



MODEL DEVELOPMENT APPENDIX NC 98 TRM SUBAREA ANALYSIS



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MODEL DEVELOPMENT APPENDIX

NC 98 TRM SUBAREA ANALYSIS

1 BACKGROUND

The calibrated and adopted Triangle Regional Model (TRMV6) is the preferred tool of regional planning partners in support of corridor and subarea studies in the Triangle region. The TRM, by definition, focused on a regional calibration of parameters and highway volumes, therefore careful application of the model is required. The desire for the NC 98 corridor study is to be able to understand flows on NC 98 but to evaluate the interaction of NC 98 with other potential regional projects like the Northern Durham Freeway and the widening of Sherron Road.

Instead of directly applying the TRM model results, a model validation was first conducted to verify the models ability to understand travel along the NC 98 corridor and the surrounding areas. A comparison of the model assignment results to the observed daily traffic counts was performed using only counts located within a specified subarea region surrounding the corridor (see Figure 1).

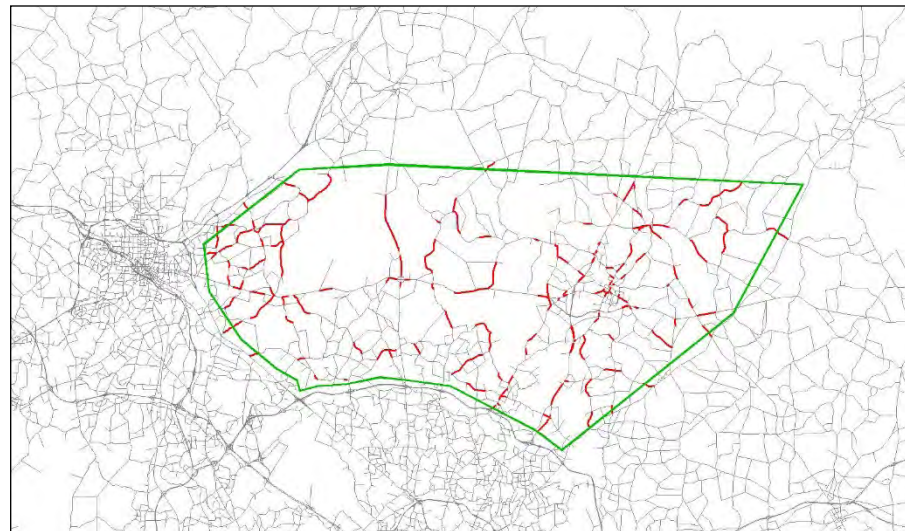


Figure 1: Count Locations Used for Corridor Validation

As shown in Figure 2, the model assignment volumes (total flow) near the NC 98 corridor do not seem to produce reasonable results as compared to the observed daily counts. The overall R-squared value of 0.20 is well below a normal acceptable value above .80, indicating the existing flow patterns in the NC 98 corridor are not properly represented in the TRM. It is critical for the study to be able to forecast future travel but based on existing calibration along the corridor, adjustments are required to produce more reliable future year volume estimates.

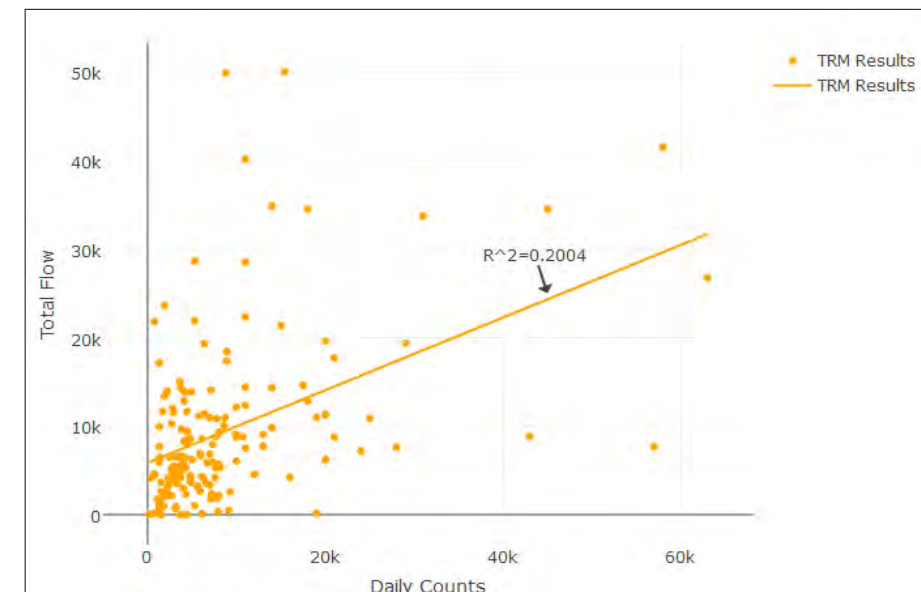


Figure 2: Counts vs Flow from TRM in NC 98 Area

Instead of investing resources in making substantial adjustments to the TRM, the decision was made to utilize the TRM and create a subarea model that could focus solely on updating the travel patterns along the entire NC 98 corridor from Wake Forest to Durham.

An existing subarea tool developed originally by the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO) was leveraged for this work to create efficiencies in the corridor analysis. The existing tool was already fully scripted in GISDK and included an embedded Origin Destination Matrix Estimation (ODME) procedure that allows for easier calibration of link flows with link counts.

This Appendix describes the work performed to apply the Subarea tool for the NC 98 corridor analysis. The document is divided into the following sections:

- Subarea tool introduction
- Analysis procedure
- Analysis results

In addition, this Appendix provides the details of the delay allocation method used to assist in the prioritization of the NC 98 segments as discussed in the full project report.

2 SUBAREA MODEL DEVELOPMENT

2.1 SUBAREA TOOL INTRODUCTION

The Subarea model is an add-on tool of the TRM-V6 model that allows users to perform a more refined analysis for a specified smaller regional geography. The tool is designed to run as a standalone module, fully scripted in GISDK, the native TransCad language. Starting from the extraction of the subarea network and OD flows from the original TRM model, an ODME procedure is then applied to adjust the OD flows based on a more comprehensive set of supplemental counts.

The ODME procedure refines the initial OD vehicle matrices from the TRM by comparing the subarea model traffic assignment to counts and then adjusts the OD matrix until the demand in the matrix can estimate the link level travel flows that match the counts estimated inside the subarea region. This produces a matrix in the subarea that is different from the TRM trip tables but is a better representation of localized travel. The ODME procedure outputs base year matrix adjustment factors between the original TRM subarea OD flows and the OD flows resulting from the ODME process. This same adjustment factor matrix is applied to the trip table produced by running the future year TRM for the subarea. This method for conducting subarea analysis produces reasonable localized corridor estimates without the need to invest significant effort in the coding of additional detail into the regional model. Figure 3 is a flowchart of how the subarea tool operates.

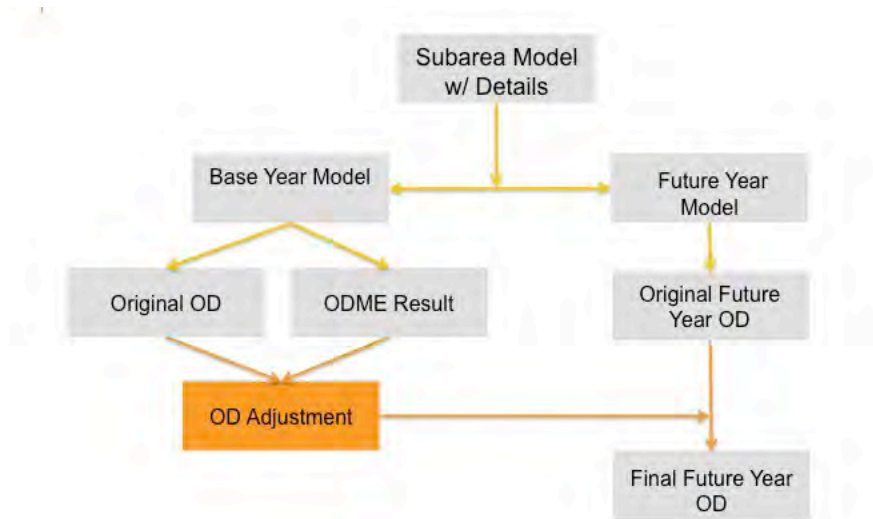


Figure 3: Subarea Tool Flowchart

2.2 ANALYSIS PROCEDURE

There are a total of six steps in this Subarea analysis for NC 98.

2.2.1 Defining the Subarea boundary and creating Subarea network

A subarea is the area of influence for a travel corridor or a defined region that explains the travel patterns impacting the corridor. The subarea boundary defined in Figure 4 was determined by the availability of detailed counts, by understanding the regional influences of existing roadways near NC 98 and by the ability to clearly define a boundary that had limited crossings of major facilities. The subarea region encompasses the NC 98 corridor from Wake Forest to Durham using an approximate 5 mile north/south buffer along the NC 98 roadway. The boundary avoids crossing

the I-540 and US 70 roadways to alleviate complicated traffic flows that could introduce patterns that are not directly related to NC 98. The roadways enclosed by the green boundary of Figure 4 are referred to as the subarea network in this documentation.

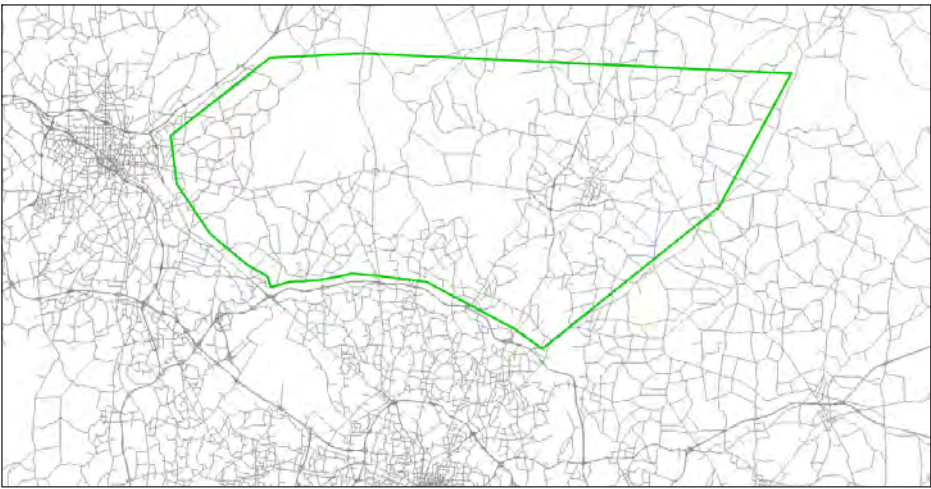


Figure 4: NC 98 Subarea Region

2.2.2 Generating Subarea OD Trip Table

The subarea OD trip tables are generated during the highway assignment procedure of the regional model in which the ODs from the regional model for the selected subarea are removed based on the boundary of the subarea. The resultant table contains the trip flows for the selected subarea region and includes zone interchanges that are completely within the subarea, have at least one trip end within the subarea, and trips that pass through the subarea via one of the subarea external stations.

For this task, the subarea OD table is produced by performing a static assignment within TransCAD for the PM peak hour.

2.2.3 Count information to validate OD table

The subarea tool was developed to validate against a total peak hour count, however, due to the insufficiency of peak hour traffic counts, total daily counts were used as an initial estimate but adjusted to get a PM peak hour traffic count estimate. A 10.7 factor was assumed and applied to convert all total daily counts in the subarea to PM peak hour volumes.

2.2.4 Origin Destination Matrix Estimation (ODME)

As described in the introduction of this Appendix, the ODME procedure is aimed at producing an OD trip table that is consistent with the observed link counts in the subarea. The ODME procedure in TransCAD requires several inputs, including a sufficient number of observed link counts, a base OD matrix, and some other inputs required for the static assignment method. The following are the conditions upon which this procedure runs:

- A 50/50 directional factor is assumed for all the link counts
- The inputs all represent the same time period (PM Peak hour), e.g. link capacities, traffic counts, and OD flows

2.2.5 Development of adjustment factors

The adjustment factors are developed by comparing the resulting ODME flows to the initial subarea OD flows by using the percent difference method. This method computes the adjustment factors as the ratio of the ODME flows to the initial subarea flows. To avoid unrealistically high adjustment factors in the percent difference method, the adjustment factors are capped between 0.1 and 2.

2.2.6 Development of future year OD matrix and future year link flow

The future year initial OD matrix is extracted from the TRM model using the subarea tool. To finalize an OD matrix for the future, the OD adjustment matrix developed from the base year is applied to the future trip table.

The adjusted future year matrix is then assigned to the subarea network to generate the future year link flows.

2.3 SUBAREA MODEL RESULTS

Subarea model results are provided in this section. A comparison of the subarea link counts and flows is first conducted to ensure the link performance improvement. Following that, a few scenarios of base year and future year, as well as different combinations of projects are tested using the subarea tool. Traffic volumes along NC 98 and its crossing links are presented. Traffic turning movements at several key intersections are also generated for traffic engineers for more detailed analysis.

2.3.1 Subarea Counts vs Flows

Figure 5 presents the daily counts vs total flow before and after ODME. The TRM model assignment in the subarea is not producing reasonable results as compared to the observed counts. The overall R-squared value is 0.20, while the R-squared value improves to 0.875 after ODME.

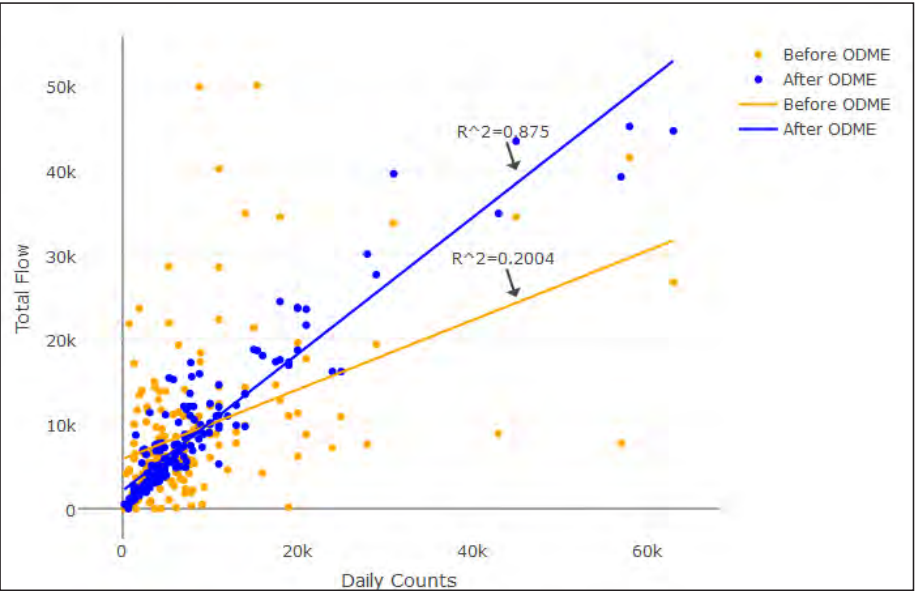


Figure 5: Subarea Counts vs Flows (Before and After ODME)

In addition to R-squared, a review of the Root Mean Square Error (RMSE) for the corridor region revealed that most of the link volumes were not in acceptable ranges. Figure YYY shows that before the ODME process that no facility types were less than 72% RMSE and normal ranges are near 40%. After the ODME process, Figure 6 shows a large improvement in the RMSE and that two of the three facility types are within the acceptable range of around 40%.

Table 1: Subarea RMSE

Before ODME				After ODME			
FacilityType Code	Facility Description	Number of Links	Percent RMSE	FacilityType Code	Facility Description	Number of Links	Percent RMSE
9	Major Arterial	16	72.32	9	Major Arterial	16	27.95
10	Minor Arterial	111	136.3	10	Minor Arterial	111	43.92
12	Collector/Local	32	105.23	12	Collector/Local	32	68.71
Total	All	159	122.07	Total	All	159	43.83

Adjustments to the model assignment in the subarea was necessary and produced more accurate results throughout the corridor region. The base and future link volumes generated after ODME are more reliable.

2.3.2 NC 98 Scenarios

A total of 6 scenarios were conducted using the subarea tool to get traffic volumes. Different alternatives tested were:

- 1. 2013 base year
- 2. 2045 Future No build: 2-Lane NC 98
- 3. 2045 Future Build: 4-Lane NC 98
- 4. 2045 Future Build: 4-Lane NC 98; 2-Lane Sherron Rd; No Northern Durham Pkwy
- 5. 2045 Future Build: 3-Lane NC 98 from Sherron Rd to US 70
- 6. 2045 Future Build: 3-Lane NC 98 from Sherron Rd to US 70; 2-Lane Sherron Rd; No Northern Durham Pkwy

Figure 6 through Figure 11 are the network maps color-coded by number of lanes and width-scaled by traffic volumes for each scenario. The figures are provided to document the roadway attributes in the subarea analysis. The detailed modeled volumes along NC 98 as well as its crossing links are available in a separate interactive html file called Subarea_Flow_single.html. Volume details are also documented in the main NC 98 study document.



Figure 6: NC 98 Network - 2013 Base



Figure 9: NC 98 Network – 2045 Build with 2-Lane Sherron Rd and without Northern Durham Pkwy



Figure 7: NC 98 Network – 2045 No Build



Figure 10: NC 98 Network – 2045 Build with 3-Lane NC 98 from Sherron Rd to US 70 with Parkway



Figure 8: NC 98 Network – 2045 Build



Figure 11: NC 98 Network – 2045 Build with 3-Lane NC 98 from Sherron Rd to US 70, with 2-Lane Sherron Rd and without Northern Durham Pkwy

3 PROJECT RANKING USING THE DELAY ALLOCATION METHOD FOR THE NC 98 CORRIDOR STUDY

For the NC 98 corridor level analysis the WSP created “delay-allocation method” was used to determine the segment with the largest project benefits. The method uses two alternatives, a “do nothing” and “do everything” alternative, to derive which projects are responsible for the observed system-level benefits. In addition to greatly reducing run time, this approach captures the interaction between projects that can be either complimentary, requiring both projects to produce benefit, or exclusionary, where projects represent a duplication of effort. This allows planners to make smarter decisions when allocating transportation dollars. In addition, it helps planners focus detailed analysis on fewer projects by screening out poorly performing projects early in the process. For the NC 98 corridor the MPO transportation projects were included in the do nothing(or no-build) and then do everything included the entire NC 98 corridor broken into segments.

The remainder of this section provides a step by step description of the process for reference.

3.1 DELAY ALLOCATION METHOD

3.1.1 Delay

The base scenario network and the comprehensive future scenario network can be compared directly at the link level using delay as the metric. Using delay has the advantage of combining congestion severity, most often reported using v/c ratio, with the number of users experiencing the congestion. Such a comparison allows interstates and local streets to be compared fairly, because the large volume difference does not bias results; however, a fair comparison depends on proper use of volume-delay functions in the model. With delay calculated on the base and comprehensive networks, their differences can be calculated. Links with widening projects will generally have a reduction in delay. New-location links, because they do not exist in the base scenario, will all show increases in delay. Nearby links without projects will have delay increases or decreases as traffic reroutes

Link delay is the difference in travel time between free-flow(ff) and congested(cong) conditions multiplied by the number of vehicles traveling on the link:

Delay = (Time_{ff} - Time_{cong}) * Volume

It provides a metric that can be used to compare interstates to local streets directly, and is critical to this methodology. The free flow speeds are the posted speeds from the TRMv6 and the congested speeds pivot off of the TRM volume/delay functions. For this project the speeds calculated by the model are used directly without any editing or review.

3.2 METHODOLOGY

For this approach, two model scenarios were run for NC 98:

- No-build
 - Base year highway network plus committed projects as identified by the MPO
 - Existing plus committed transit routes as identified by the MPO
 - Forecasted socio-economic data for 2040
- Build
 - The no-build scenario plus all projects in the moderate MTP scenario as identified by the MPO(including the NC 98 corridor coded into segments)
 - Existing plus committed transit routes as identified by the MPO
 - Forecasted socio-economic data for 2040

The build scenario, with many additional projects, had less link delay. The aggregate reduction in delay over the entire network is the total benefit of adding all projects.

There are five processing steps in the delay allocation method:

1. Split reductions in link delay into primary and secondary benefits.
2. Allocate primary benefits to projects.
3. Allocate secondary benefits to projects.
4. Summarize total benefits by project.
5. Compare benefits to project costs.

3.2.1 Step 1-Split primary and secondary benefits

The analyst can now combine the base and comprehensive networks to produce a difference network that contains the change in delay for each link. The analyst must classify those changes as primary or secondary benefits. Primary benefits are reductions in delay on a roadway, for example, that is widened, while secondary benefits occur on the surrounding nearby links as vehicles divert to use the widened facility. For the vast majority of links, the analyst can follow a simple rule set to determine primary and secondary benefits based on the change in capacity, volume, and delay. For new-location links, all changes in delay, which always increase, are primary by definition. For links that do not change capacity, all changes in delay are secondary due to other projects. For project links that are not new location, the rule set is shown in Table 2. As an example, a road diet could decrease the capacity on an arterial link. At the same time, a nearby widening project could divert enough volume that the link still experiences a decrease in total delay. From Table 2, any reduction in delay on a project link with reduced capacity is assumed to result from other projects.

Table 2: Rules for Primary and Secondary Benefit Determination

CAPACITY	VOLUME	DELAY	
		Decrease	Increase
Increase	Increase	Primary Benefit	Secondary Benefit
	Decrease	Both	N/A
Decrease	Increase	N/A	Both
	Decrease	Secondary Benefit	Primary Benefit

As shown in Table 2, specific situations exist where the change in delay on a project link could be a mix of primary and secondary effects. A widening project that experiences both an increase in capacity and a decrease in volume is one example. Both capacity and volume change from base scenario to comprehensive scenario contribute to a decrease in delay. In this case, a ratio is taken to compare the percentage change in capacity and volume. Absolute values are used because decreases in volume and increases in capacity have the same effect on travel time.

% Primary Effect =
$$\frac{(|\% \text{ change in capacity}|)}{(|\% \text{ change in capacity}| + |\% \text{ change in volume}|)}$$

Table 3 presents a hypothetical link where the travel time between the base and comprehensive scenarios decreases by 1.83 minutes. This change in delay is due to a 20 percent decrease in volume and a 30 percent increase in capacity. Because the majority of the benefit is due to the capacity change, most is assigned as primary benefit. The remainder is a result of volume diversion to other routes and is secondary.

- 1. Benefits on links without projects are secondary.
- 2. Benefits on links with projects are usually primary.
 - a) If volume on the project link decreased in the build scenario, the benefit is split according to a ratio of capacity and volume changes.

Table 3: Example Calculation for Mixed-Benefit Link

SCENARIOS				
		Base	Comprehensive	Percent Change
Volume	vpd	20,000	16,000	-20 %
Capacity	vpd	20,000	26,000	+30 %
α		10	10	
V/C		1.00	0.62	
VDF Factor		2.00	1.09	
Free-Flow Travel Time	min	2	2	
Difference				
Congested Travel Time	min	4	2.17	1.83 min
Effects				
		Primary	2.17 * 30/50=	1.10 min
		Secondary	2.17 * 20/50=	0.73 min

3.2.2 Step 2- Allocate primary benefits to projects

This step simply sums primary benefits on project links by their project IDs to get a total primary benefit for each project ID in the region. Any benefits directly generated on the project link are primary benefits and therefore are allocated to that project.

3.2.3 Step 3- Allocate secondary benefits to projects

In this step, secondary benefits on links are divided between nearby projects based on usage characteristics.

- Projects closer to the link get more credit for secondary benefits.
- Highly utilized projects get more credit for secondary benefits.

In this way, a balance is achieved between nearby projects with low usage and projects further away that are used more heavily. The details of that calculation and an example are described to allow better understanding.

Secondary benefit allocation requires spatial analysis. For a given project, the analyst sums the lengths of its links to determine the total project length. The analyst then creates a buffer around the project links with a radius that is 75 percent of the project length, but with a minimum radius of 1.5 miles. The buffer becomes the project’s impact radius, and is searched to find potential secondary benefits. The primary justification for scaling project impact areas involves capturing parallel routes. As the length of a project increases, the analyst must account for more parallel, competing paths that might be impacted. Figure 12 demonstrates this scaling. The scaling of project impact areas differentiates between statewide, regional, and local projects without requiring additional input from the analyst.

It is also important to discuss bottle necks, both in this delay allocation method and travel demand models in general. In reality, alleviating a short bottleneck section on a major interstate could have impacts far beyond what would be implied by the length of the project. In most travel models, however, this is not the case. In these models, the use of volume delay functions and aggregate assignment methods does not assume any spill back or queuing across network links. As a result, bottlenecks are not created, and scaling project impact areas based on project length is appropriate. This assumption is not appropriate for micro-simulation models, which better-capture bottleneck behavior. A possible accommodation for such models, which would require further analysis, would be to set different minimum radii based on link facility types.

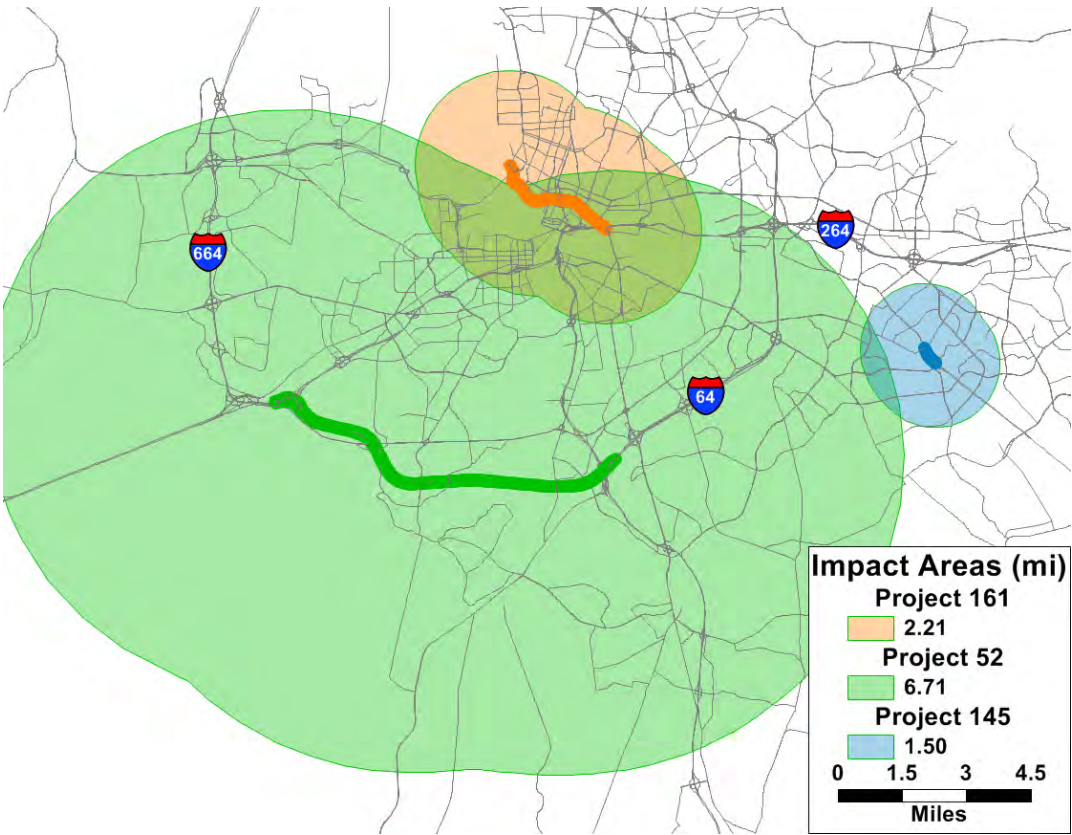


Figure 12: Project Impact Areas Scaled by Project Length

Figure 12 shows how project impact areas can overlap. In these overlapping impact areas, projects share the secondary benefit proportional to the change in project vehicle-miles traveled (VMT) within the search radius. When analyzing a link in the overlap of Projects 52 and 145, the entire VMT of Project 52 is not used to allocate the secondary benefit of the link. Instead, the analyst only includes the Project VMT within 6.71 miles, the length of Project 52. This prevents a disproportionate award of secondary benefits to long projects.

3.2.4 Step 4- Summarize total benefits by project

In this step, the primary and secondary benefits are combined for each project using the project ID to calculate total the total benefits generated by the project.

3.2.5 Step 5- Compare benefits to project costs

This step normalizes total benefits across projects by their costs. In this way, large interstate projects can be compared to local or regional projects. Recall that as a result of the method of derivation, these cost-benefit ratios are only useful in the context of project prioritization. In addition, the benefits calculated are only those resulting in travel time savings. The ratios do not include the other factors, such as safety, mentioned previously. As a result, the cost-benefit ratios based on delay allocation should not be viewed in terms of project justification. In practice, when presenting the project ranking, these ratios should be normalized to a 100-point scale. Normalization preserves important information about relative position, but prevents the ratios from being used as an absolute measure of project effectiveness.

Costs for the projects were based on the existing MPO MTP values from the most recently adopted plans as of July 2017. The final results can be found in the NC 98 main report.

3.3 ADVANTAGES

This approach has many benefits over traditional alternatives analysis or project comparisons using a large number of single-project networks. Compared to alternatives analysis, this method provides a prioritized list of projects based on their cost effectiveness at alleviating delay. This delay allocation method also scores competing projects more accurately. Two parallel projects serving the same flow patterns may both score strongly when measured individually. By including both projects in the same run, the model is able to use all the pathing and preference information to determine which project is more likely to be used. In addition, the delay allocation method is significantly faster than performing individual model runs for each project, which allows for further analysis (e.g. varying SE data assumptions).



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PUBLIC ENGAGEMENT APPENDIX

5. Please circle your answer choice for each statement.

	ANSWER A	ANSWER B	ANSWER C	ANSWER D
The roadway lane widths are ____.	too narrow	adequate	too wide	n/a
I feel ____ making left turns without lights.	unsafe	safe	very safe	n/a
I feel ____ making right turns.	unsafe	safe	very safe	n/a
The number of bus stops on N.C. 98 ____.	are more than adequate	meet my needs	are not adequate	n/a
The sidewalk facilities on N.C. 98 ____.	are more than adequate	meet my needs	are not adequate	n/a
Bicycle lanes are appropriate to implement on N.C. 98.	true	not sure	false	n/a

6. Would you like to see the corridor change or remain the same? Explain.

7. What constraints do you experience along the corridor?

8. What opportunities do you envision along the corridor?

In accordance with Title VI of the Civil Rights Act of 1964 and related authorities, no person(s) shall be excluded from participation in, denied the benefits of, or subjected to discrimination under any of the Capital Area Metropolitan Planning Organization’s (CAMPO) and/or Durham—Chapel Hill—Carrboro (DCHC) MPO’s programs, policies, or activities, based on their race, color, national origin, disability, age, income, or gender.

Completing this information helps meet data collection and public involvement obligations under Title VI and NEPA, and will improve how we serve the public.

