSTRUCTON PERMIT NO. \_\_\_\_\_

1. WELL LOCATION: NEAREST TOWN: HILLSBOROUGH COUNTY: ORANGE  
 HWY. 86 PROJECT

(ROAD NO., COMMUNITY, OR SUBDIVISION, AND LOT NO).

2. OWNER: FORESTAR DEVELOPERS

3. USE OF WELL:      ( ) DOMESTIC              ( X ) PUBLIC              ( ) INDUSTRIAL              ( ) IRRIGATION              ( ) OTHER

4. WELL DEPTH: 642 FT.              CASING DIAMTER 8 IN.              CASING TYPE: GALV. STEEL

5. DRILLING CONTRACTOR: Yadkin Well Company Inc.              WAS CASING GROUTED? Yes \_\_\_\_\_

6. STATIC WATER LEVEL: 20 FT.              ABOVE TOP OF CASING \_\_\_\_\_

**BELOW**

DATE MEASURED: 11/19/2024              CASING IS 2 FT. ABOVE LAND SURFACE

7. WELL YIELD: 84 GPM              SPECIFIC CAPACITY: \_\_\_\_\_ GPM/FT.DD

8. PUMPING WATER LEVEL: 554 FT. AFTER 24 HOURS AT 84 GPM

9. CHLORINATION TYPE 70% Calcium Hypochlorite AMOUNT 49 oz.

10. TIME AND DATE PUMP STARTED: 3:20 PM 11/19/2024              PUMP STOPPED: 3:20 PM 11/20/2024

11. WATER LEVEL MEASURING DEVICE: Electric Tape              FLOW MESURING DEVICE: 3" FLOW METER

12. TEST PUMP: TYPE: Submersible MAKE: Grundfos HORSEPOWER: 25  
 CAPACITY 100 GPM AT 600 TDH              INTAKE DEPTH 609 FT.

| TIME    | WATER LEVEL | PUMPING RATE | TIME     | WATER LEVEL | PUMPING RATE |
|---------|-------------|--------------|----------|-------------|--------------|
| 3:20 PM | 20 FT       | 200 GPM      | 4:30 PM  | 527 FT      | 112 GPM      |
| 3:25 PM | 280 FT      | 185 GPM      | 4:40 PM  | 528 FT      | 110 GPM      |
| 3:30 PM | 372 FT      | 170 GPM      | 4:50 PM  | 527 FT      | 105 GPM      |
| 3:35 PM | 426 FT      | 158 GPM      | 5:00 PM  | 529 FT      | 108 GPM      |
| 3:40 PM | 461 FT      | 150 GPM      | 5:10 PM  | 523 FT      | 101 GPM      |
| 3:45 PM | 488 FT      | 145 GPM      | 5:20 PM  | 524 FT      | 103 GPM      |
| 3:50 PM | 512 FT      | 138 GPM      | 6:20 PM  | 529 FT      | 99 GPM       |
| 3:55 PM | 508 FT      | 121 GPM      | 7:20 PM  | 536 FT      | 95 GPM       |
| 4:00 PM | 515 FT      | 127 GPM      | 8:20 PM  | 542 FT      | 94 GPM       |
| 4:05 PM | 523 FT      | 124 GPM      | 9:20 PM  | 544 FT      | 91 GPM       |
| 4:10 PM | 526 FT      | 119 GPM      | 10:20 PM | 545 FT      | 91 GPM       |
| 4:15 PM | 525 FT      | 116 GPM      | 11:20 PM | 544 FT      | 90 GPM       |
| 4:20 PM | 525 FT      | 115 GPM      | 12:20 AM | 546 FT      | 89 GPM       |
|         |             |              |          |             |              |

*David Lee Cave 11-26-2024*



DEPARTMENT OF ENVIRONMENT, HEALTH & NATURAL RESOURCES  
 DIVISION OF ENVIRONMENT MANAGEMENT  
 GROUNDWATER SECTION  
 P.O. BOX- RALEIGH, NC 27611  
 (919) 733-3221

PUMP TEST RECORD

TEST CONDUCTED BY: David Lee Cave (4227-A) WELL CONSTRUCTION PERMIT NO: W24-0165 WELL ID#: AAQ-330

\*\*\*\*\*

- 1) WELL LOCATION: NEAREST TOWN: Hwy. 86 Forestar COUNTY: Orange  
 (ROAD NO., COMMUNITY, OR SUBDIVISION AND LOT NO.)
- 2) OWNER:  
 Forestar Subdivision  
 (NAME) (ADDRESS)
- 3) USE OF WELL: ( ) DOMESTIC (X) PUBLIC ( ) INDUSTRIAL ( ) IRRIGATION ( ) OTHER
- 4) WELL DEPTH: 642 FT. CASING DIAMETER: 8 IN. CASING TYPE: GALVANIZED
- 5) DRILLING CONTRACTOR: \_YADKIN WELL COMPANY. WAS CASING GROUTED: YES
- 6) STATIC WELL LEVEL 20 FT. BELOW TOP OF CASING  
 DATE MEASURED: 7/29/25 CASING IS 2 FT. ABOVE LAND SURFACE
- 7) WELL YIELD: 112 GPM. SPECIFIC CAPACITY \_\_\_GPM/FT.DD.
- 8) PUMPING WATER LEVEL: 578 FT. AFTER 24 HOURS AT 85 GPM
- 9) CLORINATION: TYPE AMOUNT:
- 10) TIME AND DATE: PUMP STARTED: 7/29/2025 @ 2:30 PM. PUMP STOPPED: 7/30/2025 @ 3:00 PM.
- 11) WATER LEVEL MEASURING DEVICE: ELECTRIC TAPE FLOW MEASURING DEVICE: 3" RG3TM30
- 12) TEST PUMP: TYPE: 150S250-14 460V 3PH MAKE: GRUNDFOS HORSEPOWER: 25 HP  
 CAPACITY: GPM AT: T D H. INTAKE DEPTH: FT.

METER START 139,454 METER STOP 265,370 125,916 GALLONS

| TIME    | WATER LEVEL | PUMPING RATE                             | TIME    | WATER LEVEL | PUMPING RATE |
|---------|-------------|--|---------|-------------|--------------|
| 2:30 PM | 20 FT       | Couldn't set @ 50 gpm, too much pressure | 3:45 PM | 167.5 FT    | 50 GPM       |
| 2:45 PM | 48 FT       | 215 GPM                                  | 3:50 PM | 168 FT      | 50 GPM       |
| 2:50 PM | 301 FT      | 215 GPM                                  | 3:55 PM | 168.5 FT    | 50 GPM       |
| 2:55 PM | 260 FT      | 50 GPM                                   | 4:00 PM | 164.5 FT    | 50 GPM       |
| 3:00 PM | 223 FT      | 50 GPM                                   | 4:10 PM | 171 FT      | 50 GPM       |
| 3:05 PM | 207 FT      | 50 GPM                                   | 4:20 PM | 173.5 FT    | 50 GPM       |
| 3:10 PM | 192 FT      | 50 GPM                                   | 4:30 PM | 175 FT      | 50 GPM       |
| 3:15 PM | 182 FT      | 50 GPM                                   | 4:40 PM | 177 FT      | 50 GPM       |
| 3:20 PM | 174 FT      | 50 GPM                                   | 4:50 PM | 178.5 FT    | 50 GPM       |
| 3:25 PM | 170 FT      | 50 GPM                                   | 5:00 PM | 180 FT      | 50 GPM       |
| 3:30 PM | 168 FT      | 50 GPM                                   | 5:10 PM | 240 FT      | 80 GPM       |
| 3:35 PM | 167 FT      | 50 GPM                                   | 5:20 PM | 260 FT      | 80 GPM       |
| 3:40 PM | 167 FT      | 50 GPM                                   | 5:30 PM | 273.5 FT    | 80 GPM       |

## RECOVERY

| TIME     | WATER LEVEL | PUMPING RATE | TIME    | PUMPING RATE |
|----------|-------------|--------------|---------|--------------|
| 5:40 PM  | 282 FT      | 80 GPM       | 3:05 PM | 431 FT       |
| 5:50 PM  | 288.5 FT    | 80 GPM       | 3:10 PM | 394 FT       |
| 6:00 PM  | 294 FT      | 80 GPM       | 3:15 PM | 367 FT       |
| 6:10 PM  | 297.5 FT    | 80 GPM       | 3:20 PM | 343 FT       |
| 6:20 PM  | 298 FT      | 80 GPM       | 3:25 PM | 322 FT       |
| 6:30 PM  | 300 FT      | 80 GPM       | 3:30 PM | 305 FT       |
| 6:40 PM  | 310 FT      | 80 GPM       |         |              |
| 6:50 PM  | 317.5 FT    | 80 GPM       |         |              |
| 7:00 PM  | 321 FT      | 170 GPM      |         |              |
| 7:10 PM  | 476 FT      | 141 GPM      |         |              |
| 7:20 PM  | 538 FT      | 122 GPM      |         |              |
| 7:30 PM  | 561 FT      | 114 GPM      |         |              |
| 7:40 PM  | 571 FT      | 114 GPM      |         |              |
| 7:45 PM  | 574 FT      | 114 GPM      |         |              |
| 7:50 PM  | 552 FT      | 103 GPM      |         |              |
| 8:00 PM  | 549 FT      | 105 GPM      |         |              |
| 8:10 PM  | 560 FT      | 105 GPM      |         |              |
| 8:20 PM  | 563 FT      | 104 GPM      |         |              |
| 8:30 PM  | 564.5 FT    | 103 GPM      |         |              |
| 8:40 PM  | 566.5 FT    | 103 GPM      |         |              |
| 8:50 PM  | 569 FT      | 102 GPM      |         |              |
| 9:00 PM  | 570 FT      | 101 GPM      |         |              |
| 10:00 PM | 573 FT      | 97 GPM       |         |              |
| 11:00 PM | 577.5 FT    | 97 GPM       |         |              |
| 12:00 AM | 580 FT      | 93 GPM       |         |              |
| 1:00 AM  | 581 FT      | 93 GPM       |         |              |
| 2:00 AM  | 583.5 FT    | 92 GPM       |         |              |
| 3:00 AM  | 573 FT      | 87 GPM       |         |              |
| 4:00 AM  | 574 FT      | 86 GPM       |         |              |
| 5:00 AM  | 571 FT      | 86 GPM       |         |              |
| 6:00 AM  | 573 FT      | 86 GPM       |         |              |
| 7:00 AM  | 574 FT      | 86 GPM       |         |              |
| 8:00 AM  | 575 FT      | 86 GPM       |         |              |
| 9:00 AM  | 575 FT      | 85 GPM       |         |              |
| 10:00 AM | 577 FT      | 85 GPM       |         |              |
| 11:00 AM | 578 FT      | 85 GPM       |         |              |
| 12:00 PM | 578 FT      | 85 GPM       |         |              |
| 1:00 PM  | 578 FT      | 85 GPM       |         |              |
| 2:00 PM  | 578 FT      | 85 GPM       |         |              |
| 3:00 PM  | 578 FT      | 85 GPM       |         |              |



### BACTERIOLOGICAL ANALYSIS

Note: All applicable information must be supplied for compliance credit.

Water System Number: NC   -   -   County:  Orange

Name of Water System:  Hwy 86 Property System Type:  Water Source:

Distribution System — Revised Total Coliform Rule (RTCR) Facility ID: D01

Sample Type:  Routine (RT)  Repeat (RP)  Special / Non-compliance (SP)

Location Code:  Tap Location:  Well Street Address:  Near 1317 NC 86 City:  Hillsborough

Check (✓) if sample site is owned or controlled by water system.

Check (✓) if sample site is a daycare or a K-12 school.

Sample Point:  Routine Original (RTOR)  Repeat-Original Tap (RPOR)  Repeat-Upstream (RPUP)  Repeat-Downstream (RPDN)

Source Water — Ground Water Rule (GWR)

Sample Type:  Triggered (TG)  Additional/Confirmation (CO)  Assessment(RT)  Triggered/Distribution Repeat (TD)\*

Facility ID:  Sample Point:  \* for systems with a population ≤ 1,000

Collected — BY:  David Brown DATE:  1  1 /  2  6 /  2  4 TIME:  0  1 :  3  0 ,  p  m

**Mail Results to (water system representative):**

Yadkin Well Company - David Brown

1908 Hamptonville Road

Hamptonville, NC 27020

Phone #:  3  3  6  4  6  8  4  4  4  0

Fax #:

Responsible Person's email:

davidbrown@yadkinwell.com

**Complete for Repeat, Triggered, or Additional / Confirmation**

Previous Positive Laboratory ID Number:

" Positive Laboratory Log Number:

" Positive Location Code:

" Positive Collection Date:  /  /

Disinfectant Used:

Total Chlorine Residual (chloramines):  mg/L

Free Chlorine Residual (chlorine):  mg/L

Laboratory ID Number:  3  7  7  3  8  Repeat Samples Required from Client  Resample Required from Client

| CONTAM CODE | CONTAMINANT                     | METHOD CODE | RULE     | RESULTS                |               | Invalid Code |
|-------------|---------------------------------|-------------|----------|------------------------|---------------|--------------|
|             |                                 |             |          | Present <sup>1,2</sup> | Absent        |              |
| 3100        | Total Coliform                  | 9223B       | RTCR/GWR |                        | X             |              |
| 3014        | <i>E. coli</i>                  | 9223B       | RTCR/GWR |                        | X             |              |
| 3002        | Enterococci                     |             | GWR      |                        |               |              |
| 3028        | Coliphage                       |             | GWR      |                        |               |              |
| 3013        | Fecal Coliform                  |             | TCR      |                        |               |              |
| 3001        | Heterotrophic P.C. <sup>3</sup> |             |          |                        | cfu/mL or MPN |              |

**INVALID CODES:**

|   |   |
|---|---|
| 1 | Confluent Growth / No Coliform Growth Found |
| 2 | TNTC/No Coliform Growth Found               |
| 3 | Turbid Culture / No Coliform Growth Found   |
| 4 | Over 30 Hours Old                           |
| 5 | Improper Sample or Analysis <sup>4</sup>    |

<sup>1</sup>If fecal, *E. coli*, enterococci or coliphage is present, lab must fax results to the State on day test completed. <sup>2</sup>If total coliform bacteria is present, lab must fax results to the State within 24 hours. <sup>3</sup>If HPC is absent, enter a "0" left of the "cfu/mL or MPN" units; if present, enter a whole number. <sup>4</sup>Explain invalid code below in comments.

Analyses Begun — DATE:  1  1 /  2  6 /  2  4 TIME:  0  6 :  2  4 ,  p  m (Date as: mm/dd/yy)

Analyses Completed — DATE:  1  1 /  2  7 /  2  4 TIME:  1  2 :  3  0 ,  p  m (Time as: h:mm am/pm)

Laboratory Log Number:  92766159001MBIO Certified By:  Jessica Mize

COMMENTS:



## NEW WELL INORGANIC CHEMICAL ANALYSIS

Note: All information must be supplied for plan review credit.

**WATER SYSTEM ID#:** \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ **County:** Orange

**Name of Water System:** Hwy 86 Property

**Sample Type:**  Entry Point  Non-compliance

**Location Where Collected:** Sample Port @ Well Head

**Facility ID No.:** \_\_\_\_\_

(Note: Compliance sample MUST be collected at the entry point.)

**Sample Point:** \_\_\_\_\_

**Collected By:** David Cave  
 (Please Print)

| Collection Date                      | Collection Time                              |
|--------------------------------------|--|
| <u>1 1 / 2 0 / 2 4</u><br>(MM/DD/YY) | <u>1 2 : 4 9 , P M</u><br>(Specify AM or PM) |

**Mail Results to (water system representative):**

Yadkin Well Company - David Brown  
1908 Hamptonville Road  
Hamptonville, NC 27020

**Phone #:** ( 336 ) 468-4440

**Fax #:** ( \_\_\_\_\_ ) \_\_\_\_\_

**Responsible Person's email:**

davidbrown@yadkinwell.com

**LABORATORY ID #:** 3 7 7 3 8

**SAMPLE UNSATISFACTORY**     **RESAMPLE REQUIRED**

| CONTAM CODE | CONTAMINANT | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS    | ALLOWABLE LIMIT* |
|-------------|-------------|-------------|-----------------------------------|-------------------------------------|-----------------------|------------------|
| 0100        | Turbidity   | SM 2130B-   | 0.10 mg/L                         | <input type="checkbox"/>            | <u>1 1 0 0 0</u> mg/L | N/A              |
| 1005        | Arsenic     | 200.8       | 0.005 mg/L                        | <input type="checkbox"/>            | <u>0 0 0 7 3</u> mg/L | 0.010 mg/L       |
| 1010        | Barium      | 200.8       | 0.400 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 2.000 mg/L       |
| 1015        | Cadmium     | 200.8       | 0.001 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.005 mg/L       |
| 1016        | Calcium     | 200.7       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>2 5 5 0 0</u> mg/L | N/A              |
| 1017        | Chloride    | 300.0       | 5.0 mg/L                          | <input checked="" type="checkbox"/> | _____ mg/L            | 250.0 mg/L       |
| 1020        | Chromium    | 200.8       | 0.020 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.100 mg/L       |
| 1022        | Copper      | 200.8       | 0.050 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 1.300 mg/L       |
| 1024        | Cyanide     | 4500CN-E    | 0.050 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.200 mg/L       |
| 1025        | Fluoride    | 300.0       | 0.100 mg/L                        | <input type="checkbox"/>            | <u>0 1 3 0 0</u> mg/L | 4.000 mg/L       |
| 1028        | Iron        | 200.7       | 0.060 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.300 mg/L       |
| 1030        | Lead        | 200.8       | 0.003 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.015 mg/L       |
| 1031        | Magnesium   | 200.7       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>7 5 0 0</u> mg/L   | N/A              |
| 1032        | Manganese   | 200.8       | 0.010 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.050 mg/L       |
| 1035        | Mercury     | 245.1       | 0.0004 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L            | 0.002 mg/L       |

\*Note: Concentrations for Lead and Copper are action levels, not MCLs.



**NEW WELL INORGANIC CHEMICAL ANALYSIS (continued)**

Note: All information must be supplied for plan review credit.

**WATER SYSTEM ID#:** \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ **County:** Orange

**Name of Water System:** Hwy 86 Property

**Facility ID No.:** \_\_\_\_\_

**Sample Point:** \_\_\_\_\_

|                                      |  |
|--------------------------------------|--|
| <b>Collection Date</b>               | <b>Collection Time</b>                       |
| <u>1 1 / 2 0 / 2 4</u><br>(MM/DD/YY) | <u>1 2 : 4 9 , P M</u><br>(Specify AM or PM) |

**LABORATORY ID #:** 3 7 7 1 2

| CONTAM CODE | CONTAMINANT            | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS        | ALLOWABLE LIMIT* |
|-------------|------------------------|-------------|-----------------------------------|-------------------------------------|---------------------------|------------------|
| 1036        | Nickel                 | 200.8       | 0.100 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L                | N/A              |
| 1040        | Nitrate                | 353.2       | 1.00 mg/L                         | <input checked="" type="checkbox"/> | _____ mg/L                | 10.00 mg/L       |
| 1041        | Nitrite                | 353.2       | 0.10 mg/L                         | <input checked="" type="checkbox"/> | _____ mg/L                | 1.00 mg/L        |
| 1045        | Selenium               | 200.8       | 0.010 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L                | 0.050 mg/L       |
| 1050        | Silver                 | 200.8       | 0.05 mg/L                         | <input checked="" type="checkbox"/> | _____ mg/L                | 0.100 mg/L       |
| 1052        | Sodium                 | 200.7       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>1 8 . 8 0 0 0</u> mg/L | N/A              |
| 1055        | Sulfate                | 300.0       | 15.0 mg/L                         | <input checked="" type="checkbox"/> | _____ mg/L                | 250.0 mg/L       |
| 1068        | Acidity                | 2310B       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>2 . 0 0 0 0</u> mg/L   | N/A              |
| 1074        | Antimony               | 200.8       | 0.003 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L                | 0.006 mg/L       |
| 1075        | Beryllium              | 200.8       | 0.002 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L                | 0.004 mg/L       |
| 1085        | Thallium               | 200.8       | 0.001 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L                | 0.002 mg/L       |
| 1095        | Zinc                   | 200.8       | 1.0 mg/L                          | <input checked="" type="checkbox"/> | _____ mg/L                | 5.0 mg/L         |
| 1905        | Color                  | SM 2120B-   | 5 mg/L                            | <input checked="" type="checkbox"/> | _____ mg/L                | 15 mg/L          |
| 1915        | Total Hardness         | 200.7       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>9 4 . 7 0 0</u> mg/L   | N/A              |
| 1925        | pH                     | 4500H-B     | N/A                               | <input type="checkbox"/>            | <u>7 . 8 0 0 0</u> units  | 6.5-8.5          |
| 1927        | Alkalinity             | 2320B       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>1 1 9 . 0 0 0</u> mg/L | N/A              |
| 1930        | Total Dissolved Solids | 2540C       | 10.0 mg/L                         | <input type="checkbox"/>            | <u>1 5 3 . 0 0 0</u> mg/L | 500.0 mg/L       |

\*Note: Concentrations for Lead and Copper are action levels, not MCLs.

|                            |                                      |  |
|----------------------------|--------------------------------------|--|
|                            | <b>DATE:</b>                         | <b>TIME:</b>                                 |
| <b>ANALYSES BEGUN:</b>     | <u>1 1 / 2 1 / 2 4</u><br>(MM/DD/YY) | <u>1 1 : 2 1 , A M</u><br>(Specify AM or PM) |
| <b>ANALYSES COMPLETED:</b> | <u>1 2 / 1 0 / 2 4</u><br>(MM/DD/YY) | <u>0 1 : 3 3 , P M</u><br>(Specify AM or PM) |

**Laboratory Log #:** 92764998001

**Certified By:** Jessica Mize  
(Print and sign name)

**COMMENTS:** \_\_\_\_\_



### VOLATILE ORGANIC CHEMICALS (VOCs) ANALYSIS

Note: All information must be supplied for compliance credit.

WATER SYSTEM ID#: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ County: Orange

Name of Water System: Hwy 86 Property

Sample Type:  Entry Point  Special/Non-compliance

Location Where Collected: Sample Port @ Well Head

Facility ID No.: \_\_\_\_\_

Sample Point: \_\_\_\_\_

Collected By: David Cave  
 (Please Print)

|                                      |  |
|--------------------------------------|--|
| <b>Collection Date</b>               | <b>Collection Time</b>                       |
| <u>1 1 / 2 0 / 2 4</u><br>(MM/DD/YY) | <u>1 2 : 4 6 , P M</u><br>(Specify AM or PM) |

Mail Results to (water system representative):

Phone #: ( 336 ) 468-4440

Yadkin Well Company - David Brown

Fax #: ( \_\_\_\_\_ ) \_\_\_\_\_

1908 Hamptonville Road

Responsible Person's email:

Hamptonville, NC 27020

davidbrown@yadkinwell.com

LABORATORY ID #: 1 2 7 1 0

SAMPLE UNSATISFACTORY  RESAMPLE REQUIRED

| CONTAM CODE | CONTAMINANT                | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS*       | ALLOWABLE LIMIT |
|-------------|----------------------------|-------------|-----------------------------------|-------------------------------------|---------------------------|-----------------|
| 2378        | 1,2,4-Trichlorobenzene     | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.07 mg/L       |
| 2380        | Cis-1,2-Dichloroethylene   | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.07 mg/L       |
| 2955        | Xylenes (Total)            | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 10.00 mg/L      |
| 2964        | Dichloromethane            | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2968        | o-Dichlorobenzene          | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.60 mg/L       |
| 2969        | p-Dichlorobenzene          | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.075 mg/L      |
| 2976        | Vinyl Chloride             | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.002 mg/L      |
| 2977        | 1,1-Dichloroethylene       | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.007 mg/L      |
| 2979        | Trans-1,2-Dichloroethylene | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.10 mg/L       |
| 2980        | 1,2-Dichloroethane         | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2981        | 1,1,1-Trichloroethane      | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.20 mg/L       |
| 2982        | Carbon Tetrachloride       | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2983        | 1,2-Dichloropropane        | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2984        | Trichloroethylene          | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2985        | 1,1,2-Trichloroethane      | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2987        | Tetrachloroethylene        | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2989        | Chlorobenzene              | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.10 mg/L       |
| 2990        | Benzene                    | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2991        | Toluene                    | 524.2       | 0.0005 mg/L                       | <input type="checkbox"/>            | <u>0 . 0 0 2 7 0</u> mg/L | 1.00 mg/L       |
| 2992        | Ethylbenzene               | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.70 mg/L       |
| 2996        | Styrene                    | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.10 mg/L       |

\*Note: If result exceeds allowable limit, the laboratory must fax analytical results to the State within 48 hours.

|                            |                                      |  |
|----------------------------|--------------------------------------|--|
|                            | <b>DATE:</b>                         | <b>TIME:</b>                                 |
| <b>ANALYSES BEGUN:</b>     | <u>1 1 / 3 0 / 2 4</u><br>(MM/DD/YY) | <u>1 0 : 1 3 , P M</u><br>(Specify AM or PM) |
| <b>ANALYSES COMPLETED:</b> | <u>1 1 / 3 0 / 2 4</u><br>(MM/DD/YY) | <u>1 0 : 1 3 , P M</u><br>(Specify AM or PM) |

Laboratory Log #: 92764998002

Certified By: Jessica Mize  
 (Print and sign name)

COMMENTS:

2008

**Laboratory should mail results to:**  
 Public Water Supply Section, Attn: Data Entry, 1634 Mail Service Center, Raleigh, NC 27699-1634  
 Fax: 919.715.6637



### PESTICIDES AND SYNTHETIC ORGANIC CHEMICALS (SOCs)

Note: All information must be supplied for compliance credit.

WATER SYSTEM ID#: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ County: Orange

Name of Water System: Hwy 86 Property

Sample Type:  Entry Point  Special/Non-compliance

Location Where Collected: Sample Port @ Well Head

Facility ID No.: \_\_\_\_\_

Sample Point: \_\_\_\_\_

Collected By: David Cave  
 (Please Print)

| Collection Date                         | Collection Time                              |
|---|--|
| <u>1 / 1 / 20 / 2 / 4</u><br>(MM/DD/YY) | <u>1 2 : 3 3 , P M</u><br>(Specify AM or PM) |

Mail Results to (water system representative):

Yadkin Well Company - David Brown

1908 Hamptonville Road

Hamptonville, NC 27020

Phone #: ( 336 ) 468-4440

Fax #: ( \_\_\_\_\_ ) \_\_\_\_\_

Responsible Person's email:

davidbrown@yadkinwell.com

LABORATORY ID #: 1 2 7 1 0

SAMPLE UNSATISFACTORY  RESAMPLE REQUIRED

| CONTAM CODE | CONTAMINANT               | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS* | ALLOWABLE LIMIT |
|-------------|---------------------------|-------------|-----------------------------------|-------------------------------------|---------------------|-----------------|
| * 2005      | Endrin                    | 525.3       | 0.00001 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.002 mg/L      |
| 2010        | Lindane                   | 525.3       | 0.00002 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0002 mg/L     |
| 2015        | Methoxychlor              | 525.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.04 mg/L       |
| 2020        | Toxaphene                 | 505         | 0.001 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L          | 0.003 mg/L      |
| 2031        | Dalapon                   | 515.3       | 0.001 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L          | 0.2 mg/L        |
| 2035        | Di(2-ethylhexyl)adipate   | 525.3       | 0.0006 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.4 mg/L        |
| 2036        | Oxamyl(vydate)            | 531.2       | 0.002 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L          | 0.2 mg/L        |
| 2037        | Simazine                  | 525.3       | 0.00007 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.004 mg/L      |
| 2040        | Picloram                  | 515.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.5 mg/L        |
| 2041        | Dinoseb                   | 515.3       | 0.0002 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.007 mg/L      |
| 2042        | Hexachlorocyclopentadiene | 525.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.05 mg/L       |
| 2046        | Carbofuran                | 531.2       | 0.0009 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.04 mg/L       |
| 2050        | Atrazine                  | 525.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.003 mg/L      |
| 2051        | Alachlor                  | 525.3       | 0.0002 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.002 mg/L      |
| * 2065      | Heptachlor                | 525.3       | 0.00004 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0004 mg/L     |

\*Note: If result exceeds allowable limit, the laboratory must fax analytical results to the State within 48 hours.



**PESTICIDES AND SYNTHETIC ORGANIC CHEMICALS (SOCs)**

Note: All information must be supplied for compliance credit.

**WATER SYSTEM ID#:** \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ **County:** Orange

**Name of Water System:** Hwy 86 Property

**Facility ID No.:** \_\_\_\_\_

**Sample Point:** \_\_\_\_\_

| <u>Collection Date</u>               | <u>Collection Time</u>                       |
|--------------------------------------|--|
| <u>1 1 / 2 0 / 2 4</u><br>(MM/DD/YY) | <u>1 2 : 3 3 , P M</u><br>(Specify AM or PM) |

| CONTAM CODE | CONTAMINANT                   | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS* | ALLOWABLE LIMIT |
|-------------|-------------------------------|-------------|-----------------------------------|-------------------------------------|---------------------|-----------------|
| 2067        | Heptachlor Epoxide            | 525.3       | 0.00002 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0002 mg/L     |
| 2105        | 2,4-D                         | 515.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.07 mg/L       |
| 2110        | 2,4,5-TP (Silvex)             | 515.3       | 0.0002 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.05 mg/L       |
| 2274        | Hexachlorobenzene             | 525.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.001 mg/L      |
| 2039        | Di(2-ethylhexyl)phthalate     | 525.3       | 0.00132 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.006 mg/L      |
| * 2306      | Benzo(a)pyrene                | 525.3       | 0.00002 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0002 mg/L     |
| 2326        | Pentachlorophenol             | 515.3       | 0.00004 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.001 mg/L      |
| 2383        | PCB's (as decachlorobiphenol) | 505         | 0.0001** mg/L                     | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0005 mg/L     |
| 2931        | DBCP                          | 504.1       | 0.00002 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0002 mg/L     |
| 2946        | Ethylene Dibromide (EDB)      | 504.1       | 0.00001 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.00005 mg/L    |
| 2959        | Chlordane                     | 505         | 0.0002 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.002 mg/L      |

\*Note: If result exceeds allowable limit, the laboratory must fax analytical results to the State within 48 hours.

\*\*Note: R.R.L. (mg/L) for PCB screening are as follows: Aroclor 1016 - 0.00008, Aroclor 1221 - 0.02, Aroclor 1232 - 0.0005, Aroclor 1242 - 0.0003, Aroclor 1248 & 1254 - 0.0001, Aroclor 1260 - 0.0002

|                            | <b>DATE:</b>                         | <b>TIME:</b>                                 |
|----------------------------|--------------------------------------|--|
| <b>ANALYSES BEGUN:</b>     | <u>1 1 / 2 4 / 2 4</u><br>(MM/DD/YY) | <u>0 4 : 5 7 , P M</u><br>(Specify AM or PM) |
| <b>ANALYSES COMPLETED:</b> | <u>1 2 / 2 0 / 2 4</u><br>(MM/DD/YY) | <u>0 2 : 4 7 , A M</u><br>(Specify AM or PM) |

**Laboratory Log #:** 92764998003 **Certified By:** Jessica Mize

(Print and sign name)

**COMMENTS:** \*Method 525 Benzo(a)pyrene, Endrin & Heptachlor - Analyte Recovery in the laboratory control sample was below QC limits. Results for the analytes in the associated samples may be biased low.



### RADIOLOGICAL ANALYSIS

Note: All information must be supplied for compliance credit.

**WATER SYSTEM ID#:** \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ **County:** Orange

**Name of Water System:** Hwy 86 Property

**Sample Type:**  Single Sample - Entry Point  Composite Sample - Entry Point  Special/Non-compliance

**Location Where Collected:** Sample Port @ Well Head

**Facility ID No.:** \_\_\_\_\_

**Sample Point:** \_\_\_\_\_

**Mail Results to (water system representative):**

Yadkin Well Company - David Brown

1908 Hamptonville Road

Hamptonville, NC 27020

**Phone #:** ( 336 ) 468-4440

**Fax #:** ( \_\_\_\_\_ ) \_\_\_\_\_

**Responsible Person's email:**

davidbrown@yadkinwell.com

| Collection Date               |                        |                         |                   |
|-------------------------------|------------------------|-------------------------|-------------------|
| Period                        | Date (MM/DD/YY)        | Time (Specify AM or PM) | Collected By      |
| Single or 1 <sup>st</sup> Qtr | <u>1 1 / 2 0 / 2 4</u> | <u>1 2 : 4 1 , P M</u>  | <u>David Cave</u> |
| 2 <sup>nd</sup> Qtr           | ___ / ___ / ___        | ___ : __ , _ M          | _____             |
| 3 <sup>rd</sup> Qtr           | ___ / ___ / ___        | ___ : __ , _ M          | _____             |
| 4 <sup>th</sup> Qtr           | ___ / ___ / ___        | ___ : __ , _ M          | _____             |

**LABORATORY ID #:** 4 2 7 0 6  **SAMPLE UNSATISFACTORY**  **RESAMPLE REQUIRED**

| CONTAM CODE | CONTAMINANT          | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS*  | COUNTING ERROR  | ALLOWABLE LIMIT |
|-------------|----------------------|-------------|-----------------------------------|-------------------------------------|----------------------|-----------------|-----------------|
| 4002        | Gross Alpha          | 900         | 3 pCi/L                           | <input checked="" type="checkbox"/> | _____ pCi/L          | <u>1 . 7 1</u>  | 15 pCi/L        |
| 4004        | Radon                |             | 100 pCi/L                         | <input type="checkbox"/>            | _____ pCi/L          | _____           | N/A             |
| 4006        | Uranium              | D5174-97    | 0.67 pCi/L                        | <input type="checkbox"/>            | <u>1 . 9 8</u> pCi/L | <u>0 . 0 **</u> | 20.1 pCi/L      |
| 4010        | Combined Radium      | N/A         | N/A                               | N/A                                 | <u>1 . 6 7</u> pCi/L | <u>0 . 8 6</u>  | 5 pCi/L         |
| 4020        | Radium 226           | 903.1       | 1 pCi/L                           | <input checked="" type="checkbox"/> | _____ pCi/L          | <u>0 . 4 1</u>  | 3 pCi/L         |
| 4030        | Radium 228           | 904.0       | 1 pCi/L                           | <input checked="" type="checkbox"/> | _____ pCi/L          | <u>0 . 4 6</u>  | 2 pCi/L         |
| 4044        | Potassium 40 (Total) |             | pCi/L                             | <input type="checkbox"/>            | _____ pCi/L          | _____           |                 |
| 4100        | Gross Beta           |             | 4 pCi/L                           | <input type="checkbox"/>            | _____ pCi/L          | _____           | 50 pCi/L        |
| 4102        | Tritium              |             | 1,000 pCi/L                       | <input type="checkbox"/>            | _____ pCi/L          | _____           | 20,000 pCi/L    |
| 4172        | Strontium 89         |             | 10 pCi/L                          | <input type="checkbox"/>            | _____ pCi/L          | _____           | N/A             |
| 4174        | Strontium 90         |             | 2 pCi/L                           | <input type="checkbox"/>            | _____ pCi/L          | _____           | 8 pCi/L         |
| 4264        | Iodine 131           |             | 1 pCi/L                           | <input type="checkbox"/>            | _____ pCi/L          | _____           | N/A             |
| 4270        | Cesium 134           |             | 10 pCi/L                          | <input type="checkbox"/>            | _____ pCi/L          | _____           | N/A             |

\*Note: If result exceeds allowable limit, the laboratory must fax analytical results to the State within 48 hours.

\*\*Note: Not applicable if using ICP-MS.

|                            | DATE:                                | TIME:  |
|----------------------------|--------------------------------------|--|
| <b>ANALYSES BEGUN:</b>     | <u>1 1 / 2 7 / 2 4</u><br>(MM/DD/YY) | <u>0 1 : 1 4 , P M</u><br>(Specify AM or PM) |
| <b>ANALYSES COMPLETED:</b> | <u>1 2 / 1 2 / 2 4</u><br>(MM/DD/YY) | <u>0 4 : 3 4 , P M</u><br>(Specify AM or PM) |

**Laboratory Log #:** 92765022001

**Certified By:** Jessica Mize

(Print and sign name)

**COMMENTS:** \_\_\_\_\_



## ASBESTOS ANALYSIS - Distribution System

Note: All information must be supplied for compliance credit.

Water System Number: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ County: Orange

Name of Water System: Hwy 86 Property

Sample Type:  Distribution (Compliance)  Non-compliance

Location Code: \_\_\_\_\_ Tap Location: Well Head Street Address: Near 1317 NC - 86 City: Hillsborough

Check (✓) if sample site is owned or controlled by water system.

Check (✓) if sample site is a daycare or a K-12 school.

Facility ID No. (Distribution): D 0 1

Sample Point: ASB

Collected By: David Cave

(Please Print)

| Collection Date         | Collection Time                      |
|-------------------------|--------------------------------------|
| <u>1 1 / 2 0 / 2 4</u>  | <u>1 2 : 4 1</u> , <u>P</u> <u>M</u> |
| <small>(MMDDYY)</small> | <small>(Specify AM or PM)</small>    |

Mail Results to (water system representative):

Yadkin Well - David Brown  
1908 Hamptonville Rd.  
Hamptonville, NC 27020

Phone #: (336) 374-8736

Fax #: ( )

Responsible Person's email:  
\_\_\_\_\_

Laboratory ID #: 3 7 7 6 6

| Contam Code | Contaminant | Method Code | Required Reporting Limit (R.R.L.) | Analysis Started  | Analysis Ended    | Not Detected (i.e. < R.R.L.)        | Quantified Results 1, 2 | Allowable Limit |
|-------------|-------------|-------------|-----------------------------------|-------------------|-------------------|-------------------------------------|-------------------------|-----------------|
| 1094        | ASBESTOS    |             | 0.2 MFL                           | 11-21-24<br>13:30 | 11-26-24<br>14:55 | <input checked="" type="checkbox"/> | BDL MFL                 | 7 MFL           |

Notes: <sup>1</sup> MFL = Million Fibers per Liter > 10 µm.

<sup>2</sup> If result exceeds the allowable limit, the laboratory must report the analytical results to the State within 48 hours

Laboratory Log #: 022406592-0001 Certified By: *Arthur Hines*  
(Print and sign name)

COMMENTS: PACE PROJECT #92765024



### Laboratory Report

Accounts Payable  
Yadkin Well Company  
1908 Hamptonville Road  
Hamptonville, NC 27020

Report Date: 11/27/2024  
Date Received: 11/20/2024

Project: Hwy 86 Property-PFAS

Pace Project No.: 92765011

Sample: Sample Port @Well Head Lab ID: 92765011001 Collected: 11/20/24 12:46 Matrix: Drinking Water

| Method    | Parameters   | Results | Units | Report Limit | Analyzed       | Qualifiers |
|-----------|--------------|---------|-------|--------------|----------------|------------|
| EPA 533   | 11CI-PF3OUdS | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | 4:2 FTS      | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | 6:2 FTS      | ND      | ug/L  | 0.0035       | 11/23/24 07:56 |            |
| EPA 533   | 8:2 FTS      | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | 9CI-PF3ONS   | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | ADONA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | HFPO-DA      | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | NFDHA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFBS         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFDA         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFHxA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFBA         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFEESA       | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFHpS        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFMBA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFMPA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFPeA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFPeS        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFDoA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFHpA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFHxS        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFNA         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFOS         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFOA         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFUnA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 537.1 | 11CI-PF3OUdS | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | 9CI-PF3ONS   | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | ADONA        | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | HFPO-DA      | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | NEtFOSAA     | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | NMeFOSAA     | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFBS         | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFDA         | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFHxA        | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFDoA        | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFHpA        | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFHxS        | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFNA         | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFOS         | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFOA         | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFTeDA       | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFTrDA       | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |



| <b>Sample: Sample Port @Well Head</b> |            | <b>Lab ID: 92765011001</b> | Collected: 11/20/24 12:46 | Matrix: Drinking Water |                |            |
|---------------------------------------|------------|----------------------------|---------------------------|------------------------|----------------|------------|
| Method                                | Parameters | Results                    | Units                     | Report Limit           | Analyzed       | Qualifiers |
| EPA 537.1                             | PFUnA      | ND                         | ug/L                      | 0.0017                 | 11/23/24 08:29 |            |

Reviewed by: *Jessica Mize*  
 Jessica A Mize  
 704-977-0982  
 jessica.mize@pacelabs.com

**Pace Analytical Services Ormond Beach**

8 East Tower Circle, Ormond Beach, FL 32174  
 Alaska DEC- CS/UST/LUST  
 Alabama Certification #: 41320  
 California Certification# 3096  
 Colorado Certification: FL NELAC Reciprocity  
 Connecticut Certification #: PH-0216  
 Delaware Certification: FL NELAC Reciprocity  
 DoD-ANAB #:ADE-3199  
 Florida Certification #: E83079  
 Georgia Certification #: 955  
 Guam Certification: FL NELAC Reciprocity  
 Hawaii Certification: FL NELAC Reciprocity  
 Illinois Certification #: 200068  
 Indiana Certification: FL NELAC Reciprocity  
 Kansas Certification #: E-10383  
 Kentucky Certification #: 90050  
 Louisiana Certification #: FL NELAC Reciprocity  
 Louisiana Environmental Certificate #: 05007  
 Maine Certification #: FL01264  
 Maryland Certification: #346  
 Massachusetts Certification #: M-FL1264  
 Michigan Certification #: 9911  
 Mississippi Certification: FL NELAC Reciprocity  
 Missouri Certification #: 236

Montana Certification #: Cert 0074  
 Nebraska Certification: NE-OS-28-14  
 Nevada Certification: FL NELAC Reciprocity  
 New Hampshire Certification #: 2958  
 New Jersey Certification #: FL022  
 New York Certification #: 11608  
 North Carolina Environmental Certificate #: 667  
 North Carolina Certification #: 12710  
 North Dakota Certification #: R-216  
 Ohio DEP 87780  
 Oklahoma Certification #: D9947  
 Pennsylvania Certification #: 68-00547  
 Puerto Rico Certification #: FL01264  
 South Carolina Certification: #96042001  
 Tennessee Certification #: TN02974  
 Texas Certification: FL NELAC Reciprocity  
 US Virgin Islands Certification: FL NELAC Reciprocity  
 Utah  
 Utah FL NELAC Reciprocity  
 Virginia Environmental Certification #: 460165  
 West Virginia Certification #: 9962C  
 Wisconsin Certification #: 399079670  
 Wyoming (EPA Region 8): FL NELAC Reciprocity



Environmental Consulting | Litigation Support | Environmental Services

22 August 2025

Ms. Laura Haywood  
Entitlements Program Manager  
**Forestar – Carolinas East Division**  
VIA E-mail: LauraHaywood@forestar.com

**RE: Highway 86 – Orange County, NC – Proposed Community Well Drawdown: Impacts to Adjacent Single Use Wells: Preliminary**

Ms. Haywood:

Pursuant to your request, Spangler Environmental, LLC (SEL), an Earth Systems Company (ESC) have completed a preliminary evaluation of the potential effect of the proposed residential development's community well on adjacent, single use wells, if any. The below summary is based only on a preliminary evaluation of the raw data collected during ambient conditions (i.e. prior to draw down of the Proposed Community Well), as well as direct observations documented during and following the drawdown of the Proposed Community Well. The results of ongoing modeling that has been initiated using AQTESOLV (Advanced Aquifer Test Analysis Software; Aquifer Test SOVer) to determine the transmissivity and storativity, which, once determined, will be input into the NCDEQ-DWR Reverse-

Time Drawdown Analysis to calculate drawdowns at varying distances from the proposed community well. The results of this analysis will be provided upon completion of the modeling, which are expected to support the results of the raw data analysis detailed below, which clearly show that even significant withdrawals from the Proposed Community Well have no impacts on adjacent wells.

**Background/ambient conditions:**

Ambient conditions are those that are currently, typically occurring, without any new inputs. As shown in the attached Figure 1, the Waller Well is approximately 0.2 mile north/northwest of the Proposed Community Well and the South Well is approximately 0.28 mile south/southeast of the Proposed Community Well. Ambient data were collected at all three wells between 20 June and 22 July 2025 using Well Sounder 2010 PRO devices, which are manufactured by Eno Scientific, LLC in Hillsborough, NC. As depicted in Illustration 1, these devices use sound waves to record static water surface depths within wells, relative to ground level and/or well head elevations.

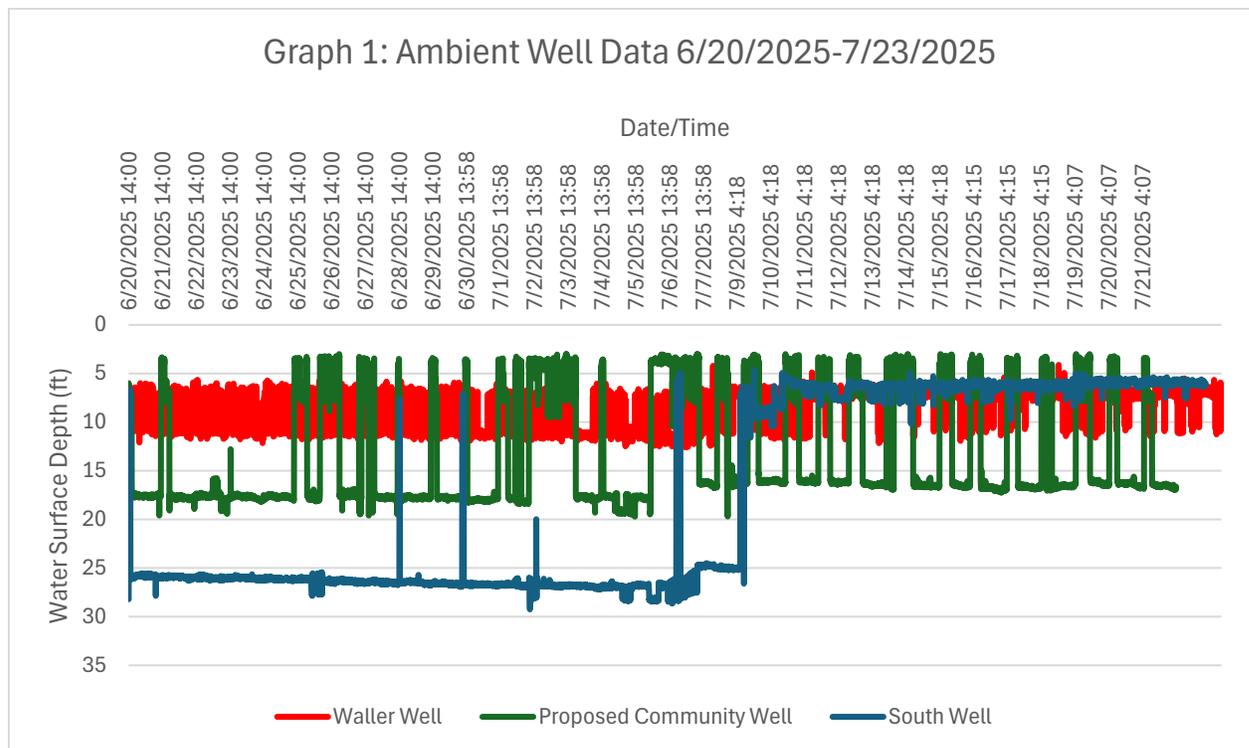
Additional data was collected at the Waller and South Wells prior to, during and after the drawdown testing of the Proposed Community Well, which was completed between 1430 on 29 July 2025 and 1500 on 30 July 2025. Data collection at the Waller and South Wells continued until 8 August 2025.



Illustration 1

As shown on its *Well Construction Record* (8 November 2023), the Waller Well is 200 feet deep, with a static water depth of 25 feet below the top of the casing. As shown in the *Orange County Well Report and Log* (20 October 2000) the South Well is also 200 feet deep, with a static water level of 30 feet and a casing depth of 66 feet. As shown in the Yadkin Well Company's report (Appendix 1), the Proposed Community Well depth is 642 feet, its static well level is 20 feet below the top of the casing and the casing extends 2 feet above the ground surface.

As shown in Graph 1, between 20 June and 23 July 2025 the South Well's static water depth below the surface ranged from 4.66 to 29.26 feet and averaged 17.69 feet. The depth to water regularly fluctuated from approximately 25 feet and approximately 29 feet below the surface between 20 June and 9 July, with a few brief spikes to 9-10 feet during that period. On 9 July 2025, between 1716 and 1721 the water surface rose from 25.04 to 8.16 and remained within 3.5 feet of this depth until 24 July, with the exception of an approximately 15.55 foot drop that lasted only approximately 30 minutes on 9 July. These two depths appear to be indicative of this well's normal variations.

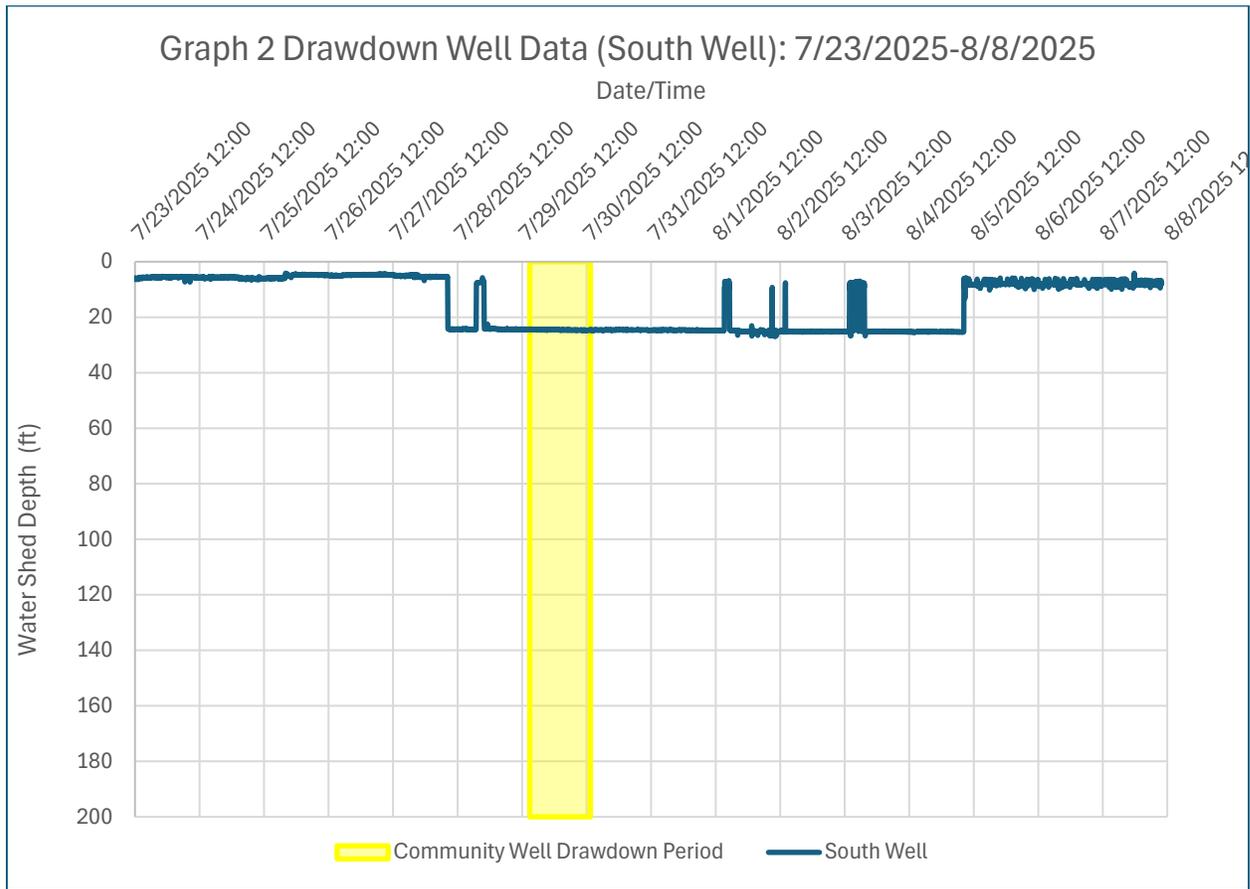


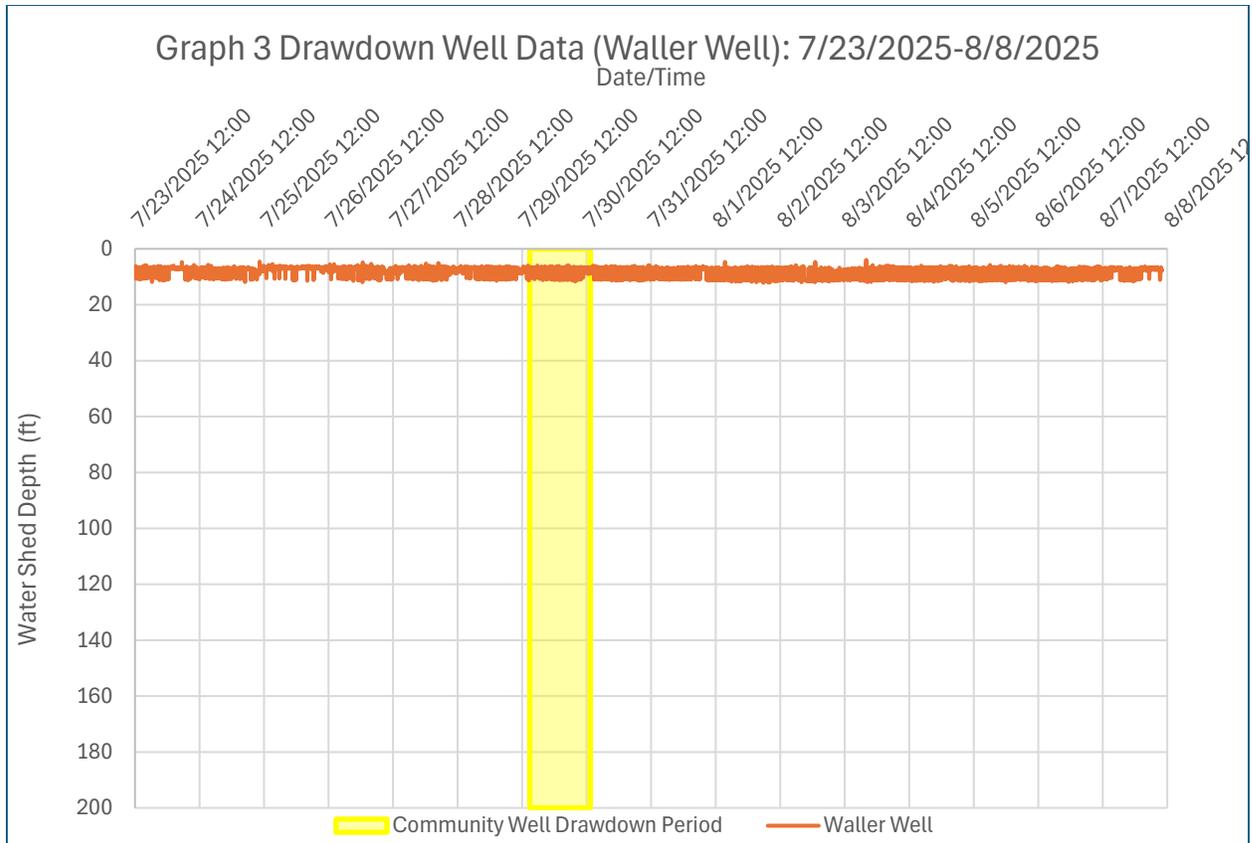
The Waller Well, on the other hand, exhibited a regular fluctuation in water depth below the surface ranging from 12.99 to 3.72 and averaging 8.61 feet between 20 June and 23 July 2025. In addition to the approximately 4.5-foot normal variation, transient fluctuations documented in the Waller Well during the monitoring period, were less than about 5 feet in excess of the normal variation.

**Adjacent well surface elevations before, during and after drawdown:**

As stated above, drawdown of the proposed community well was completed between 1430 on 29 July 2025 and 1500 on 30 July 2025 (Appendix 1). Data collection at the South and Waller Wells began on 23 July and continued until 8 August 2025. The drawdown confirmed that the proposed community well has a steady state (i.e., the balance of withdrawal and groundwater recharge, with no change to water surface elevation) of approximately 112 gallons per minute. The initial pump test, which was completed on 19 November 2024 showed a well yield of 84 gallons per minute (Appendix 2).

As depicted in Graphs 2 and 3, no water level changes beyond the normal variations discussed above were documented in either the South Well or the Waller Well during drawdown to either maximum depth (i.e., 578 feet below the surface) or steady state withdrawal (i.e. 112 gallons/minute), as well as during the subsequent recovery period.





**Preliminary Conclusions:**

As detailed above, the depth to water level within the adjacent South and Waller Wells was continuously monitored before, during and after drawdown of the Proposed Community Well. No water level changes beyond the normal variations recorded in the South and the Waller Wells occurred during maximum drawdown, steady state withdrawal, or subsequent recovery of the Proposed Community Well. As such, it is anticipated that the analytical modeling will further demonstrate that use of the Proposed Community Well consistent with State regulations to serve the proposed Highway 86 Residential Development will not negatively impact adjacent wells.

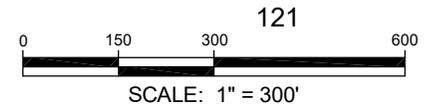
Should you have any questions, or require further clarification, please let me know.

Sincerely,  
Spangler Environmental, LLC

Ward Marotti  
Director: Natural Resources

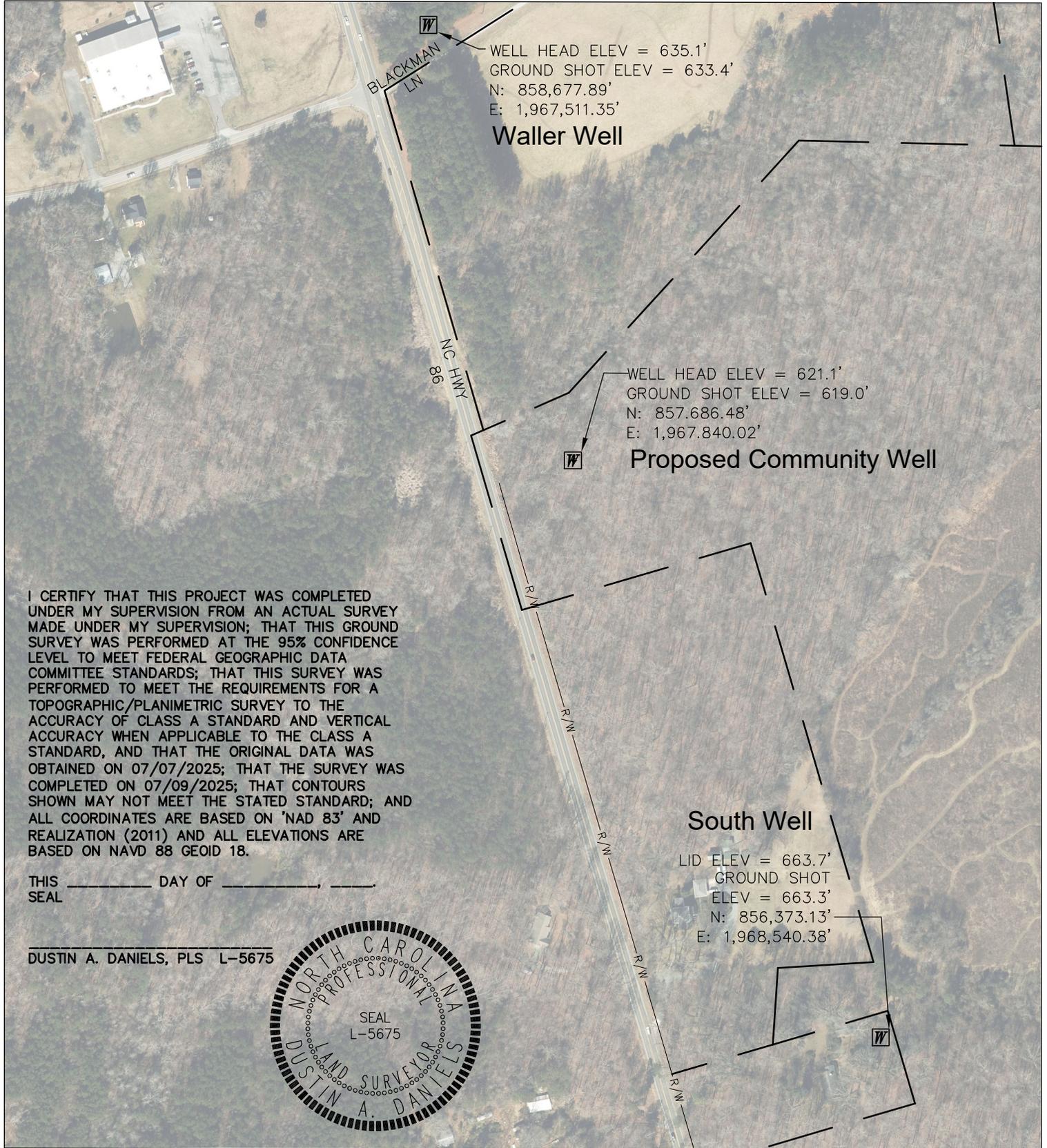
CANOY SURVEYING  
P-1938  
1154 SHONELE LANE  
STEM, NC 27581  
PHONE (984) 377-2626

**TOPOGRAPHIC - WELL ELEVATIONS**  
1101 NC HWY 86  
HILLSBOROUGH  
ORANGE COUNTY, NORTH CAROLINA



**Figure 1.**

AERIAL IMAGERY SHOWN FROM DATA DOWNLOADED AT:  
<https://www.nconemap.gov/>



I CERTIFY THAT THIS PROJECT WAS COMPLETED UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT THIS GROUND SURVEY WAS PERFORMED AT THE 95% CONFIDENCE LEVEL TO MEET FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS FOR A TOPOGRAPHIC/PLANIMETRIC SURVEY TO THE ACCURACY OF CLASS A STANDARD AND VERTICAL ACCURACY WHEN APPLICABLE TO THE CLASS A STANDARD, AND THAT THE ORIGINAL DATA WAS OBTAINED ON 07/07/2025; THAT THE SURVEY WAS COMPLETED ON 07/09/2025; THAT CONTOURS SHOWN MAY NOT MEET THE STATED STANDARD; AND ALL COORDINATES ARE BASED ON 'NAD 83' AND REALIZATION (2011) AND ALL ELEVATIONS ARE BASED ON NAVD 88 GEOID 18.

THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, \_\_\_\_\_  
SEAL

DUSTIN A. DANIELS, PLS L-5675



**Appendix 1**

DEPARTMENT OF ENVIRONMENT, HEALTH & NATURAL RESOURCES  
 DIVISION OF ENVIRONMENT MANAGEMENT  
 GROUNDWATER SECTION  
 P.O. BOX- RALEIGH, NC 27611  
 (919) 733-3221

PUMP TEST RECORD

TEST CONDUCTED BY: David Lee Cave (4227-A) WELL CONSTRUCTION PERMIT NO: W24-0165 WELL ID#: AAQ-330

\*\*\*\*\*

- 1) WELL LOCATION: NEAREST TOWN: Hwy. 86 Forestar COUNTY: Orange  
 (ROAD NO., COMMUNITY, OR SUBDIVISION AND LOT NO.)
- 2) OWNER:  
 Forestar Subdivision  
 (NAME) (ADDRESS)
- 3) USE OF WELL: ( ) DOMESTIC (X) PUBLIC ( ) INDUSTRIAL ( ) IRRIGATION ( ) OTHER
- 4) WELL DEPTH: 642 FT. CASING DIAMETER: 8 IN. CASING TYPE: GALVANIZED
- 5) DRILLING CONTRACTOR: \_YADKIN WELL COMPANY. WAS CASING GROUTED: YES
- 6) STATIC WELL LEVEL 20 FT. BELOW TOP OF CASING  
 DATE MEASURED: 7/29/25 CASING IS 2 FT. ABOVE LAND SURFACE
- 7) WELL YIELD: 112 GPM. SPECIFIC CAPACITY \_\_\_GPM/FT.DD.
- 8) PUMPING WATER LEVEL: 578 FT. AFTER 24 HOURS AT 85 GPM
- 9) CLORINATION: TYPE AMOUNT:
- 10) TIME AND DATE: PUMP STARTED: 7/29/2025 @ 2:30 PM. PUMP STOPPED: 7/30/2025 @ 3:00 PM.
- 11) WATER LEVEL MEASURING DEVICE: ELECTRIC TAPE FLOW MEASURING DEVICE: 3" RG3TM30
- 12) TEST PUMP: TYPE: 150S250-14 460V 3PH MAKE: GRUNDFOS HORSEPOWER: 25 HP  
 CAPACITY: GPM AT: T D H. INTAKE DEPTH: FT.

METER START 139,454 METER STOP 265,370 125,916 GALLONS

| TIME    | WATER LEVEL | PUMPING RATE                             | TIME    | WATER LEVEL | PUMPING RATE |
|---------|-------------|--|---------|-------------|--------------|
| 2:30 PM | 20 FT       | Couldn't set @ 50 gpm, too much pressure | 3:45 PM | 167.5 FT    | 50 GPM       |
| 2:45 PM | 48 FT       | 215 GPM                                  | 3:50 PM | 168 FT      | 50 GPM       |
| 2:50 PM | 301 FT      | 215 GPM                                  | 3:55 PM | 168.5 FT    | 50 GPM       |
| 2:55 PM | 260 FT      | 50 GPM                                   | 4:00 PM | 164.5 FT    | 50 GPM       |
| 3:00 PM | 223 FT      | 50 GPM                                   | 4:10 PM | 171 FT      | 50 GPM       |
| 3:05 PM | 207 FT      | 50 GPM                                   | 4:20 PM | 173.5 FT    | 50 GPM       |
| 3:10 PM | 192 FT      | 50 GPM                                   | 4:30 PM | 175 FT      | 50 GPM       |
| 3:15 PM | 182 FT      | 50 GPM                                   | 4:40 PM | 177 FT      | 50 GPM       |
| 3:20 PM | 174 FT      | 50 GPM                                   | 4:50 PM | 178.5 FT    | 50 GPM       |
| 3:25 PM | 170 FT      | 50 GPM                                   | 5:00 PM | 180 FT      | 50 GPM       |
| 3:30 PM | 168 FT      | 50 GPM                                   | 5:10 PM | 240 FT      | 80 GPM       |
| 3:35 PM | 167 FT      | 50 GPM                                   | 5:20 PM | 260 FT      | 80 GPM       |
| 3:40 PM | 167 FT      | 50 GPM                                   | 5:30 PM | 273.5 FT    | 80 GPM       |

## RECOVERY

| TIME     | WATER LEVEL | PUMPING RATE | TIME    | PUMPING RATE |
|----------|-------------|--------------|---------|--------------|
| 5:40 PM  | 282 FT      | 80 GPM       | 3:05 PM | 431 FT       |
| 5:50 PM  | 288.5 FT    | 80 GPM       | 3:10 PM | 394 FT       |
| 6:00 PM  | 294 FT      | 80 GPM       | 3:15 PM | 367 FT       |
| 6:10 PM  | 297.5 FT    | 80 GPM       | 3:20 PM | 343 FT       |
| 6:20 PM  | 298 FT      | 80 GPM       | 3:25 PM | 322 FT       |
| 6:30 PM  | 300 FT      | 80 GPM       | 3:30 PM | 305 FT       |
| 6:40 PM  | 310 FT      | 80 GPM       |         |              |
| 6:50 PM  | 317.5 FT    | 80 GPM       |         |              |
| 7:00 PM  | 321 FT      | 170 GPM      |         |              |
| 7:10 PM  | 476 FT      | 141 GPM      |         |              |
| 7:20 PM  | 538 FT      | 122 GPM      |         |              |
| 7:30 PM  | 561 FT      | 114 GPM      |         |              |
| 7:40 PM  | 571 FT      | 114 GPM      |         |              |
| 7:45 PM  | 574 FT      | 114 GPM      |         |              |
| 7:50 PM  | 552 FT      | 103 GPM      |         |              |
| 8:00 PM  | 549 FT      | 105 GPM      |         |              |
| 8:10 PM  | 560 FT      | 105 GPM      |         |              |
| 8:20 PM  | 563 FT      | 104 GPM      |         |              |
| 8:30 PM  | 564.5 FT    | 103 GPM      |         |              |
| 8:40 PM  | 566.5 FT    | 103 GPM      |         |              |
| 8:50 PM  | 569 FT      | 102 GPM      |         |              |
| 9:00 PM  | 570 FT      | 101 GPM      |         |              |
| 10:00 PM | 573 FT      | 97 GPM       |         |              |
| 11:00 PM | 577.5 FT    | 97 GPM       |         |              |
| 12:00 AM | 580 FT      | 93 GPM       |         |              |
| 1:00 AM  | 581 FT      | 93 GPM       |         |              |
| 2:00 AM  | 583.5 FT    | 92 GPM       |         |              |
| 3:00 AM  | 573 FT      | 87 GPM       |         |              |
| 4:00 AM  | 574 FT      | 86 GPM       |         |              |
| 5:00 AM  | 571 FT      | 86 GPM       |         |              |
| 6:00 AM  | 573 FT      | 86 GPM       |         |              |
| 7:00 AM  | 574 FT      | 86 GPM       |         |              |
| 8:00 AM  | 575 FT      | 86 GPM       |         |              |
| 9:00 AM  | 575 FT      | 85 GPM       |         |              |
| 10:00 AM | 577 FT      | 85 GPM       |         |              |
| 11:00 AM | 578 FT      | 85 GPM       |         |              |
| 12:00 PM | 578 FT      | 85 GPM       |         |              |
| 1:00 PM  | 578 FT      | 85 GPM       |         |              |
| 2:00 PM  | 578 FT      | 85 GPM       |         |              |
| 3:00 PM  | 578 FT      | 85 GPM       |         |              |

**Appendix 2**

NORTH CAROLINA  
 DEPARTMENT OF ENVIRONMENT, HEALTH, & NATURAL RESOURCES  
 DIVISION OF ENVIROMENT MANAGEMENT  
 GROUNDWATER SECTION  
 P. O. BOX- RALEIGH, N.C. 27611  
 (919) 733-3221

PUMP TEST  
 RECORD

METER  
 START: 14,784,306.0  
 STOP: 14,913,961.5  
 TOTAL: 129,655.5 GALLONS

TEST CONDUCTED BY: YADKIN WELL COMPANY, INC. WELL CONSTRUCTON PERMIT NO. \_\_\_\_\_

1. WELL LOCATION: NEAREST TOWN: HILLSBOROUGH COUNTY: ORANGE  
 HWY. 86 PROJECT

(ROAD NO., COMMUNITY, OR SUBDIVISION, AND LOT NO).

2. OWNER: FORESTAR DEVELOPERS

3. USE OF WELL:      ( ) DOMESTIC              ( X ) PUBLIC              ( ) INDUSTRIAL              ( ) IRRIGATION              ( ) OTHER

4. WELL DEPTH: 642 FT.              CASING DIAMTER 8 IN.              CASING TYPE: GALV. STEEL

5. DRILLING CONTRACTOR: Yadkin Well Company Inc.              WAS CASING GROUTED? Yes \_\_\_\_\_

6. STATIC WATER LEVEL: 20 FT.              ABOVE TOP OF CASING \_\_\_\_\_

**BELOW**

DATE MEASURED: 11/19/2024              CASING IS 2 FT. ABOVE LAND SURFACE

7. WELL YIELD: 84 GPM              SPECIFIC CAPACITY: \_\_\_\_\_ GPM/FT.DD

8. PUMPING WATER LEVEL: 554 FT. AFTER 24 HOURS AT 84 GPM

9. CHLORINATION TYPE 70% Calcium Hypochlorite AMOUNT 49 oz.

10. TIME AND DATE PUMP STARTED: 3:20 PM 11/19/2024              PUMP STOPPED: 3:20 PM 11/20/2024

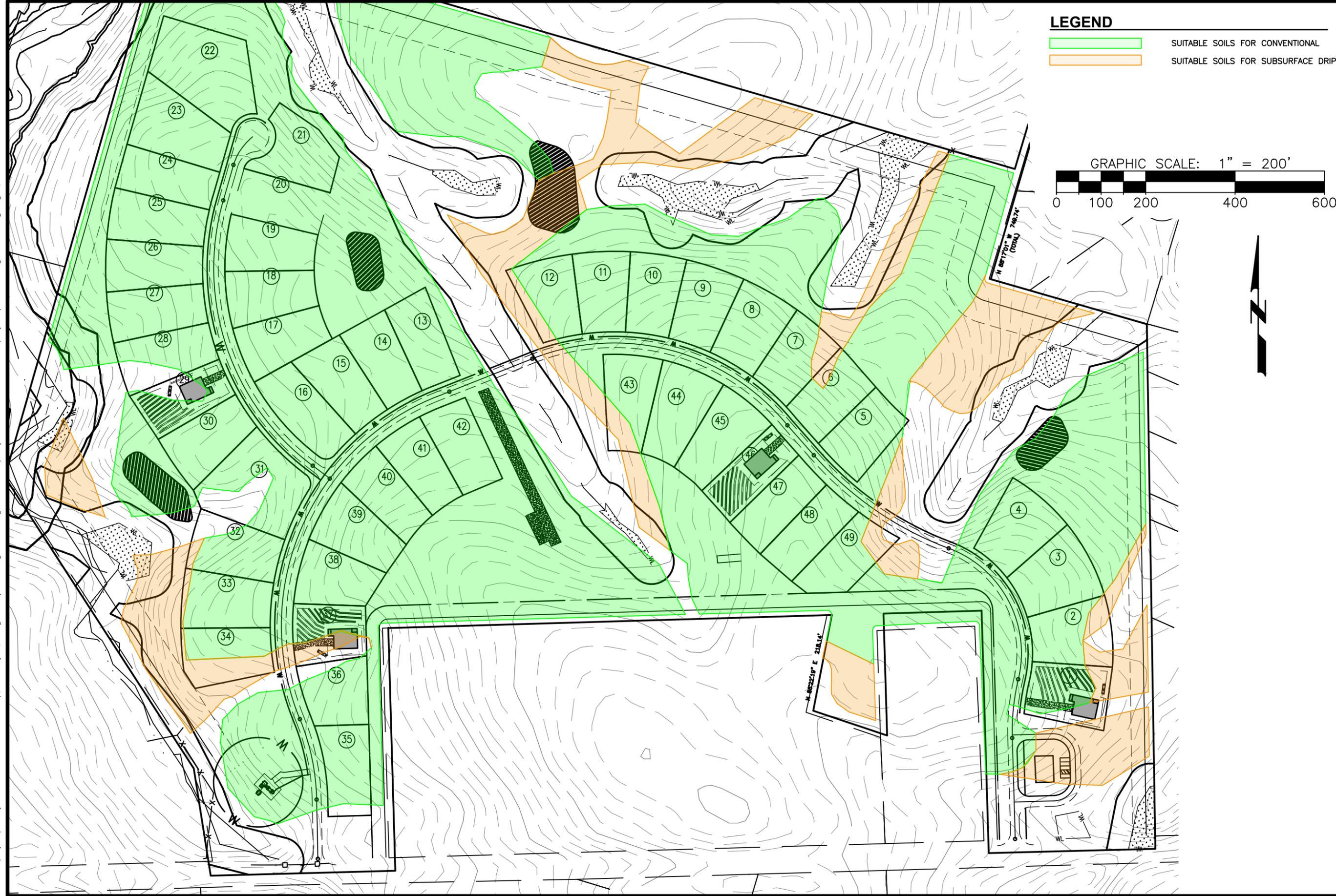
11. WATER LEVEL MEASURING DEVICE: Electric Tape              FLOW MESURING DEVICE: 3" FLOW METER

12. TEST PUMP: TYPE: Submersible MAKE: Grundfos HORSEPOWER: 25  
 CAPACITY 100 GPM AT 600 TDH              INTAKE DEPTH 609 FT.

| TIME    | WATER LEVEL | PUMPING RATE | TIME     | WATER LEVEL | PUMPING RATE |
|---------|-------------|--------------|----------|-------------|--------------|
| 3:20 PM | 20 FT       | 200 GPM      | 4:30 PM  | 527 FT      | 112 GPM      |
| 3:25 PM | 280 FT      | 185 GPM      | 4:40 PM  | 528 FT      | 110 GPM      |
| 3:30 PM | 372 FT      | 170 GPM      | 4:50 PM  | 527 FT      | 105 GPM      |
| 3:35 PM | 426 FT      | 158 GPM      | 5:00 PM  | 529 FT      | 108 GPM      |
| 3:40 PM | 461 FT      | 150 GPM      | 5:10 PM  | 523 FT      | 101 GPM      |
| 3:45 PM | 488 FT      | 145 GPM      | 5:20 PM  | 524 FT      | 103 GPM      |
| 3:50 PM | 512 FT      | 138 GPM      | 6:20 PM  | 529 FT      | 99 GPM       |
| 3:55 PM | 508 FT      | 121 GPM      | 7:20 PM  | 536 FT      | 95 GPM       |
| 4:00 PM | 515 FT      | 127 GPM      | 8:20 PM  | 542 FT      | 94 GPM       |
| 4:05 PM | 523 FT      | 124 GPM      | 9:20 PM  | 544 FT      | 91 GPM       |
| 4:10 PM | 526 FT      | 119 GPM      | 10:20 PM | 545 FT      | 91 GPM       |
| 4:15 PM | 525 FT      | 116 GPM      | 11:20 PM | 544 FT      | 90 GPM       |
| 4:20 PM | 525 FT      | 115 GPM      | 12:20 AM | 546 FT      | 89 GPM       |
|         |             |              |          |             |              |

*David Lee Cave 11-26-2024*





**OVERALL SITE PLAN**

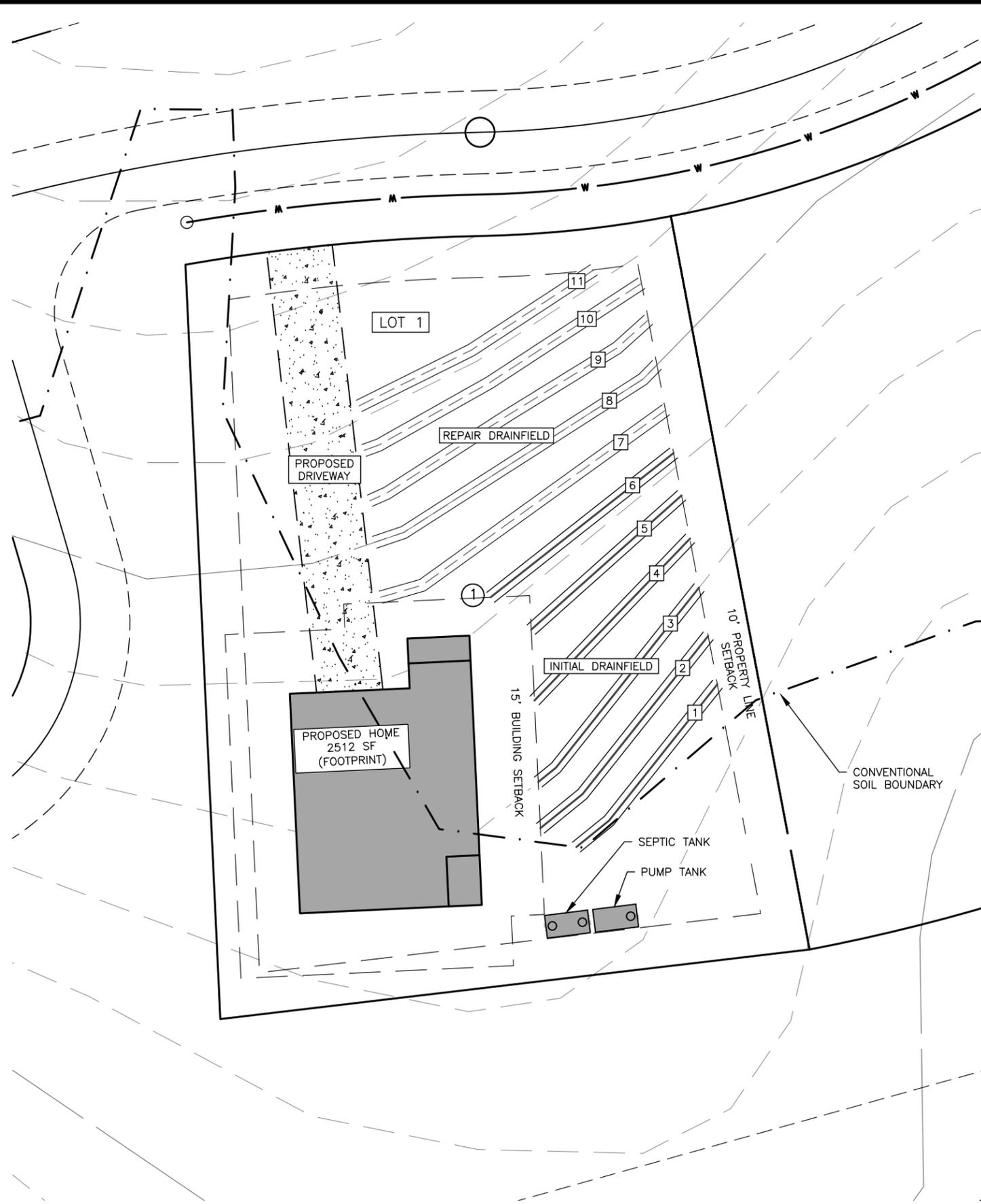
C-100

FORESTAR GROUP, INC.  
 SAMPLE SEPTIC FIELDS  
 ORANGE COUNTY, NC

BY: YMT  
 JOB #: C23803.00  
 DATE: 08/21/2025

501 CASCADE POINTE LANE, SUITE 103  
 CARY, NORTH CAROLINA 27513  
 P. O. BOX 129  
 MORRISVILLE, NORTH CAROLINA 27660  
 TEL: (919) 467-1239 FAX: (919) 319-6510

**MacCONNELL & Associates, P. C.**



**NOTES**

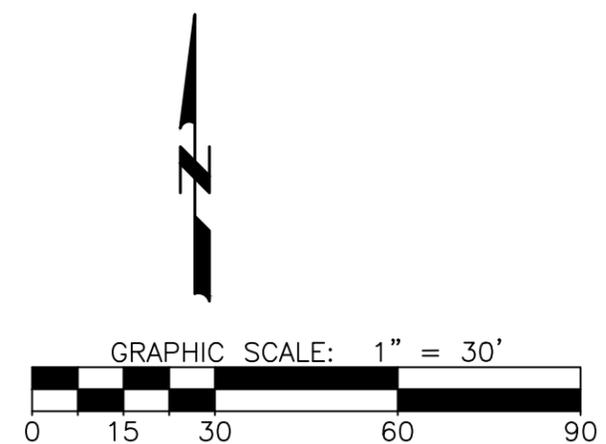
1. PARCELS TAKEN FROM NC ONEMAP. TOPO TAKEN FROM NC FRIS. SITE PLAN PROVIDED BY BOWMAN ENGINEERING. PRELIMINARY SOIL INFORMATION PROVIDED BY EARTHLY ELEMENTS SOIL CONSULTING.
2. HOUSE BOXES PROVIDED BY CLIENT.
3. KEEP TANKS, DRAIN LINES, AND MANIFOLDS A MINIMUM OF 10' OFF OF PROPERTY LINES.
4. KEEP SUPPLY LINES AND FORCE MAIN A MINIMUM OF 5' OFF OF PROPERTY LINES.
5. THIS IS NOT A SURVEY.
6. UTILIZED T+J PANELS.
7. UNADJUSTED DAILY DESIGN FLOW: 480
8. DAILY DESIGN FLOW: 480
9. ESTIMATED LTAR: 0.250
10. MIN. LINE LENGTH 320 LF PER INITIAL & REPAIR FIELDS

**LEGEND**

|             |                                  |
|-------------|----------------------------------|
| ---         | ADJACENT BOUNDARY                |
| ---         | BOUNDARY (PROPERTY)              |
| CO          | CLEAN OUT                        |
| 420         | CONTOURS - INDEX                 |
| 418         | CONTOURS - INTERMEDIATE          |
| →→→         | DIVERSION BERM/DITCH             |
| ====        | DRAIN LINES/TRENCHES (INITIAL)   |
| ----        | DRAIN LINES/TRENCHES (REPAIR)    |
| ----        | DRAIN LINES - FLAGGED (NOT USED) |
| ---         | EASEMENT LINE                    |
| E           | EXISTING ELECTRIC LINE           |
| X           | EXISTING FENCE                   |
| FM          | PROPOSED FORCE MAIN              |
| - - - -     | RIGHT-OF-WAY                     |
| ---         | RIPARIAN BUFFER                  |
| ---         | SETBACKS                         |
| - . - . - . | SUITABLE SOILS BOUNDARY          |
| W           | EXISTING WATER LINE              |

| LINE SEGMENTS (INITIAL) |      |        |               |
|-------------------------|------|--------|---------------|
| LINE #                  | FLAG | LENGTH | DESIGN LENGTH |
| 1                       | -    | -      | 50'           |
| 2                       | -    | -      | 60'           |
| 3                       | -    | -      | 60'           |
| 4                       | -    | -      | 55'           |
| 5                       | -    | -      | 50'           |
| 6                       | -    | -      | 55'           |
| TOTAL LENGTH            |      |        | 330'          |

| LINE SEGMENTS (REPAIR) |      |        |               |
|------------------------|------|--------|---------------|
| LINE #                 | FLAG | LENGTH | DESIGN LENGTH |
| 7                      | -    | -      | 80'           |
| 8                      | -    | -      | 80'           |
| 9                      | -    | -      | 80'           |
| 10                     | -    | -      | 80'           |
| 11                     | -    | -      | 65'           |
| TOTAL LENGTH           |      |        | 385'          |



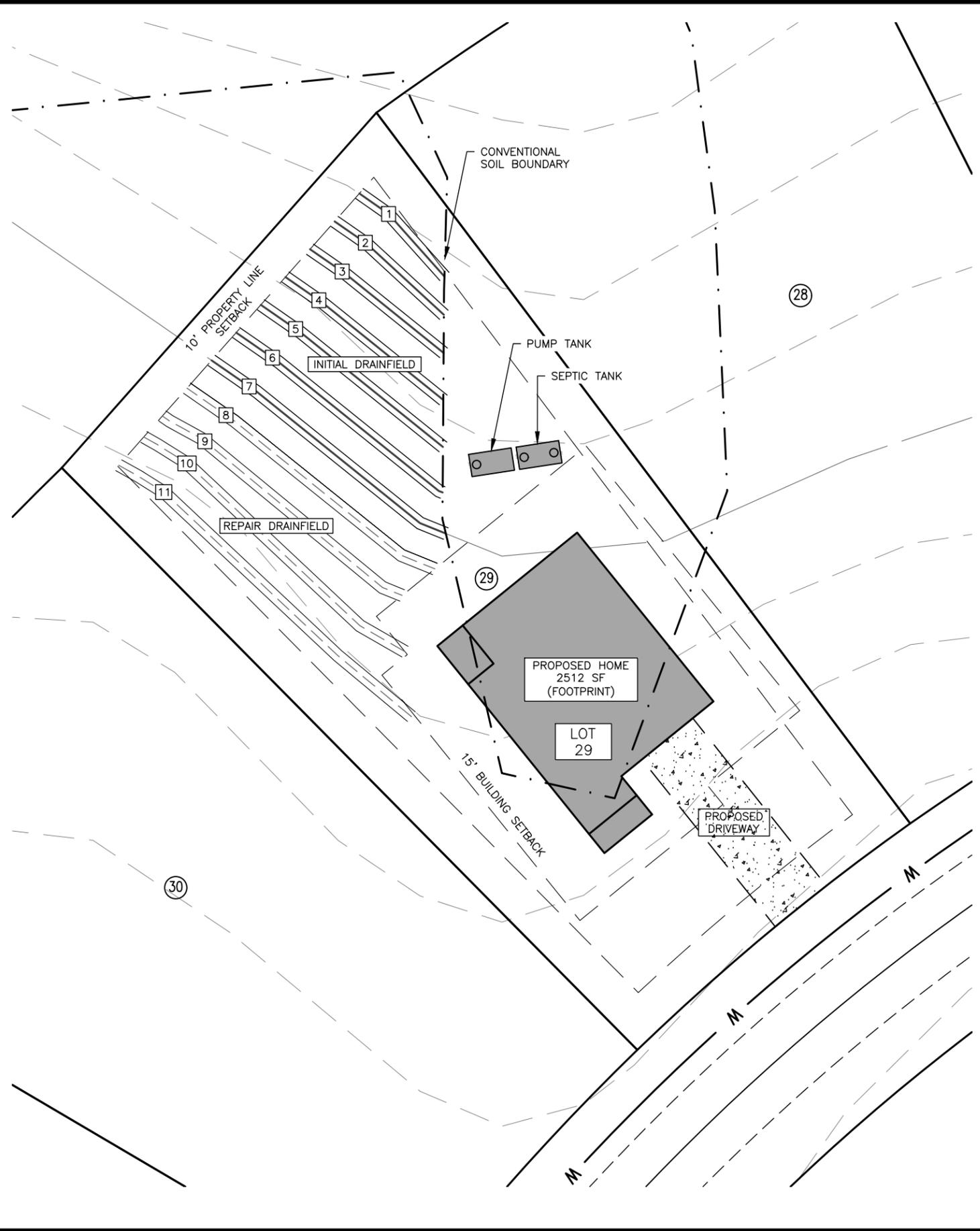
**MacCONNELL & Associates, P. C.**

501 CASCADE POINTE LANE, SUITE 103  
CARY, NORTH CAROLINA 27513  
P. O. BOX 129  
MORRISVILLE, NORTH CAROLINA 27660  
TEL: (919) 467-1239 FAX: (919) 319-6510

BY: YMT  
JOB #: C23803.00  
DATE: 08/21/2025

FORESTAR GROUP, INC.  
SAMPLE SEPTIC FIELDS  
ORANGE COUNTY, NC

SAMPLE SEPTIC SYSTEM - LOT 1  
C-101



**NOTES**

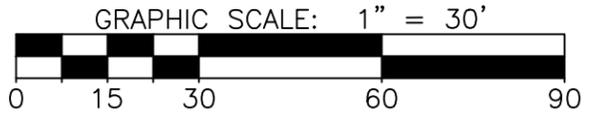
1. PARCELS TAKEN FROM NC ONEMAP. TOPO TAKEN FROM NC FRIS. SITE PLAN PROVIDED BY BOWMAN ENGINEERING. PRELIMINARY SOIL INFORMATION PROVIDED BY EARTHLY ELEMENTS SOIL CONSULTING.
2. HOUSE BOXES PROVIDED BY CLIENT.
3. KEEP TANKS, DRAIN LINES, AND MANIFOLDS A MINIMUM OF 10' OFF OF PROPERTY LINES.
4. KEEP SUPPLY LINES AND FORCE MAIN A MINIMUM OF 5' OFF OF PROPERTY LINES.
5. THIS IS NOT A SURVEY.
6. UTILIZED T+J PANELS
7. UNADJUSTED DAILY DESIGN FLOW: 480
8. DAILY DESIGN FLOW: 480
9. ESTIMATED LTAR: 0.250
10. MIN. LINE LENGTH 320 LF PER INITIAL & REPAIR FIELDS

**LEGEND**

|      |                                  |
|------|----------------------------------|
| ---  | ADJACENT BOUNDARY                |
| ---  | BOUNDARY (PROPERTY)              |
| CO   | CLEAN OUT                        |
| 420  | CONTOURS - INDEX                 |
| 418  | CONTOURS - INTERMEDIATE          |
| →→→  | DIVERSION BERM/DITCH             |
| ==== | DRAIN LINES/TRENCHES (INITIAL)   |
| ---- | DRAIN LINES/TRENCHES (REPAIR)    |
| ---- | DRAIN LINES - FLAGGED (NOT USED) |
| ---  | EASEMENT LINE                    |
| E    | EXISTING ELECTRIC LINE           |
| X    | EXISTING FENCE                   |
| FM   | PROPOSED FORCE MAIN              |
| ---  | RIGHT-OF-WAY                     |
| ---  | RIPARIAN BUFFER                  |
| ---  | SETBACKS                         |
| ---  | SUITABLE SOILS BOUNDARY          |
| W    | EXISTING WATER LINE              |

| LINE SEGMENTS (INITIAL) |      |        |               |
|-------------------------|------|--------|---------------|
| LINE #                  | FLAG | LENGTH | DESIGN LENGTH |
| 1                       | -    | -      | 30'           |
| 2                       | -    | -      | 35'           |
| 3                       | -    | -      | 40'           |
| 4                       | -    | -      | 45'           |
| 5                       | -    | -      | 55'           |
| 6                       | -    | -      | 60'           |
| 7                       | -    | -      | 70'           |
| TOTAL LENGTH            |      |        | 335'          |

| LINE SEGMENTS (REPAIR) |      |        |               |
|------------------------|------|--------|---------------|
| LINE #                 | FLAG | LENGTH | DESIGN LENGTH |
| 8                      | -    | -      | 75'           |
| 9                      | -    | -      | 70'           |
| 10                     | -    | -      | 80'           |
| 11                     | -    | -      | 95'           |
| TOTAL LENGTH           |      |        | 320'          |



**SAMPLE SEPTIC SYSTEM - LOT 29**

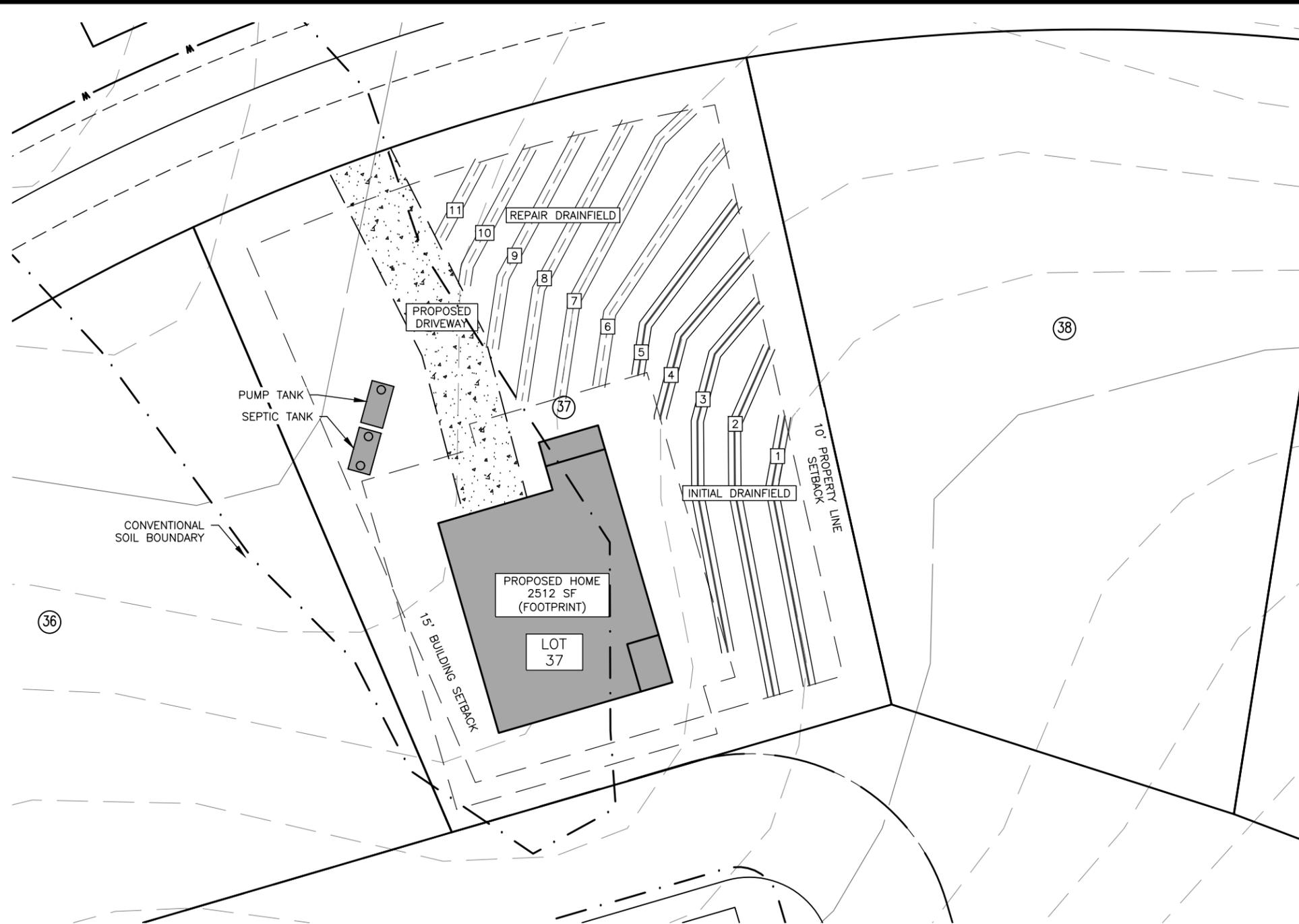
**FORESTAR GROUP, INC.**  
**SAMPLE SEPTIC FIELDS**  
 ORANGE COUNTY, NC

BY: YMT  
 JOB #: C23803.00  
 DATE: 08/21/2025

501 CASCADE POINTE LANE, SUITE 103  
 CARY, NORTH CAROLINA 27513  
 P. O. BOX 129  
 MORRISVILLE, NORTH CAROLINA 27660  
 TEL: (919) 467-1239 FAX: (919) 319-6510

**MacCONNELL & Associates, P. C.**

C-102



**LEGEND**

- ADJACENT BOUNDARY
- BOUNDARY (PROPERTY)
- CO CLEAN OUT
- 420 CONTOURS - INDEX
- 418 CONTOURS - INTERMEDIATE
- DIVERSION BERM/DITCH
- ==== DRAIN LINES/TRENCHES (INITIAL)
- ==== DRAIN LINES/TRENCHES (REPAIR)
- DRAIN LINES - FLAGGED (NOT USED)
- EASEMENT LINE
- E EXISTING ELECTRIC LINE
- X EXISTING FENCE
- FM PROPOSED FORCE MAIN
- RIGHT-OF-WAY
- RIPARIAN BUFFER
- SETBACKS
- SUITABLE SOILS BOUNDARY
- W EXISTING WATER LINE

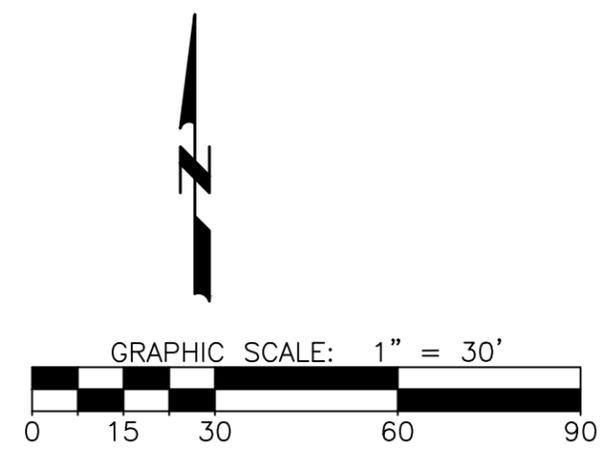
**LINE SEGMENTS (INITIAL)**

| LINE #       | FLAG | LENGTH | DESIGN LENGTH |
|--------------|------|--------|---------------|
| 1            | -    | -      | 65'           |
| 2            | -    | -      | 85'           |
| 3            | -    | -      | 90'           |
| 4            | -    | -      | 45'           |
| 5            | -    | -      | 50'           |
| TOTAL LENGTH |      |        | 335'          |

**LINE SEGMENTS (REPAIR)**

| LINE #       | FLAG | LENGTH | DESIGN LENGTH |
|--------------|------|--------|---------------|
| 6            | -    | -      | 65'           |
| 7            | -    | -      | 80'           |
| 8            | -    | -      | 70'           |
| 9            | -    | -      | 55'           |
| 10           | -    | -      | 35'           |
| 11           | -    | -      | 20'           |
| TOTAL LENGTH |      |        | 325'          |

- NOTES**
1. PARCELS TAKEN FROM NC ONEMAP. TOPO TAKEN FROM NC FRIS. SITE PLAN PROVIDED BY BOWMAN ENGINEERING. PRELIMINARY SOIL INFORMATION PROVIDED BY EARTHLY ELEMENTS SOIL CONSULTING.
  2. HOUSE BOXES PROVIDED BY CLIENT.
  3. KEEP TANKS, DRAIN LINES, AND MANIFOLDS A MINIMUM OF 10' OFF OF PROPERTY LINES.
  4. KEEP SUPPLY LINES AND FORCE MAIN A MINIMUM OF 5' OFF OF PROPERTY LINES.
  5. THIS IS NOT A SURVEY.
  6. UTILIZED T.J. PANELS FOR INITIAL AND REPAIR SYSTEM.
  7. UNADJUSTED DAILY DESIGN FLOW: 480
  8. DAILY DESIGN FLOW: 480
  9. ESTIMATED LTAR: 0.250
  10. MIN. LINE LENGTH 320 LF PER INITIAL AND REPAIR FIELD



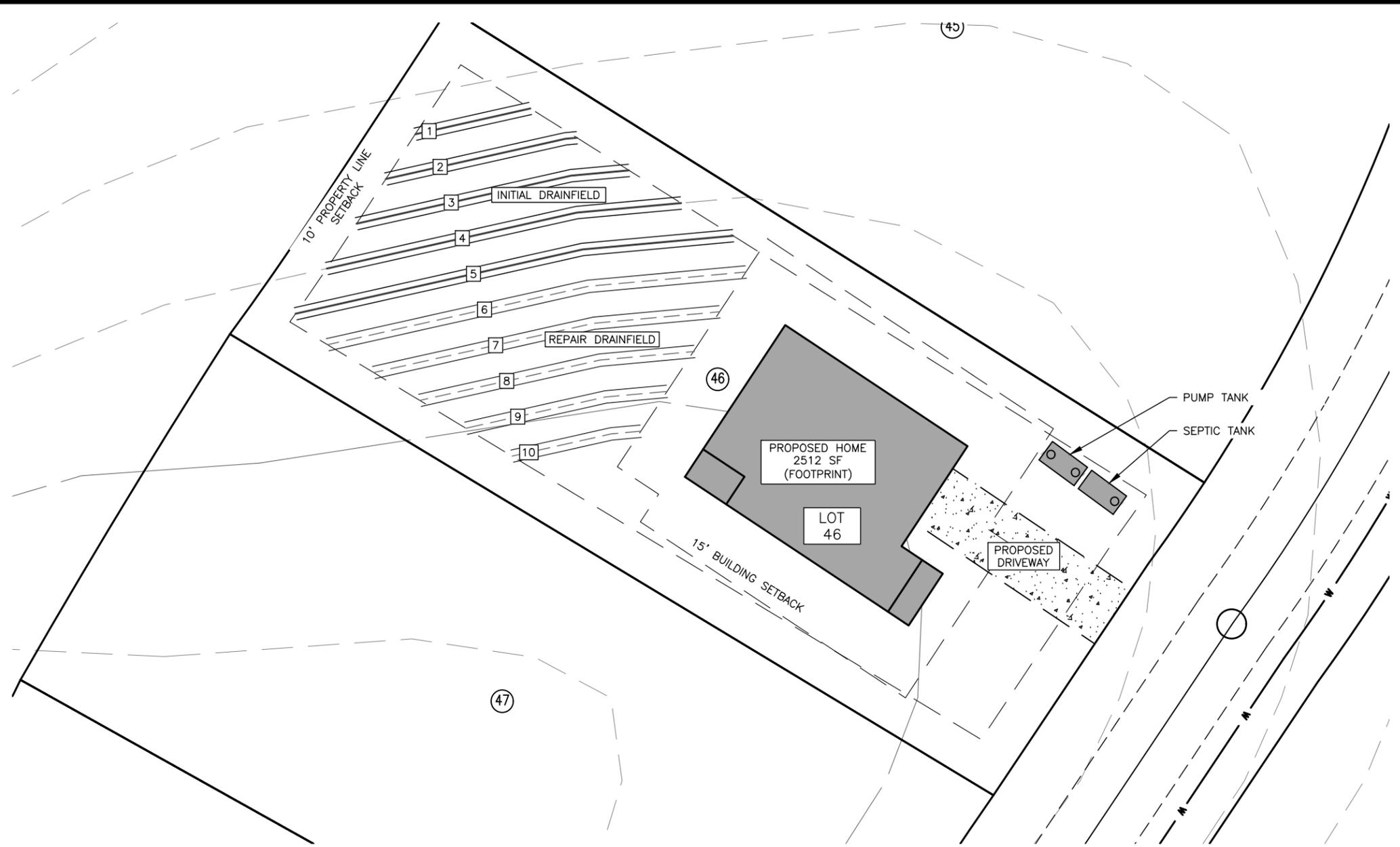
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TEL: (919) 467-1239 FAX: (919) 319-6510

BY: YMT  
JOB #: C23803.00  
DATE: 08/21/2025

FORESTAR GROUP, INC.  
SAMPLE SEPTIC FIELDS  
ORANGE COUNTY, NC

SAMPLE SEPTIC SYSTEM - LOT 37  
C-103



**LEGEND**

- ADJACENT BOUNDARY
- BOUNDARY (PROPERTY)
- CO CLEAN OUT
- 420 CONTOURS - INDEX
- 418 CONTOURS - INTERMEDIATE
- DIVERSION BERM/DITCH
- ==== DRAIN LINES/TRENCHES (INITIAL)
- ==== DRAIN LINES/TRENCHES (REPAIR)
- DRAIN LINES - FLAGGED (NOT USED)
- EASEMENT LINE
- E EXISTING ELECTRIC LINE
- X EXISTING FENCE
- FM PROPOSED FORCE MAIN
- RIGHT-OF-WAY
- RIPARIAN BUFFER
- SETBACKS
- SUITABLE SOILS BOUNDARY
- W EXISTING WATER LINE

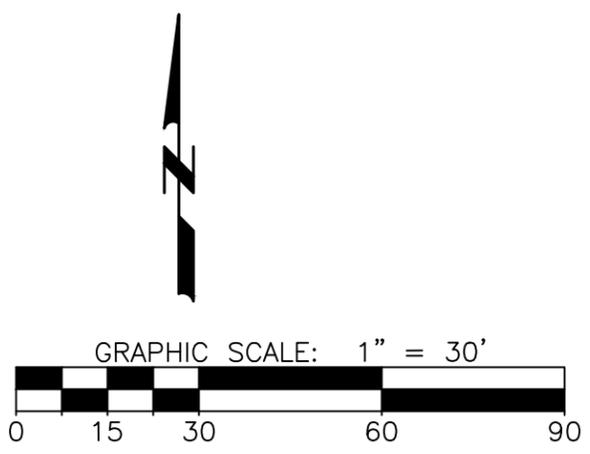
LINE SEGMENTS (INITIAL)

| LINE #       | FLAG | LENGTH | DESIGN LENGTH |
|--------------|------|--------|---------------|
| 1            | -    | -      | 25'           |
| 2            | -    | -      | 45'           |
| 3            | -    | -      | 65'           |
| 4            | -    | -      | 85'           |
| 5            | -    | -      | 105'          |
| TOTAL LENGTH |      |        | 325'          |

LINE SEGMENTS (REPAIR)

| LINE #       | FLAG | LENGTH | DESIGN LENGTH |
|--------------|------|--------|---------------|
| 6            | -    | -      | 100'          |
| 7            | -    | -      | 85'           |
| 8            | -    | -      | 65'           |
| 9            | -    | -      | 50'           |
| 10           | -    | -      | 30'           |
| TOTAL LENGTH |      |        | 330'          |

- NOTES**
1. PARCELS TAKEN FROM NC ONEMAP. TOPO TAKEN FROM NC FRIS. SITE PLAN PROVIDED BY BOWMAN ENGINEERING. PRELIMINARY SOIL INFORMATION PROVIDED BY EARTHLY ELEMENTS SOIL CONSULTING.
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  9. ESTIMATED LTAR: 0.250
  10. MIN. LINE LENGTH 320 LF PER INITIAL & REPAIR FIELDS



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TEL: (919) 467-1239 FAX: (919) 319-6510

BY: YMT  
JOB #: C23803.00  
DATE: 08/21/2025

FORESTAR GROUP, INC.  
SAMPLE SEPTIC FIELDS  
ORANGE COUNTY, NC

SAMPLE SEPTIC SYSTEM - LOT 46  
C-104

NORTH CAROLINA  
 DEPARTMENT OF ENVIRONMENT, HEALTH, & NATURAL RESOURCES  
 DIVISION OF ENVIROMENT MANAGEMENT  
 GROUNDWATER SECTION  
 P. O. BOX- RALEIGH, N.C. 27611  
 (919) 733-3221

PUMP TEST  
 RECORD

METER  
 START: 14,784,306.0  
 STOP: 14,913,961.5  
 TOTAL: 129,655.5 GALLONS

TEST CONDUCTED BY: YADKIN WELL COMPANY, INC. WELL CONSTRUCTON PERMIT NO. \_\_\_\_\_

1. WELL LOCATION: NEAREST TOWN: HILLSBOROUGH COUNTY: ORANGE  
 HWY. 86 PROJECT

(ROAD NO., COMMUNITY, OR SUBDIVISION, AND LOT NO).

2. OWNER: FORESTAR DEVELOPERS

3. USE OF WELL:    ( ) DOMESTIC            ( X ) PUBLIC            ( ) INDUSTRIAL            ( ) IRRIGATION            ( ) OTHER

4. WELL DEPTH: 642 FT.            CASING DIAMTER 8 IN.            CASING TYPE: GALV. STEEL

5. DRILLING CONTRACTOR: Yadkin Well Company Inc.            WAS CASING GROUTED? Yes \_\_\_\_\_

6. STATIC WATER LEVEL: 20 FT.            ABOVE TOP OF CASING \_\_\_\_\_

**BELOW**

DATE MEASURED: 11/19/2024            CASING IS 2 FT. ABOVE LAND SURFACE

7. WELL YIELD: 84 GPM            SPECIFIC CAPACITY: \_\_\_\_\_ GPM/FT.DD

8. PUMPING WATER LEVEL: 554 FT. AFTER 24 HOURS AT 84 GPM

9. CHLORINATION TYPE 70% Calcium Hypochlorite AMOUNT 49 oz.

10. TIME AND DATE PUMP STARTED: 3:20 PM 11/19/2024            PUMP STOPPED: 3:20 PM 11/20/2024

11. WATER LEVEL MEASURING DEVICE: Electric Tape            FLOW MESURING DEVICE: 3" FLOW METER

12. TEST PUMP: TYPE: Submersible MAKE: Grundfos HORSEPOWER: 25  
 CAPACITY 100 GPM AT 600 TDH            INTAKE DEPTH 609 FT.

| TIME    | WATER LEVEL | PUMPING RATE | TIME     | WATER LEVEL | PUMPING RATE |
|---------|-------------|--------------|----------|-------------|--------------|
| 3:20 PM | 20 FT       | 200 GPM      | 4:30 PM  | 527 FT      | 112 GPM      |
| 3:25 PM | 280 FT      | 185 GPM      | 4:40 PM  | 528 FT      | 110 GPM      |
| 3:30 PM | 372 FT      | 170 GPM      | 4:50 PM  | 527 FT      | 105 GPM      |
| 3:35 PM | 426 FT      | 158 GPM      | 5:00 PM  | 529 FT      | 108 GPM      |
| 3:40 PM | 461 FT      | 150 GPM      | 5:10 PM  | 523 FT      | 101 GPM      |
| 3:45 PM | 488 FT      | 145 GPM      | 5:20 PM  | 524 FT      | 103 GPM      |
| 3:50 PM | 512 FT      | 138 GPM      | 6:20 PM  | 529 FT      | 99 GPM       |
| 3:55 PM | 508 FT      | 121 GPM      | 7:20 PM  | 536 FT      | 95 GPM       |
| 4:00 PM | 515 FT      | 127 GPM      | 8:20 PM  | 542 FT      | 94 GPM       |
| 4:05 PM | 523 FT      | 124 GPM      | 9:20 PM  | 544 FT      | 91 GPM       |
| 4:10 PM | 526 FT      | 119 GPM      | 10:20 PM | 545 FT      | 91 GPM       |
| 4:15 PM | 525 FT      | 116 GPM      | 11:20 PM | 544 FT      | 90 GPM       |
| 4:20 PM | 525 FT      | 115 GPM      | 12:20 AM | 546 FT      | 89 GPM       |
|         |             |              |          |             |              |

*David Lee Cave 11-26-2024*



DEPARTMENT OF ENVIRONMENT, HEALTH & NATURAL RESOURCES  
 DIVISION OF ENVIRONMENT MANAGEMENT  
 GROUNDWATER SECTION  
 P.O. BOX- RALEIGH, NC 27611  
 (919) 733-3221

PUMP TEST RECORD

TEST CONDUCTED BY: David Lee Cave (4227-A) WELL CONSTRUCTION PERMIT NO: W24-0165 WELL ID#: AAQ-330

\*\*\*\*\*

- 1) WELL LOCATION: NEAREST TOWN: Hwy. 86 Forestar COUNTY: Orange  
 (ROAD NO., COMMUNITY, OR SUBDIVISION AND LOT NO.)
- 2) OWNER:  
 Forestar Subdivision  
 (NAME) (ADDRESS)
- 3) USE OF WELL: ( ) DOMESTIC (X) PUBLIC ( ) INDUSTRIAL ( ) IRRIGATION ( ) OTHER
- 4) WELL DEPTH: 642 FT. CASING DIAMETER: 8 IN. CASING TYPE: GALVANIZED
- 5) DRILLING CONTRACTOR: \_YADKIN WELL COMPANY. WAS CASING GROUTED: YES
- 6) STATIC WELL LEVEL 20 FT. BELOW TOP OF CASING  
 DATE MEASURED: 7/29/25 CASING IS 2 FT. ABOVE LAND SURFACE
- 7) WELL YIELD: 112 GPM. SPECIFIC CAPACITY \_\_\_GPM/FT.DD.
- 8) PUMPING WATER LEVEL: 578 FT. AFTER 24 HOURS AT 85 GPM
- 9) CLORINATION: TYPE AMOUNT:
- 10) TIME AND DATE: PUMP STARTED: 7/29/2025 @ 2:30 PM. PUMP STOPPED: 7/30/2025 @ 3:00 PM.
- 11) WATER LEVEL MEASURING DEVICE: ELECTRIC TAPE FLOW MEASURING DEVICE: 3" RG3TM30
- 12) TEST PUMP: TYPE: 150S250-14 460V 3PH MAKE: GRUNDFOS HORSEPOWER: 25 HP  
 CAPACITY: GPM AT: T D H. INTAKE DEPTH: FT.

METER START 139,454 METER STOP 265,370 125,916 GALLONS

| TIME    | WATER LEVEL | PUMPING RATE                             | TIME    | WATER LEVEL | PUMPING RATE |
|---------|-------------|--|---------|-------------|--------------|
| 2:30 PM | 20 FT       | Couldn't set @ 50 gpm, too much pressure | 3:45 PM | 167.5 FT    | 50 GPM       |
| 2:45 PM | 48 FT       | 215 GPM                                  | 3:50 PM | 168 FT      | 50 GPM       |
| 2:50 PM | 301 FT      | 215 GPM                                  | 3:55 PM | 168.5 FT    | 50 GPM       |
| 2:55 PM | 260 FT      | 50 GPM                                   | 4:00 PM | 164.5 FT    | 50 GPM       |
| 3:00 PM | 223 FT      | 50 GPM                                   | 4:10 PM | 171 FT      | 50 GPM       |
| 3:05 PM | 207 FT      | 50 GPM                                   | 4:20 PM | 173.5 FT    | 50 GPM       |
| 3:10 PM | 192 FT      | 50 GPM                                   | 4:30 PM | 175 FT      | 50 GPM       |
| 3:15 PM | 182 FT      | 50 GPM                                   | 4:40 PM | 177 FT      | 50 GPM       |
| 3:20 PM | 174 FT      | 50 GPM                                   | 4:50 PM | 178.5 FT    | 50 GPM       |
| 3:25 PM | 170 FT      | 50 GPM                                   | 5:00 PM | 180 FT      | 50 GPM       |
| 3:30 PM | 168 FT      | 50 GPM                                   | 5:10 PM | 240 FT      | 80 GPM       |
| 3:35 PM | 167 FT      | 50 GPM                                   | 5:20 PM | 260 FT      | 80 GPM       |
| 3:40 PM | 167 FT      | 50 GPM                                   | 5:30 PM | 273.5 FT    | 80 GPM       |

## RECOVERY

| TIME     | WATER LEVEL | PUMPING RATE | TIME    | PUMPING RATE |
|----------|-------------|--------------|---------|--------------|
| 5:40 PM  | 282 FT      | 80 GPM       | 3:05 PM | 431 FT       |
| 5:50 PM  | 288.5 FT    | 80 GPM       | 3:10 PM | 394 FT       |
| 6:00 PM  | 294 FT      | 80 GPM       | 3:15 PM | 367 FT       |
| 6:10 PM  | 297.5 FT    | 80 GPM       | 3:20 PM | 343 FT       |
| 6:20 PM  | 298 FT      | 80 GPM       | 3:25 PM | 322 FT       |
| 6:30 PM  | 300 FT      | 80 GPM       | 3:30 PM | 305 FT       |
| 6:40 PM  | 310 FT      | 80 GPM       |         |              |
| 6:50 PM  | 317.5 FT    | 80 GPM       |         |              |
| 7:00 PM  | 321 FT      | 170 GPM      |         |              |
| 7:10 PM  | 476 FT      | 141 GPM      |         |              |
| 7:20 PM  | 538 FT      | 122 GPM      |         |              |
| 7:30 PM  | 561 FT      | 114 GPM      |         |              |
| 7:40 PM  | 571 FT      | 114 GPM      |         |              |
| 7:45 PM  | 574 FT      | 114 GPM      |         |              |
| 7:50 PM  | 552 FT      | 103 GPM      |         |              |
| 8:00 PM  | 549 FT      | 105 GPM      |         |              |
| 8:10 PM  | 560 FT      | 105 GPM      |         |              |
| 8:20 PM  | 563 FT      | 104 GPM      |         |              |
| 8:30 PM  | 564.5 FT    | 103 GPM      |         |              |
| 8:40 PM  | 566.5 FT    | 103 GPM      |         |              |
| 8:50 PM  | 569 FT      | 102 GPM      |         |              |
| 9:00 PM  | 570 FT      | 101 GPM      |         |              |
| 10:00 PM | 573 FT      | 97 GPM       |         |              |
| 11:00 PM | 577.5 FT    | 97 GPM       |         |              |
| 12:00 AM | 580 FT      | 93 GPM       |         |              |
| 1:00 AM  | 581 FT      | 93 GPM       |         |              |
| 2:00 AM  | 583.5 FT    | 92 GPM       |         |              |
| 3:00 AM  | 573 FT      | 87 GPM       |         |              |
| 4:00 AM  | 574 FT      | 86 GPM       |         |              |
| 5:00 AM  | 571 FT      | 86 GPM       |         |              |
| 6:00 AM  | 573 FT      | 86 GPM       |         |              |
| 7:00 AM  | 574 FT      | 86 GPM       |         |              |
| 8:00 AM  | 575 FT      | 86 GPM       |         |              |
| 9:00 AM  | 575 FT      | 85 GPM       |         |              |
| 10:00 AM | 577 FT      | 85 GPM       |         |              |
| 11:00 AM | 578 FT      | 85 GPM       |         |              |
| 12:00 PM | 578 FT      | 85 GPM       |         |              |
| 1:00 PM  | 578 FT      | 85 GPM       |         |              |
| 2:00 PM  | 578 FT      | 85 GPM       |         |              |
| 3:00 PM  | 578 FT      | 85 GPM       |         |              |



### BACTERIOLOGICAL ANALYSIS

Note: All applicable information must be supplied for compliance credit.

Water System Number: NC   -   -   County:  Orange

Name of Water System:  Hwy 86 Property System Type:  Water Source:

Distribution System — Revised Total Coliform Rule (RTCR) Facility ID: D01

Sample Type:  Routine (RT)  Repeat (RP)  Special / Non-compliance (SP)

Location Code:    Tap Location:  Well Street Address:  Near 1317 NC 86 City:  Hillsborough

Check (✓) if sample site is owned or controlled by water system.

Check (✓) if sample site is a daycare or a K-12 school.

Sample Point:  Routine Original (RTOR)  Repeat-Original Tap (RPOR)  Repeat-Upstream (RPUP)  Repeat-Downstream (RPDN)

Source Water — Ground Water Rule (GWR)

Sample Type:  Triggered (TG)  Additional/Confirmation (CO)  Assessment(RT)  Triggered/Distribution Repeat (TD)\*

Facility ID:    Sample Point:    \* for systems with a population ≤ 1,000

Collected — BY:  David Brown DATE:  1  1 /  2  6 /  2  4 TIME:  0  1 :  3  0 ,  p  m

**Mail Results to (water system representative):**

Yadkin Well Company - David Brown

1908 Hamptonville Road

Hamptonville, NC 27020

Phone #:  3  3  6  4  6  8  4  4  4  0

Fax #:

Responsible Person's email:

davidbrown@yadkinwell.com

**Complete for Repeat, Triggered, or Additional / Confirmation**

Previous Positive Laboratory ID Number:

" Positive Laboratory Log Number:

" Positive Location Code:

" Positive Collection Date:   /   /

Disinfectant Used:

Total Chlorine Residual (chloramines):  mg/L

Free Chlorine Residual (chlorine):  mg/L

Laboratory ID Number:  3  7  7  3  8  Repeat Samples Required from Client  Resample Required from Client

| CONTAM CODE | CONTAMINANT                     | METHOD CODE | RULE     | RESULTS                |               | Invalid Code |
|-------------|---------------------------------|-------------|----------|------------------------|---------------|--------------|
|             |                                 |             |          | Present <sup>1,2</sup> | Absent        |              |
| 3100        | Total Coliform                  | 9223B       | RTCR/GWR |                        | X             |              |
| 3014        | <i>E. coli</i>                  | 9223B       | RTCR/GWR |                        | X             |              |
| 3002        | Enterococci                     |             | GWR      |                        |               |              |
| 3028        | Coliphage                       |             | GWR      |                        |               |              |
| 3013        | Fecal Coliform                  |             | TCR      |                        |               |              |
| 3001        | Heterotrophic P.C. <sup>3</sup> |             |          |                        | cfu/mL or MPN |              |

**INVALID CODES:**

|   |   |
|---|---|
| 1 | Confluent Growth / No Coliform Growth Found |
| 2 | TNTC/No Coliform Growth Found               |
| 3 | Turbid Culture / No Coliform Growth Found   |
| 4 | Over 30 Hours Old                           |
| 5 | Improper Sample or Analysis <sup>4</sup>    |

<sup>1</sup>If fecal, *E. coli*, enterococci or coliphage is present, lab must fax results to the State on day test completed. <sup>2</sup>If total coliform bacteria is present, lab must fax results to the State within 24 hours. <sup>3</sup>If HPC is absent, enter a "0" left of the "cfu/mL or MPN" units; if present, enter a whole number. <sup>4</sup>Explain invalid code below in comments.