Gender: <input type="checkbox"/> Female <input type="checkbox"/> Male	Have a Disability? <input type="checkbox"/> Yes <input type="checkbox"/> No
National Origin: (if born outside the U.S.) <input type="checkbox"/> Mexican <input type="checkbox"/> Central American <input type="checkbox"/> South American <input type="checkbox"/> Puerto Rican <input type="checkbox"/> Chinese <input type="checkbox"/> Vietnamese <input type="checkbox"/> Korean <input type="checkbox"/> Other: _____	Race/Ethnicity: <input type="checkbox"/> White <input type="checkbox"/> Black/African American <input type="checkbox"/> Asian <input type="checkbox"/> Native Hawaiian/ Pacific Islander <input type="checkbox"/> Hispanic/Latino <input type="checkbox"/> American Indian/ Alaskan Native <input type="checkbox"/> Other: _____
Total Household Income: <input type="checkbox"/> Less than \$12,000 <input type="checkbox"/> \$12,000—\$19,999 <input type="checkbox"/> \$20,000—\$30,999 <input type="checkbox"/> \$31,000—\$46,999 <input type="checkbox"/> \$47,000—\$69,999 <input type="checkbox"/> \$70,000—\$93,999 <input type="checkbox"/> \$94,000—\$117,999 <input type="checkbox"/> \$118,000 or greater	
Age: <input type="checkbox"/> Less than 18 <input type="checkbox"/> 18-29 <input type="checkbox"/> 30-44 <input type="checkbox"/> 45-64 <input type="checkbox"/> 65 & older	

Other comments/questions:

Please rate the following statements:

	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Informational boards provided the appropriate project information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interactive activities were engaging and helpful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I left the meeting informed about the N.C. 98 Corridor Study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for your participation!

Please return this comment card before leaving today. If you need to return this form later, please email or mail it **before April 6, 2017** to:

Will Letchworth, PE, letchworthw@pbworld.com
434 Fayetteville Street, Suite 1500
Raleigh, NC 27601

Visit the website, www.NC98corridor.com for more information on this project.

Fold along this line into thirds and mail

POSTAGE

WSP | Parsons Brinckerhoff
ATTN: Will Letchworth, PE,
434 Fayetteville Street, Suite 1500
Raleigh, NC 27601



Please fill out the information below and submit to the project team. This information is for reporting purposes only.

Include your email below to receive future project updates.

Name: _____ Home Zip Code: _____

Email: _____ Work Zip Code: _____

1. How did you hear about this workshop?

- ☐ Email
- ☐ Newspaper/Radio/TV
- ☐ Project Website
- ☐ Social Media
- ☐ Nextdoor Website
- ☐ Other: _____

2. How often do you travel on N.C. 98?

- ☐ Daily
- ☐ Five days a week
- ☐ Once a week
- ☐ A few times a month
- ☐ A few times a year
- ☐ Prefer not to answer

3. What modes of transportation do you use on N.C. 98? (Select all that apply)

- ☐ Bicycle
- ☐ Carpool/Rideshare
- ☐ Personal Vehicle
- ☐ Transit (bus)
- ☐ Walk
- ☐ Other: _____

4. Why do you travel the corridor? Rank your top uses from 1 to 5 (with 1 being the top reason).

- Traveling to and from work.
- My job requires me to drive on the corridor (e.g. deliveries)
- Family/Personal Reasons (shopping, errands, etc.)
- Recreation (e.g. cycling, going to the park/lake)
- Other: _____

WELCOME! ¡BIENVENIDOS!

NC 98 Corridor Study
(Estudio Del Corredor NC 98)

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#NC98study



WHERE & WHAT

Project Study Area:

- 27-miles from U.S. 70 in Durham Co. through Wake Co. to U.S. 401 in Franklin Co. (approximately a quarter mile (1/4) on either side of N.C. 98)

This study will evaluate:



Safety & Mobility



Planned & Existing
Roads



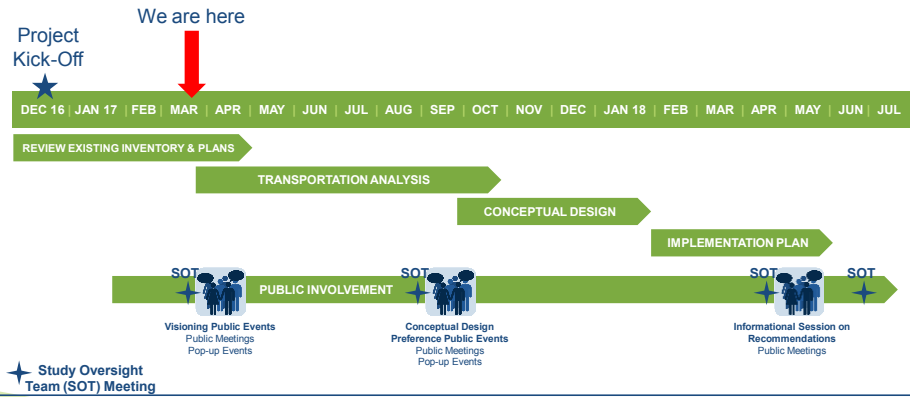
Transit



Bicycle/ Pedestrian
Facilities



N.C. 98 STUDY SCHEDULE



EXISTING CONDITIONS

Environmentally Sensitive Areas	Several Types of Land Uses	Traffic Generating Facilities	Recreation
 <ul style="list-style-type: none"> Falls Lake, Little River, & Neuse River Watersheds Shinleaf Recreation Area Parks Trails 	 <ul style="list-style-type: none"> Transportation Recreational Agricultural Residential Educational Institutions Natural Environment Commercial 	 <ul style="list-style-type: none"> Schools Churches Shopping centers Activities 	 <ul style="list-style-type: none"> Cycling Boating Camping Parks & Trails Golf



TELL US ABOUT N.C. 98

Share your vision on the map using the available post-its.

- What do you want to see on N.C. 98 in the future?
- What challenges do you experience on the corridor?
- Where do you see opportunities along the corridor?
- What is your most important concern?
- Should NC 98 remain as is?
- What areas need improvements?



MY PRIORITIES FOR N.C. 98

Use your stickers to vote for your top priorities below for N.C. 98.

I WANT TO...

Enhance bus amenities (stations, lanes, etc.)	Preserve environmentally sensitive areas	Improve intersections	Widen the corridor	Add bicycle/ pedestrian facilities (on N.C. 98)
Maintain rural areas	Increase business / commercial developments	Increase residential growth	Enhance access to recreational facilities	Other



**THANK YOU FOR
ATTENDING**

**GRACIAS POR
ASISTIR**



NC 98 CORRIDOR STUDY

WHAT AND WHERE IS THE NC 98 CORRIDOR STUDY?

Together, the Capital Area Metropolitan Planning Agency (CAMPO), the Durham — Chapel Hill — Carrboro Metropolitan Planning Organization (DCHC MPO), and the North Carolina Department of Transportation (NCDOT) are studying the N.C. 98 corridor from U.S. 70 in Durham County through Wake County to U.S. 401 in Franklin County, North Carolina.

This study will evaluate the **safety and congestion, planned and existing roads, bicycle/pedestrian facilities** and **transit uses of N.C. 98**. The study limits will be approximately a quarter mile (1/4) on either side of the 27 -mile section of N.C. 98.



WHY IS THIS IMPORTANT?

A corridor study is the first step in planning for the future of a transportation facility. By defining the corridor's needs, the corridor plan will help focus planning efforts on the most significant problems and identify the best transportation solutions. This project started in December 2016 and will continue through July 2018.



ESTUDIO DEL CORREDOR NC 98

¿QUÉ Y DÓNDE ESTÁ EL ESTUDIO DE NC 98?

La Agencia de Planificación Metropolitana del Área Capital (CAMPO—por sus siglas en inglés) en conjunto con la Organización de Planificación Metropolitana de Durham—Chapel Hill—Carrboro (DCHC MPO por sus siglas en inglés) y el Departamento de Transporte de Carolina del Norte (NCDOT) está estudiando el corredor de NC 98 desde la US 70 en el condado de Durham a través del condado de Wake a la US 401 en el condado de Franklin, Carolina del Norte.

Este estudio evaluará la **seguridad y congestión, carreteras en proyecto y existentes, infraestructuras para bicicletas/peatones y uso de tránsito por la NC 98**. El área del proyecto en estudio será aproximadamente de un cuarto de milla (1/4) en cualquier lado de la sección de 27 millas de NC 98.



¿POR QUÉ ES ESTO IMPORTANTE?

Un estudio de corredor es el primer paso en la planificación para el futuro de una infraestructura de transporte. Al definir las necesidades del corredor, el plan ayudará a centrar los esfuerzos de planificación en los problemas más significativos y identificar las soluciones mejores de transporte. Este proyecto comenzó en diciembre de 2016 y continuará hasta julio de 2018 .



N.C. 98 Corridor Study March 2017

Name	Organization	E-mail
Paul May		ptmay.nc@gmail.com
Brian Pate	WF Town	brian@paterrealty.com
Margaret Stinnett	WF Town	mstinnett@wakeforestnc.gov
Lori Miller		lori.miller.7604@icloud.com
Tim Burnett		TimBurnett11@yahoo.com
Tim Johnson		
Japa Partholon	Citizenfores.	got2beebalm@yahoo.com

3/21/17 wake
Forest

N.C. 98 Corridor Study March 2017

Name	Organization	E-mail
Laurie Barrett		leilani.b4@msn.com
Chris Miller		
Shannon Burnett		shannonburnett1@yahoo.com
David Lowe		scotjlowe@yahoo.com
Martine Loftin	Citizen	alliestin@comcast.net

3/21/17 Wake
Forest

N.C. 98 Corridor Study March 2017

Name	Organization	E-mail
Sony Guarglia		Y0911@NC.RR.COM
Janie Gregg		jgregg10@yahoo.com
Panna Jones		
Jean & Jerry Cylinta		jea176@gmail.com
Jerry H. Ray		radiogla@gmail.com
Math Straubridge	Wake Forest Fire Dept.	LH 2197@gmail.com
Lisa Jennings	RESIDENT/HOA BEDFORD (50498 area)	mstraubridge@wakeforestfire.com
Wendy Lipkin		USA usa11n72@gmail.com
Lloyd Croesus	Retired	Lloyd-Croesus@msn.com

3/21/17 Wake
Forest

N.C. 98 Corridor Study March 2017

Name	Organization	E-mail
Terrence S. Haxton		terryhaxton@gmail.com
HUGHEN NOURSE		hughen27@aol.com
Alden Hanson		aldenhanson05@gmail.com
DANNY JOHNSON	Town of Rolesville	danny.johnson@rolesville.nc.gov
KATHY STANFORD	THE, INC	K Kstanford@thcinc.net
DURWARD MATHENY	CITIZEN OF WF	DURWARD MATHENY@EMBARKMAIL.COM
Louis Guillama	Coastal Credit Union	lgillama@coastalfcu.org
Jerry Young	CITY 24	JYOUNG73@nc.rr.com
Bob Skade		robert.slade49@gmail.com

3/21/17 wate
Forest

N.C. 98 Corridor Study March 2017

Name	Organization	E-mail
LARRY BARNES	AR Homes.	barnes@arhomes.com.
ERIC KERAVUORI	TOLFF	ekeravuori@wakeforestnc.gov
Daniel + Pat Arnitt	—	sweeddertpat@yahoo.com
Robert Cooper	Homes on Sun	
GEORGE ARY		
SANDON JACOBS	Homeowner	Sandon.jacobs@gmail.com
Marcus Bryant	Homes on Sun	MARCUSBRYANT@GMAIL.COM
Daryl Vreeland	Ta WF	dvree/and@wakeforestnc.gov
Todd Allen	Newspaper	todd todd@winteweekly.com

3/21/17 WAKE
FOREST

N.C. 98 Corridor Study March 2017

Name	Organization	E-mail
Dennis Kuebers		DKUEBERS@GMAIL.COM
LISA HAYES		lhayes@wakeforestnc.gov
Susan Theibert		scorda@bellsouth.net
Lisa Hannon	WFTAB	lorth@nc.w.com
Michael Reed		reed@inet.org
Mark McGilly		
Rich Niemi		rich.niemi@gmail.com
Sidney E. Duviston	FBI/DOJ Commissioner	510 2543@FBI/DOJ.NET
Anne Reeve	Town of WF	areeve@wakeforestnc.gov
Tony Gordon		Tony57@EMBA@MAIL.COM

3/21/17 Wake
Forest

N.C. 98 Corridor Study March 2017

Name	Organization	E-mail
DONALD BELK	Town of YOUNGSVILLE	dbelk@townofyoungsville.org
Peggy & BH Powell	Resident	cathail.branch@gmail.com
Cheryl Mary	Resident	7300 Clairmonte CT WF 27587
Joe Paulson	Resident	JOEPA@YAHOO.COM
Bob Jones	—	—
Faye R Helms	Resident	FAH@NCRB.ORG
Rob Anderson	Resident	robby.anderson@gmail.com
Uran Jones	Town	Mayor@wakeforestnc.gov
Bill Kloepfer	Resident	Bill.kloepfer@yahoo.com
John Oldenburg	Wake Forest	oldygolden@aol.com

3/21/17 WAKE
FOREST

N.C. 98 Corridor Study March 2017

Name	Organization	E-mail
William M. Bay Lin		CASTLE FRENCH Farm@gmail.com
Leslie Tracey	City of Durham DOT	leslie.tracey@durhamnc.gov
Ellen Beckmann	City of Durham	ellen.beckmann@durhamnc.gov
Andy Henry	NCHC WPD	
Barbara Brown		
Anne Carlton Jan Carlton	Bike Durham	anne.ehlerman@gmail.com
Darvion Smith		Darvion1@yahoo.com
David Keilson	NC DOT	dkeilson@ncdot.gov

Durham 3/23/17

N.C. 98 Corridor Study March 2017

Name	Organization	E-mail
Angela M. Cheek	Reaching All Minds Academy	acheek@reachingallminds.com
Lakrista Williams	Live in Community	Kristaw674@yahoo.com
Curtis Peaks		CPeakS@reachingallminds.com
Betty Thomas	Citizen	bbloomersfarm@gmail.com
Clark Thomas	Citizen	

Thank you for your participation!

Please return this comment card before leaving today. If you need to return this form later, please email or mail it **before October 5, 2017** to:

Will Letchworth, PE, will.letchworth@wsp.com
434 Fayetteville Street, Suite 1500
Raleigh, NC 27601

Visit the website, www.NC98corridor.com for more information on this project.



Please fill out the information below and submit to the project team. This information is for reporting purposes only.

Include your email below to receive future project updates.

Name: _____ Home Zip Code: _____

Email: _____ Work Zip Code: _____

1. How did you hear about this workshop?

- ☐ Email ☐ Newspaper/Radio/TV ☐ Project Website
- ☐ Social Media ☐ Nextdoor Website ☐ Other: _____

2. How often do you travel on N.C. 98?

- ☐ Daily ☐ Five days a week ☐ Once a week
- ☐ A few times a month ☐ A few times a year ☐ Prefer not to answer

3. Did you attend or participate during the March 2017 public participation period for this project?

- ☐ YES ☐ NO

After reviewing the project material please answer the following:

4. Do you have any concerns about the potential long-term intersection treatment options presented tonight? If so, please explain.

Fold along this line into thirds and mail

POSTAGE

WSP
ATTN: Will Letchworth, PE,
434 Fayetteville Street, Suite 1500
Raleigh, NC 27601

A road diet provides bicycle and pedestrian accommodations and will eliminate conflict points. A road diet can typically handle up to 20,000 vehicles per day. The road diet between US 70 to Sherron Road is dependent upon the widening of Sherron Road and if the Northern Durham Parkway is constructed.

As shown in the chart below road diet encourages less through movement (on NC 98) as vehicles will use alternate routes such as; Stallings Road, Mineral Springs Road, Sherron Road, and the Northern Durham Parkway.

Cross Section	2045 Volume West of Sherron	2045 Volume East of Sherron
NC 98 - 4 Lanes (median) Northern Durham Parkway - 4 lanes Sherron Road- 4 lanes	22,000	33,000
ROAD DIET: NC 98 - 2 Lanes Northern Durham Parkway - 4 lanes Sherron Road- 4 lanes	17,000	32,600
NC 98 - 4 Lanes (median) No Parkway & Sherron Road – 2 lanes	28,000	35,000

5. Based on the information presented today, would you support a road diet on NC 98 between US 70 to Sherron Road?

☐ Yes ☐ Not sure ☐ No

6. If you responded no, please explain why. _____

7. Below is a chart that shows the short-term improvements as shown on the display that will require construction. (Please note the roundabout at NC 96 and the Moores Pond Road improvements are part of a separate project.) Please mark an “x” under your answer below:

Intersection	Improvement	In Favor of	Not Sure	Not in Favor of
Mineral Springs Road	Add right turn lanes at all four approaches			
NC 50	Add auxiliary lanes			
Six Forks Road	Add right turn lanes for eastbound and northbound approaches			
Camp Kanata Road	Install eastbound left turn lanes			
S Main Street	Install dual left turn lanes			

In accordance with Title VI of the Civil Rights Act of 1964 and related authorities, no person(s) shall be excluded from participation in, denied the benefits of, or subjected to discrimination under any of the Capital Area Metropolitan Planning Organization’s (CAMPO) and/or Durham—Chapel Hill—Carrboro (DCHC) MPO’s programs, policies, or activities, based on their race, color, national origin, disability, age, income, or gender.

Completing this information helps meet data collection and public involvement obligations under Title VI and NEPA, and will improve how we serve the public.

Gender:

☐ Female☐ Male

National Origin: (if born outside the U.S.)

☐ Mexican☐ Central American

☐ South American☐ Puerto Rican

☐ Chinese☐ Vietnamese

☐ Korean☐ Other: _____

Have a Disability?

☐ Yes☐ No

Race/Ethnicity:

☐ White☐ Black/African American

☐ Asian☐ Native Hawaiian/
Pacific Islander

☐ Hispanic/Latino☐ American Indian/
Alaskan Native

☐ Other: _____

Total Household Income:

☐ Less than \$12,000☐ \$12,000—\$19,999☐ \$20,000—\$30,999

☐ \$31,000—\$46,999☐ \$47,000—\$69,999☐ \$70,000—\$93,999

☐ \$94,000—\$117,999☐ \$118,000 or greater

Age:

☐ Less than 18☐ 18-29☐ 30-44☐ 45-64☐ 65 & older

	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Informational boards provided the appropriate project information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you feel public input was incorporated into proposed improvements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I left the meeting informed about the N.C. 98 Corridor Study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Project Kick-Off



CONCEPTUAL DESIGN

So


PUBLIC INVOLVEMENT

So

- Visioning Public Events
 - Public Meetings
 - Pop-up Events

- Conceptual Design
- Preference Public Events
 - Public Meetings
 - Pop-up Events

Informational Session on
Recommendations
Public Meetings



Study Oversight
Team (SOT) Meeting



PUBLIC MEETINGS

PARTICIPATION

73 Attendees between Wake Forest & Durham

40 Submitted a Comment Form

CORRIDOR PRIORITIES



OPPORTUNITIES ALONG THE CORRIDOR

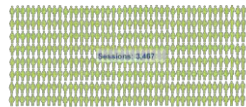
This environmentally sensitive development

Transportation Options

- Add turn lanes/widen corridor
- Bike/Pedestrian Facilities (connection to off-road facilities)
- Multimodal Transportation

ONLINE PARTICIPATION

NC98CorridorStudy.com



#NC98Study



REOCCURRING CROWDSOURCE MAP THEMES *As of March 27

Six Forks Road / New Light Road
Increase the length of turn lanes and increase turn light cycle length

Wake County Waste & Recycling Center
Dedicated turn lane into center

Crawford Road / NC 50
Adding merging lane / widen-

ing section to 4 lanes.

Wak Avenue / NC 96
Signalized intersections

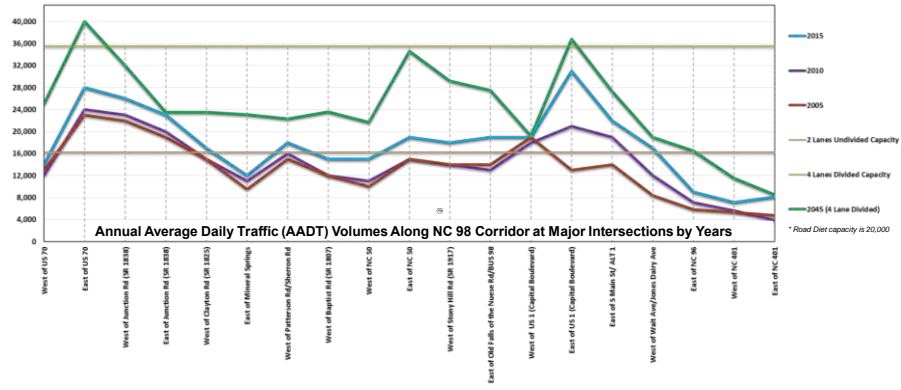
Ghewton Road
Right turn lane / signalized intersection

Website Comment Submissions / Sign-up : 53

Interactive
Crowdsource Map
Comments: 558



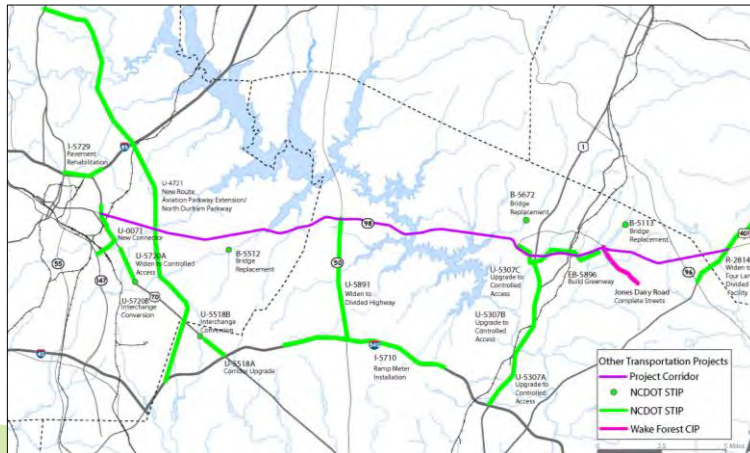
TRAFFIC ANALYSIS



CRASH DATA

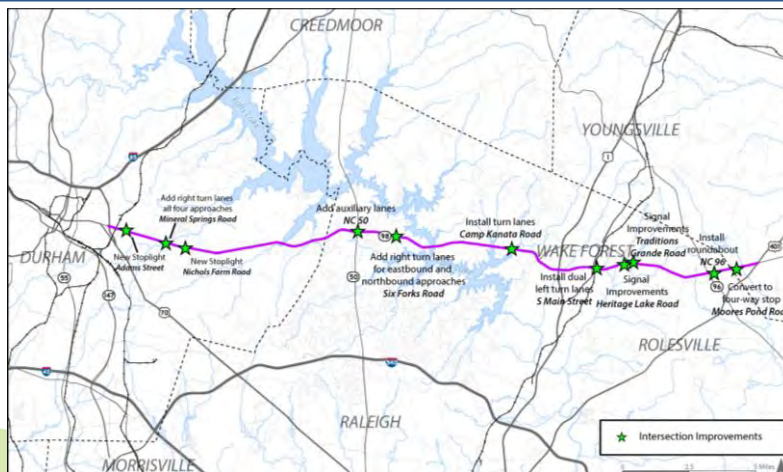


AREA PROJECTS ALONG NC 98



98 CORRIDOR STUDY
NC CAMPO • DCHC MPO • NCDOT

SHORT-TERM IMPROVEMENTS



98 CORRIDOR STUDY
NC CAMPO • DCHC MPO • NCDOT

LONG-TERM IMPROVEMENTS

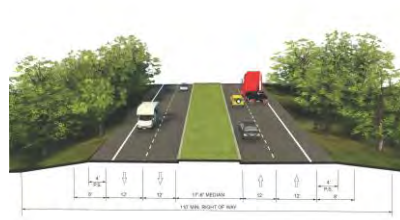


*Road Diet is dependent on Sherron Road being widened to 4 lanes and the Northern Durham Parkway being built.

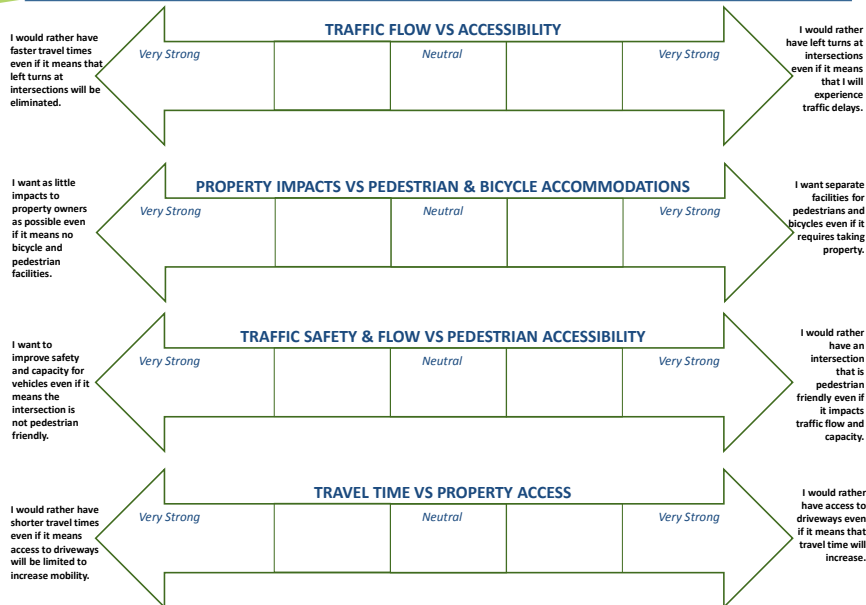
Road Diet – Potential Cross Section



4 Lane Widening– Potential Cross Section

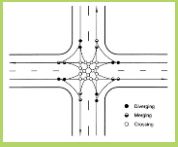

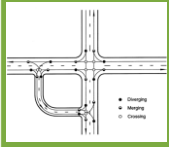
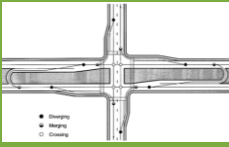


TRADE-OFF EXERCISE



INTERSECTION TREATMENTS

INTERSECTION CONFLICT POINTS







				
	Traditional Intersection	Continuous Flow Intersection	Quadrant Intersection	Median U-turn
Total Conflict Points	32	30	28	16

Indirect Left-Turn Treatments:

- Remove the left-turning vehicles from the flow of traffic without causing them to stop in a through-traffic lane (as a traditional intersection may)
- Improve safety by reducing the number of conflict points as shown above
- Reduce the number of signal phases to provide more green time for traffic
- Increase capacity

PEDESTRIAN & BICYCLE

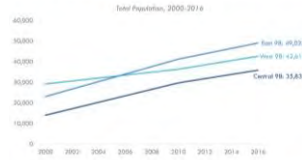
POTENTIAL BICYCLE AND PEDESTRIAN FACILITIES

Facility Type	Description	Facility Type	Description
	<ul style="list-style-type: none"> • A shared-use path is defined as a trail permitting more than one type of user. Paths serve as part of a transportation circulation system and support multiple recreation opportunities, such as walking, bicycling, and inline skating. A shared-use path is physically separated from motor vehicular traffic, with an open space or barrier. 		<ul style="list-style-type: none"> • A median refuge or island provides a direct refuge along the route of a pedestrian crossing. • The refuge width is ideally 7' x 10' for bicycles. • The approach to vehicle travel lanes must be ADA-compliant.
	<ul style="list-style-type: none"> • Bike lanes designate an exclusive space for bicyclists through the use of pavement markings, signage, and signage. The bike lane is located adjacent to motor vehicle travel lanes and flows in the same direction as motor vehicle traffic. Bike lanes are typically on the right side of the street. Benefits include providing obvious space on the road for cyclists and sending a message to other road users to expect cyclists. 		<ul style="list-style-type: none"> • High-visibility striping should be used at crossing areas. • A minimum width should be used for ADA-accessible curb ramps. • A push button with audible status should be present at the crossing. • A pedestrian countdown signal should be present.
	<ul style="list-style-type: none"> • A buffered bicycle lane is a bike lane with additional striping or buffering buffer adjacent to it. • The buffer may separate the bicycle lane from motor vehicle travel, parking, or both. • The buffer width is typically 2'-5'. 		<ul style="list-style-type: none"> • Rapid flashing beacons are used to increase visibility of pedestrian crossings as they enter the roadway at uncontrolled crossings. • This beacon is pedestrian-activated (i.e., the signal will only flash if a pedestrian has pushed a button indicating that they need to cross the street).

ECONOMIC ANALYSIS

POPULATION GROWTH

The NC 98 Corridor has seen significant growth since 2000, most notably in the Central and East sections.



Source: FRA, NC 98 Master Study (2017)

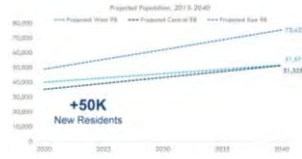
COMMERCIAL GROWTH

Existing commercial office buildings have clustered along Miami Boulevard in Durham and Main Street in Wake Forest.



Source: FRA, NC 98 Master Study (2017)

Based on CAMPO projections, the corridor is expected to add over 50,000 people by 2040.



Source: FRA, NC 98 Master Study (2017)

The Study Area could add an additional 1 million SF in commercial office space by 2040, primarily owing to growth in East 98.



Source: FRA, NC 98 Master Study (2017)

MEETING PURPOSE:

- Present the public feedback received during the first phase of public involvement
- Present project data and analysis completed since last spring
- Provide details about the identified intersection treatments
- Discuss any concerns and answer questions on the potential alternative intersection design treatments
- Provide a forum to receive comments on the alternative intersection treatments

MEETING FORMAT:

- This meeting is an “open house” style. Staff are available to discuss the project with you and answer your questions.
- Displays showing the project information are stationed around the room.
- Please fill out the comment form and return no later than October 5, 2017.

Project Manager: Will Letchworth, PE
WSP
Phone: 984-269-4652
Email: will.letchworth@wsp.com

PROJECT DESCRIPTION:

Together, the Capital Area Metropolitan Planning Agency (CAMPO), the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO), and the North Carolina Department of Transportation (NCDOT) are studying the N.C. 98 corridor from U.S. 70 in Durham County through Wake County to U.S. 401 in Franklin County, North Carolina.

This study will evaluate the **safety and mobility, planned and existing roads, bicycle/pedestrian facilities** and **transit uses of N.C. 98**. The study limits will be approximately a quarter mile (1/4) on either side of the 27-mile section of N.C. 98.



A corridor study is the first step in planning for the future of a transportation facility. By defining the corridor's needs, the corridor plan will help focus planning efforts on the most significant problems and act as catalyst for discussion about how best to invest in the corridor.

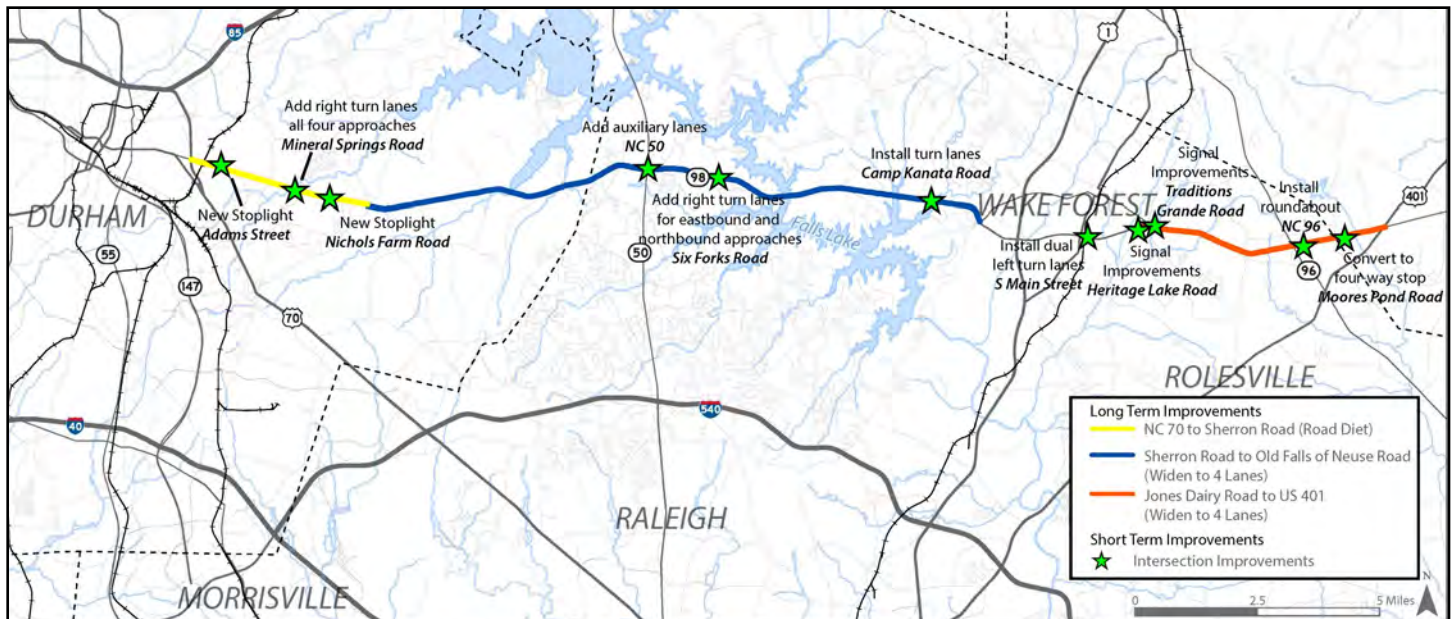
PROJECT UPDATE:

The first phase of public engagement was conducted in spring 2017. During that period the Project Team solicited public input to develop the priorities and vision for the N.C. 98 corridor. After reviewing forecasted traffic for the corridor, the Project Team identified short-term and long-term improvements.
(see back)

PROJECT UPDATE:

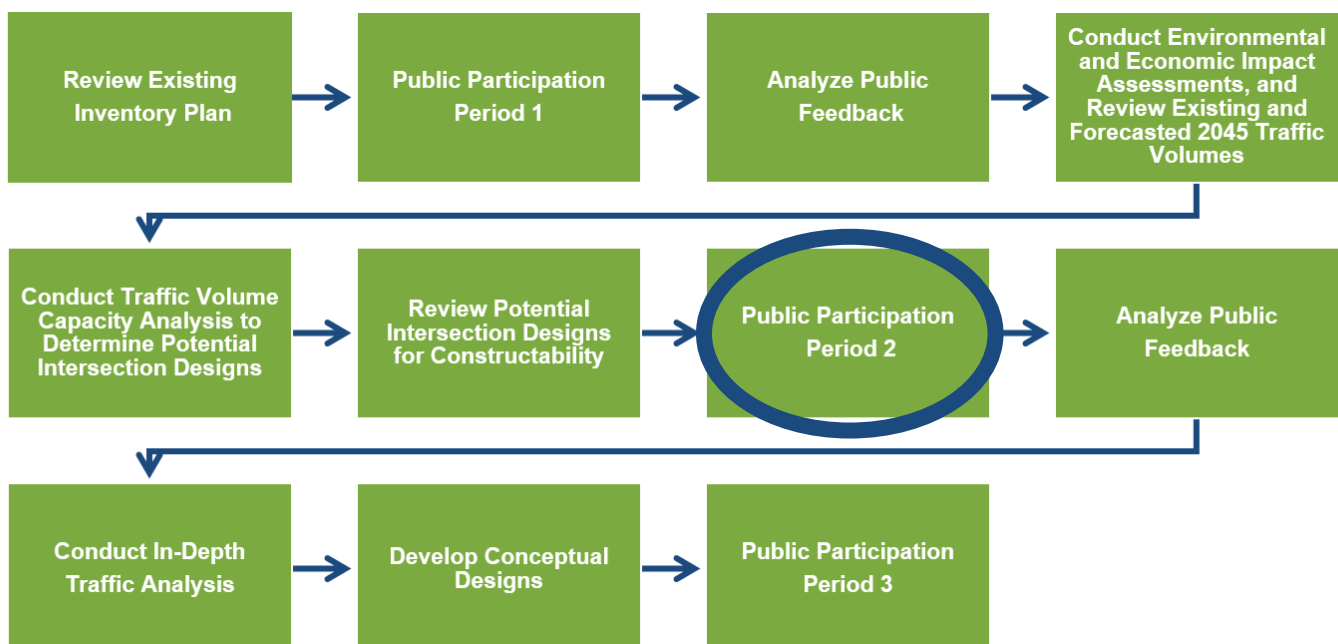
The stars on the map below represent improvements that may be implemented in the near future. The short-term improvements are temporary solutions to reduce congestion until the long-term improvements can be analyzed in a separate study and undergo the project planning process. The long-term projects include widening NC 98 between Sherron Road and Old Falls Neuse Road, and Jones Dairy Road to US 401. Widening the corridor more than four lanes is not warranted; however, the intersections will be redesigned to optimize the flow of traffic. Several intersection treatments are being evaluated that would improve traffic flow throughout the corridor.

The alternative intersection treatments are on the map displays. These areas will need to go through the formal project process to determine feasibility and construction year.



**Road Diet is dependent on Sherron Road being widened to 4 lanes and the Northern Durham Parkway being built.*

PROJECT PROCESS & NEXT STEPS:



N.C. 98 Corridor Study September 2017

Name	Organization	E-mail
Tim Durr		timdurr@gmail.com
Paul Buckle	CAMPO	paul.buckle@campo-nc.us
Mary Jo VanHorne		maryjo1981@yahoo.com
NED JONES		EMT.TROUT@GMAIL.COM
Dennis KingBells		DkingBells@GMAIL.COM
Barry Borgerson		Carol@CompleteLeadership.com
Bill Klepfer		Bill.Klepfer@yahoo.com
Joe Seygert		Jseygert319@gmail.com
Bob Cozzetta		bobcozzetta@gmail.com

N.C. 98 Corridor Study

September 2017

Name	Organization	E-mail
Virginia H. Jones	Town of Wake Forest	vjones@wakeforestnc.gov
James Gregg		jgregg10@yahoo.com
Joe John	NC GA	Joe.John@ncleg.net
Tim Johnson		
CHICK LUKASOVA	CAMPO	
Michelle Michael	TRJF	mmichael@wakeforestnc.gov
Timmy Baynes		tbaynes73@icloud.com
Mark Juszczak	WF Planning Bd	mruszcz@btrmail.com
Brendie Vega	WF	bvega@wakeforestnc.gov

N.C. 98 Corridor Study September 2017

Name	Organization	E-mail
Paul May		ptmay.nc@gmail.com
Kevin Lord & Ginny Esda		ltensden.kl@ncrr.com
Bonnie A Parkes	CAMPO	bonnie.parkes@camponc.us
WILLY LARSEN		Willy.larsen@gmail.com
John & Kathy McDermott		Johnesax@gmail.com
Chip Russell	WFF	crussell@wakeforestnc.gov
Katherine Seligman		klabobrt@earthlink.net
Brian Hamlin		Brian.Hamlin@gmail.com
James Holding		jholding42@gmail.com
Kevin Maddox	WFF	kmaddox1@ncrr.com

N.C. 98 Corridor Study September 2017

Name	Organization	E-mail
Margaret Stewart	Jean	
Don Klebber		donklebber1@yahoo.com
Liz Simper	YMCA	LSimper@gmail.com
Dorel Telesci	WPGarage	cutpeltscia@aol.com
Bruce Matheny		bruce_matheny@yahoo.com

N.C. 98 Corridor Study September 2017

Name	Organization	E-mail
Pam Andrews		Pamelaandrews3@gmail.com
Char Canten	Resident	Char621@gmail.com
Mike Andrews	Resident	m.andrews@durhamshc.org
Michael Andrews		ddetb3@aol.com
CHARLES CLIFTON		ccclifton919@gmail.com
Barbara Brown		
Esteban Bortini	Durham BPAC	ebortini@gmail.com



N.C. 98 Corridor Study
September 2017

Name	Organization	E-mail
Andy Henry Durham Resident	DeHe MPO	andrew.henry@durhamnc.gov

Photographs taken at this meeting may be used in project documentation and to publicize future meetings.

N.C. 98 Corridor Study

September 2017

Name	Organization	E-mail
Millard Page	private	lamil2 @frontier
Tim Durr		timdurr@gmail.com
David Martin		dmartin717@gmail.com
Bright & Debbie Waters		bwalters56@yahoo.com
Robert Jones		jones Robert 715@yahoo.com
Stephanie Leffin		Sr15tan@hotmail.com
CHARRA MICHAEL MATH		math.clare@gmail.com
Sigmar Speck		SSP5724@gmail.com
Wynne Webb		WBS14K@mac.com

N.C. 98 Corridor Study

September 2017

Name	Organization	E-mail
WALTER Alan Tuttle	resident	walantuttle@gmail.com
Tyler Waugn	resident	twaugn@gmail.com
Mike Tenser	resident	miket4295@gmail.com
Stephen S. Hanna	"	jsh4845@yahoo.com
Dale McKeel	City of Durham	dale.mckeel@durhamnc.gov
Mary Kate Merrokian	GoTriangle	mmerokian@gotriangle.org
Robt John	Resident	
Regina Creuse	Resident	Regina.Creus@gmail.com
Gerard Dudaish	Resident	jdudaish@msn.com



Please fill out the information below and submit to the project team. This information is for reporting purposes only.

If you need to return this form later, please email or mail it **before April 30, 2018** to: Will Letchworth, PE, 434 Fayetteville Street, Suite 1500, Raleigh, NC 27601 or by email: will.letchworth@wsp.com.

Name: _____ **Home** Zip Code: _____

Email: _____ **Work** Zip Code: _____

1. How did you hear about this workshop?

- ☐ Email ☐ Newspaper/Radio/TV ☐ Project Website
☐ Social Media ☐ Nextdoor Website ☐ Other: _____

2. How often do you travel on N.C. 98?

- ☐ Daily ☐ Five days a week ☐ Once a week
☐ A few times a month ☐ A few times a year ☐ Prefer not to answer

3. Did you attend or participate during the September 2017 public participation period for this project?

- ☐ YES ☐ NO

4. After reviewing the project material please let us know if you have any comments, questions, or concerns in the space below.

In accordance with Title VI of the Civil Rights Act of 1964 and related authorities, no person(s) shall be excluded from participation in, denied the benefits of, or subjected to discrimination under any of the Capital Area Metropolitan Planning Organization's (CAMPO) and/or Durham—Chapel Hill—Carrboro (DCHC) MPO's programs, policies, or activities, based on their race, color, national origin, disability, age, income, or gender.

Completing this information helps meet data collection and public involvement obligations under Title VI and NEPA, and will improve how we serve the public.

Gender:

☐ Female ☐ Male

Have a Disability?

☐ Yes ☐ No

National Origin: (if born outside the U.S.)

☐ Mexican ☐ Central American
☐ South American ☐ Puerto Rican
☐ Chinese ☐ Vietnamese
☐ Korean ☐ Other: _____

Race/Ethnicity:

☐ White ☐ Black/African American
☐ Asian ☐ Hispanic/Latino
☐ Native Hawaiian/
Pacific Islander ☐ American Indian/
Alaskan Native
☐ Other: _____

Total Household Income:

☐ Less than \$12,000 ☐ \$12,000—\$19,999 ☐ \$20,000—\$30,999
☐ \$31,000—\$46,999 ☐ \$47,000—\$69,999 ☐ \$70,000—\$93,999
☐ \$94,000—\$117,999 ☐ \$118,000 or greater

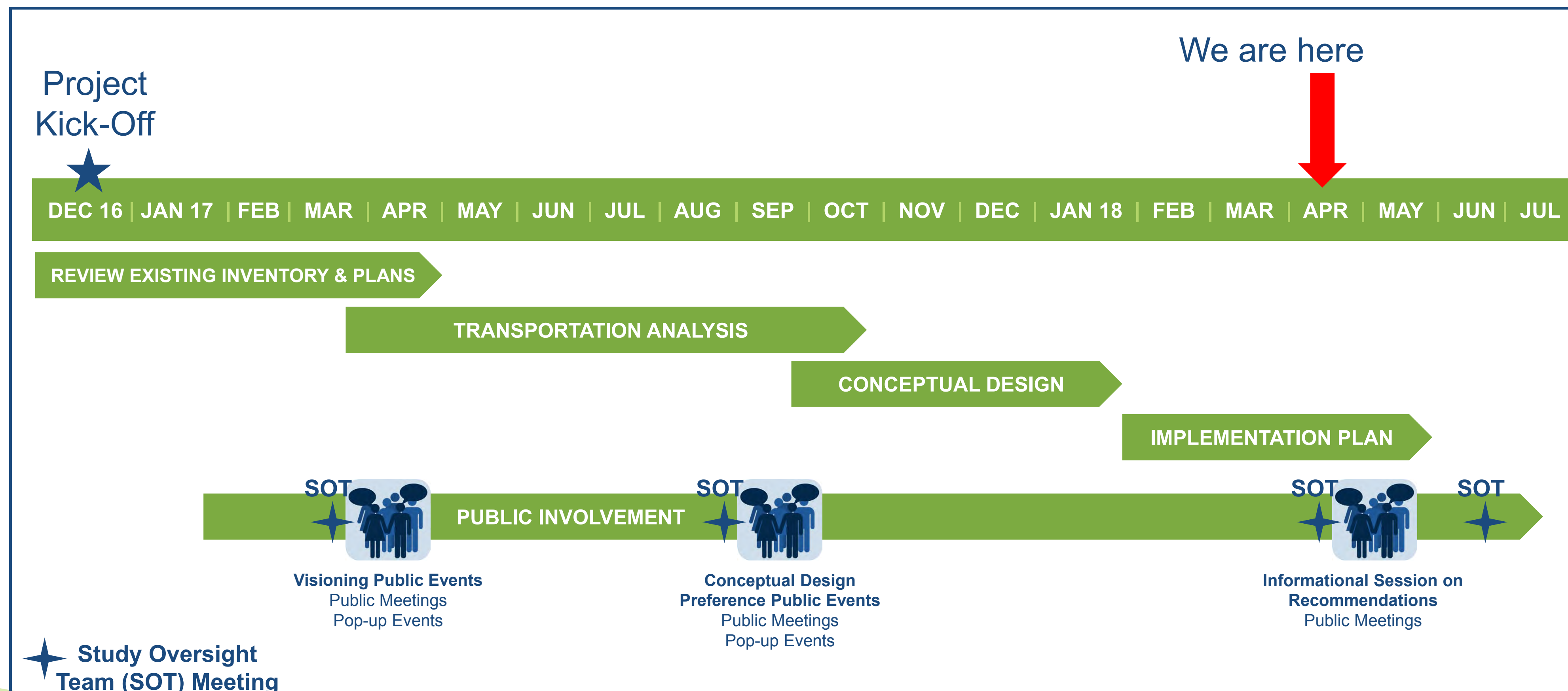
Age:

☐ Less than 18 ☐ 18-29 ☐ 30-44 ☐ 45-64 ☐ 65 & older

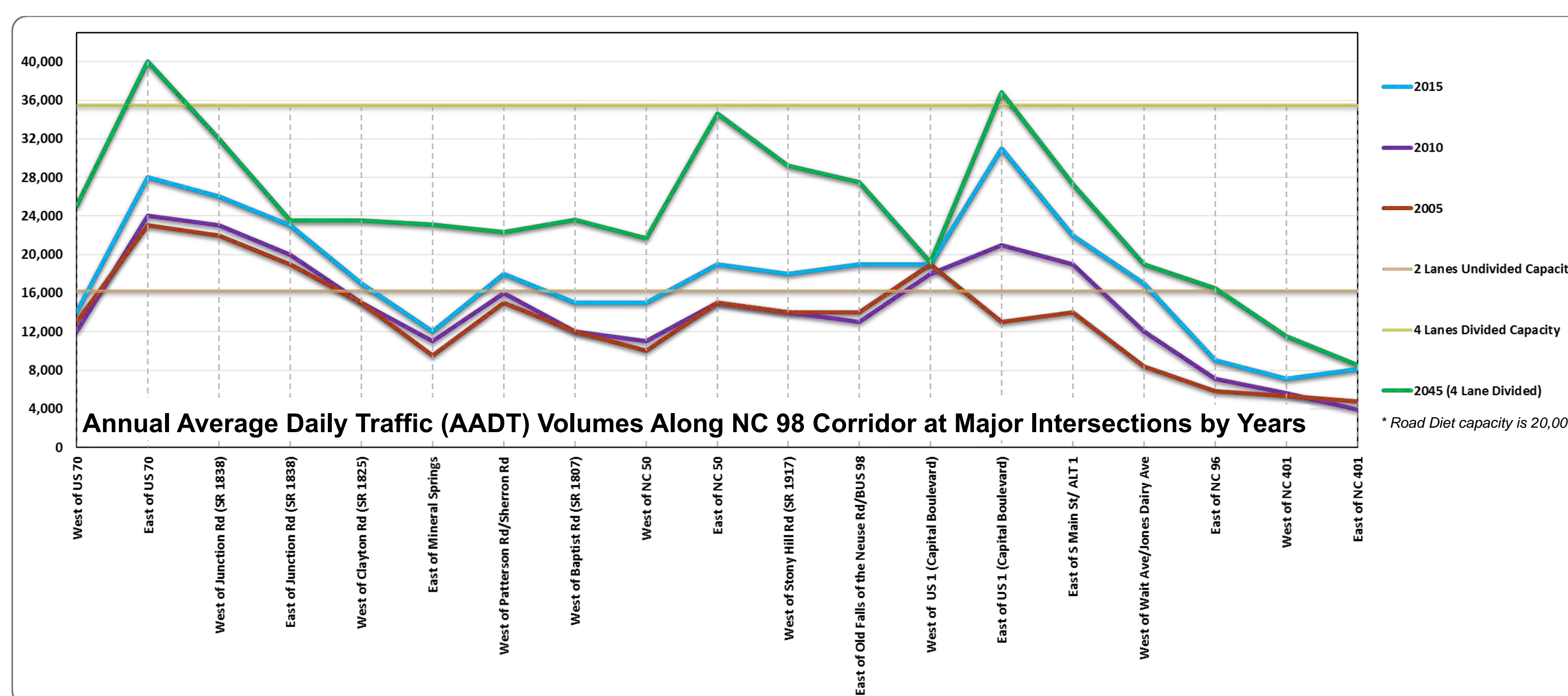
	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Informational boards provided the appropriate project information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you feel public input was incorporated into proposed improvements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I left the meeting informed about the N.C. 98 Corridor Study.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for your participation! Visit the website, www.NC98corridor.com for more information on this project.

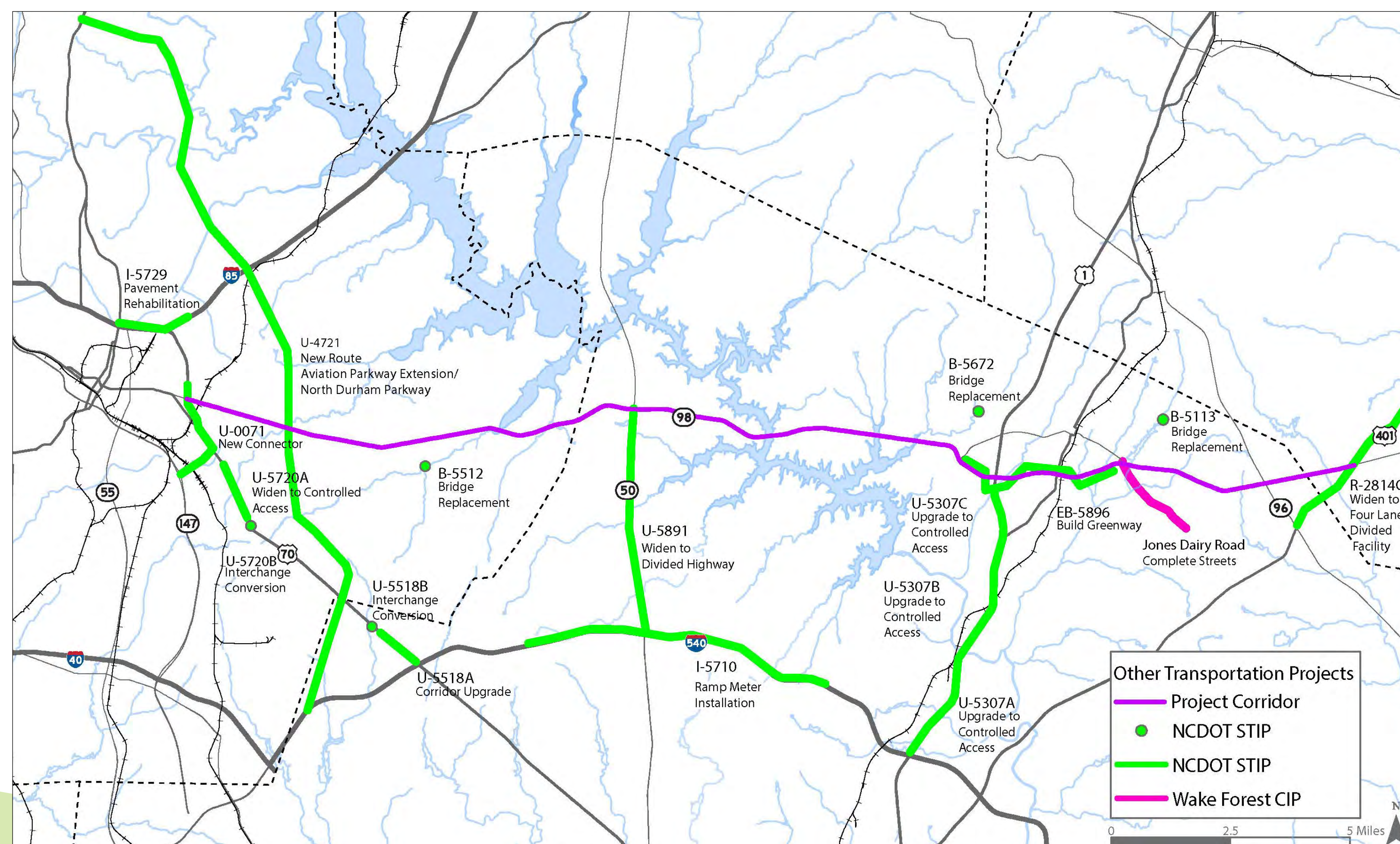
N.C. 98 STUDY SCHEDULE



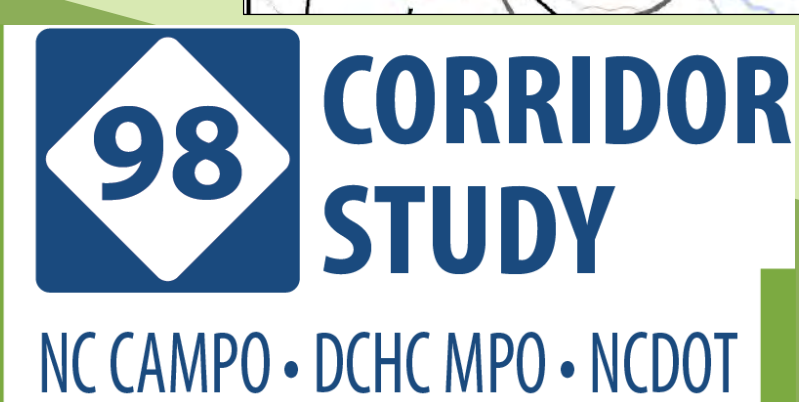
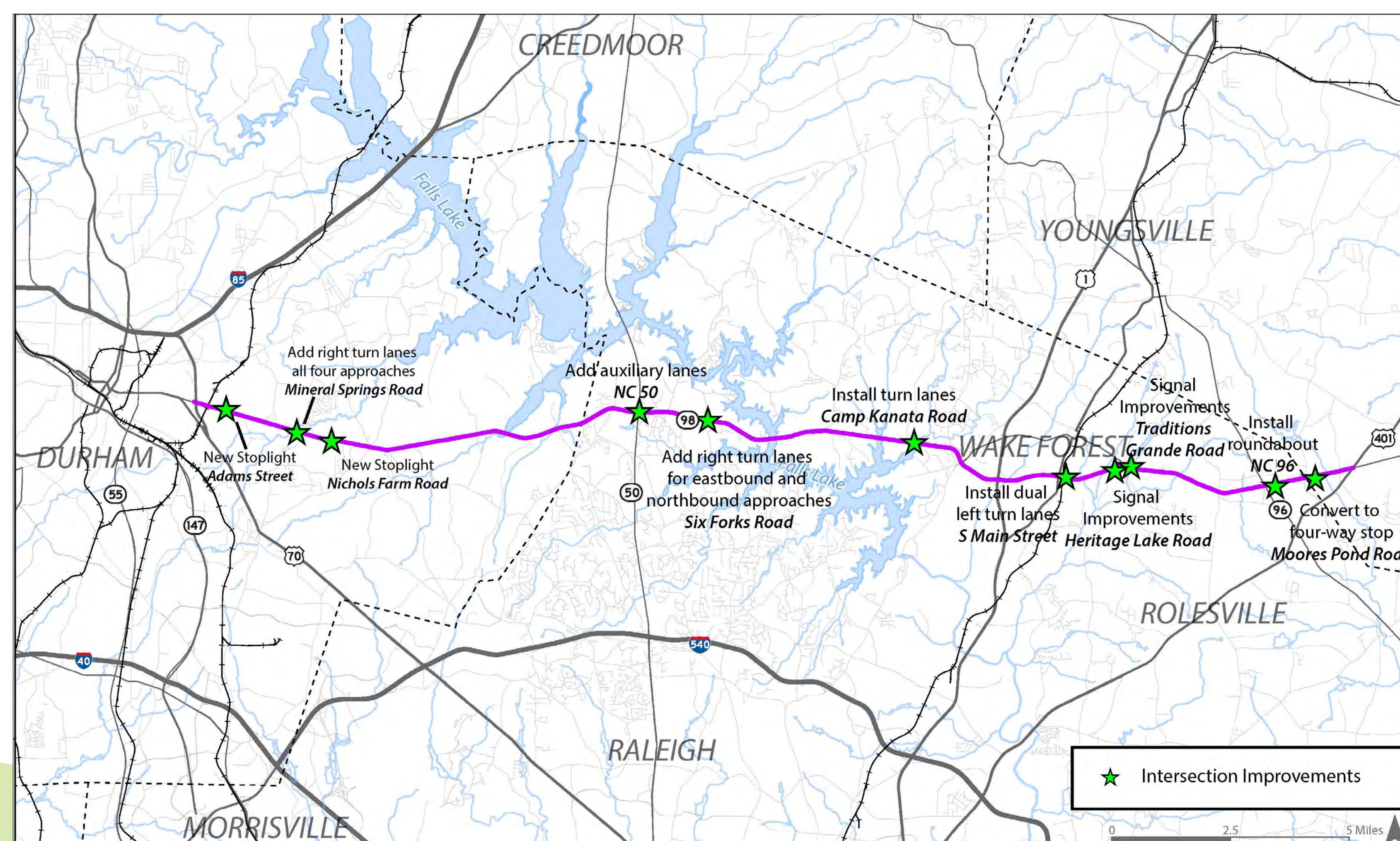
TRAFFIC ANALYSIS