Analyses Begun — DATE:  1  1 /  2  6 /  2  4 TIME:  0  6 :  2  4 ,  p  m (Date as: mm/dd/yy)

Analyses Completed — DATE:  1  1 /  2  7 /  2  4 TIME:  1  2 :  3  0 ,  p  m (Time as: h:mm am/pm)

Laboratory Log Number:  92766159001MBIO Certified By:  Jessica Mize

COMMENTS:



## NEW WELL INORGANIC CHEMICAL ANALYSIS

Note: All information must be supplied for plan review credit.

**WATER SYSTEM ID#:** \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ **County:** Orange

**Name of Water System:** Hwy 86 Property

**Sample Type:**  Entry Point  Non-compliance

**Location Where Collected:** Sample Port @ Well Head

**Facility ID No.:** \_\_\_\_\_ (Note: Compliance sample MUST be collected at the entry point.)

**Sample Point:** \_\_\_\_\_

**Collected By:** David Cave  
 (Please Print)

| Collection Date                      | Collection Time                              |
|--------------------------------------|--|
| <u>1 1 / 2 0 / 2 4</u><br>(MM/DD/YY) | <u>1 2 : 4 9 , P M</u><br>(Specify AM or PM) |

**Mail Results to (water system representative):**

Yadkin Well Company - David Brown  
1908 Hamptonville Road  
Hamptonville, NC 27020

**Phone #:** ( 336 ) 468-4440

**Fax #:** ( \_\_\_\_\_ ) \_\_\_\_\_

**Responsible Person's email:**

davidbrown@yadkinwell.com

**LABORATORY ID #:** 3 7 7 3 8

**SAMPLE UNSATISFACTORY**     **RESAMPLE REQUIRED**

| CONTAM CODE | CONTAMINANT | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS    | ALLOWABLE LIMIT* |
|-------------|-------------|-------------|-----------------------------------|-------------------------------------|-----------------------|------------------|
| 0100        | Turbidity   | SM 2130B-   | 0.10 mg/L                         | <input type="checkbox"/>            | <u>1 1 0 0 0</u> mg/L | N/A              |
| 1005        | Arsenic     | 200.8       | 0.005 mg/L                        | <input type="checkbox"/>            | <u>0 0 0 7 3</u> mg/L | 0.010 mg/L       |
| 1010        | Barium      | 200.8       | 0.400 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 2.000 mg/L       |
| 1015        | Cadmium     | 200.8       | 0.001 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.005 mg/L       |
| 1016        | Calcium     | 200.7       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>2 5 5 0 0</u> mg/L | N/A              |
| 1017        | Chloride    | 300.0       | 5.0 mg/L                          | <input checked="" type="checkbox"/> | _____ mg/L            | 250.0 mg/L       |
| 1020        | Chromium    | 200.8       | 0.020 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.100 mg/L       |
| 1022        | Copper      | 200.8       | 0.050 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 1.300 mg/L       |
| 1024        | Cyanide     | 4500CN-E    | 0.050 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.200 mg/L       |
| 1025        | Fluoride    | 300.0       | 0.100 mg/L                        | <input type="checkbox"/>            | <u>0 1 3 0 0</u> mg/L | 4.000 mg/L       |
| 1028        | Iron        | 200.7       | 0.060 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.300 mg/L       |
| 1030        | Lead        | 200.8       | 0.003 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.015 mg/L       |
| 1031        | Magnesium   | 200.7       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>7 5 0 0</u> mg/L   | N/A              |
| 1032        | Manganese   | 200.8       | 0.010 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L            | 0.050 mg/L       |
| 1035        | Mercury     | 245.1       | 0.0004 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L            | 0.002 mg/L       |

\*Note: Concentrations for Lead and Copper are action levels, not MCLs.



### NEW WELL INORGANIC CHEMICAL ANALYSIS (continued)

Note: All information must be supplied for plan review credit.

WATER SYSTEM ID#: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ County: Orange

Name of Water System: Hwy 86 Property

Facility ID No.: \_\_\_\_\_

Sample Point: \_\_\_\_\_

|                                      |  |
|--------------------------------------|--|
| <b>Collection Date</b>               | <b>Collection Time</b>                       |
| <u>1 1 / 2 0 / 2 4</u><br>(MM/DD/YY) | <u>1 2 : 4 9 , P M</u><br>(Specify AM or PM) |

LABORATORY ID #: 3 7 7 1 2

| CONTAM CODE | CONTAMINANT            | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS        | ALLOWABLE LIMIT* |
|-------------|------------------------|-------------|-----------------------------------|-------------------------------------|---------------------------|------------------|
| 1036        | Nickel                 | 200.8       | 0.100 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L                | N/A              |
| 1040        | Nitrate                | 353.2       | 1.00 mg/L                         | <input checked="" type="checkbox"/> | _____ mg/L                | 10.00 mg/L       |
| 1041        | Nitrite                | 353.2       | 0.10 mg/L                         | <input checked="" type="checkbox"/> | _____ mg/L                | 1.00 mg/L        |
| 1045        | Selenium               | 200.8       | 0.010 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L                | 0.050 mg/L       |
| 1050        | Silver                 | 200.8       | 0.05 mg/L                         | <input checked="" type="checkbox"/> | _____ mg/L                | 0.100 mg/L       |
| 1052        | Sodium                 | 200.7       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>1 8 . 8 0 0 0</u> mg/L | N/A              |
| 1055        | Sulfate                | 300.0       | 15.0 mg/L                         | <input checked="" type="checkbox"/> | _____ mg/L                | 250.0 mg/L       |
| 1068        | Acidity                | 2310B       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>2 . 0 0 0 0</u> mg/L   | N/A              |
| 1074        | Antimony               | 200.8       | 0.003 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L                | 0.006 mg/L       |
| 1075        | Beryllium              | 200.8       | 0.002 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L                | 0.004 mg/L       |
| 1085        | Thallium               | 200.8       | 0.001 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L                | 0.002 mg/L       |
| 1095        | Zinc                   | 200.8       | 1.0 mg/L                          | <input checked="" type="checkbox"/> | _____ mg/L                | 5.0 mg/L         |
| 1905        | Color                  | SM 2120B-   | 5 mg/L                            | <input checked="" type="checkbox"/> | _____ mg/L                | 15 mg/L          |
| 1915        | Total Hardness         | 200.7       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>9 4 . 7 0 0</u> mg/L   | N/A              |
| 1925        | pH                     | 4500H-B     | N/A                               | <input type="checkbox"/>            | <u>7 . 8 0 0 0</u> units  | 6.5-8.5          |
| 1927        | Alkalinity             | 2320B       | 1.0 mg/L                          | <input type="checkbox"/>            | <u>1 1 9 . 0 0 0</u> mg/L | N/A              |
| 1930        | Total Dissolved Solids | 2540C       | 10.0 mg/L                         | <input type="checkbox"/>            | <u>1 5 3 . 0 0 0</u> mg/L | 500.0 mg/L       |

\*Note: Concentrations for Lead and Copper are action levels, not MCLs.

|                            |                                      |  |
|----------------------------|--------------------------------------|--|
|                            | <b>DATE:</b>                         | <b>TIME:</b>                                 |
| <b>ANALYSES BEGUN:</b>     | <u>1 1 / 2 1 / 2 4</u><br>(MM/DD/YY) | <u>1 1 : 2 1 , A M</u><br>(Specify AM or PM) |
| <b>ANALYSES COMPLETED:</b> | <u>1 2 / 1 0 / 2 4</u><br>(MM/DD/YY) | <u>0 1 : 3 3 , P M</u><br>(Specify AM or PM) |

Laboratory Log #: 92764998001

Certified By: Jessica Mize  
 (Print and sign name)

COMMENTS: \_\_\_\_\_



### VOLATILE ORGANIC CHEMICALS (VOCs) ANALYSIS

Note: All information must be supplied for compliance credit.

WATER SYSTEM ID#: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ County: Orange

Name of Water System: Hwy 86 Property

Sample Type:  Entry Point  Special/Non-compliance

Location Where Collected: Sample Port @ Well Head

Facility ID No.: \_\_\_\_\_

Sample Point: \_\_\_\_\_

Collected By: David Cave  
 (Please Print)

|                                      |  |
|--------------------------------------|--|
| <b>Collection Date</b>               | <b>Collection Time</b>                       |
| <u>1 1 / 2 0 / 2 4</u><br>(MM/DD/YY) | <u>1 2 : 4 6 , P M</u><br>(Specify AM or PM) |

Mail Results to (water system representative):

Phone #: ( 336 ) 468-4440

Yadkin Well Company - David Brown

Fax #: ( \_\_\_\_\_ ) \_\_\_\_\_

1908 Hamptonville Road

Responsible Person's email:

Hamptonville, NC 27020

davidbrown@yadkinwell.com

LABORATORY ID #: 1 2 7 1 0

SAMPLE UNSATISFACTORY  RESAMPLE REQUIRED

| CONTAM CODE | CONTAMINANT                | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS*       | ALLOWABLE LIMIT |
|-------------|----------------------------|-------------|-----------------------------------|-------------------------------------|---------------------------|-----------------|
| 2378        | 1,2,4-Trichlorobenzene     | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.07 mg/L       |
| 2380        | Cis-1,2-Dichloroethylene   | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.07 mg/L       |
| 2955        | Xylenes (Total)            | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 10.00 mg/L      |
| 2964        | Dichloromethane            | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2968        | o-Dichlorobenzene          | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.60 mg/L       |
| 2969        | p-Dichlorobenzene          | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.075 mg/L      |
| 2976        | Vinyl Chloride             | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.002 mg/L      |
| 2977        | 1,1-Dichloroethylene       | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.007 mg/L      |
| 2979        | Trans-1,2-Dichloroethylene | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.10 mg/L       |
| 2980        | 1,2-Dichloroethane         | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2981        | 1,1,1-Trichloroethane      | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.20 mg/L       |
| 2982        | Carbon Tetrachloride       | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2983        | 1,2-Dichloropropane        | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2984        | Trichloroethylene          | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2985        | 1,1,2-Trichloroethane      | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2987        | Tetrachloroethylene        | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2989        | Chlorobenzene              | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.10 mg/L       |
| 2990        | Benzene                    | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.005 mg/L      |
| 2991        | Toluene                    | 524.2       | 0.0005 mg/L                       | <input type="checkbox"/>            | <u>0 . 0 0 2 7 0</u> mg/L | 1.00 mg/L       |
| 2992        | Ethylbenzene               | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.70 mg/L       |
| 2996        | Styrene                    | 524.2       | 0.0005 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L                | 0.10 mg/L       |

\*Note: If result exceeds allowable limit, the laboratory must fax analytical results to the State within 48 hours.

|                            |                                      |  |
|----------------------------|--------------------------------------|--|
|                            | <b>DATE:</b>                         | <b>TIME:</b>                                 |
| <b>ANALYSES BEGUN:</b>     | <u>1 1 / 3 0 / 2 4</u><br>(MM/DD/YY) | <u>1 0 : 1 3 , P M</u><br>(Specify AM or PM) |
| <b>ANALYSES COMPLETED:</b> | <u>1 1 / 3 0 / 2 4</u><br>(MM/DD/YY) | <u>1 0 : 1 3 , P M</u><br>(Specify AM or PM) |

Laboratory Log #: 92764998002

Certified By: Jessica Mize  
 (Print and sign name)

COMMENTS:

2008

**Laboratory should mail results to:**  
 Public Water Supply Section, Attn: Data Entry, 1634 Mail Service Center, Raleigh, NC 27699-1634  
 Fax: 919.715.6637



**PESTICIDES AND SYNTHETIC ORGANIC CHEMICALS (SOCs)**

Note: All information must be supplied for compliance credit.

**WATER SYSTEM ID#:** \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ **County:** Orange

**Name of Water System:** Hwy 86 Property

**Sample Type:**  Entry Point  Special/Non-compliance

**Location Where Collected:** Sample Port @ Well Head

**Facility ID No.:** \_\_\_\_\_

**Sample Point:** \_\_\_\_\_

**Collected By:** David Cave  
 (Please Print)

| Collection Date                         | Collection Time                              |
|---|--|
| <u>1 / 1 / 20 / 2 / 4</u><br>(MM/DD/YY) | <u>1 2 : 3 3 , P M</u><br>(Specify AM or PM) |

**Mail Results to (water system representative):**

Yadkin Well Company - David Brown  
1908 Hamptonville Road  
Hamptonville, NC 27020

**Phone #:** ( 336 ) 468-4440

**Fax #:** ( \_\_\_\_\_ ) \_\_\_\_\_

**Responsible Person's email:**

davidbrown@yadkinwell.com

**LABORATORY ID #:** 1 2 7 1 0

**SAMPLE UNSATISFACTORY**  **RESAMPLE REQUIRED**

| CONTAM CODE | CONTAMINANT               | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS* | ALLOWABLE LIMIT |
|-------------|---------------------------|-------------|-----------------------------------|-------------------------------------|---------------------|-----------------|
| * 2005      | Endrin                    | 525.3       | 0.00001 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.002 mg/L      |
| 2010        | Lindane                   | 525.3       | 0.00002 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0002 mg/L     |
| 2015        | Methoxychlor              | 525.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.04 mg/L       |
| 2020        | Toxaphene                 | 505         | 0.001 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L          | 0.003 mg/L      |
| 2031        | Dalapon                   | 515.3       | 0.001 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L          | 0.2 mg/L        |
| 2035        | Di(2-ethylhexyl)adipate   | 525.3       | 0.0006 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.4 mg/L        |
| 2036        | Oxamyl(vydate)            | 531.2       | 0.002 mg/L                        | <input checked="" type="checkbox"/> | _____ mg/L          | 0.2 mg/L        |
| 2037        | Simazine                  | 525.3       | 0.00007 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.004 mg/L      |
| 2040        | Picloram                  | 515.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.5 mg/L        |
| 2041        | Dinoseb                   | 515.3       | 0.0002 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.007 mg/L      |
| 2042        | Hexachlorocyclopentadiene | 525.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.05 mg/L       |
| 2046        | Carbofuran                | 531.2       | 0.0009 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.04 mg/L       |
| 2050        | Atrazine                  | 525.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.003 mg/L      |
| 2051        | Alachlor                  | 525.3       | 0.0002 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.002 mg/L      |
| * 2065      | Heptachlor                | 525.3       | 0.00004 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0004 mg/L     |

\*Note: If result exceeds allowable limit, the laboratory must fax analytical results to the State within 48 hours.



### PESTICIDES AND SYNTHETIC ORGANIC CHEMICALS (SOCs)

Note: All information must be supplied for compliance credit.

WATER SYSTEM ID#: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ County: Orange

Name of Water System: Hwy 86 Property

Facility ID No.: \_\_\_\_\_

Sample Point: \_\_\_\_\_

| Collection Date                      | Collection Time                              |
|--------------------------------------|--|
| <u>1 1 / 2 0 / 2 4</u><br>(MM/DD/YY) | <u>1 2 : 3 3 , P M</u><br>(Specify AM or PM) |

| CONTAM CODE | CONTAMINANT                   | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS* | ALLOWABLE LIMIT |
|-------------|-------------------------------|-------------|-----------------------------------|-------------------------------------|---------------------|-----------------|
| 2067        | Heptachlor Epoxide            | 525.3       | 0.0002 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0002 mg/L     |
| 2105        | 2,4-D                         | 515.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.07 mg/L       |
| 2110        | 2,4,5-TP (Silvex)             | 515.3       | 0.0002 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.05 mg/L       |
| 2274        | Hexachlorobenzene             | 525.3       | 0.0001 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.001 mg/L      |
| 2039        | Di(2-ethylhexyl)phthalate     | 525.3       | 0.00132 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.006 mg/L      |
| * 2306      | Benzo(a)pyrene                | 525.3       | 0.00002 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0002 mg/L     |
| 2326        | Pentachlorophenol             | 515.3       | 0.00004 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.001 mg/L      |
| 2383        | PCB's (as decachlorobiphenol) | 505         | 0.0001** mg/L                     | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0005 mg/L     |
| 2931        | DBCP                          | 504.1       | 0.00002 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.0002 mg/L     |
| 2946        | Ethylene Dibromide (EDB)      | 504.1       | 0.00001 mg/L                      | <input checked="" type="checkbox"/> | _____ mg/L          | 0.00005 mg/L    |
| 2959        | Chlordane                     | 505         | 0.0002 mg/L                       | <input checked="" type="checkbox"/> | _____ mg/L          | 0.002 mg/L      |

\*Note: If result exceeds allowable limit, the laboratory must fax analytical results to the State within 48 hours.

\*\*Note: R.R.L. (mg/L) for PCB screening are as follows: Aroclor 1016 - 0.00008, Aroclor 1221 - 0.02, Aroclor 1232 - 0.0005, Aroclor 1242 - 0.0003, Aroclor 1248 & 1254 - 0.0001, Aroclor 1260 - 0.0002

|                     | DATE:                                | TIME:  |
|---------------------|--------------------------------------|--|
| ANALYSES BEGUN:     | <u>1 1 / 2 4 / 2 4</u><br>(MM/DD/YY) | <u>0 4 : 5 7 , P M</u><br>(Specify AM or PM) |
| ANALYSES COMPLETED: | <u>1 2 / 2 0 / 2 4</u><br>(MM/DD/YY) | <u>0 2 : 4 7 , A M</u><br>(Specify AM or PM) |

Laboratory Log #: 92764998003 Certified By: Jessica Mize

(Print and sign name)

COMMENTS: \*Method 525 Benzo(a)pyrene, Endrin & Heptachlor - Analyte Recovery in the laboratory control sample was below QC limits. Results for the analytes in the associated samples may be biased low.



### RADIOLOGICAL ANALYSIS

Note: All information must be supplied for compliance credit.

**WATER SYSTEM ID#:** \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ **County:** Orange

**Name of Water System:** Hwy 86 Property

**Sample Type:**  Single Sample - Entry Point  Composite Sample - Entry Point  Special/Non-compliance

**Location Where Collected:** Sample Port @ Well Head

**Facility ID No.:** \_\_\_\_\_

**Sample Point:** \_\_\_\_\_

**Mail Results to (water system representative):**

Yadkin Well Company - David Brown

1908 Hamptonville Road

Hamptonville, NC 27020

**Phone #:** ( 336 ) 468-4440

**Fax #:** ( \_\_\_\_\_ ) \_\_\_\_\_

**Responsible Person's email:**

davidbrown@yadkinwell.com

| Collection Date               |                        |                         |                   |
|-------------------------------|------------------------|-------------------------|-------------------|
| Period                        | Date (MM/DD/YY)        | Time (Specify AM or PM) | Collected By      |
| Single or 1 <sup>st</sup> Qtr | <u>1 1 / 2 0 / 2 4</u> | <u>1 2 : 4 1 , P M</u>  | <u>David Cave</u> |
| 2 <sup>nd</sup> Qtr           | ___ / ___ / ___        | ___ : __ , _ M          | _____             |
| 3 <sup>rd</sup> Qtr           | ___ / ___ / ___        | ___ : __ , _ M          | _____             |
| 4 <sup>th</sup> Qtr           | ___ / ___ / ___        | ___ : __ , _ M          | _____             |

**LABORATORY ID #:** 4 2 7 0 6  **SAMPLE UNSATISFACTORY**  **RESAMPLE REQUIRED**

| CONTAM CODE | CONTAMINANT          | METHOD CODE | REQUIRED REPORTING LIMIT (R.R.L.) | NOT DETECTED (i.e. < R.R.L.) (X)    | QUANTIFIED RESULTS*  | COUNTING ERROR  | ALLOWABLE LIMIT |
|-------------|----------------------|-------------|-----------------------------------|-------------------------------------|----------------------|-----------------|-----------------|
| 4002        | Gross Alpha          | 900         | 3 pCi/L                           | <input checked="" type="checkbox"/> | _____ pCi/L          | <u>1 . 7 1</u>  | 15 pCi/L        |
| 4004        | Radon                |             | 100 pCi/L                         | <input type="checkbox"/>            | _____ pCi/L          | _____           | N/A             |
| 4006        | Uranium              | D5174-97    | 0.67 pCi/L                        | <input type="checkbox"/>            | <u>1 . 9 8</u> pCi/L | <u>0 . 0 **</u> | 20.1 pCi/L      |
| 4010        | Combined Radium      | N/A         | N/A                               | N/A                                 | <u>1 . 6 7</u> pCi/L | <u>0 . 8 6</u>  | 5 pCi/L         |
| 4020        | Radium 226           | 903.1       | 1 pCi/L                           | <input checked="" type="checkbox"/> | _____ pCi/L          | <u>0 . 4 1</u>  | 3 pCi/L         |
| 4030        | Radium 228           | 904.0       | 1 pCi/L                           | <input checked="" type="checkbox"/> | _____ pCi/L          | <u>0 . 4 6</u>  | 2 pCi/L         |
| 4044        | Potassium 40 (Total) |             | pCi/L                             | <input type="checkbox"/>            | _____ pCi/L          | _____           |                 |
| 4100        | Gross Beta           |             | 4 pCi/L                           | <input type="checkbox"/>            | _____ pCi/L          | _____           | 50 pCi/L        |
| 4102        | Tritium              |             | 1,000 pCi/L                       | <input type="checkbox"/>            | _____ pCi/L          | _____           | 20,000 pCi/L    |
| 4172        | Strontium 89         |             | 10 pCi/L                          | <input type="checkbox"/>            | _____ pCi/L          | _____           | N/A             |
| 4174        | Strontium 90         |             | 2 pCi/L                           | <input type="checkbox"/>            | _____ pCi/L          | _____           | 8 pCi/L         |
| 4264        | Iodine 131           |             | 1 pCi/L                           | <input type="checkbox"/>            | _____ pCi/L          | _____           | N/A             |
| 4270        | Cesium 134           |             | 10 pCi/L                          | <input type="checkbox"/>            | _____ pCi/L          | _____           | N/A             |

\*Note: If result exceeds allowable limit, the laboratory must fax analytical results to the State within 48 hours.

\*\*Note: Not applicable if using ICP-MS.

|                            | DATE:                                | TIME:  |
|----------------------------|--------------------------------------|--|
| <b>ANALYSES BEGUN:</b>     | <u>1 1 / 2 7 / 2 4</u><br>(MM/DD/YY) | <u>0 1 : 1 4 , P M</u><br>(Specify AM or PM) |
| <b>ANALYSES COMPLETED:</b> | <u>1 2 / 1 2 / 2 4</u><br>(MM/DD/YY) | <u>0 4 : 3 4 , P M</u><br>(Specify AM or PM) |

**Laboratory Log #:** 92765022001

**Certified By:** Jessica Mize

(Print and sign name)

**COMMENTS:** \_\_\_\_\_



## ASBESTOS ANALYSIS - Distribution System

Note: All information must be supplied for compliance credit.

Water System Number: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ County: Orange

Name of Water System: Hwy 86 Property

Sample Type:  Distribution (Compliance)  Non-compliance

Location Code: \_\_\_\_\_ Tap Location: Well Head Street Address: Near 1317 NC - 86 City: Hillsborough

Check (✓) if sample site is owned or controlled by water system.

Check (✓) if sample site is a daycare or a K-12 school.

Facility ID No. (Distribution): D 0 1

Sample Point: ASB

Collected By: David Cave

(Please Print)

| Collection Date         | Collection Time                   |
|-------------------------|-----------------------------------|
| <u>1 1 / 2 0 / 2 4</u>  | <u>1 2 : 4 1</u> , <u>P M</u>     |
| <small>(MMDDYY)</small> | <small>(Specify AM or PM)</small> |

Mail Results to (water system representative):

Yadkin Well - David Brown  
1908 Hamptonville Rd.  
Hamptonville, NC 27020

Phone #: (336) 374-8736

Fax #: ( )

Responsible Person's email:  
\_\_\_\_\_

Laboratory ID #: 3 7 7 6 6

| Contam Code | Contaminant | Method Code | Required Reporting Limit (R.R.L.) | Analysis Started  | Analysis Ended    | Not Detected (i.e. < R.R.L.)        | Quantified Results 1, 2 | Allowable Limit |
|-------------|-------------|-------------|-----------------------------------|-------------------|-------------------|-------------------------------------|-------------------------|-----------------|
| 1094        | ASBESTOS    |             | 0.2 MFL                           | 11-21-24<br>13:30 | 11-26-24<br>14:55 | <input checked="" type="checkbox"/> | BDL MFL                 | 7 MFL           |

Notes: <sup>1</sup> MFL = Million Fibers per Liter > 10 µm.

<sup>2</sup> If result exceeds the allowable limit, the laboratory must report the analytical results to the State within 48 hours

Laboratory Log #: 022406592-0001 Certified By: *Arthur Hines*  
(Print and sign name)

COMMENTS: PACE PROJECT #92765024



### Laboratory Report

Accounts Payable  
Yadkin Well Company  
1908 Hamptonville Road  
Hamptonville, NC 27020

Report Date: 11/27/2024  
Date Received: 11/20/2024

Project: Hwy 86 Property-PFAS

Pace Project No.: 92765011

Sample: Sample Port @Well Head Lab ID: 92765011001 Collected: 11/20/24 12:46 Matrix: Drinking Water

| Method    | Parameters   | Results | Units | Report Limit | Analyzed       | Qualifiers |
|-----------|--------------|---------|-------|--------------|----------------|------------|
| EPA 533   | 11CI-PF3OUdS | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | 4:2 FTS      | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | 6:2 FTS      | ND      | ug/L  | 0.0035       | 11/23/24 07:56 |            |
| EPA 533   | 8:2 FTS      | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | 9CI-PF3ONS   | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | ADONA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | HFPO-DA      | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | NFDHA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFBS         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFDA         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFHxA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFBA         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFEESA       | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFHpS        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFMBA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFMPA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFPeA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFPeS        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFDoA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFHpA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFHxS        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFNA         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFOS         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFOA         | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 533   | PFUnA        | ND      | ug/L  | 0.0017       | 11/23/24 07:56 |            |
| EPA 537.1 | 11CI-PF3OUdS | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | 9CI-PF3ONS   | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | ADONA        | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | HFPO-DA      | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | NEtFOSAA     | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | NMeFOSAA     | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFBS         | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFDA         | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFHxA        | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFDoA        | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFHpA        | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFHxS        | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFNA         | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFOS         | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFOA         | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFTeDA       | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |
| EPA 537.1 | PFTrDA       | ND      | ug/L  | 0.0017       | 11/23/24 08:29 |            |



| <b>Sample: Sample Port @Well Head</b> |            | <b>Lab ID: 92765011001</b> | Collected: 11/20/24 12:46 | Matrix: Drinking Water |                |            |
|---------------------------------------|------------|----------------------------|---------------------------|------------------------|----------------|------------|
| Method                                | Parameters | Results                    | Units                     | Report Limit           | Analyzed       | Qualifiers |
| EPA 537.1                             | PFUnA      | ND                         | ug/L                      | 0.0017                 | 11/23/24 08:29 |            |

Reviewed by: *Jessica Mize*  
 Jessica A Mize  
 704-977-0982  
 jessica.mize@pacelabs.com

**Pace Analytical Services Ormond Beach**

- 8 East Tower Circle, Ormond Beach, FL 32174
- Alaska DEC- CS/UST/LUST
- Alabama Certification #: 41320
- California Certification# 3096
- Colorado Certification: FL NELAC Reciprocity
- Connecticut Certification #: PH-0216
- Delaware Certification: FL NELAC Reciprocity
- DoD-ANAB #:ADE-3199
- Florida Certification #: E83079
- Georgia Certification #: 955
- Guam Certification: FL NELAC Reciprocity
- Hawaii Certification: FL NELAC Reciprocity
- Illinois Certification #: 200068
- Indiana Certification: FL NELAC Reciprocity
- Kansas Certification #: E-10383
- Kentucky Certification #: 90050
- Louisiana Certification #: FL NELAC Reciprocity
- Louisiana Environmental Certificate #: 05007
- Maine Certification #: FL01264
- Maryland Certification: #346
- Massachusetts Certification #: M-FL1264
- Michigan Certification #: 9911
- Mississippi Certification: FL NELAC Reciprocity
- Missouri Certification #: 236

- Montana Certification #: Cert 0074
- Nebraska Certification: NE-OS-28-14
- Nevada Certification: FL NELAC Reciprocity
- New Hampshire Certification #: 2958
- New Jersey Certification #: FL022
- New York Certification #: 11608
- North Carolina Environmental Certificate #: 667
- North Carolina Certification #: 12710
- North Dakota Certification #: R-216
- Ohio DEP 87780
- Oklahoma Certification #: D9947
- Pennsylvania Certification #: 68-00547
- Puerto Rico Certification #: FL01264
- South Carolina Certification: #96042001
- Tennessee Certification #: TN02974
- Texas Certification: FL NELAC Reciprocity
- US Virgin Islands Certification: FL NELAC Reciprocity
- Utah
- Utah FL NELAC Reciprocity
- Virginia Environmental Certification #: 460165
- West Virginia Certification #: 9962C
- Wisconsin Certification #: 399079670
- Wyoming (EPA Region 8): FL NELAC Reciprocity



Environmental Consulting | Litigation Support | Environmental Services

22 August 2025

Ms. Laura Haywood  
Entitlements Program Manager  
**Forestar – Carolinas East Division**  
VIA E-mail: LauraHaywood@forestar.com

**RE: Highway 86 – Orange County, NC – Proposed Community Well Drawdown: Impacts to Adjacent Single Use Wells: Preliminary**

Ms. Haywood:

Pursuant to your request, Spangler Environmental, LLC (SEL), an Earth Systems Company (ESC) have completed a preliminary evaluation of the potential effect of the proposed residential development's community well on adjacent, single use wells, if any. The below summary is based only on a preliminary evaluation of the raw data collected during ambient conditions (i.e. prior to draw down of the Proposed Community Well), as well as direct observations documented during and following the drawdown of the Proposed Community Well. The results of ongoing modeling that has been initiated using AQTESOLV (Advanced Aquifer Test Analysis Software; Aquifer Test SOVer) to determine the transmissivity and storativity, which, once determined, will be input into the NCDEQ-DWR Reverse-

Time Drawdown Analysis to calculate drawdowns at varying distances from the proposed community well. The results of this analysis will be provided upon completion of the modeling, which are expected to support the results of the raw data analysis detailed below, which clearly show that even significant withdrawals from the Proposed Community Well have no impacts on adjacent wells.



Illustration 1

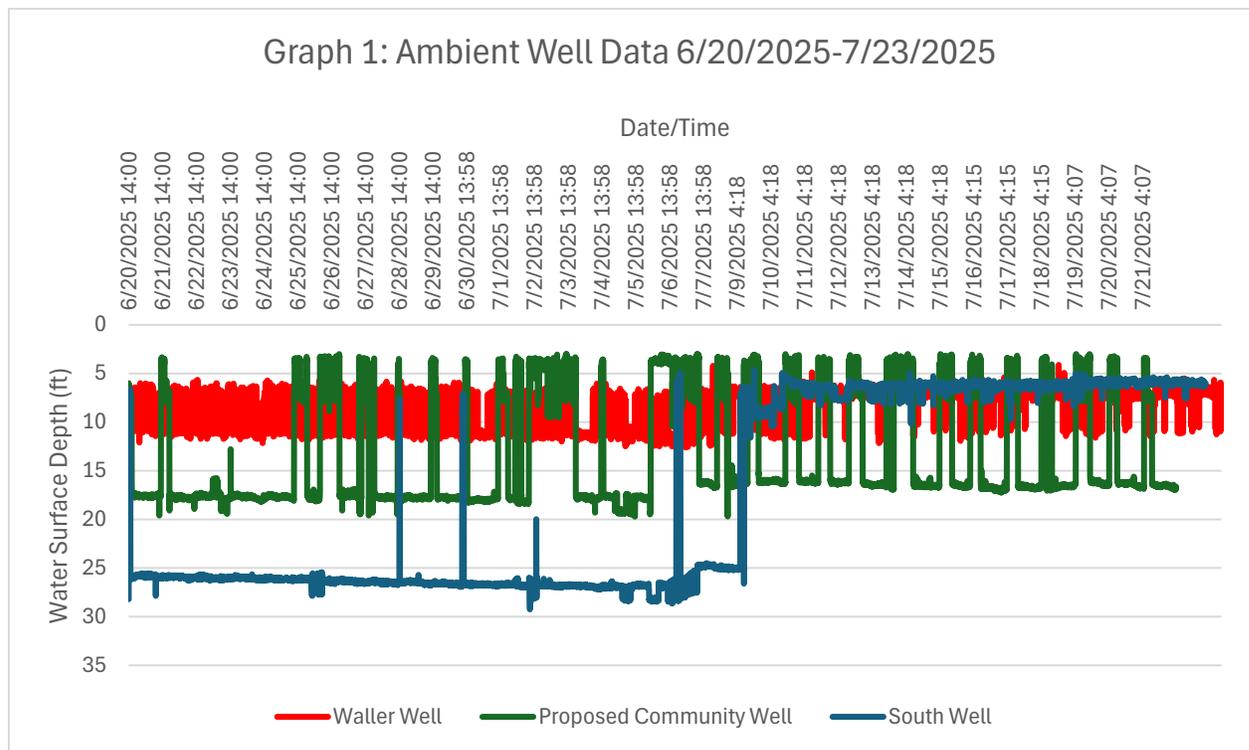
#### **Background/ambient conditions:**

Ambient conditions are those that are currently, typically occurring, without any new inputs. As shown in the attached Figure 1, the Waller Well is approximately 0.2 mile north/northwest of the Proposed Community Well and the South Well is approximately 0.28 mile south/southeast of the Proposed Community Well. Ambient data were collected at all three wells between 20 June and 22 July 2025 using Well Sounder 2010 PRO devices, which are manufactured by Eno Scientific, LLC in Hillsborough, NC. As depicted in Illustration 1, these devices use sound waves to record static water surface depths within wells, relative to ground level and/or well head elevations.

Additional data was collected at the Waller and South Wells prior to, during and after the drawdown testing of the Proposed Community Well, which was completed between 1430 on 29 July 2025 and 1500 on 30 July 2025. Data collection at the Waller and South Wells continued until 8 August 2025.

As shown on its *Well Construction Record* (8 November 2023), the Waller Well is 200 feet deep, with a static water depth of 25 feet below the top of the casing. As shown in the *Orange County Well Report and Log* (20 October 2000) the South Well is also 200 feet deep, with a static water level of 30 feet and a casing depth of 66 feet. As shown in the Yadkin Well Company's report (Appendix 1), the Proposed Community Well depth is 642 feet, its static well level is 20 feet below the top of the casing and the casing extends 2 feet above the ground surface.

As shown in Graph 1, between 20 June and 23 July 2025 the South Well's static water depth below the surface ranged from 4.66 to 29.26 feet and averaged 17.69 feet. The depth to water regularly fluctuated from approximately 25 feet and approximately 29 feet below the surface between 20 June and 9 July, with a few brief spikes to 9-10 feet during that period. On 9 July 2025, between 1716 and 1721 the water surface rose from 25.04 to 8.16 and remained within 3.5 feet of this depth until 24 July, with the exception of an approximately 15.55 foot drop that lasted only approximately 30 minutes on 9 July. These two depths appear to be indicative of this well's normal variations.

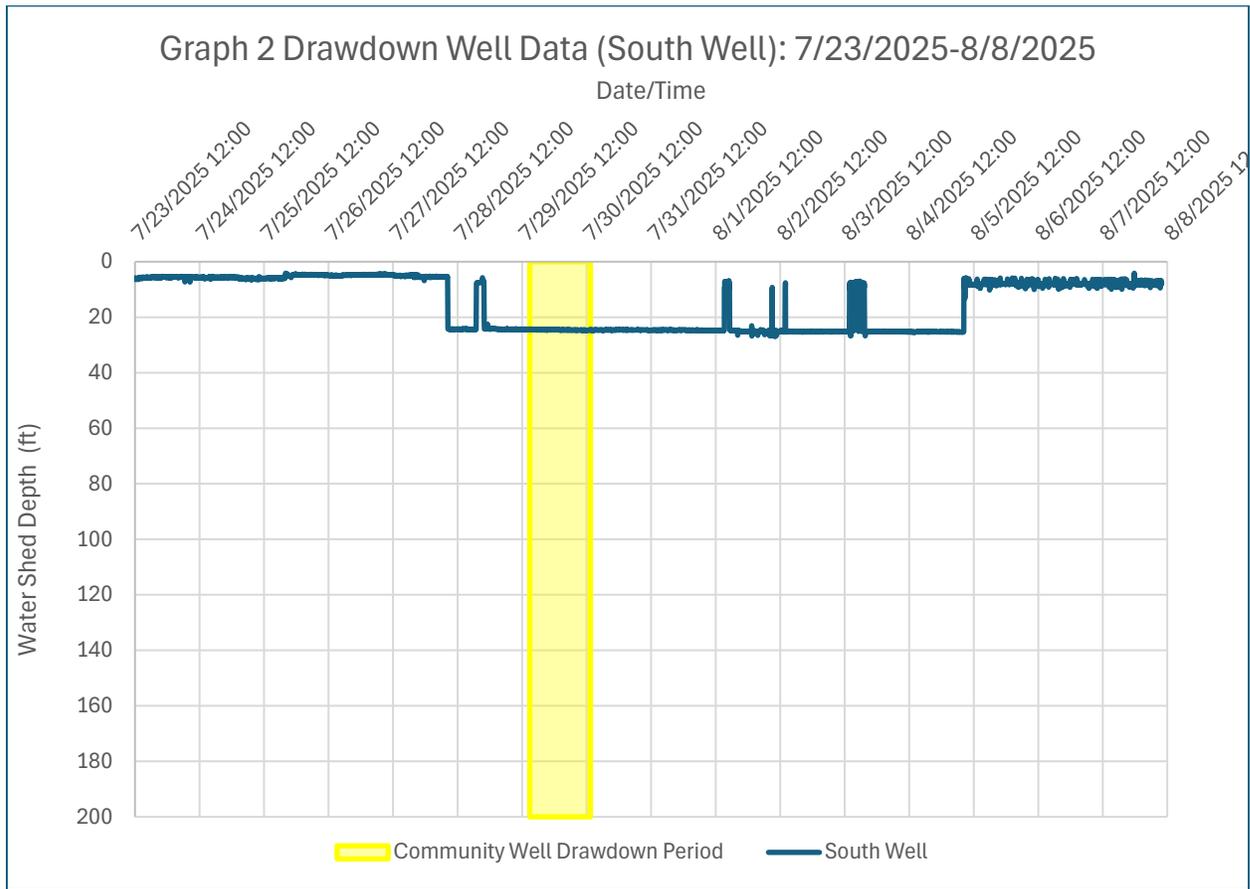


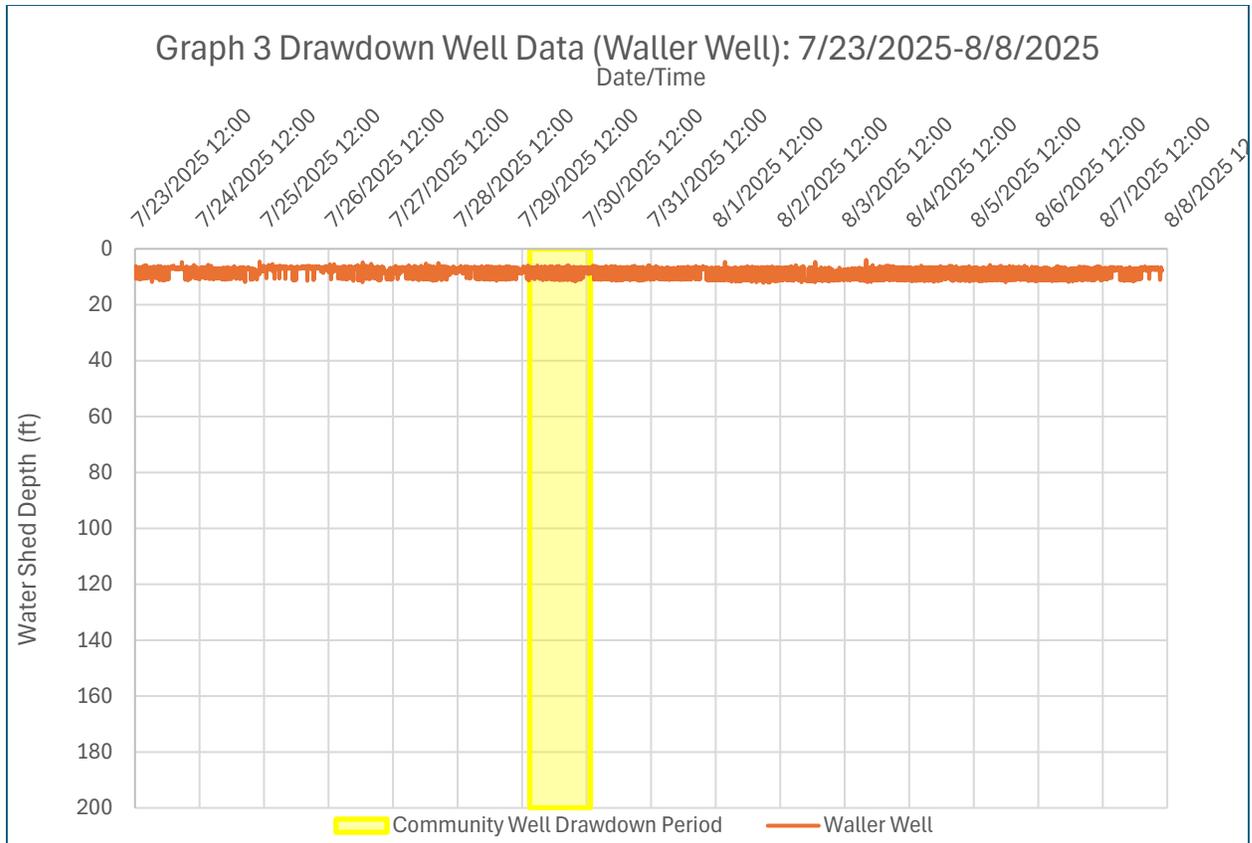
The Waller Well, on the other hand, exhibited a regular fluctuation in water depth below the surface ranging from 12.99 to 3.72 and averaging 8.61 feet between 20 June and 23 July 2025. In addition to the approximately 4.5-foot normal variation, transient fluctuations documented in the Waller Well during the monitoring period, were less than about 5 feet in excess of the normal variation.

**Adjacent well surface elevations before, during and after drawdown:**

As stated above, drawdown of the proposed community well was completed between 1430 on 29 July 2025 and 1500 on 30 July 2025 (Appendix 1). Data collection at the South and Waller Wells began on 23 July and continued until 8 August 2025. The drawdown confirmed that the proposed community well has a steady state (i.e., the balance of withdrawal and groundwater recharge, with no change to water surface elevation) of approximately 112 gallons per minute. The initial pump test, which was completed on 19 November 2024 showed a well yield of 84 gallons per minute (Appendix 2).

As depicted in Graphs 2 and 3, no water level changes beyond the normal variations discussed above were documented in either the South Well or the Waller Well during drawdown to either maximum depth (i.e., 578 feet below the surface) or steady state withdrawal (i.e. 112 gallons/minute), as well as during the subsequent recovery period.





**Preliminary Conclusions:**

As detailed above, the depth to water level within the adjacent South and Waller Wells was continuously monitored before, during and after drawdown of the Proposed Community Well. No water level changes beyond the normal variations recorded in the South and the Waller Wells occurred during maximum drawdown, steady state withdrawal, or subsequent recovery of the Proposed Community Well. As such, it is anticipated that the analytical modeling will further demonstrate that use of the Proposed Community Well consistent with State regulations to serve the proposed Highway 86 Residential Development will not negatively impact adjacent wells.

Should you have any questions, or require further clarification, please let me know.

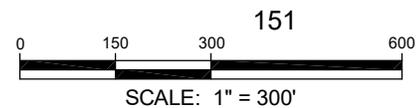
Sincerely,  
Spangler Environmental, LLC

Ward Marotti  
Director: Natural Resources

CANOY SURVEYING  
P-1938  
1154 SHONELE LANE  
STEM, NC 27581  
PHONE (984) 377-2626

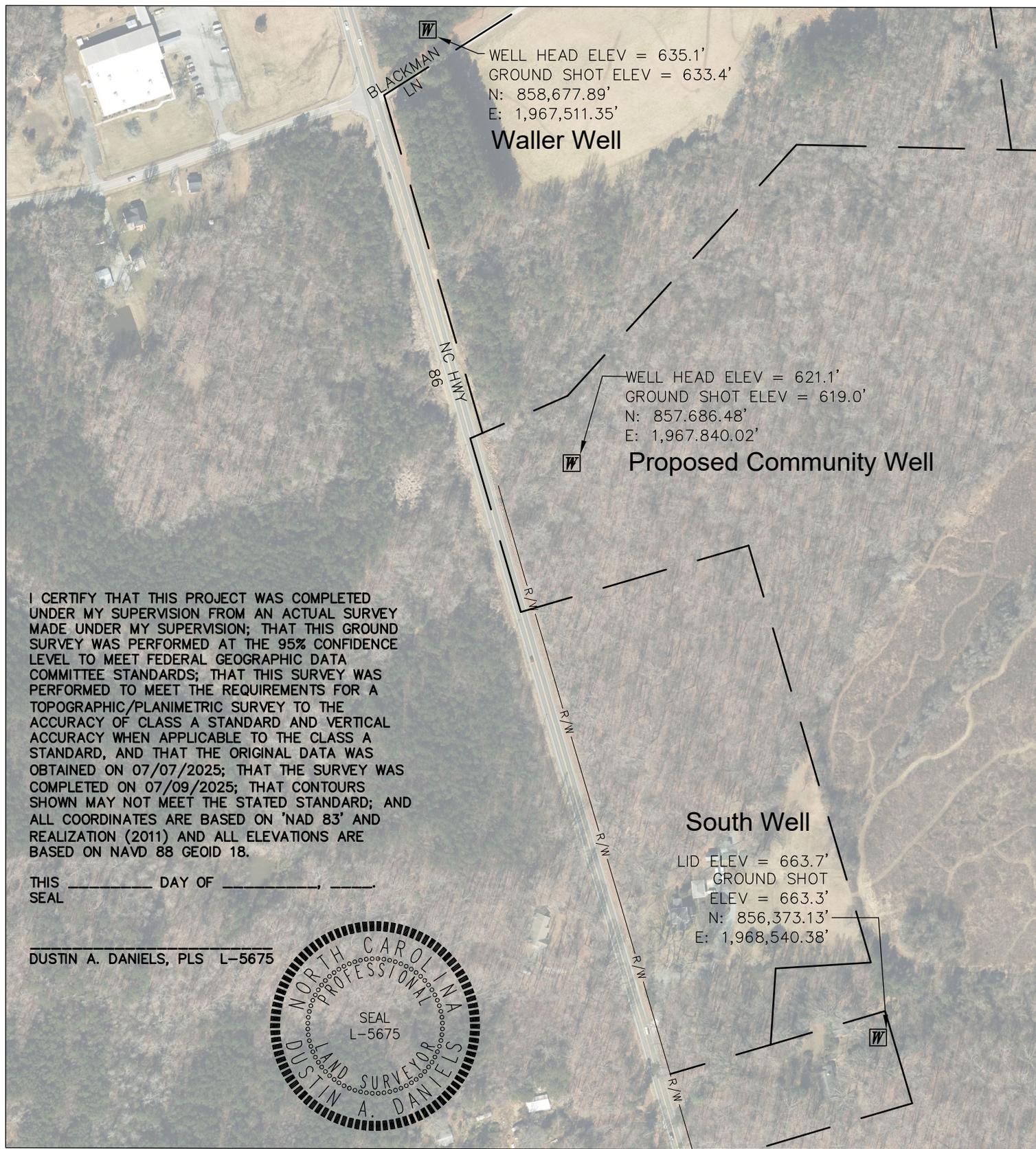
### TOPOGRAPHIC - WELL ELEVATIONS

1101 NC HWY 86  
HILLSBOROUGH  
ORANGE COUNTY, NORTH CAROLINA



## Figure 1.

AERIAL IMAGERY SHOWN FROM DATA DOWNLOADED AT:  
<https://www.nconemap.gov/>



I CERTIFY THAT THIS PROJECT WAS COMPLETED UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION; THAT THIS GROUND SURVEY WAS PERFORMED AT THE 95% CONFIDENCE LEVEL TO MEET FEDERAL GEOGRAPHIC DATA COMMITTEE STANDARDS; THAT THIS SURVEY WAS PERFORMED TO MEET THE REQUIREMENTS FOR A TOPOGRAPHIC/PLANIMETRIC SURVEY TO THE ACCURACY OF CLASS A STANDARD AND VERTICAL ACCURACY WHEN APPLICABLE TO THE CLASS A STANDARD, AND THAT THE ORIGINAL DATA WAS OBTAINED ON 07/07/2025; THAT THE SURVEY WAS COMPLETED ON 07/09/2025; THAT CONTOURS SHOWN MAY NOT MEET THE STATED STANDARD; AND ALL COORDINATES ARE BASED ON 'NAD 83' AND REALIZATION (2011) AND ALL ELEVATIONS ARE BASED ON NAVD 88 GEOID 18.

THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, \_\_\_\_\_  
SEAL

DUSTIN A. DANIELS, PLS L-5675



**Appendix 1**

DEPARTMENT OF ENVIRONMENT, HEALTH & NATURAL RESOURCES  
 DIVISION OF ENVIRONMENT MANAGEMENT  
 GROUNDWATER SECTION  
 P.O. BOX- RALEIGH, NC 27611  
 (919) 733-3221

PUMP TEST RECORD

TEST CONDUCTED BY: David Lee Cave (4227-A) WELL CONSTRUCTION PERMIT NO: W24-0165 WELL ID#: AAQ-330

\*\*\*\*\*

- 1) WELL LOCATION: NEAREST TOWN: Hwy. 86 Forestar COUNTY: Orange  
 (ROAD NO., COMMUNITY, OR SUBDIVISION AND LOT NO.)
  
- 2) OWNER:  
 Forestar Subdivision  
 (NAME) (ADDRESS)
  
- 3) USE OF WELL: ( ) DOMESTIC (X) PUBLIC ( ) INDUSTRIAL ( ) IRRIGATION ( ) OTHER
- 4) WELL DEPTH: 642 FT. CASING DIAMETER: 8 IN. CASING TYPE: GALVANIZED
- 5) DRILLING CONTRACTOR: \_YADKIN WELL COMPANY. WAS CASING GROUTED: YES
- 6) STATIC WELL LEVEL 20 FT. BELOW TOP OF CASING  
 DATE MEASURED: 7/29/25 CASING IS 2 FT. ABOVE LAND SURFACE
- 7) WELL YIELD: 112 GPM. SPECIFIC CAPACITY \_\_\_GPM/FT.DD.
- 8) PUMPING WATER LEVEL: 578 FT. AFTER 24 HOURS AT 85 GPM
- 9) CLORINATION: TYPE AMOUNT:
- 10) TIME AND DATE: PUMP STARTED: 7/29/2025 @ 2:30 PM. PUMP STOPPED: 7/30/2025 @ 3:00 PM.
- 11) WATER LEVEL MEASURING DEVICE: ELECTRIC TAPE FLOW MEASURING DEVICE: 3" RG3TM30
- 12) TEST PUMP: TYPE: 150S250-14 460V 3PH MAKE: GRUNDFOS HORSEPOWER: 25 HP  
 CAPACITY: GPM AT: T D H. INTAKE DEPTH: FT.

METER START 139,454 METER STOP 265,370 125,916 GALLONS

| TIME    | WATER LEVEL | PUMPING RATE                             | TIME    | WATER LEVEL | PUMPING RATE |
|---------|-------------|--|---------|-------------|--------------|
| 2:30 PM | 20 FT       | Couldn't set @ 50 gpm, too much pressure | 3:45 PM | 167.5 FT    | 50 GPM       |
| 2:45 PM | 48 FT       | 215 GPM                                  | 3:50 PM | 168 FT      | 50 GPM       |
| 2:50 PM | 301 FT      | 215 GPM                                  | 3:55 PM | 168.5 FT    | 50 GPM       |
| 2:55 PM | 260 FT      | 50 GPM                                   | 4:00 PM | 164.5 FT    | 50 GPM       |
| 3:00 PM | 223 FT      | 50 GPM                                   | 4:10 PM | 171 FT      | 50 GPM       |
| 3:05 PM | 207 FT      | 50 GPM                                   | 4:20 PM | 173.5 FT    | 50 GPM       |
| 3:10 PM | 192 FT      | 50 GPM                                   | 4:30 PM | 175 FT      | 50 GPM       |
| 3:15 PM | 182 FT      | 50 GPM                                   | 4:40 PM | 177 FT      | 50 GPM       |
| 3:20 PM | 174 FT      | 50 GPM                                   | 4:50 PM | 178.5 FT    | 50 GPM       |
| 3:25 PM | 170 FT      | 50 GPM                                   | 5:00 PM | 180 FT      | 50 GPM       |
| 3:30 PM | 168 FT      | 50 GPM                                   | 5:10 PM | 240 FT      | 80 GPM       |
| 3:35 PM | 167 FT      | 50 GPM                                   | 5:20 PM | 260 FT      | 80 GPM       |
| 3:40 PM | 167 FT      | 50 GPM                                   | 5:30 PM | 273.5 FT    | 80 GPM       |

## RECOVERY

| TIME     | WATER LEVEL | PUMPING RATE | TIME    | PUMPING RATE |
|----------|-------------|--------------|---------|--------------|
| 5:40 PM  | 282 FT      | 80 GPM       | 3:05 PM | 431 FT       |
| 5:50 PM  | 288.5 FT    | 80 GPM       | 3:10 PM | 394 FT       |
| 6:00 PM  | 294 FT      | 80 GPM       | 3:15 PM | 367 FT       |
| 6:10 PM  | 297.5 FT    | 80 GPM       | 3:20 PM | 343 FT       |
| 6:20 PM  | 298 FT      | 80 GPM       | 3:25 PM | 322 FT       |
| 6:30 PM  | 300 FT      | 80 GPM       | 3:30 PM | 305 FT       |
| 6:40 PM  | 310 FT      | 80 GPM       |         |              |
| 6:50 PM  | 317.5 FT    | 80 GPM       |         |              |
| 7:00 PM  | 321 FT      | 170 GPM      |         |              |
| 7:10 PM  | 476 FT      | 141 GPM      |         |              |
| 7:20 PM  | 538 FT      | 122 GPM      |         |              |
| 7:30 PM  | 561 FT      | 114 GPM      |         |              |
| 7:40 PM  | 571 FT      | 114 GPM      |         |              |
| 7:45 PM  | 574 FT      | 114 GPM      |         |              |
| 7:50 PM  | 552 FT      | 103 GPM      |         |              |
| 8:00 PM  | 549 FT      | 105 GPM      |         |              |
| 8:10 PM  | 560 FT      | 105 GPM      |         |              |
| 8:20 PM  | 563 FT      | 104 GPM      |         |              |
| 8:30 PM  | 564.5 FT    | 103 GPM      |         |              |
| 8:40 PM  | 566.5 FT    | 103 GPM      |         |              |
| 8:50 PM  | 569 FT      | 102 GPM      |         |              |
| 9:00 PM  | 570 FT      | 101 GPM      |         |              |
| 10:00 PM | 573 FT      | 97 GPM       |         |              |
| 11:00 PM | 577.5 FT    | 97 GPM       |         |              |
| 12:00 AM | 580 FT      | 93 GPM       |         |              |
| 1:00 AM  | 581 FT      | 93 GPM       |         |              |
| 2:00 AM  | 583.5 FT    | 92 GPM       |         |              |
| 3:00 AM  | 573 FT      | 87 GPM       |         |              |
| 4:00 AM  | 574 FT      | 86 GPM       |         |              |
| 5:00 AM  | 571 FT      | 86 GPM       |         |              |
| 6:00 AM  | 573 FT      | 86 GPM       |         |              |
| 7:00 AM  | 574 FT      | 86 GPM       |         |              |
| 8:00 AM  | 575 FT      | 86 GPM       |         |              |
| 9:00 AM  | 575 FT      | 85 GPM       |         |              |
| 10:00 AM | 577 FT      | 85 GPM       |         |              |
| 11:00 AM | 578 FT      | 85 GPM       |         |              |
| 12:00 PM | 578 FT      | 85 GPM       |         |              |
| 1:00 PM  | 578 FT      | 85 GPM       |         |              |
| 2:00 PM  | 578 FT      | 85 GPM       |         |              |
| 3:00 PM  | 578 FT      | 85 GPM       |         |              |

**Appendix 2**

NORTH CAROLINA  
 DEPARTMENT OF ENVIRONMENT, HEALTH, & NATURAL RESOURCES  
 DIVISION OF ENVIROMENT MANAGEMENT  
 GROUNDWATER SECTION  
 P. O. BOX- RALEIGH, N.C. 27611  
 (919) 733-3221

PUMP TEST  
 RECORD

METER  
 START: 14,784,306.0  
 STOP: 14,913,961.5  
 TOTAL: 129,655.5 GALLONS

TEST CONDUCTED BY: YADKIN WELL COMPANY, INC. WELL CONSTRUCTON PERMIT NO. \_\_\_\_\_

1. WELL LOCATION: NEAREST TOWN: HILLSBOROUGH COUNTY: ORANGE  
 HWY. 86 PROJECT

(ROAD NO., COMMUNITY, OR SUBDIVISION, AND LOT NO).

2. OWNER: FORESTAR DEVELOPERS

3. USE OF WELL:    ( ) DOMESTIC            ( X ) PUBLIC            ( ) INDUSTRIAL            ( ) IRRIGATION            ( ) OTHER

4. WELL DEPTH: 642 FT.            CASING DIAMTER 8 IN.            CASING TYPE: GALV. STEEL

5. DRILLING CONTRACTOR: Yadkin Well Company Inc.            WAS CASING GROUTED? Yes \_\_\_\_\_

6. STATIC WATER LEVEL: 20 FT.            ABOVE TOP OF CASING \_\_\_\_\_

**BELOW**

DATE MEASURED: 11/19/2024            CASING IS 2 FT. ABOVE LAND SURFACE

7. WELL YIELD: 84 GPM            SPECIFIC CAPACITY: \_\_\_\_\_ GPM/FT.DD

8. PUMPING WATER LEVEL: 554 FT.            AFTER 24 HOURS AT 84 GPM

9. CHLORINATION TYPE 70% Calcium Hypochlorite            AMOUNT 49 oz.

10. TIME AND DATE PUMP STARTED: 3:20 PM 11/19/2024            PUMP STOPPED: 3:20 PM 11/20/2024

11. WATER LEVEL MEASURING DEVICE: Electric Tape            FLOW MESURING DEVICE: 3" FLOW METER

12. TEST PUMP:    TYPE: Submersible            MAKE: Grundfos            HORSEPOWER: 25  
 CAPACITY 100 GPM AT 600 TDH            INTAKE DEPTH 609 FT.

| TIME    | WATER LEVEL | PUMPING RATE | TIME     | WATER LEVEL | PUMPING RATE |
|---------|-------------|--------------|----------|-------------|--------------|
| 3:20 PM | 20 FT       | 200 GPM      | 4:30 PM  | 527 FT      | 112 GPM      |
| 3:25 PM | 280 FT      | 185 GPM      | 4:40 PM  | 528 FT      | 110 GPM      |
| 3:30 PM | 372 FT      | 170 GPM      | 4:50 PM  | 527 FT      | 105 GPM      |
| 3:35 PM | 426 FT      | 158 GPM      | 5:00 PM  | 529 FT      | 108 GPM      |
| 3:40 PM | 461 FT      | 150 GPM      | 5:10 PM  | 523 FT      | 101 GPM      |
| 3:45 PM | 488 FT      | 145 GPM      | 5:20 PM  | 524 FT      | 103 GPM      |
| 3:50 PM | 512 FT      | 138 GPM      | 6:20 PM  | 529 FT      | 99 GPM       |
| 3:55 PM | 508 FT      | 121 GPM      | 7:20 PM  | 536 FT      | 95 GPM       |
| 4:00 PM | 515 FT      | 127 GPM      | 8:20 PM  | 542 FT      | 94 GPM       |
| 4:05 PM | 523 FT      | 124 GPM      | 9:20 PM  | 544 FT      | 91 GPM       |
| 4:10 PM | 526 FT      | 119 GPM      | 10:20 PM | 545 FT      | 91 GPM       |
| 4:15 PM | 525 FT      | 116 GPM      | 11:20 PM | 544 FT      | 90 GPM       |
| 4:20 PM | 525 FT      | 115 GPM      | 12:20 AM | 546 FT      | 89 GPM       |
|         |             |              |          |             |              |

*David Lee Cave 11-26-2024*





NORTH CAROLINA  
Environmental Quality

ROY COOPER  
Governor  
ELIZABETH S. BISER  
Secretary  
RICHARD E. ROGERS, JR.  
Director

September 12, 2024

Lanie Powell and Eva Brown  
P.O. Box 1391  
Smithfield, NC 27577

Re: Preliminary Well Site Approvals  
Hwy 86 Property Potable Water System  
Water System No.: NC4068033  
Orange County

Dear Ms. Powell and Ms. Brown:

On July 1, 2024, Melody Markert with the NC Department of Environmental Quality Public Water Supply (PWS) Section met with Tyler MacConnell and conducted a preliminary investigation of the proposed well sites listed below and shown on the attached drawing provided by the engineer. The proposed wells have been assigned Water System Facility (WSF) Identification Numbers and Sampling Point Codes as indicated below.

| WSF ID No. | Sampling Point Code | Description of Well Site   | Preliminary Latitude and Longitude   |
|------------|---------------------|--|--------------------------------------|
| W01        | RW1                 | 100' radius around the proposed well location (Well #1) at the preliminary coordinates, located on Lot 1.  | 35° 06' 23.48" N<br>79° 06' 31.95" W |
| W02        | RW2                 | 100' radius around the proposed well location (Well #2) at the preliminary coordinates, located on Lot 33. | 35° 06' 9.62" N<br>79° 06' 21.31" W  |
| W03        | RW3                 | 100' radius around the proposed well location (Well #3) at the preliminary coordinates, located on Lot 32. | 35° 06' 5.63" N<br>79° 06' 25.60" W  |

This letter is provided by the PWS Section, in accordance with Rule .0305(b) of the *Rules Governing Public Water Systems* (15A NCAC 18C), to provide permission to drill wells at the listed sites in order to establish the quality and quantity of water and the suitability of the wells as sources for a public water system.