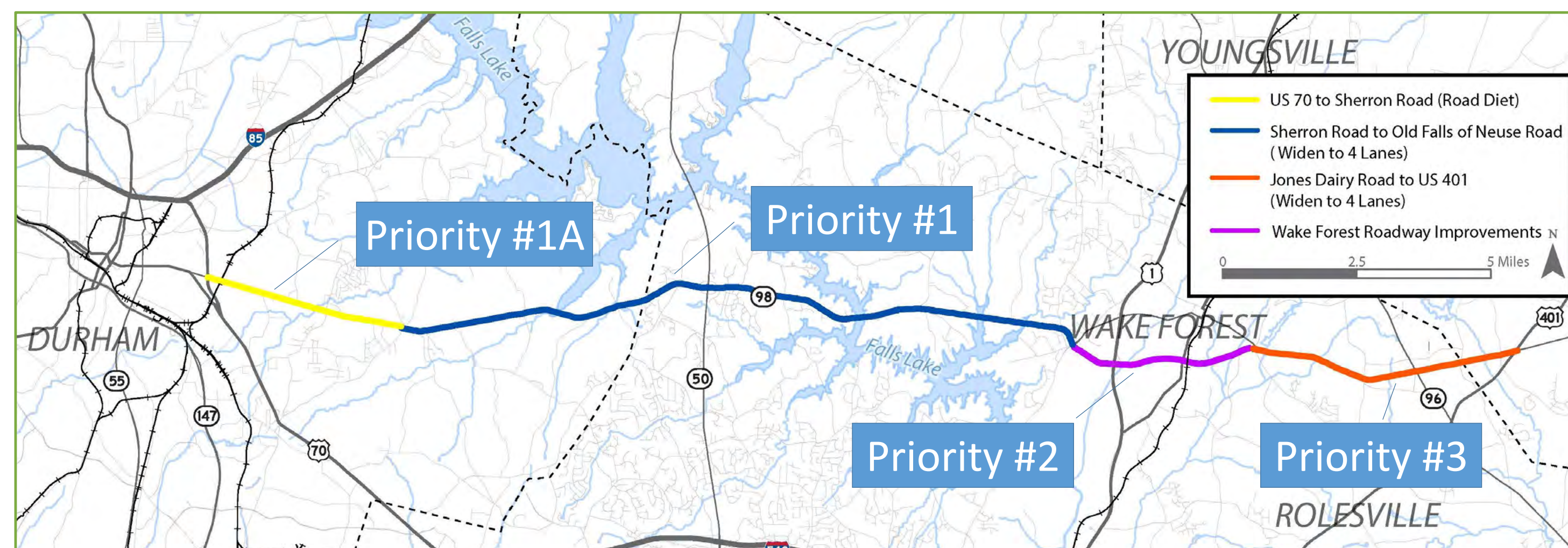
AREA PROJECTS ALONG NC 98



SHORT-TERM IMPROVEMENTS



LONG-TERM IMPROVEMENTS



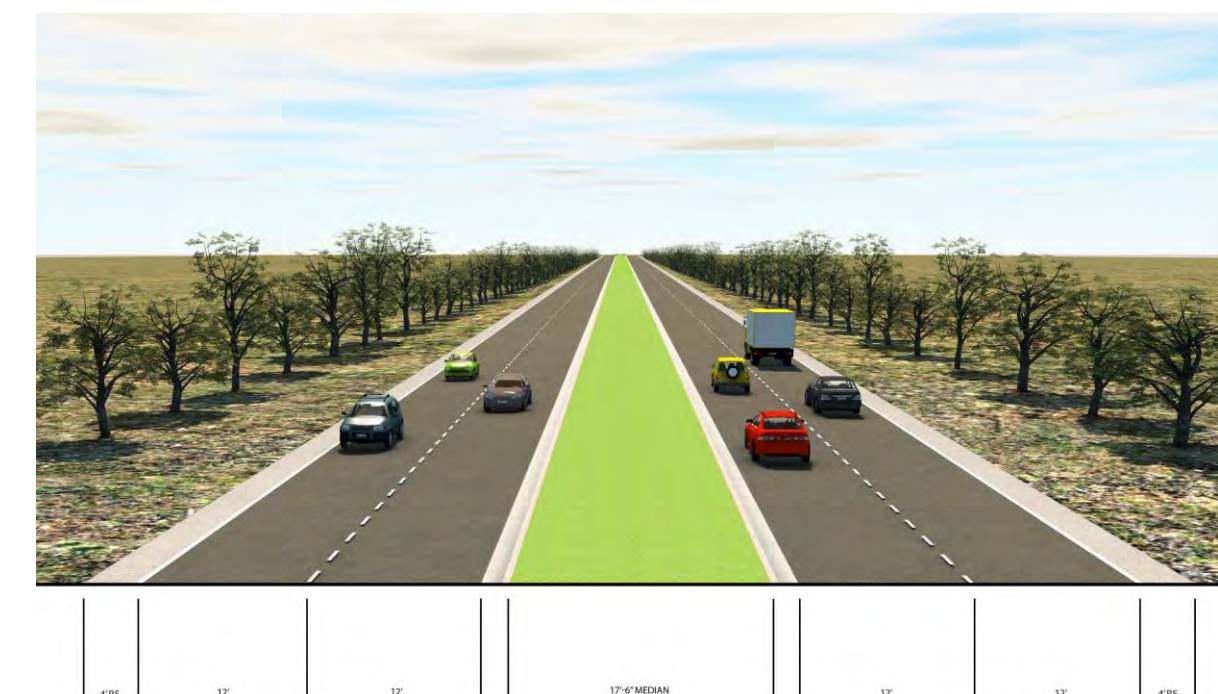
Road Diet – Potential Cross Section



Junction to Sherron – Widening Alternative

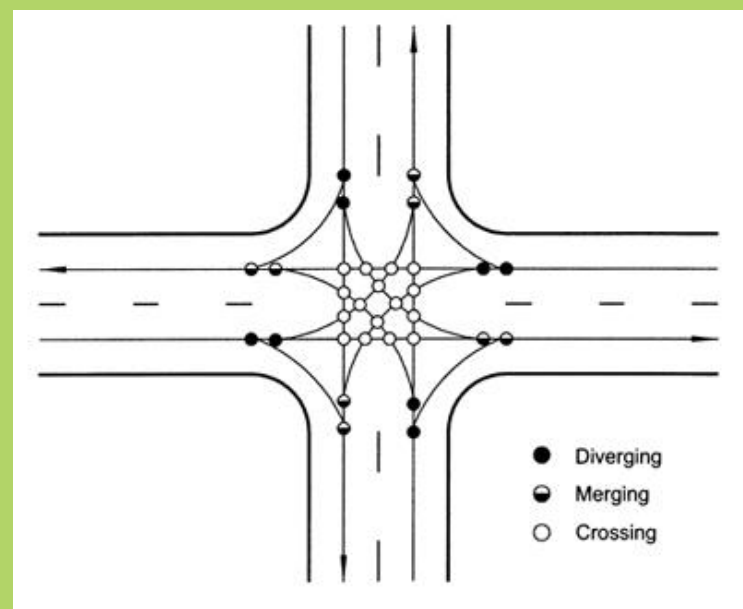
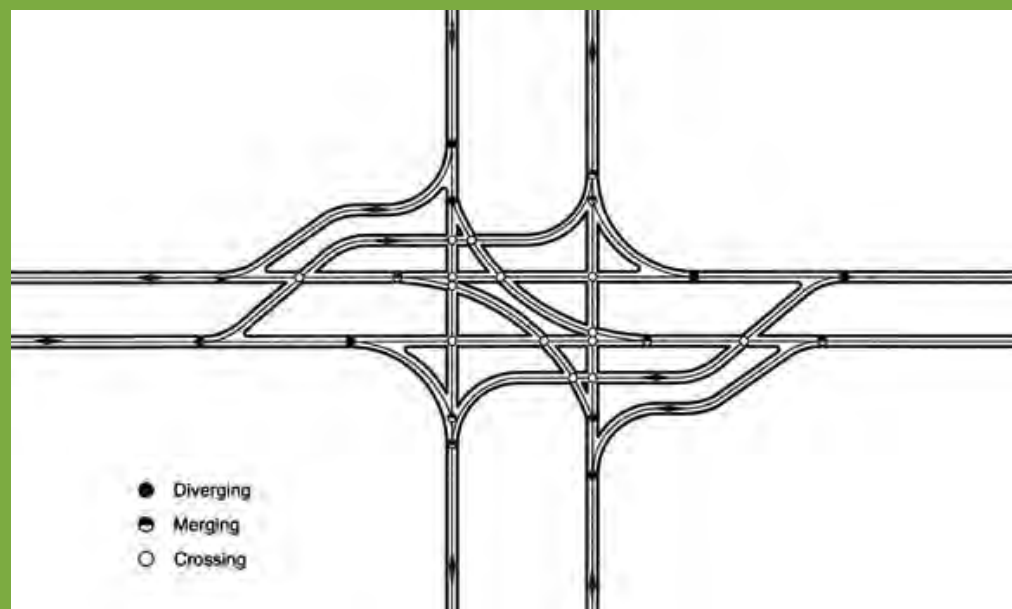
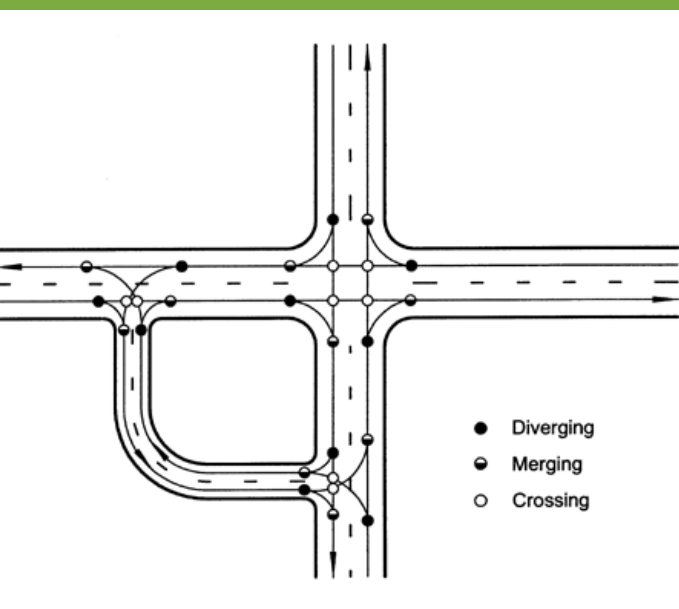
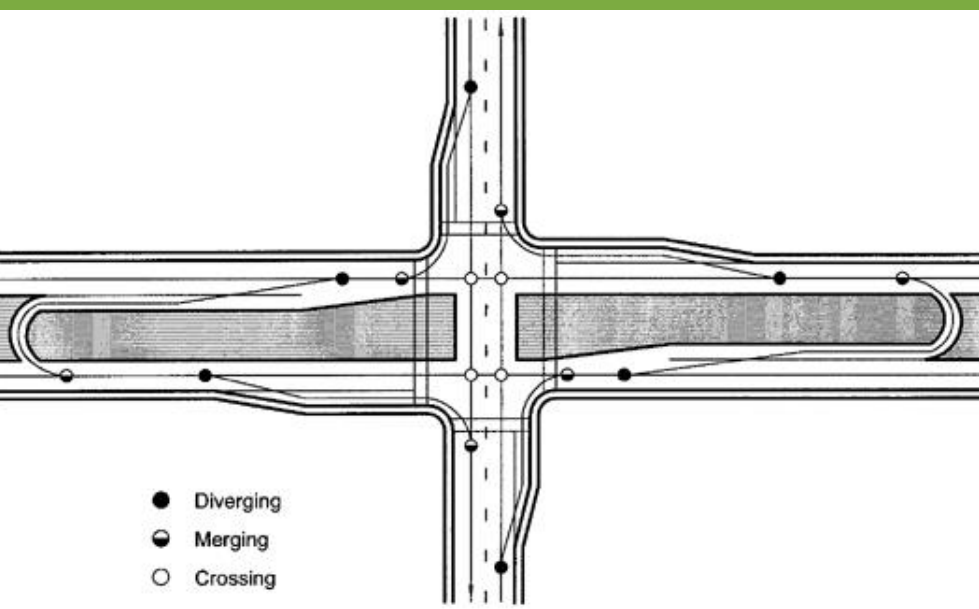


4 Lane Widening – Potential Cross Section



INTERSECTION TREATMENTS

INTERSECTION CONFLICT POINTS

				
	Traditional Intersection	Continuous Flow Intersection	Quadrant Intersection	Median U-turn
Total Conflict Points	32	30	28	16

Indirect Left-Turn Treatments:

- Remove the left-turning vehicles from the flow of traffic without causing them to stop in a through-traffic lane (as a traditional intersection may)
- Improve safety by reducing the number of conflict points as shown above
- Reduce the number of signal phases to provide more green time for traffic
- Increase capacity



POTENTIAL FUNDING SOURCES

NCDOT Transportation Improvement Program	Other NCDOT Funds	MPO Local Project Funds	Municipal Funds	Grants	Developer
<ul style="list-style-type: none">• Sherron Road to Old Falls of Neuse Widening• Old Falls of Neuse Road to Jones Dairy Road Intersection Upgrades• Jones Dairy Road to US 401 Widening• Sherron Road Widening NC 98 to US 70 (needed for road diet)• Northern Durham Parkway NC 98 to US 70 (needed for road diet)	<ul style="list-style-type: none">• Left turn lanes at Camp Kanata• Left turn lanes at Six Forks Road• Turn lanes at Mineral Springs Road• Traffic signal at Adams Street• Auxiliary Lanes on NC 98 at NC 50	<ul style="list-style-type: none">• Oak Grove Elementary School Sidewalk Gap• Sherron Road to Neal Middle School Multi-use Path• Intersection improvements at S. Main Street• Intersection improvements at Jones Dairy Road and Traditions Grande• Intersection improvements at Old falls of Neuse Road• Turn lanes at Six Forks Road	<ul style="list-style-type: none">• US 70 to Sherron Road road diet• Signal improvements at Heritage Lake Road and Traditions Grande• Pedestrian bridge over NC 98• Sidewalk improvements from US 70 to Sherron Road• Transit stop improvements	<ul style="list-style-type: none">• Pedestrian bridge over NC 98• Sidewalk improvements from US 70 to Sherron Road• Transit stop improvements	<ul style="list-style-type: none">• Quadrant Roadway at Sherron Road• Turn lanes at Camp Kanata Road• Intersection improvements from Old Falls of Neuse Road to Jones Dairy Road• Friendship Chapel Road extension

* Projects may be funded via a variety of sources and/or led by varying agencies



UPCOMING PUBLIC MEETINGS:

Wake County Location:

Thursday, April 12, 2018

5:00—7:00 p.m.

Wake Forest College Birthplace

405 N Main St

Wake Forest, NC 27587

Durham County Location:

Monday, April 16, 2018

5:00—7:00 p.m.

Durham County Library

211 Lick Creek Lane

Durham, NC 27703

Project Website: www.nc98corridor.com

Follow **CAMPO** & **DCHC** on social media

#NC98study

Project Manager: Will Letchworth, PE
WSP

Phone: 984-269-4652

Email: will.letchworth@wsp.com

PROJECT DESCRIPTION:

Together, the Capital Area Metropolitan Planning Agency (CAMPO), the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC MPO), and the North Carolina Department of Transportation (NCDOT) are studying the N.C. 98 corridor from U.S. 70 in Durham County through Wake County to U.S. 401 in Franklin County, North Carolina.

This study will evaluate the safety and mobility, planned and existing roads, bicycle/pedestrian facilities and transit uses of N.C. 98. The study limits will be approximately a quarter mile (1/4) on either side of the 27-mile section of N.C. 98.



A corridor study is the first step in planning for the future of a transportation facility. By defining the corridor's needs, the corridor plan will help focus planning efforts on the most significant problems and act as catalyst for discussion about how best to invest in the corridor.

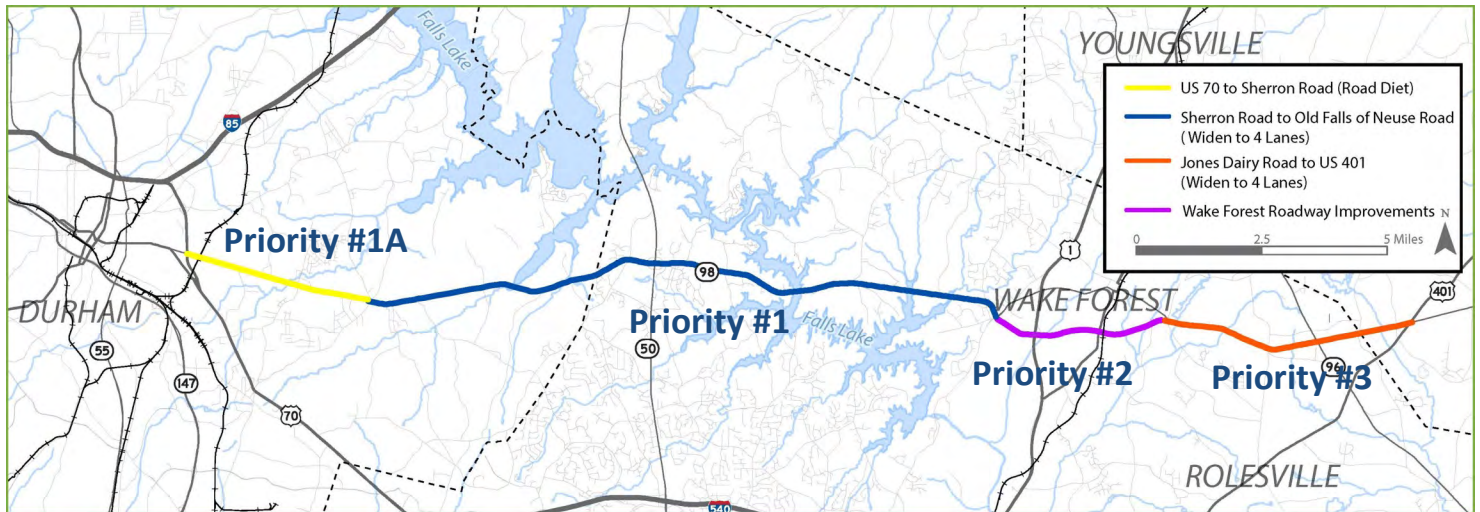
PROJECT UPDATE:

The first and second phases of public engagement were conducted in spring 2017 and fall 2017. During those periods the Project Team solicited public input to develop the priorities and vision for the N.C. 98 corridor. After reviewing forecasted traffic for the corridor, the Project Team identified short-term and long-term improvements.

(see back)

PROJECT UPDATE:

The map below represents long-term improvements. The long-term projects include widening NC 98 between Sherron Road and Old Falls Neuse Road, and Jones Dairy Road to US 401. Widening the corridor more than four lanes is not warranted; however, the intersections will be redesigned to optimize the flow of traffic. Several intersection treatments are being evaluated that would improve traffic flow throughout the corridor.



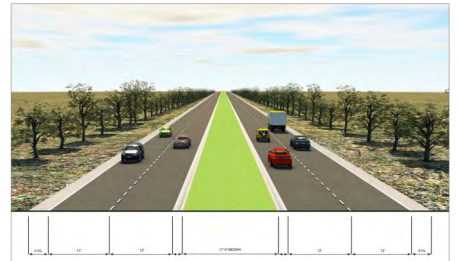
Road Diet – Potential Cross Section



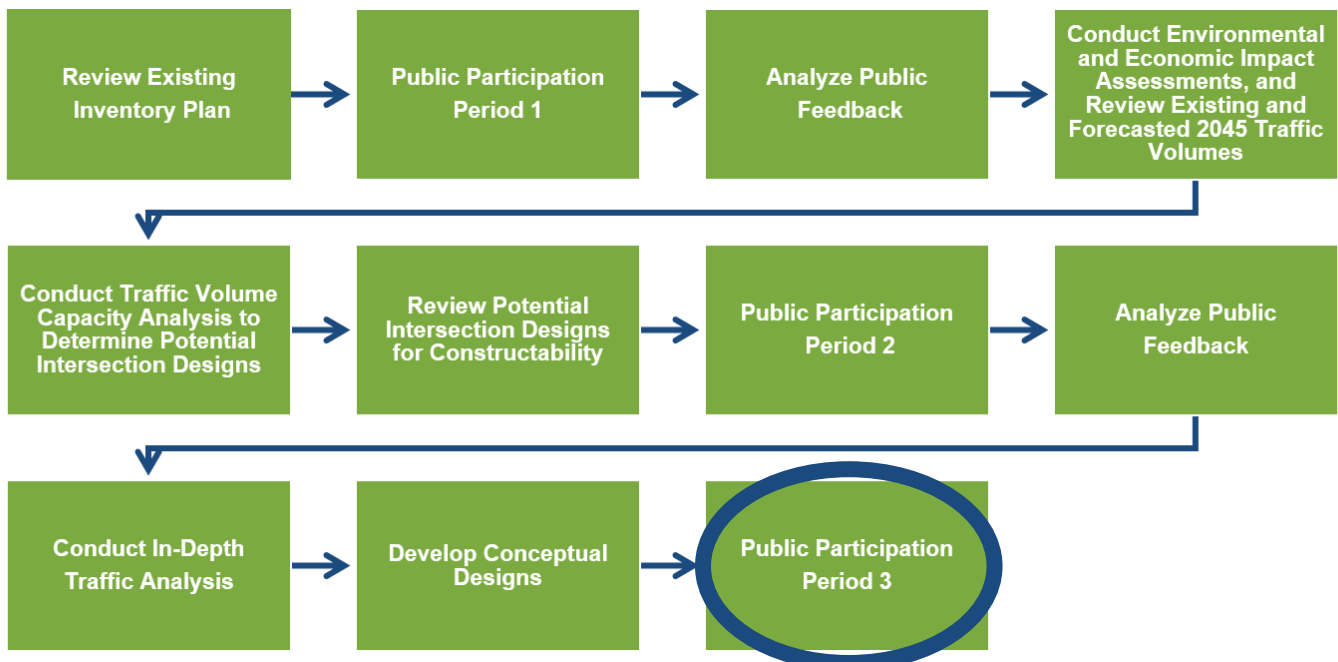
Junction to Sherron – Widening Alternative



4 Lane Widening – Potential Cross Section



PROJECT PROCESS & NEXT STEPS:



**N.C. 98 Corridor Study
April 2018**

WF 4/12/18

Name	Organization	E-mail
Tom Shinson		TomShinson@nc.rr.com
Chris Stark		dopey@nc.rr.com
James Gregg		jgregg10@yahoo.com
Delbert & Nikki Rutherford		delrutherford1@gmail.com
Paul May		ptmay.nc@gmail.com
DC MATHENY		durwardmatheny@embarqmail.com
Mark McIlroy		mancculley@yahoo.com
David Leane	The Wake Weekly	DAVID@WAKEWEEKLY.COM
Mart Patterson	—	MartPatt@embarqmail.com

Name	Organization	E-mail
Rebecca Holt	Resident	rholt38@gmail.com
Jetske Insinger	SAB	Jetske@swbell.net
Fred Seymour		FredL.Seymour@gmail
Colleen Thomas Shaupe	residents	shaupecm@aollink.net
Lynn Bruce	Residents	lcbuce@icloud.com
GIRARD + SANDRA HUNT	RESIDENT	sandyf1960@msn.com
Ken Krause	Resident	KKrause512@gmail.com
Blake & Kim Hauw	Resident	spangler.kim@gmail.com
Sue Anaglo	Resident	sas377@gmail.com



3^{IF} 4/12/18

[illegible]

Name	Organization	E-mail
Leann Parsons		Parsons0621@gmail.com
Martha Weston		Paddyseptime@comcast.net
John Hearn		jhearn1000@gmail.com
Paul Duchamp		PA DUCHAMP@gmail.com
Doug Kappeler		doug0227@gmail.com
Blair Thomas		
Vivian Jones	Town of Gulf	mayer@wakeforestnc.gov
Chip Russell	TOWF	crussell@wakeforestnc.gov
ANITA GALANTE		AKYMBATOF2228@MSN.COM



N.C. 98 Corridor Study
April 2018

43

12/18

[illegible]



Durham
4/16/18

[illegible]

N.C. 98 Corridor Study April 2018

Durham
4/16/18

Name	Organization	E-mail
Geoffrey Phillippe	Homeowner	Geoffrey.Phillippe@gmail.com
Monica Long	Homeowner	mlong321@yahoo.com
Sybil Foster	Homeowner	—
Zack Hawkins	HP31	zack@zackhawkinsnc.com

N.C. 98 Corridor Study
April 2018

Durham
4/16/18

Name	Organization	E-mail
Sherry Smith	Grove Park HOA	nesassy50@yahoo.com
Derek Blegberg	Grove Park	—
CHARLES CLIFTON	HOMEOWNER	ccclifton919@gmail.com
Mark Moore	Home owner	—
Jerry W Sneed	homeowner	whitmore8@hotmail.com
VICKIE KING	Homeowner	—
Torison Webson		twwebsm@yahoo.com
Versal Mason	Homeowner	VersalMason@aol.com
Russ Florack	Homeowner	Russ.Florack@gmail.com
Marcus Patterson		Marcus P 413 AGmail

N.C. 98 Corridor Study April 2018

Durham
4/16/18

Name	Organization	E-mail
Angele Everhart	Resident	aeeverhart@nc.rr.com
THOMAS E SNYDER	RESIDENT	tom.snyder1@gmail.com
Ken Everhart	Resident	mke@nc.rr.com
Lisa Matthews	Resident	lismatthews@yahoo.com
Phyllis Snow	✓	phyllis.snow42@yahoo.com
DAVIDAS SOLOMON	RESIDENT	DASOLOMON@X.NDSPRING.COM
Darren Friedlen	resident	darren@dga.com
Carl + Barbara Lowe	Resident	Blowe33750@aol.com
Barbara Brown	Resident	browntrustme@aol.com

N.C. 98 Corridor Study April 2018

Durham
4/16/18

Name	Organization	E-mail
Pat Carrington		
Phyllis Wiley		
Sheryl Andrews-Michael		beachlover0804@gmail.com
Jeanne Anderson		
Arnon Gm	DCHC MPO	ARNON.GM@DURHAM.NC.GOV
Mike & Marilyn Poole	DmBC	
DAVID SUNDGREN		DAVIDS@NEIGHBORS.ORG
Q.E. Zabel		
Longest, Yvette	Grove Park Resident	greenteam@nc.rr.com

N.C. 98 Corridor Study April 2018

Durham
4/16/18

Name	Organization	E-mail
Rebecca Belcastro	Home Owner	h2of12@gmail.com
Phil Martin	" "	
Herbert Snow		
Andy Henry	WCTC MPO	
Richard O'Donnell	Homeowner	richodsplace@gmail.com
Lem Hubbard	Home Owner	lem.hubbard@gmail.com
DONNA HOSCH	" "	DONNAHOSCH@GMAIL.COM
Catherine Foss	" /computer	cfoss@att.net
Rob Fish	Homeowner	ROBERT R FISH@Gmail
Antrell Kert	Home owner	ladytrell@hotmail.com

Agency Public Information Officer List

AGENCY	CONTACT NAME	POSITION	EMAIL	PHONE
Durham County	Deborah Craig-Ray	Public Information Office	PublicInformationOffice@dconc.gov	919-560-0000
Durham County	Briana Khan	Public Information Specialist	blaneuville@dconc.gov	919-560-0003
City of Durham	Amy Blalock	Senior Public Affairs Specialist	amy.blalock@durhamnc.gov	
City of Durham	Lynwood Best	Community Engagement Manager	lynwood.best@durhamnc.gov	919-560-1647
Greater Durham Chamber of Commerce	Mrya Wooten	Director of Public Relations & Communications	mwooten@durhamchamber.org	919.328.8722
Go Durham				
Wake County	Dara Demi	Communications Director	Dara.Demi@wakegov.com	919-856-7547
City of Raleigh Chamber of Commerce	Vernessa Roberts	VP of Communications	vroberts@raleighchamber.org	919-664-7080
Go Raleigh			goraleigh@raleighnc.gov	
Go Triangle	Juan Carlos Erickson	Community Engagement Manager	jerickson@gotriangle.org	919-485-7569
Research Triangle Park	Michael Pittman	VP of Marketing & Communications	pittman@rtp.org	919-654-1708
Town of Wake Forest	Bill Crabtree	Communications & Public Affairs Director	bcrabtree@wakeforestnc.gov	919-435-9421
Wake Forest Area Chamber of Commerce	Neosha Smith	Communications Director		
Wake Forest Downtown Inc.			Communications@WakeForestDowntown.com	
Franklin County	Angela Harris	County Manager	alharris@franklincountync.us	

Franklin Chamber of Commerce	Cindy Cavender	Special Events/Marketing Director	Cindy@www.franklin-chamber.com
Triangle J COG	Alana Keegan	Engagement Specialist	akeegan@tjcog.org
Town of Rolesville	Bryan Hicks	Town Manager	bryan.hicks@rolesville.nc.gov
Hispanic Chamber of Commerce			info@nchispanicchamber.org
Research Triangle E-blast	Lisa Jemison	Director of Company & University Engagement	jemison@rtp.org

Media Contact List

ORGANIZATION	CONTACT NAME	EMAIL
ABC 11 Raleigh/Durham		news@abc11.com
CBS NC		newstips@wncn.com
WRAL		sent via website
Herald Sun		news@heraldsun.com
The News & Observer	Madison Iszler	miszler@newsobserver.com
The Wake Weekly	David Leone	david@wakeweekly.com
The Wake Weekly	Todd Allen	todd@wakeweekly.com
Que Pasa		kneyra@quepasamedia.com

#	Status	Sub- mission Date	First Name	Last Name	Agency/ Affiliation/ Business	Zip Code	Email Address	Submission Content/ Notes	Submission Method	Referral Source
1	No Action Required	2/24/17	Shelby	Powell	CAMPO	27601	shelby.powell@campo-nc.us		Website	Other
2	No Action Required	3/8/17		Rubrecht			rubrechtg@pbworld.com		Email	
3	Unread	3/9/17	Sarah	Woodring	Ms.	27705	sringwood@yahoo.com	There is a real need for sidewalks on the Western section of 98 within the Durham city limits.- there are lots of 'goat paths' where people are trying to navigate with no side walks in the more heavily populated areas.I would love be able to bike from Durham to Wake Forest, or places in between, but the road is not conducive for this right now.	Website	Email
4	Unread	3/10/17	Scott	Blum	none	27587	scott.c.blum@abc.com	Please, Please widen Route 98 between WF and Durham. I live in WF, work in Durham and travel 98 each day for twelve years. The route needs to be widened ASAP. I see more congestion and wrecks every month. it is quickly approaching unpassable many days due to over crowding of cars. if should have been done five years ago.	Website	Social Media
5	Unread	3/10/17	Branson	Speakman	Ethan's Glen	27614	Branson.speakman@abbott.com	I do not want to see hwy98 widened. This is only going to add to more traffic, more congestion and more noise for the surrounding neighborhoods. Everyone moved up into this area to avoid this exact scenario. I understand with growth things change, but I would rather see us look at other means to improve the flow of traffic, more turning lanes, lights, etc., versus just widening the road. The only time it presents a problem is morning and afternoon rush hour.	Website	Social Media
6	Unread	3/10/17	Shana	Fore		27587	shfore@gmail.com		Website	Other
7	No Action Required	3/10/17	Brian	Dallas		27587	dogtrainer67@gmail.com		Website	Social Media
8	No Action Required	3/10/17	Dana	Peles		27587	dpeles11@gmail.com		Website	Social Media
9	No Action Required	3/10/17	Janice	Maddox		27587	jmaddox1@nc.rr.com	So much growth in the area it definitely needs 4 lanes, turnouts and turn arounds so flow of traffic is not compromised by folks pulling out of subdivisions and/ or traffic signals to get them out.	Website	Social Media
10	No Action Required	3/10/17	Linda	Woodall		27614	lwoodall321@gmail.com	Would like updates on 98	Website	Social Media

11	No Action Required	3/10/17	Rick	Carnagey		27587	carnagey@yahoo.com	Camp Kanata road is in dire need of a left turn lane from Hwy 98. It is the most dangerous part of 98. Lives will be lost there, it's just a matter of time. Something needs to be done ASAP there.	Website	Word of Mouth
12	No Action Required	3/10/17	Sheryl	Michael	Land Owner	27587	beachlover0804@gmail.com		Website	Other
13	No Action Required	3/10/17	Brad	Mastillone		27587	Bmastillone@nc.rr.com		Website	Social Media
14	No Action Required	3/10/17	Karen	Hyman		27587	karen_hyman@yahoo.com		Website	Social Media
15	No Action Required	3/10/17	William	Davis		27587	Wdavis026@gmail.com		Website	Social Media
16	No Action Required	3/10/17	Debbie	Dunn		27587	debbiekdunn@gmail.com		Website	Social Media
17	No Action Required	3/11/17		Rhodes		27614	br914914@gmail.com		Website	Social Media
18	No Action Required	3/11/17	Martin	playford		27614	martin_playford@hotmail.com	Thanks for keeping us informed with this project.	Website	Word of Mouth
19	No Action Required	3/11/17	Jason	Waterstradt		27703	Jasonwaterstradt@gmail.com		Website	Social Media
20	Unread	3/11/17	James	Simone		27587	windheavennights@aol.com	The NC 98 RT really needs to be expanded from 2 lanes to 4 lanes (2 on each side). I have taken the route from WF to RTP in the morning and it is pretty much a dead stop in the morning. A drive which should take 25 minutes took me about an hour. Most of the time I was just idling in the road, waiting for traffic to slowly move. By expanding the road to 4 lanes, this would remedy the situation. ALSO! Wake Forest is expanding rapidly, they are building new apartment complex right on the corner of Old Falls of the Nuese/Durhman/NC 98 road and this will further congest the area. They also plan to build a new hotel in WF as well as a new food market right across from the mentioned apartments. This will further congest all the streets during rush hour. I fear for what the future holds because we'll be stuck in traffic for even longer now!!! Please expand the route!!	Website	Word of Mouth

21	No Action Required	3/11/17	Kathryn	Gavaghan		27587	Katielougav@yahoo.com		Website	Word of Mouth
22	No Action Required	3/11/17	John	Oldenburg	N/A	27587	oldygolden@aol.com	Between 6:30 to 9:30 am, westbound traffic from Wake Forest towards Durham is unbearably heavy, choked is not overstating it, between Thompson Mill (where four-lane 98 collapses to two lanes) and Old Creedmore. Traffics backs up severely at the lights on Stony Hill and Six Forks, and it takes several rounds of light changes to make it through. Contrarywise, between 3:30 to 7:00 p.m., eastbound traffic repeats the same experience at the same lights in reverse. During both these times of day with heavy traffic, making a left turn onto 98 without the benefit of a stoplight is very difficult, slow, and dangerous. (I don't do it but rather always turn right onto 98 and then turn left at some point and turn around on the side street so I am now oriented for a much easier and safer right turn in the direction I really wanted to proceed.) At least a four-lane highway (and preferably a five-lane with a turning lane) is called for ASAP for this stretch of road.Also, when driving westbound on 98 during the late afternoon-early evening busy time and facing this heavy traffic, I cannot for the life of me figure out when a protected left turn onto southbound Six Forks will be afforded. My experience is that almost always it is not, but I was (very pleasantly) surprised the other day when I enjoyed the opportunity of a protected left turn in face of the non-stop opposing traffic coming from the direction of Durham.	Website	Social Media
23	No Action Required	3/11/17	Beth	Dennison		27614	dennison.beth@gmail.com		Website	Social Media
24	No Action Required	3/11/17	Ketan	Patel		27613	Patelkd01@aol.com		Website	Social Media
25	No Action Required	3/11/17	Scott	Mills	None	27587	smills66@ctc.net	I appluad you for taking this first step which I hope concludes with expansion plans for two additional lanes (one in each direction) given the present congestion in both directions in the morning and early evening hours. With additional home construction under development at this moment without a doubt this road will become impossible and more dangerous. I cycled on this road back in 2007 and almost got hit thus I never ever would consider this road for cycling (I rode across the USA on a bicycle- 26 days/ 2,600 miles) without a scratch)! Consider a bicycle trail as well given this is a great scenic ride ans is healthy too. Please make the changes now not in 10 years...of course I will probably have moved out of this area in 2027.	Website	Social Media
26	No Action Required	3/11/17		Marsh		27596	Gmarsh89@gmail.com	Love the ruralness of my drive, but the slow congestion during commuter hours has to go.	Website	Social Media
27	No Action Required	3/12/17	Mark	McCulley		27587	mamcculley@yahoo.com	I'm glad to see attention towards Hwy 98!	Website	Social Media
28	No Action Required	3/13/17	Rich	Niemi		27596	rich.niemi@gmail.com	Interested in plans for NC 98 regarding the commute/traffic from Wake Forest to Durham and back.	Website	Word of Mouth

29	Unread	3/13/17	Thomas	Carver		27587	greatstartinc@nc.rr.com	98 needs to be at least 4 or 5 lanes wide from 70 to 401. I see dangerous drivers passing other vehicles unsafely on the 2 lane portions of the road on a regular basis.	Website	Email
30	No Action Required	3/14/17	Will	Letchworth			will.letchworth@wsp.com		Personal Contact	
31	No Action Required	3/14/17	Paul	Black	CAMPO		Paul.Black@campo-nc.us		Personal Contact	
32	No Action Required	3/14/17	Andy	Henry	DCHC MPO		andrew.henry@durhamnc.gov		Personal Contact	
33	No Action Required	3/14/17		Byfield			byfieldbb@pbworld.com		Personal Contact	
34	Unread	3/14/17	michael	halas		27614	mh12409@gmail.com		Website	Email
35	Unread	3/14/17	David	Levey		27587	dlevey1970@gmail.com		Website	Other Event
36	Unread	3/15/17	Ed	Laggenbauer		27587	elaggenb@yahoo.com		Website	Social Media
37	Unread	3/15/17	Denis	Kingberg		27587	dkingberg@gmail.com	North Raleigh News	Website	Other
38	No Action Required	3/15/17	David	Shouse	City of Raleigh Parks, Recreation and Cultural Resources Dept.		David.Shouse@raleighnc.gov		Email	
39	No Action Required	3/15/17	Joel	Bateman	City of Raleigh Parks, Recreation and Cultural		joel.bateman@raleighnc.gov		Email	

					Resources Dept.					
40	No Action Required	3/15/17	Seth	Yearhout	City of Raleigh Parks, Recreation and Cultural Resources Dept.		seth.yearout@raleighnc.gov		Email	
41	No Action Required	3/15/17	William	Payne	City of Raleigh Parks, Recreation and Cultural Resources Dept.		William.Payne@raleighnc.gov		Email	
42	No Action Required	3/15/17	Matthew	Scheffel	City of Raleigh Parks, Recreation and Cultural Resources Dept.		Matthew.Scheffel@raleighnc.gov		Email	
43	Unread	3/15/17	Tim	Johnson		27587	timjohns1221@gmail.com		Website	Social Media
44	Unread	3/15/17	Tam	Ray		27703-9594	Traylamp@yahoo.com		Website	Word of Mouth
45	Unread	3/15/17	Tim	Burnett		27614	timburnett11@yahoo.com		Website	Other
46	Unread	3/15/17	Mark	Hildebrandt		27614	mark@thegardenkt.com	We need a middle lane to make left from and to. Four lanes with an additional turn lane would be ideal and really help traffic flow. Adding a bike lane would help keep bikers out of traffic as well. Many years ago 98 worked well, but all the new homes in North Raleigh and Wake Forest have made 98 a traffic nightmare and it's that it now backs up in both directions, morning and evening. Hope this helps, sorry I can't attend the Wake Forest meeting. Mark	Website	Email
47	No Action Required	3/16/17	Emily	Lucas			dazdeadpetal@nc.rr.com		Personal Contact	
48	Unread	3/16/17	Ron	King		27587-5344	ron_king33067@usa.com		Website	Advertisement

49	No Action Required	3/17/17	Vivian	Jones			mayor@wakeforestnc.gov		Personal Contact	
50	No Action Required	3/17/17	William	Bell	Mayor of Durham		bill.bell@durhamnc.gov		Personal Contact	
51	No Action Required	3/17/17	Phil	Bagliani				Called and spoke to Will on 3/17/17. Curious how to receive project information.	Telephone	
52	No Action Required	3/17/17	Maurice	Pentico		27587	mauricepentico@yahoo.com	I have been driving Hwy 98 each day to and from my job in Durham for over 15 years. And hopefully have another 15 more years to go. I drive during a less congested time period, but overall traffic is getting worse. Work needs to be done soon.	Website	
53	No Action Required	3/17/17	James	Solomon		27587	jtsolomon08@gmail.com	Traffic between Wake Forest and Durham is becoming so bad, it makes it nearly prohibitive for commuters. Thank you for looking at options to improve this. Ideally, there needs to be an interstate without housing turnoffs, stop lights etc. basically a direct route available.	Website	Other
54	No Action Required	3/20/17	Barbara	Brown		27712	browntrustme@aol.com		Website	Project Event
55	No Action Required	3/20/17	Rachel	Gaylord-Miles			gaylordmilesr@pbworld.com		Personal Contact	
56	No Action Required	3/20/17	Mark	Hughes		27596	mkhughes90@gmail.com	I recently saw an article in the N&O regarding the study and am offering the following comments. In the 11 years we have lived here there has been an exponential increase in the volume of traffic between Wake Forest and US 401. The major bottlenecks due to the 2 lane highway are the interchanges at NC 96/98 and NC 98/US 401. The 98/96 interchange would greatly benefit from a true signal light with left and right hand turning lanes. I heard a roundabout is proposed and I think that would create further problems with all of the truck traffic that intersection sees. The roundabouts are also an accident waiting to happen. People can't handle the flashing stop and go and certainly will not be able to navigate a roundabout. The NC 98/ US 401 intersection would benefit from a set of left turn lanes and to improve the existing right turning lanes. Some of these turning lanes are also used as a left turn lane but you have to cross traffic to get to them i.e. Coming south on 401 and crossing traffic just before the light to use that turn lane (which should only be a right turn lane from NC 98). This current setup is outdated and extremely dangerous with the higher volume of traffic experienced these days. Overall a 4 lane highway would solve the problem but that is a long way off but intermediate improvements to these 2 intersections with multiple lanes leading to the intersection would go a long way.	Website	Other
57	No Action Required	3/21/17	Chris	Lukasina			Chris.Lukasina@campo-nc.us		Personal Contact	

58	Unread	3/22/17	Andi	Curtis		27587	acurtis@wakemed.org		Website	Word of Mouth
59	Unread	3/23/17	Joseph	Paulonis	none	27587-5466	joefxp@yahoo.com	I attended the event in the Wake Forest Town Hall and was very disappointed in the presentation. There was no description of the design or construction:- Lane width- Number of lanes- Non Vehicle lane descriptions- Cross walk criteria- Pavement construction detail (depth, material, layer materials). It appeared to me to be a ill prepared event to appear that community involvement was performed.	Website	Project Event
60	No Action Required	3/24/17		browntrustme@aol.com			browntrustme@aol.com	Thank you again for coming last night! I have looked up your parcel on the Durham County GIS, a screenshot is below, the red lines are the parcel lines and show you roughly where the limits of the right-of-way are. It appears that the right of way is about 100 feet wide in this area, which would be sufficient for a 4-lane roadway in this area. However, as you mentioned, it does appear that the right of way does come very close to the front of the existing house. As I mentioned at the meeting, toward the end of the summer we will have a much better idea of how wide the future roadway would be at this location. I will make sure that you receive email notification of the Sign-in at public meeting so that you can attend and we can discuss your property in detail. Thank you again Will Letchworth, PEWSP Parsons Brinckerhoff 434 Fayetteville Street Suite 1500 Raleigh, NC 27601 Direct: 984-269-4652 Mobile: 919-805-4900 letchworthw@pbworld.com From: browntrustme@aol.com [mailto:browntrustme@aol.com] Sent: Thursday, March 23, 17 8:33 PM To: Letchworth, Will & letchworthw@pbworld.com & Subject: NC98 Study-5322 Wake Forest Hwy Durham NC 27703 I attended the meeting held tonight at Reaching All Minds Academy located at 2703 Holloway Street in Durham NC. I spoke to you specifically about the property across the street from Neal Junior High School located on Wake Forest Hwy. You stated that you would take a closer look at this property and send some additional information as how this project may impact this property. I gave you the address of 5320 Wake Forest Hwy. The correct address is 5322 Wake Forest Hwy. Thank you for speaking to me tonight. My family and I greatly appreciate any additional information that you can provide to us.	Email	Project Event
61	No Action Required	3/25/17	Julie	Yoo		27705	juliemyoo@gmail.com	I am looking at homes in Hasentree, but will not purchase a home due to the immense amount of traffic in the morning, specifically taking the left turn onto Six Forks. The roads must be addressed in order for development to occur. It seems like the government does not care for the needs of its citizens if improvements are not scheduled until 2040. The need is immediate! Not only are people infuriated with the traffic but it is not safe for commuters. Increased number of accidents will occur and people will get hurt. Do something now.	Website	Search Engine
62	No Action Required	3/27/17	Sandi	Baker			Sandi.Baker@sas.com	From: Sandi Baker [mailto:Sandi.Baker@sas.com] Sent: Monday, March 27, 17 9:40 AM To: Letchworth, Will & letchworthw@pbworld.com & Cc: Ruth Payne & rootsgroupnc@gmail.com & Sandi & Mike Baker & mbaker1762@nc.rr.com & Rubrecht, Genevieve & rubrechtg@pbworld.com & Subject: RE: Regarding http://nc98corridor.com/ I can't thank you enough for your prompt response. That is exactly the information that we need, and we will be keeping a close eye on any updates and future meetings! Best, Sandi. From: Letchworth, Will [mailto:lechworthw@pbworld.com] Sent: Monday, March 27, 17 9:25 AM To: Sandi Baker & Sandi.Baker@sas.com & Cc: Ruth Payne & rootsgroupnc@gmail.com & Sandi & Mike Baker & mbaker1762@nc.rr.com & Rubrecht, Genevieve & rubrechtg@pbworld.com & Subject: RE: Regarding http://nc98corridor.com/ Mrs. Baker, Thank you for your email. You are correct in that this is just the start of a long-term study. While we are just beginning the process of projecting future year needs and potential solutions, the current plans are for NC 98 to be widened to a 4-lane roadway. However, realistically by the time this study ends, the roadway is programmed into NCDOT's prioritization process, environmental studies, design, and construction are complete, you are likely looking at a minimum of 10 years for any widening on the corridor, and this section may not be the highest priority for widening so that timeframe could be considerably longer. As far as your property is concerned, looking at the right-of-way that is currently available (200+	Email	

								feet), it is very unlikely that additional property along NC 98 would be needed for any improvements in the foreseeable future. The only place that I see where some additional right of way might possibly be needed, would be along Coley Road on your western property line for any improvements to the NC 98 / Coley Road intersection. However, any additional ROW there would likely be very minimal.As far as our study is concerned, we will be going back out to the public at the end of the summer with some options for the corridor. I will enter your email into our database to make sure you are notified of the future meetings and are kept abreast of the study. If you have any questions or need any additional information, please do not hesitate to reach out to me at any time, I am more than happy to help you any way I can.Thank youWill Will Letchworth, PERaleigh Office LeadWSP Parsons Brinckerhoff434 Fayetteville Street Suite 1500Raleigh, NC 27601Direct: 984-269-4652Mobile: 919-805-4900letchworthw@pbworld.comIn May 17, WSP Parsons Brinckerhoff will rebrand as WSPFrom: Sandi Baker [mailto:Sandi.Baker@sas.com] Sent: Monday, March 27, 17 8:02 AMTo: Letchworth, Will &letchworthw@pbworld.com&C: Ruth Payne &rootsgroupnc@gmail.com&; Sandi & Mike Baker &mbaker1762@nc.rr.com&Subject: Regarding http://nc98corridor.com/Hello Mr. Letchworth, Can you tell me whether a recording or minutes from your March 24th meeting are available? My husband and I are in the process of preparing an offer to purchase for property at 7912 Wake Forest Hwy (http://maps2.roktech.net/DurhamNC_GoMaps/temp/GoMapsReport_674619.pdf) in Durham County, where we hope to build our home. We unfortunately found out about last week's meeting right after it had occurred. When we started looking at this property, I had exhaustively searched the NCDOT website and found nothing related to this Hwy 98 project, so I assume/hope that the timeframe for this is pretty far off. We have just two questions at this point: 1. I read your website and realize that this is just the beginning of a long term study, but is there a construction timeframe? That is, when is the soonest that widening of the highway is likely to occur? (I know there are no guarantees – I did find something else on NCDOT where several projects had their timelines moved up dramatically due to available funds)2. This property has a fairly significant R/W easement on it already. Would the expansion of the highway likely be contained within that easement, or is it possible that more property would be taken? Note: We are awaiting a call back from NCDOT and will ask them as well, in case this question is more for them or Durham County Planning dept.I am copying my husband and our realtor, so you can feel free to “Reply All”. Thank you in advance for your time!Best, Sandi Baker.		
63	No Action Required	3/27/17	David	Batten		27587	dtbatten@gmail.com		Website	Word of Mouth
64	No Action Required	3/29/17	Paul	May			ptmay.nc@gmail.com		Sign-in at public meeting	
65	No Action Required	3/29/17	Brian	Pate			brian@patereality.com		Sign-in at public meeting	
66	No Action Required	3/29/17	Margaret	Stinnett	Wake Forest Commissioner		mstinnett@wakeforestnc.gov		Sign-in at public meeting	

67	No Action Required	3/29/17	F	Bartholomew			got2beebalm@yahoo.com		Sign-in at public meeting	
68	No Action Required	3/29/17	Shannon	Burnett			shannonburnett1@yahoo.com		Sign-in at public meeting	
69	No Action Required	3/29/17	Jason	Williams		27703	shonda8@msn.com		Website	Other Event
70	No Action Required	3/29/17	Matt	Strawbridge	Wake Forest Fire Department		mstrawbridge@wakeforestfire.com		Sign-in at public meeting	
71	No Action Required	3/29/17	Lisa	Jennings	Bedford HOA (50/98 Area)		lisaann721@gmail.com		Sign-in at public meeting	
72	No Action Required	3/29/17	Kathy	Stanford	The, Inc		kstanford@theinc.net		Sign-in at public meeting	
73	No Action Required	3/29/17	Danny	Johnson	Town of Rolesville		danny.johnson@rolesville.nc.gov		Personal Contact	
74	No Action Required	3/29/17	Durward	Matheny			durwardmatheny@embarqmail.com		Sign-in at public meeting	
75	No Action Required	3/29/17	Louis	Guillama	Coastal Credit Union		lguillama@coastalfcu.org		Sign-in at public meeting	
76	No Action Required	3/29/17	Eric	Keravuori	Town of Wake Forest		ekeravuori@wakeforestnc.gov		Sign-in at public meeting	
77	No Action Required	3/29/17	Daniel and Pat	Carnie			sweerdeatpat@yahoo.com		Sign-in at public meeting	
78	No Action Required	3/29/17	Marcus	Bryant			marcusray67@gmail.com		Sign-in at public meeting	

79	No Action Required	3/29/17	Daryl	Vreeland	Town of Wake Forest		dvreeland@wakeforestnc.gov		Sign-in at public meeting	
80	No Action Required	3/29/17	Todd	Allen	Media - Wake Forest Weekly		todd@wakeweekly.com		Sign-in at public meeting	
81	No Action Required	3/29/17	Lisa	Hayes	Wake Forest Downtown Inc		lhayes@wakeforest.gov		Sign-in at public meeting	
82	No Action Required	3/29/17	Donald	Belk	Town of Youngsville		dbelk@townofyoungsville.org		Sign-in at public meeting	
83	No Action Required	3/29/17	Peggy and BH	Powell			cattail.branch@gmail.com		Sign-in at public meeting	
84	No Action Required	3/29/17	Betty	Thomas			bbloomersfarm@gmail.com		Sign-in at public meeting	
85	No Action Required	3/29/17	William	Bagliani			castlefrenchfarm@gmail.com		Sign-in at public meeting	
86	No Action Required	3/29/17	Leslie	Tracey	City of Durham		leslie.tracey@durham.gov		Sign-in at public meeting	
87	No Action Required	3/29/17	Ellen	Beckmann	City of Durham		ellen.beckmann@durham.gov		Sign-in at public meeting	
88	No Action Required	3/29/17	David	Keilson	NCDOT		dpkeilson@ncdot.gov		Sign-in at public meeting	
89	Unread	3/31/17		Shaffer	Secretary for Homeowners Association	27614	cshaffer@nc.rr.com	We drive to Durham to every day on #98 and it is extremely dangerous. People drive too fast and pass you. From many roads accessing #98 it is difficult to make a left turn, particularly Olive Branch Road. It should also be policed more often for speeders.	Website	Word of Mouth

90	Unread	4/5/17	education school	educational websites		154243	klasoonmuhlhy@gmail.com	I truly love your site.. Excellent colors & theme. Did you make this amazing site yourself? Please reply back as I'm hoping to create my own blog and would love to learn where you got this from or what the theme is named. Thank you! http://learninghints.eu	Website	
91	Unread	4/6/17	Tim	Burnett		27614	timburnett11@yahoo.com	In regard to the proposed highway 98 widening I wanted to submit the following comments: 1. The investment to widen the road is not needed as the road is actually under capacity during most of the day with the exception of a short time when people are going to / from work. The significant expense using tax dollars would not be worth the required investment.2. The environmental impacts along the Falls Lake watershed would be significant. This is critical given that Falls Lake supplies drinking water for the city of Raleigh. Additionally wildlife habitats would be in danger if the road is widened.3. Alternate, environmentally friendly alternatives should be deployed to solve for the short periods that the road is busy.4. Neighborhoods and houses along the road would be negatively impacted by the increased noise, air, and environmental pollution levels. As you look at the assessment, please keep the road as-is with the exception of adding lights at certain intersections where accidents tend to occur and potentially adding turn lanes at heavier intersections. Thank you for your consideration. Sincerely, Tim and Shannon Burnett	Website	
92	Unread	4/11/17	Michael	Pollock		27713	michael_pollock@yahoo.com	Hello,I sent this message to Will Letchworth, but maybe it was not received because of the email address I sent it from. I will also try using the map. I am trying to point out hazards and points of interest in the NC 98 corridor, and I think there is a roadkill problem, and the DOT could do something about it, but probably will refuse to even post a sign where large animals are known to cross roads, endangering both wildlife and drivers. In addition, while the DOT should not spread catastrophic forest pests, I think it does not care if its construction work does this, unless prohibited by law and someone could report a violation. Ideally, I would like some upgrades along 98 and 50, but there should also be more alternatives to driving. In other countries even rural areas have train and bus service. What I sent about a week ago:Hello,I have some comments about the NC 98 corridor. When I first visited the website, the interactive map might not have been available. It looks like I have to move the map to move the marker, so maybe I will add comments later on. I'm not sure how much anonymity there is on such a crowdsourced map or how much I can enter on the map. I worked in that area for a few years and drove almost daily on 98, 50, and nearby roads. I saw the traffic problem on 98 at certain times. Traffic backs up going west in the morning around New Light Road (and the sun makes it hard to see driving east) and maybe at Stony Hill Road, while there is non-stop traffic east bound in the evening. Traffic backs up early one morning every fall or winter when there is a religious relay of some kind, and while there is a police escort for the vans dropping runners off, it would be nice if there were a warning that commuting would be interrupted. The 98 corridor also seems to have a problem with roadkill. I am amazed at the hazardous design of 50. Highway 50 has a high speed limit, and people drive even faster, including heavily loaded trucks and dump trucks, but there are many ridges, so there is limited visibility, and north of Falls Lake there are places with steep drop offs where a vehicle could fall 30-40 feet, because there aren't any guardrails or even trees between the narrow, possibly soft, shoulders and dry ravines. There are many access points at Falls Lake with limited visibility, leading to crashes. Note that visitors to Falls Lake aren't the only issue, there are also many places that Falls Lake staff visit daily along Highway 50, where it is hard to see oncoming traffic until it is pretty close. Falls Lake also uses slow moving and mechanical failure prone old vehicles. I once had to turn into Falls Lake and didn't realize my turn signal wasn't working, with two semis close behind me (one honked, so I accelerated and had to come back from Old Creedmoor, which is not a very safe place to enter 50 northbound, but is faster and less aggravating than using the 98/50 intersection). I imagine it is hard to enter or leave houses on 50, and there are few places to safely turn around on 50 or 98 (and some driveways say no entry). Traffic backs up onto 50 in the summer as people try to enter the Sandling Beach and Beaverdam accesses at Falls Lake, and it is hard to turn left to leave or cross the intersection. At these times a traffic signal would help and I don't think there are turn	Website	Other

							<p>lanes on 50. I'm also amazed by the roadkill issue in the 98 corridor, especially west of the more built up area in Durham, and I don't think it can be explained away by saying there is more wildlife and more high-speed traffic along 98. The DOT should be able to determine where roadkill is frequent and do something to reduce it everywhere, or at least warn people to watch out, but apparently won't. Entire lanes of 98 are painted red after a deer is hit and vultures coming to large dead animals are also sometimes hit, possibly purposefully, compounding the awful situation, and this is something I don't often see where I live in southern Durham. Black vultures, which are very common around 98, might be becoming rarer in NC, or were of concern. At night there is so much traffic that it would be hard to see an animal on the road because of the glare from continuous eastbound traffic and the darkness. Deer often cross in certain areas, but this is not marked. I was always scared passing a nursery on 98 and west of Laurel Creek and Boyce Mill Road, where it seemed like I frequently saw one or more deer cross in the morning or during the day. A gray fox crossed east of the there on a weekend morning and lived. One afternoon it snowed and many cedar waxwings that must have been drinking at a puddle in the ice on Old Creedmoor Road just north of 98 were hit. I don't understand how traffic could have been going fast enough over solid ice to accidentally hit these birds. Two dead cats lay close together on the center line of 98 further west for something like 6 months or maybe even longer. I will sometimes remove dead animals from the road, such as a barred owl lying in the gutter on the west side of Miami Boulevard, but it isn't my job and there is a church and houses there, yet they left these cats were left in the road in front. A dog was injured just west of Old Creedmoor, but may have gotten medical attention. The ponds bordering 98 east of Sherron Road result in a roadkill problem, especially in early summer. In that area I moved a large yellow-bellied slider across the road (the only time I saw someone else stop for wildlife on 98), I took an injured painted turtle to a rehabilitator (I think it lived despite being badly injured), and I think I moved a snapping turtle at least once, but then it probably came back and was killed anyway. I was afraid that I would come across a large snapping turtle and not be able to move it. In many cases there is a brief summer downpour at 4 or 4:30pm followed by sun, bringing turtles on to the road there just as traffic increases around 5:30. Turtles are most abundant on 98 from around May, possibly as early as April, to about July. A large snapping turtle was dead in the turn lane to a store on the north side of 98 east of Sherron. West of Old Creedmoor there was hardly any traffic, but I waited on the shoulder for a woman going west before getting a small box turtle out of road, but somehow she came within 2 or 3" of hitting it. West of Lick Creek a box turtle basically ran into the road from the north as I went by and was crushed by following cars before I came back. A large rat snake crossed south in that area one summer morning and lived. Further east near Laurel Creek a black snake was on the center line around 5:30pm on a weekday and I thought it might live if I left it alone, and might go into traffic if I tried to move it, but when I came back the next day, it had been killed, I think intentionally. Two box turtles feet apart were killed on the east side of Sherron Road a ways south of 98 (probably south of Holder Road), though maybe I could have saved them if I had picked them up after they were first hit and bleeding profusely. Deeper ditches along the road might discourage reptiles from entering the road and fences would probably discourage larger animals. The first kingsnake I saw might have been one I found dead on the east shoulder of Baptist Road north of Southview Road. I also had to move box turtles on Baptist Road and there might be a lot of wildlife crossing at the west end of Southview Road. There is not particularly heavy traffic on Baptist Road, but people speed a lot on this winding road and kill turtles anyway and the shoulder is narrow. Cyclists often form groups on Baptist, blocking the road so that it is not possible to pass legally, but I was working and couldn't follow them until the end of the road. I bicycle and know that drivers often mistreat cyclists and pedestrians, but I think cyclists intentionally and unnecessarily interfere with drivers in that area and many cyclists enter Falls Lake State Park there. I've also seen this happen near Eno River State Park, west of Durham. Old Creedmoor has a lot of problems. I tried to go slowly in the morning, but I still probably killed two gray squirrels separately at the wooded bend near 50. I thought I hit them, but they still</p>		
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							<p>got off the road, so I am not completely sure. Apparently unlike many people, if I hit a somewhat large animal, I usually try to find out if it can be saved and I move dead animals off the road. Another problem is that squirrels cross the road to pecan trees at a house near 98 in the fall. I found a mother possum dead at the bend. I moved a young rat snake off the road near 98. It is hard to enter and leave the shopping center northeast of 98 and Old Creedmoor using Old Creedmoor. There is a deep hole on Old Creedmoor because people go around a barrier. Visibility is low because of ridges and there isn't much of a shoulder on 50 between Old Creedmoor and 98, and there is a lot of litter. I think something blew out of my work vehicle there, but I could not retrieve it. I also hit an animal, maybe a rabbit, as I went north at the bend on Sherron near Karen Drive and Pasture Lane when it was completely dark in the morning because DST had just begun or ended, and I consider that a hazardous area where I should always slow down, though other drivers prefer to speed to 98. I think I hit a sparrow or finch on Sherron and I may have hit two birds, one a mockingbird, on 98 and I regret it, though I also couldn't react in time. I thought I saw a piece of wood hit my windshield east of Laurel Creek, but a flying animal might make more sense. Unfortunately I had to drive a kind of tall, white vehicle for work, which seemed to attract butterflies and carpenter bees in the spring and summer and I generally couldn't avoid them, and I consider this a roadkill problem as well. Because of weather conditions or some other reason, there were very few butterflies of any species around in 2014, and hitting them doesn't help their numbers and is not pleasant. It is hard to enter and leave the recycling center hidden on the southside of 98 east of Stony Hill Road, on a hillside. I think I recall that 98 closer to Wake Forest or further on has many ridges that might dangerously reduce visibility, but I haven't driven in that area very recently. I moved a slider across 50 at the Falls Lake visitor center entrance after a low red sports car wounded it slightly and I moved others off the road north of the Lake. I saw a stray Rottweiler south of the Lake or nearby and thought it would be fine, but later it lay crushed north of the Lake. There are often furry remains on the causeway over the Lake, and they lay there a long time. I was curious what they were, but couldn't park nearby easily. People sometimes stop on the causeway anyway, but the shoulder is narrow and traffic moves at a high speed. I often saw people pass three or more cars or trucks at a time during the day near the Lake. I get the impression that 50 has more daytime traffic than 98, and people probably drive faster and more recklessly on 50 and race down the steep hills to the Lake, but there is also more traffic entering and leaving 50 there. Traffic backs up on 98, but 50 is more hazardous than 98. There were two times that I can remember when head-on collisions closed 98 where a straight section crosses Lick Creek, and 50 slowed down or closed a few times, sometimes preventing me from leaving work. There is or was a very large blackjack oak (<i>Quercus marilandica</i>) near 98, on the north side, a little east of the intersection with New Light Road, but I'm not sure if it is there anymore. It might not be the largest one in North Carolina, but it could be the largest in Wake County or around Wake Forest. There is a nice large ash tree on the north side by a golf course, a short distance east of Neal Middle School in Durham. The non-native emerald ash borer is probably present in the area, so the DOT should not transport ash or fringe tree wood out of the area and risk spreading the beetles with the wood, though it is unfortunately legal to do so (see ncforestservice.gov/forest_health/fh_eabfaq.htm). Tickseed and partridge peas should have been allowed to finish blooming along Sherron south of 98, though I don't think that was the DOT's fault. There are unusual wildflowers in the grass along 50 that should be left alone. A gravel road near where I live was paved, and wildflower diversity seemed to decrease, and has only increased again over many years. It is hard to turn around on 98 except at major intersections. If cars are following me at a high speed, it feels unsafe to go into a poorly marked side road or short turn lane. There are some pedestrians along the more rural part of 98 during the day. I wonder how people get to their mailboxes along 98 and it is probably unsafe for mail trucks. People drive slower west of Baptist Road, but I was tailgated when I slowed down as the signs say by Neal Middle School and west of Sherron where the speed limit decreases to 45. Is the speed limit enforced by the School?</p>	
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								Many people jump off the New Light Road bridge over Falls Lake in thesummer, and they could be hit by boats or drown for some other reason. I sometimes drive down 98 to downtown Durham, and the majorintersections might not be well-marked. The first time I drove that wayI wasn't sure where I was, except that I was on 98. I think NC 55 iscalled Alston there, so I was confused, or maybe 98 is called onlyHolloway Street on 55/Alston. The turn lane from 98 eastbound on toSherron is better than it used to be. To encourage public concern for water quality, there should be signswhere 98 crosses named waterways, such as Lick Creek and Little LickCreek. If the crossing over Lick Creek were longer, maybe some animalswould cross under 98 instead of going over it. It would be a problem ifanimals couldn't migrate across roads, but it is harmful and troublingthat many animals are killed on the roads. Is it a problem for aquatic wildlife when salt put on roads due to snowwashes into creeks? While I worked in this area, I got a lot of damage to my windshield fromflying gravel. It seemed to be mostly from the Miami Boulevardcorridor, but possibly 98 and 50 contributed. I regret how I sometimes drove in the morning to get to work, but goinghome in the afternoon I was often tailgated for miles while going aroundthe speed limit between Old Creedmoor and Sherron. It is often notpossible to legally pass a slow-moving truck for miles on 98. The waypeople drive and the risk of hitting an animal or seeing a life anddeath situation or the resulting carnage, make me avoid 98, though Istill basically have to use it monthly in Durham. Is there a way to get people to ride buses or take light rail betweenRaleigh or Wake Forest and Durham, instead of driving on 98? I've heardthat building more roads only increases traffic over time, so improving98 could reduce traffic in the short term, but only result in moretraffic long-term. 50 definitely needs improvement for safety. There are some highways and roads in Durham and Chapel Hill outside ofthis project that I would like to complain about regarding roadkill, insome cases of amphibians, and speeding/unsafe driving, but I doubt theDOT would listen and in some cases State and local governments shouldalready be aware of the problem. The Herald-Sun claims the DOT wants input on safety, environmentalconcerns, etc. so I am giving you some comments. Thank you for yourconsideration.Michael Pollock		
93	Unread	4/14/17		brooks		27703	jclaybrook@aol.com		Website	Word of Mouth
94	Unread	4/14/17		Armour		27703	wsarmour4@gmail.com		Website	
95	Unread	4/15/17	Kristi	Robison		27707	kristis@bpstudios.com		Website	Email
96	No Action Required	4/30/17	Veronica	High		27587	ronnihigh@yahoo.com		Website	
97	No Action Required	5/9/17	Tim	Burnett		27614	timburnett11@yahoo.com		Website	