**The proposed wells must be drilled within 24 months of the date of this letter. If not drilled within this 24-month period, this Preliminary Well Site Approval letter is void and permission to drill the wells is no longer valid. To regain permission to drill the wells, PWS Section staff**



North Carolina Department of Environmental Quality | Division of Water Resources  
Raleigh Regional Office | 3800 Barrett Drive | Raleigh, North Carolina 27609  
919.791.4200

**must revisit the proposed sites to conduct an investigation and issue a new preliminary well site approval letter before the wells may be drilled.**

In addition, this “Preliminary Well Site Approval” is to acknowledge that according to the information and documentation provided, we understand that the proposed wells are located on lots so that the area within 100 feet of the wells is owned or controlled by the person supplying the water and that the supplier of water will protect the well lots from potential sources of pollution and construct landscape features for drainage and diversion of pollution as required in 15A NCAC 18C .0203(a)(1). Furthermore, we understand that Donna Crowder and David Barcal per letter dated August, 23, 2024, have determined that the proposed well locations satisfy the minimum horizontal separation distances specified in 15A NCAC 18C .0203(a)(2) and summarized in the following table:

| <b>Distance (ft)</b> | <b>Potential Source of Pollution</b>  |
|----------------------|---|
| 100                  | <ul style="list-style-type: none"><li>• From any sanitary sewage disposal system, sewer, or sewer pipe unless sewer is constructed of water main materials and joints, in which the sewer pipe shall be at least 50 feet from the well.</li><li>• From buildings, mobile homes, permanent structures, animal houses or lots, cultivated areas to which chemicals are applied.</li><li>• From surface water.</li><li>• From a chemical or petroleum fuel underground storage tank with secondary containment.</li><li>• From any other potential source of pollution not listed in this table.</li></ul> |
| 200                  | <ul style="list-style-type: none"><li>• From a subsurface sanitary sewage treatment and disposal system designed for 3,000 or more gallons of wastewater a day, unless your well water source is a confined aquifer.</li></ul>  |
| 300                  | <ul style="list-style-type: none"><li>• From any cemetery or burial ground.</li></ul>   |
| 500                  | <ul style="list-style-type: none"><li>• From a septage disposal site.</li><li>• From a chemical or petroleum fuel underground storage tank without secondary containment.</li><li>• From the boundary of a ground water contamination area.</li><li>• From a sanitary landfill or non-permitted non-hazardous solid waste disposal site.</li></ul>  |
| 1,000                | <ul style="list-style-type: none"><li>• From a hazardous waste disposal site or in any location which conflicts with the North Carolina Hazardous Waste Management Rules cited as 15A NCAC 13A.</li></ul>   |

We also understand that the owner will ensure that the lots are graded or sloped so that surface water is diverted away from the wellheads and that the wells shall not have greater than a 1 percent annual chance of flooding in accordance with 15A NCAC 18C .0203(a)(4).

**PWS Section “Authorization to Construct” and “Final Approval”**

Subsequent to well drilling and evaluating water quality and quantity (i.e., collecting and analyzing samples and performing a 24-hour well drawdown test) the owner must submit an “Application for Approval of Engineering Plans and Specifications For Water Supply Systems” to document proposed well completion (i.e., selected pump, wellhead and well house details) and associated transmission lines, treatment and/or storage facilities and other critical information about the public water system. In accordance with 15A NCAC 18C .0305(a), no construction shall be undertaken until the PWS Section issues an “Authorization to Construct” letter. In addition, in accordance with 15A NCAC 18C .0309(a), the new wells and all associated treatment, storage or transmission/distribution lines



shall not be placed into service until the PWS Section has issued a "Final Approval." These steps are described in the Engineering Planning and Development Guidance Document available at [https://files.nc.gov/ncdeq/Water%20Resources/files/pws/planreview/EPD\\_Guidance\\_July2019.pdf](https://files.nc.gov/ncdeq/Water%20Resources/files/pws/planreview/EPD_Guidance_July2019.pdf)

Be aware that plans, specifications and reports for the new wells must be certified by a Professional Engineer. Therefore, it is recommended that a Professional Engineer or Licensed Geologist (or their designated representative) experienced in the construction of water supply wells, conduct on-site monitoring of well construction. At a minimum, certain critical phases of well construction such as installation and grouting of casing should be monitored. In many situations it may be necessary to go beyond the minimum requirements in order to protect the public health and ground water resources.

### **Other Agency Approvals Required**

This PWS Section "Preliminary Well Site Approval" letter does not address other agency applicable rules and requirements pertaining to well construction and registration.

Local county well construction rules and ordinances may include additional requirements.

Well construction must meet the standards specified in the *Well Construction Standards* (15A NCAC 2C). Be aware that these rules require a permit to be obtained from the Water Quality Regional Operations Section of the Division of Water Resources before the well is constructed if it is anticipated that the new well will be part of a water system with a design capacity of 100,000 gallons per day or greater. In addition, these rules require that wells be constructed by a properly certified well driller. For more information, call 919-707-3668 or go to:

<https://deq.nc.gov/about/divisions/water-resources/water-resources-permits/wastewater-branch/ground-water-protection/well-program#largecapwell>

Sincerely,



Rebecca Sadosky, Ph.D., Chief  
Public Water Supply Section  
Division of Water Resources

Enclosures

Cc: Regional Files – PWS Section  
Central Files – PWS Section  
Orange County Health Department  
Cricket Corwin, E.I., MacConnell & Associates – by email  
David Barcal, P.E., MacConnell & Associates – by email  
Laura Haywood, Forestar Group – by email  
Donna Crowder, Forestar Group – by email







**NOTES**

**SITE DATA SUMMARY**

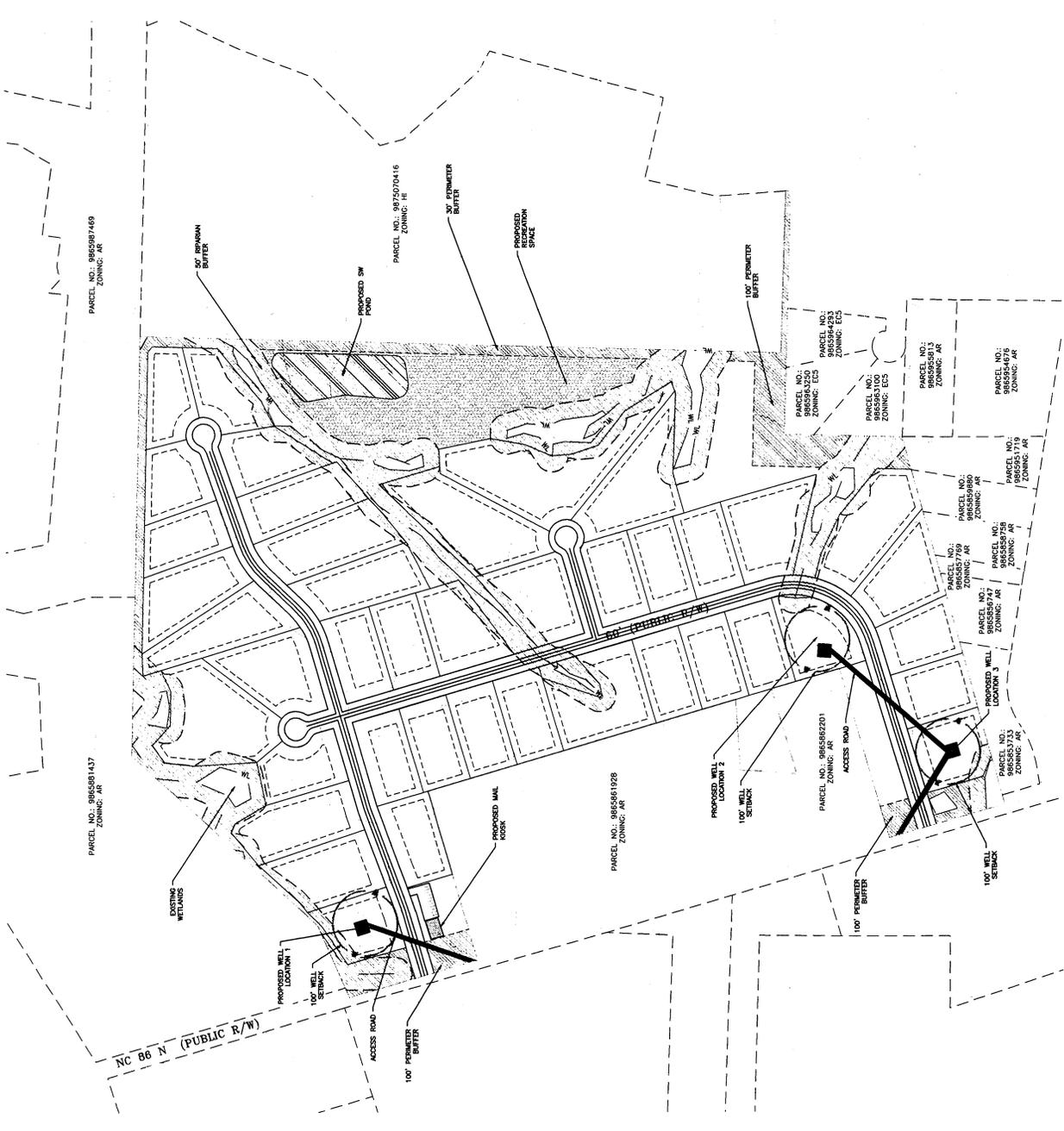
PARCEL NO.: 986507090  
 ZONING: AR  
 TOTAL SITE AREA: 79.2 AC  
 TOWNSHIP: HILLSBOROUGH  
 WATER SUPPLY WATERSHED: LOWER END (UNPROTECTED)  
 MINIMUM REQUIRED LOT AREA: 40,000 SQ.FT.  
 MINIMUM REQUIRED LOT WIDTH: 150 FT.  
 MINIMUM REQUIRED FRONT SETBACK: 40 FT.  
 MINIMUM REQUIRED REAR SETBACK: 20 FT.  
 MINIMUM REQUIRED SIDE SETBACK: 20 FT.  
 MAXIMUM BUILDING HEIGHT: 25 FT.  
 TOTAL UNITS: 42 UNITS / 79.2 AC = 0.53 UNITS/AC  
 NET DENSITY: .028 (986,598 SF)  
 RECREATION SPACE RATIO REQUIRED: .052 (180,196 SF)  
 RECREATION SPACE PROPOSED: .024 (927,988 SF)  
 IMPERVIOUS SURFACE LIMIT: 24% (927,988 SF)

**IMPERVIOUS CALCULATIONS**

MAXIMUM IMPERVIOUS SURFACE AREA (MSA): 4,200 SF  
 BLDG/DRIVEWAY PER LOT (ASSUMED): 176,400 SF  
 IMPERVIOUS ONSITE (42 UNITS): 286,435 SF  
 RIGHT-OF-WAY IMPERVIOUS: 7,829 SF  
 MISC IMPERVIOUS: 480,864 SF  
 TOTAL IMPERVIOUS: 3,449,932 SF (79.2 AC)  
 TOTAL PROPOSED IMPERVIOUS: 480,864 SF (11.0 AC) = 13.9%

| Well   | Latitude   | Longitude   |
|--------|------------|-------------|
| Site 1 | 36.106521  | -79.108875  |
| Site 2 | 36.1026729 | -79.1059203 |
| Site 3 | 36.1015628 | -79.1071124 |

|                         |           |
|-------------------------|-----------|
| Access Road Disturbance | 18,322 SF |
|-------------------------|-----------|

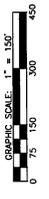


**LEGEND**

- EXISTING LOT BOUNDARY
- INTERIMMEDIATE LOT BOUNDARY
- PROPERTY LINE
- DRIVE
- WALKWAY
- CREEK
- EX. SANITARY SEWER
- EX. WATER LINE
- EX. SANITARY WATER
- EX. WATER LINE
- EX. WATER LINE

**SITE INVENTORY LEGEND**

- [Hatched Box] PERIMETER BUFFER
- [Hatched Box] IMPERVIOUS BUFFER
- [Hatched Box] STREAMWATER POOL (POND)
- [Hatched Box] CONSERVATION - OPEN SPACE



| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
|     |      |             |

PROJECT MANAGER: PROJECT ENGINEER:  
 JOB NO.: DATE:  
 DRAWING NO.: CHECKED BY:  
 DATE: 20. 2024



MacCONNELL  
 & Associates, P. C.  
 801 CASCADE POINTE LANE, SUITE 100  
 WILMINGTON, NORTH CAROLINA 27415  
 TEL: (704) 835-1100 FAX: (704) 835-1400

FORESTAR GROUP, INC.  
 HWY 86 PROPERTY

ORANGE COUNTY, NC

WELL SITE

PROJECT NUMBER: C23803.00  
 DRAWING NUMBER: C-102

FOR REVIEW ONLY  
 NOT RELEASED FOR  
 CONSTRUCTION

P. O. Box 129  
Morrisville, NC 27560

919-467-1239



**MACCONNELL  
& ASSOCIATES, P.C.**

501 Cascade Pointe Lane  
Suite 103  
Cary, NC 27513

Fax 919-319-6510

August 23, 2024

Ms. Melody Markert  
Environmental Engineer  
NC DEQ - Division of Water Resources – Public Water Supply Section  
1628 Mail Service Center  
Raleigh, North Carolina 27699-1617

Re: Hwy 86 Property  
PIN: 9865878090  
Preliminary Well Site Approval  
Project No: C23803.00

Dear Ms. Markert:

Please find signed document indicating that the owner and applicant understand the North Carolina Rules Governing Public Water Systems (15A NCAC 18C) and have done their due diligence to ensure the proposed well site complies with all rules, drainage requirements and setbacks stated in 15A NCAC 18C. The owner will ensure that the lot is graded or sloped so that the surface water is diverted away from the wellhead and that the lot is not located within the 100-year floodplain and not subject to flooding in accordance with rule 0.203(4). The setback requirements are summarized below:

| <b>Distance<br/>(in feet)</b> | <b>Potential Sources of Pollution</b>  |
|-------------------------------|--|
| 100                           | <ul style="list-style-type: none"> <li>• From any sanitary sewage disposal system, sewer, or sewer pipe (unless sewer is constructed of water main materials and joints, in which the sewer pipe shall be at least 50 feet from the well.</li> <li>• From buildings, mobile homes, permanent structures, animal house or lots, cultivated areas to which chemicals are applied.</li> <li>• From surface water</li> <li>• From chemical or petroleum fuel underground storage tank with secondary containment</li> <li>• From any other potential source of pollution not listed in this table</li> </ul> |
| 200                           | <ul style="list-style-type: none"> <li>• From a subsurface sanitary sewage treatment and disposal system designed for 3,000 or more gallons of wastewater a day, unless your well water source is a confined aquifer</li> </ul>  |
| 300                           | <ul style="list-style-type: none"> <li>• From any cemetery or burial ground</li> </ul>   |
| 500                           | <ul style="list-style-type: none"> <li>• From a septage disposal site</li> <li>• From a chemical or petroleum fuel underground storage tank without secondary containment.</li> <li>• From the boundary of a ground water contamination area.</li> <li>• From a sanitary landfill or non-permitted non-hazardous solid waste disposal site</li> </ul>  |
| 1,000                         | <ul style="list-style-type: none"> <li>• From a hazardous waste disposal site or in any location which conflicts with the North Carolina Hazardous Waste Management Rules cited in NCAC 13A</li> </ul>   |

Owner/Representative Signature:  Date: 8/23/24

Applicant Signature:  Date: 8/23/24  
(David Barcal)

(919) 245-2360



131 West Margaret Lane  
Unit 100  
P.O. Box 8181  
Hillsborough, NC 27278

# WELL PERMIT

**Parcel Number :** 9865878090  
**Application Date :** 07/09/2024  
**Permit Number :** W24-0165

**Property Description :** E/S HWY 86 NORTH  
**Property Address :** 1033-UT NC 86 N  
HILLSBOROUGH, NC 27278

**Applicant :** Laura Haywood  
**Address :** 8041 Arco Corporate Drive Suite 110  
Unit Suite 110  
Raleigh, NC 27617  
**Phone :** (919) 804-7220  
**Email :** laurahaywood@forestar.com

**Owner:** Wayne Honeycutt  
**Address:**  
**Phone:** (704) 576-2476  
**Email:** whoneycutt@dickensmithener.com

**Well Type :** Community Well  
**Well Class :** New

**Lot Size :** 78.30  
**Sewage Disposal :** On-site System

## PERMIT CONDITIONS

### Comments / Conditions :

| <u>Condition</u> | <u>Description</u>  | <u>Comment</u>  |
|------------------|---|---|
| 8001 Wellhead    | Wellhead must meet current NC & OCHD specifications before COC may be issued. |   |
| General          | EH General Condition  | A preliminary well site approval letter is required from NC DEQ prior to drilling.  |
| General          | Preliminary Well Site Approval for NC DEQ Division on Water Resources         | Well must be drilled in accordance with 15A NCAC 18C .0203 regulations regarding Public Well Water Supplies. Once completed the well will be subject to regulations outlined in 15A NCAC 18C .0300 & .0400. |

This Permit serves as the plan required for constructing, or repairing a water well for drinking, irrigation, or geothermal installations. The Building Inspection and Planning agencies in your jurisdiction may require this Permit for your project.

Wells must be constructed, repaired, and abandoned by a person who holds a valid certification from the State and in accordance with the Groundwater Protection Rules as adopted by the Orange County Board of Health. The certified contractor must have a physical copy of this Permit during the time of installation.

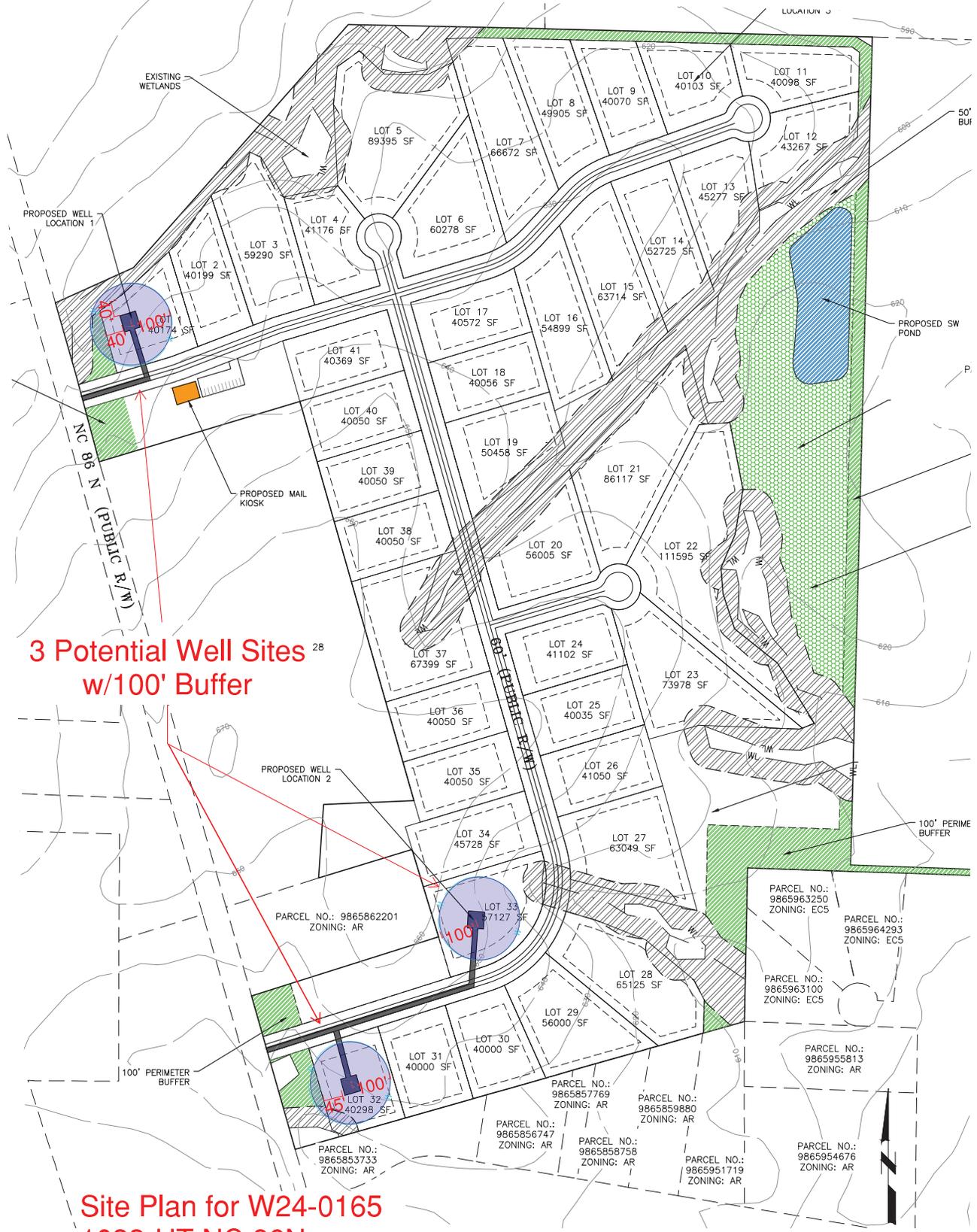
Refer to the attached site plan showing the system and the proposed structures and other site conditions. The well siting is based on setback distances from known or planned features and does not indicate nor guarantee that the quantity or quality of water will be provided by a well constructed in that area.

Any changes to the site that affects setbacks shall result in the revocation or revision of the Permit. Construction of the well outside of the permitted area may result in Denial of the Certificate of Completion. Mark property lines.

**ISSUED :** 10/01/2024

  
\_\_\_\_\_  
Ian Olson  
ENVIRONMENTAL HEALTH SPECIALIST

**EXPIRES :** 10/01/2029



**3 Potential Well Sites  
w/100' Buffer**

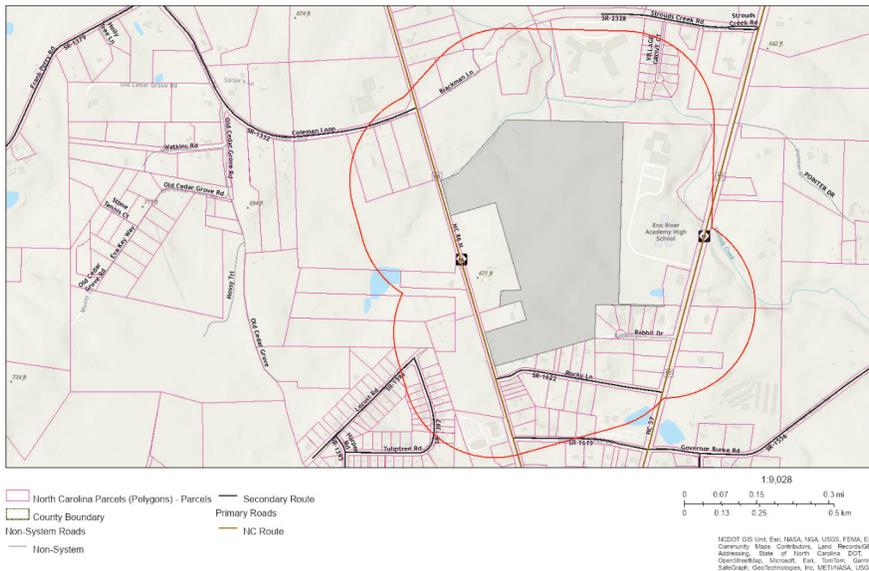
**Site Plan for W24-0165  
1033-UT NC 86N  
PIN: 9865878090  
Created by I. Olson  
OCHD  
10/2/2024**

# WPDT Screening Report

## Area of Interest (AOI) Information

Area : 15,900,506.77 ft<sup>2</sup>

Oct 2 2024 17:48:34 Eastern Daylight Time



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1/2

10/2/24, 5:49 PM

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**SECTION .0200 – LOCATION OF SOURCES OF PUBLIC WATER SUPPLIES****15A NCAC 18C .0201 SURFACE SUPPLIES FOR PUBLIC WATER SYSTEMS**

- (a) A surface supply may be used for a community or a non-transient, non-community water system with disinfection and without filtration if it complies with the provisions of this Section and Rule .2005 of this Subchapter.
- (b) Such water supply shall be derived from uninhabited wooded areas.
- (c) The entire watershed shall be either owned or controlled by the person supplying the water or be under the control of the federal or state government; however, no such new water supply shall be created except where the water system owner shall own in its entirety the watershed from which the water will be obtained.
- (d) The water after disinfection shall be of potable quality as determined by bacteriological and chemical tests performed by a certified laboratory. The presence of contaminants shall not exceed the limits set forth in Section .1500 of this Subchapter.
- (e) The water source shall have a WS-I classification as established by the Environmental Management Commission and shall meet the quality standards for that classification, codified in 15A NCAC 02B. Copies are available for public inspection as set forth in Rule .0102 of this Subchapter.

*History Note: Authority G.S. 130A-315; 130A-318; P.L. 93-523; Eff. January 1, 1977; Readopted Eff. December 5, 1977; Amended Eff. April 1, 2014; July 1, 1994; February 1, 1987; September 1, 1979; Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. November 23, 2015.*

**15A NCAC 18C .0202 SURFACE SUPPLIES FROM CLASSIFIED WATERSHEDS**

Any surface water that is to receive treatment for removal of dissolved matter or suspended matter in order to be used for a public water system shall be obtained from a source that meets the WS-I, WS-II, WS-III, WS-IV or WS-V stream classification standards established by the Environmental Management Commission codified in 15A NCAC 02B. Copies are available for public inspection as set forth in Rule .0102(a) of this Subchapter.

*History Note: Authority G.S. 130A-315; 130A-318; P.L. 93-523; Eff. January 1, 1977; Readopted Eff. December 5, 1977; Amended Eff. April 1, 2014; July 1, 1994; September 1, 1990; February 1, 1987; September 1, 1979; Readopted Eff. July 1, 2019.*

**15A NCAC 18C .0203 PUBLIC WELL WATER SUPPLIES**

(a) A site or sites for a water supply well to be used as a community or non-transient, non-community water system shall be investigated by an authorized representative of the Department prior to approval. Approval by the Department is required in addition to any approval or permit issued by any other state agency. The site shall meet the following requirements at the time of approval:

- (1) The well shall be located on a lot so that the area within 100 feet of the well is owned or controlled by the person supplying the water. The supplier of water shall be able to protect the well lot from potential sources of pollution and to construct landscape features for drainage and diversion of pollution.
- (2) The minimum horizontal separation between the well and known potential sources of pollution shall be as follows:
  - (A) 100 feet from any sanitary sewage disposal system, sewer, or a sewer pipe unless the sewer is constructed of water main materials and joints, in which case the sewer pipe shall be at least 50 feet from the well;
  - (B) 200 feet from a subsurface sanitary sewage treatment and disposal system designed for 3000 or more gallons of wastewater a day flows, unless the well water source is from a confined aquifer;
  - (C) 500 feet from a septage disposal site;

- (D) 100 feet from buildings, mobile homes, permanent structures, animal houses or lots, or cultivated areas to which chemicals are applied;
  - (E) 100 feet from surface water;
  - (F) 100 feet from a chemical or petroleum fuel underground storage tank with secondary containment;
  - (G) 500 feet from a chemical or petroleum fuel underground storage tank without secondary containment;
  - (H) 500 feet from the boundary of a ground water contamination area;
  - (I) 500 feet from a sanitary landfill or non-permitted non-hazardous solid waste disposal site;
  - (J) 1000 feet from a hazardous waste disposal site or in any location that conflicts with the North Carolina Hazardous Waste Management Rules cited as 15A NCAC 13A;
  - (K) 300 feet from a cemetery or burial ground; and
  - (L) 100 feet from any other potential source of pollution.
- (3) The Department may require greater separation distances or impose other protective measures if necessary to protect the well from pollution, taking into consideration factors such as:
- (A) the hazard or health risk associated with the source of pollution;
  - (B) the proximity of the potential source to the well;
  - (C) the type of material, facility, or circumstance that poses the source or potential source of pollution;
  - (D) the volume or size of the source or potential source of pollution;
  - (E) hydrogeological features of the site that could affect the movement of contaminants to the source water;
  - (F) the effect that well operation might have on the movement of contamination; and
  - (G) the feasibility of providing additional separation distances or protective measures.
- (4) The lot shall be graded or sloped so that surface water is diverted away from the wellhead. The well shall not have greater than a one percent annual chance of flooding.
- (5) If a supplier of water demonstrates that it is impracticable, taking into consideration feasibility and cost, to locate water from any other approved source and an existing well can no longer provide water that meets the requirements of this Subchapter, a representative of the Division may approve a variance for a smaller well lot and reduced separation distances to meet existing demands. Additional monitoring under this Part or other conditions shall be imposed if necessary to mitigate the increased risk from the variance.
- (b) The Division of Water Resources may grant a variance from the minimum horizontal separation distances for public water supply wells set out in Parts (a)(2)(D) and (E) of this Rule.
- (1) Such variance shall require the following findings:
    - (A) the well supplies water to a non-community water system as defined in G.S. 130A-313(10)(b) or supplies water to a business or institution, such as a school, that has become a non-community water system through an increase in the number of people served by the well;
    - (B) it is impracticable, taking into consideration feasibility and cost, for the public water system to comply with the minimum horizontal separation distance set out in Parts (a)(2)(D) and (E) of this Rule;
    - (C) there is no reasonable alternative source of drinking water available to the public water supply system and;
    - (D) the granting of the variance will not result in an unreasonable risk to public health.
  - (2) Such variance shall require that the non-community public water supply well meet the following requirements:
    - (A) the well shall comply with the minimum horizontal separation distances set out in Parts (a)(2)(D) and (E) of this Rule to the maximum extent practicable;
    - (B) the well shall meet a minimum horizontal separation distance of 25 feet from a building, mobile home, or other permanent structure that is not used primarily to house animals;
    - (C) the well shall meet a minimum horizontal separation distance of 100 feet from any animal house or feedlot and from cultivated areas to which chemicals are applied;
    - (D) the well shall meet a minimum horizontal separation distance of 50 feet from surface water;

- and  
(E) the well shall comply with all other requirements for public well water supplies set out in Paragraph (a) of this Rule.

*History Note: Authority G.S. 130A-315; 130A-318; P.L. 93-523; S.L. 2011-394;  
Eff. January 1, 1977;  
Readopted Eff. December 5, 1977;  
Amended Eff. July 7, 2014; July 1, 1994; September 1, 1990; September 1, 1979;  
Readopted Eff. July 1, 2019.*

Efland Trash Service  
1910 Efland Cedar Grove Rd  
Efland NC 27243  
919-812-9299

1 May 2025

**DANIELLE CABRAL**

4006 Barrett Dr, STE 104,  
Raleigh, NC 27609

Authorization for Trash Collection Service.

I, Rachel Gibson, General Manager, hereby authorize Efland Trash Service LLC to service two separate housing communities at the following addresses:

Highway 86N, Hillsborough, Orange County, NC. (HWY86 Subdivision is a 49-lot)  
3531 NC 54 W Chapel Hill, Orange County, NC (Rigsbee Subdivision is 43-lot)

HWY86 Subdivision is a 49-lot will be serviced every Friday (we will provide 96 gallon trash cans, per address)

531 NC 54 W Chapel Hill, Orange County, NC will be serviced every Tuesday (we will provide 96 gallon trash cans, per address)

Each unit will be responsibility for payment every month unless otherwise arrangement is agreed.

All units must follow all terms and agreements of Efland Trash Service LLC.

By submitting this authorization letter, I acknowledge that I have the authority to make this decision.

Rachel Gibson- General manager

Jessica Bollinger- Owner  
David Bollinger- Owner

**From:** [Matthew Taylor](#)  
**To:** [Danielle Cabral](#)  
**Cc:** [Robert Williams](#); [Bruce Woody](#); [Lee Cloer](#)  
**Subject:** [EXTERNAL] RE: Hwy 86 - Will Serve Letter  
**Date:** Thursday, April 24, 2025 10:11:44 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)

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Good morning Danielle,

Based on the dimensions of the site plan for the subdivision, the road dimensions and cul de sac dimensions seem to be acceptable for our collection trucks to access safely and to be able to turn around and exit the subdivision.

When it comes time for occupancy of these lots/homes, the residents or the HOA, however it's going to be handled, will just need to reach out to OC Solid Waste and request a recycling cart for the home and we will get them on the schedule to be delivered.

Thanks,

*Matt Taylor*

**Environmental Enforcement Supervisor**  
**Orange County Solid Waste Management**  
1207 Eubanks Rd. Chapel Hill, NC 27516  
(O): 919-918-4905  
[mtaylor@orangecountync.gov](mailto:mtaylor@orangecountync.gov)

---

**From:** Danielle Cabral <danielle.cabral@bowman.com>  
**Sent:** Thursday, April 24, 2025 9:16 AM  
**To:** Matthew Taylor <mtaylor@orangecountync.gov>  
**Cc:** Robert Williams <rowilliams@orangecountync.gov>; Bruce Woody <bwoody@orangecountync.gov>; Lee Cloer <lclouer@orangecountync.gov>  
**Subject:** RE: Hwy 86 - Will Serve Letter

**CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Phish Alert Button located on your Outlook menu bar on the Home tab.**

Good morning Mathew,

Thanks for clarifying that! I was wondering if you could confirm that Orange County will serve this subdivision, or if it will have to be private. We are proposing a 49-lot single family subdivision. Please contact me if you need more information.

Thanks for replaying so quickly. I appreciate your time and help!

Thank you,

**DANIELLE CABRAL**

Engineer II, Civil | **BOWMAN**

O: (919) 553-6570 | D: (984) 833-0860

[danielle.cabral@bowman.com](mailto:danielle.cabral@bowman.com) | [bowman.com](http://bowman.com)

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**From:** Matthew Taylor <[mtaylor@orangecountync.gov](mailto:mtaylor@orangecountync.gov)>

**Sent:** Wednesday, April 23, 2025 12:06 PM

**To:** Danielle Cabral <[danielle.cabral@bowman.com](mailto:danielle.cabral@bowman.com)>

**Cc:** Robert Williams <[rowilliams@orangecountync.gov](mailto:rowilliams@orangecountync.gov)>; Bruce Woody <[bwoody@orangecountync.gov](mailto:bwoody@orangecountync.gov)>; Lee Cloer <[lcloer@orangecountync.gov](mailto:lcloer@orangecountync.gov)>

**Subject:** [EXTERNAL] RE: Hwy 86 - Will Serve Letter

Good morning Danielle,

I was forwarded your message regarding the Will Serve Letter for the HWY 86 N subdivision. Will Serve Letters are typically only required to be provided when using a private waste hauler. If this subdivision is going to be served by Orange County Solid Waste Management for recycling collection, a will serve letter shouldn't be required.

If the review team is still asking for one or if you would like to discuss any other concerns you might have, please feel free to give me a call or shoot me an email directly and I'll be glad to speak on this further.

Thanks,

*Matt Taylor*

**Environmental Enforcement Supervisor**

**Orange County Solid Waste Management**

**1207 Eubanks Rd. Chapel Hill, NC 27516**

**(O): 919-918-4905**

**[mtaylor@orangecountync.gov](mailto:mtaylor@orangecountync.gov)**

---

**From:** Bruce Woody <[bwoody@orangecountync.gov](mailto:bwoody@orangecountync.gov)>

**Sent:** Wednesday, April 23, 2025 10:40 AM

**To:** Matthew Taylor <[mtaylor@orangecountync.gov](mailto:mtaylor@orangecountync.gov)>

**Cc:** Robert Williams <[rowilliams@orangecountync.gov](mailto:rowilliams@orangecountync.gov)>

**Subject:** FW: Hwy 86 - Will Serve Letter

Matt, Gm

Let's discuss this please, thank you,

Woody

**From:** Danielle Cabral <[danielle.cabral@bowman.com](mailto:danielle.cabral@bowman.com)>

**Sent:** Wednesday, April 23, 2025 8:32:11 AM

**To:** Lee Cloer <[lcloer@orangecountync.gov](mailto:lcloer@orangecountync.gov)>

**Cc:** Laura Haywood <[LauraHaywood@forestar.com](mailto:LauraHaywood@forestar.com)>; Donna Crowder <[DonnaCrowder@forestar.com](mailto:DonnaCrowder@forestar.com)>; Donald Sever <[donald.sever@bowman.com](mailto:donald.sever@bowman.com)>

**Subject:** Hwy 86 - Will Serve Letter

**CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Phish Alert Button located on your Outlook menu bar on the Home tab.**

Good morning Lee,

We are proposing a 49-lot subdivision located at Hwy 86N, Hillsborough, NC 27278. The proposed community is not annexing to Hillsborough, but it is in the Orange County jurisdiction. We are applying for conditional rezoning, and we need to confirm the proposed solid waste disposable services. Could you please provide a will serve letter?

Please feel free to contact me if you have any questions or concerns.

Thank you,

**DANIELLE CABRAL**

Engineer II, Civil | **BOWMAN**

4006 Barrett Dr, STE 104, Raleigh, NC 27609

O: (919) 553-6570 | D: (984) 833-0860

[danielle.cabral@bowman.com](mailto:danielle.cabral@bowman.com) | [bowman.com](http://bowman.com)





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& MENK**

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418 S Dawson Street  
Raleigh, NC 27596

Ph: (919) 719-1800  
Bolton-Menk.com

March 4, 2025

C. N. (Chuck) Edwards Jr., PE  
Division 7 - District 1 Engineer  
North Carolina Department of Transportation  
PO Box 766  
115 East Crescent Square Dr.  
Graham, NC 27253  
(336) 570-6833

Reference: Highway 86 Subdivision  
Orange County, North Carolina

Subject: Trip Generation & Turn Lane Warrant Analysis

Dear Mr. Edwards:

This letter provides the trip generation potential for the proposed Highway 86 residential development to be located along Highway 86 in Orange County, North Carolina. This memorandum has been prepared to assess the trip generation potential for the proposed development which is assumed to consist of a maximum of 49 single-family detached homes. Site access is proposed via two (2) full-movement driveways along Highway 86. In addition to providing the trip generation information for the site, this letter summarizes if any turn lane warrants are met at the proposed driveways per the North Carolina Department of Transportation (NCDOT) *Policy on Street and Driveway Access to North Carolina Highways* (Driveway Manual) Warrant for Left and Right- Turn Lanes nomograph. This letter also analyzes traffic conditions with the proposed development built-out during the weekday AM and PM peak hours at the proposed driveways along Highway 86.

A copy of the preliminary site plan has been attached for your reference.

Per the North Carolina Department of Transportation (NCDOT) Congestion Management Guidelines, a Traffic Impact Analysis (TIA) is required if the proposed development is anticipated to generate more than 3,000 daily trips. Based on the Orange County (County) Unified Development Ordinance (UDO), a TIA is required if the proposed residential development is anticipated to consist of 80 dwelling units or generate more than 800 daily trips.

### Trip Generation

The proposed development is assumed to consist of a maximum of 49 single-family detached homes. Average daily, AM peak hour, and PM peak hour trips for the proposed development were estimated using methodology contained within the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11<sup>th</sup> Edition. **Table 1**, on the following page, provides a summary of the trip generation potential for the proposed development.

**Table 1: Trip Generation Summary**

| Land Use<br>(ITE Code)                  | Density  | Daily<br>Traffic<br>(vpd) | Weekday AM<br>Peak Hour<br>Trips (vph) |      | Weekday PM<br>Peak Hour<br>Trips (vph) |      |
|---|----------|---------------------------|--|------|--|------|
|   |          |                           | Enter                                  | Exit | Enter                                  | Exit |
| Single-Family Detached Housing<br>(210) | 49 Units | 524                       | 10                                     | 29   | 32                                     | 19   |

It is estimated that the proposed development will generate approximately 524 total site trips on the roadway network during a typical 24-hour weekday period. Of the daily traffic volume, it is anticipated that 39 trips (10 entering and 29 exiting) will occur during the weekday AM peak hour and 51 trips (32 entering and 19 exiting) will occur during the weekday PM peak hour.

It should be noted that the daily traffic volume generated by the proposed development is expected to be below the NCDOT and County's thresholds to require a TIA. Based on coordination with the NCDOT and County, it was determined that a TIA is not required for the proposed development.

#### **Turn Lane Warrant Analysis**

Turn lanes were considered at the proposed driveways based on the criteria contained in the NCDOT *Policy on Street and Driveway Access to North Carolina Highways* (Driveway Manual) Warrant for Left and Right- Turn Lanes nomograph.

Existing peak hour traffic volumes along Highway 86 were determined based on 24-hour tube counts conducted in the vicinity of the site along Highway 86, in January of 2025 by Burns Service Inc. (BSI) during a typical weekday while schools were in session. It should be noted that the AM peak hour volumes reported were slightly outside of the typical weekday AM (7:00 AM - 9:00 AM) peak period and the PM peak hour volumes reported were outside of the typical weekday PM (4:00 PM - 6:00 PM) peak period. Although the peak hour volumes reported were outside of the typical peak periods, they were utilized as they provide a conservative analysis at the proposed driveways when traffic volumes along Highway 86 are at their highest.

Refer to the attachments for an illustration of the existing peak hour traffic volumes along Highway 86 in the vicinity of the site. A copy of the count data has been attached for your reference.

The trip distribution used in assigning the site traffic for the proposed development was estimated based on a combination of existing traffic patterns, population centers in the vicinity of the study area, and engineering judgement.

It was assumed that the overall site trips will be regionally distributed as follows:

- 40% to/from the north via Highway 86
- 60% to/from the south via Highway 86

Refer to the attachments for an illustration of the site trip distribution and site trip assignment at the proposed driveways.

To estimate traffic conditions with the site built-out, the total site trips were added to the existing traffic volumes along Highway 86 to determine the build traffic volumes. Refer to the attachments for an illustration of the build peak hour traffic volumes with the proposed site fully developed.

Based on the NCDOT turn lane warrant methodology, turn lanes were not warranted for either of the proposed driveways along Highway 86. Refer to the attachments for the Turn Lane Warrant Charts for the proposed driveways.

### Capacity Analysis

Capacity analysis of the proposed driveways was completed according to NCDOT Congestion Management Guidelines. Build traffic is comprised of the existing traffic from the count data and the proposed site trips.

The proposed northernmost unsignalized intersection of Highway 86 and Site Drive 1 was analyzed under build traffic conditions with the lane configurations and traffic control shown in **Table 2**. Refer to the attachments for the Synchro capacity analysis and SimTraffic queueing reports.

**Table 2: Analysis Summary of Highway 86 and Site Drive 1**

| Analysis Scenario | A<br>P<br>P<br>R<br>O<br>A<br>C<br>H | LANE CONFIGURATIONS                  | WEEKDAY AM PEAK HOUR LEVEL OF SERVICE  |                   | WEEKDAY PM PEAK HOUR LEVEL OF SERVICE  |                   |
|-------------------|--------------------------------------|--------------------------------------|--|-------------------|--|-------------------|
|                   |                                      |                                      | Approach                               | Overall (seconds) | Approach                               | Overall (seconds) |
| Build             | <b>WB</b><br>NB<br>SB                | <b>1 LT-RT</b><br>1 TH-RT<br>1 LT-RT | B <sup>2</sup><br>--<br>A <sup>1</sup> | N/A               | C <sup>2</sup><br>--<br>A <sup>1</sup> | N/A               |

Improvements shown in bold.

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

Capacity analysis of build conditions indicates that the major-street left-turn movement and the minor-street approach at the proposed intersection of Highway 86 and Site Drive 1 are expected to operate at LOS C or better during the weekday AM and PM peak hours. SimTraffic reports indicate the maximum queues for the westbound approach are not expected to exceed 46 feet during either peak hour.

The proposed southernmost unsignalized intersection of Highway 86 and Site Drive 2 was analyzed under build traffic conditions with the lane configurations and traffic control shown in **Table 3**. Refer to the attachments for the Synchro capacity analysis and SimTraffic queueing reports.

**Table 3: Analysis Summary of Highway 86 and Site Drive 2**

| Analysis Scenario | A<br>P<br>P<br>R<br>O<br>A<br>C<br>H | LANE CONFIGURATIONS                  | WEEKDAY AM PEAK HOUR LEVEL OF SERVICE  |                   | WEEKDAY PM PEAK HOUR LEVEL OF SERVICE  |                   |
|-------------------|--------------------------------------|--------------------------------------|--|-------------------|--|-------------------|
|                   |                                      |                                      | Approach                               | Overall (seconds) | Approach                               | Overall (seconds) |
| Build             | <b>WB</b><br>NB<br>SB                | <b>1 LT-RT</b><br>1 TH-RT<br>1 LT-RT | C <sup>2</sup><br>--<br>A <sup>1</sup> | N/A               | C <sup>2</sup><br>--<br>A <sup>1</sup> | N/A               |

Improvements shown in bold.

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

Capacity analysis of build conditions indicates that the major-street left-turn movement and the minor-street approach at the proposed intersection of Highway 86 and Site Drive 2 are expected to operate at LOS C or better during the weekday AM and PM peak hours. SimTraffic reports indicate the maximum queues for the westbound approach are not expected to exceed 33 feet during either peak hour.

## Conclusion

The proposed Highway 86 Subdivision development was reviewed to determine the trip generation potential for the site, the need for turn lanes into the proposed driveways, and expected capacity analysis at the proposed driveways. Per NCDOT and the County's requirements, the proposed development trips do not meet the thresholds to perform a TIA. Based on the NCDOT turn lane warrant methodology, turn lanes were not warranted for either of the proposed driveways along Highway 86. Additionally, capacity analysis indicates that the proposed driveways are expected to operate at acceptable levels of service with minimal queueing.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,  
**Bolton & Menk, Inc.**

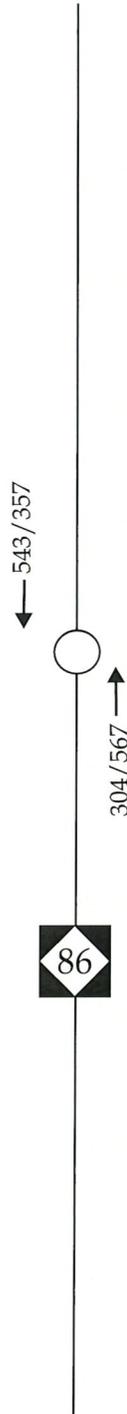


3/4/2025

Joshua Reinke, PE  
Traffic Project Manager

Attachments: Preliminary Site Plan  
Existing Peak Hour Traffic Figure  
Site Trip Distribution Figure  
Site Trip Assignment Figure  
Build Peak Hour Traffic Figure  
Count Data  
Turn Lane Warrant Charts  
Synchro Capacity Analysis Reports  
SimTraffic Queueing Reports





**LEGEND**

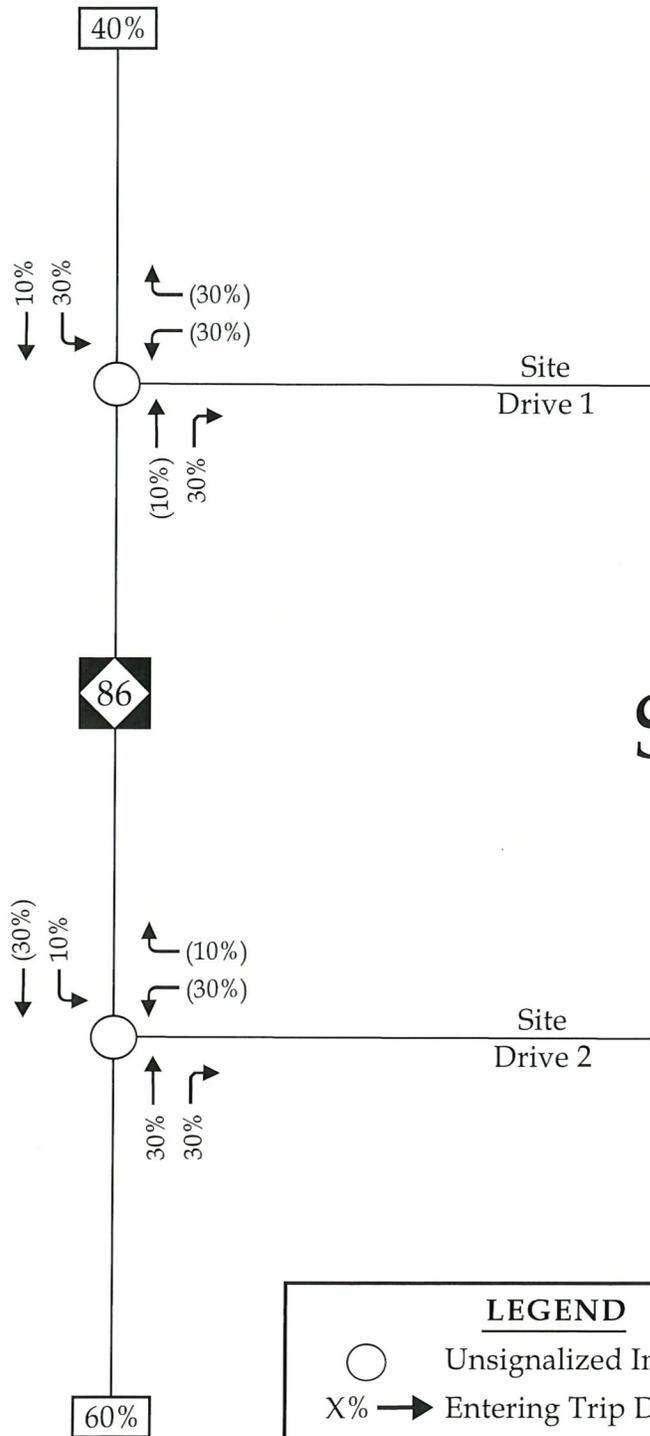
X / Y → Weekday AM / PM Peak Hour Traffic (in the vicinity of the site)



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Orange County, NC

|                                   |        |
|-----------------------------------|--------|
| Existing Peak Hour Traffic (2025) |        |
| Scale: Not to Scale               | Figure |



SITE

**LEGEND**

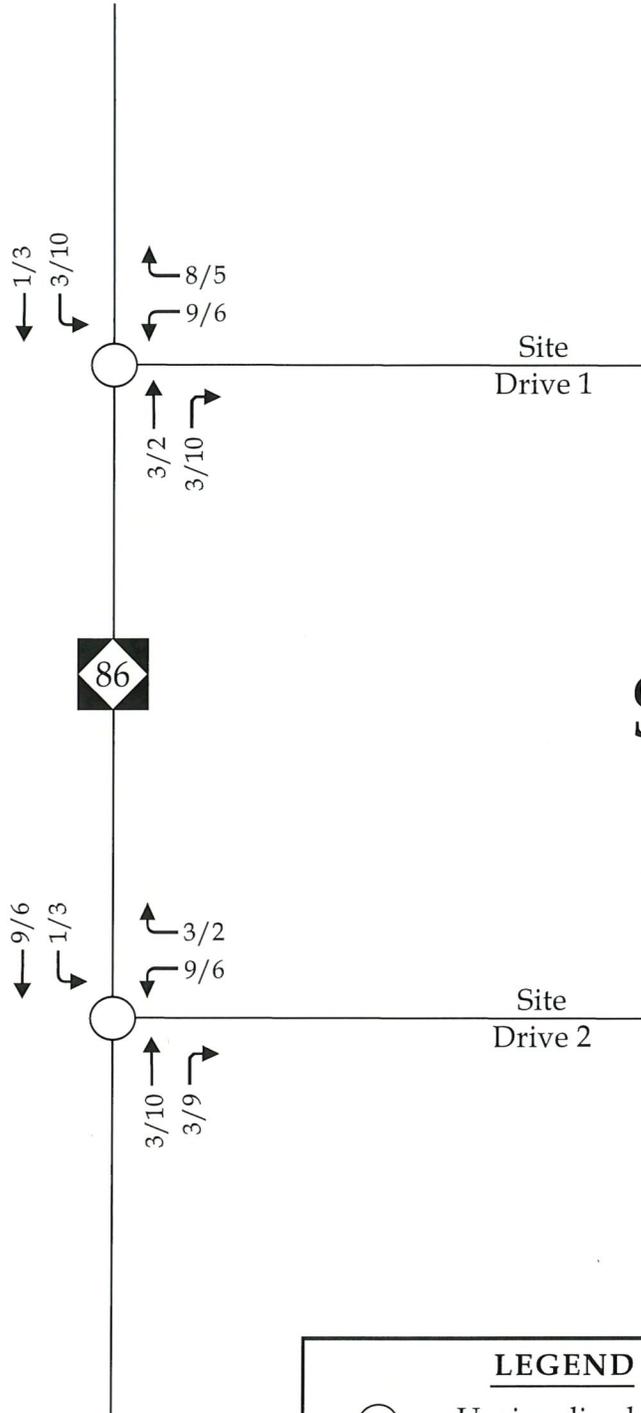
- Unsignalized Intersection
- X% → Entering Trip Distribution
- (Y%) → Exiting Trip Distribution
- XX% → Regional Trip Distribution

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Highway 86 Subdivision  
Orange County, NC

Site Trip Distribution

|                     |        |
|---------------------|--------|
| Scale: Not to Scale | Figure |
|---------------------|--------|



SITE

**LEGEND**

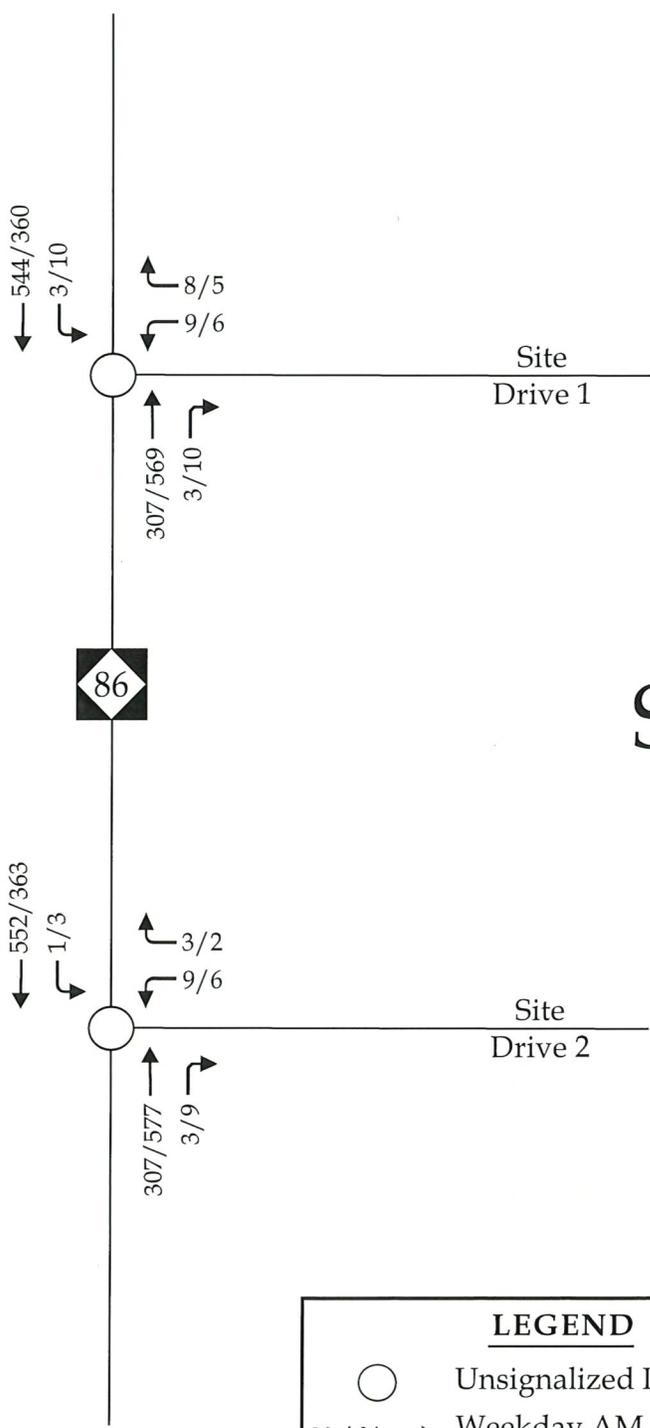
○ Unsignalized Intersection

X / Y → Weekday AM / PM Peak Hour Site Trips

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Highway 86 Subdivision  
Orange County, NC

|                      |        |
|----------------------|--------|
| Site Trip Assignment |        |
| Scale: Not to Scale  | Figure |



# SITE

| LEGEND |                                   |
|--------|-----------------------------------|
|        | Unsignalized Intersection         |
| X / Y  | Weekday AM / PM Peak Hour Traffic |

Note: Based on NCDOT Congestion Management guidelines, a volume of 4 vehicles per hour (vph) was analyzed for any movement with less than 4 vph.

|  |   |                         |        |
|--|---|-------------------------|--------|
|  <b>BOLTON &amp; MENK</b><br>Real People. Real Solutions. | Highway 86 Subdivision<br>Orange County, NC | Build Peak Hour Traffic |        |
|  |   | Scale: Not to Scale     | Figure |

### C` Hx Udghld Unkt I d Qdonq

Rd cx C` sd9 St drc` x+ / 0.17.1/ 14

TntstC9 Gv x 75

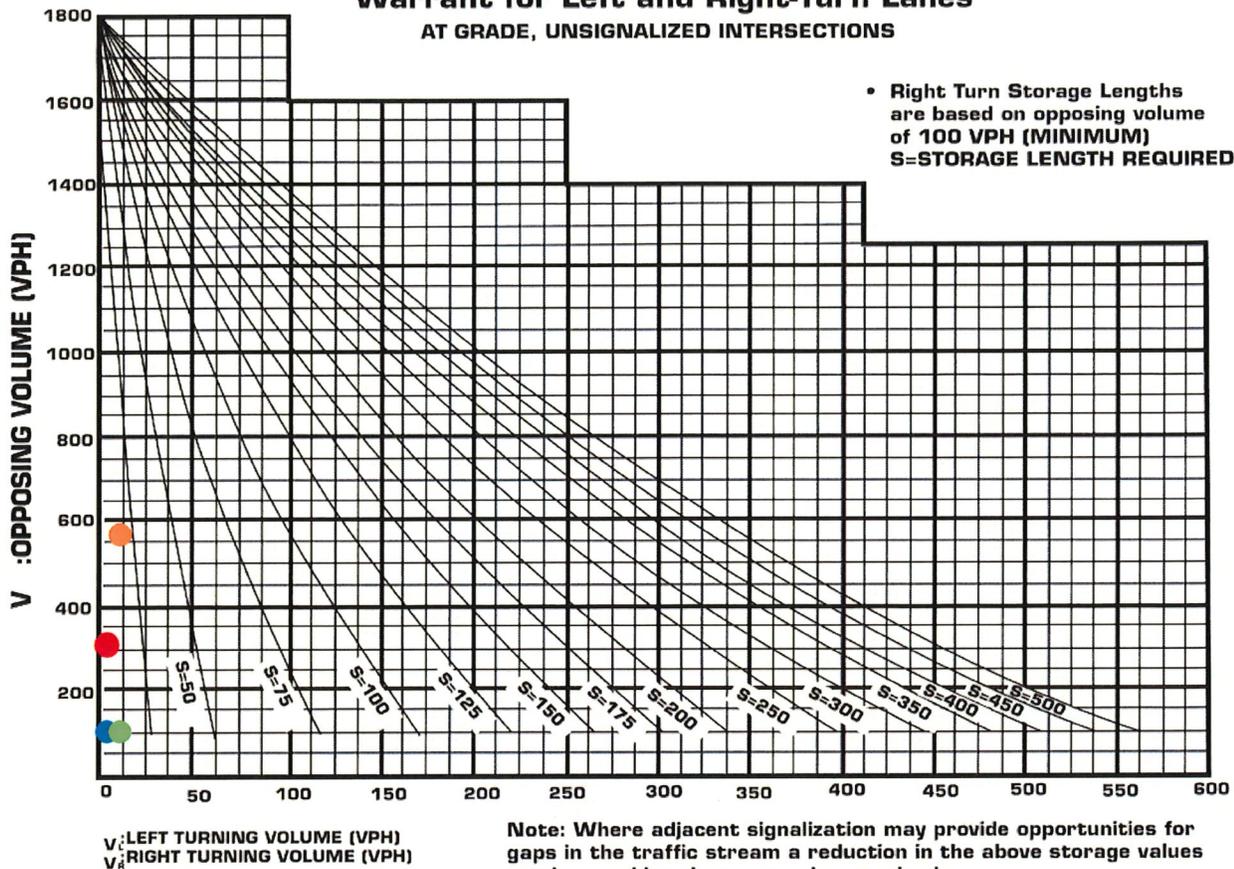
Knbt dnn9 Gv x 75

|                       | Southbound<br>Volume | Northbound<br>Volume | Total<br>Volume      |
|-----------------------|----------------------|----------------------|----------------------|
| 00:00 - 00:59         | 14                   | 20                   | 56                   |
| 01:00 - 01:59         | 07                   | 8                    | 27                   |
| 02:00 - 02:59         | 01                   | 7                    | 20                   |
| 03:00 - 03:59         | 14                   | 00                   | 36                   |
| 04:00 - 04:59         | 51                   | 03                   | 76                   |
| 05:00 - 05:59         | 047                  | 48                   | 217                  |
| 06:00 - 06:59         | 3//                  | 003                  | 514                  |
| 07:00 - 07:59         | 412                  | 132                  | 766                  |
| 08:00 - 08:59         | 255                  | 107                  | 584                  |
| 09:00 - 09:59         | 216                  | 111                  | 549                  |
| 10:00 - 10:59         | 222                  | 143                  | 587                  |
| 11:00 - 11:59         | 230                  | 2/ 2                 | 644                  |
| 12:00 - 12:59         | 218                  | 214                  | 654                  |
| 13:00 - 13:59         | 20/                  | 222                  | 643                  |
| 14:00 - 14:59         | 237                  | 213                  | 672                  |
| 15:00 - 15:59         | 16/                  | 36/                  | 740                  |
| 16:00 - 16:59         | 187                  | 4/ 3                 | 802                  |
| 17:00 - 17:59         | 208                  | 405                  | 835                  |
| 18:00 - 18:59         | 116                  | 284                  | 622                  |
| 19:00 - 19:59         | 022                  | 127                  | 371                  |
| 20:00 - 20:59         | 0//                  | 102                  | 313                  |
| 21:00 - 21:59         | 66                   | 037                  | 225                  |
| 22:00 - 22:59         | 36                   | 77                   | 135                  |
| 23:00 - 23:59         | 11                   | 47                   | 80                   |
| <b>Totals</b>         | <b>5070</b>          | <b>5098</b>          | <b>10168</b>         |
| <b>AM Peak Time</b>   | <b>06:47 - 07:46</b> | <b>10:58 - 11:57</b> | <b>06:59 - 07:58</b> |
| <b>AM Peak Volume</b> | <b>543</b>           | <b>304</b>           | <b>767</b>           |
| <b>PM Peak Time</b>   | <b>13:44 - 14:43</b> | <b>16:41 - 17:40</b> | <b>16:41 - 17:40</b> |
| <b>PM Peak Volume</b> | <b>357</b>           | <b>567</b>           | <b>879</b>           |