98	No Action Required	6/16/17	Rebecca	Freeman	none	27703	bfreemansouthview@gmail.com		Website	Word of Mouth
99	Unread	6/17/17	Katie	Kovach		27703	katie.kovach@gmail.com	I just moved to this area from downtown, and have seen a lot of westbound traffic in the mornings, and eastbound traffic in the evenings. I also see many bikers through the area, often in large groups.	Website	Social Media
100	No Action Required	6/21/17	Patrick	Carr		27587	carrpx@gmail.com		Website	Social Media
101	No Action Required	6/28/17	James	Gregg	TWC	27587	jrgregg10@yahoo.com		Website	Project Event
103	No Action Required	7/20/17		Diver		27614	tinudiver@gmail.com		Website	
104	No Action Required	7/21/17	Heather	Bracci		27707	bracciheather@yahoo.com		Website	Search Engine
105	No Action Required	7/29/17	Jonathan	Williams		27587	Jonathan@focusdesignbuilders.com		Website	
106	No Action Required	7/29/17	Lisa	Krahulec		27587	lkrahulec830@gmail.com		Website	Social Media
107	No Action Required	7/29/17	James	Tynfall		27587	jmtynnda2@ncsu.edu		Website	
108	No Action Required	7/29/17	Bill	Segreve		27587	bsegreve@outlook.com		Website	Social Media
109	No Action Required	7/29/17	Kate	Alexander		27587	kathalex@centurylink.net		Website	Social Media
110	No Action Required	7/29/17	Barry	Swindler	Chiropractic Nutrition Clinic	27587	Drbarryy_2000@yahoo.com		Website	Other

111	No Action Required	7/29/17	Lori	Eitel		27587	mommytomy3@gmail.com		Website	Social Media
112	No Action Required	7/29/17	Melanie	Mottershead		27587	Melinnamibia@yahoo.com		Website	Social Media
113	No Action Required	7/29/17	Becky	Bradley		27587	becky@planetb.org		Website	Social Media
114	No Action Required	7/30/17	Shannon	Settles		27587	Slsettles@gmail.com		Website	Social Media
115	Unread	7/31/17	Thad	Juszczak		27587	thadjusz@hotmail.com	I would like to be on the mailing list.	Website	Other Event
116	No Action Required	7/31/17	Dave	Robbins		27587	dmrobbin@gmail.com		Website	
117	No Action Required	8/6/17	Joanna	Mills		27587	Johnjoannamills@nc.rr.com	I live on 98. Our property backs up to the Seminary and we have been wanting a sidewalk ever since we moved here in 1979.	Website	Word of Mouth
118	No Action Required	8/9/17	Tam	Ray		27703	Traylamp@yahoo.com	Please notify of next meeting(s).	Website	Word of Mouth
119	No Action Required	8/16/17	Jannice	Papo		27587	jannicepapo@nc.rr.com		Website	Social Media
120	No Action Required	8/24/17	Barbara	Brown		27712	browntrustme@aol.com		Website	Other
121	No Action Required	8/25/17	Pamela	Andrews		27703	Pamelaandrews3@gmail.com		Website	Social Media
122	No Action Required	9/16/17	Don	Webber		27587	donwebber67@yahoo.com		Website	Search Engine

123	No Action Required	9/17/17	Laura	Wood		27703	lwood29@gmail.com		Website	Other
124	No Action Required	9/19/17	Corey	Chenoweth		27587	coreycheno@gmail.com		Website	Word of Mouth
125	No Action Required	9/19/17	Timmy	Baynes		27587	tbaynes73@icloud.com		Website	Social Media
126	No Action Required	9/20/17	Lew	Ashmore		27587	lew.ashmore@gmail.com		Website	Social Media
127	No Action Required	9/21/17	Charles	Clifton		27703	cclifton919@gmail.com	I attended the Sign-in at public meeting on 9/21 and provided comments about re-routing Stallings Road when planning to widen Sherron Road.	Website	Social Media
128	Action Completed	10/4/17	Nicholas	Weeks		27614	chad.weeks@gmail.com	This is not as much of a suggestion as it is encouragement on this project. 540 is a major issue on Falls Of Neuse Road. There have been a lot of proposed solutions but the only real solution is creating another E/W route to RTP/Durham for Wakefield and Wake Forest traffic. I think this is a great plan and I hope to see it move forward quickly. The home values in our area are suffering due to traffic concerns.	Website	Project Event
129	No Action Required	10/4/17	Martha	Guthrie		27587	mguthrie10@nc.rr.com		Website	Social Media
130	No Action Required	2/26/18	Genevieve	Test	Ms.	28202	g.rubrecht@wsp.com	Test comment	Website	
131	No Action Required	3/8/18	Bonnie	Parker		27601	bonnie.parker@campo-nc.us		Website	CAMPO/DCH C's Website
132	No Action Required	4/2/18	Cassandra	Johnson		27703	crenaejohnson@hotmail.com		Website	Other
133	No Action Required	4/9/18		Spring		27517	juli.spring@gmail.com	As an outdoor enthusiast, I enjoy using the Mountains to Sea Trail that intersects with Hwy 98 and comes close in other areas, and as an avid cyclist that has attempted rides in that area, I would love to see more lanes and bicycle lanes along that section of the highway. Falls Lake area is such a beautiful place to explore and there are many opportunities to ride from my home to the lake for camping weekends or looks that incorporate sections of Hwy 98 that could be made much safer with dedicated bike lanes. So much traffic and large vehicles with trailers.	Website	Email

								<p>Date: 4/13/18 Approved By: Genevieve Rubrecht Subject: Thank you for your comment! Message: Good morning Ms. Spring,</p> <p>Thank you for your comments. Our conceptual designs include multi-use paths in areas along the NC 98 corridor. These designs are available on our website in the Document Library, http://nc98corridor.com/library/.</p> <p>We have one more Sign-in at public meeting scheduled for Monday, April 16 at the Durham County East Regional Library at 211 Lick Creek Lane. There will not be a formal presentation but staff will be available between 5 - 7 pm.</p> <p>Thank you, The NC 98 Corridor Study Team</p>		
134	Unread	4/11/18	Tavey	Capps		27587	tavey77@gmail.com	I commute between Durham and Wake Forest almost daily and would love to see expanded transit options on the 98 corridor. I truly hope this is included in the planning process.	Website	Email
135	No Action Required	4/11/18	Dianne	Sacchetti		27587	diannesacchetti@gmail.com	Town of Wake Forest website	Website	Other
136	No Action Required	4/12/18	Keith	Dorsey		27587	krdorsey@yahoo.com		Website	Email
137	No Action Required	4/12/18	Tom	RASCON	resident	27614-7323	Trasconada@gmail.com		Website	Project Event
138	Unread	4/12/18	S	McCoy	private citizen, Sound Rivers member	27587	spank@well.com	I sent an email to Will Letchworth and will also provide input at the April 12 Wake Forest roadshow.	Website	Other
139	No Action Required	4/12/18	Hannah	True	n/a	27587	hgf1760@gmail.com		Website	Social Media
140	Unread	4/12/18	Sandon	Jacobs		27614	sandon.jacobs@gmail.com	I live in Remington Forest, my property borders 98 and I am just concerned with the extent to which my property will be impacted. Trying to stay in the loop.	Website	Word of Mouth
141	Action Completed	4/13/18	Parker	Lang	STANLEY MARTIN HOMES	27614	LangCP@stanleymartin.com	<p>From: Letchworth, Will Sent: Tuesday, April 10, 18 4:06 PM To: &#39;Parker Lang&#39; &#39;LangCP@stanleymartin.com&#39;>Subject: RE: NC 98Parker,I apologize for the slow reply. To answer your questions:I work for a consulting firm, WSP, that was hired by NCDOT and the two regional planning agencies that cover the area for this project, to develop a plan for NC 98 from Junction Road to US 401. This project has been ongoing since early last year and is now in the phase where we are taking the recommendations and designing them to</p>	Email	Email

							<p>the point where we can illustrate the impacts and develop cost estimatesThere is not currently a project funded by NCDOT to widen NC 98. The regional planning agency for the Raleigh area (CAMPO) submitted a project to NCDOT for prioritization that included widening NC 98 to 4 lanes from the Durham County Line to Wake Forest. This process is still ongoing and we will not know for several more months if that project will be funded by NCDOT. Even if it is it will likely be beyond 2025 before construction will start. I have put two pdfs in a dropbox for you at https://www.dropbox.com/sh/joy8m24bvtzwysa/AABL9vR8_oXSAf6WPQyXI-v7a?dl=0 that I think covers the area you are looking at. If not, let me know and I can send you some more. If I am correct, the lots would be impacted by some fill slopes, but not the actual roadway. Keep in mind this is purely conceptual at this point, alignments and elevations could very well change when designs are done based on survey. If you are so inclined, feel free to come out to one of our upcoming Sign-in at public meetings and I can walk you through things in much more detail. Don't hesitate to reach out with any other questions you may have.Wake County Location:Thursday, April 12, 185:00—7:00 p.m.Wake Forest College Birthplace450 N Main StreetWake Forest, NC 27587Durham County Location:Monday, April 16, 185:00—7:00 p.m.Durham County Library211 Lick Creek LaneDurham, NC 27703Thanks!WLWill Letchworth, PEAssistant Vice PresidentRaleigh Office Lead Phone: +1 984 269 4652Mobile: +1 919 805 4900Email: will.letchworth@wsp.com WSP USA434 Fayetteville Street, Suite 1500Raleigh, NC 27601 wsp.comWSP Parsons Brinckerhoff is now WSP.From: Parker Lang [mailto:LangCP@stanleymartin.com] Sent: Monday, April 09, 18 5:41 PMTo: Letchworth, Will &lt;Will.Letchworth@wsp.com>>Subject: NC 98Hi Will- I have found your website useful. I work for a new neighborhood off of 98, and have lots available next to highway 98. I am trying to figure out your website- do you directly work for the NCDOT? I looked on the NCDOT page, and it appears they have no plans for the next 10 years to create highway 98's corridor. https://connect.ncdot.gov/projects/planning/pages/state-transportation-improvement-program.aspxAny information you can provide me would be super helpful. I am between Peed Rd and Sixforks Rd. This would have a large impact on 3 of my home sites when it does go to four lanes. Best regards, Parker Lang Neighborhood Sales ManagerEthan's Meadow & Barony Overlook1420 Mill Glenn Circle Raleigh, NC 27614STANLEY MARTIN HOMESLangCP@StanleyMartin.com I 910.515.4252www.StanleyMartin.com</p>			
142	No Action Required	4/13/18	Tom	Stinsone			TomStin@NC.RR.com		Sign-in at public meeting	
143	No Action Required	4/13/18	Chris	Stark			dopey@nc.rr.com		Sign-in at public meeting	
144	No Action Required	4/13/18	Delbert and Nakki	Rutherford			delrutherford@gmail.com		Sign-in at public meeting	
145	No Action Required	4/13/18	David	Leone	Wake Weekly Media		David@wakeweekly.com		Sign-in at public meeting	
146	No Action Required	4/13/18	Mart	Patt			martpatt@embarqmail.com		Sign-in at public meeting	

147	No Action Required	4/13/18	Rebecca	Holt			rholt38@gmail.com		Sign-in at public meeting	
148	No Action Required	4/13/18	Jetske	Insinger			Jetske@swbell.net		Sign-in at public meeting	
149	No Action Required	4/13/18	Fred	Seymour			FredLSeymour@gmail.com		Sign-in at public meeting	
150	No Action Required	4/13/18	Colleen and Thomas	Sharpe			sharpecm@earthlink.net		Sign-in at public meeting	
151	No Action Required	4/13/18	Lynn	Bruce			lcbruce@icloud.com		Sign-in at public meeting	
152	No Action Required	4/13/18	Girard and Sandra	Hunt			sandyf1960@msn.com		Sign-in at public meeting	
153	No Action Required	4/13/18	Ken	Krause			kkrause512@gmail.com		Sign-in at public meeting	
154	No Action Required	4/13/18	Blake & Kim	Hamlin			spangler.kim@gmail.com		Sign-in at public meeting	
155	No Action Required	4/13/18	Sue	Angelo			sas377@gmail.com		Sign-in at public meeting	
156	No Action Required	4/13/18	Stuart	S			X1Y2Z3@EMBARQMAIL.COM		Sign-in at public meeting	
157	No Action Required	4/13/18	John	Wilson			dr.john.wilson@gmail.com		Sign-in at public meeting	
158	No Action Required	4/13/18	Dean	Parsons			parsons0621@gmail.com		Sign-in at public meeting	

159	No Action Required	4/13/18	Martha	Lostin			paddysentme@embarqmail.com		Sign-in at public meeting	
160	No Action Required	4/13/18	John	Hearn			jhearn1000@gmail.com		Sign-in at public meeting	
161	No Action Required	4/13/18	Paul	Duchamp			PADuchamp@gmail.com		Sign-in at public meeting	
162	No Action Required	4/13/18	Doug	Kapplen			doug0227@gmail.com		Sign-in at public meeting	
163	No Action Required	4/13/18	Anita	Galante			BKLYNBABE2228@msn.com		Sign-in at public meeting	
164	No Action Required	4/17/18	Kurt	Franke		27703	kkvf24@gmail.com	<p>I have a question regarding the most recent maps presented. I was unable to attend the meeting yesterday in Durham so I could not ask. On Road Map 2 of 9 in documents, the new map of Sherron Rd., Patterson Rd., Hwy. 98 and Stallings Rd. intersection, shows a new "branch" of road going from Patterson road around the current intersection to HWY 98. How will this affect Stallings Rd.? Will traffic be turning off of the new road to continue down stallings? Will Stallings Rd. be rerouted? Is this the final plan for the intersection? What is the next step in development for the road?</p> <p>Date: 4/22/18 Approved By: Genevieve Rubrecht Subject: NC 98 Corridor Study Online Inquiry Message: <p><p>Dear Mr. Franke,</p> <p>Thank you for your interest in the NC 98 Corridor Study. The intersection of NC 98 and Sherron Road/Patterson Road is proposed to be converted to a quadrant intersection. This means that left turns onto NC 98 will be restricted from Sherron Road and Patterson Road. Additionally, left turns from NC 98 onto Patterson Road will also be eliminated at the intersection; however, motorists will still be able to make a left turn from NC 98 onto Sherron Road.</p> <p></p> <p>To west (left) on NC 98 from Sherron Road motorists will travel straight through the intersection to Patterson Road, then turn left at the new road (at the proposed traffic signal) and make a right on NC 98. Motorists coming from Patterson Road who wish to head east (left) onto NC 98 will make a right on Patterson Road, at the proposed traffic signal onto the new road, then left onto NC 98 at the second new traffic signal. Please note that motorists will still be able to make right turns onto NC 98 from both Sherron Road and Patterson Road.</p> <p></p> <p>In regards to your question, in this proposed concept, Stallings Road will be turned into a cul-de-sac where the green circular, edge of pavement line is shown on Stallings Road. To access Stallings Road north of that point, motorists have to use the new pavement by turning at the new proposed signal on NC 98.</p> <p></p> <p>This is not the final plan. This study is the initial step in the planning of a project. Next the proposed improvements will undergo a planning and environmental study, with more public participation opportunities. Once that is complete it would go into design and then finally construction.</p> </p>	Website	Project Event

								<p></p> <p>Thank you again for contacting the NC 98 Study Team. Please let us know if you have any further questions.</p> <p></p></p>		
165	No Action Required	4/17/18	Pamela	Jay	Concerned citizen	27587	pjay0826@gmail.com		Website	Project Event
166	No Action Required	4/19/18	Darlene	Nottingham		27587	dnottingham@ncdot.gov	<p>I was unable to come to the Sign-in at public meetings, but feel the need to make comments about the proposed Super Street Design of Highway 98.Ghoston Rd. IntersectionThe intersection of Y-Line (Ghoston Rd.) connecting onto L-Line (US 98) should have 2 right turn lanes. The -Y- already has enough existing lane width in the south bound direction to put a double right turn onto 98. This is recommended because a vehicle turning right onto 98 then wanting to get into the left lane to get to the left turn bulb is going to have problems transitioning with the amount of directional traffic at morning peak hours on 98 from Wake Forest to Durham. Ghoston Road has extremely large amounts of traffic backups in the morning hours turning right onto 98. The large amount of directional ADT on Ghoston Road is because it is one of the very few connector roads from the northern portions of the county connecting to 98. Sometimes it even backs up past Four Wheel Drive in the morning. Yes, the traffic will be flowing better because of widening 98 with a Super Street Design, but it will still be tough making the weave turning right off from Ghoston Road and trying to transition to the bulb to take a left at the bulb and head back east on 98. Ramps at 50/98The Ramps at NC 50 and 98 will need to have transition lanes located on 98. This is especially needed at the ramp in the D quadrant (heading north on NC 50 yielding right onto EB 98). The yield on the ramp is set at an extreme angle. Drivers are looking over their left shoulder trying to judge traffic and yet not able to see the vehicle in front of them and then trying to accelerate at a fast pace trying to meet the speed of drivers on 98 heading east. Many rear-end accidents have happened there. Entrance into the Harris Teeter ShopsThere should be a right-in, right-out entrance into the Harris Teeter/shops at Bisque Court and Willeve Drive (at the Church). Move the bulb just east of Willeve Drive so people coming east bound on 98 can make the bulb turn heading west bound and then make a right turn into the Church or the shops. As currently represented on the map, the church goes coming from the east bound direction have little to no option turning into the church drive. Put yellow metal caution poles on the MUP where it crosses Bisque Court to prevent anyone driving a vehicle down the bike path and to caution/slow the bikers as traversing Bisque Court. This entrance at Bisque Court into the shops should stay open because there are too many points of conflict at the other entrances to the shops. There is a lot of activity (pedestrian and vehicle traffic) at the first driveway along the store front in the northwest corner of the property (at the Hair Salon and the HT frontage). The other exit/entrance, second driveway on Old Creedmoor Road near the Panda Garden and Popa Johns has a lot of activity also, especially with the food deliveries. Most traffic exiting the shops onto Old Creedmoor Road are trying to get to the light at 98. Exiting from that second driveway has an existing island in the middle of Old Creedmoor Road, causing anyone exiting the shops to have to U-Turn at the end of the island to head back to the light at 98. There is no bulb turn at that island. Very few vehicles are heading north on Old Creedmoor Road from the shops. The way the current mapping is showing, all entrance/exists to the shops are along Old Creedmoor Road having a lot of traffic consolidated to one area of the property and too many points of conflict. This is the reason for keeping open the exist/entrance as a right-in, right-out at Bisque Court for the shops.</p> <p>Date: 4/23/18 Approved By: Genevieve Rubrecht Subject: NC 98 Corridor Study</p>	Website	Social Media

								Message: <p>Good morning Ms. Nottingham,</p><p>Thank you for your interest in the NC 98 Corridor Study. We appreciate your feedback. Our team will review your recommendations over the next week and will let you know if we have any questions. </p><p>Thank you,</p><p>The NC 98 Project Team</p>		
167	No Action Required	5/8/18	Dan	Hill			danwhill3@gmail.com		Sign-in at public meeting	
168	No Action Required	5/8/18	Geoffrey	Phillippe			geoffrey.phillippe@gmail.com		Sign-in at public meeting	
169	No Action Required	5/8/18	Monica	Long			mlong321@yahoo.com		Sign-in at public meeting	
170	No Action Required	5/8/18	Zack	Hawkins			zack@zackhawkinsnc.com		Sign-in at Sign-in at public meeting	
171	No Action Required	5/8/18	Sherry	Smith	Grove Park HOA		ncsassy50@yahoo.com		Sign-in at Sign-in at public meeting	
172	No Action Required	5/8/18	Derek	Bleyberg	Grove Park				Sign-in at Sign-in at public meeting	
173	No Action Required	5/8/18	Charles	Clifton			cclifton919@gmail.com		Sign-in at Sign-in at public meeting	
174	No Action Required	5/8/18	Mark	Moore					Sign-in at public meeting	
175	No Action Required	5/8/18	Jerry	Sneed			whitmore8@hotmail.com		Sign-in at public meeting	
176	No Action Required	5/8/18	Vickie	King					Sign-in at public meeting	

177	No Action Required	5/8/18	Torian	Webson			twebson5@yahoo.com		Sign-in at public meeting	
178	No Action Required	5/8/18	Versal	Mason			Versallmason@aol.com		Sign-in at public meeting	
179	No Action Required	5/8/18	Russ	Florack			russ.florack@gmail.com		Sign-in at public meeting	
180	No Action Required	5/8/18	Marcus	Patterson			MarcusP413@gmail.com		Sign-in at public meeting	
181	No Action Required	5/8/18	Angela	Everhart			aeverhart@nc.rr.com		Sign-in at public meeting	
182	No Action Required	5/8/18	Thomas	Snyder			tom.snyder1@gmail.com		Sign-in at public meeting	
183	No Action Required	5/8/18	Ken	Everhart			mke@nc.rr.com		Sign-in at public meeting	
184	No Action Required	5/8/18	Lisa	Matthews			lisadmatthews@yahoo.com		Sign-in at public meeting	
185	No Action Required	5/8/18	Phyllis	Snow			phyllissnow42@yahoo.com		Sign-in at public meeting	
186	No Action Required	5/8/18	Douglas	Solomon			dasolomon@mindspring.com		Sign-in at public meeting	
187	No Action Required	5/8/18	Darren	Friedlein			darren@dgfa.com		Sign-in at public meeting	
188	No Action Required	5/8/18	Carl & Barbara	Lowe			blowe33750@aol.com		Sign-in at public meeting	

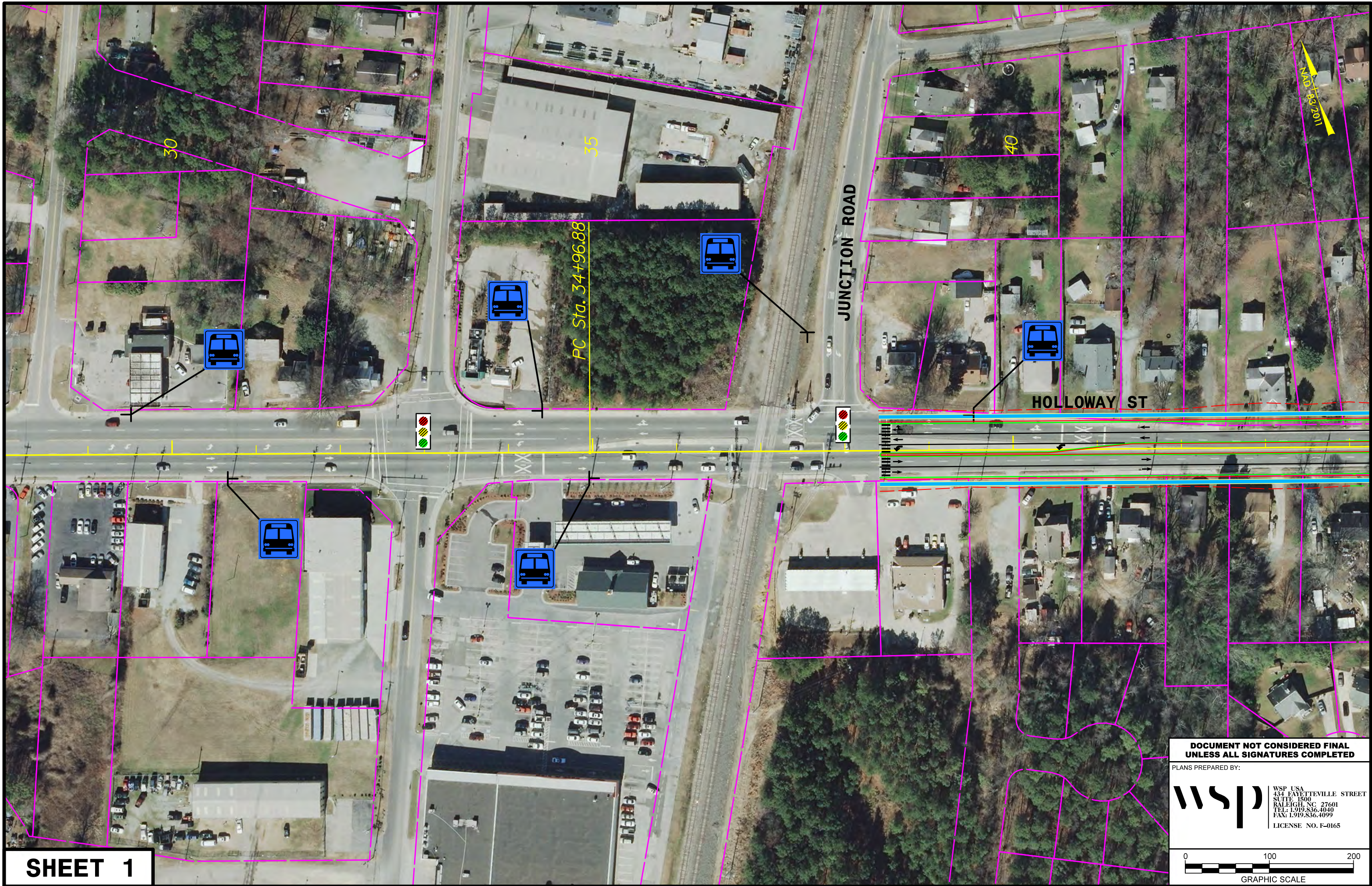
189	No Action Required	5/8/18	Barbara	Brown			browntrustme@aol.com		Sign-in at public meeting	
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wsp

www.nc98corridor.com

DESIGN APPENDIX



SHEET 1

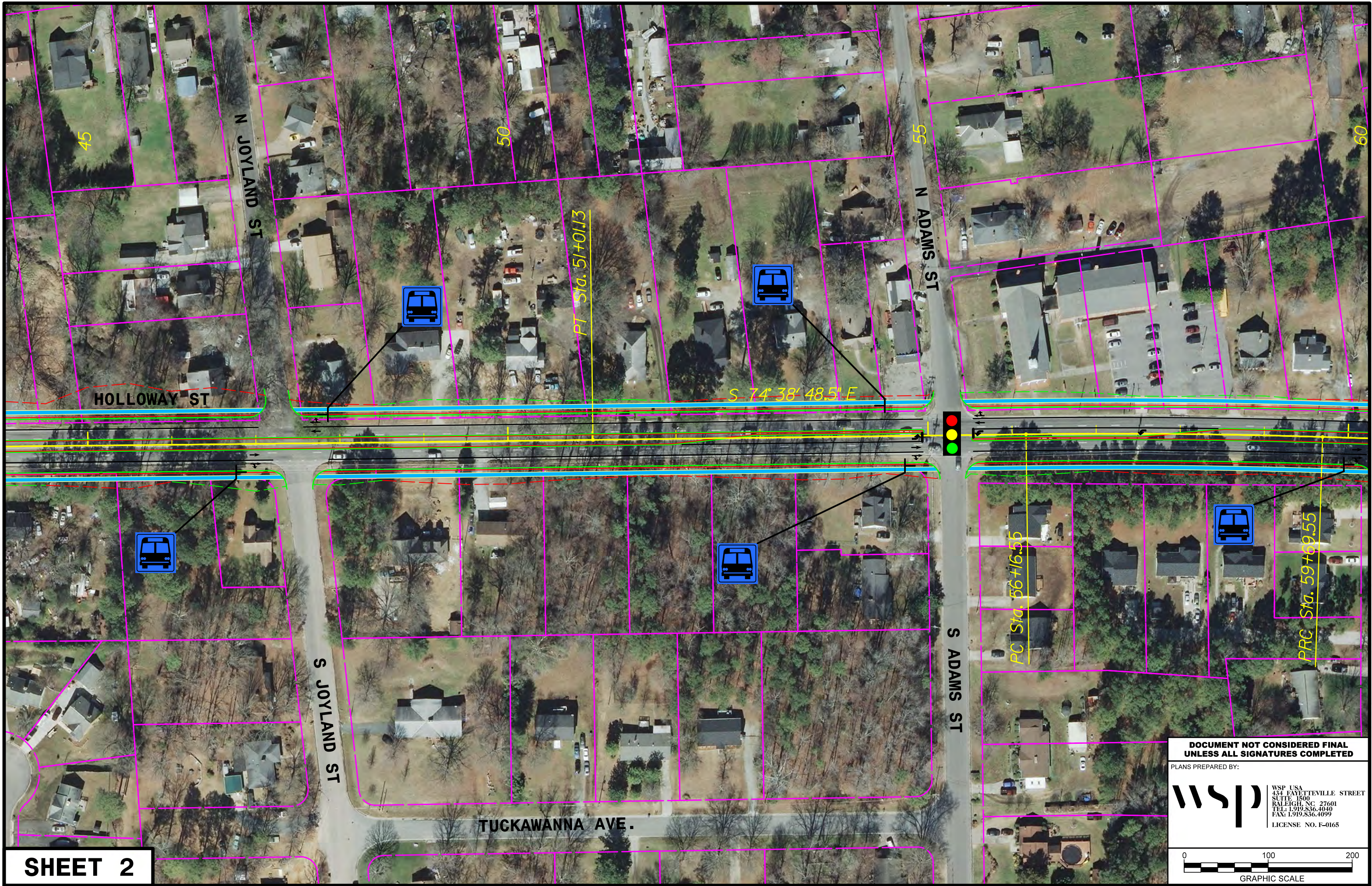
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PLANS PREPARED BY:

wsp

WSP, USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

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GRAPHIC SCALE



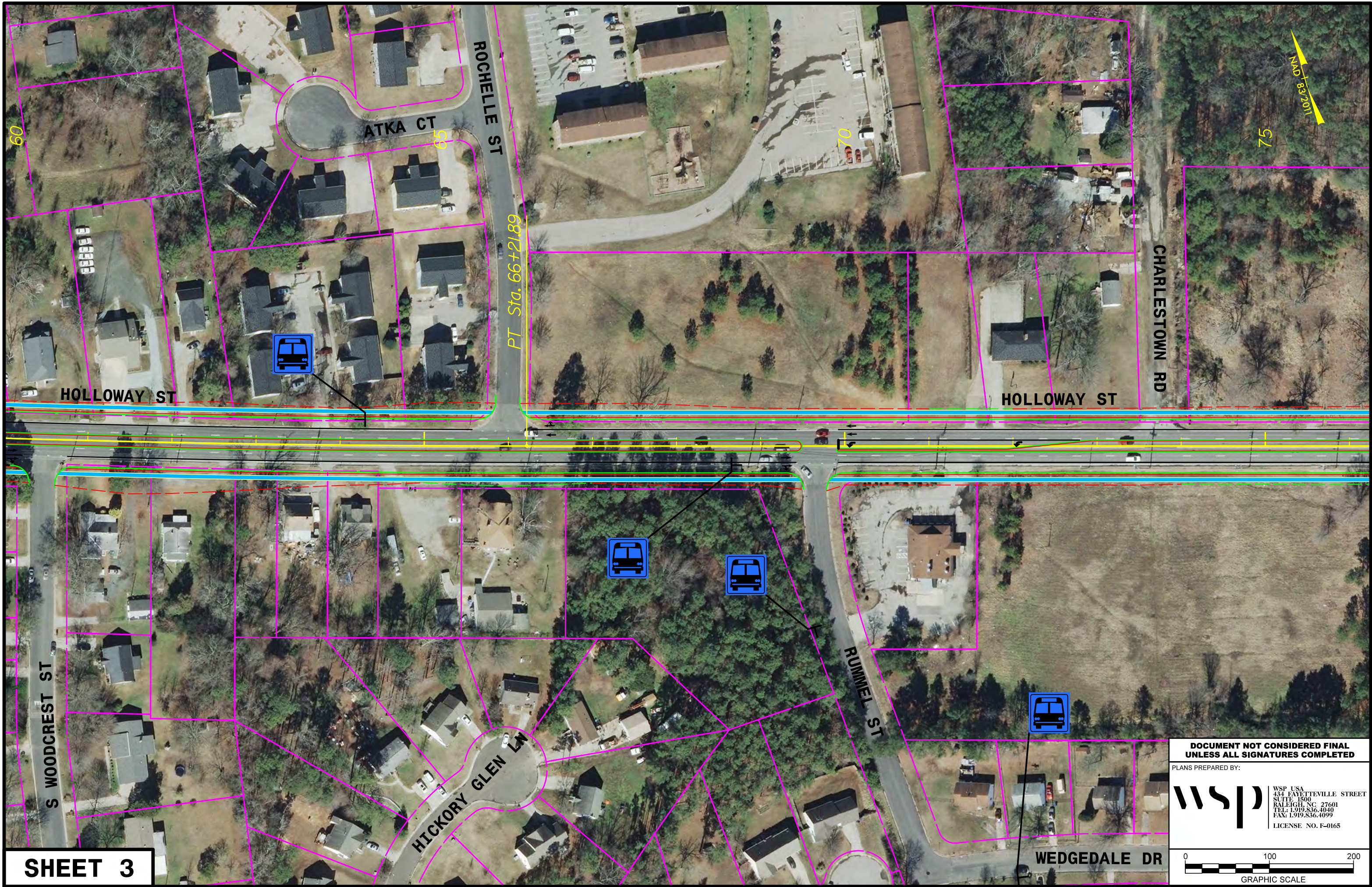
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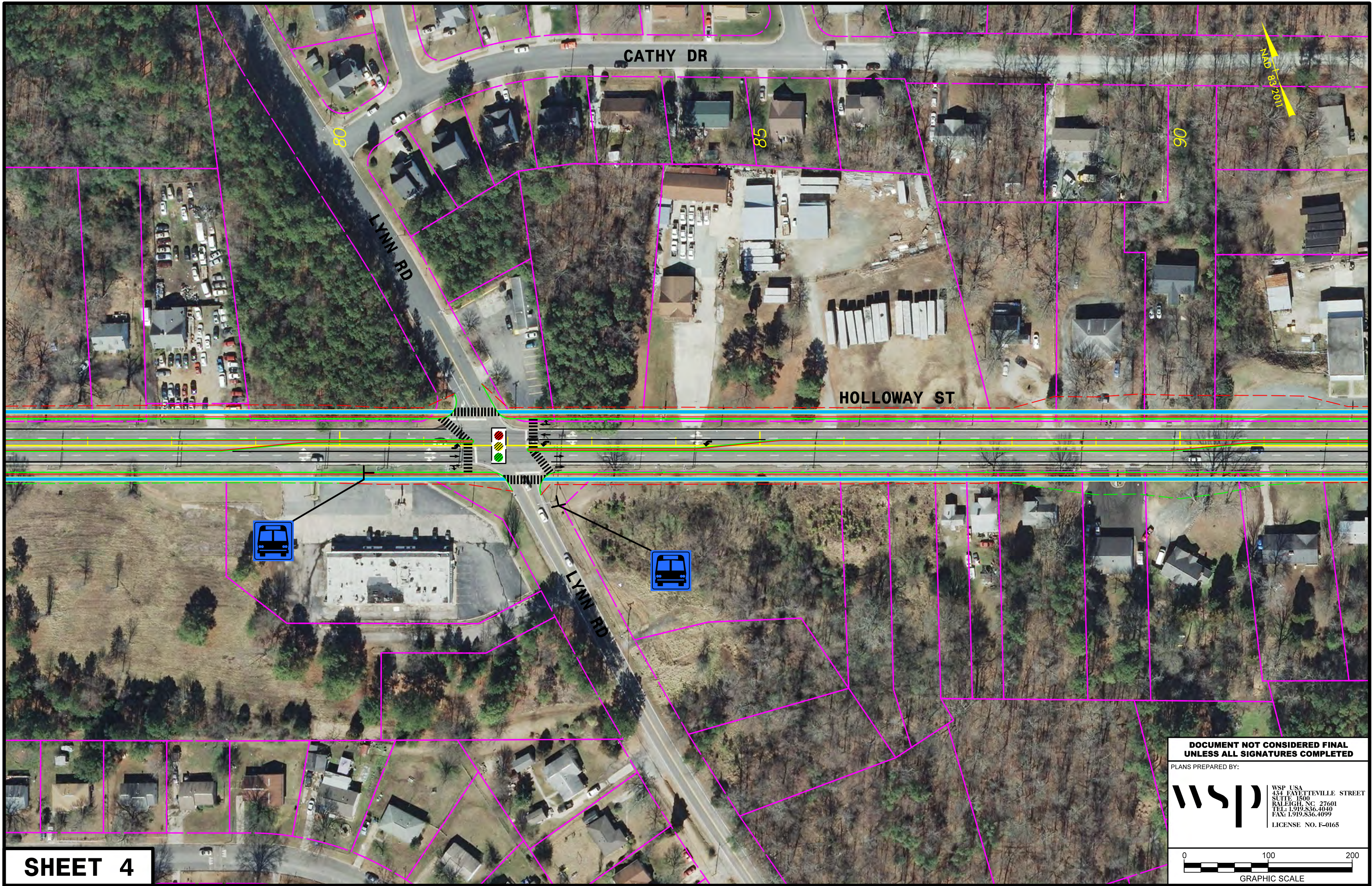
PLANS PREPARED BY:

wsp

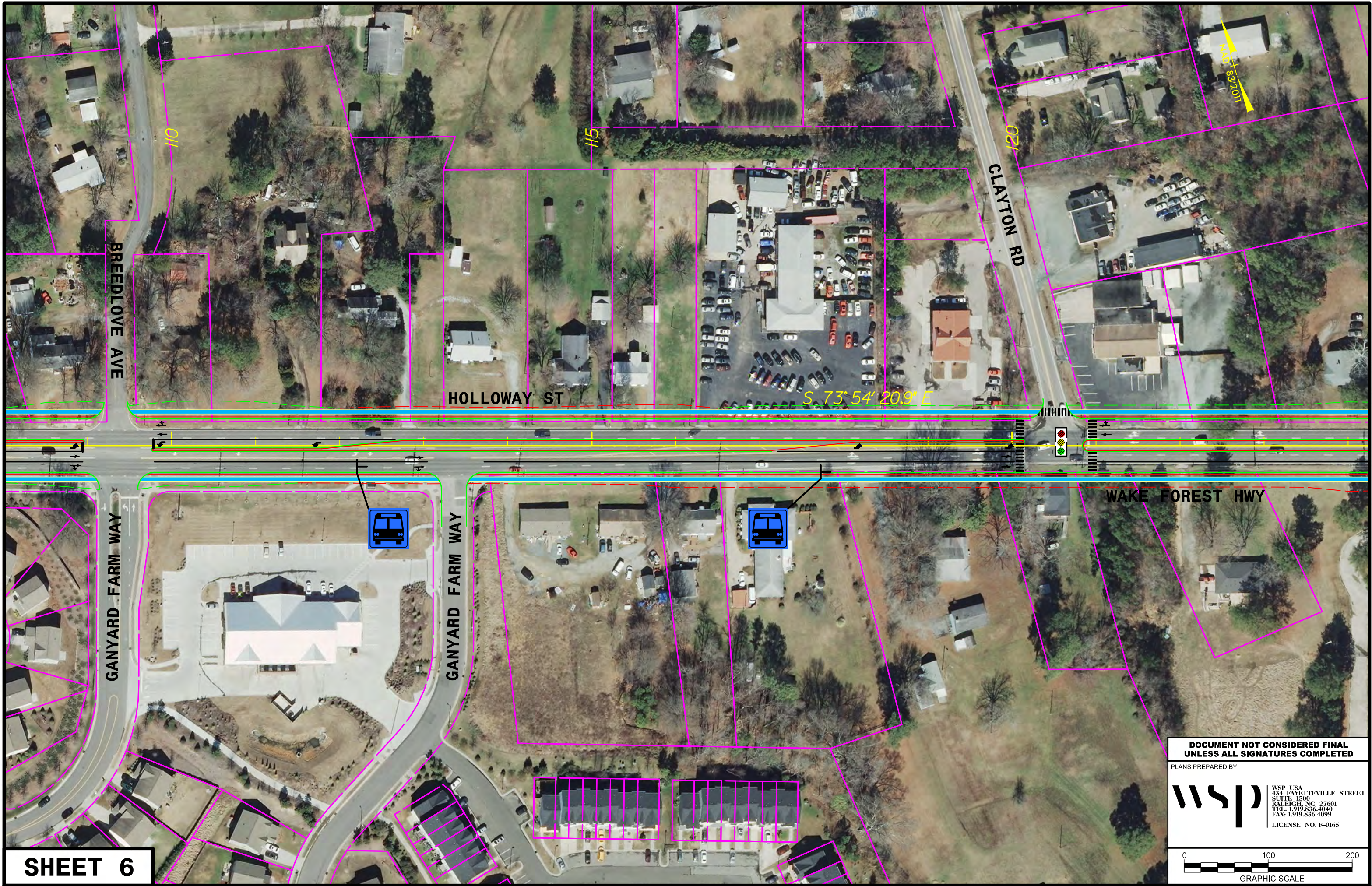
WSP, USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

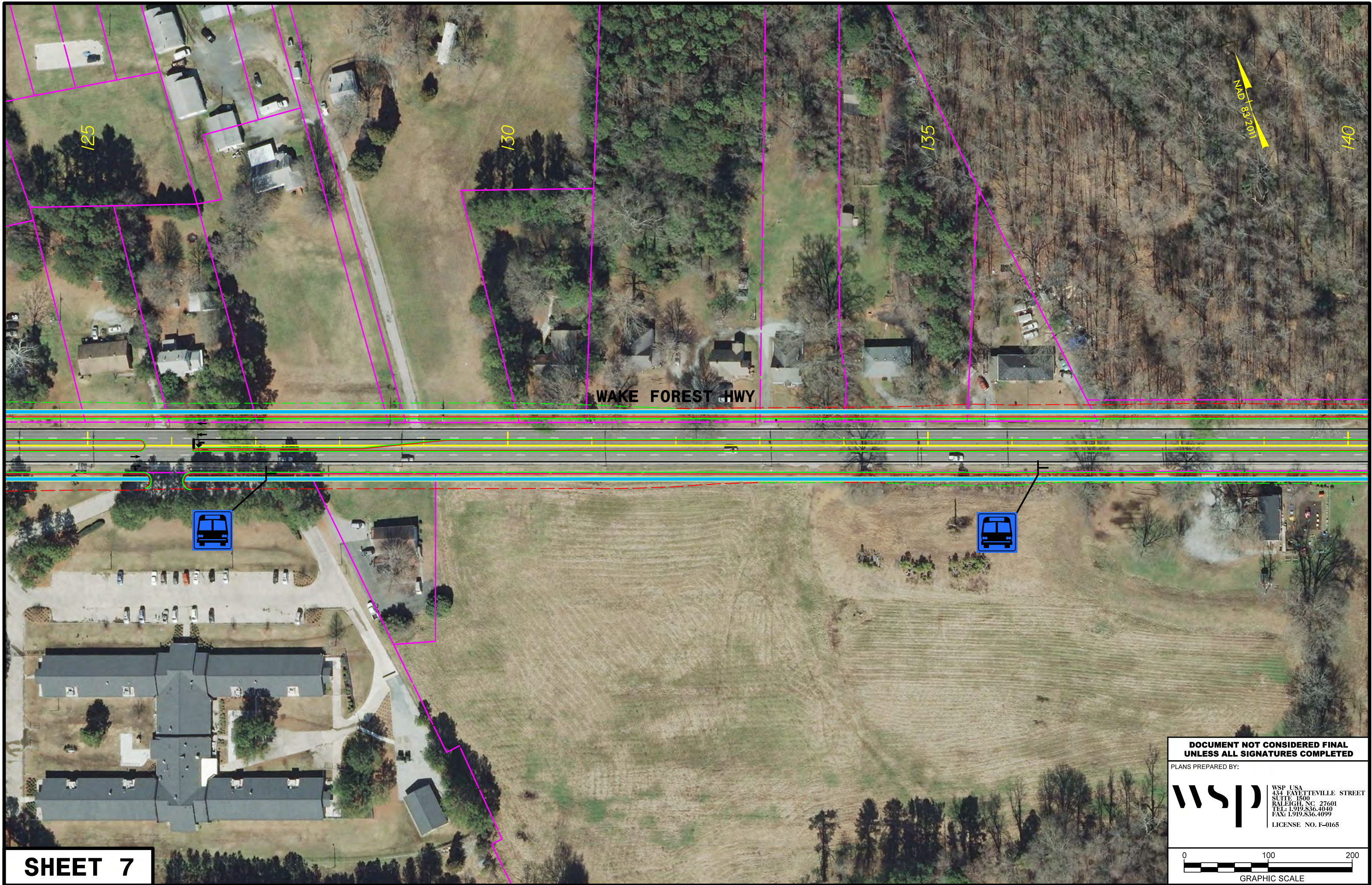
0 100 200
GRAPHIC SCALE












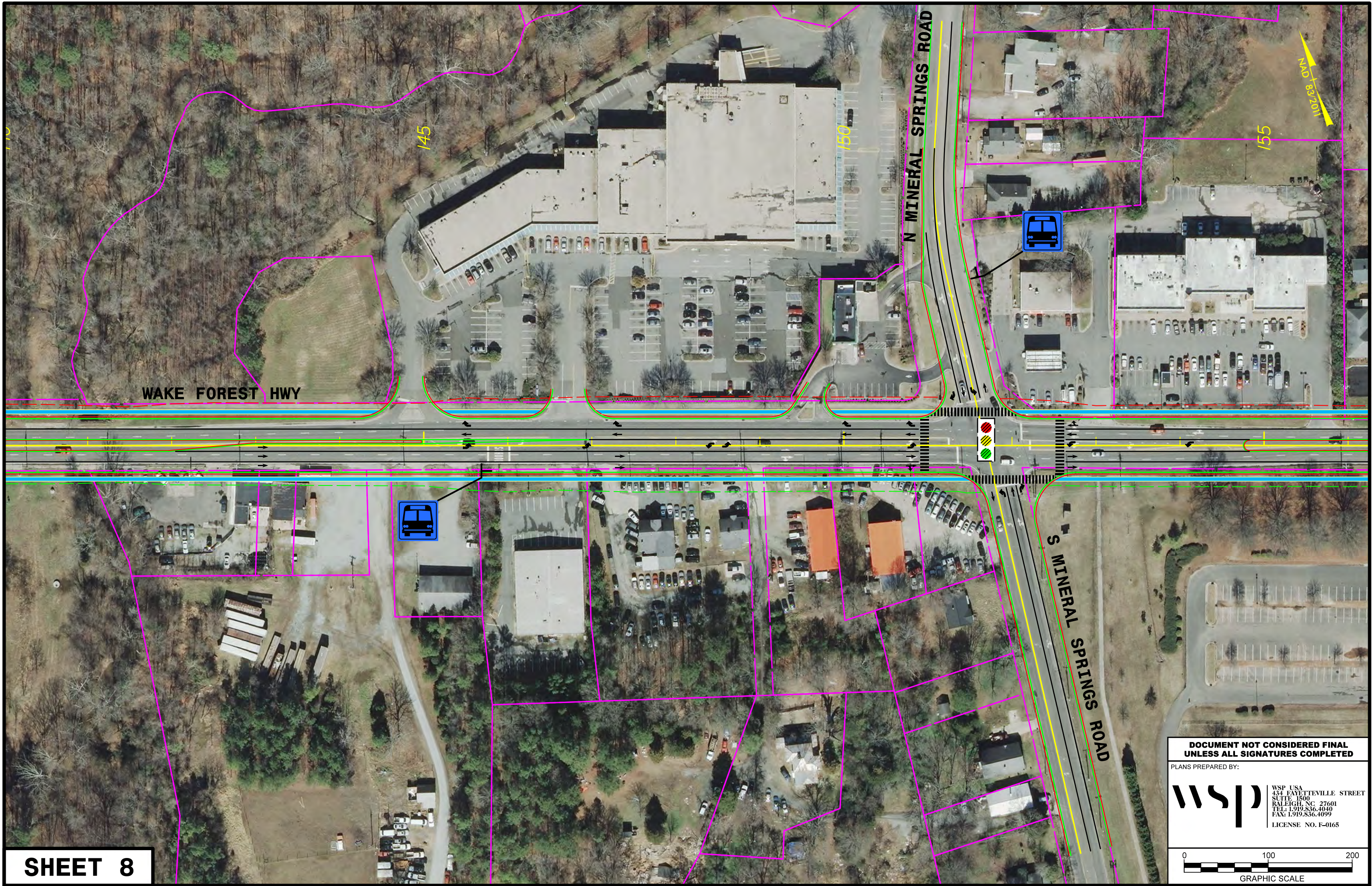
**DOCUMENT NOT CONSIDERED FINAL
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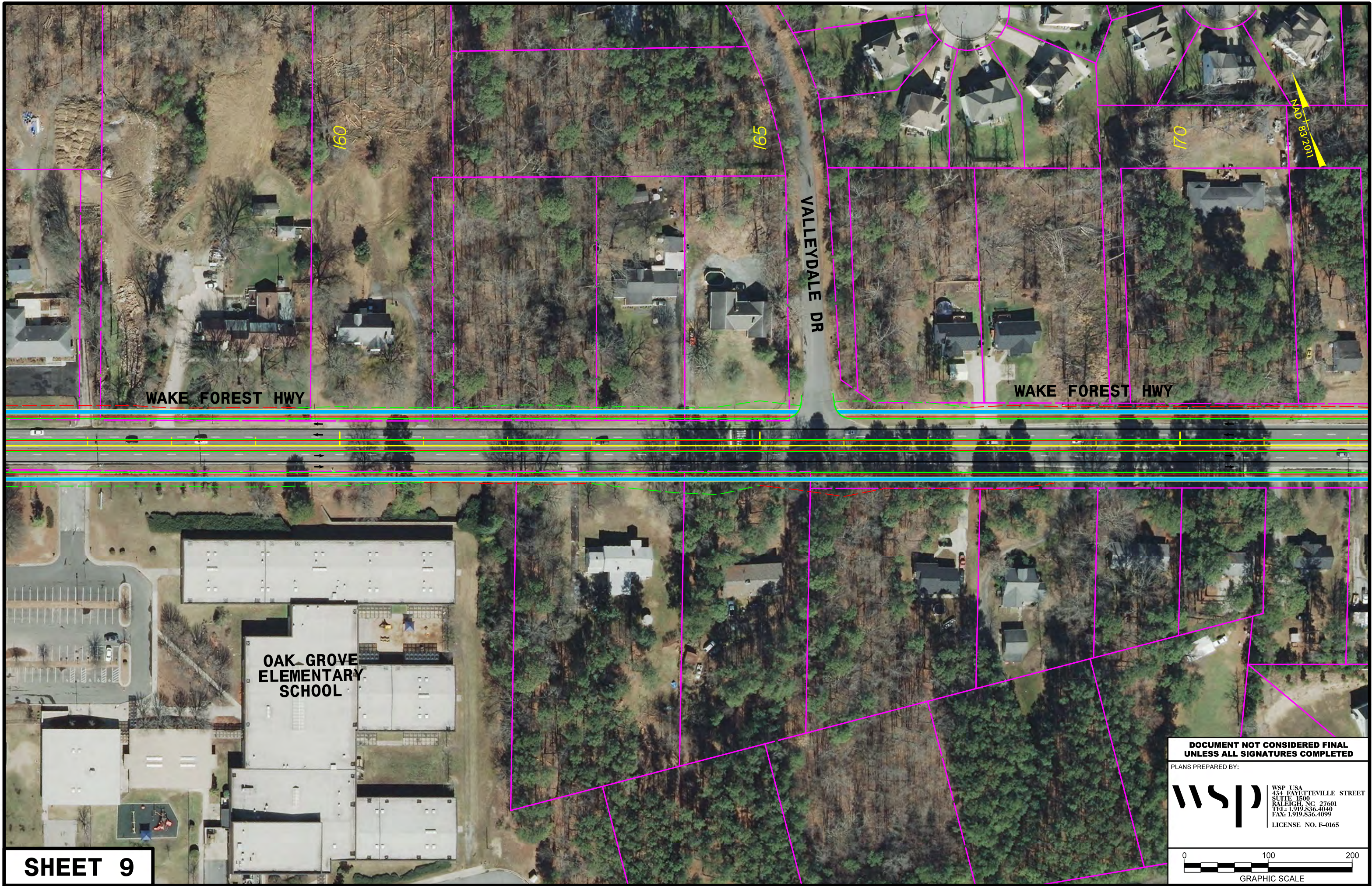
PLANS PREPARED BY:



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0 100 200
GRAPHIC SCALE





WAKE FOREST HWY

VALLEYDALE DR

WAKE FOREST HWY

OAK GROVE
ELEMENTARY
SCHOOL

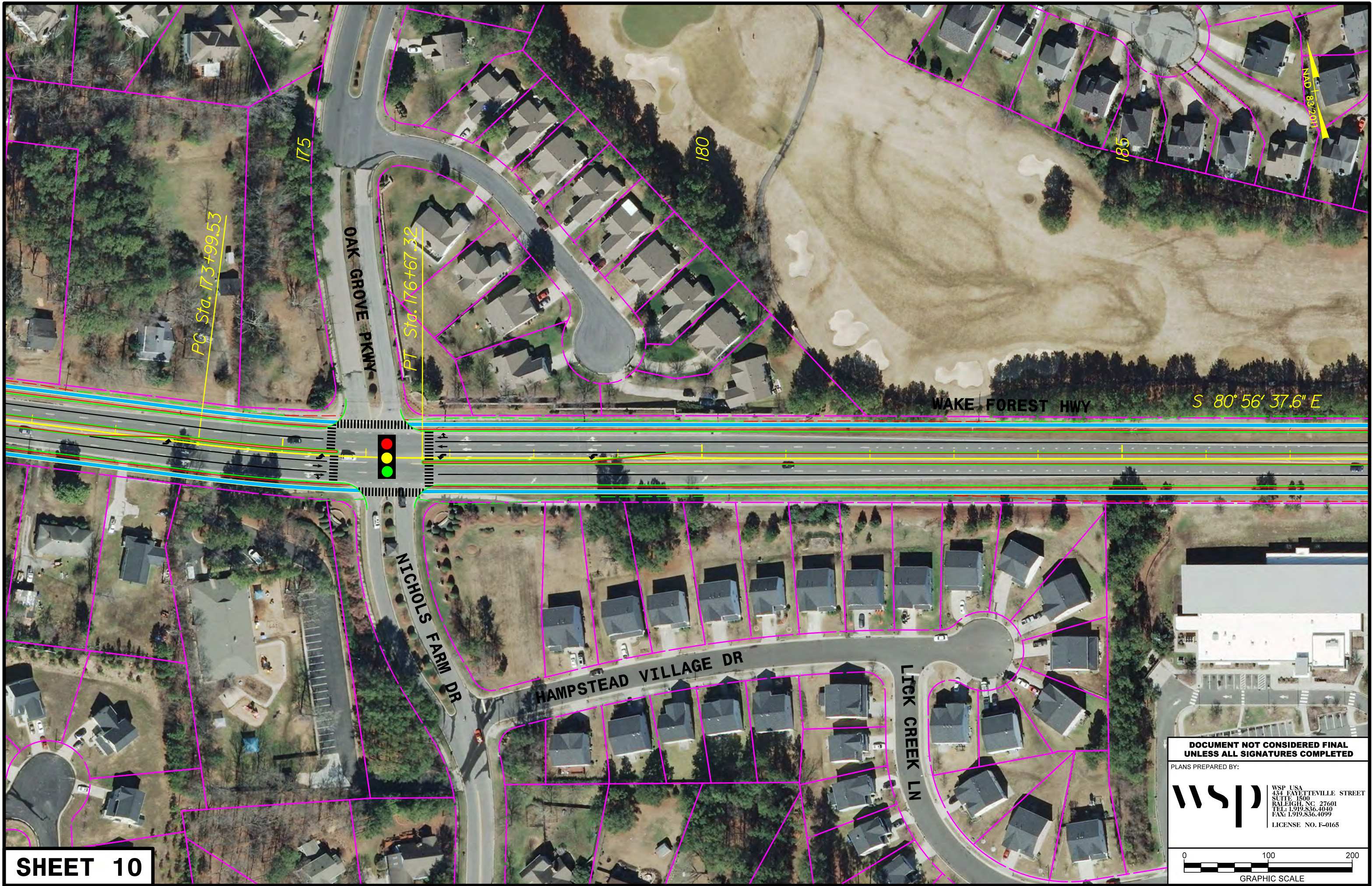
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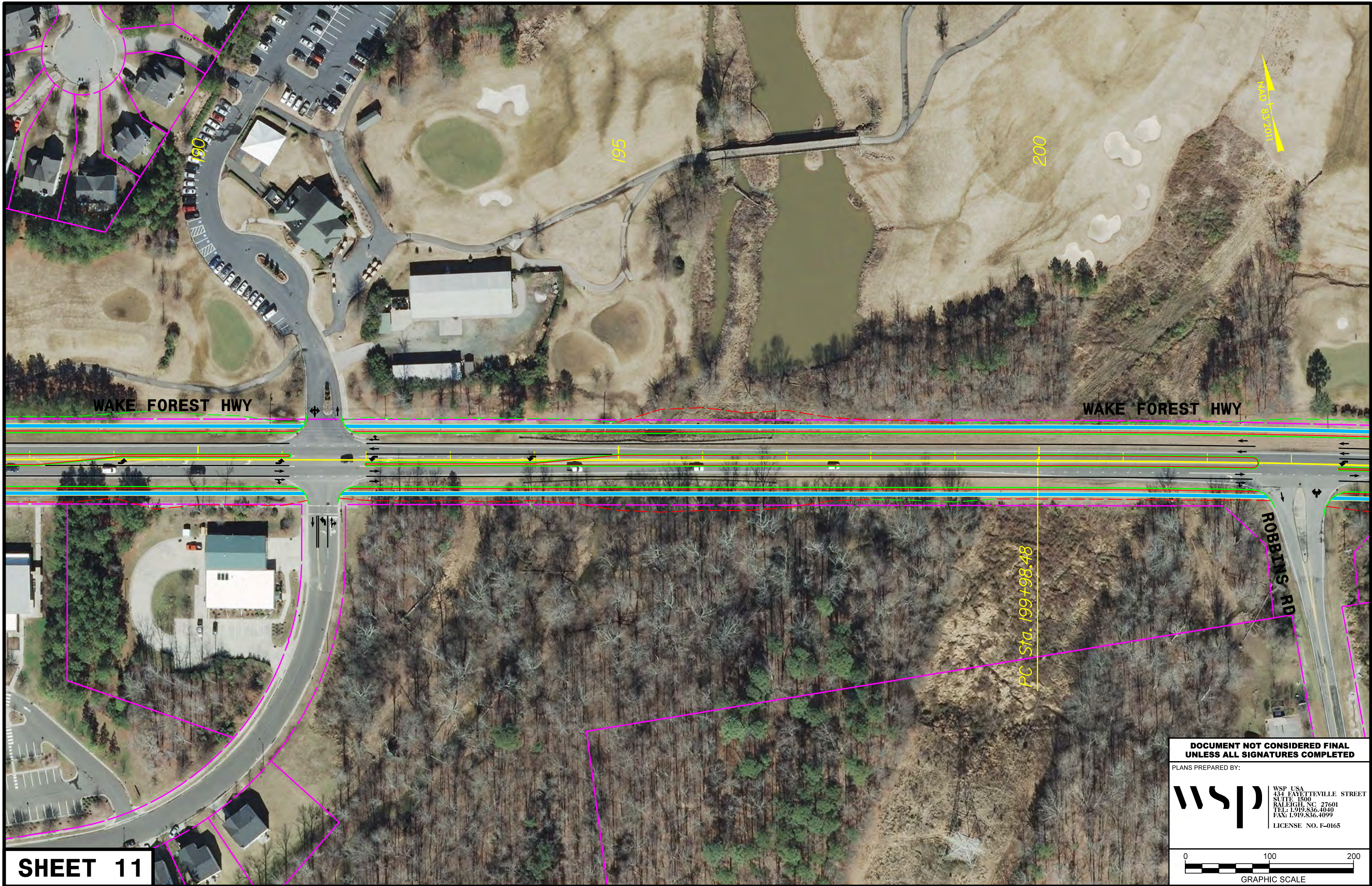
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0 100 200
GRAPHIC SCALE