Highway 86 Subdivision - Orange County, NC

TURN LANE STORAGE WARRANTS

**Warrant for Left and Right-Turn Lanes**  
AT GRADE, UNSIGNALIZED INTERSECTIONS



Policy On Street And Driveway Access to North Carolina Highways

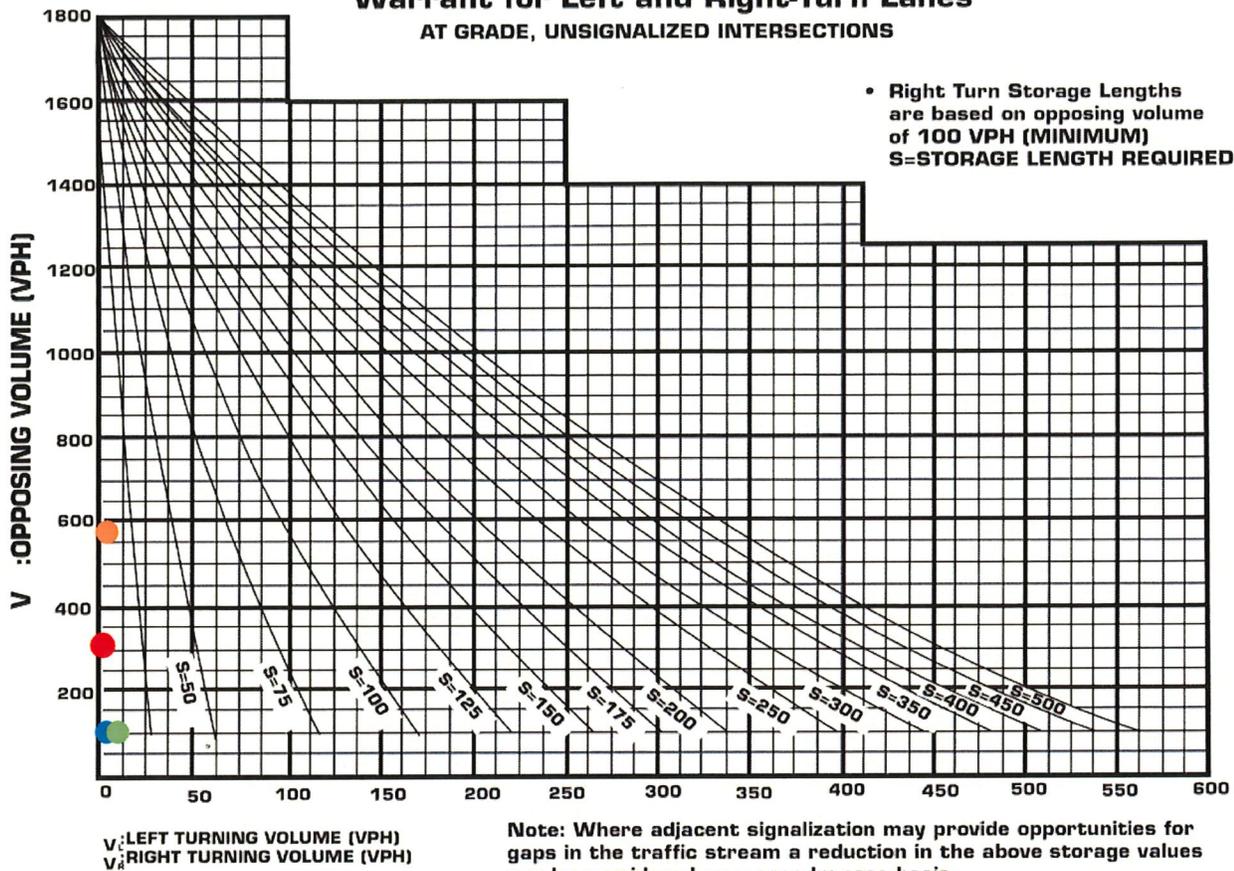
INTERSECTION: Highway 86 and Site Drive 1 (northern access)

| SCENARIO | Movement | Turn Lane | Turning Volume ( $V_R/V_L$ ) | Approach / Opposing Volume ( $V_A/V_O$ ) | Symbol     |
|----------|----------|-----------|------------------------------|--|------------|
| AM Build | SBL      | Left      | 3                            | 307                                      | ● (Red)    |
| AM Build | NBR      | Right     | 3                            | 100                                      | ● (Blue)   |
| PM Build | SBL      | Left      | 10                           | 569                                      | ● (Orange) |
| PM Build | NBR      | Right     | 10                           | 100                                      | ● (Green)  |

Highway 86 Subdivision - Orange County, NC

TURN LANE STORAGE WARRANTS

**Warrant for Left and Right-Turn Lanes**  
AT GRADE, UNSIGNALIZED INTERSECTIONS



Policy On Street And Driveway Access to North Carolina Highways

INTERSECTION: Highway 86 and Site Drive 2 (southern access)

| SCENARIO | Movement | Turn Lane | Turning Volume (V <sub>r</sub> /V <sub>l</sub> ) | Approach / Opposing Volume (V <sub>A</sub> /V <sub>O</sub> ) | Symbol |
|----------|----------|-----------|--|--|--------|
| AM Build | SBL      | Left      | 1  | 307  | ●      |
| AM Build | NBR      | Right     | 3  | 100  | ●      |
| PM Build | SBL      | Left      | 3  | 577  | ●      |
| PM Build | NBR      | Right     | 9  | 100  | ●      |

HCM 6th TWSC  
1: Highway 86 & Site Drive 1

Build  
Timing Plan: AM Peak Hour

Intersection

Int Delay, s/veh 0.3

| Movement                 | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      | ↔    |      | ↔    |      |      | ↔    |
| Traffic Vol, veh/h       | 9    | 8    | 307  | 4    | 4    | 544  |
| Future Vol, veh/h        | 9    | 8    | 307  | 4    | 4    | 544  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 0    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | 0    | -    | 0    | -    | -    | 0    |
| Grade, %                 | 0    | -    | 0    | -    | -    | 0    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 10   | 9    | 341  | 4    | 4    | 604  |

| Major/Minor          | Minor1 | Major1 | Major2 | Major3 | Major4 | Major5 |
|----------------------|--------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 955    | 343    | 0      | 0      | 345    | 0      |
| Stage 1              | 343    | -      | -      | -      | -      | -      |
| Stage 2              | 612    | -      | -      | -      | -      | -      |
| Critical Hdwy        | 6.42   | 6.22   | -      | -      | 4.12   | -      |
| Critical Hdwy Stg 1  | 5.42   | -      | -      | -      | -      | -      |
| Critical Hdwy Stg 2  | 5.42   | -      | -      | -      | -      | -      |
| Follow-up Hdwy       | 3.518  | 3.318  | -      | -      | 2.218  | -      |
| Pot Cap-1 Maneuver   | 287    | 700    | -      | -      | 1214   | -      |
| Stage 1              | 719    | -      | -      | -      | -      | -      |
| Stage 2              | 541    | -      | -      | -      | -      | -      |
| Platoon blocked, %   |        |        | -      | -      | -      | -      |
| Mov Cap-1 Maneuver   | 286    | 700    | -      | -      | 1214   | -      |
| Mov Cap-2 Maneuver   | 286    | -      | -      | -      | -      | -      |
| Stage 1              | 719    | -      | -      | -      | -      | -      |
| Stage 2              | 538    | -      | -      | -      | -      | -      |

| Approach             | WB   | NB | SB  |
|----------------------|------|----|-----|
| HCM Control Delay, s | 14.5 | 0  | 0.1 |
| HCM LOS              | B    |    |     |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 396   | 1214  |
| HCM Lane V/C Ratio    | -   | -        | 0.048 | 0.004 |
| HCM Control Delay (s) | -   | -        | 14.5  | 8     |
| HCM Lane LOS          | -   | -        | B     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 0.1   | 0     |

HCM 6th TWSC  
2: Highway 86 & Site Drive 2

Build  
Timing Plan: AM Peak Hour

| Intersection             |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh         | 0.3  |      |      |      |      |      |
| Movement                 | WBL  | WBR  | NBT  | NBR  | SBL  | SBT  |
| Lane Configurations      | Y    |      | T    |      |      | T    |
| Traffic Vol, veh/h       | 9    | 4    | 307  | 4    | 4    | 552  |
| Future Vol, veh/h        | 9    | 4    | 307  | 4    | 4    | 552  |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | 0    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | 0    | -    | 0    | -    | -    | 0    |
| Grade, %                 | 0    | -    | 0    | -    | -    | 0    |
| Peak Hour Factor         | 90   | 90   | 90   | 90   | 90   | 90   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 10   | 4    | 341  | 4    | 4    | 613  |

| Major/Minor          | Minor1 | Major1 | Major2 |   |       |
|----------------------|--------|--------|--------|---|-------|
| Conflicting Flow All | 964    | 343    | 0      | 0 | 345   |
| Stage 1              | 343    | -      | -      | - | -     |
| Stage 2              | 621    | -      | -      | - | -     |
| Critical Hdwy        | 6.42   | 6.22   | -      | - | 4.12  |
| Critical Hdwy Stg 1  | 5.42   | -      | -      | - | -     |
| Critical Hdwy Stg 2  | 5.42   | -      | -      | - | -     |
| Follow-up Hdwy       | 3.518  | 3.318  | -      | - | 2.218 |
| Pot Cap-1 Maneuver   | 283    | 700    | -      | - | 1214  |
| Stage 1              | 719    | -      | -      | - | -     |
| Stage 2              | 536    | -      | -      | - | -     |
| Platoon blocked, %   |        |        | -      | - | -     |
| Mov Cap-1 Maneuver   | 282    | 700    | -      | - | 1214  |
| Mov Cap-2 Maneuver   | 282    | -      | -      | - | -     |
| Stage 1              | 719    | -      | -      | - | -     |
| Stage 2              | 533    | -      | -      | - | -     |

| Approach             | WB   | NB | SB  |
|----------------------|------|----|-----|
| HCM Control Delay, s | 15.9 | 0  | 0.1 |
| HCM LOS              | C    |    |     |

| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL   | SBT   |
|-----------------------|-----|----------|-------|-------|
| Capacity (veh/h)      | -   | -        | 345   | 1214  |
| HCM Lane V/C Ratio    | -   | -        | 0.042 | 0.004 |
| HCM Control Delay (s) | -   | -        | 15.9  | 8     |
| HCM Lane LOS          | -   | -        | C     | A     |
| HCM 95th %tile Q(veh) | -   | -        | 0.1   | 0     |

HCM 6th TWSC  
1: Highway 86 & Site Drive 1

Build  
Timing Plan: PM Peak Hour

| Intersection             |        |          |        |       |       |      |
|--------------------------|--------|----------|--------|-------|-------|------|
| Int Delay, s/veh         | 0.3    |          |        |       |       |      |
| Movement                 | WBL    | WBR      | NBT    | NBR   | SBL   | SBT  |
| Lane Configurations      | ↔      |          | ↔      |       | ↔     | ↔    |
| Traffic Vol, veh/h       | 6      | 5        | 569    | 10    | 10    | 360  |
| Future Vol, veh/h        | 6      | 5        | 569    | 10    | 10    | 360  |
| Conflicting Peds, #/hr   | 0      | 0        | 0      | 0     | 0     | 0    |
| Sign Control             | Stop   | Stop     | Free   | Free  | Free  | Free |
| RT Channelized           | -      | None     | -      | None  | -     | None |
| Storage Length           | 0      | -        | -      | -     | -     | -    |
| Veh in Median Storage, # | 0      | -        | 0      | -     | -     | 0    |
| Grade, %                 | 0      | -        | 0      | -     | -     | 0    |
| Peak Hour Factor         | 90     | 90       | 90     | 90    | 90    | 90   |
| Heavy Vehicles, %        | 2      | 2        | 2      | 2     | 2     | 2    |
| Mvmt Flow                | 7      | 6        | 632    | 11    | 11    | 400  |
| Major/Minor              | Minor1 | Major1   | Major2 |       |       |      |
| Conflicting Flow All     | 1060   | 638      | 0      | 0     | 643   | 0    |
| Stage 1                  | 638    | -        | -      | -     | -     | -    |
| Stage 2                  | 422    | -        | -      | -     | -     | -    |
| Critical Hdwy            | 6.42   | 6.22     | -      | -     | 4.12  | -    |
| Critical Hdwy Stg 1      | 5.42   | -        | -      | -     | -     | -    |
| Critical Hdwy Stg 2      | 5.42   | -        | -      | -     | -     | -    |
| Follow-up Hdwy           | 3.518  | 3.318    | -      | -     | 2.218 | -    |
| Pot Cap-1 Maneuver       | 248    | 477      | -      | -     | 942   | -    |
| Stage 1                  | 526    | -        | -      | -     | -     | -    |
| Stage 2                  | 662    | -        | -      | -     | -     | -    |
| Platoon blocked, %       |        |          | -      | -     | -     | -    |
| Mov Cap-1 Maneuver       | 244    | 477      | -      | -     | 942   | -    |
| Mov Cap-2 Maneuver       | 244    | -        | -      | -     | -     | -    |
| Stage 1                  | 526    | -        | -      | -     | -     | -    |
| Stage 2                  | 652    | -        | -      | -     | -     | -    |
| Approach                 | WB     | NB       | SB     |       |       |      |
| HCM Control Delay, s     | 16.9   | 0        | 0.2    |       |       |      |
| HCM LOS                  | C      |          |        |       |       |      |
| Minor Lane/Major Mvmt    | NBT    | NBRWBLn1 | SBL    | SBT   |       |      |
| Capacity (veh/h)         | -      | -        | 314    | 942   | -     |      |
| HCM Lane V/C Ratio       | -      | -        | 0.039  | 0.012 | -     |      |
| HCM Control Delay (s)    | -      | -        | 16.9   | 8.9   | 0     |      |
| HCM Lane LOS             | -      | -        | C      | A     | A     |      |
| HCM 95th %tile Q(veh)    | -      | -        | 0.1    | 0     | -     |      |

HCM 6th TWSC  
2: Highway 86 & Site Drive 2

Build  
Timing Plan: PM Peak Hour

| Intersection             |        |          |        |       |       |      |
|--------------------------|--------|----------|--------|-------|-------|------|
| Int Delay, s/veh         | 0.2    |          |        |       |       |      |
| Movement                 | WBL    | WBR      | NBT    | NBR   | SBL   | SBT  |
| Lane Configurations      | Y      |          | T      |       |       | T    |
| Traffic Vol, veh/h       | 6      | 4        | 577    | 9     | 4     | 363  |
| Future Vol, veh/h        | 6      | 4        | 577    | 9     | 4     | 363  |
| Conflicting Peds, #/hr   | 0      | 0        | 0      | 0     | 0     | 0    |
| Sign Control             | Stop   | Stop     | Free   | Free  | Free  | Free |
| RT Channelized           | -      | None     | -      | None  | -     | None |
| Storage Length           | 0      | -        | -      | -     | -     | -    |
| Veh in Median Storage, # | 0      | -        | 0      | -     | -     | 0    |
| Grade, %                 | 0      | -        | 0      | -     | -     | 0    |
| Peak Hour Factor         | 90     | 90       | 90     | 90    | 90    | 90   |
| Heavy Vehicles, %        | 2      | 2        | 2      | 2     | 2     | 2    |
| Mvmt Flow                | 7      | 4        | 641    | 10    | 4     | 403  |
| Major/Minor              | Minor1 | Major1   | Major2 |       |       |      |
| Conflicting Flow All     | 1057   | 646      | 0      | 0     | 651   | 0    |
| Stage 1                  | 646    | -        | -      | -     | -     | -    |
| Stage 2                  | 411    | -        | -      | -     | -     | -    |
| Critical Hdwy            | 6.42   | 6.22     | -      | -     | 4.12  | -    |
| Critical Hdwy Stg 1      | 5.42   | -        | -      | -     | -     | -    |
| Critical Hdwy Stg 2      | 5.42   | -        | -      | -     | -     | -    |
| Follow-up Hdwy           | 3.518  | 3.318    | -      | -     | 2.218 | -    |
| Pot Cap-1 Maneuver       | 249    | 472      | -      | -     | 935   | -    |
| Stage 1                  | 522    | -        | -      | -     | -     | -    |
| Stage 2                  | 669    | -        | -      | -     | -     | -    |
| Platoon blocked, %       |        |          | -      | -     | -     | -    |
| Mov Cap-1 Maneuver       | 248    | 472      | -      | -     | 935   | -    |
| Mov Cap-2 Maneuver       | 248    | -        | -      | -     | -     | -    |
| Stage 1                  | 522    | -        | -      | -     | -     | -    |
| Stage 2                  | 665    | -        | -      | -     | -     | -    |
| Approach                 | WB     | NB       |        | SB    |       |      |
| HCM Control Delay, s     | 17.2   | 0        |        | 0.1   |       |      |
| HCM LOS                  | C      |          |        |       |       |      |
| Minor Lane/Major Mvmt    | NBT    | NBRWBLn1 | SBL    | SBT   |       |      |
| Capacity (veh/h)         | -      | -        | 306    | 935   | -     |      |
| HCM Lane V/C Ratio       | -      | -        | 0.036  | 0.005 | -     |      |
| HCM Control Delay (s)    | -      | -        | 17.2   | 8.9   | 0     |      |
| HCM Lane LOS             | -      | -        | C      | A     | A     |      |
| HCM 95th %tile Q(veh)    | -      | -        | 0.1    | 0     | -     |      |

Queuing and Blocking Report

Build

AM Peak Hour

Intersection: 1: Highway 86 & Site Drive 1

| Movement              | WB  | SB   |
|-----------------------|-----|------|
| Directions Served     | LR  | LT   |
| Maximum Queue (ft)    | 46  | 21   |
| Average Queue (ft)    | 15  | 1    |
| 95th Queue (ft)       | 42  | 11   |
| Link Distance (ft)    | 992 | 1062 |
| Upstream Blk Time (%) |     |      |
| Queuing Penalty (veh) |     |      |
| Storage Bay Dist (ft) |     |      |
| Storage Blk Time (%)  |     |      |
| Queuing Penalty (veh) |     |      |

Intersection: 2: Highway 86 & Site Drive 2

| Movement              | WB  | SB   |
|-----------------------|-----|------|
| Directions Served     | LR  | LT   |
| Maximum Queue (ft)    | 33  | 34   |
| Average Queue (ft)    | 11  | 2    |
| 95th Queue (ft)       | 35  | 16   |
| Link Distance (ft)    | 990 | 1565 |
| Upstream Blk Time (%) |     |      |
| Queuing Penalty (veh) |     |      |
| Storage Bay Dist (ft) |     |      |
| Storage Blk Time (%)  |     |      |
| Queuing Penalty (veh) |     |      |

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report

Build

PM Peak Hour

Intersection: 1: Highway 86 & Site Drive 1

| Movement              | WB  | SB   |
|-----------------------|-----|------|
| Directions Served     | LR  | LT   |
| Maximum Queue (ft)    | 38  | 58   |
| Average Queue (ft)    | 9   | 5    |
| 95th Queue (ft)       | 33  | 29   |
| Link Distance (ft)    | 992 | 1062 |
| Upstream Blk Time (%) |     |      |
| Queuing Penalty (veh) |     |      |
| Storage Bay Dist (ft) |     |      |
| Storage Blk Time (%)  |     |      |
| Queuing Penalty (veh) |     |      |

Intersection: 2: Highway 86 & Site Drive 2

| Movement              | WB  | SB   |
|-----------------------|-----|------|
| Directions Served     | LR  | LT   |
| Maximum Queue (ft)    | 33  | 44   |
| Average Queue (ft)    | 8   | 3    |
| 95th Queue (ft)       | 29  | 24   |
| Link Distance (ft)    | 990 | 1565 |
| Upstream Blk Time (%) |     |      |
| Queuing Penalty (veh) |     |      |
| Storage Bay Dist (ft) |     |      |
| Storage Blk Time (%)  |     |      |
| Queuing Penalty (veh) |     |      |

Network Summary

Network wide Queuing Penalty: 0

**Construction Schedule – Hwy 86 Subdivision**

Development Start Date February 2027

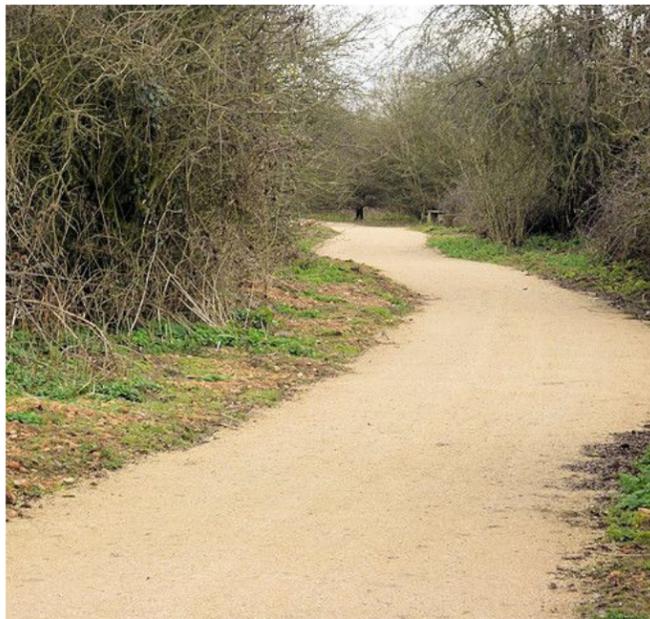
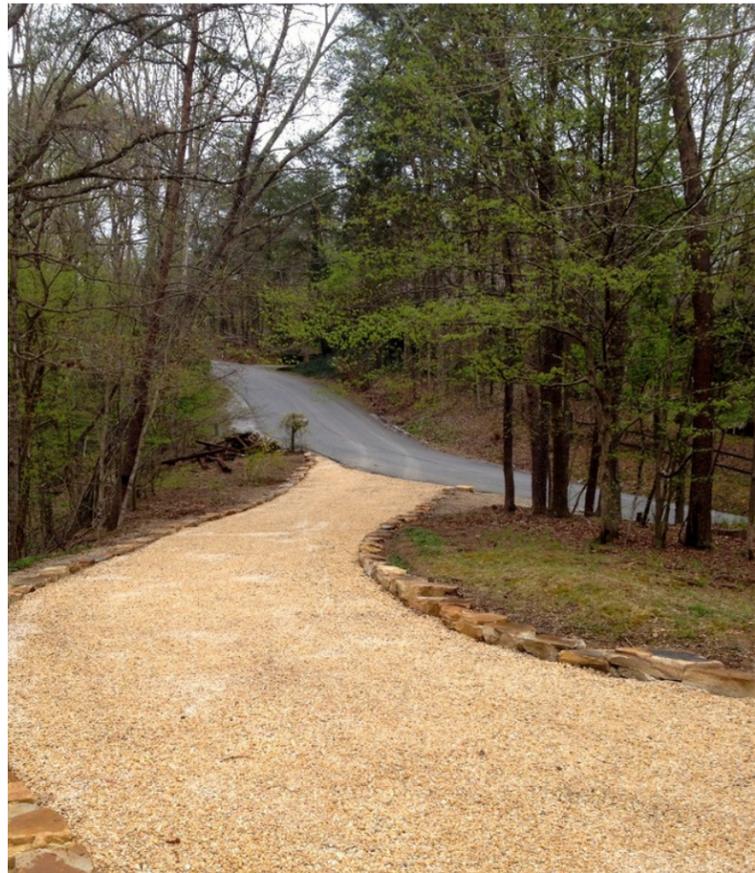
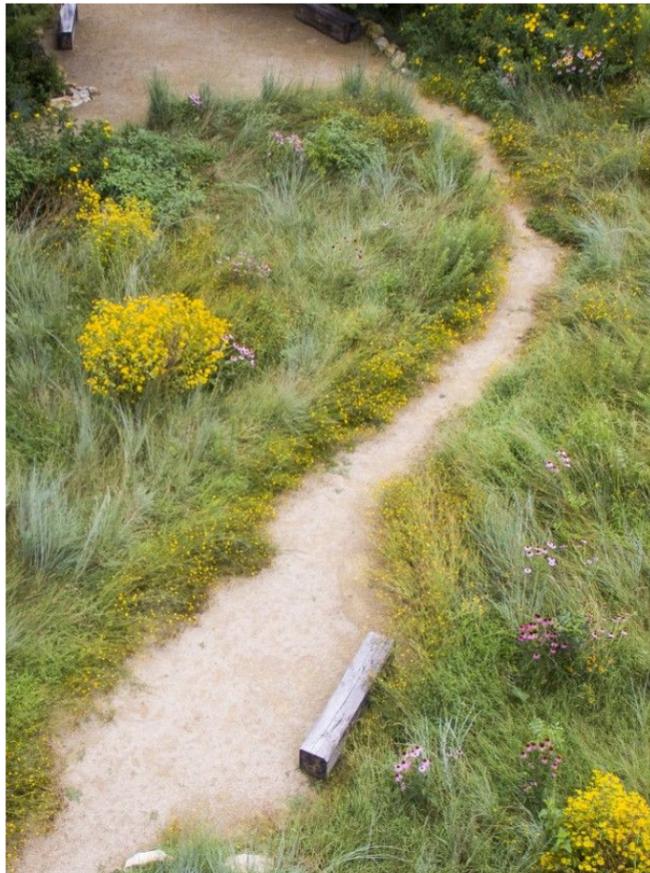
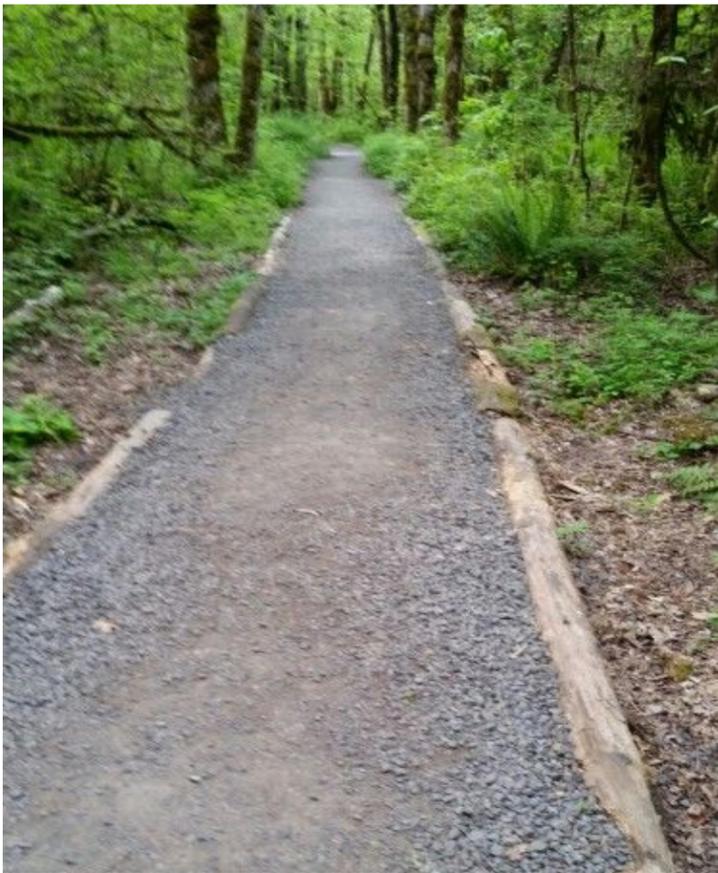
First Lot Delivery – April 2028

First Home Sales (Assumed, controlled by builder, not Forestar) – September 2028

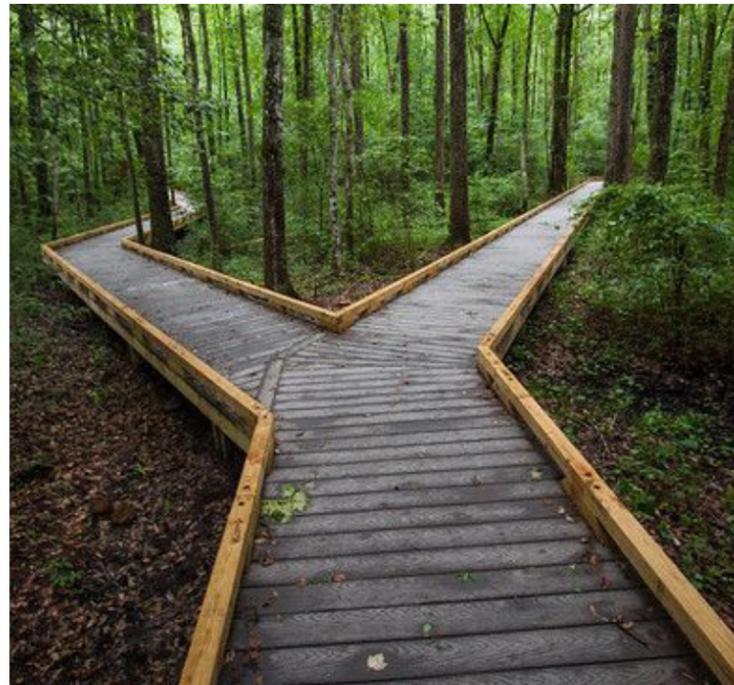
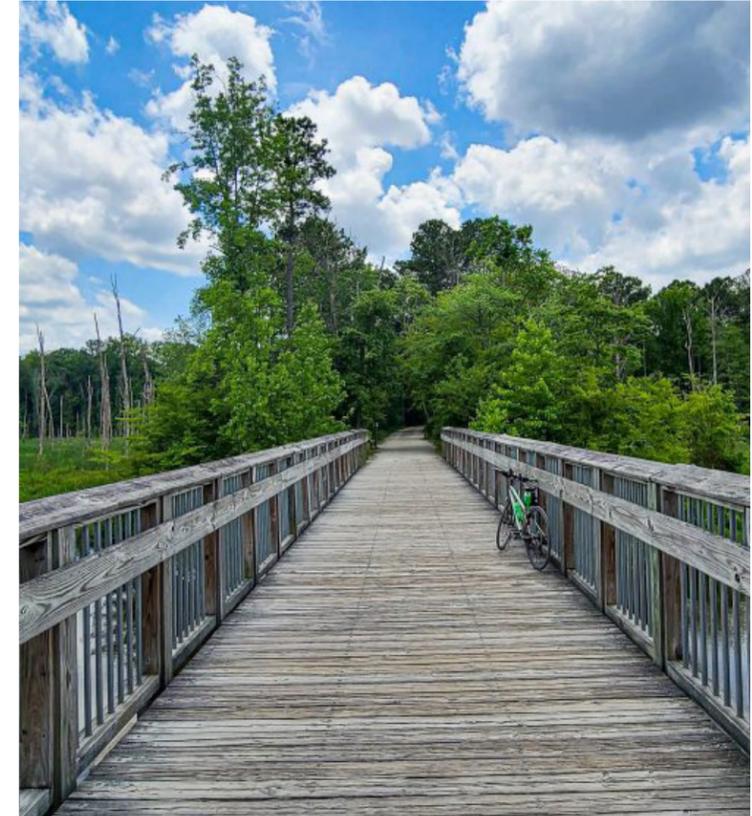
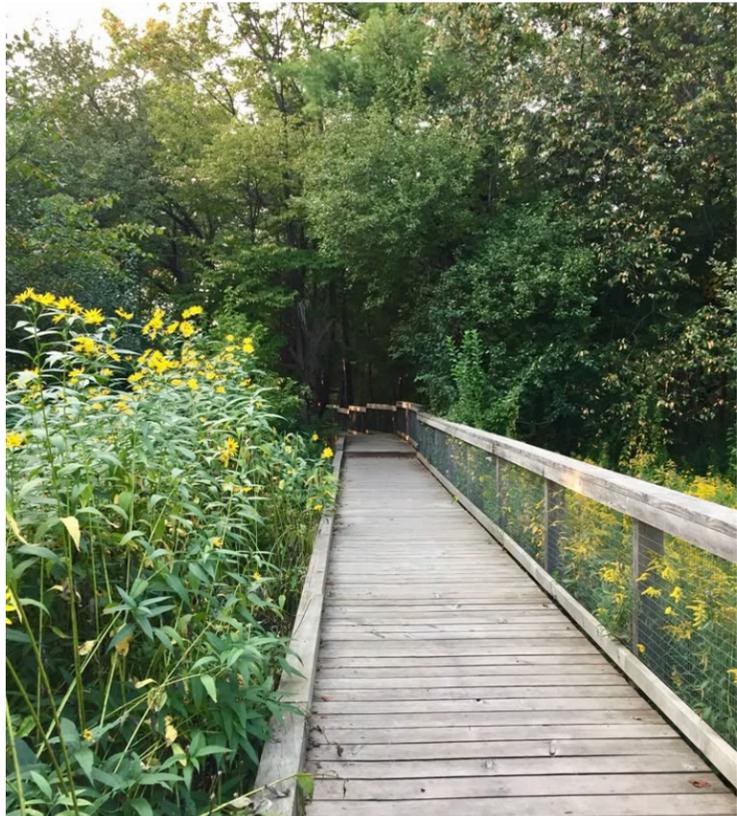


*Note: Images are representative of the design intent only and do not reflect actual materials, finishes, scale, or other details. Final design will be determined at time of construction drawings.*

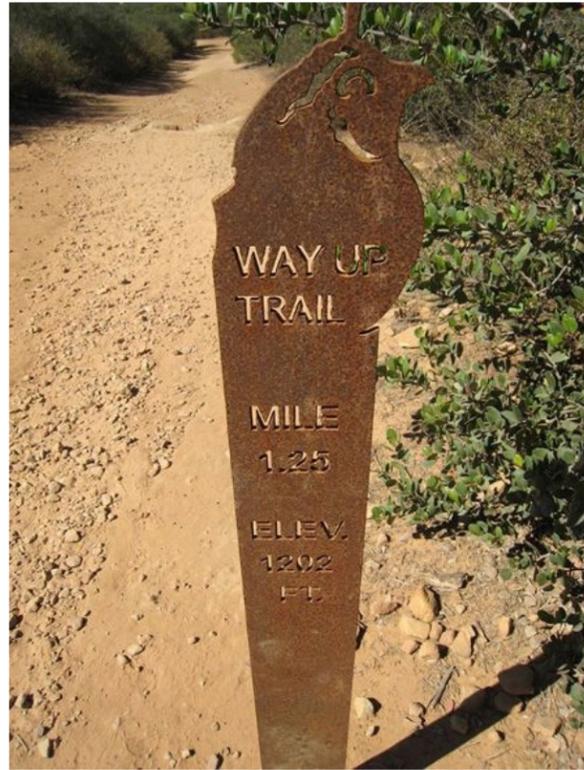
# NATURAL SURFACE TRAILS



*Note: Images are representative of the design intent only and do not reflect actual materials, finishes, scale, or other details. Final design will be determined at time of construction drawings.*



*Note: Images are representative of the design intent only and do not reflect actual materials, finishes, scale, or other details. Final design will be determined at time of construction drawings.*



Note: Images are representative of the design intent only and do not reflect actual materials, finishes, scale, or other details. Final design will be determined at time of construction drawings.



ALEGRIA  
LAWRENCE WEIR - GREENSBORO



DERVISH  
THOMAS SAYRE - RALEIGH



CAIRN'S COURSE  
THOMAS SAYRE - RALEIGH



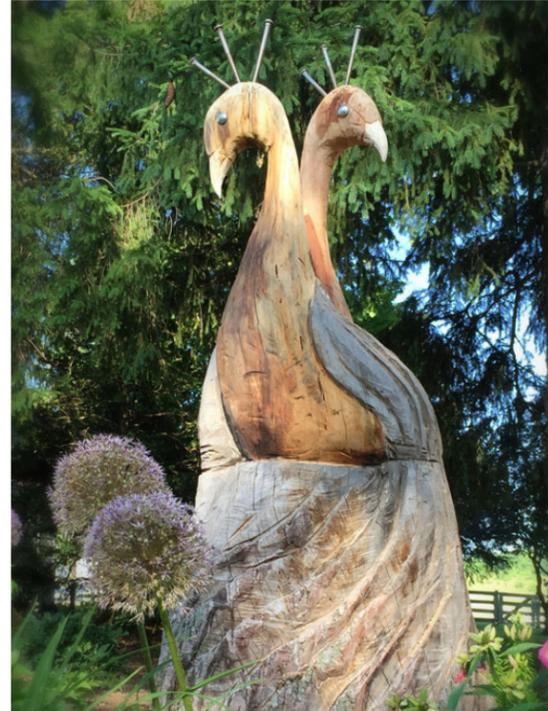
DIVINE WIND  
JIM GALLUCCI - GREENSBORO



SUNFLOWERS  
THOMAS SAYRE - RALEIGH



FLUTTER CROWN ARCHWAY  
JIM GALLUCCI - GREENSBORO

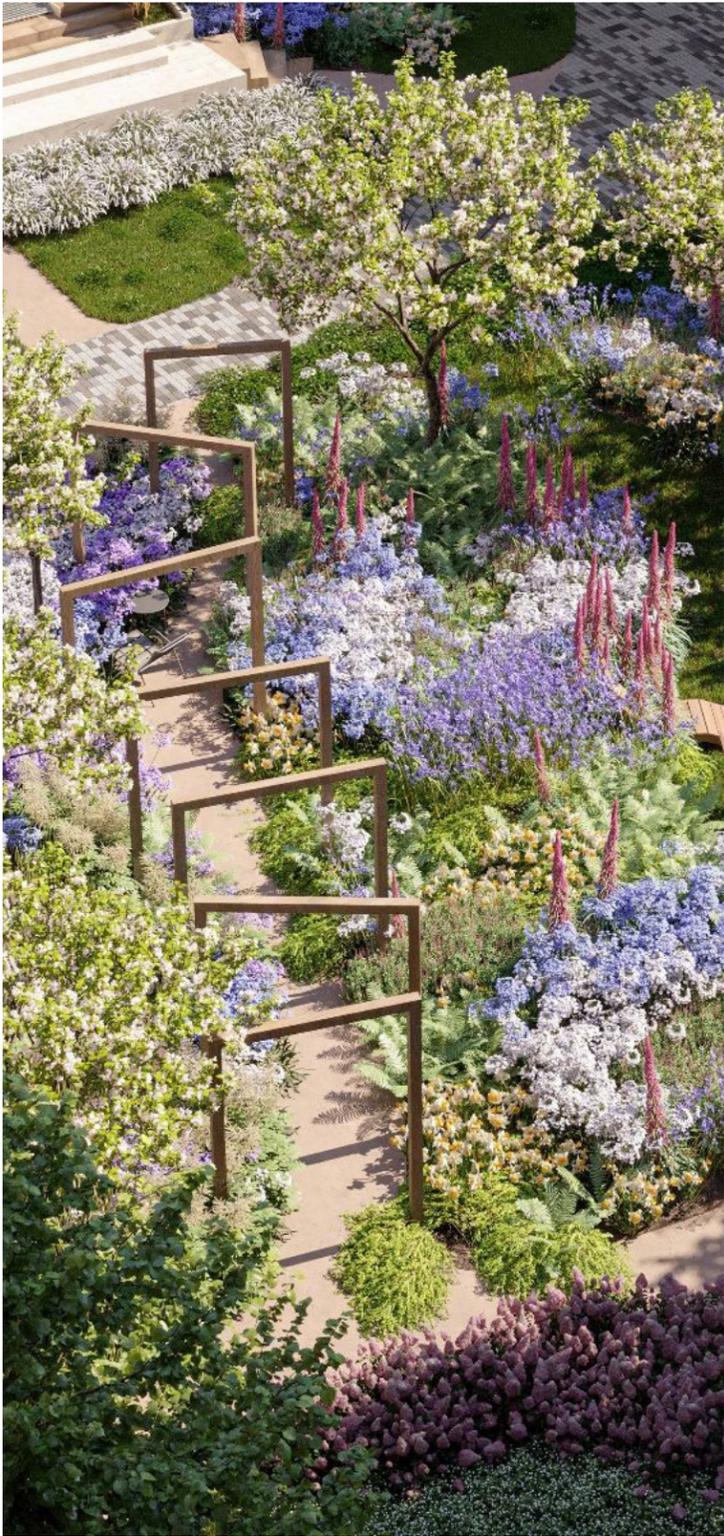
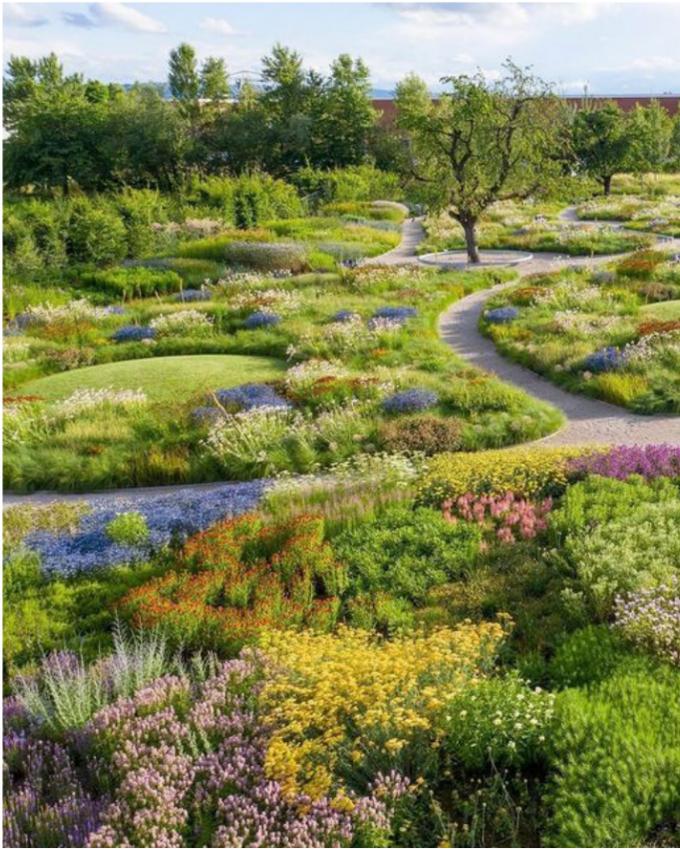


PEACOCK  
JEFF DALE - CARY



SIMPLE PLEASURES  
PATRICK DOUGHERTY - CHAPEL HILL

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Environmental Consulting | Litigation Support | Environmental Services

6 May 2025

Ms. Laura Haywood  
 Entitlements Program Manager  
**Forestar – Carolinas East Division**  
 VIA E-mail: LauraHaywood@forestar.com

**RE: HWY 86 DD – Orange County, NC – Orange County Buffer Applicability Memo**

Ms. Haywood:

Based on the email provided on 4 April 2025, “Below I’ve also included a snip of the Soil Survey in which all on-site streams were mapped, which means UDO Section 6.13.5(B) does apply for buffer purposes”, via Orange County’s Taylor Pershau, the project area is subject to *UDO Section 6.13.5(B) Stream buffers for Soil Survey streams shall only be calculated using Method A as explained in Section 6.13.3*. As a result, the buffer analysis described below, and depicted in the attached figures follows *UDO Section 6.13.3(C) Method A – Stream Buffer Based on Slope and Groundcover*.

**Stream Buffer Calculations:**

Using Google Earth elevation data, Spangler Environmental, LLC (SEL) spaced cross sections 200 feet from one another along the previously mapped streams and calculated the slope between the top of bank and out 250 feet perpendicular to the direction of flow for each one, as described in *Method A*. At cross-sections with a slope of less than 7.5% a 65-foot-wide buffer (50 foot wide (minimum) + 15 feet wide) is applied and cross sections with slopes greater than 7.5% have an 80-foot-wide buffer (50 foot wide (minimum) + 30 feet wide). This also applies to any other water features, including wetlands, with direct surface connection to the stream reach. Additionally, the north-eastern stream sections are within the FEMA 100-yr floodplain. These sections must have the slope/buffer width determined from the floodplain’s outermost boundary, rather than the top of the stream bank. Please see the attached map “Cross-sections and Slope Map”, for the slope and location of each cross section.

**Conclusions:**

Based on the *Orange County UDO Section 6.13.3*, SEL has completed the buffer/slope analysis, and the results are shown in the attached “Orange County Buffer Map.” All the buffered streams and wetlands have had their buffer extended from 50-ft previously to now at least 65-ft and 80-ft in others, respectively. Orange County and SEL met onsite on 22 April 2025 to conduct the Surface Water Identification (SWID). The results are verified by Orange County and are shown in the maps and .dwg file provided. This conclusion only speaks to the stream features, the wetland feature’s locations and extents have yet to be verified by the United States Army Corps of Engineers (USACE) Wilmington District and are subject to change, therefore their resultant buffers are as well.

Please advise if you have any questions.

Sincerely,  
Spangler Environmental, LLC



AJ Varick  
Staff Scientist – Land & Water Resources



Ward Marotti  
Director – Land & Water Resources

Attachments:

- Orange County Buffer Map
- Cross-sections and Slope Map



| LEGEND |                                |
|--------|--------------------------------|
|        | Orange County Verified Streams |
|        | Wetland                        |
|        | Orange County UDO Buffer       |
|        | Property Boundary              |

ALL LOCATIONS ARE APPROXIMATE

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

|              |   |            |          |               |               |
|--------------|---|------------|----------|---------------|---------------|
| ADDRESS:     | 0 NC HWY 86 N                           | ACREAGE:   | 78 ACRES | PROJECT NAME: | <b>HWY 86</b> |
| CITY, STATE: | HILLSBOROUGH, NC                        | PROJECT #: | 20240209 |               |               |
| SOURCES:     | ORANGE COUNTY GIS<br>ESRI WORLD IMAGERY | DATE:      | MAY 2025 |               |               |

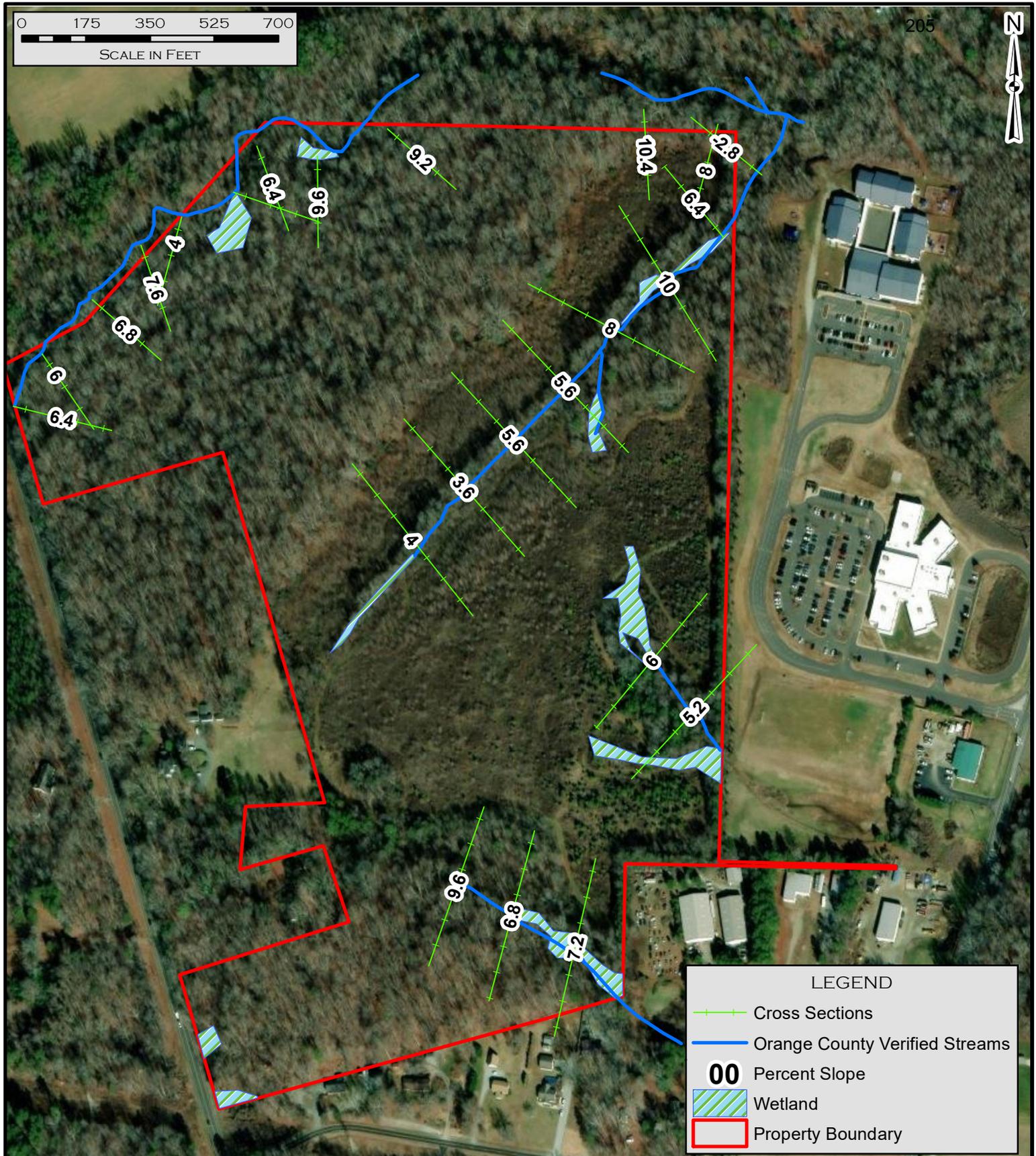


4338 BLAND ROAD  
RALEIGH, NORTH CAROLINA  
SPANGLERENVIRONMENTAL.COM  
(919) 875-4288

MAP NAME:  
**ORANGE COUNTY  
BUFFER MAP**



205



**LEGEND**

- Cross Sections
- Orange County Verified Streams
- 00** Percent Slope
- Wetland
- Property Boundary

ALL LOCATIONS ARE APPROXIMATE

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

|              |   |            |          |               |               |
|--------------|---|------------|----------|---------------|---------------|
| ADDRESS:     | 0 NC HWY 86 N                           | ACREAGE:   | 78 ACRES | PROJECT NAME: | <b>HWY 86</b> |
| CITY, STATE: | HILLSBOROUGH, NC                        | PROJECT #: | 20240209 |               |               |
| SOURCES:     | ORANGE COUNTY GIS<br>ESRI WORLD IMAGERY | DATE:      | MAY 2025 |               |               |



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MAP NAME:  
**CROSS-SECTIONS  
AND SLOPE MAP**



▪ **Estimated % of property with:**

**0 – 5% slope:** 85.7%

**5 – 15% slope:** 10%

**15 – 25% slope:** 3%

**More than 25% slope:** 2%

**C. Water Features and Drainage**

**The following water features are located on the property:**

Streams  Wetlands  Ponds  Drainage Easements  Special Flood Hazard Area

**Describe**

See Exhibit B

(attach additional sheets if needed)

**D. Does the property contain any of the following Inventory of Natural or Cultural Resources?**

As identified in the “Inventory of Sites of Cultural, Historical, Recreational, Biological, and Geological Significance in the Unincorporated Portions of Orange County” or the “Inventory of Natural Areas and Wildlife Habitats of Orange County, North Carolina”.

- 1. Cemeteries  Yes  No
- 2. Archaeological sites  Yes  No
- 3. Historic sites  Yes  No
- 4. Areas of geological significance  Yes  No
- 5. Designated natural areas  Yes  No
- 6. Designated habitat  Yes  No

For each yes answer above, please indicate the location on the site plan and complete Attachment A.

**III. Project Description\***

**A. Describe proposed use of property:**

Single Family Residential

**B. Number of lots:**

49

**C. Number of structures:**

49

**D. Estimated square footage of area to be graded for development of attached residential units (excluding roads, but including parking areas)**

0.3 acres

**E. Estimated square footage of area to be graded for non-residential use (excluding roads)**

1 acre

**F. Estimated area to be graded for roads** 2.5 acres

- **Road type:**  Public  Private
  - Class A
  - Class B

- **Total road length:** \_\_\_\_\_

**III. State Permits Required\***

**A. Does the project involve the mining of earth products?**  Yes  No

- **If yes, how many cubic feet of material are expected to be excavated?** \_\_\_\_\_

- **Has an application for a Mining Permit been submitted to NCDRCD?**  Yes  No

Please attach map indicating expected extent of proposed activity.

**B. Does the project involve generation or storage of hazardous or toxic wastes, as identified by the Environmental Protection Agency?**

Yes  No

- **Describe the wastes to be generated:**

- **How much material is expected to be generated per month?** \_\_\_\_\_

- **Will any material be treated onsite?**  Yes  No If yes, indicate volume: \_\_\_\_\_

**Will any material be stored onsite?**  Yes  No If yes, indicate volume: \_\_\_\_\_

- **Where will disposal of the material take place?**

- **How will materials be transported to the disposal site?**

- **What measures are proposed to protect water quality and air quality in case of spills?**

### C. Will the project involve a land application system for treatment of wastewater?

- Yes  No - If yes, describe

- Has an application for a non-discharge permit been submitted to the NC Department of Environmental Management or Orange County Department of Environmental Health?  Yes  No

### D. Is a septic tank system proposed which has a design capacity of more than 3,000 gallons per day?

- Yes  No - If yes, describe

### E. Does the activity involve sludge disposal? Yes No

- If yes, where is the source of the sludge?

- Describe where and how the sludge is being disposed

- Has a NPDES permit from the NC Division of Environmental Quality been issued?

Yes  No

### F. Water Usage

- Estimated number of employees: N/A x 25 gallons per day (gpd) = \_\_\_\_\_ gpd

- Estimated water use for climate control = \_\_\_\_\_ gpd

#### Process Water

\_\_\_\_\_ % Consumed

\_\_\_\_\_ % Discharged to septic system

\_\_\_\_\_ % Discharged to surface (including storm sewers) - Describe:

\_\_\_\_\_ % Evaporated

\_\_\_\_\_ % Reclaimed/reused

\_\_\_\_\_ % Other

= 100%

- Water used for cooling, heating, etc., in association with production or manufacturing

\_\_\_\_\_ % Reused

\_\_\_\_\_ % Consumed

\_\_\_\_\_ % Discharged - Describe: \_\_\_\_\_

= 100%

\_\_\_\_\_ gpd Total Water Usage

- Describe source of water:

**Attachment A\***

To be completed only if inventory sites are identified in I.D.  
(attach additional sheets if necessary)

**1.a. Impact on Resource from Proposed Development**

**1.b. Proposed Mitigation**

**2.a. Impact on Resource from Proposed Development**

**2.b. Proposed Mitigation**

**Certification and Signatures\***

Statement by Applicant - I certify that the information presented by me in this application is accurate to the best of my knowledge, information, and belief.

*Laura Haywood*  
**Applicant**

August 5, 2025  
**Date**

Exhibit A  
Property Owners

Estate of Lanie Brown (B.) Powell, c/o Hughes B. Powell Jr., Executor  
P.O. Box 636  
Smithfield, North Carolina 27577  
919.901.5374  
[Powellhugh8@gmail.com](mailto:Powellhugh8@gmail.com)

Amy L. Powell  
1234 Aken Street  
Port Charlotte, FL 33952  
910.895.1500  
[amylynnpowell@icloud.com](mailto:amylynnpowell@icloud.com)

Jenny Powell Parks and Russell Micheal Parks  
560 Parkertown Road  
Four Oaks, NC 27524  
919.963.3733

168971755.1

Exhibit B

Five stream features were delineated within the project area. One is perennial, originates off-property, and flows NE along the northern property boundary. The other features are intermittent, originate within the project area, and flow east, of the property. Because all five streams are depicted on the NRCS Soil Survey of Orange County and/or the USGS Hillsborough, NC 7.5-minute Topographic Quadrangle, they are all subject to the Neuse River Riparian Buffer Rules. Additionally, they are subject to the Orange County UDO Section 6.13.5 Areas Outside of Watershed Protection Overlay Districts, which also requires 50-ft. riparian buffers. As depicted in the National Flood Hazard Layer FIRMette, there is a small 100-year floodplain zone (Zone AE) in the northern portion of the project area. The balance of the property is considered an “area of minimal flood hazard.”

## Narrative of Zoning Conditions Offered R-CD

The property owner hereby offers, consents to and agrees to abide by the conditions written below, if the rezoning is approved.

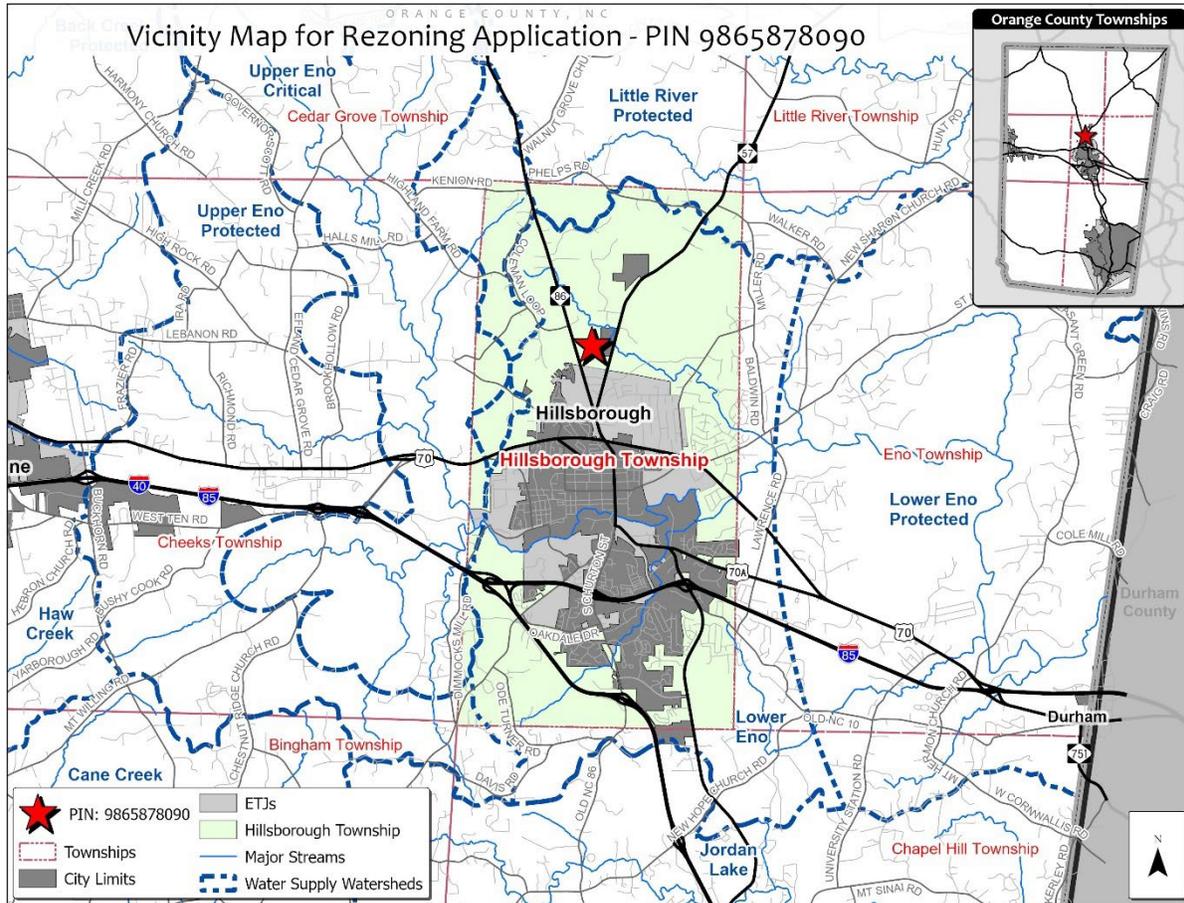
1. The subject property shall be developed in accordance with the proposed site plan submitted as part of this application (“Site Plan”).
2. The minimum lot size is 20,000 square feet. This deviates from the minimum in UDO Section 3.8. Suitable septic shall be provided on each parcel.
3. The property shall contain at least three (3) experiential gardens as shown on Site Plan as the Woodland Garden, the Picking Garden and the Pollinator Garden (each a “Garden” and collectively the “Gardens”). A landscape plan for each Garden shall be prepared by a landscape architect at the time of final plat to fulfill the theme of that Garden. Each Garden shall contain a seating opportunity such as a bench, chair or hammock. The Gardens shall be dedicated to and maintained by the Homeowner’s Association; however, nothing herein shall prevent the Homeowner’s Association from altering the planting plan of each Garden in the future.
4. Where supplementation of perimeter plantings is required, native plant materials appropriate for the growing environment in that area shall be utilized.
5. An ADA-compliant, open-air mail kiosk will incorporate a weather covering with recessed lighting.
6. Trails shall provide access to the Designated Community Gathering Space and each Garden as shown on the Site Plan. The length of the trails located on the subject property shall combined total at least 9,000 linear feet. Trail surfaces shall be aggregate or natural surface (not paved with concrete or asphalt) to minimize impacts to the existing environment and limit impervious surfaces. Boardwalks shall be utilized where the proposed trail crosses the wetlands as shown on the Site Plan, if permitted by Federal and State agencies. At least five (5) wayfinding signs shall be located along the trail to guide walkers to the Gardens and the Designated Community Gathering Area. The trail and associated amenities described in this section shall be maintained by the Homeowner’s Association. The precise location and alignment of the trails will be determined at final plat.
7. The Designated Community Gathering Space shall contain at least one (1) sculptural art piece and at least three (3) seating opportunities such as benches, chairs or hammocks, all to be maintained by the Homeowner’s Association.
8. Individual septic systems meeting Orange County Health Department requirements will be provided on each lot. Septic systems shall be designed to serve up to a four (4) bedroom home.

9. No home shall contain more than four (4) bedrooms.
10. Lighting in common areas of the Community shall comply with the requirements UDO Section 6.11.6, which promotes Dark Sky Preservation.

# Staff Report

## Zoning Atlas Amendment – Conditional District

### Basic Information



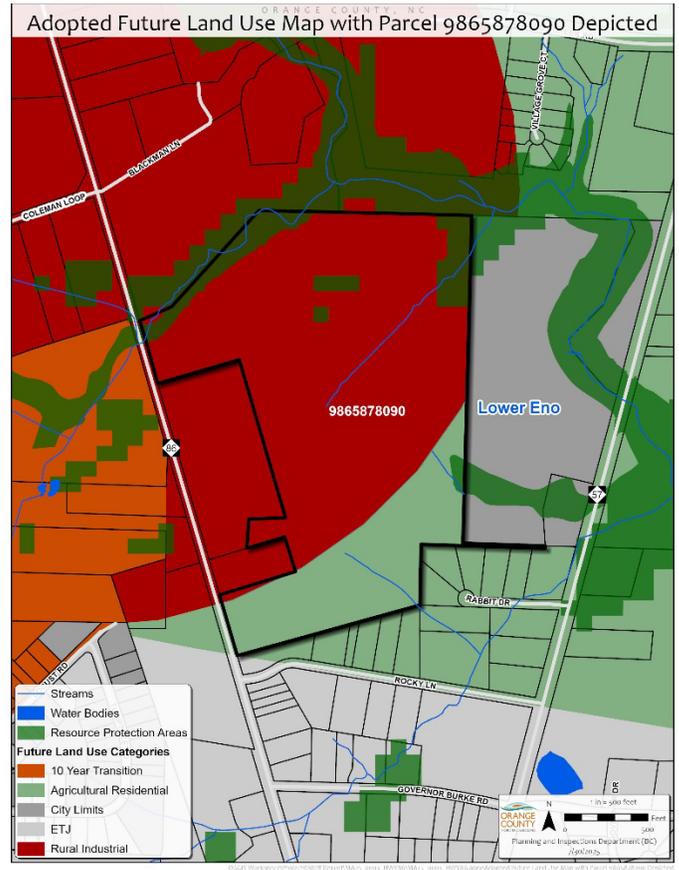
|   |   |
|---|---|
| Parcel Identification Number (PIN)                            | 9865-87-8090  |
| Parcel Address  | 1039-UT NC 86 N Hillsborough, NC 27278  |
| Applicant Name and Address                                    | Forestar Group, Inc.<br>8041 Arco Corporate Drive, Suite 110, Raleigh NC 27617  |
| Property Owner Name and Address (if different from Applicant) | Amy L. Powell<br>1234 Aken Street, Port Charlotte, FL 33952<br>Jenny Powell Parks and Russell Michael Parks<br>560 Parkertown Road, Four Oaks, NC 27524<br>Estate of Lane Brown Powell, c/o Hughes B. Powell, Jr., Executor<br>P.O. Box 636, Smithfield, NC 27577 |

|  |   |
|--|---|
| Parcel Size                            | +/- 78.11 acres   |
| Future Land Use Map (FLUM) Designation | Rural Industrial Activity Node and Agricultural Residential |
| FLUM Overlay(s)                        | Resource Protection Areas                                   |
| Growth Management System Designation   | Rural Designated  |

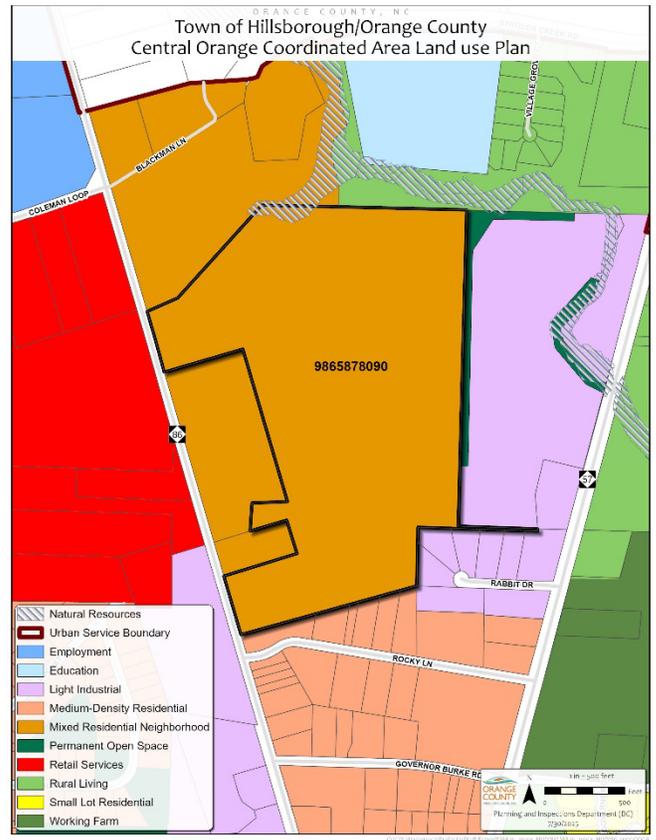
Definition of FLUM Designation (from Article 10 of UDO)

**Rural Industrial Activity Node:** Land designated in the Comprehensive Plan that is focused on designated road intersections which serves as a nodal crossroads for the surrounding rural community and is an appropriate location for small-scale industrial uses which do not require urban type services.

**Agricultural Residential:** Land in the rural areas where the prevailing land use activities are related to the land (agriculture, forestry) and which is an appropriate location for the continuation of these uses.



|                                     |  |
|-------------------------------------|--|
| Interlocal Agreement Applicable     | Yes  |
| Applicable ILA                      | Central Orange Coordinated Area Land Use Plan (COCA)   |
| COCA Future Land Use Classification | Mixed Residential Neighborhood   |
| Description                         | <p>The dominant land use in any proposed development is expected to be residential based on square footage of proposed structures. Developments may contain a single or variety of dwelling types and densities or may integrate a variety of supportive commercial, public and semi-public uses and open or public space. Small developments that provide only supportive non-residential land uses in an infill arrangement serving more than 50 dwelling units in a walkable manner may also be considered.</p> |



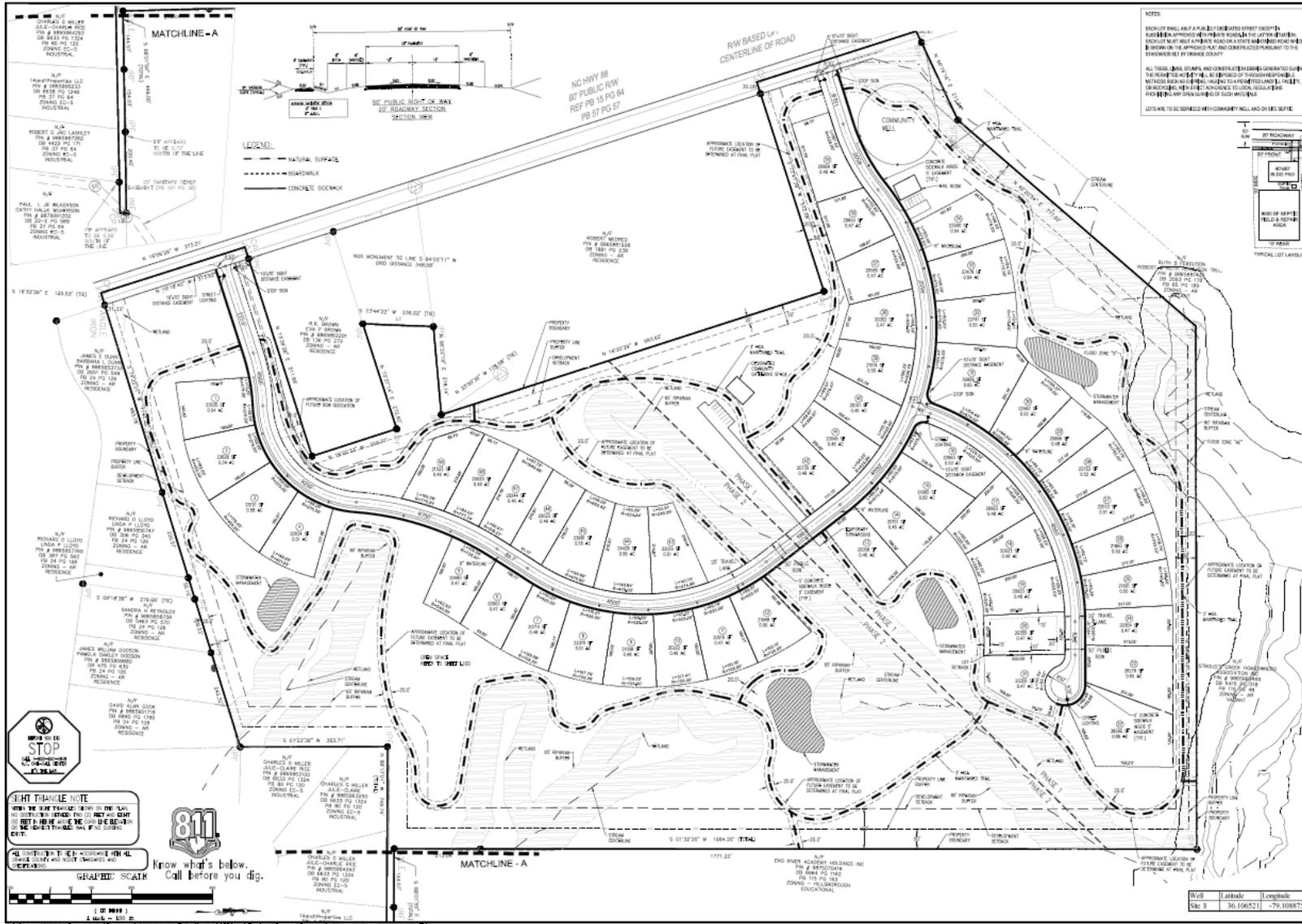
|  |   |   |
|--|---|---|
|  | Current Zoning District   | AR (Agricultural Residential)   |
|  | Requested Zoning District   | R-CD (Residential Conditional District)   |
|  | Requested Zoning District Consistent with Appendix F of 2030 Comprehensive Plan | Yes   |
|  | Existing Zoning Overlay Districts   | None - Property not located in a Water Supply Watershed but in the Lower Eno unprotected watershed. |
|  | Amendments Proposed for Overlay Districts (Y/N)                                 | No  |

| Surrounding Land Uses and Zoning |  |
|----------------------------------|--|
| North                            | All lots are zoned AR (Agricultural Residential) with single-family residential uses, a school use, and undeveloped parcels.   |
| South                            | Lots are zoned AR (Agricultural Residential) with single-family residential uses and EC-5 (Existing Commercial) with commercial uses.  |
| East                             | Lots are zoned EC-5 (Existing Commercial) with commercial uses and a school use within Town of Hillsborough zoning jurisdiction.   |
| West                             | Lots are zoned AR (Agricultural Residential), R3 (Medium Intensity Residential), PD-I1 (Planned Development Light Industrial), and I1 (Light Industrial) with single-family residential and industrial uses. The known industrial uses manufacture office supplies, lighting and decor, and scented wax melts. |
| Existing Roads                   |  |
| North                            | None   |
| South                            | None   |
| East                             | None   |



|   |         |  |
|---|---------|--|
| West  | NC 86 N |  |
| <b>Existing Conditions/Physical Features</b>  |         |  |
| <p>The entirety of the subject parcel is presently undeveloped. The applicant has provided photos of existing conditions on the site supporting that existing trees are mature hardwood and bottomland hardwood forests on-site. The parcel also contains multiple stream features and Special Flood Hazard Area (100 Year Floodplain).</p>                                       |         |  |
| <b>Public Water and Sewer</b>   |         |  |
| <p>No public utilities are requested. The applicant proposes service of the site through private septic systems and a community well. The Town of Hillsborough staff comments (<a href="#">Attachment 5</a>) indicated that the Town would be amenable to a request from the developer for water services, though the comments do not function as a formal will serve letter.</p> |         |  |

# Site Plan



**NOTES:**

1. EACH OF THE LOTS ARE A PUBLIC UTILITY STREET FRONTAGE. THE PUBLIC UTILITY STREET FRONTAGE IS THE CENTERLINE OF THE ROAD. THE CENTERLINE OF THE ROAD IS THE CENTERLINE OF THE ROAD. THE CENTERLINE OF THE ROAD IS THE CENTERLINE OF THE ROAD.

2. ALL UTILITIES, INCLUDING BUT NOT LIMITED TO, WATER, SEWER, GAS, AND TELEPHONE, ARE SHOWN AS APPROXIMATE LOCATIONS. THE EXACT LOCATIONS OF THESE UTILITIES SHALL BE DETERMINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

**Bowman**

North Carolina  
 4025 BARRETT DR  
 RALEIGH, NC 27606  
 919.876.1000  
 bowmannc.com

PRELIMINARY PLAN OF  
 Hwy 86  
 HIGHWAY 86 N  
 HILLSBOROUGH, NC ORANGE COUNTY

PRELIMINARY  
 DO NOT  
 USE FOR  
 CONSTRUCTION

**SCALE** 1" = 100'

**DATE** MAY 13, 2024

**PROJECT** C3.0

| DATE | BY | REVISION |
|------|----|----------|
|      |    |          |
|      |    |          |
|      |    |          |

### Proposed Access and Transportation Network Improvements

The applicant proposes the construction of two public roads, consisting of 50-ft. rights-of-way and 20-ft. travel ways, to be accepted for maintenance by NCDOT. One of these roads will loop to provide two access points to NC 86 N with the other road ending in a cul-de-sac.

### Summary of Transportation Information

#### Existing Roadway Characteristics

|  |                   |  |
|--|-------------------|--|
| Affected Roadway   | NC 86 N           |  |
| Type of Roadway  | Minor Arterial    |  |
| Current Roadway Capacity                                     | 14,600 AADT       |  |
| Latest Traffic Volume  | 9,200 AADT        |  |
| Traffic Generation   |                   |  |
| Number of Trips Expected to be Generated by Proposed Project | 524 trips per day |  |

### Proposed Utilities

The future subdivision will not require use of public utilities. The site-specific plan presented for the proposed zoning atlas amendment proposes the use of community well and individual septic systems for each lot.

### Erosion Control/Stormwater Regulations

The applicant has provided a grading and stormwater management plan ([Attachment 1](#)) and will comply with stormwater management (Section 6.14) and erosion and sedimentation control (Section 6.15) regulations of the UDO.

### Landscape Buffers/Setbacks

|       |   |
|-------|---|
| North | 50' lot setback/20' undisturbed buffer                                |
| South | 50' lot setback/20' undisturbed buffer                                |
| East  | Dedicated Common Open Space, 100' lot setback, 50' undisturbed buffer |
| West  | Dedicated Common Open Space   |

### Environmental Assessment (EA)

The applicant has provided an Environmental Assessment (EA) application, an Environmental Assessment, [and supporting materials](#), as required in Section 6.16 of the UDO with their submittal. The EA and supporting documents have been shared with various State agencies via the [NC Department of Administration's State Clearinghouse](#). Planning staff have reviewed the materials and agree with a determination of "Finding of No Significant Impact (FONSI)" as required in Section 2.25.1(B)(5) of the UDO ([Attachment 5](#)). This determination eliminates a requirement from the applicant to provide a more detailed Environmental Impact Statement (EIS) process as outlined in Sections 2.25.2 and 6.16.4 of the UDO.

### Solid Waste

The applicant will comply with the Orange County Solid Waste Management Ordinance. The applicant has provided a "Will-Serve" letter from Efland Trash Service for private hauling. Orange County Solid Waste has confirmed that the proposed road configuration will meet the requirement for recycle material collection service.

### Proposed Conditions

Per NCGS 160D-703, imposed conditions and site-specific standards are limited to those that address conformance of the development and use of the site to local government ordinances and adopted plans or the impacts reasonably expected to be generated by the development or use of the site. Per Section 2.9.1(F)(3) of the UDO, the following conditions are being proposed:

1. The subject property shall be developed generally in accordance with the proposed site plan submitted as a part of this application ("Site Plan").
2. The minimum lot size is 20,000 square feet. This deviates from the minimum in UDO Section 3.8. Suitable septic shall be provided on each parcel.
3. The property shall contain at least three (3) experiential gardens as shown on Site Plan as the Woodland Garden, the Picking Garden and the Pollinator Garden (each a "Garden" and collectively the "Gardens"). A landscape plan for each Garden shall be prepared by a landscape architect at the time of final plat to fulfill the theme of that Garden. Each Garden shall contain a seating opportunity such as a bench, chair or hammock. The Gardens shall be dedicated to and maintained by the Homeowner's Association; however, nothing herein shall prevent the Homeowner's Association from altering the planting plan of each Garden in the future.
4. Where supplementation of perimeter plantings is required, native plant materials appropriate for the growing environment in that area shall be utilized.
5. An ADA-compliant, open-air mail kiosk will incorporate a weather covering with recessed lighting.
6. Trails shall provide access to the Designated Community Gathering Space and each Garden as shown on the Site Plan. The length of the trails located on the subject property shall combined total at least 9,000 linear feet. Trail surfaces shall be aggregate or natural surface (not paved with concrete or asphalt) to minimize impacts to the existing environment and limit impervious surfaces. Boardwalks shall be utilized where the proposed trail crosses the wetlands as shown on the Site Plan, if permitted by Federal and State agencies. At least five (5) wayfinding signs shall be located along the trail to guide walkers to the Gardens and the Designated Community Gathering Area. The trail and associated amenities described in this section shall be maintained by the Homeowner's Association. The precise location and alignment of the trails will be determined at final plat.
7. The Designated Community Gathering Space shall contain at least one (1) sculptural art piece and at least three (3) seating opportunities such as benches, chairs, or hammocks, all to be maintained by the Homeowner's Association.
8. Individual septic systems meeting Orange County Health Department requirements will be provided on each lot. Septic systems shall be designed to serve up to a four (4) bedroom home.
9. No home shall contain more than four (4) bedrooms.
10. Lighting in common areas of the Community shall comply with the requirements of UDO Section 6.11.6, which promote Dark Sky Preservation.

## Review Milestones

|   |               |
|---|---------------|
| Application Submittal Date  | March 3, 2025 |
| Development Advisory Committee (DAC) Review   | April 3, 2025 |
| Neighborhood Information Meeting (NIM)  | May 29, 2025  |
| Note: The DAC is a staff/agency committee, established in Section 1.9 of the Unified Development Ordinance. |               |

| Courtesy Review   |                |                         |
|---|----------------|-------------------------|
| Jurisdiction  | Date Sent      | Comments Received (Y/N) |
| State Clearing House  | March 27, 2025 | Yes                     |
| Town of Hillsborough  | March 27, 2027 | Yes                     |
| All comments received through Courtesy Review are available via the <a href="#">Permit Portal</a> . Town of Hillsborough review comments are included in <a href="#">Attachment 5</a> . |                |                         |

## Analysis

### Staff Analysis

As required under Section 2.8.5 of the UDO, the Planning Director shall cause an analysis to be made of the application. In analyzing this request, the Planning Director offers a full analysis of the application's consistency with the adopted Orange County 2030 Comprehensive Plan.

See the drafted Statement of Consistency ([Attachment 6](#)) and Statement of Inconsistency ([Attachment 8](#)) in which the relevant Goals and Objectives of the Orange County 2030 Comprehensive Land Use Plan have been analyzed in full detail.

- Staff review determined that the application is complete and all submitted materials are in compliance with the following applicable sections of the UDO:
  - Section 2.8, *Zoning Atlas and Unified Development Ordinance Amendments*
  - Section 2.9, *Conditional Districts*
  - Section 5.21.1(A), *Standards for Major Subdivisions, Conditional Districts*

In accordance with Section 2.9.1(F), *Approval and Conditions*, the applicant has submitted conditions which are to be reviewed by the Board of County Commissioners for a determination as to whether such conditions will afford protection of the public health, safety, and general welfare.

"Dwelling, Single-Family" is defined as Use #42 in the Table of Permitted Uses and within Article 10, Definitions of the UDO as:

"A detached building containing one dwelling unit."

Section 5.2, Table of Permitted Uses of the UDO identifies "Dwelling, Single-Family" as a permitted use within the R-CD zoning district.

- Staff review of the application included considerations for how the request relates to the Orange County 2030 Comprehensive Plan. This staff analysis found in the Statement of Consistency ([Attachment 6](#)) outlines elements of the Plan which staff identified as relevant to the consideration of this request.

3. The requested zoning district, R-CD (Residential - Conditional District), is consistent with the 2030 Comprehensive Plan, Appendix F, Relationships Between Land Use Classifications and Zoning Districts.

**ORANGE COUNTY**  
NORTH CAROLINA

PLANNING *and* INSPECTIONS

Cy Stober, AICP, Director | cstober@orangecountync.gov | 131 W. Margaret Lane, Hillsborough, NC 27278 | 919.245.2575

August 20, 2025

**NOTICE OF PLANNING BOARD MEETING**

To Whom It May Concern:

This notice is to inform you of the September 3, 2025, Planning Board meeting, at which an application to rezone +/-78.11 acres (PIN: 9865-87-8090) will be reviewed. The parcel's primary address is 1039-UT NC 86 N, within Hillsborough Township. This notification is occurring in accordance with the provisions of Section 2.8 *Zoning Atlas and Unified Development Ordinance Amendments* of the Orange County Unified Development Ordinance (UDO).

**You are receiving this notice because you own property located within 1,000-feet of the parcels requested for rezoning.**

**YOUR PROPERTY IS NOT PROPOSED FOR REZONING.**

| Property Information            |   |
|---------------------------------|---|
| <b>Parcel ID Numbers (PINs)</b> | 9865-87-8090                            |
| <b>Owner</b>                    | Amy Powell and Jenny Powell et al.      |
| <b>Applicant</b>                | Forestar Group, Inc.                    |
| <b>Location</b>                 | 1039-UT NC 86 N, Hillsborough, NC       |
| <b>Acreage</b>                  | +/- 78.11                               |
| <b>Current Zoning</b>           | AR - Agricultural Residential           |
| <b>Proposed Zoning</b>          | R-CD – Residential Conditional District |
| <b>Watershed Designation</b>    | Lower Eno Unprotected                   |

**What is being proposed?**

Forestar Group, Inc., as an authorized agent of Amy Powell and Jenny Powell et al., has initiated a Zoning Atlas Amendment to allow for future residential development of the parcel. The applicant is requesting a rezoning of the +/- 78.11 acre property to Residential Conditional District (R-CD). The applicant has provided a site-specific plan and conditions for the proposed single-family development featuring 49 lots.

**What is this meeting for?**

The Planning Board meeting is a required step for a Conditional Rezoning application. The Planning Board meeting must take place before the project proceeds to the Board of County Commissioners (BOCC) for public hearing and decision. The Planning Board makes a recommendation to the BOCC. The Planning Board must recommend one of the following four actions at their meeting, 1) Approval, 2) Denial, 3) Approval, but with specified changes, or 4) that the Planning Board be given extended time to consider the matter.

| Planning Board Meeting Information |   |
|------------------------------------|---|
| <b>Date</b>                        | Wednesday, September 3, 2025  |
| <b>Time</b>                        | 7:00 pm   |
| <b>Place</b>                       | Whitted Human Services Building, Donna S. Baker Meeting Room  |
| <b>Address</b>                     | 300 W. Tryon Street, Hillsborough, NC 27278   |
| <b>Assigned Planner</b>            | Taylor Perschau<br><a href="mailto:tperschau@orangecountync.gov">tperschau@orangecountync.gov</a><br>919-245-2597 |

\*\*\*

A formal public hearing on the proposed amendments will be held by the BOCC. At this time, the anticipated date for the public hearing is November 6, 2025, but may be subject to change. You will receive another written notice about the public hearing at a later date.

If you cannot attend the Planning Board meeting and the website does not answer your questions about the requested rezoning, you may call (919) 245-2575 during regular business hours and you will be directed to a staff person who can assist you.

Sincerely,



Planning and Inspections Director

Additional information is available on the Orange County Planning Department's website: <https://www.orangecountync.gov/3038/Active-Development-Projects> or scan below:



*Si desea servicios de traducción para esta carta y otros documentos relacionados con el caso/asunto; y/o servicios de interpretación de idiomas en una reunión relacionada con este caso/asunto, comuníquese con Current Planning Division al correo electrónico: [planningapps@orangecountync.gov](mailto:planningapps@orangecountync.gov) o llame al 919-245-2575. Por favor, espere al menos 10 días para que nuestro personal organice estos servicios.*

PLANNING *and* INSPECTIONS

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Cy Stober, AICP, Director | [cstober@orangecountync.gov](mailto:cstober@orangecountync.gov) | 131 W. Margaret Lane, Hillsborough, NC 27278 | 919.245.2575

**CERTIFICATION OF MAILING  
ZONING ATLAS AMENDMENT  
ORANGE COUNTY, NORTH CAROLINA**

I, Taylor Perschau, Current Planning and Zoning Manager with Orange County, North Carolina, DO HEREBY CERTIFY that in accordance with the provisions of Section 2.8.7 of the Orange County Unified Development Ordinance I have mailed, or have caused to be mailed, a Notice of the Planning Board Meeting to be held regarding a rezoning application proposing to rezone one parcel located at 1039-UT NC 86 N, Hillsborough NC (PIN: 9865-87-8090) on August 20, 2025.

The owners were identified according to the Tax Records, as required by Section 2.8.7 of the Orange County Unified Development Ordinance.

The mailed notices specified the date, time, place and subject of the Planning Board Meeting.

WITNESS my hand, this 26<sup>th</sup> day of August 2025.

A handwritten signature in black ink that reads "T. Perschau". The signature is fluid and cursive, with a long horizontal stroke at the end.

Taylor Perschau  
Current Planning and Zoning Manager  
Orange County Planning

May 14, 2025

**NOTICE OF NEIGHBORHOOD INFORMATION MEETING (NIM)  
Zoning Atlas Amendment – Conditional Rezoning**

To Whom It May Concern:

We, Forestar Real Estate Group, have submitted a Conditional Rezoning Application proposing to rezone property located at 1039-UT, 1317- UT and 1033-UT NC 86 North (PIN: 9865878090) to Residential Conditional District (R-CD). Per Section 2.9 *Conditional Districts* of the Unified Development Ordinance, you are receiving this letter because property you own is within 1,000 ft. of this parcel. The property is further described below:

| Property Information           |   |
|--------------------------------|---|
| <b>Parcel ID Numbers (PIN)</b> | 9865878090  |
| <b>Owner</b>                   | Hugh B. Powell, Jr. Executor<br>Jenny & Michael Parks<br>Amy Powell |
| <b>Applicant</b>               | Forestar c/o Laura Haywood  |
| <b>Location</b>                | 1039-UT NC 86 North<br>1317-UT NC 86 North<br>1033-UT NC 86 North   |
| <b>Acreage</b>                 | 79.76   |
| <b>Zoning</b>                  | AR  |
| <b>Watershed Designation</b>   | Lower Eno River Unprotected   |

**What is being proposed?**

We propose 49 homes on, not less than 20,000 square foot, lots. The lots are clustered in nature with open space and a trail system dispersed throughout the community. In fact, almost two-thirds of the site is dedicated open space. Please see the attached subdivision plan for more information about our proposal.

**What is this meeting for?**

This Neighborhood Information Meeting (NIM) will allow you and other nearby property owners to meet with the applicant and discuss the proposal.

**When and where is the meeting?**

| Meeting Information     |  |
|-------------------------|--|
| <b>Date</b>             | May 29, 2025   |
| <b>Time</b>             | 7:00PM   |
| <b>Place</b>            | Eno River Academy High School - Commons  |
| <b>Address</b>          | 1100 NC-57, Hillsborough, NC 27278   |
| <b>Assigned Planner</b> | Lauren Honeycutt, Planner II<br>Email: <a href="mailto:lahoneycutt@orangecountync.gov">lahoneycutt@orangecountync.gov</a><br>Phone: (919) 245-2598 |

\*\*\*

After the NIM, this proposal will go on to the Planning Board for review and recommendation to the Board of County Commissioners. The Board of County Commissioners will then hold a public hearing to make a final decision on the application. You will also receive a letter regarding when those meetings will take place and at what time.

If you have any question regarding this project, feel free to reach out to us, our contact information is listed below.

Best Regards,

**Forestar Real Estate Group, Inc.**

8041 Arco Corporate Drive, Suite 110

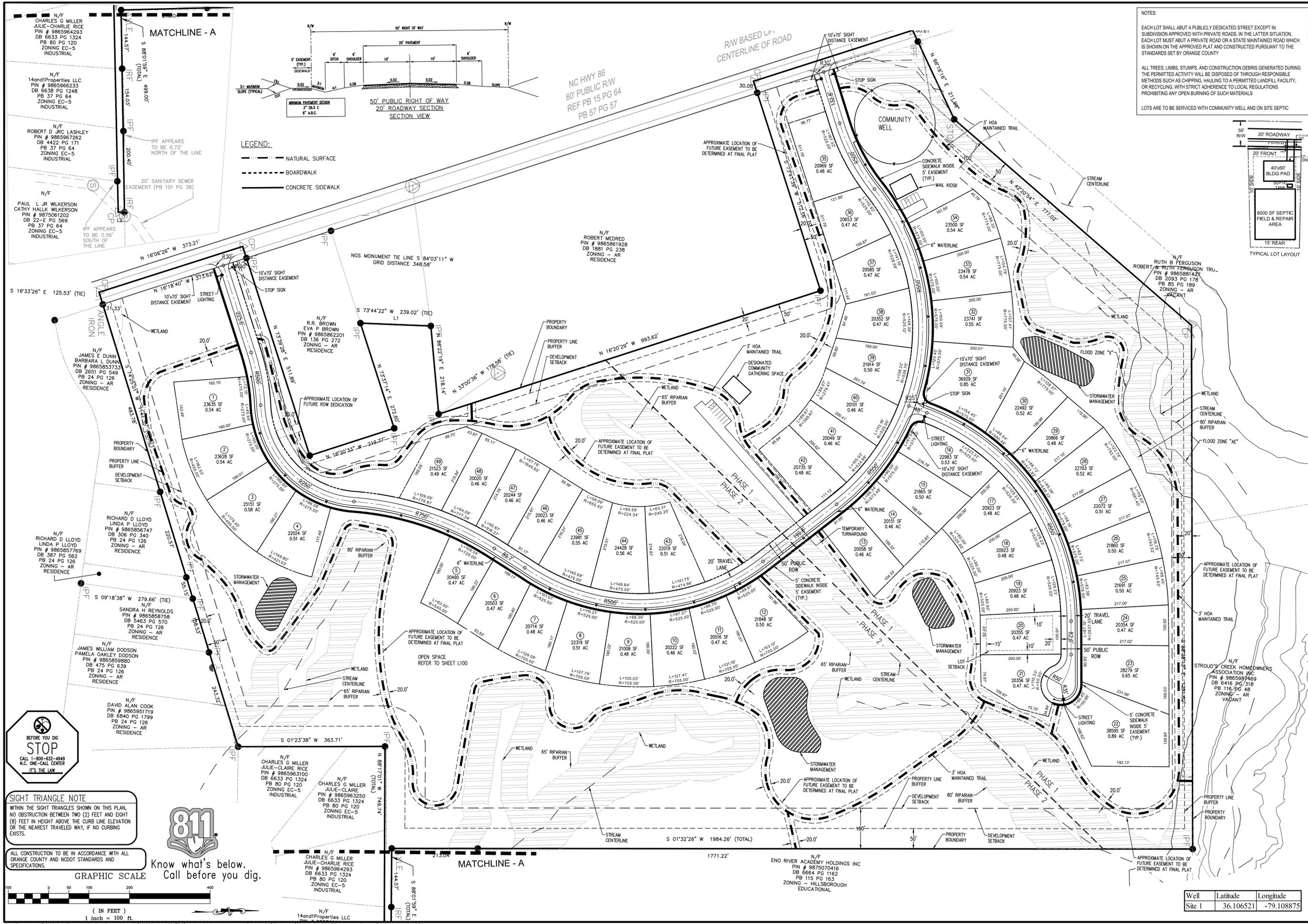
Raleigh, NC 27617

(919) 804-7220

Enclosures: Site Plan



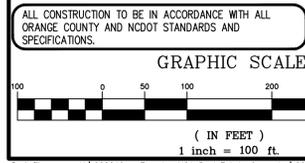
| DATE     | DESCRIPTION   | DC   | DC | DS |
|----------|---------------|------|----|----|
| DESIGN   | DRAWN         | CHKD |    |    |
| SCALE    | H: 1" = 100'  | V:   |    |    |
| JOB No.  | 220242-01-002 |      |    |    |
| DATE     | MAY 13, 2024  |      |    |    |
| FILE No. |               |      |    |    |



**SIGHT TRIANGLE NOTE**  
 WITHIN THE SIGHT TRIANGLES SHOWN ON THIS PLAN, NO OBSTRUCTION BETWEEN TWO (2) FEET AND EIGHT (8) FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION OR THE NEAREST TRAVELED WAY, IF NO CURBING EXISTS.



Know what's below.  
Call before you dig.



**Neighborhood Information Meeting Report Form**

**REPORT OF INFORMATION MEETING REQUIRED BY  
THE ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE**

To: Taylor Perschau, Current Planning and Zoning Manager

Project Name: HWY 86

Approximate Location (or Address): HWY 86 N, Bingham, Hillsborough, NC

Proposed Number Lots: 49 Residential (Y/N): Yes

The undersigned hereby certifies that the required sign(s) was posted on the proposed HWY 86 subdivision property, on each road frontage of said project on (date) 05/15/2025 by Orange County Planning staff.

The meeting was held at the following time and place: 05/29/2025 at 7:00PM at Eno River Academy High School, 1100 NC-57, Hillsborough, NC 27278.

The persons in attendance at the meeting: **See attached Attendance Sheet (Attachment A)**

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The following issues were discussed at the meeting (**Attach additional sheet(s) if needed**): **Please see Attachment B**

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As a result of the meeting, the following changes were made to the project proposal (**Attach additional sheet(s) if needed**): **Please see Attachment C**

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Date: 06/02/2025  
Applicant: Forestar Real Estate Group  
By: Laura Haywood, Entitlements Manager

Please submit this Report to the Orange County Planning Department located at 131 W. Margaret Ln or mail it to Lauren Honeycutt, at 131 W. Margaret Ln. Hillsborough NC, 27278. If you have any questions, please contact the assigned staff planner.

## **Attachment B**

During the Neighborhood Information Meeting, the following concerns were brought up and discussed:

- Traffic on HWY-86 and NC-57 was also a concern. Forestar and the traffic engineer, Josh Reinke, explained that a driveway permit for the two entrances on/off HWY 86 would be required. During NCDOT evaluations, any improvements along the property such as providing turn lanes will be determined. NCDOT did not require a full Traffic Impact Analysis (TIA) for the 49 lot development but we did perform a Trip Generation Letter for both NCDOT and Orange County review.
- A few attendees expressed their concerns about removing existing trees and how stormwater runoff into Stroud's Creek would be managed. The plans currently show over 50% open space to remain for the project. We did explain that some of the property was farmed and volunteer vegetation has become established after the farming has ceased. There was a tornado in 1992 that destroyed a lot of established trees at the time. A detailed tree inventory survey is included in the plan set and has been submitted to Orange County Planning. The goal for development is to preserve as many trees as possible and only remove trees and vegetation that would be necessary for infrastructure installation. Erosion control ponds will be located at key areas to minimize sediment leaving the project area. Danielle Cabral, EI and Don Sever, PE with Bowman Engineering will continue to develop a stormwater design in accordance with County and State regulations.
- Some wondered whether existing trails would still be available for use by Eno River Academy Cross County team. Forestar explained that trails will be a community amenity maintained by the Homeowners Association (HOA). The trails will not be public unless a mutual agreement between a public entity and the HOA were to be reached to turn the trails over to be maintained by the public entity. Unfortunately, as long as the HOA is the owner of the trails, opening them to the public creates concerning and costly liability issues and maintenance and insurance costs that a small community like this cannot accept.
- Forestar is reaching out to neighbors individually to address unique concerns raised in the meeting.

### **Attachment C**

Based on the Neighborhood Information Meeting feedback, the following changes were addressed on the plans or in process of being conducted:

- No changes were made to the plans.

# ATTACHMENT A - ATTENDANCE SHEETS

① 234



## ORANGE COUNTY PLANNING & INSPECTIONS DEPARTMENT Neighborhood Information Meeting Sign-In Sheet

Project/Plan: HWY 86 Subdivision

Date & Time: 05/29/2025 - 7p.m.

| Name                    | Address                | Telephone Number     | Email Address                                     |
|-------------------------|------------------------|----------------------|---|
| Lloyd<br>Rick - Lloyd   | 120 Rocky Lane         | 614-0244<br>614-2052 | ricklin@mindspring.com<br>lindalloyd819@gmail.com |
| Angela Mayo Wells       | 901 NC Hwy 86 N        | 919-886-0817         | amayowells@gmail.com                              |
| MARK MESZAROS           | Holy Family Parish     | 336-266-9281         | markmeszaros@gmail.com                            |
| Amber Lehman            |                        | 919-740-5891         | amber.lehman@NewRealty.com                        |
| Bill Bailey             | 158 Blackman Ln        | 919 619 7376         | billbailey3D@gmail.com                            |
| Stephanie Waller        | 113 Blackman LN        | 919-740-9636         | swaller470@gmail.com                              |
| Rebecca & Nick Gallegly | 1529 Village Grove Ct. | 601-755-4428         | RebeccaGallegly@gmail.com                         |
| Chuck Smith             | 300 Rabbit Ln          | 919 602 3797         | chuck.millersport@gmail.com                       |



ORANGE COUNTY PLANNING & INSPECTIONS DEPARTMENT  
 Neighborhood Information Meeting Sign-In Sheet

(2)

Project/Plan: HWY 86 Subdivision

Date & Time: 05/29/2025 - 7p.m.

| Name               | Address          | Telephone Number | Email Address              |
|--------------------|------------------|------------------|----------------------------|
| Winifred Johnson   | 1122 NC 86 NORTH | 919 732-3261     | johnsonw7552@yahoo.com     |
| Susanna Bergencruz | 737 Joyal Rd     | 919-245-0351     | records@hfcch.org          |
| Edith Sanchez      | 420 Tulip Tree   | 919 292 4089     | edithsanchez2023@gmail.com |
|                    |                  |                  |                            |
|                    |                  |                  |                            |
|                    |                  |                  |                            |
|                    |                  |                  |                            |
|                    |                  |                  |                            |

## QUESTIONS TO THE DEVELOPER

### 1. Questions to the Developer based on environmental and infrastructure impacts:

- a) **Question:** Has an environmental impact assessment been completed regarding wildlife displacement, vegetation removal, and potential habitat changes?  
**Forestar Answer:** Orange County requires an environmental impact analysis to be prepared as a part of the rezoning process. One has been completed and submitted to the County.
- b) **Question:** Are both entrances to the community on NC-86? It was mentioned to one of the surrounding homeowners that at least one of the entrances would be on NC-57. The tentative placement of both entrances (presumably the current entrances with rocks) are hidden from traffic approaching the either entrance on the other side of the hill. The hidden placement seems to increase the risk of accidents for both entrances.  
**Forestar Answer:** Yes, both entrances to the community are on NC-86.
- c) **Question:** What are the plans for road access and traffic flow, and how will increased traffic affect safety?  
**Forestar Answer:** Our Traffic Engineer has prepared a Trip Generation Letter that shows, with the addition of the planned 49 homes, the road is expected to operate at acceptable levels of service with minimal queueing. As a part of permitting process, we will ask NCDOT to issue driveway permits for both planned driveways. NCDOT has the authority to require any road improvements needed at that time. Forestar will make suggestions; however, the final decision is that of the NC Department of Transportation (DOT).
- d) **Question:** Considering the number of accidents and fatalities on this end of NC-86, what are some measures that will be performed to prevent increased risks?  
**Forestar Answer:** An NCDOT approval for a stoplight is less probable for this community size of 49 houses. Turn lanes into the community and flashing signals to warn of approaching traffic are more probable. The final decision is that of the NCDOT.
- e) **Question:** What percentage of trees will be removed for development of the community?  
**Forestar Answer:** A qualitative answer provided was trees would be cleared for the home, septic system per lot, community well, areas for retaining water, and roads. The soil cannot be drastically disturbed because of the septic systems that need to be placed per lot. We preliminarily anticipate protecting tree on over 50% of the site. Please see our landscaping plan (page 5 of the submitted site plan.)

- f) **Question:** What percentage of trees will be planted in the community?

**Forestar Answer:** Please see our landscaping plan (page 5 of the submitted site plan) for more details on landscaping. Orange County has strict landscaping requirements, including along the right-of-way and on the lots themselves. County requirements encourage preservation of existing trees to fulfill landscape requirements with additional plantings to be added where needed. At this early stage, we cannot provide an estimate of how many trees will need to be planted. We will be required to show compliance with the ordinance landscape requirements as we move through the more detailed design required after rezoning in the permitting process.

## 2. Questions to the Developer based on ground water and well concerns:

- a) **Question:** What will be the water source during development and construction? In the past, there has been illegal use of the fire hydrant on Blackman Ln (e.g., construction companies without a hydrant use permit).

**Forestar Answer:** Our standard practice is to use a water truck, collected by the contractor through a meter rented by the provider and billed accordingly. They do usually use a fire hydrant for the collection, but again, the hydrant will be used legally and the water paid for by the contractor.

- b) **Question:** There is what seems to be a natural surface that runs from the front to the rear of the community on the same side as the community well and is adjacent to the land owned by Robert and Ruth Ferguson Trust. What is the plan for this natural surface area? Can this area ever be developed?

**Forestar Answer:** This area is open space that will be owned and maintained by the community's homeowner's association. There is a 50' undisturbed buffer and a 100' lot setback in this area. A walking trail is planned for a portion of the open space outside of the undisturbed buffer. There is discussion that Orange County, in the future, may decide to construct a pedestrian bridge across the stream connecting our trail system to Pathways Elementary School. If the rezoning is approved, the use of this property will be limited as shown on the concept plan while the zoning remains in place.

- c) **Question:** Has a hydrological study been conducted to assess the potential impact of the proposed community well on nearby private wells, including agricultural wells used for irrigation or livestock?

**Forestar Answer:** The study is currently in process.

**Developments:** Bill Bailey and Cathy Owens (158 Blackman Ln.) and Stephanie Waller and Marc Perez (113 Blackman Ln.) have offered their wells as comparators for this study.

- d) **Question:** What safeguards will be in place to ensure that well drawdown does not negatively affect surrounding groundwater-dependent properties?

**Forestar Answer:** The planned hydrological study will provide insight into the viability of a community well. Town of Hillsborough water is located nearby. The Town has indicated that they may be receptive to extending water to this community.

- e) **Question:** In the event that a well of a surrounding homeowner is impacted by this development, what recourse will the homeowner have?

**Forestar Answer:** Town of Hillsborough water is located nearby. The Town has indicated that they may be receptive to extending water to this community, if an issue arises.

### 3. Questions to the Developer based on storm water management and septic systems:

- a) **Question:** What stormwater runoff controls will be implemented to prevent drainage or erosion onto adjacent agricultural land?

**Forestar Answer:** During permitting, both DEQ and Orange County have strict regulations concerning stormwater runoff controls. It is part of the approval processes. It should be mentioned that our impervious surfaces are minimal for this project as there will be ribbon pavement and ditch sections. Additionally, we plan to incorporate natural stormwater control measures that treat stormwater as approved by DEQ and mimic natural absorptions.

- b) **Question:** Will the development use individual or shared septic systems, and how will their maintenance be monitored over time to protect groundwater and soil quality?

**Forestar Answer:** There will be individual septic systems (per lot). Homeowners will be required to comply with DEQ and Orange County regulations just like existing homeowners with septic systems.

### 4. Questions to the Developer based on land use compatibility:

- a) **Question:** Will there be buffer zones or vegetative barriers between this development and agricultural properties to mitigate noise, odor, and pesticide drift issues?

**Forestar Answer:** Setbacks and associated buffers are required by Orange County around the perimeter of the site. The setbacks and buffers shown on our plans currently exceed Orange County requirements.

- b) **Question:** Will homebuyers be required to sign disclosures acknowledging proximity to working farmland under the Right to Farm Act? Note: This can potentially protect farmers from nuisance lawsuits because the homebuyers admit to purchasing land near farmland.

**Forestar Answer:** This is not typically done. If required, it would be handled by the homebuilder at time of the residential closing.

### 5. Question to the Developer based on long-term zoning and precedent:

173039592.1

173140083.1

- a) **Question:** Will this development set a precedent for further residential encroachment into agricultural zones, and how will the county ensure agricultural land remains protected?

**Forestar Answer:** This proposal aligns with the residential development planned for the area in a joint land use plan prepared by Orange County and the Town of Hillsborough.

### **REQUESTS OF THE BOARD**

#### **Requests of the Board based for rezoning to a Residential Conditional District:**

- That a **sufficient buffer zone** be required between residential lots and agricultural land, to minimize land use conflicts.
- That the **residential conditional zoning include disclosures** to future buyers regarding proximity to working farmland.
- That the planning board recognize the importance of **Right to Farm protections** and uphold them in any future land use decisions.
- And that I, and others in similar positions, be given advance notice of any subsequent changes that might impact **agricultural parcels** adjacent to rezoned areas.

#### **Requests of the Board based on ground water and well concerns:**

- Require a full **hydrogeological and environmental assessment** prior to approval.
- Mandate adequate **buffer zones** between residential and agricultural parcels.
- Ensure **clear Right to Farm disclosures** for all future residents.
- Monitor **water levels** and **septic system performance** post-development.



PLANNING and INSPECTIONS

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Cy Stober, AICP, Director | [cstober@orangecountync.gov](mailto:cstober@orangecountync.gov) | 131 W. Margaret Lane, Hillsborough, NC 27278 | 919.245.2575

August 19, 2025

HWY 86 N Rezoning Application  
Case #: MA25-0003  
PIN: 9865-87-8090  
1039-UT NC 86 N, Hillsborough, NC 27278

Re: Development Advisory Committee Report (per UDO Section 1.9.5)

On April 3, 2025, the Orange County Development Advisory Committee met for a final review and discussion of the conditional rezoning application Case #MA25-0003 from Forestar Group, Inc. for PIN 9865-87-8090.

The Orange County Development Advisory Committee has no objections to the approval of the zoning atlas amendment so long as the items in the attached departmental memos are addressed. The application package features an abstract and staff report that provide the foundations for my recommendation regarding this application and request.

Sincerely,

A handwritten signature in cursive script that reads "Cy Stober".

Cy Stober  
Planning and Inspections Director

PLANNING *and* INSPECTIONS

Cy Stober, AICP, Director | cstober@orangecountync.gov | 131 W. Margaret Lane, Hillsborough, NC 27278 | 919.245.2575

## Development Advisory Committee (DAC) Comments

DAC review comments and recommendations **do not** constitute plan or permit approval for this application and/or replace any other plans and permits that may be required by other County departments and State agencies.

|                          |  |
|--------------------------|--|
| <b>Project:</b>          | MA25-0003 (HWY 86 N) Conditional District Rezoning Application |
| <b>Location/PIN:</b>     | 9865878090   |
| <b>Applicant:</b>        | Forestar c/o Laura Haywood                                     |
| <b>Staff Planner:</b>    | Taylor Perschau  |
| <b>DAC Meeting Date:</b> | 4-3-2025   |

|                                    |   |  |               |   |
|------------------------------------|---|--|---------------|---|
| <b>Addressing and Land Records</b> | <b>Date:</b>  |  | <b>Staff:</b> | Britney Pendleton<br><a href="mailto:brpendleton@orangecountync.gov">brpendleton@orangecountync.gov</a><br>919-245-2576 |
|                                    | <ol style="list-style-type: none"> <li>In accordance with the PIN Ordinance, all surveys creating new parcels of land must be depicted with full bearings and distances (meets &amp; bounds), as well as a size for that area described.</li> </ol> |  |               |   |

|                          |  |  |               |   |
|--------------------------|--|--|---------------|---|
| <b>Attorney's Office</b> | <b>Date:</b>   |  | <b>Staff:</b> | James Bryan<br><a href="mailto:jbryan@orangecountync.gov">jbryan@orangecountync.gov</a><br>919-245-2319 |
|                          | <ol style="list-style-type: none"> <li>None received.</li> </ol> |  |               |   |

|                             |   |         |               |  |
|-----------------------------|---|---------|---------------|--|
| <b>Building Inspections</b> | <b>Date:</b>  | 3/31/25 | <b>Staff:</b> | Michael Rettie<br><a href="mailto:mrettie@orangecountync.gov">mrettie@orangecountync.gov</a><br>919-245-2604 |
|                             | <ol style="list-style-type: none"> <li>Any proposed construction regulated by the NC State Building Codes will require permitting.</li> </ol> |         |               |  |

|              |  |  |               |   |
|--------------|--|--|---------------|---|
| <b>DEAPR</b> | <b>Date:</b>   |  | <b>Staff:</b> | Chris Hirni<br><a href="mailto:chirni@orangecountync.gov">chirni@orangecountync.gov</a><br>919-245-2514 |
|              | <ol style="list-style-type: none"> <li>None received.</li> </ol> |  |               |   |

|                             |   |        |               |   |
|-----------------------------|---|--------|---------------|---|
| <b>Environmental Health</b> | <b>Date:</b>  | 4/1/25 | <b>Staff:</b> | Victoria Hudson<br><a href="mailto:vhudson@orangecountync.gov">vhudson@orangecountync.gov</a><br>919-245-2365 |
|                             | <ol style="list-style-type: none"> <li>The Department has a well permit for this parcel for the purpose of assessing groundwater for the proposed community. No other applications have been received. No other public health concerns at this time.</li> </ol> |        |               |   |

|                        |              |  |               |  |
|------------------------|--------------|--|---------------|--|
| <b>Erosion Control</b> | <b>Date:</b> |  | <b>Staff:</b> | Tyler Sliger<br><a href="mailto:Tsliger@orangecountync.gov">Tsliger@orangecountync.gov</a><br>919-245-2582 |
|                        |              |  |               |  |

1. Based on the materials provided for the April 3<sup>rd</sup> DAC meeting, there are 3 mapped stream features or other surface water features (e.g. ponds and/or wetlands) within the project's parcel boundaries. Regulated streams (if any) must comply with Section 6.13 of the Orange County Unified Development Ordinance (UDO). If applicable, the applicant must also comply with Section 2.20 of the UDO and submit a Buffer Use Authorization Certificate (BAC) application for disturbances inside the regulated stream buffer.
2. Based on the information that has been provided the project area contains 100-year Floodplain. Therefore, a Floodplain Development Application for a Floodplain Development Permit (FDP) will be needed if development is proposed in the floodplain. If needed, the applicant must also comply with Section 2.6 of the UDO.
3. Based on the submitted materials, the project is proposing a stream crossing. If the project proposes a crossing and/or is disturbing the stream channel a Pre-Authorization Construction Notification (PCN) application will need to be submitted to the United States Army Corps of Engineers (USACE) for the scope of work and a USACE Jurisdictional Determination (JD) must be forwarded to Orange County staff.
4. Based on the information provided and for the proposed/assumed limits of disturbance, the project will need a Land Disturbance Permit (LDP). If this project requires a LDP the applicant must adhere to Sections 2.18, 2.19, and 6.15 of the UDO. Orange County strongly advises the applicant to submit an LDP upfront that accounts for the total projects including the roads and lots.

|                             |              |           |               |   |
|-----------------------------|--------------|-----------|---------------|---|
| <b>Fire and Life Safety</b> | <b>Date:</b> | 3/27/2025 | <b>Staff:</b> | Chris Pendergrass<br><a href="mailto:cpendergrass@orangecountync.gov">cpendergrass@orangecountync.gov</a><br>919-245-6125 |
|-----------------------------|--------------|-----------|---------------|---|

The following standards apply to all access types including, but not limited to, driveways, joint driveways, access easements, right of ways, and private roads.

General Fire Code standards:

- Asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds Shall not exceed 10 percent in grade
- 20 feet wide, not including shoulders
- Clearance over the road would have to be no lower than 13 % feet
- Dead-end access in excess of 151 feet or more shall meet width and turnaround provisions in accordance with Table D103.4 of the Fire Code

|              |              |  |               |   |
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| <b>NCDOT</b> | <b>Date:</b> |  | <b>Staff:</b> | David Genwright<br><a href="mailto:digenwright@ncdot.gov">digenwright@ncdot.gov</a><br>336-570-6833 |
|--------------|--------------|--|---------------|---|

1. Permitting:  
Prior to performing work in NCDOT R/W, the applicant will need to obtain the following:
  - Approved NCDOT Driveway Permit for proposed connections to NC 86
    - \$50 Driveway fee per every access
  - An approved NCDOT Encroachment Agreement for any proposed utility installations or activities within current right of way.
2. Trip Generation:  
Based on the information provided, This 42-lot single family residential subdivision is expected to generate approximately 470 daily trips at full buildout. The expected trips do not meet NCDOT thresholds to require a TIA and adjacent road network is expected to operate acceptably with no capacity improvements warranted per NCDOT guidelines. Other jurisdictions may have additional requirements.

3. Plans:

Prior to issuance of the above permit documents, the applicant will need to satisfactorily address the following comments:

- It appears that the proposed roadway is intended to be public roads road. **If intentions are to petition for subdivision streets to be state maintained,**
  - Verify pavement width requirements with local jurisdiction relative to fire code.
  - Streets must be called out as public and meet NCDOT minimum construction standards. Please refer to our [subdivision manual](#).
    - Any turnarounds in the subdivision will have to be designed to NCDOT's current "Secondary Road Turnaround Policy" to be considered for road addition
  - Provided complete plans meeting NCDOT and Orange County standards. Plan sheets should include if applicable:
    - Drainage/grading
      - Depicting Horizontal and Vertical curves
      - We will need details on the proposed stream crossing
    - 10X70 sight distance triangles on the Landscape
    - Detail/typical drawings and profiles.
    - Etc.
  - Provide site driveway details including but not limited to:
    - Width
    - Driveway pavement details
    - Accommodation of Drainage
    - Etc.

4. Intersection Sight Distance:

Based on a field assessment, there are concerns that acceptable time gaps and associated minimum intersection sight distances are not achieved at the proposed site accesses. The applicant will need to assess further relative to NCDOT and AASHTO requirements and provide detailed engineering exhibits to NCDOT for review. Modification of access locations and/or additional mitigations may be needed if minimum sight distance requirements cannot be met along the property frontage.

|  |                 |              |           |               |   |
|--|-----------------|--------------|-----------|---------------|---|
|  | <b>Planning</b> | <b>Date:</b> | 3/31/2025 | <b>Staff:</b> | CP: Taylor Perschau<br><a href="mailto:tperschau@orangecountync.gov">tperschau@orangecountync.gov</a><br><br>LRP: Tom Altieri<br><a href="mailto:taltieri@orangecountync.gov">taltieri@orangecountync.gov</a> |
|--|-----------------|--------------|-----------|---------------|---|

Current Planning Comments

General

1. A Neighborhood Information Meeting (NIM) is required for a Conditional District Zoning Atlas Amendment. The meeting shall be held a minimum of 14 days prior to the date of the Planning Board meeting. This project is currently on track for a June 4 Planning Board meeting.
2. The R-CD rezoning process is intended to be used for the purpose of binding development to a detailed site plan with a list of specific conditions that ensure compatibility and harmony with the surrounding areas. If conditions of approval are being proposed, please provide a draft for staff to review.

Application

3. Narrative refers to Central Orange Coordinated Area Land Use Plan as COCO, please note that staff will refer to this land use plan as COCA in the staff report and presentation.
4. Per UDO Section 5.21.1, since the proposed lots are to be served by community well, a professionally prepared groundwater yield analysis relating the proposed well to the U.S. Geological Water Resources Investigation Report 00-4286 and

any later USGS Water Resource Investigation Report data available is required for submittal.

5. Per UDO Section 5.21.1, a written and graphic site analysis illustrating soils, depth to water table, slope, hydrology, vegetation, natural areas and habitats of special concern, infrastructure and other constructed features, historic and archaeological sites, and visual analysis of views into and from the site is required for submittal.

#### Site Plan

6. Per UDO Section 2.5.3 *Site Plan Specifications* and UDO Section 5.21.1 *Major Subdivision Standards for Conditional Districts*, please include or correct the following elements in the site plan set. This may be on the site plan itself or as a note, condition, or explanation in the narrative.
  - a. Development Data on Sheet C1.0 incorrectly lists R1 as the current zoning; revise to AR – Agricultural Residential
  - b. Please revise Development Data Table to clearly indicate the “Minimum Building Setbacks” are the *proposed*, rather than setbacks associated with current zoning.
  - c. Note the maximum impervious surface is N/A for the Lower Eno Unprotected Watershed.
  - d. Please include a note on the site plan detailing the traffic generation that was provided in the Traffic Study prepared by Bolton & Menk.
  - e. Development Data tables details “No requirement” for all setbacks; Sheet C3.0 details 20’ front, 15’ rear, and 10’ side setbacks in the typical lot layout as well as on Lot 20. Please confirm whether these are to be considered the proposed minimum lot setbacks.
  - f. Common Open Space consists of both primary open space and secondary open space. Please identify these areas (primary vs. secondary) and provide total acreages of both. This is to include a clear delineation of the primary and secondary open space boundaries as well as a description of how the areas will be used (passive, active, natural/undisturbed, trails, recreational amenities, etc.), as well as the ownership designation.
  - g. For any amenities, provide a graphic representation of the proposed improvement.
  - h. Please confirm the length of the riparian buffers being proposed. Buffers vary depending on slope calculated on site per UDO Section 6.13. Note that, where applicable, the calculated buffer is applied to the 100-year floodplain rather than the edge of stream.
  - i. Please confirm whether any lighting or signage is being proposed.
  - j. Please identify fire and police service providers.
  - k. Please confirm the proposed solid waste disposal services.
7. Please relabel the “50’ lot setback” to be “50’ development setback” for clarity in differentiating lot setbacks with overall subdivision development setback.
8. Please note the proposed barrier method for denoting the tree protection area on Sheet L100. Per UDO Section 6.8.4 *Protection of Existing Vegetation*, tree protection fencing shall be a minimum of four feet in height, of durable construction, and shall be placed outside of the drip line of the tree(s) to be protected.
9. Please illustrate a typical lot to include between lot planting and street trees.
10. Provide a general description of the existing trees to be preserved. This may be accomplished by photographs of existing conditions.
11. Please include a note that new plants will be consistent with the Orange County Preferred Plant List.

## Long Range Planning Comments

12. R-CD is compatible/consistent within the Rural Industrial Activity Node and Agricultural Residential Future Land Use Map (FLUM) classifications.
13. Residential land use, does not fit within the written text definition of the Rural Industrial Activity Node, as provided in Article 10, UDO and Chapter 5, Land Use Element. A companion FLUM amend may be a consideration for Planning (TBD).
14. The proposed project is consistent w/ many 2030 Plan Principles, Goals and Objectives; several are Not Applicable; and some require further consideration and with input from the DAC.
15. The proposed project is located within the Hillsborough/OC Central Orange Coordinated Area and classified as "Mixed Residential Neighborhood", as noted in the application materials.
16. The proposed project is located within Hillsborough's adopted Urban Service Boundary and within the Primary Service Area designated in the Water and Sewer Management, Planning and Boundary Agreement and the Town is among the signing parties. Town Planning staff should be consulted for common understanding of any decline in the provision of public water/sewer utilities and annexation request that may have taken place between the developer and Town staff.

|                    |              |  |               |   |
|--------------------|--------------|--|---------------|---|
| <b>Solid Waste</b> | <b>Date:</b> |  | <b>Staff:</b> | Matt Taylor<br><a href="mailto:mtaylor@orangecountync.gov">mtaylor@orangecountync.gov</a><br>919-918-4905 |
|--------------------|--------------|--|---------------|---|

1. None received.

|                              |              |         |               |   |
|------------------------------|--------------|---------|---------------|---|
| <b>Stormwater Management</b> | <b>Date:</b> | 3/25/25 | <b>Staff:</b> | Christopher Sandt<br><a href="mailto:csandt@orangecountync.gov">csandt@orangecountync.gov</a><br>919-245-2583 |
|------------------------------|--------------|---------|---------------|---|

1. The project is located in the Lower Eno Unprotected Watershed Overlay District. The submittal of a Stormwater Management Plan (SMP) is required if the proposed Land-Disturbing Activity exceeds 21,780 square feet. ***Land disturbance thresholds are cumulative to parent tract and will carry over to any/all subdivided lots.***

|                                |              |  |               |  |
|--------------------------------|--------------|--|---------------|--|
| <b>Transportation Services</b> | <b>Date:</b> |  | <b>Staff:</b> | Darlene Weaver<br><a href="mailto:dweaver@orangecountync.gov">dweaver@orangecountync.gov</a><br>919-245-2002 |
|--------------------------------|--------------|--|---------------|--|

1. None received.



May 13, 2025

Orange County Planning Department  
131 W. Margaret Lane Hillsborough,  
NC 27278

**RE: Response to Initial DAC Comments – HWY 86**

**Addressing and Land Records - Britney Pendleton (919) 245-2576  
brpendleton@orangecountync.gov**

1. In accordance with the PIN Ordinance, all surveys creating new parcels of land must be depicted with full bearings and distances (meets & bounds), as well as a size for that area described.  
**Forestar Response: Noted.**

**Attorney's Office – James Bryan  
(919) 245-2319 jbryan@orangecountync.gov**

1. No Comment Received.  
**Forestar Response: Noted.**

**Building Inspections – Michael Rettie (919) 2452604 mrettie@orangecountync.gov**

1. Any proposed construction regulated by the NC State Building Codes will require permitting.  
**Forestar Response: Noted.**

**DEAPR – Christ Hirni (919)  
245-2514  
chirni@orangecountync.gov  
ov**

1. Any proposed construction regulated by the NC State Building Codes will require permitting.  
**Forestar Response: Noted.**

#### **Environmental Health – Victoria Hudson (919) 245-2365 [vhudson@orangecountync.gov](mailto:vhudson@orangecountync.gov)**

1. The Department has a well permit for this parcel for the purpose of assessing groundwater for the proposed community. No other applications have been received. No other public health concerns at this time.  
**Forestar Response: Thank you.**

#### **Erosion Control – Tyler Sliger (919) 245-2365 [tsliger@orangecountync.gov](mailto:tsliger@orangecountync.gov)**

1. Based on the materials provided for the April 3rd DAC meeting, there are 3 mapped stream features or other surface water features (e.g. ponds and/or wetlands) within the project's parcel boundaries. Regulated streams (if any) must comply with Section 6.13 of the Orange County Unified Development Ordinance (UDO). If applicable, the applicant must also comply with Section 2.20 of the UDO and submit a Buffer Use Authorization Certificate (BAC) application for disturbances inside the regulated stream buffer. **Forestar Response: Noted. Thank you.**
2. Based on the information that has been provided the project area contains 100-year Floodplain. Therefore, a Floodplain Development Application for a Floodplain Development Permit (FDP) will be needed if development is proposed in the floodplain. If needed, the applicant must also comply with Section 2.6 of the UDO. **Forestar Response: Noted. Thank you.**
3. Based on the submitted materials, the project is proposing a stream crossing. If the project proposes a crossing and/or is disturbing the stream channel a Pre-Authorization Construction Notification (PCN) application will need to be submitted to the United States Army Corps of Engineers (USACE) for the scope of work and a USACE Jurisdictional Determination (JD) must be forwarded to Orange County staff.  
**Forestar Response: Noted. We will do so. Thank you.**
4. Based on the information provided and for the proposed/assumed limits of disturbance, the project will need a Land Disturbance Permit (LDP). If this project requires a LDP the applicant must adhere to Sections 2.18, 2.19, and 6.15 of the UDO. Orange County strongly advises the applicant to submit an LDP upfront that accounts for the total projects including the roads and lots.  
**Forestar Response: Noted. Thank you.**

#### **Fire and Life Safety – Chris Pendergrass (919) 245-6125 [cpendergrass@orangecountync.gov](mailto:cpendergrass@orangecountync.gov)**

The following standards apply to all access types including, but not limited to, driveways, joint driveways, access easements, right of ways, and private roads.

1. Asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds Shall not exceed 10 percent in grade.  
**Forestar Response: Noted. Thank you.**
2. 20 feet wide, not including shoulders.  
**Forestar Response: Noted. Thank you.**
3. Clearance over the road would have to be no lower than 13 % feet. **Forestar Response: Noted. Thank you.**
4. Dead-end access in excess of 151 feet or more shall meet width and turnaround provisions in accordance with Table D103.4 of the Fire Code. **Forestar Response: Noted. Thank you.**

**NCDOT – David Genwright (336) 570-6833 digenwright@ncdot.gov**

Permitting:

1. Prior to performing work in the NCDOT right of way, the applicant will need to obtain the following:
  - a. Approved NCDOT Driveway Permit for proposed connections to NC 86. \$50 driveway fee per every access.  
**Forestar Response: Noted. Thank you.**
  - b. An approved NCDOT Encroachment Agreement for any proposed utility installations or activities within current right of way.  
**Forestar Response: Noted. Thank you.**

Trip Generation:

1. Based on the information provided, this 42-lot single family residential subdivision is expected to generate approximately 470 daily trips at full buildout. The expected trips do not meet NCDOT thresholds to require a TIA and adjacent road network is expected to operate acceptably with no capacity improvements warranted per NCDOT guidelines. Other jurisdictions may have additional requirements. **Forestar Response: Noted. Thank you.**

Plans:

1. Prior to issuance of the above permit documents, the applicant will need to satisfactorily address the following comments:
  - It appears that the proposed roadway is intended to be public roads road. **If intentions are to petition for subdivision streets to be state maintained,** o Verify pavement width requirements with local jurisdiction relative to fire code.

- Streets must be called out as public and meet NCDOT minimum construction standards. Please refer to our subdivision manual.
- Any turnarounds in the subdivision will have to be designed to NCDOT's current "Secondary Road Turnaround Policy" to be considered for road addition

**Forestar Response: Noted. Turnaround is shown near phase line according to NCDOT'S current "Secondary Road Turnaround Policy". Streets are called out as public and meet NCDOT.**

- Provided complete plans meeting NCDOT and Orange County standards. Plan sheets should include if applicable:
  - Drainage/grading
  - Depicting Horizontal and Vertical curves
  - We will need details on the proposed stream crossing
    - 10X70 sight distance triangles on the Landscape
    - Detail/typical drawings and profiles.
  - Etc.

**Forestar Response: Drainage, grading and details on proposed stream crossing will be provided in the construction drawings. 10x70 sight distance triangles are provided in the landscape and site plan. Detail/ typical drawings and profiles will be provided in the construction drawings.**

- Provide site driveway details including but not limited to:
  - Width
  - Driveway pavement details
  - Accommodation of Drainage
  - Etc.

**Forestar Response: Driveway pavements details, accommodation of drainage and others will be provided in the construction drawings.**

Intersection Sight Distance:

1. Based on a field assessment, there are concerns that acceptable time gaps and associated minimum intersection sight distances are not achieved at the proposed site accesses. The applicant will need to assess further relative to NCDOT and AASHTO requirements and provide detailed engineering exhibits to NCDOT for review. Modification of access locations and/or additional mitigations may be needed if minimum sight distance requirements cannot be met along the property frontage.

**Forestar Response: Noted. We will evaluate with construction drawings.**

**Planning – Lauren Honeycutt (919) 245-2598 [lahoneycutt@orangecountync.gov](mailto:lahoneycutt@orangecountync.gov)**

**General**

1. A Neighborhood Information Meeting (NIM) is required for a Conditional District Zoning Atlas Amendment. The meeting shall be held a minimum of 14 days prior to the date of the Planning Board meeting. This project is currently on track for a June 4 Planning Board meeting.

**Forestar Response: Acknowledged. We will be holding a neighborhood meeting in May.**

2. The R-CD rezoning process is intended to be used for the purpose of binding development to a detailed site plan with a list of specific conditions that ensure compatibility and harmony with the surrounding areas. If conditions of approval are being proposed, please provide a draft for staff to review.

**Forestar Response: Understood. We will be providing conditions for staff to review.**

### Application

3. Narrative refers to Central Orange Coordinated Area Land Use Plan as COCO, please note that staff will refer to this land use plan as COCA in the staff report and presentation.

**Forestar Response: Thank you for the clarification. We have revised our statement to refer the COCA, as well.**

4. Per UDO Section 5.21.1, since the proposed lots are to be served by community well, a professionally prepared groundwater yield analysis relating the proposed well to the U.S. Geological Water Resources Investigation Report 00-4286 and any later USGS Water Resource Investigation Report data available is required for submittal.

**Forestar Response: The well was drilled by Yadkin Well Company. The 24-hour draw down was performed on 11/19/2024 producing 84 GPM at 554 feet. The full report is included in the resubmittal package.**

5. Per UDO Section 5.21.1, a written and graphic site analysis illustrating soils, depth to water table, slope, hydrology, vegetation, natural areas and habitats of special concern, infrastructure and other constructed features, historic and archaeological sites, and visual analysis of views into and from the site is required for submittal.

**Forestar Response: Natural and human resources report is provided illustrating soils, depth to water table, slope, hydrology, vegetation, natural areas and habitats of special concern, infrastructure and other constructed features, historic and archaeological sites, and visual analysis of views into and from the site. This report has been included in the resubmittal package.**

### Site Plan

6. Per UDO Section 2.5.3 *Site Plan Specifications* and UDO Section 5.21.1 *Major Subdivision Standards for Conditional Districts*, please include or correct the following elements in the site plan set. This may be on the site plan itself or as a note, condition, or explanation in the narrative.

a. Development Data on Sheet C1.0 incorrectly lists R1 as the current zoning; revise to AR – Agricultural Residential

**Forestar Response: Noted. C1.0 sheet is now listing AR as the current zoning.**

b. Please revise Development Data Table to clearly indicate the “Minimum Building Setbacks” are the proposed, rather than setbacks associated with current zoning.

**Forestar Response: Noted. Data table indicates “Minimum Proposed Building Setback”.**

c. Note the maximum impervious surface is N/A for the Lower Eno Unprotected Watershed.

**Forestar Response: Noted. It is indicated in the data table (Sheet C1.0).**

d. Please include a note on the site plan detailing the traffic generation that was provided in the Traffic Study prepared by Bolton & Menk.

**Forestar Response: Noted. It is indicated in the data table (Sheet C1.0).**

e. Development Data tables details "No requirement" for all setbacks; Sheet C3.0 details 20' front, 15' rear, and 10' side setbacks in the typical lot layout as well as on Lot 20. Please confirm whether these are to be considered the proposed minimum lot setbacks.

**Forestar Response: Noted. Data table indicates proposed minimum lot setbacks in accordance with sheet C3.0.**

f. Common Open Space consists of both primary open space and secondary open space. Please identify these areas (primary vs. secondary) and provide total acreages of both. This is to include a clear delineation of the primary and secondary open space boundaries as well as a description of how the areas will be used (passive, active, natural/undisturbed, trails, recreational amenities, etc.), as well as the ownership designation.

**Forestar Response: Existing primary and secondary open space has been identified on sheet C2.1 and preserved or proposed open space with descriptions is shown on L000.**

g. For any amenities, provide a graphic representation of the proposed improvement. **Forestar**

**Response: A separate precedent imagery document has been included in the submittal to show examples of the design intent for amenity and open space areas.**

h. Please confirm the length of the riparian buffers being proposed. Buffers vary depending on slope calculated on site per UDO Section 6.13. Note that, where applicable, the calculated buffer is applied to the 100-year floodplain rather than the edge of stream.

**Forestar Response: Buffers were calculated on site per UDO Section 6.13. A buffer applicability memo is provided demonstrating how the buffers were calculated.**

i. Please confirm whether any lighting or signage is being proposed.

**Forestar Response: Proposed signage and lighting are shown in the site plan (Sheet 3.0).**

j. Please identify fire and police service providers.

**Forestar Response: Fire and police service providers are listed in the cover sheet (Sheet C1.0).**

k. Please confirm the proposed solid waste disposal services.

**Forestar Response: We have reached out to Orange County Waste Management in hopes of receiving a will serve letter. Once we receive correspondence from OC Waste Management, we will send that information on to Orange County Planning staff.**

7. Please relabel the "50' lot setback" to be "50' development setback" for clarity in differentiating lot setbacks with overall subdivision development setback.

**Forestar Response: "Development setback" was relabeled in the Site plan (Sheet C3.0).**

8. Please note the proposed barrier method for denoting the tree protection area on Sheet L100. Per UDO Section 6.8.4 *Protection of Existing Vegetation*, tree protection fencing shall be a minimum of four feet in height, of durable construction, and shall be placed outside of the drip line of the tree(s) to be protected.

**Forestar Response: Tree protection fencing will be installed in accordance with NCDEQ standards. A typical detail has been provided on sheet L100.**

9. Please illustrate a typical lot to include between lot planting and street trees.

**Forestar Response: A typical lot diagram has been added to sheet L100.**

10. Provide a general description of the existing trees to be preserved. This may be accomplished by photographs of existing conditions.

**Forestar Response: Existing trees are shown and described on sheet C2.1.**

11. Please include a note that new plants will be consistent with the Orange County Preferred Plant List.

**Forestar Response: Note has been added to sheet L100.**

#### **Long Range Planning Comments:**

12. R-CD is compatible/consistent within the Rural Industrial Activity Node and Agricultural Residential Future Land Use Map (FLUM) classifications. **Forestar Response: Noted. Thank you.**

13. Residential land use, does not fit within the written text definition of the Rural Industrial Activity Node, as provided in Article 10, UDO and Chapter 5, Land Use Element. A companion FLUM amend may be a consideration for Planning (TBD).

**Forestar Response: Noted, our understanding is no FLUM amendment is required.**

14. The proposed project is consistent w/ many 2030 Plan Principles, Goals and Objectives; several are Not Applicable; and some require further consideration and with input from the DAC.

**Forestar Response: Noted. Thank you.**

15. The proposed project is located within the Hillsborough/OC Central Orange Coordinated Area and classified as "Mixed Residential Neighborhood", as noted in the application materials.

**Forestar Response: Noted. Thank you.**

16. The proposed project is located within Hillsborough's adopted Urban Service Boundary and within the Primary Service Area designated in the Water and Sewer Management, Planning and Boundary Agreement and the Town is among the signing parties. Town Planning staff should be consulted for common understanding of any decline in the provision of public water/sewer utilities and annexation request that may have taken place between the developer and Town staff.

**Forestar Response: Noted. Thank you.**

**Solid Waste – Matt Taylor (919) 918-4905 mtaylor@orangecountync.gov**

1. No comments received.  
**Forestar Response: Noted.**

**Stormwater Management – Christopher Sandt (919) 245-2583 csandt@orangecountync.gov**

1. The project is located in the Lower Eno Unprotected Watershed Overlay District. The submittal of a Stormwater Management Plan (SMP) is required if the proposed Land-Disturbing Activity exceeds 21,780 square feet. *Land disturbance thresholds are cumulative to parent tract and will carry over to any/all subdivided lots.*  
**Forestar Response: Noted. Thank you.**

**Transportation Services – Darlene Weaver (919) 245-2002 dweaver@orangecountync.gov**

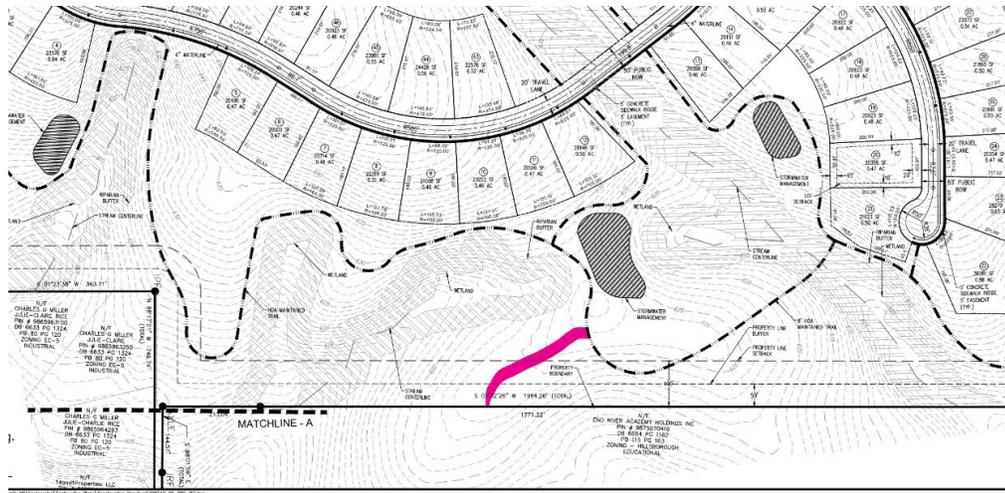
1. No comments received.  
**Forestar Response: Noted. Thank you.**

## Highway 86N Subdivision (Brown & Powell Parcel)

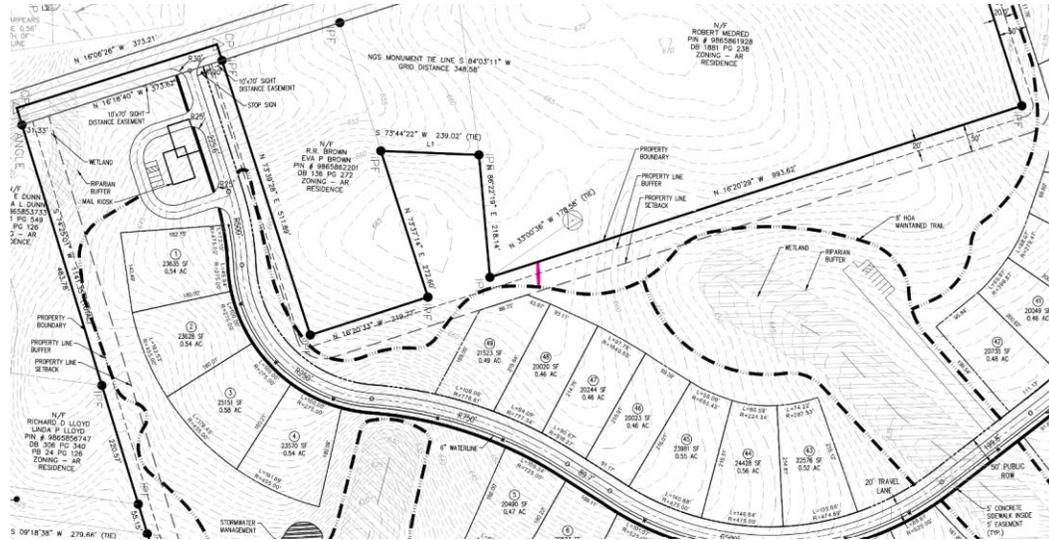
### Town of Hillsborough comments

#### Connectivity

1. The inclusion of a trail system around the neighborhood is a nice amenity and could provide future opportunities for connectivity if it were not a closed system. Town staff recommend the developer put the trail system in a public access easement so that in the future as this area develops it can have greater utilization.
  - A. Town staff also recommend that a leg of the trail connect to the adjacent Eno Academy property so that students living in this neighborhood could walk to school vs. having to get in a vehicle and go down and around to NC 57 to get to school. (Example below, best alignment will depend on topography/treeline)



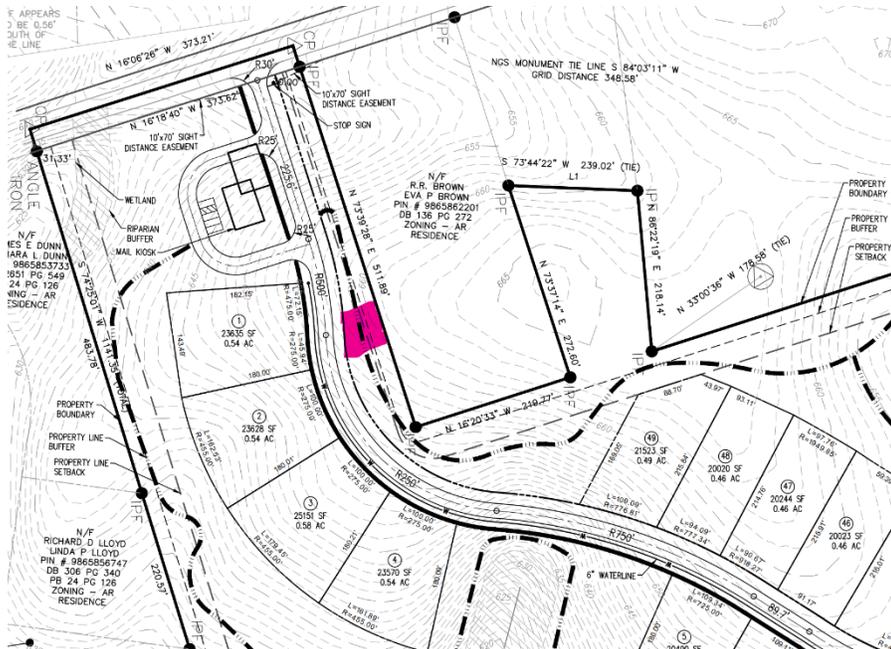
- B. Town staff recommends a trail connection stub to the Eva Brown and Robert Medred parcels as well. Example below, location subject to topo/developer preference.



- 2. Town staff would recommend sidewalk be installed on NC 86 N at the southern entrance of the development for future completion of a sidewalk system on NC 86 N. (Example below, alignment and feasibility dependent on topography)



- 3. A future ROW dedication and stub is recommended to be built to the adjacent parcel so that internal connectivity can be provided if/when the Eva Brown and Robert Medred parcels are developed. (Example below, alignment and feasibility dependent on topo, developer location preference)



4. The trip generation report indicates that a total of 524 trips per day will be generated with about 39 vehicles exiting the development at peak in the AM and 32 coming in at peak in the PM for 49 units.

While this does not meet the threshold for the preparation of a TIA (traffic impact analysis) for the County, if this project were being developed in town we would require both the intersection of NC57 & NC 86N and NC HWY 70 & NC 86N be studied under the requirement: “staff or NCDOT identify potential negative impacts to nearby intersections with high crash rates, significant turning movement delays, or level of service concerns.”

These intersections both have poor levels of service at peak operation. The Town would encourage that the Orange County Planning Board and BOCC ask the developer to study how these additional trips per day will further add delays to already failing intersections and make any suggestions for improvements with rational nexus to the size of the development.

### Water & Sewer Service

5. The plans indicate that septic will be provided on-site via septic tanks and drain fields, however no drain fields are shown on the subdivision plan. Where are the drain fields proposed to be located? On the individual lots themselves?
  - A. These lots are only .5 acres, has Environmental Health or the developer confirmed that such a small lot can support a house, septic tank, and drain field area in such a small space?

- B. Is there sufficient distance/spacing from lots 35 & 36 drain fields to the proposed 'Community Well' location?
6. If this project is approved by the BOCC, the Town may be able to provide water only service to this development due to the low density, without annexation, if the developer desires. This comment is informational in nature and is not an offer to serve.



May 14, 2025

Town of Hillsborough Planning Department  
101 E. Orange Street  
Hillsborough, NC 27278

**RE: Response to Town of Hillsborough Comments – HWY 86**

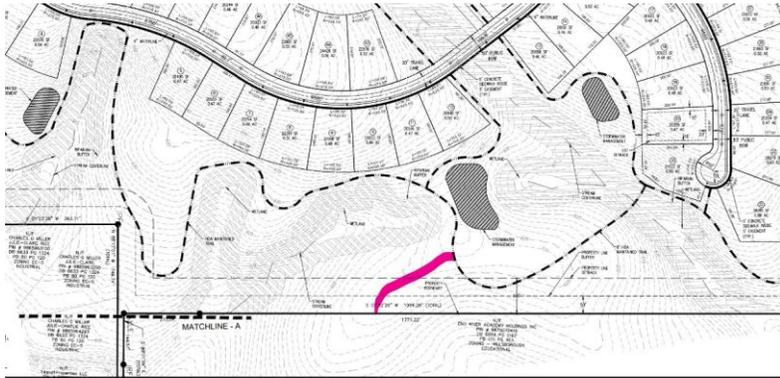
### **Connectivity**

1. The inclusion of a trail system around the neighborhood is a nice amenity and could provide future opportunities for connectivity if it were not a closed system. Town staff recommend the developer put the trail system in a public access easement so that in the future as this area develops it can have greater utilization.

**Forestar Response: The trail system is intended to be a private community amenity. Making the proposed trail system available for public use would introduce a significant financial burden for future homeowners. Future homeowners would become responsible for maintaining a trail system subject to heavier use from those outside of the subdivision in addition to the potential liability requiring costly insurance to cover the additional risk associated with public use. With that being said, Forestar would agree to provide a 20' future public easement should the HOA and any public entity come to an agreement for the public entity to acquire the easement in the future. It should be noted that the trail system will not be constructed in accordance with any public required specifications.**

- A. Town staff also recommend that a leg of the trail connect to the adjacent Eno Academy property so that students living in this neighborhood could walk to school vs. having to get in a vehicle and go down and around to NC 57 to get to school. (Example below, best alignment will depend on topography/treeline)

**Forestar Response: Please refer to the updated plans for location of the future 20' access easement connecting to Eno River Academy.**



B. Town staff recommends a trail connection stub to the Eva Brown and Robert Medred parcels as well. Example below, location subject to topo/developer preference.

**Forestar Response:** Please refer to the updated plans for location of the future 20' access easement connecting to Eva Brown property.



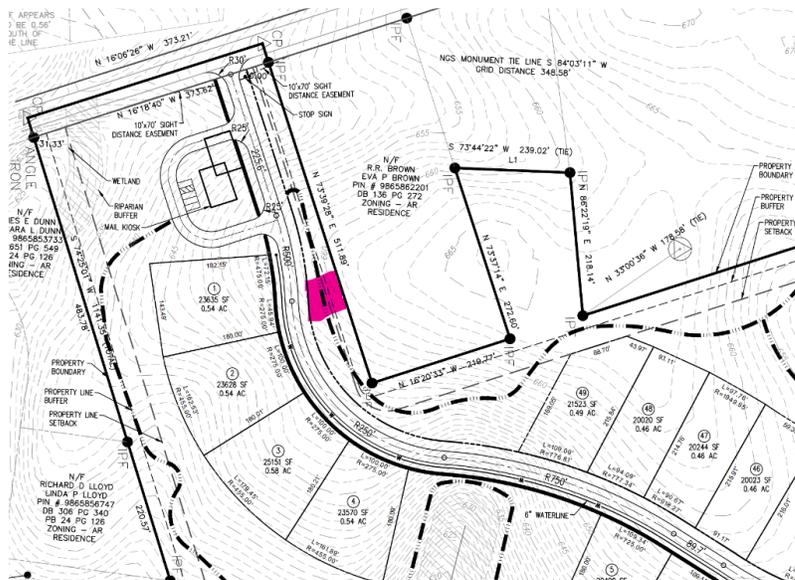
2. Town staff would recommend sidewalk be installed on NC 86 N at the southern entrance of the development for future completion of a sidewalk system on NC 86 N. (Example below, alignment and feasibility dependent on topography)

**Forestar Response:** Grade is steep at this location. We are working to determine if installation of a sidewalk would be feasible.



3. A future ROW dedication and stub is recommended to be built to the adjacent parcel so that internal connectivity can be provided if/when the Eva Brown and Robert Medred parcels are developed. (Example below, alignment and feasibility dependent on topo, developer location preference)

**Forestar Response:** Please refer to the updated plans that show the future ROW dedication connecting to Eva Brown’s property. At this time, we are unable to provide a ROW dedication to Robert Medred’s property due to site constraints.



4. The trip generation report indicates that a total of 524 trips per day will be generated with about 39 vehicles exiting the development at peak in the AM and 32 coming in at peak in the

PM for 49 units. While this does not meet the threshold for the preparation of a TIA (traffic impact analysis) for the County, if this project were being developed in town we would require both the intersection of NC57 & NC 86N and NC HWY 70 & NC 86N be studied under the requirement: “staff or NCDOT identify potential negative impacts to nearby intersections with high crash rates, significant turning movement delays, or level of service concerns.” These intersections both have poor levels of service at peak operation. The Town would encourage that the Orange County Planning Board and BOCC ask the developer to study how these additional trips per day will further add delays to already failing intersections and make any suggestions for improvements with rational nexus to the size of the development.  
**Forestar Response: We have exceeded the County’s requirements for study of this small neighborhood.**

### Water & Sewer Service

5. The plans indicate that septic will be provided on-site via septic tanks and drain fields, however no drain fields are shown on the subdivision plan. Where are the drain fields proposed to be located? On the individual lots themselves?

**Forestar Response: Drain fields will be located on the individual lots.**

- A. These lots are only .5 acres, has Environmental Health or the developer confirmed that such a small lot can support a house, septic tank, and drain field area in such a small space?

**Forestar Response: We have confirmed with our engineer that a 20,000 sf lot can support a house, septic tank, and associated drain fields.**

- B. Is there sufficient distance/spacing from lots 35 & 36 drain fields to the proposed ‘Community Well’ location?

**Forestar Response: DEQ and Orange County Environmental Health have confirmed that we meet the required 100’ radius from the community well location.**

6. If this project is approved by the BOCC, the Town may be able to provide water only service to this development due to the low density, without annexation, if the developer desires. This comment is informational in nature and is not an offer to serve.

**Forestar Response: We appreciate the opportunity to have Hillsborough water available. We will reserve easements on the subject property to allow for a future connection to water if needed.**

## Attachment 6

**STATEMENT OF CONSISTENCY  
OF A PROPOSED ZONING ATLAS MAP AMENDMENT  
WITH THE ADOPTED ORANGE COUNTY 2030 COMPREHENSIVE PLAN**

An applicant-initiated amendment to the Zoning Atlas (MA25-0003) has been reviewed to rezone a parcel as follows:

| Parcel Identification Number (PIN) | Township     | Owner of Record                       | Current Zoning                | Proposed Zoning                         |
|------------------------------------|--------------|---------------------------------------|-------------------------------|---|
| 9865-87-8090                       | Hillsborough | Jenny Powell and Amy L Powell, et al. | AR (Agricultural Residential) | R-CD (Residential Conditional District) |

The Planning Board hereby finds:

- a. The requirements of Section 2.8 *Zoning Atlas and Unified Development Ordinance Amendments* and 2.9.1 *Conditional Districts* of the Orange County Unified Development Ordinance (UDO) have been reviewed and, in addition to the standards of the UDO on the date of approval, the following conditions have been deemed acceptable:
  1. The subject property shall be developed generally in accordance with the proposed site plan submitted as a part of this application ("Site Plan").
  2. The minimum lot size is 20,000 square feet. This deviates from the minimum in UDO Section 3.8. Suitable septic shall be provided on each parcel.
  3. The property shall contain at least three (3) experiential gardens as shown on Site Plan as the Woodland Garden, the Picking Garden and the Pollinator Garden (each a "Garden" and collectively the "Gardens"). A landscape plan for each Garden shall be prepared by a landscape architect at the time of final plat to fulfill the theme of that Garden. Each Garden shall contain a seating opportunity such as a bench, chair or hammock. The Gardens shall be dedicated to and maintained by the Homeowner's Association; however, nothing herein shall prevent the Homeowner's Association from altering the planting plan of each Garden in the future.
  4. Where supplementation of perimeter plantings is required, native plant materials appropriate for the growing environment in that area shall be utilized.
  5. An ADA-compliant, open-air mail kiosk will incorporate a weather covering with recessed lighting.
  6. Trails shall provide access to the Designated Community Gathering Space and each Garden as shown on the Site Plan. The length of the trails located on the subject property shall combined total at least 9,000 linear feet. Trail surfaces

shall be aggregate or natural surface (not paved with concrete or asphalt) to minimize impacts to the existing environment and limit impervious surfaces. Boardwalks shall be utilized where the proposed trail crosses the wetlands as shown on the Site Plan, if permitted by Federal and State agencies. At least five (5) wayfinding signs shall be located along the trail to guide walkers to the Gardens and the Designated Community Gathering Area. The trail and associated amenities described in this section shall be maintained by the Homeowner's Association. The precise location and alignment of the trails will be determined at final plat.

7. The Designated Community Gathering Space shall contain at least one (1) sculptural art piece and at least three (3) seating opportunities such as benches, chairs, or hammocks, all to be maintained by the Homeowner's Association.
  8. Individual septic systems meeting Orange County Health Department requirements will be provided on each lot. Septic systems shall be designed to serve up to a four (4) bedroom home.
  9. No home shall contain more than four (4) bedrooms.
  10. Lighting in common areas of the Community shall comply with the requirements of UDO Section 6.11.6, which promote Dark Sky Preservation.
- b. Pursuant to Sections 1.1.5 *Statement of Intent - Amendments*, and 1.1.7 *Conformance with Adopted Plans* of the UDO and to Section 160D-604(d) *Planning Board review and comment – Plan Consistency* and 160D-605(a) *Governing Board Statement – Plan Consistency* of the North Carolina General Statutes, the Board finds sufficient documentation within the record denoting that the amendment **is consistent** with the adopted 2030 Comprehensive Plan, and, more specifically, the Orange County-adopted Central Orange Coordinated Area Land Use Plan (COCA).

The zoning atlas amendment for a 49-lot Conservation Cluster subdivision is consistent with the 2030 Comprehensive Plan's stated goals. The 2030 Comprehensive Plan, particularly Appendix G: Land Use Classification and Overlay Locational Criteria, identifies the Rural Industrial Activity Node land use classification as "land... that is focused on designated road intersections which serves as a nodal crossroads for the surrounding rural community and is an appropriate location for small-scale industrial uses which do not require urban type services," and the "Agricultural Residential" land use classification as "land in the rural areas where the prevailing land use activities are related to the land (agriculture, forestry) and which is an appropriate location for the continuation of these uses." The proposed R-CD zoning district is recommended as a zoning district in both the Rural Industrial Activity Node and Agricultural Residential Land Use Classifications reflected in the 2030 Comprehensive Plan's Appendix F: Relationships Between Land Use Classifications and Zoning Districts. Furthermore, the proposed residential use is more harmonious with the present land uses, particularly the two schools, than a "smaller scale industrial use" would be.

This is the type of development was envisioned by Orange County when it adopted and further revised the COCA in partnership with the Town of Hillsborough. The COCA identifies this property as having a future land use of "Mixed Residential Neighborhood",

which recommends a “dominant [residential] land use” that “...may contain a single or variety of dwelling types and densities or may integrate a variety of supportive commercial, public and semi-public uses and open or public space.” The proposed project is consistent with this description. The adoption of the COCA and the recommended land use for the subject property was deemed consistent with the Comprehensive Plan, as the COCA was adopted after that countywide plan. The subject property is located outside the Town’s incorporated limits and its extraterritorial jurisdiction and, as such, was always envisioned for land use regulation by Orange County as a “Mixed Residential Neighborhood”.

The applicant proposes a Flexible Subdivision following the Conservation Cluster model, which concentrates the development outside of environmentally sensitive areas and maintains contiguous Common Open Space on 42.25 acres, or 53.97% of the parcel subject to rezoning, respecting the rural character and environmental protections prioritized by the Comprehensive Plan. The subdivision proposed with the binding site plan adheres to the density of rural development reflected in the surrounding area’s residential land use patterns, with an overall density of 1 dwelling unit per 0.61 acres. The proposed lot count for the future subdivision does not exceed the maximum density permitted by the density regulations in the UDO. This measured approach is compatible with the nodal crossroads location, introducing more households in an environmentally-sensitive conservation cluster pattern that will support the node’s present and future non-residential uses while being consistent with the residential development densities of the surrounding area. This design approach will also provide a transition in density and land use type from the larger lots north of the site to the smaller lots within the Town’s incorporated limits south of the site.

The proposed Conservation Cluster Flexible Development Subdivision has made efforts to minimize impacts to the surrounding area and the environment. The new traffic generated by the development will not degrade the surrounding road network. The project is designed to place open space such that neighboring properties will have minimal impacts with regarding to the trees and other vegetation with which they are accustomed. The developer is also providing amenities, including gathering areas, for the residents so that they are not reliant upon county and town facilities. The applicant has identified environmental features into consideration in its design and construction commitments to minimize negative impacts. Environmentally sensitive features have been preserved in dedicated open space and or committed landscaping. The applicant provided an Environmental Assessment as part of the application package. County staff has reviewed and determined no significant environmental impact is expected from this project based on existing conditions.

The applicant requested utilities from the Town of Hillsborough and was denied their service. In turn, they developed the proposed zoning application and site plan to support the Conservation Cluster subdivision presented, which will be independent of any utility service using conventional septic systems and a community well, which will also provide adequate fire flows. The deliberate dialogue with the adjacent utility providers at the Town, including their participation in the review process, reflect the “careful consideration of the

costs and benefits of expansion” required of the 2030 Comprehensive Plan’s Planning Principle 1.

- c. The amendment is consistent with applicable plans because it supports the following:

2030 Comprehensive Plan

- Planning Principle 1. *Efficient and Fiscally Responsible Provision of Public Facilities and Services: Orange County’s public facilities and services should be delivered in a manner that efficiently uses existing capacity. Expansions of facilities and services should be made only after careful consideration of the costs and benefits of expansion.*
- Planning Principle 2. *Sustainable Growth and Development: Growth and development within the county should occur in a pattern, location, and density that is sustainable over the long-term.*
- Planning Principle 4. *Natural Area Resource Protection: Protection of the County’s natural areas, including forests, wildlife habitat, and other important open spaces should be a priority. The County should work with regional and local organizations, the towns, and private landowners to promote and achieve preservation of the County’s important natural resources.*
- Planning Principle 5. *Preservation of Rural Land Use Pattern: The County’s rural areas are a cherished component of the County’s character. Future development should preserve and enhance the county’s rural landscape.*
- Planning Principle 6. *Water Resources Preservation: The County has finite water resources to provide to future populations. The protection and management of the County’s water resources should be a high priority.*
- Planning Principle 8. *Preservation of Community Character: Future growth and development should occur in a manner that preserves and enhances the existing character of the County, its townships, and rural crossroads communities.*
- Land Use Overarching Goal: *Coordination of the amount, location, pattern, and designation of future land uses, with availability of County services and facilities sufficient to meet the needs of Orange County’s population and economy consistent with other Comprehensive Plan element goals and objectives.*
- Land Use Goal 2: *Land uses that are appropriate to on-site environmental conditions and features, and that protect natural resources, cultural resources, and community character.*
- Land Use Goal 3: *A variety of land uses that are coordinated within a program and pattern that limits sprawl, preserves community and rural character, minimizes land use conflicts, supported by an efficient and balanced transportation system.*

- Land Use Goal 6: *A land use planning process that is transparent, fair, open, efficient, and responsive.*
- Appendix F, Land Use Classification Description for Rural Industrial Activity Node: *Land focused on designated road intersections within the rural area that is appropriate for small scale industrial uses which do not require urban type services.*

Central Orange Coordinated Area Land Use Plan

- Mixed Residential Neighborhood Future Land Use Classification  
*The dominant land use in any proposed development is expected to be residential based on square footage of proposed structures. Developments may contain a single or variety of dwelling types and densities or may integrate a variety of supportive commercial, public and semi-public uses and open or public space. Small developments that provide only supportive non-residential land uses in an infill arrangement serving more than 50 dwelling units in a walkable manner may also be considered.*
- a. The amendment is reasonable and in the public interest because it furthers the goals of the adopted Comprehensive Plan and is located in an area designated on the Future Land Use Map as “Rural Industrial Activity Node.”

The Planning Board hereby adopts this Statement of Consistency and the findings expressed herein and recommends the Board of County Commissioners consider adoption of the proposed Zoning Atlas Amendment.

Vote: \_\_\_\_ For, \_\_\_\_ Against

\_\_\_\_\_  
Lamar Proctor, Chair

\_\_\_\_\_  
Date

**STATEMENT OF INCONSISTENCY  
OF A PROPOSED ZONING ATLAS MAP AMENDMENT  
WITH THE ADOPTED ORANGE COUNTY 2030 COMPREHENSIVE PLAN**

An applicant-initiated amendment to the Zoning Atlas (MA25-0003) has been reviewed to rezone a parcel as follows:

| Parcel Identification Number (PIN) | Township     | Owner of Record                       | Current Zoning                | Proposed Zoning                         |
|------------------------------------|--------------|---------------------------------------|-------------------------------|---|
| 9865-87-8090                       | Hillsborough | Jenny Powell and Amy L Powell, et al. | AR (Agricultural Residential) | R-CD (Residential Conditional District) |

The Planning Board hereby finds:

- a. The requirements of Section 2.8 *Zoning Atlas and Unified Development Ordinance Amendments* and 2.9.1 *Conditional Districts* of the UDO have been reviewed and the following standards conditions have been deemed **unacceptable**:
  1. The subject property shall be developed generally in accordance with the proposed site plan submitted as a part of this application (“Site Plan”).
  2. The minimum lot size is 20,000 square feet.
  7. Gathering areas (as shown on the plans) will be provided to encourage family and community solidarity. This will include a main community gathering area with a custom art piece, hammocks, seasonal garden area with perennial plantings, common area. Further, the community will have a natural surface trail system throughout connecting active and passive open spaces.
- b. Pursuant to Sections 1.1.5 *Statement of Intent - Amendments*, and 1.1.7 *Conformance with Adopted Plans* of the UDO and to Section 160D-604(d) *Planning Board review and comment – Plan Consistency* and 160D-605(a) *Governing Board Statement – Plan Consistency* of the North Carolina General Statutes, the Board finds sufficient documentation within the record denoting that the amendment **is inconsistent** with the adopted 2030 Comprehensive Plan.

The applicant has applied for a Residential – Conditional zoning amendment that proposes a 49-lot Conservation Cluster subdivision at a location that is identified in the Orange County 2030 Comprehensive Plan as having two future land use classifications: Agricultural Residential and Rural Industrial Activity Node (RIAN). While the R-CD zoning district is recommended for use in both of these Future Land Use Classes in Appendix F

of the Comprehensive Plan, the proposed design and site plan are inconsistent with the descriptions of these future land use classes. “Agricultural Residential” areas are described as *“land in the rural areas where the prevailing land use activities are related to the land (agriculture, forestry) and which is an appropriate location for the continuation of these uses,”* and the RIAN is described as *“land... that is focused on designated road intersections which serves as a nodal crossroads for the surrounding rural community and is an appropriate location for small-scale industrial uses which do not require urban type services.”*

At a density of 1 dwelling unit per 0.61 acres, the design is denser than what is otherwise provided for in the Agricultural Residential zoning district, which requires single-family lots to be a minimum of 0.92 acres in area. With a minimum lot size of 20,000 square feet (0.46 acres), the lots and density of this Conservation Cluster community will disrupt the rural character of the area and will be noticeably distinct and different from the surrounding residential uses in the county. Conversely, the lots will be larger and less dense than those served by Town of Hillsborough utilities, south of the subject property. While this could be characterized as a transition between the two types of residential use, it more accurately is an example of suburban sprawl, and in direct conflict with Planning Principles 2, 5, and 8, as well as Land Use Goal 2.

The RIAN does not preclude residential uses – they are, in fact, recommended zoning districts for this future land use class in the 2030 Comprehensive Plan – but such uses need to be compatible with the other uses more explicitly supported by the RIAN description: small-scale industrial uses which do not require urban type services. Placement of these homes will create a future conflict when the RIAN is developed for the priority uses, as recommended by the county’s adopted plan.

- c. As such, the application **is inconsistent** with the following principles, goals, and objectives of the 2030 Comprehensive Plan:
- Planning Principle 1. *Efficient and Fiscally Responsible Provision of Public Facilities and Services: Orange County’s public facilities and services should be delivered in a manner that efficiently uses existing capacity. Expansions of facilities and services should be made only after careful consideration of the costs and benefits of expansion.*
  - Planning Principle 2. *Sustainable Growth and Development: Growth and development within the county should occur in a pattern, location, and density that is sustainable over the long-term.*
  - Planning Principle 3A. *Encouragement of Energy Efficiency, Lower Energy Consumption, and the Use of Non-Polluting Renewable Energy Resource: Decreasing the use of non-renewable resources and lowering energy consumption are encouraged in both public and private activities. The county’s transportation system should be enhanced to promote more energy efficient modes of travel and improve air quality.*

- Planning Principle 5. Preservation of Rural Land Use Pattern: *The County's rural areas are a cherished component of the County's character. Future development should preserve and enhance the county's rural landscape.*
- Planning Principle 8. Preservation of Community Character: *Future growth and development should occur in a manner that preserves and enhances the existing character of the County, its townships, and rural crossroads communities.*
- Land Use Overarching Goal: *Coordination of the amount, location, pattern, and designation of future land uses, with availability of County services and facilities sufficient to meet the needs of Orange County's population and economy consistent with other Comprehensive Plan element goals and objectives.*
- Land Use Goal 3: *A variety of land uses that are coordinated within a program and pattern that limits sprawl, preserves community and rural character, minimizes land use conflicts, supported by an efficient and balanced transportation system.*
- Land Use Goal 6: *A land use planning process that is transparent, fair, open, efficient, and responsive.*
- Appendix F, Land Use Classification Description for Rural Community Activity Node: *Land focused on designated road intersections which serves as a nodal crossroads for the surrounding rural community and is an appropriate location for any of the following uses: church, fire station, small post office, school, or other similar institutional uses and one or more commercial uses.*

The Planning Board hereby adopts this Statement of Inconsistency and the findings expressed herein and recommends the Board of County Commissioners consider denial of the proposed Zoning Atlas Amendment.

Vote: \_\_\_\_ For, \_\_\_\_ Against

\_\_\_\_\_  
Lamar Proctor, Chair

\_\_\_\_\_  
Date

Ordinance #: \_\_\_\_\_

**AN ORDINANCE AMENDING THE  
ORANGE COUNTY ZONING ATLAS**

WHEREAS, Orange County has received and processed a petition submitted by Forestar Group, Inc. (hereafter 'the Applicant'), seeking to amend the Orange County Zoning Atlas, as established in Section 1.2 of the Orange County Unified Development Ordinance (UDO), and

WHEREAS, this petition seeks to rezone +/- 78.11 acres (PIN: 9865-87-8090) from AR (Agricultural Residential) to R-CD (Residential Conditional District) for the purpose of a Major Subdivision; and

WHEREAS, the petition has been submitted with a site plan in accordance with the provisions of Section 2.9.1 (C) of the UDO; and

WHEREAS, the requirements of Section 2.8 and 2.9 of the UDO have been deemed complete; and

WHEREAS, the Board has found the proposed zoning atlas amendment to be reasonably necessary to promote the public health, safety, and general welfare; and

WHEREAS, the Board has found the proposed zoning atlas amendment to be consistent with the adopted 2030 Comprehensive Plan and the Central Orange Coordinated Area Land Use Plan, and is reasonable and in the public interest.

BE IT ORDAINED by the Board of Commissioners of Orange County that the Orange County Zoning Atlas is hereby amended to rezone the aforementioned parcel to R-CD (Residential Conditional District), as detailed within the submitted application.

BE IT FURTHER ORDAINED THAT in accordance with Section 2.9.1 (F) of the UDO the approval of this Conditional Zoning application is subject to the following mutually agreed to conditions:

1. The subject property shall be developed generally in accordance with the proposed site plan submitted as a part of this application ("Site Plan").
2. The minimum lot size is 20,000 square feet. This deviates from the minimum in UDO Section 3.8. Suitable septic shall be provided on each parcel.
3. The property shall contain at least three (3) experiential gardens as shown on Site Plan as the Woodland Garden, the Picking Garden and the Pollinator Garden (each a "Garden" and collectively the "Gardens"). A landscape plan for each Garden shall be prepared by a landscape architect at the time of final plat to fulfill the theme of that Garden. Each Garden shall contain a seating opportunity such as a bench, chair or hammock. The Gardens shall be dedicated to and maintained by the Homeowner's Association; however, nothing herein shall prevent the Homeowner's Association from altering the planting plan of each Garden in the future.
4. Where supplementation of perimeter plantings is required, native plant materials appropriate for the growing environment in that area shall be utilized.
5. An ADA-compliant, open-air mail kiosk will incorporate a weather covering with recessed lighting.
6. Trails shall provide access to the Designated Community Gathering Space and each Garden as shown on the Site Plan. The length of the trails located on the subject property shall combined total at least 9,000 linear feet. Trail surfaces shall be aggregate or natural surface (not paved with concrete or asphalt) to minimize impacts to the existing environment and limit impervious surfaces. Boardwalks shall be utilized where the proposed trail crosses the wetlands as shown on the Site Plan, if permitted by Federal and

State agencies. At least five (5) wayfinding signs shall be located along the trail to guide walkers to the Gardens and the Designated Community Gathering Area. The trail and associated amenities described in this section shall be maintained by the Homeowner's Association. The precise location and alignment of the trails will be determined at final plat.

7. The Designated Community Gathering Space shall contain at least one (1) sculptural art piece and at least three (3) seating opportunities such as benches, chairs, or hammocks, all to be maintained by the Homeowner's Association.
8. Individual septic systems meeting Orange County Health Department requirements will be provided on each lot. Septic systems shall be designed to serve up to a four (4) bedroom home.
9. No home shall contain more than four (4) bedrooms.
10. Lighting in common areas of the Community shall comply with the requirements of UDO Section 6.11.6, which promote Dark Sky Preservation.

BE IT FURTHER ORDAINED THAT this ordinance be placed in the book of published ordinances and that this ordinance is effective upon its adoption.

Upon motion of Commissioner \_\_\_\_\_, seconded by Commissioner \_\_\_\_\_, the foregoing ordinance was adopted this \_\_\_\_\_ day of \_\_\_\_\_, 2025.

I, Laura Jensen, Clerk to the Board of Commissioners for Orange County, DO HEREBY CERTIFY that the foregoing is a true copy of so much of the proceedings of said Board at a meeting held on \_\_\_\_\_, 2025 as relates in any way to the adoption of the foregoing and that said proceedings are recorded in the minutes of the said Board.

WITNESS my hand and the seal of said County, this \_\_\_\_\_ day of \_\_\_\_\_, 2025.

SEAL

\_\_\_\_\_  
Clerk to the Board of Commissioners

**ORANGE COUNTY  
PLANNING BOARD  
ACTION AGENDA ITEM ABSTRACT**

**Meeting Date:** September 3, 2025

**Action Agenda  
Item No. 8**

**SUBJECT:** Unified Development Ordinance Text Amendment – Impervious Surfaces, Watershed Protection Overlay Districts, and Stream Buffers

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**DEPARTMENT:** Planning and Inspections

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**ATTACHMENT(S):**

1. Proposed UDO Text Amendment
2. Statement of Approval and Consistency

**INFORMATION CONTACT:**

Christopher Sandt, County Engineer  
919-245-2583  
Patrick Mallett, Deputy Director  
919-245-2577  
Cy Stober, Director  
919-245-2592

**PURPOSE:** To review and make a recommendation to the Board of County Commissioners (BOCC) on Planning Director-initiated text amendments to the Unified Development Ordinance (UDO) pertaining to Impervious Surfaces, Watershed Protection Overlay Districts, and Stream Buffers.

**BACKGROUND:** The Orange County Planning Department has initiated an amendment to UDO Sections 2.20, 4.2, 6.13, 6.18, and Article 10. The proposed amendment is multi-faceted in purpose and is intended to be comprehensive in addressing overly complex text/tables, and to improve interpretation and application of the UDO for both staff and applicants.

Specifically, this amendment addresses: 1) refinements and reading clarity improvements related to impervious surface area limits and existing development definition timelines for the County's Thirteen (13) Watershed Protection Overlay Districts, including deletion of the obsolete and difficult to interpret "Sliding Scale Table" (Tables 4.2.5.2 & 4.2.5.3); 2) refinement of minimum reservoir buffer widths for the Upper Eno Critical Watershed Protection Overlay District to better accommodate known non-conforming lots located around the shoreline of Lake Orange and reduce setback variance requests related to this specific location.; and 3) refinement of the "Water Feature" definition within Article 10 to clarify and conform with county/state/federal regulatory authority.

The first draft of the amendment was reviewed and discussed by the Ordinance Review Committee (ORC) on July 9, 2025. All comments from the July 9, 2025, ORC meeting have been incorporated into the proposed UDO text amendment. Please note that the affordable housing focused aspects as presented in the July 9, 2025, ORC meeting have been removed from this proposed amendment package and will be processed as a forthcoming (not yet finalized) agenda item in the near future. In compliance with the Orange County-Chapel Hill-Carrboro Joint Planning Land Use Plan and Agreement, the proposed text amendment was sent to both towns for comment on July 30, 2025. Orange County Legal review also commenced on July 30, 2025. To date, minor comments have been received from the Town of Carrboro and integrated into the proposed amendment. The proposed amendment language can be found in Attachment 1 within a "track changes" format.

Planning Director's Recommendation: The Planning Director recommends **approval** of the:

1. Unified Development Ordinance (UDO) text amendments, as contained in Attachment 1.
2. Statement of Approval and Consistency indicating the text amendments are reasonable and in the public interest, as contained in Attachment 2.

**FINANCIAL IMPACT:** There are no costs associated with this text amendment other than the use of staff time and the required legal advertisement for the text amendment's public hearing. Staff has and will continue to accomplish the necessary tasks associated with amending the UDO and the legal advertisement will be paid from budgeted funds for this purpose.

**RECOMMENDATION(S):** The Planning Director recommends the Board:

1. Review and discuss the proposed UDO text amendment;
2. Consider the Planning Director's recommendation; and
3. Make a recommendation to the BOCC on the Statement of Approval and Consistency (Attachment 2) and the proposed Ordinance and UDO text amendment (Attachment 1) in time for the October 7, 2025, BOCC meeting.

- (iv) There will be no substantial change in the permitted activity.
- (2) The Erosion and Sedimentation Control Plan holder shall comply with all terms and conditions of the Erosion and Sedimentation Control Plan until such time as the Erosion and Sedimentation Control Plan is transferred.
- (3) The successor-owner shall comply with all the terms and conditions of the Erosion and Sedimentation Control Plan once the Erosion and Sedimentation Control Plan is transferred.
- (4) Notwithstanding changes to law made after the original issuance of the Erosion and Sedimentation Control Plan, the Erosion Control Officer may not impose new or different terms and conditions in the Erosion and Sedimentation Control Plan without the prior express consent of the successor-owner. Nothing in this subsection shall prevent the Erosion Control Officer from requiring a revised Erosion and Sedimentation Control Plan pursuant to General Statute 113A-54.1.(b).

**SECTION 2.20: STREAM BUFFERS –USE AUTHORIZATION CERTIFICATE**

**2.20.1 Use Authorization Certificate**

**(A) Application Requirements**

- (1) An application for a ~~Stream Buffer Use~~<sup>1</sup> Authorization Certificate shall be filed with the Erosion Control Officer on forms provided by the Planning Department.
- (2) Complete applications shall include the following:
  - (a) The name, address and phone number of the applicant;
  - (b) The nature of the activity to be conducted by the applicant;
  - (c) The location of the activity, including the jurisdiction;
  - (d) A map of sufficient detail to accurately delineate the boundaries of the land to be utilized in carrying out the activity, the location and dimensions of any disturbance in riparian buffers associated with the activity, and the extent of riparian buffers on the land;
  - (e) An explanation of why this plan for the activity cannot be practically accomplished, reduced or reconfigured to better minimize disturbance to the riparian buffer, preserve aquatic life and habitat and protect water quality; and
  - (f) Plans for any best management practices proposed to be used to control the impacts associated with the activity.

**(B) Timeframe for Review**

- (1) All requests shall be reviewed by the Erosion Control Officer and either approved or denied within 60 days of receipt of a complete application.
- (2) Failure to issue an approval or denial within 60 days shall constitute that the applicant has demonstrated “no practical alternatives.”
- (3) The Erosion Control Officer may attach conditions to the Authorization Certificate that support the purpose, spirit and intent of the riparian buffer protection program.

**(C) Disputes**

<sup>1</sup> Correction to our standard form name.

Any disputes over determinations regarding [Stream Buffer](#)<sup>2</sup> Authorization Certificates shall be referred to the Division of Water Resources of the North Carolina Department of Environmental Quality (NCDEQ) for a decision.

## SECTION 2.21: STORMWATER MANAGEMENT

### 2.21.1 Stormwater Management Plan

#### (A) Application Requirements

- (1) A Stormwater Management Plan (SMP) shall be prepared for all Land-Disturbing Activities subject to this Ordinance whenever the proposed Land-Disturbing Activity exceeds the stormwater thresholds as defined in the Orange County Watershed Matrix (Table 4.2.10 of this Ordinance).

#### (B) Plan Requirements

- (1) Any proposed permanent Stormwater Control Measures (SCMs) must be shown as part of the SMP and must accompany the Land Disturbing Permit (LDP) application submittal package. SCMs shall meet the requirements of the most current version of the North Carolina Administrative Code Title 15A, Subchapter 02H Sections .1000 through .1062, and the most current version of the Department of Environmental Quality (NCDEQ) Stormwater Design Manual.
- (2) All calculations for Nutrient Export (including the nutrient accounting tool), Peak Run-off Volume, and permanent SCMs designed for Nutrient Removal, as applicable per the requirements of Section 6.14 of this Ordinance, must be included in the LDP application submittal package.
- (3) SCMs that are designed, constructed and maintained in accordance with the most current version of the North Carolina Administrative Code Title 15A, Subchapter 02H, Sections .1000 through .1062 and the most current version of the NCDEQ Stormwater Design Manual, the approved accounting tools, and the requirements listed in Section 6.14 of this Ordinance will be presumed to meet the required performance standards of Section 6.14 of this Ordinance. Submittals containing measures not designed to these specifications, may be approved on a case by case basis provided the applicant provides adequate data and information showing how the deviations meet the requirements of Section 6.14 of this Ordinance.

#### (C) Plan Approval

The Erosion Control Officer is authorized to approve any SMP which is in conformance with the performance standards specified in the most current version of the North Carolina Administrative Code Title 15A, Subchapter 02H, Sections .1000 through .1062 and the most current version of the NC DEQ Stormwater Design Manual, and other requirements of this Ordinance.

#### (D) Approved Plan a Prerequisite

The Erosion Control Officer is not authorized to issue any LDPs for development on any land that is defined as new development under Section 6.14 of this Ordinance unless and until an SMP in compliance with the requirements of this Ordinance has been approved.

#### (E) Design of Permanent Nutrient Export Reduction Stormwater Control Measures

When a permanent nutrient export reduction SCM is required for new development to meet the requirements of this Ordinance, a North Carolina registered professional engineer shall prepare the SMP with the Engineer's Certification of Stormwater Management affixed, signed, sealed and dated.

<sup>2</sup> [Correction to our standard form name.](#)

## ARTICLE 4: OVERLAY ZONING DISTRICTS

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### SECTION 4.1: GENERALLY

#### 4.1.1 Description, Standards, and Conflicts

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- (A) Overlay districts are supplemental to general zoning district classifications and are applied in combination to address special situations or to accomplish specific planning and land use goals.
- (B) Unless otherwise expressly stated, all applicable regulations of the underlying district apply to property in an overlay district.
- (C) Unless otherwise stated, all applicable standards of this Ordinance apply to property in an overlay district.
- (D) When overlay district standards conflict with standards that otherwise apply in the underlying district, the regulations of the overlay district always govern.

### SECTION 4.2: WATERSHED PROTECTION OVERLAY DISTRICTS<sup>3</sup>

#### 4.2.1 Purpose and Intent

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- (A) The purpose of the Watershed Protection Overlay Districts is to prevent significant future water quality deterioration in existing or potential future drinking water reservoirs which receive stormwater runoff from land within Orange County.
- (1) Protection of all water supplies within the State in accordance with minimum standards was mandated by NCGS §143-214.5.
  - (2) The quality of water in drinking water reservoirs can be affected by human activities including farming, construction of highways and roads, subdivision development, industrial development, and other land-disturbing activities. Types of water pollutants resulting from these activities include sediment, bacterial contamination, heavy metals, synthetic organic compounds and low-level radioactivity.
- (B) The intent of the Watershed Protection Overlay Districts is to apply a set of regulations involving land use and, in some cases, structural best management practices which protect the watersheds by reducing the pollution from future development which enters drinking water supplies.
- (1) Land use management practices involve minimum lot size and impervious surface restrictions, since impervious surfaces such as roads, roof tops and driveways are a major source of pollution.
  - (2) Structural best management practices allow for more intensive land use by providing for temporary detention of stormwater runoff so that pollutants may settle.

#### 4.2.2 Applicability

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- (A) The Watershed Protection Overlay Districts as established herein overlay other zoning districts established in this Ordinance. The new use of any land or new structure within any Watershed Protection Overlay District shall comply with the use regulations applicable to the underlying zoning district as well as the requirements of the applicable Watershed Protection Overlay District.
- (B) A Watershed Protection Overlay District shall be applied to the Orange County portion of watersheds which have been classified as WS-II, WS-III or WS-IV watersheds by the North Carolina Environmental Management Commission in its implementation of NCGS §143-214.5. In accordance with

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<sup>3</sup> [Staff recommendation to add "Overlay District" to the end of article section title to provide additional clarity for the reader.](#)

the State Mandate, [thirteen \(13\)<sup>4</sup>](#) Watershed Protection District Overlays, as listed in the table in subsection (E) [below<sup>5</sup>](#), are hereby established.

**(C)** Areas designated as “Critical Area” under the Orange County designation are hereby established using the following criteria:

- (1) The land area in the Upper Eno watershed (straight line distance) within one-half mile of the normal pool elevation (NPE), or nearest available contour line used for the calculation, of an existing Class I or Class II reservoir or proposed water supply reservoir designated for protection, or the ridgeline of the sub-watershed, whichever is less; and
- (2) The land area within one-half mile on each side for an upstream distance of 2.5 miles (straight line distance) of any fifth order or higher stream flowing into a Class I reservoir, or the ridgeline of the sub-watershed, whichever is less; and
- (3) The land area within one-half mile on each side of a fourth order or higher stream flowing between any Class II and Class I reservoir; and
- (4) The land area within one-half mile on each side for an upstream distance of 1.5 miles (straight line distance) of a third or fourth order stream flowing directly into any Class I reservoir; and
- (5) The land area within one-half mile on each side for an upstream distance of 1.0 mile (straight line distance) of a third or fourth order stream flowing into a fourth order or higher stream that is within 1.0 miles (straight line distance) of a Class I reservoir; and
- (6) Any isolated areas within the overall critical area boundary that drain into any of the streams listed above.
- (7) Areas designated as Transition Areas on the Land Use Element Map of the Orange County Comprehensive Plan are excluded from designation as a Critical Area, except for land areas located within one-half mile from the normal pool elevation of a Class I reservoir.
- (8) The land area north of the centerline of West Ten Road and west of the centerline of the Interstate 85/U.S. 70 Connector is excluded from designation as a Critical Area, except for land areas located within one-half mile from the normal pool elevation of a Class I reservoir.

**(D)** The designation of “Protected” applies to areas of watersheds classified as WS-II, WSIII, or WS-IV outside of areas designated as “Critical Area.”

**(E) General Locations of Watershed Protection Overlay Districts**

| TABLE 4.2.2.E: WATERSHED PROTECTION OVERLAY DISTRICTS <sup>6</sup> |  |  |
|--|--|--|
| DISTRICT   |  | GENERAL LOCATION   |
| UNIV-CA  | University Lake Critical Area                        | One-half mile from the normal pool elevation of University Lake, or to the ridgeline of the watershed, whichever is less.      |
| UNIV-PW  | University Lake Protected Watershed Overlay District | The portion of the drainage basin of University Lake not covered by UNIV-CA.   |
| CANE-CA  | Cane Creek Critical Area Overlay District            | One-half mile from the normal pool elevation of Cane Creek Reservoir, or to the ridgeline of the watershed, whichever is less. |

<sup>4</sup> Staff recommendation to improve reading clarity.

<sup>5</sup> The correct subsection is now referenced.

<sup>6</sup> Table 4.2.2.E has been reformatted to improve reading clarity.

| TABLE 4.2.2.E: WATERSHED PROTECTION OVERLAY DISTRICTS <sup>6</sup> |   |  |
|--|---|--|
| DISTRICT   |   | GENERAL LOCATION   |
| CANE-PW  | Cane Creek Protected Watershed Overlay District       | The portion of the drainage basin of Cane Creek Reservoir not covered by CANE-CA.  |
| U-ENO-CA   | Upper Eno Critical Area Overlay District              | One-half mile from the normal pool elevation, or to the ridgeline of the watershed, whichever is less, of the following Class I reservoirs: Corporation Lake (538' actual NPE, 540' contour line used) and Lake Ben Johnson (515' NPE and contour line used). One-half mile (straight line measurement) from the normal pool elevation, or to the ridgeline of the watershed, whichever is less, of the following Class II reservoirs: Lake Orange (615' NPE and contour line used) and West Fork on the Eno (642' NPE, 642' contour line used); and the land area within one-half mile (straight line measurement) on each side of other streams designated for protection. These protected streams include portions of: Eno River, Seven Mile Creek, West Fork of the Eno River, East Fork of the Eno River, Rocky Run, Stream ID 1625, Stream ID 1498, Dry Run Creek, Crabtree Creek, and Stream ID 2109. (Source of elevation data: Atlantic Technologies Ltd., 1998 planimetric project approved by Orange County GIS). |
| U-ENO-PW   | Upper Eno Protected Watershed Overlay                 | The portion of the Upper Eno drainage basin not covered by U-ENO-CA.   |
| L-ENO-PW   | Lower Eno Protected Watershed Overlay                 | The Orange County portion of the Eno River Watershed within ten miles of the City of Durham Emergency Water Intake east of US 501 (Roxboro Road).  |
| LITTLE-PW  | Little River Protected Watershed Overlay District     | The portion of drainage basin of the Little River Reservoir which is located in Orange County.   |
| BACK-PW  | Back Creek Protected Watershed Overlay District       | The portion of the drainage basin of Back Creek which is located in Orange County.   |
| HYCO-PW  | South Hyco Creek Protected Watershed Overlay District | The portion of the drainage basin of South Hyco Creek which is located in Orange County.   |
| FLAT-PW  | Flat River Protected Watershed Overlay District       | The portion of the drainage basin of the Flat River which is located in Orange County.   |
| HAW-PW   | Haw River Protected Watershed Overlay District        | The portion of the drainage basin for the Haw River which is located in Orange County  |
| JORDAN-PW  | Jordan Lake Protected Watershed Overlay District      | The Orange County portion of the Jordan Lake Watershed which extends five miles from the normal pool elevation of the impoundment.   |

**(F) Existing Development**

The following residential or non-residential structures shall be considered existing development for the purpose of determining compliance with or applicability of Sections 4.2, [6.13](#), [6.14](#), and [6.15 of this Ordinance and 6.13.3, 6.13.4, 6.13.6, 6.13.8, 6.14.4, 6.14.10, 6.14.11, and 6.15.7\(B\)\(3\)<sup>7</sup>](#):

<sup>7</sup> [Simplified reference to applicable sections of the UDO.](#)

- (1) Was either constructed prior to, or constructed in accordance with a valid building permit issued prior to, or was included as part of a Site Specific Development Plan approved by the Board of County Commissioners prior to January 1, 1994; or
- (2) Was either constructed prior to, or constructed in accordance with a valid building permit issued prior to, or was included as part of a Site Specific Development Plan approved by the Board of County Commissioners prior to February 12, 1997 with respect to the Town of Hillsborough purchase of property associated with expanding the West Fork of the Eno reservoir; or
- (3) Was either constructed prior to, or constructed in accordance with a valid building permit issued prior to, or was included as part of a Site Specific Development Plan approved by the Board of County Commissioners prior to October 19, 1999 with respect to the October 19, 1999 amendments related to the CANE-CA and CANE-PW districts, or
- (4) Was either constructed prior to, or constructed in accordance with a valid building permit issued prior to, or was included as part of a Site Specific Development Plan approved by the Board of County Commissioners prior to September 19, 2001 with respect to the Stream Buffer/Usable Lot amendments, or
- (5) Was either constructed prior to, or constructed in accordance with a valid building permit issued prior to, or was included as part of a Site Specific Development Plan approved by the Board of County Commissioners prior to May 20, 2003 with respect to the Stream Classification Amendments, or
- (6) Had otherwise established a vested right under North Carolina Zoning law prior to January 1, 1994, or October 19, 1999 with respect to the October 19, 1999 amendments related to the CANE-CA and CANE-PW districts, or September 19, 2001 with respect to the Stream Buffer/Usable Lot amendments, or May 20, 2003 with respect to the Stream Classification Amendments.

(G) Existing development is hereby deemed to be conforming with respect to requirements of Sections 4.2, ~~6.13, 6.14, and 6.15 of this Ordinance.<sup>8</sup> 6.13.3, 6.13.4, 6.13.6, 6.13.8, 6.14.4, 6.14.10, 6.14.11, and 6.15.7(B)(3) of this Ordinance.~~ Periodic updates to FEMA maps may affect structures located within the special flood hazard area of specific streams.

**(H) Redevelopment**

- (1) The rebuilding or replacement of residential or nonresidential structures which are defined as existing development according to subsection (F) above is allowed, provided that the rebuilding or replacement does not result in an increase in the amount of impervious surface, and does not encroach any farther into stream buffers or setbacks from reservoirs than the previous development.
- (2) A structure which is rebuilt or replaced in accordance with these provisions is deemed conforming with respect to setbacks from streams and reservoirs required by Section 6.13 of this Ordinance.

**(I) Existing Lots**

- (1) An existing lot, for the purpose of determining compliance with Sections 4.2, ~~6.13, 6.14, and 6.15 of this Ordinance<sup>9</sup> and 6.13.3, 6.13.4, 6.13.6, 6.13.8, 6.14.4, 6.14.10, 6.14.11, and 6.15.7(B)(3),~~ is defined as:
  - (a) A lot which was created prior to January 1, 1994, or

<sup>8</sup> Simplified reference to applicable sections of the UDO.

<sup>9</sup> Simplified reference to applicable sections of the UDO.

- (b) A lot within the Upper Eno watershed which was created prior to February 12, 1997 with respect to the Town of Hillsborough purchase of property associated with development of the West Fork on the Eno reservoir; or
  - (c) A lot within the Cane Creek watershed which was created prior to October 19, 1999, with respect to the October 19, 1999, amendments related to the CANE-CA and CANE-PW districts, or
  - (d) Non-conforming lots of record.
- (2) Stream buffers as required by Section 6.13, and setbacks for septic systems as required by Section 4.2.9 may be reduced to the extent necessary to allow development of the lot, provided that all of the following criteria are met:
- (a) The septic system is sized to serve no more than four bedrooms; and
  - (b) The septic tank, drainfield and repair area (where required) can be accommodated on 20,000 square feet of area or less; and
  - (c) The Orange County Planning Department, in consultation with Orange County Environmental Health and/or the Orange County ~~Staff~~<sup>10</sup>Engineer has determined that encroachment of the structure into the stream buffer and/or encroachment of the septic system or repair area into the stream buffer or reservoir setback is necessary in order to provide adequate area for septic disposal and repair while maintaining required separations between wells, septic systems, structures and property lines; and
  - (d) The Orange County Planning Department, in consultation with Orange County Environmental Health and/or the Orange County ~~Staff~~<sup>11</sup>Engineer, has determined that the relative locations of the well, septic system and structure maximize the amount of watershed protection that can be achieved while allowing development of the lot. Generally, an exception to setbacks for repair area is preferable to an exception for the initial septic system, and encroachment of structures or gravity septic systems into the setback is preferable to the installation of a septic system pump.
  - (e) The amount of encroachment into the stream or reservoir buffer is the minimum amount which can be obtained while meeting the criteria in subsections (a) through (d) above.<sup>12</sup>

#### 4.2.3 Land Use Restrictions

All uses and activities allowed in the underlying zoning district are permitted with ~~the following~~ exceptions for Watershed Protection Overlay Districts as indicated in Table 4.2.3<sup>13</sup>:

<sup>10</sup> The Orange County Engineer is the correct representative; the Staff Engineer position does not currently exist.

<sup>11</sup> The Orange County Engineer is the correct representative; the Staff Engineer position does not currently exist.

<sup>12</sup> Staff recommendation to improve reading clarity.

<sup>13</sup> Staff recommendation to improve reading clarity.

| TABLE 4.2.3 LAND USE RESTRICTIONS <sup>14 15</sup>   |  |
|--|--|
| DISTRICT   | RESTRICTIONS   |
| UNIV-CA<br>UNIV-PW<br>CANE-CA<br>U-ENO-CA  | No new landfills are permitted.<br><br>No commercial or industrial uses are permitted except for commercial development, in accordance with the provisions of the Ordinance, located within established Nodes as detailed within the Orange County Comprehensive Plan.<br><br>No new golf courses are permitted            |
| UNIV-CA<br>CANE-CA<br>U-ENO-CA   | No residual (sludge/biosolids) application is permitted.   |
| CANE-PW<br>U-ENO-PW<br>HYCO-PW<br>LITTLE-PW<br>BACK-PW<br>FLAT-PW<br>HAW-PW<br>L-ENO-PW<br>JORDAN-PW | No discharging landfills are permitted. Industrial use is limited to nonhazardous light industrial uses characterized by low water use (less than 10,000 gallons per day <sup>16</sup> gpd, excluding domestic water (25 gallons per day <sup>17</sup> gpd per employee) and water used for heating and air conditioning). |

#### 4.2.4 Residential Density

Maximum residential density shall be as indicated in ~~Table 4.2.4<sup>18</sup>~~ ~~the Table in this subsection~~, or as required by the underlying zoning district, whichever is less.

| TABLE 4.2.4 RESIDENTIAL DENSITY <sup>19 20</sup> |   |
|--|---|
| DISTRICT   | MAXIMUM DENSITY   |
| UNIV-CA<br>UNIV-PW                               | <del>One dwelling unit per five acres<sup>1- d. 21</sup>u/five acres.</del><br><br>Lots of record existing on October 2, 1989 may contain up to, but no more than, five lots with a density of one <del>dwelling unit per<sup>22</sup> du</del> two acres. Contiguous lots of record existing on October 2, 1989 may be combined into one parcel for development. The number of two-acre lots and the total number of lots in the combined parcel cannot exceed the sum of the number of lots which could be created from each lot of record. |

<sup>14</sup> Staff recommendation to update table name for improved reading clarity.

<sup>15</sup> Table 4.2.3 has been reformatted to improve reading clarity.

<sup>16</sup> Staff recommendation to eliminate the use of a technical acronym.

<sup>17</sup> Staff recommendation to eliminate the use of a technical acronym.

<sup>18</sup> Staff recommendation to improve reading clarity.

<sup>19</sup> Staff recommendation to update table name for improved reading clarity.

<sup>20</sup> Table 4.2.4 has been reformatted to improve reading clarity.

<sup>21</sup> Staff recommendation to eliminate the use of a technical acronym and improve reading clarity.

<sup>22</sup> Staff recommendation to eliminate the use of a technical acronym and improve reading clarity.

| TABLE 4.2.4 RESIDENTIAL DENSITY <sup>19 20</sup>       |  |
|--|--|
| DISTRICT   | MAXIMUM DENSITY  |
| CANE-CA<br>CANE-PW                                     | <u>One dwelling unit per five acres.</u> <sup>23</sup> <del>du</del> / five acres<br><br>Lots of record existing on October 19, 1999 may contain up to, but no more than, five lots as small as two acres in size. Contiguous lots of record existing on October 19, 1999 may be combined into one parcel for development. The number of two-acre lots and the total number of lots in the combined parcel cannot exceed the sum of the number of lots which could be created from each lot of record. |
| U-ENO-CA<br>LITTLE-PW                                  | <u>One dwelling unit per two acres.</u> <sup>24</sup> <del>du</del> / 2 acres  |
| HYCO-PW<br>FLAT-PW                                     | <u>One dwelling unit per</u> <sup>25</sup> <del>du</del> / 40,000 square feet (0.92 acre)  |
| U-ENO-PW<br>L-ENO-PW<br>HAW-PW<br>JORDAN-PW<br>BACK-PW | Maximum density is as permitted in the underlying zoning district.<br><br>Stormwater Control Measures (SCMs) are required in some cases where density exceeds <u>one</u> <sup>26</sup> <del>du</del> dwelling unit per acre. Refer to Section 4.2.5.   |

**(A) Density Exceedance Allowance<sup>27</sup>**

As enabled by NC G.S § 143-214.5(d3), an applicant may exceed the density otherwise required by the applicable water supply watershed regulations, but not the underlying zoning district, if all of the following circumstances apply:

- (1) The property was developed prior to the effective date of the applicable water supply watershed regulations;
- (2) The property has not been combined with additional lots after January 1, 2021;
- (3) The property has not participated in density averaging, as allowed by NC G.S. §143-214.5(d2);
- (4) The current use of the property is nonresidential; and
- (5) The remaining vegetated buffers on the property are preserved in accordance with Section 6.13.4 of this Ordinance.

(B) If all of the criteria of Section 4.2.4(A) are satisfied, an applicant may elect to apply the preexisting development regulations, as specified in Section 6.14.5(C) of this Ordinance.

<sup>23</sup> Staff recommendation to eliminate the use of a technical acronym and improve reading clarity.

<sup>24</sup> Staff recommendation to eliminate the use of a technical acronym and improve reading clarity.

<sup>25</sup> Staff recommendation to eliminate the use of a technical acronym and improve reading clarity.

<sup>26</sup> Staff recommendation to improve reading clarity.

<sup>27</sup> This subsection/description was previously located in Section 4.2.8, which was very confusing to the reader. This is the appropriate location for this statement.

**4.2.5 Impervious Surface Limits<sup>28</sup>Requirements for Residential Uses**

The impervious surface limits for residential uses within Watershed Protection Overlay Districts are noted in Table 4.2.5:<sup>29</sup>

| TABLE 4.2.5-4: IMPERVIOUS SURFACE <u>REQUIREMENTS</u> <u>LIMITS</u> <sup>30 31</sup> (RESIDENTIAL) |  |
|--|--|
| DISTRICT   | IMPERVIOUS SURFACE <u>LIMITS</u> <sup>32</sup> /DETENTION POND REQUIREMENTS (RESIDENTIAL)  |
| UNIV-CA<br>UNIV-PW   | <p>6% impervious surface limit. <u>[1], [2]</u><sup>33</sup></p> <p><del>EXCEPT for all<sup>34</sup>lots smaller than two acres<sup>35</sup> that were createdwhich existed<sup>36</sup> prior to April 2, 1990<sup>37</sup>4/2/90, which are subject to a 12% impervious surface limit.<sup>38</sup>impervious surface limits as provided in the following Table (entitled Sliding Scale for Residential Impervious Surface Ratios — Univ, Cane, and Little). [1], [2]</del></p> <p><del>Lots shall either be a minimum of 2 acres in area, exclusive of any right of way or access easement, or created in accordance with established density regulations through the subdivision process to qualify for additional impervious surface allocation as detailed in Section 4.2.8 (C).</del></p> |
| CANE-CA<br>CANE-PW   | <p>6% impervious surface limit. <u>[1], [2]</u><sup>39</sup></p> <p><del>EXCEPT for lots smaller than two acres that were createdwhich existed<sup>40</sup> prior to January 1, 1994<sup>41</sup>1/1/94, which are subject to a 12% impervious surface limit.<sup>42</sup>impervious surface limits as provided in the following Table (entitled Sliding Scale for Residential Impervious Surface Ratios — Univ, Cane, and Little). [1], [2]</del></p> <p><del>Lots shall either be a minimum of 2 acres in area, exclusive of any right of way or access easement, or created in accordance with established density regulations through the subdivision process to qualify for additional impervious surface allocation as detailed in Section 4.2.8 (C).</del></p>                            |
| U-ENO-CA   | <p>6% impervious surface limit. <u>[1], [2]</u></p> <p><del>EXCEPT for lots smaller than two-five acres that were createdwhich existed<sup>43</sup> prior to June 1, 2010<sup>44</sup>6/1/2010, which are subject to a 12% impervious surface limit.<sup>45</sup>impervious surface limits as provided in the following Table (entitled Sliding Scale for Residential Impervious Surface Ratios — Upper Eno). [1], [2]</del></p>   |

<sup>28</sup> Staff recommendation to update section name for improved reading clarity.

<sup>29</sup> This is a new sentence to properly introduce this new Section and describe the contents of Table 4.2.5.

<sup>30</sup> Staff recommendation to update table name for improved reading clarity.

<sup>31</sup> Table 4.2.5 has been reformatted to improve reading clarity.

<sup>32</sup> Staff recommendation to update column name for improved reading clarity.

<sup>33</sup> Removal of redundant information; residential density requirements are already summarized in Table 4.2.4.

<sup>34</sup> Removed the word “all” to stay consistent with all other watershed limit descriptions.

<sup>35</sup> Added this text to clarify that the 12% impervious surface limit exception is only applicable to non-conforming lots that are smaller than 2 acres as defined in the maximum residential density tale (Table 4.2.4).

<sup>36</sup> Staff recommendation to improve reading clarity.

<sup>37</sup> Staff recommendation to integrate consistent formatting.

<sup>38</sup> For the UNIV watersheds, the “Sliding Scale” table will be eliminated, and a flat 12% impervious limit will be applied to all lots in existence prior to the effective date of the UNIV water supply watershed regulations.

<sup>39</sup> Removal of redundant information; residential density requirements are already summarized in Table 4.2.4.

<sup>40</sup> Staff recommendation to improve reading clarity.

<sup>41</sup> Staff recommendation to integrate consistent formatting.

<sup>42</sup> For CANE watersheds, the “Sliding Scale” table will be eliminated, and a flat 12% impervious limit will be applied to all lots (< 2 acres) in existence prior to the effective date of the CANE water supply watershed regulations.

<sup>43</sup> Staff recommendation to improve reading clarity.

<sup>44</sup> Staff recommendation to integrate consistent formatting.

<sup>45</sup> For the U-ENO-CA watershed, the “Sliding Scale” table will be eliminated, and a flat 12% impervious limit will be applied to all lots (< 5 acres) in existence prior to the 2010 amendment of the U-ENO-CA water supply watershed.

| TABLE 4.2.5-1: IMPERVIOUS SURFACE REQUIREMENTS LIMITS <sup>30 31</sup> (RESIDENTIAL) |  |
|--|--|
| DISTRICT   | IMPERVIOUS SURFACE LIMITS <sup>32</sup> /DETENTION POND REQUIREMENTS (RESIDENTIAL)   |
| LITTLE-PW  | 6% impervious surface limit. [1], [2] <sup>46</sup><br><br>EXCEPT for lots smaller than two acres that were created which existed <sup>47</sup> prior to January 1, 1994 <sup>48</sup> 1/1/94, which are subject to a 12% impervious surface limit <sup>49</sup> impervious surface limits as provided in the following Table (entitled Sliding Scale for Residential Impervious Surface Ratios – Univ, Cano, and Little). [1], [2]<br><del>Lots shall either be a minimum of 2 acres in area, exclusive of any right-of-way or access easement, or created in accordance with established density regulations through the subdivision process to qualify for additional impervious surface allocation as detailed in Section 4.2.8 (C).</del>   |
| FLAT-PW<br>HYCO-PW   | 12% impervious surface limit for new and existing lots. [1], [2][1], [2]   |
| U-ENO-PW<br>BACK-PW  | 12% impervious surface limit for existing and new lots outside of Transition Areas as designated in the Orange County Land Use Plan. [1], [2] <sup>50</sup> [1], [2]<br><br>30% impervious surface limit for developments which exceed a density one dwelling unit per acres <sup>51</sup> du/acre <sup>51</sup> within Transition Areas as designated in the Orange County Land Use Plan. Stormwater Control Measures (SCMs) are required if impervious surface exceeds 12%.<br>[1], [2]<br><br>70% impervious surface limit for residential uses developed at “high intensity” densities (R-5, R-8, and R-13) in an Economic Development District as designated in the Land Use Element of the Comprehensive Plan (high-density option). Stormwater Control Measures (SCMs) are required if impervious surface exceeds 12%. <sup>52</sup> [1], [2] with SCMs if ISR exceeds 12%. |
| L-ENO-PW   | 24% impervious surface limit with curb and gutter. [1], [2] <sup>53</sup><br><br>36% impervious surface limit without curb and gutter. [1], [2] <sup>54</sup> [1], [2] <sup>55</sup><br><br>70% impervious surface limit for residential uses developed at “high intensity” densities (R-5, R-8, and R-13) in an Economic Development District as designated in the Land Use Element of the Comprehensive Plan (high-density option). with <sup>56</sup> Stormwater Control Measures (SCMs) are <sup>57</sup> required if when impervious surface exceeds:<br>24% (w/ curb and gutter); or<br>36% (w/o curb and gutter). [1], [2] <sup>58</sup>  |
| HAW-PW<br>JORDAN-PW  | 24% impervious surface limit. [1], [2] [1], [2]  |

<sup>46</sup> Removal of redundant information; residential density requirements are already summarized in Table 4.2.4.

<sup>47</sup> Staff recommendation to improve reading clarity.

<sup>48</sup> Staff recommendation to integrate consistent formatting.

<sup>49</sup> For the LITTLE-PW watershed, the “Sliding Scale” table will be eliminated, and a flat 12% impervious limit will be applied to all lots in existence prior to the effective date of the LITTLE-PW water supply watershed.

<sup>50</sup> Staff recommendation to integrate consistent formatting.

<sup>51</sup> Staff recommendation to integrate consistent formatting.

<sup>52</sup> Staff recommendation to integrate consistent formatting.

<sup>53</sup> Staff recommendation to integrate consistent formatting.

<sup>54</sup> Staff recommendation to integrate consistent formatting.

<sup>55</sup> Staff recommendation to integrate consistent formatting.

<sup>56</sup> Staff recommendation to integrate consistent formatting.

<sup>57</sup> Staff recommendation to integrate consistent formatting.

<sup>58</sup> Staff recommendation to integrate consistent formatting.

| TABLE 4.2.5.1: IMPERVIOUS SURFACE REQUIREMENTS LIMITS <sup>30 31</sup> (RESIDENTIAL)   |  |
|--|--|
| DISTRICT   | IMPERVIOUS SURFACE LIMITS <sup>32</sup> /DETENTION POND REQUIREMENTS (RESIDENTIAL) |
| <p>[1] Allowable impervious surface area may be modified in accordance with Section 4.2.8 of this <u>Ordinancee</u> <u>UDO</u>.<sup>59</sup></p> <p>[2] Regardless of the proposed amount of impervious surface area, a Stormwater Management Plan (SMP) and/or Stormwater Control Measures (SCMs) may still be required based on the proposed amount of land disturbance on a given parcel of property in accordance with applicable Orange County Erosion Control and State Stormwater regulations.<sup>60</sup></p> |  |

**(B)(A) Hillsborough Economic Development District**

- (1) The Hillsborough Economic Development District is located within the Lower Eno - Unprotected watershed, which is not a Watershed Protection Overlay District.<sup>61</sup> However, wWithin the Hillsborough Economic Development District, as designated in the Land Use Element of the Comprehensive Plan, the maximum impervious surface ratio is 50% with detention ponds.

| <sup>62</sup> TABLES 4.2.5.2 & 4.2.5.3: SLIDING SCALE FOR RESIDENTIAL IMPERVIOUS SURFACE RATIOS— UNIV, CANE, LITTLE, AND UPPER ENO |     |             |  |                  |      |             |
|--|-----|-------------|--|------------------|------|-------------|
| LOT SIZE (ACRES)   | ISR | SQUARE FEET |  | LOT SIZE (ACRES) | ISR  | SQUARE FEET |
| Cells in black DO NOT apply to the Upper Eno   |     |             |  |                  |      |             |
| 6+   | 5.0 |             |  | 3.4              | 9.8  | 13,234      |
| 6.0  | 5.0 | 13,068      |  | 3.0              | 10.0 | 13,068      |
| 5.9  | 5.1 | 13,107      |  | 2.9              | 10.2 | 12,885      |
| 5.8  | 5.2 | 13,138      |  | 2.8              | 10.4 | 12,685      |
| 5.7  | 5.3 | 13,159      |  | 2.7              | 10.6 | 12,467      |
| 5.6  | 5.4 | 13,172      |  | 2.6              | 10.8 | 12,232      |
| 5.5  | 5.5 | 13,177      |  | 2.5              | 11.0 | 11,979      |
| 5.4  | 5.6 | 13,172      |  | 2.4              | 11.2 | 11,709      |
| 5.3  | 5.7 | 13,159      |  | 2.3              | 11.4 | 11,421      |
| 5.2  | 5.8 | 13,138      |  | 2.2              | 11.6 | 11,116      |
| 5.1  | 5.9 | 13,107      |  | 2.1              | 11.8 | 10,794      |
| 5.0  | 6.0 | 13,068      |  | 2.0              | 12.0 | 10,454      |
| 4.9  | 6.2 | 13,234      |  | 1.9              | 12.2 | 10,097      |
| 4.8  | 6.4 | 13,381      |  | 1.8              | 12.4 | 9,723       |
| 4.7  | 6.6 | 13,512      |  | 1.7              | 12.6 | 9,331       |
| 4.6  | 6.8 | 13,625      |  | 1.6              | 12.8 | 8,921       |
| 4.5  | 7.0 | 13,721      |  | 1.5              | 13.0 | 8,494       |
| 4.4  | 7.2 | 13,880      |  | 1.4              | 13.2 | 8,050       |
| 4.3  | 7.4 | 13,861      |  | 1.3              | 13.4 | 7,588       |
| 4.2  | 7.6 | 13,904      |  | 1.2              | 13.6 | 7,109       |
| 4.1  | 7.8 | 13,930      |  | 1.1              | 13.8 | 6,612       |
| 4.0  | 8.0 | 13,939      |  | 1.0              | 14.0 | 6,098       |

<sup>59</sup> Staff recommendation to integrate consistent formatting.

<sup>60</sup> Spacing provided to improve reading clarity for footnotes.

<sup>61</sup> Staff recommendation to add clarity here that the Lower Eno Unprotected is NOT a watershed protection overlay district.

<sup>62</sup> This table has been eliminated entirely due to arbitrary sourcing (not codified by state) and user difficulty.

~~<sup>62</sup>TABLES 4.2.5.2 & 4.2.5.3: SLIDING SCALE FOR RESIDENTIAL IMPERVIOUS SURFACE RATIOS— UNIV, CANE, LITTLE, AND UPPER ENO~~

| <del>LOT SIZE (ACRES)</del>                             | <del>ISR</del> | <del>SQUARE FEET</del> |  | <del>LOT SIZE (ACRES)</del> | <del>ISR</del>  | <del>SQUARE FEET</del> |
|---|----------------|------------------------|--|-----------------------------|-----------------|------------------------|
| <del>Cells in black DO NOT apply to the Upper Eno</del> |                |                        |  |                             |                 |                        |
| <del>3.9</del>  | <del>8.2</del> | <del>13,930</del>      |  | <del>0.9</del>              | <del>14.2</del> | <del>5,567</del>       |
| <del>3.8</del>  | <del>8.4</del> | <del>13,904</del>      |  | <del>0.8</del>              | <del>14.4</del> | <del>5,018</del>       |
| <del>3.7</del>  | <del>8.6</del> | <del>13,864</del>      |  | <del>0.7</del>              | <del>14.6</del> | <del>4,452</del>       |
| <del>3.6</del>  | <del>8.8</del> | <del>13,800</del>      |  | <del>0.6</del>              | <del>14.8</del> | <del>3,868</del>       |
| <del>3.5</del>  | <del>9.0</del> | <del>13,724</del>      |  | <del>0.5</del>              | <del>15.0</del> | <del>3,267</del>       |
| <del>3.4</del>  | <del>9.2</del> | <del>13,625</del>      |  | <del>0.4</del>              | <del>15.2</del> | <del>2,648</del>       |
| <del>3.3</del>  | <del>9.4</del> | <del>13,512</del>      |  | <del>0.3</del>              | <del>15.4</del> | <del>2,042</del>       |
| <del>3.2</del>  | <del>9.6</del> | <del>13,382</del>      |  | <del>0.2</del>              | <del>15.6</del> | <del>1,350</del>       |

**4.2.54.2.6 Impervious Surface Limits<sup>63</sup> and Minimum<sup>64</sup> Lot Size Requirements for Non-Residential Uses**

The impervious surface limits and minimum lot sizes for non-residential uses within Watershed Protection Overlay Districts are noted in Table 4.2.6.<sup>65</sup> Unless otherwise noted in ~~the~~ Table 4.2.6 below, the minimum lot sizes for non-residential uses<sup>66</sup> shall be in conformance with the underlying zoning district.

**TABLE 4.2.6: IMPERVIOUS SURFACE LIMITS AND MINIMUM LOT SIZE REQUIREMENTS<sup>67</sup> REQUIREMENTS<sup>68</sup> (NON-RESIDENTIAL)**

| <b>DISTRICT</b>    | <b>IMPERVIOUS SURFACE <u>LIMITS AND MINIMUM LOT SIZE REQUIREMENTS</u><sup>69</sup>/DETENTION POND REQUIREMENTS (NON-RESIDENTIAL)</b>  |
|--------------------|---|
| UNIV-CA<br>CANE-CA | <del>6% impervious surface limit. [1], [2]</del><br>5-acre minimum lot size, with potential of up to five lots as small as two acres per lot for lots that were created prior to of record September 1, 2015 (for UNIV-CA University Lake) or October 19, 1999 (for CANE-CA Cane Creek); AND<br><del>6% impervious surface limit. [1], [2]<sup>70</sup></del> |
| U-ENO-CA           | <del>6% impervious surface limit. [1], [2]</del><br>2-acre minimum lot size, AND<br><del>6% impervious surface limit. [1], [2]<sup>71</sup></del>   |

<sup>63</sup> Staff recommendation to update section name for improved reading clarity.

<sup>64</sup> Six of our 13 Watershed Protection Overlay Districts do in fact have minimum lot sizes as adopted by the BOCC, regardless of use. As such, this Table 4.2.6 has been reorganized for improved reading clarity.

<sup>65</sup> This is a new introductory sentence to describe the contents of this subsection and Table 4.2.6.

<sup>66</sup> Staff recommendation to improve reading clarity.

<sup>67</sup> Staff recommendation to update table name for improved reading clarity.

<sup>68</sup> Table 4.2.6 has been reformatted to improve reading clarity.

<sup>69</sup> Staff recommendation to update table name for improved reading clarity.

<sup>70</sup> Staff recommendations to improve reading clarity.

<sup>71</sup> Staff recommendations to improve reading clarity.

**TABLE 4.2.6: IMPERVIOUS SURFACE LIMITS AND MINIMUM LOT SIZE REQUIREMENTS<sup>67</sup> <sup>68</sup> REQUIREMENTS (NON-RESIDENTIAL)**

| DISTRICT            | IMPERVIOUS SURFACE LIMITS AND MINIMUM LOT SIZE REQUIREMENTS <sup>69</sup> /DETENTION POND REQUIREMENTS (NON-RESIDENTIAL)  |
|---------------------|---|
| UNIV-PW<br>CANE-PW  | <p><del>5-acre minimum lot size with potential of up to five lots as small as two acres for lots of record September 1, 2015 (University Lake) or October 19, 1999 (Cane Creek); AND</del><br/>                     50% <del>impervious surface limit</del><sup>SR</sup> for all fire stations and solid waste collection centers. Stormwater Control Measures (SCMs) are required if impervious surface exceeds 12%. <del>[1], [2]; AND</del></p> <p>12% <del>impervious surface limit</del><sup>SR</sup> for all other non-residential uses. <del>[1], [2]; AND</del></p> <p><del>On-site infiltration of the first inch of stormwater runoff is required for all non-residential uses.; AND</del></p> <p><del>For CANE-PW, the total impervious surface limit (total Built Upon Area) for non-residential uses is limited to a limit of 1.0% of the total watershed area (i.e., a total of 139 acres of impervious surface within CANE-PW). [3]</del></p> <p><del>5for non-residential use (139 acres in CANE-PW)-acre minimum lot size with potential of up to five lots as small as two acres per lot for lots that were created prior to September 1, 2015 (for UNIV-PW) or October 19, 1999 (for CANE-PW). [1], [2]<sup>72</sup></del></p>   |
| LITTLE-PW           | <p><del>2-acre minimum lot size AND</del></p> <p>50% <del>impervious surface limit</del><sup>SR</sup> for all fire stations and solid waste collection centers. Stormwater Control Measures (SCMs) are required if impervious surface exceeds 12%. <del>[1], [2]; AND</del></p> <p>12% <del>impervious surface limit</del><sup>SR</sup> for all other non-residential uses. <del>[1], [2]; AND</del></p> <p><del>On-site infiltration of the first inch of stormwater runoff is required for all non-residential uses.; AND</del></p> <p><del>For LITTLE-PW, the total impervious surface limit (total Built Upon Area) for non-residential uses is limited to a limit of 1.0% of the total watershed area (i.e., a total of 406 acres of impervious surface within LITTLE-PW). [3] for non-residential use (406 acres in LITTLE-PW).</del></p> <p><del>2-acre minimum lot size. [1], [2]<sup>73</sup></del></p>  |
| U-ENO-PW<br>BACK-PW | <p>70% <del>impervious surface limit</del><sup>SR</sup> in Economic Development, Commercial and/or Commercial-Industrial Nodes as designated in the Land Use Element of the Comprehensive Plan (high-density option). <del>with Stormwater Control Measures (SCMs) are required if impervious surface</del><sup>SR</sup> exceeds 12%. <del>[1], [2]; AND</del></p> <p>50% <del>impervious surface limit</del><sup>SR</sup> for all fire stations and solid waste collection centers outside of Commercial and/or Commercial-Industrial Nodes as designated in the Land Use Element of the Comprehensive Plan. <del>with Stormwater Control Measures (SCMs) are required if impervious surface if</del><sup>SR</sup> exceeds 12%. <del>[1], [2]; AND</del></p> <p>12% <del>impervious surface limit</del><sup>SR</sup> for all other non-residential uses outside of Commercial and/or Commercial-Industrial Nodes as designated in the Land Use Element of the Comprehensive Plan. <del>[1], [2]; AND</del></p> <p><del>On-site infiltration of the first inch of stormwater runoff is required for all non-residential uses.; AND</del></p> <p><del>For U-ENO-PW, the total impervious surface limit (total Built Upon Area) for non-residential uses is limited to 5% of the total watershed area (i.e., a total of A limit of 1,151 acres of impervious surface within U-ENO-PW)non-re. [3]</del></p> <p><del>For BACK-PW, the total impervious surface limit (total Built Upon Area) for non-residential uses is limited to 1% of the total watershed area (i.e., a total of 163 acres of impervious surface within BACK-PW). [3] sidential use throughout U-ENO-PW (5.0%) and 163 acres throughout BACK-PW (1%). [1], [2]<sup>74</sup></del></p> |

<sup>72</sup> Staff recommendations to improve reading clarity.

<sup>73</sup> Staff recommendations to improve reading clarity.

<sup>74</sup> Staff recommendations to improve reading clarity.

| TABLE 4.2.6: IMPERVIOUS SURFACE LIMITS AND MINIMUM LOT SIZE REQUIREMENTS <sup>67</sup> <del>68</del> REQUIREMENTS (NON-RESIDENTIAL) |  |
|---|--|
| DISTRICT  | IMPERVIOUS SURFACE LIMITS AND MINIMUM LOT SIZE REQUIREMENTS <sup>69</sup> / DETENTION POND REQUIREMENTS (NON-RESIDENTIAL)  |
| HYCO-PW<br>FLAT-PW  | <p>50% <del>impervious surface limits</del> <del>ISR</del> for all fire stations and solid waste collection centers. Stormwater Control Measures (SCMs) are required if impervious surface exceeds 12%. [1], [2]; <del>AND</del></p> <p>12% impervious surface limits for all other non-residential uses. [1], [2]; <del>AND</del></p> <p><del>On-site infiltration of the first inch of stormwater runoff is required for all residential uses; AND</del></p> <p><del>For HYCO-PW and FLAT-PW, the total impervious surface limit (total Built Upon Area) for non-residential uses is limited to of 1% of the total watershed area (i.e., a total of 37 acres of impervious surface in HYCO-PW and a total of 66 acres of impervious surface in FLAT-PW). [3] watershed for non-residential use (37 acres in HYCO-PW, 66 acres in FLAT-PW). [1], [2]<sup>75</sup></del></p> |
| L-ENO-PW  | <p>24% impervious surface limit with curb and gutter. [1], [2]</p> <p>36% impervious surface limit without curb and gutter. [1], [2]</p> <p>70% impervious surface limit with Stormwater Control Measures (SCMs) required <del>if when</del> impervious surface exceeds:<br/>                 24% (w/ curb and gutter); or<br/>                 36% (w/o curb and gutter). [1], [2]<sup>76</sup></p>   |
| HAW-PW<br>JORDAN-PW   | 24% impervious surface limit. [1], [2]   |

[1] Allowable impervious surface area may be modified in accordance with Section 4.2.8 of this ~~Ordinance~~ ~~UDO~~.

[2] Regardless of the proposed amount of impervious surface area, a Stormwater Management Plan (SMP) and/or a Stormwater Control Measure (SCM) may be required in accordance with applicable local and State standards based on proposed land disturbance and/or a project exceeding impervious surface ~~limits~~ ~~thresholds~~ as identified herein.

[3] ~~NOTE:~~ Non-residential use impervious ~~surface~~ ~~acreage~~ limits in watersheds with such limits are calculated using the actual amount of impervious surface for non-residential uses throughout the watershed, not by the overall number of acres of non-residential parcels located in a particular watershed.

**(A) Hillsborough Economic Development District**

- (1) The Hillsborough Economic Development District is located within the Lower Eno - Unprotected watershed. Within the Hillsborough Economic Development District, as designated in the Land Use Element of the Comprehensive Plan, the maximum impervious surface ratio is 50% with Stormwater Control Measures (SCMs).

**4.2.64.2.7 Placement of Streets, Driveways, and Buildings**

**(A)** Streets, driveways, and buildings or other structures shall be located, to the extent reasonably possible, so as to take full advantage of the absorptive capacity of the soils on which they are to be situated and to avoid the following environmentally sensitive areas:

- (1) Stream buffer zones as required by Section 6.13 of this Ordinance<sup>77</sup>;

<sup>75</sup> Staff recommendations to improve reading clarity.

<sup>76</sup> Staff recommendations to improve reading clarity.

<sup>77</sup> Staff recommendations to improve reading clarity.

- (2) Wetlands as defined by the U.S. Army Corps of Engineers;
- (3) Land with slopes greater than 15%; and
- (4) Natural areas as identified in the Inventory of Natural Areas and Wildlife Habitats of Orange County, NC.

(B) To avoid creating lots that will be difficult to build upon in compliance with the standards of this Section, the preliminary plan shall show proposed building envelopes and approximate driveway locations for all lots within subdivisions.

- (1) A zoning compliance permit shall not be issued for the construction of buildings or driveways outside the areas so designated on the preliminary plan unless the Planning Director makes a written finding that the proposed location complies with the provisions of this Section and Sections 6.13-~~(Stream Buffers)~~ and 6.14 ~~of this Ordinance.~~<sup>78</sup> ~~(Stormwater Management).~~

#### **4.2.74.2.8 Modifications of the Impervious Surface Ratio**

Modifications of the Impervious Surface Ratios may be requested through one of the following provisions:

(A) Through variance procedures of the Board of Adjustment, as described in Section 2.10 of this Ordinance<sup>79</sup>.

(B) Through approval and recordation of a conservation agreement, as provided in Article 4 of Chapter 121 of the N.C. General Statutes, between Orange County and a land owner that prohibits development of land in a protected watershed in perpetuity, subject to the following:

- (1) A modification of the required impervious surface ratios may be approved administratively but only to the extent that additional land in the same watershed is conserved or protected from development.
- (2) The land which will be subject to a conservation agreement must be adjacent to the land proposed for development and for which a modification of the impervious surface ratios is sought.
  - (a) As an example, a person owning a 40,000 square foot lot and subject to a 12% impervious surface ratio would be limited to 4,800 square feet of impervious coverage. If the person's plans called for 5,500 square feet of coverage (a difference of 700 square feet), the recording of a conservation easement on 5,833 square feet of contiguous property would satisfy the impervious surface ratio requirements. (12% of 5,833 square feet is 700 square feet.)
  - (b) The conservation easement shall describe the property restricted in a manner sufficient to pass title, provide that its restrictions are covenants that run with the land and, be approved in form by the County Attorney.
  - (c) The conservation easement shall, upon recording, be in the place of a first priority lien on the property (excepting current ad valorem property taxes) and shall remain so unless, with the approval of Orange County, it is released and terminated.
  - (d) Orange County shall require the priority of the conservation easement to be certified by an attorney-at-law, licensed to practice law in the State of North Carolina and approved to certify title to real property.

<sup>78</sup> Staff recommendations to improve reading clarity.

<sup>79</sup> Staff recommendations to improve reading clarity.

**(7)** The property owner, at its cost and expense, shall be required to execute and file with Orange County a Performance Guarantee to cover the cost of removal of a SCM, and any additional impervious surface area installed as the result of its approval, in the event the SCM is failed to be maintained in accordance with the recorded operations agreement. The Performance Guarantee shall comply with the provisions of Section 6.22 of this Ordinance.

~~(E) If all of the criteria of Section 4.2.4(A) are satisfied, an applicant may elect to apply the preexisting development regulations, as specified in Section 6.14(C).<sup>80</sup>~~

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<sup>80</sup> The previous/legacy subsection E will be moved to the end of Section 4.2.4 – its previous/legacy location is erroneous and confusing to the reader.

**4.2.9 Water Supply / Sewage Disposal Facilities**

The requirements and restrictions for water supply and/or sewage disposal systems located within Watershed Protection Overlay Districts are noted in Table 4.2.9:<sup>81</sup>

| TABLE 4.2.9: WATER SUPPLY/SEWAGE DISPOSAL FACILITIES |  |
|--|--|
| DISTRICT   | WATER SUPPLY/SEWAGE DISPOSAL   |
| UNIV-CA<br>UNIV-PW                                   | Water supply and sewage treatment systems shall be limited to individual wells and on-site septic tanks systems or individual on-site alternative disposal systems. No off-site systems shall be permitted.  |
| All Other Watershed Overly Districts                 | For parcels created through the Conventional Subdivision process as detailed in Article 7 of this Ordinance septic and repair area shall be located in lot. Off-site individual septic systems associated with parcels created through the Flexible Development Subdivision as outlined in Section 7.12 of this Ordinance must be contained within Common Open Space and approved by the Orange County Environmental Health Department.  |
| UNIV-CA  | New septic tanks, <del>pump tanks, and their appurtenances (including nitrification fields) and their nitrification fields</del> shall be located outside of any stream buffers, or <u>at a minimum distance from a reservoir or perennial/intermittent stream (as shown on the USGS Quadrangle maps) as formally approved by the Orange County Environmental Health Department and in compliance with applicable state health codes</u> <del>300 feet from a reservoir or perennial or intermittent stream as shown on the USGS Quadrangle maps</del> , whichever is further. <sup>82</sup>   |
| CANE-CA<br>U-ENO-CA                                  | New septic tanks, pump tanks, and their appurtenances <u>(including nitrification fields)</u> shall be located outside of any stream buffers, <del>or at a minimum distance from a reservoir or perennial/intermittent stream (as shown on the USGS Quadrangle maps) as formally approved by the Orange County Environmental Health Department and in compliance with applicable state health codes, whichever is further.<sup>83</sup></del> <u>and at least 100 feet from a perennial or intermittent stream as shown on the USGS Quadrangle maps, and at least 150 feet from a reservoir.</u><br><del>New nitrification fields shall be located outside of any stream buffers and at least 100 feet from a perennial or intermittent stream as shown on the USGS Quadrangle maps, and at least 300 feet from a reservoir.</del> |
| CANE-PW<br>CANE-CA<br>U-ENO-CA                       | Water supply and sewage treatment systems shall be limited to individual wells and septic tanks or individual on-site alternative disposal systems; provided however, off-site systems shall be permitted when located in a Flexible Development subdivision approved in accordance with Section 7.13 of this Ordinance.   |

<sup>81</sup> This is a new introductory sentence to describe the contents of this subsection and Table 4.2.9.

<sup>82</sup> Staff initiated text updates to clarify minimum separation distance from streams and reservoirs. This new language better emphasizes the required involvement of the Environmental Health Department and eliminates the 150-ft or 300-ft reservoir setbacks that historically have been very difficult to enforce – specifically for legacy, non-conforming lots that existed prior to reservoir construction.

<sup>83</sup> Staff initiated text updates to clarify minimum separation distance from streams and reservoirs. This new language better emphasizes the required involvement of the Environmental Health Department and eliminates the 150-ft or 300-ft reservoir setbacks that historically have been very difficult to enforce – specifically for legacy, non-conforming lots that existed prior to reservoir construction.

| TABLE 4.2.9: WATER SUPPLY/SEWAGE DISPOSAL FACILITIES  |   |
|---|---|
| DISTRICT  | WATER SUPPLY/SEWAGE DISPOSAL  |
| UNIV-PW<br>CANE-PW<br>U-ENO-PW<br>HYCO-PW<br>LITTLE-PW<br>BACK-PW<br>HAW-PW<br>JORDAN-PW<br>L-ENO-PW<br>FLAT-PW | New septic tanks, <u>pump tanks</u> , <sup>84</sup> and their nitrification fields shall be located outside of any stream buffers and at least 100 feet from a perennial or intermittent stream as shown on the USGS Quadrangle maps. |

**4.2.84.2.10 Orange County Watershed Matrix**

Table 4.2.10 defines the land disturbance area thresholds (in square feet) that trigger the need for an Erosion & Sedimentation Control Plan and/or a Stormwater Management Plan.

<sup>84</sup> Staff recommendation to integrate consistent formatting.

### 6.13.2 Applicability

The stream buffer regulations and standards contained herein shall be applicable to all streams and water features, as follows:

- (A) Streams identified by any of the following means:
- (1) Shown as solid blue lines or as broken blue lines on the USGS Quadrangle maps,
  - (2) Shown as water feature in the Orange County Soil Survey, or
  - (3) A water feature identified by a field determination of County staff trained in surface water identification through the North Carolina Division of Environmental Quality (NCDEQ).
- (B) ~~Stream~~<sup>Stream</sup><sup>85</sup> buffers shall extend around the perimeter of all water features if any portion of the stream buffer of a stream touches the water feature. Disputes pertaining to water feature decisions by County staff shall be filed directly to the [North Carolina Department of Environmental Quality \(NCDEQ\)](#).<sup>86</sup>

### 6.13.3 Calculating Width of Stream Buffer

- (A) **Special Flood Hazard Areas**
- (1) Those streams identified by [the Federal Emergency Management Agency \(FEMA\)](#)<sup>87</sup> as having floodplains shall have stream buffers calculated from the outside edges of the 100-year floodplain.
- (B) **Calculating Slope Value**
- (1) Draw 250' length perpendicular lines, at 200-foot horizontal intervals along the entire length of the outside edges of the stream, or the outer edge of the FEMA floodplain, whichever is greater.
  - (2) Determine the elevation at either the stream bank or the outer edge of the FEMA floodplain, whichever is highest (Elevation 1), and at the point 250' from the stream or FEMA floodplain, whichever is applicable, along the perpendicular line (Elevation 2).
  - (3) Subtract Elevation 1 from Elevation 2 for the Difference.
  - (4) Divide the Difference by 250 for the Mean.
  - (5) Multiply the Mean by 100 to determine the "Slope Value".
  - (6) Perform this calculation for both sides of the stream or floodplain.

<sup>85</sup> Typo fix.

<sup>86</sup> Staff recommendation to eliminate the use of a technical acronym and improve reading clarity.

<sup>87</sup> Staff recommendation to eliminate the use of a technical acronym and improve reading clarity.

- (1) The buffer width adjacent to streams shall be calculated for both Method A and Method B, and at any given point along the stream, the width of the buffer shall be the larger of the two.
- (2) The same method shall be used to calculate the buffer around the reservoir itself. New structures shall be located at least 150' from the reservoir or outside of the stream buffer, whichever is greater.

**(B) University Lake Protected Watershed (UNIV-PW)**

- (1) The buffer width shall be calculated for both Method A and Method B, and at any given point along the stream, the width of the buffer shall be the larger of the two.

**(C) Cane Creek Critical Area (CANE-CA) & Upper Eno Critical Area (U-ENO-CA)**

- (1) The buffer width adjacent to streams shall be the width calculated using Method A.
- (2) Method A shall also be used to calculate the buffer around the reservoir itself. New structures shall be located at least ~~75~~<sup>75+50'</sup><sup>88</sup> from the reservoir or outside of the stream buffer, whichever is greater.

**(D) Upper Eno Protected (U-ENO-PW), Lower Eno Protected (L-ENO-PW) & Back Creek Protected (BACK-PW)**

- (1) The buffer width shall be as calculated using Method A, or 150', whichever is less, except where density exceeds 1 du/ac and impervious surface exceeds 12%.
- (2) Where density exceeds 1 du/ac and impervious surface exceeds 12%, the buffer width shall be calculated as above, but shall not be less than 100'.

**(E) Cane Creek Protected (CANE-PW), Little River Protected (LITTLE-PW), South Hyco Creek Protected (HYCO-PW), Flat River Protected (FLAT-PW), Haw River Protected (HAW-PW) & Jordan Lake Protected (JORDAN-PW)**

- (1) The buffer width shall be the width calculated using Method A, or 150', whichever is less.

**6.13.5 Areas Outside of Watershed Protection Overlay Districts**

**(A)** In areas not identified on the Official Zoning Atlas as Watershed Protection Overlay Districts, a stream buffer a minimum of 50 feet in width shall be established along both sides of streams identified per Section 6.13.2 of this Ordinance.<sup>89</sup>

**(B)** Stream buffers for Soil Survey streams shall only be calculated using Method A as explained in Section 6.13.3 of this Ordinance.<sup>90</sup>

**6.13.6 Uses Allowable Within Stream Buffers**

**(A) General Standards**

<sup>88</sup> Staff recommendation to reduce the minimum setback around Lake Orange from 150-ft to 75-ft. As Lake Orange and many existing residential lots around Lake Orange were platted prior to the enforcement of Watershed Protection Overlay Districts (January 1, 1994), the existing homes are inherently in violation of the minimum 150-ft setback from the edge of the Lake Orange reservoir. The owners of these non-conforming lots must continually apply for zoning variances when requesting home improvement permits or new construction permits around Lake Orange. Decreasing the minimum setback from 150-ft to 75-ft will eliminate the need for intensive staff time related to zoning variances specific to more than one hundred non-conforming Lake Orange lots.

<sup>89</sup> Staff recommendation to improve reading clarity.

<sup>90</sup> Staff recommendation to improve reading clarity.

| TABLE 6.9.7: OFF-STREET PARKING REQUIREMENTS  |   |
|---|---|
| USE   | MINIMUM PARKING REQUIREMENTS  |
| Health and Personal Care Facility   | One space per two beds;<br>One space per staff member   |
| Mobile Homes  | One space per unit  |
| Rooming House   | One space per lodging unit  |
| <b>RETAIL USES</b>  |   |
| Retail  | One space for every 200 square feet of gross floor area   |
| <b>TEMPORARY USES</b>   |   |
| Buildings; Portable   | See appropriate uses  |
| <b>AUTOMOTIVE AND TRANSPORTATION USES</b>   |   |
| Airport, General Aviation, Heliports, STOL  | One space per 4 air vehicles<br>One space per employee on the shift of maximum employment<br>15 spaces per terminal |
| Bus Passenger Shelters  | no requirement  |
| Bus Terminals and Garages   | no requirement  |
| Motor Freight Terminals   | One space per employee  |
| Motor Vehicle Maintenance   | One space per each service bay and mechanic   |
| Motor Vehicle Sales Rental  | One space per 400 square feet of gross floor area   |
| Motor Vehicles Service  | One space per each service bay and mechanic   |
| Parking   | no requirement  |
| Postal and Parcel Delivery Services   | One space per employee on shift of maximum employment and<br>one space per 800 square feet of gross floor area      |
| <b>UTILITIES</b>  |   |
| Public Utility Stations & Substations,<br>Pumping Stations, Switching Stations,<br>Telephone Exchanges  | no requirement  |
| Radio & Television Transmitting &<br>Receiving Towers, Water Treatment &<br>Sanitary Sewage Treatment Plants,<br>Elevated Water Storage Tanks | no requirement  |
| Transmission Lines  | no requirement  |
| <b>WASTE MANAGEMENT</b>   |   |
| Landfills   | no requirement  |
| Waste Management Facility, Hazardous<br>and Toxic   | One space per employee on shift of maximum employment   |
| <b>WHOLESALE TRADE</b>  |   |
| Wholesale Trade   | One space per employee on maximum shift plus 12 spaces  |
| <b>MISCELLANEOUS</b>  |   |
| Research Lands & Installations , Non-Profit   | no requirement  |

**6.9.8 Determination For Unlisted Uses**

The Planning Director shall make a determination of the minimum required off-street parking spaces for uses not specifically listed in this Section. In reaching the determination, the Planning Director may consider the following:

- (1) Requirements for similar uses,
- (2) The number and kind of vehicles likely to be attracted to the proposed use, and

The vested right terminates at the end of the approved vesting period for buildings and uses for which building permits have not been issued. Building permits do not expire during the approved vesting period.

### **Veterinary Clinic**

A facility staffed by at least one licensed veterinarian for the care and treatment of large and/or small animals not involving overnight care.

### **Veterinary Hospital**

A facility staffed by at least one licensed veterinarian for the specialized treatment of large and/or small animals, which may involve overnight care.

### **Violation**

The failure of a structure, use or development to be fully compliant or is inconsistent with any provision of this Ordinance. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in this Ordinance is presumed to be in violation until such time as that documentation is provided.

### **Volume/Capacity Analysis**

The procedures used to compare the volume of a roadway or intersection approach to its capacity (maximum number of vehicles that can pass a given point during a given time period). The procedures are described in the 1965 Highway Capacity Manual, Highway Research Board Special Report 87.

### **Walls, Primary**

Walls containing primary windows and/or main exterior entrances to individual living quarters when directly facing the primary wall or other living quarters.

### **Walls, Secondary**

Walls containing only secondary, or secondary and tertiary, windows.

### **Walls, Tertiary**

Windowless walls or walls containing only tertiary windows.

### **Wastewater Treatment Facility**

A system of wastewater collection, treatment, and disposal in single or multiple components, including ground absorption systems, non-discharge systems, and systems that discharge effluent to the surface waters, and any other system as may be permitted by the Orange County Health Department or the State of North Carolina. (ref. NCGS Article 11, Chapter 130A)

### **Waterbody, Perennial**

A natural or constructed basin that stores surface water permanently at depths sufficient to preclude growth of rooted plants, including lakes, ponds, sounds, non-stream estuaries, and oceans. For the purpose of stormwater provision of this Ordinance, the waterbody must be part of a natural drainageway (i.e. connected by surface flow to a stream).

### **Water-Dependent Structure**

Any structure for which the use requires access to or proximity to or siting within surface waters to fulfill its basic purpose, such as boat ramps, boathouses, docks and bulkheads. Ancillary facilities such as restaurants, outlets for boat supplies, parking lots and commercial boat storage areas are not water-dependent structures.

### **Water Feature**

A prominent aspect or characteristic of a geographic area that exhibits verifiable evidence of a presence of water in the soil. Examples of water features include, but are not limited to, perennial and intermittent

streams (~~non-ephemeral~~), lakes, ponds, and reservoirs, ~~springs, artesian wells, irrigation wells, marshes or swamps, wetlands, and natural drainage ditches (non-ephemeral).~~<sup>95</sup>

### **Water surface elevation (WSE)**

The height, in relation to mean sea level, of floods of various magnitudes and frequencies in the floodplains of riverine areas.

### **Watercourse**

A lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.

### **Water Supply, Public**

A water supply system that serves a city or town located partly or entirely within Orange County that has a population in excess of 2,500.

### **Water Supply Watershed (or Protected Watershed)**

Land that drains to existing reservoirs which are public water supplies or potential reservoir sites or stream intakes which have been designated for protection. All such lands have been classified by the Environmental Management Commission as WS-II, WS-III or WS-IV watersheds and require protection in accordance with the State Mandate. (See definition for “State Mandate”).

### **Water Supply Watershed Critical Area, County Designated**

The land area within one-half mile of the normal pool elevation (or designated elevation) of an existing Class II water supply reservoir, or the ridgeline of the watershed, whichever is less; and the land area within one-half mile of the normal pool elevation (or designated elevation) of a proposed water supply reservoir designated for protection, or the ridgeline of the watershed, whichever is less; and the area within one-half mile of streams flowing into Class I reservoirs, as designated for protection within this Ordinance.

### **Water Supply Watershed Critical Area, State Required**

The land area within one-half mile of the normal pool elevation of water supply reservoirs in which an intake is located (i.e., Class I reservoirs), or the ridgeline of the watershed, whichever is less.

### **Wetlands**

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (Definition taken from EPA regulations at 40 CFR Section 230.3(t) and COE Regulations at 33 CFR Section 328.3(b), as of July 2nd, 2002)

### **Wholesale Trade**

A land use involved, without transformation or alteration of the product, with the sale of merchandise to clientele in bulk.

### **Windows, Primary**

Principal windows in habitable rooms except bedrooms and kitchens.

### **Windows, Secondary**

Windows of habitable rooms other than primary windows.

### **Windows, Tertiary**

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<sup>95</sup> The Water Feature definition has been refined/corrected to exclude descriptions of water-related features that fall under the authority of either the state or federal governments. Water Feature in the context of the UDO is specific to Orange County’s delegated authority for enforcement of buffers and setbacks.

**STATEMENT OF APPROVAL AND CONSISTENCY OF  
A PROPOSED UNIFIED DEVELOPMENT ORDINANCE TEXT AMENDMENT  
PERTAINING TO IMPERVIOUS AREA, WATERSHED PROTECTION OVERLAY  
DISTRICTS (WPODs), AND STREAM BUFFERS**

Orange County has initiated an amendment to the Unified Development Ordinance (UDO) to revise regulations pertaining to impervious area, watershed protection overlay districts (WPODs), and stream buffers.

The Planning Board hereby recommends approval of the proposed text amendment and issues this Statement of Consistency pursuant to NCGS § 160D-604(d) Planning board review and comments – Plan consistency. The Planning Board finds:

1. The requirements of UDO Section 2.8 *Zoning Atlas and Unified Development Ordinance Amendments*, including review by the Development Advisory Committee (DAC), as required in UDO Section 1.9, *have* been met;
2. The amendment is consistent with the adopted 2030 Orange County Comprehensive Plan, as prescribed by UDO Section 1.1.5 Statement of Intent – Amendments and Section 1.1.7 Conformance with Adopted Plans;
3. The amendment specifically supports the following adopted 2030 Comprehensive Plan Guiding Principles and Objectives:
  - a. Planning Principle 2.2 - Sustainable Growth and Development – Growth and development within the county should occur in a pattern, location, and density that is sustainable over the long-term;
  - b. Planning Principle 2.6 – Water Resources Preservation - The County has finite water resources to provide to future populations. The protection and management of the County’s water resources should be a high priority;
  - c. Services and Community Facilities Objective EC-1: Continue to use Best Management Practices (BMP’s) for stormwater control, as outlined within the Orange County Zoning Ordinance, Stormwater Ordinance, and Sedimentation Control Ordinance, to minimize potential adverse impacts on the water quality.
4. The amendment specifically supports the following adopted 2025 Strategic Plan Goal and Objective:
  - a. Strategic Plan Goal #1: Environmental Protection and Climate Action – Objective 6 – Protect water supply/watersheds;
5. The amendment is consistent with these principles, goals and objectives because implementation will result in improved UDO reading clarity and compliance with current General Statutes specific to impervious surface area limits and pre-existing development definitions within Watershed Protection Overlay Districts (WPODs);
6. The amendment is reasonable and in the public interest because it will make development restrictions for legacy, non-conforming lots located around Lake Orange more similar to those found elsewhere in Orange County; and bring the UDO into further compliance with State laws,

specifically the changes created by North Carolina Session Law 23-137.

The Planning Board hereby adopts this Statement of Approval and Consistency and the findings expressed herein.

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Lamar Proctor, Chair

\_\_\_\_\_  
Date