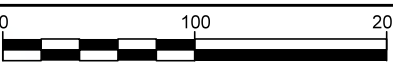


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0 100 200
GRAPHIC SCALE

STONELEIGH CT

GWENDOLYN CIR

205

210

215

WAKE FOREST HWY

PT Sta. 204+73.57

HOCUTT RD

NAD 183/2011

SHEET 12

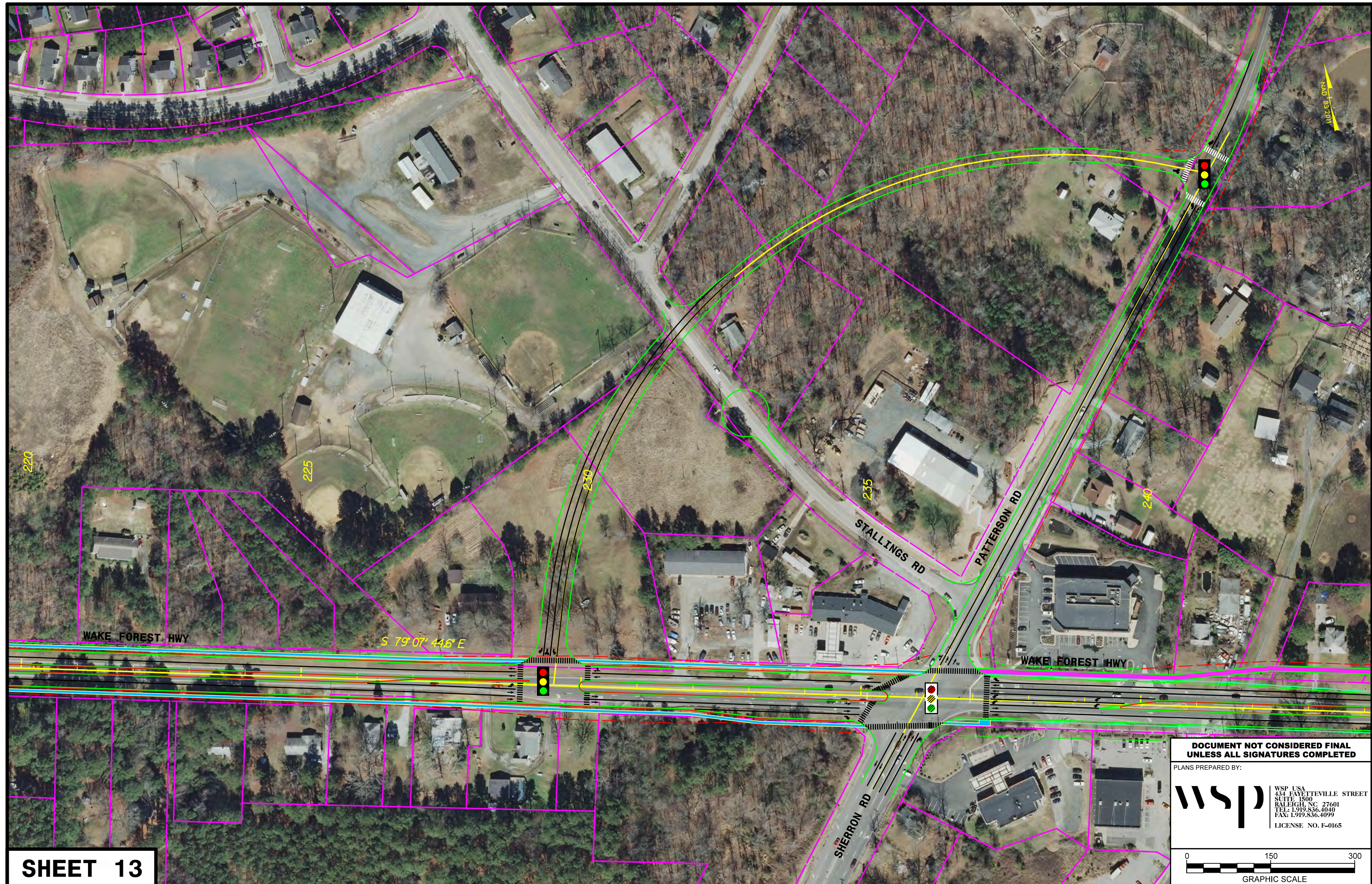
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0 100 200
GRAPHIC SCALE




SHEET 13

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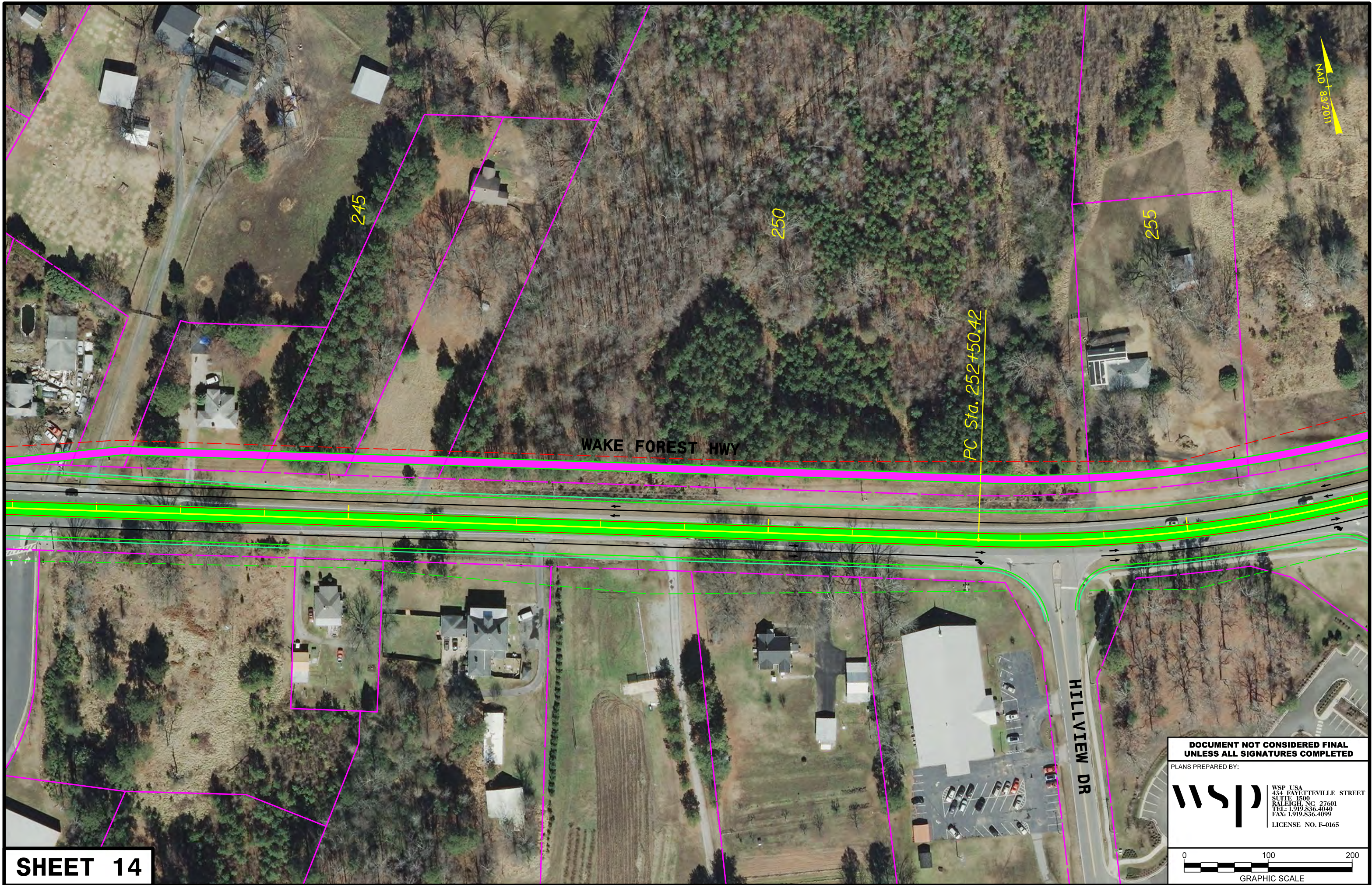
PLANS PREPARED BY:



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0 150 300
GRAPHIC SCALE



SHEET 14

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0 100 200
GRAPHIC SCALE

NEAL MIDDLE SCHOOL

MAID 8/3/2011

255

260

265

270

PT Sta. 258+62.84

WAKE FOREST HWY

OLIVE BRANCH

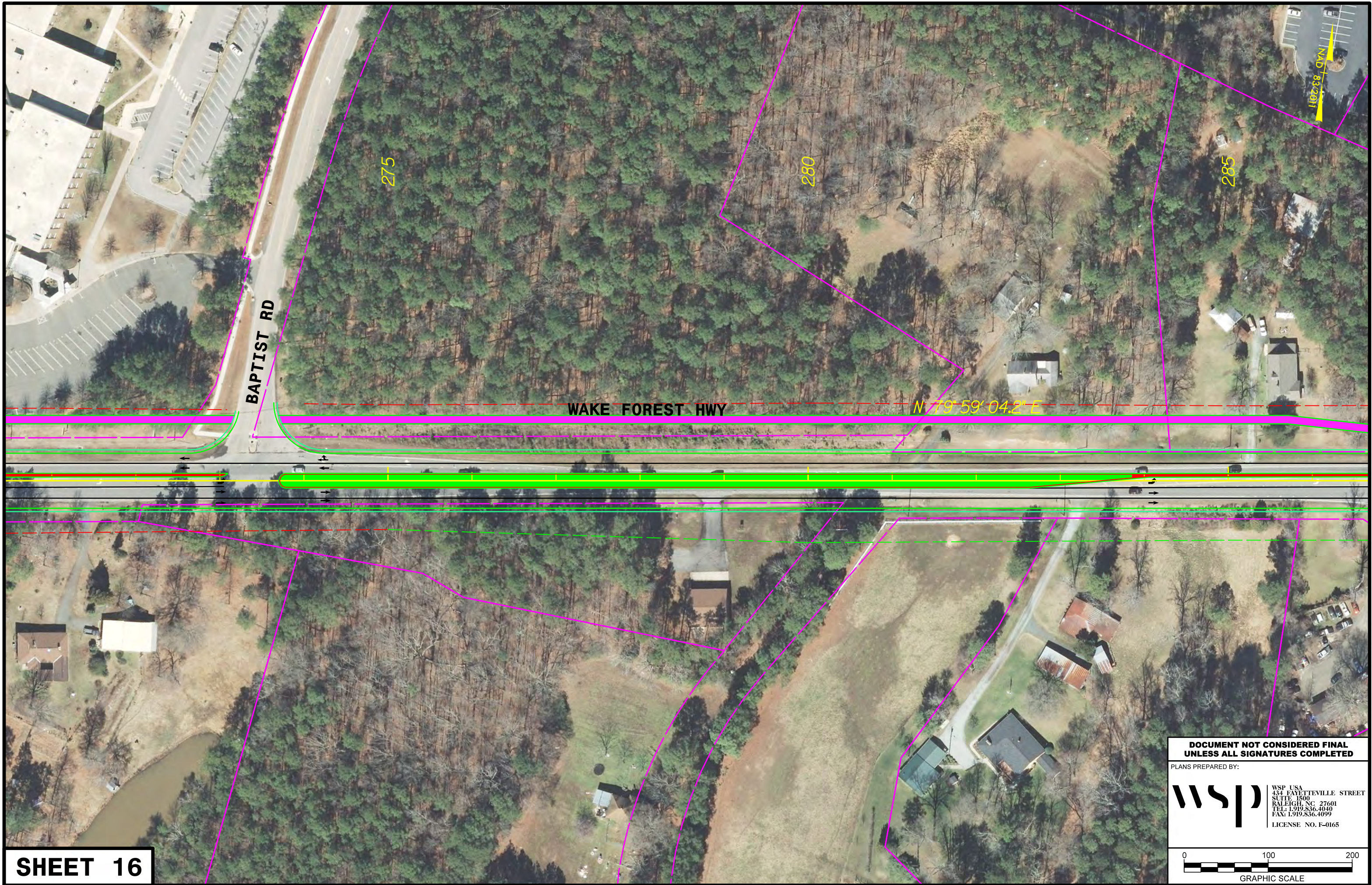
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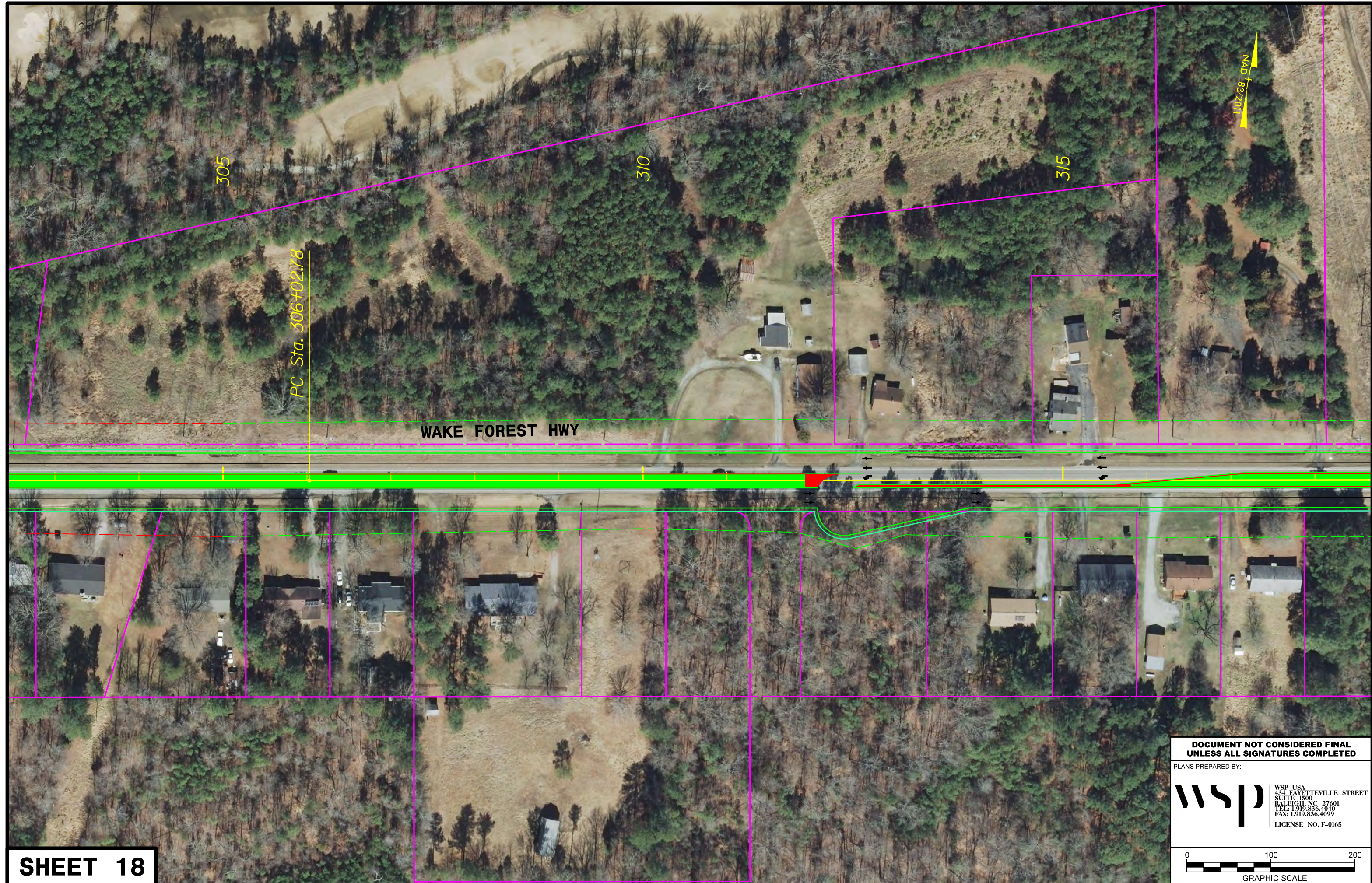
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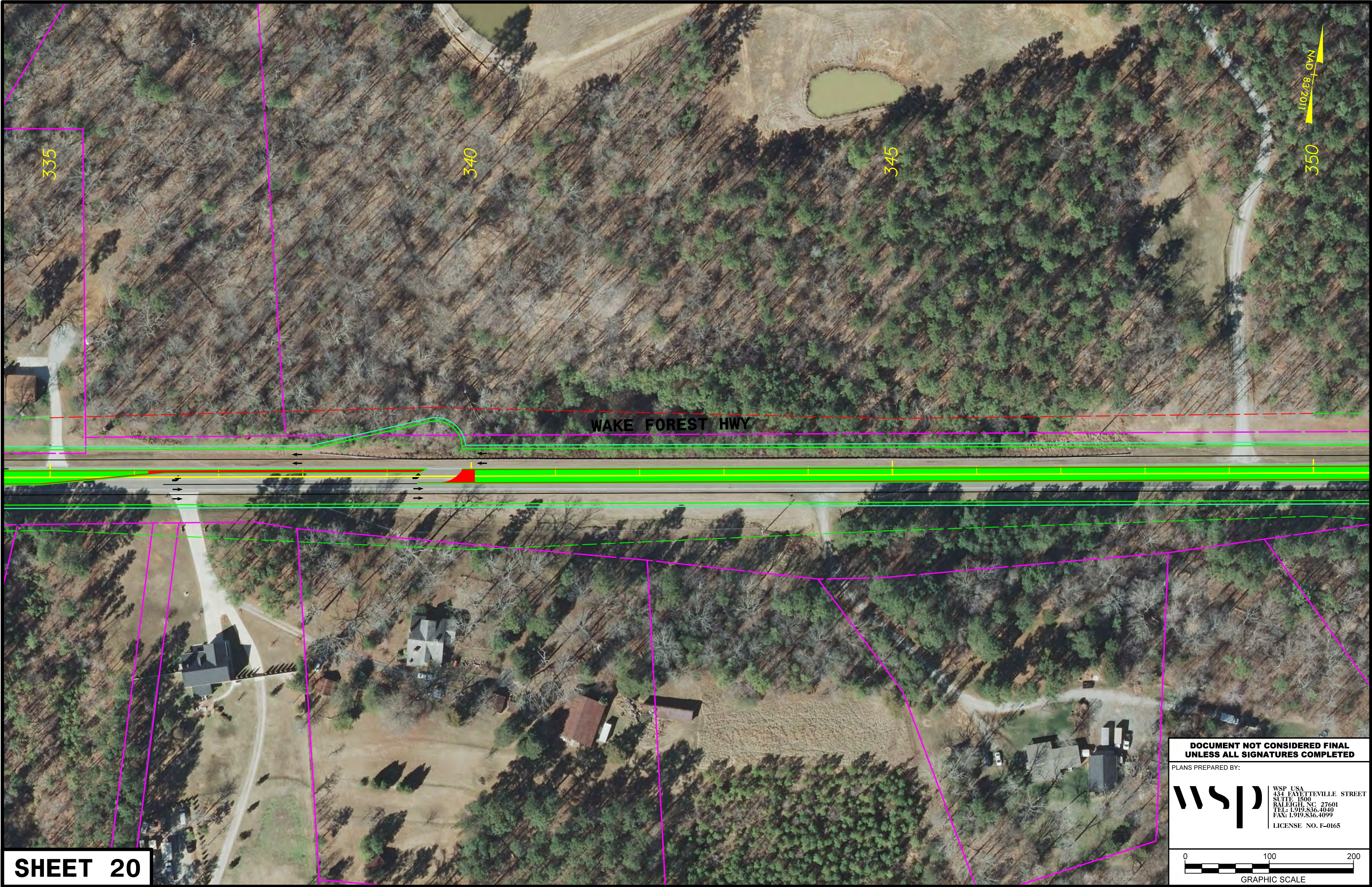
0 100 200
GRAPHIC SCALE

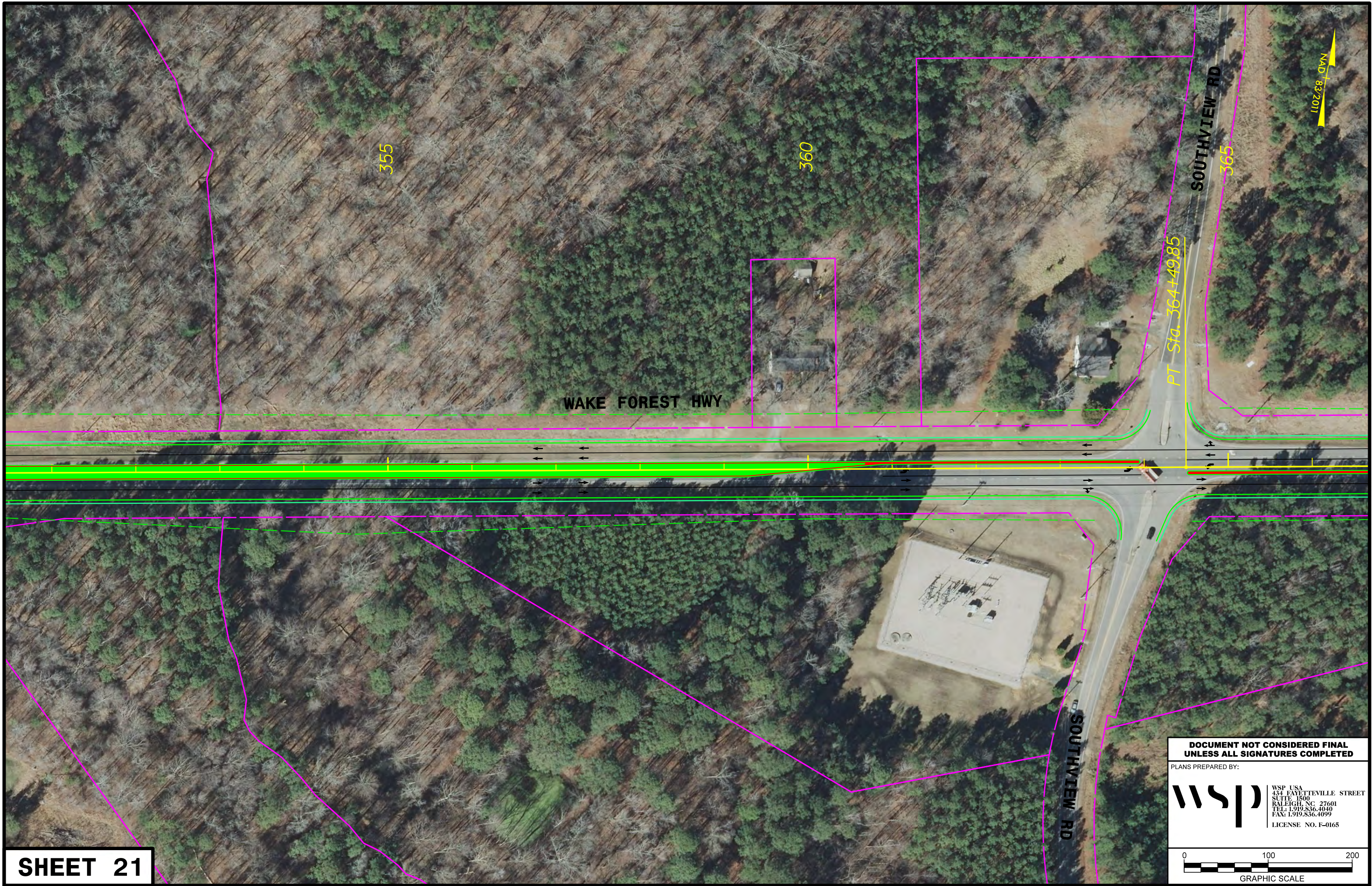


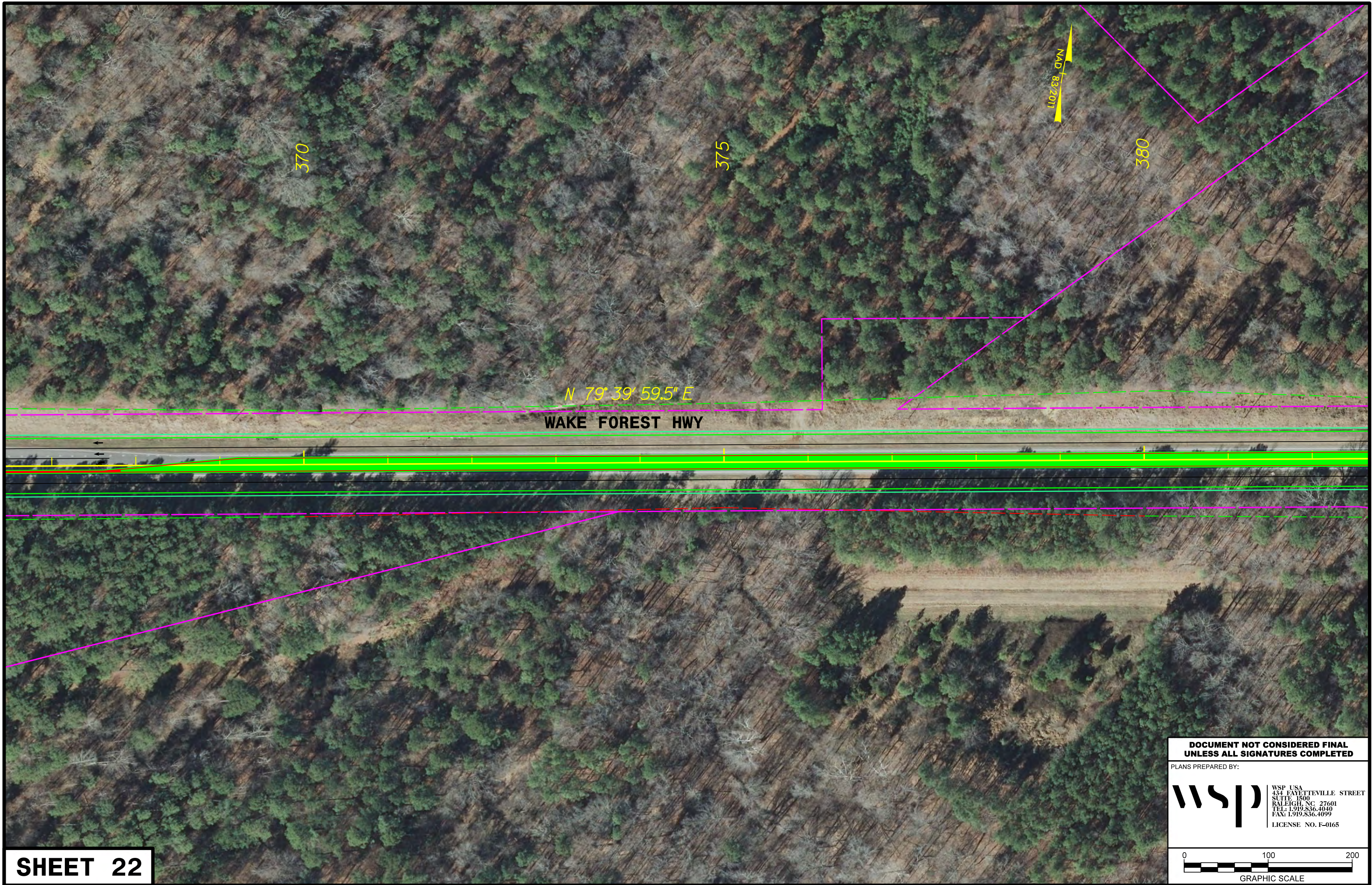


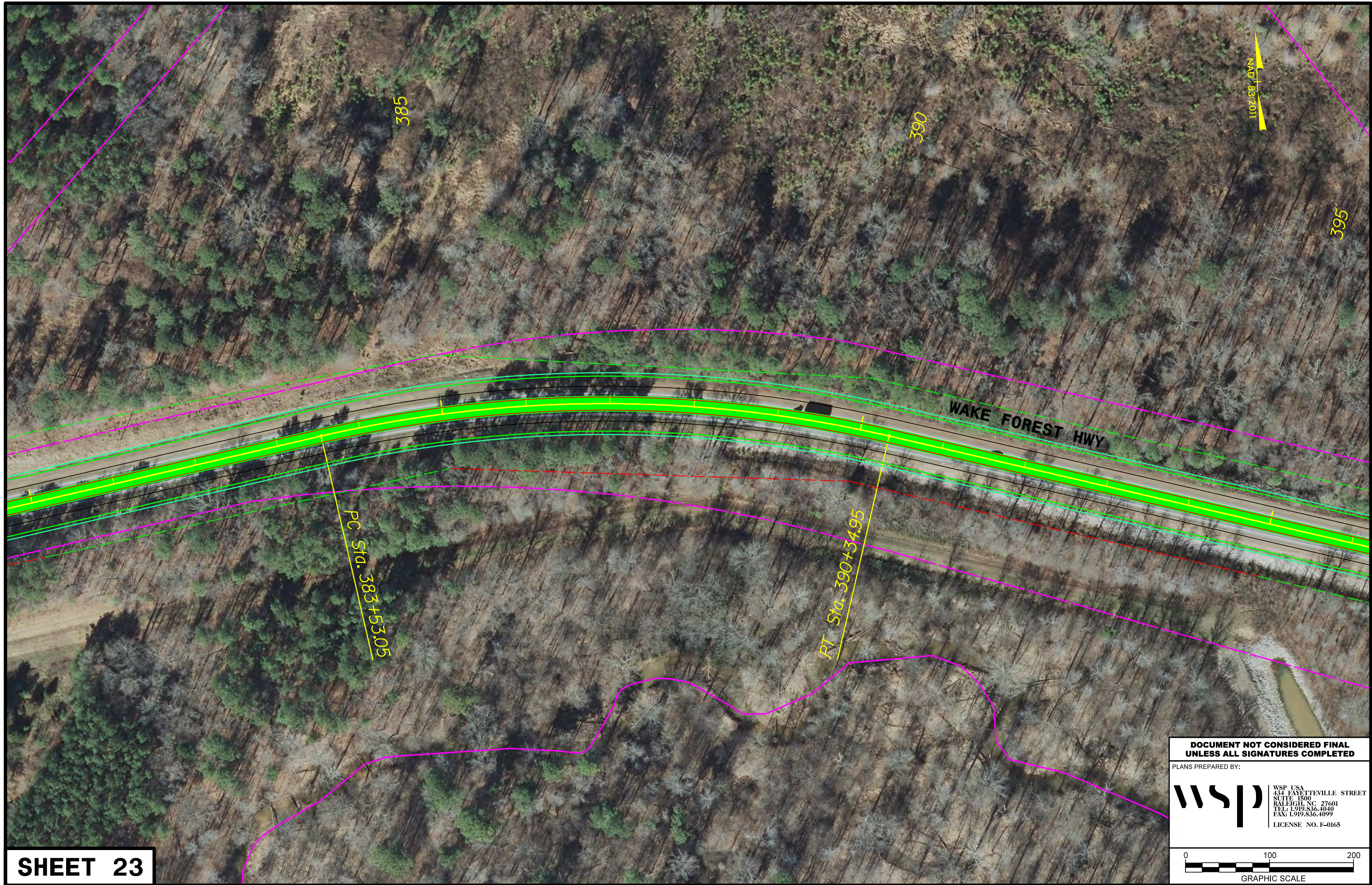




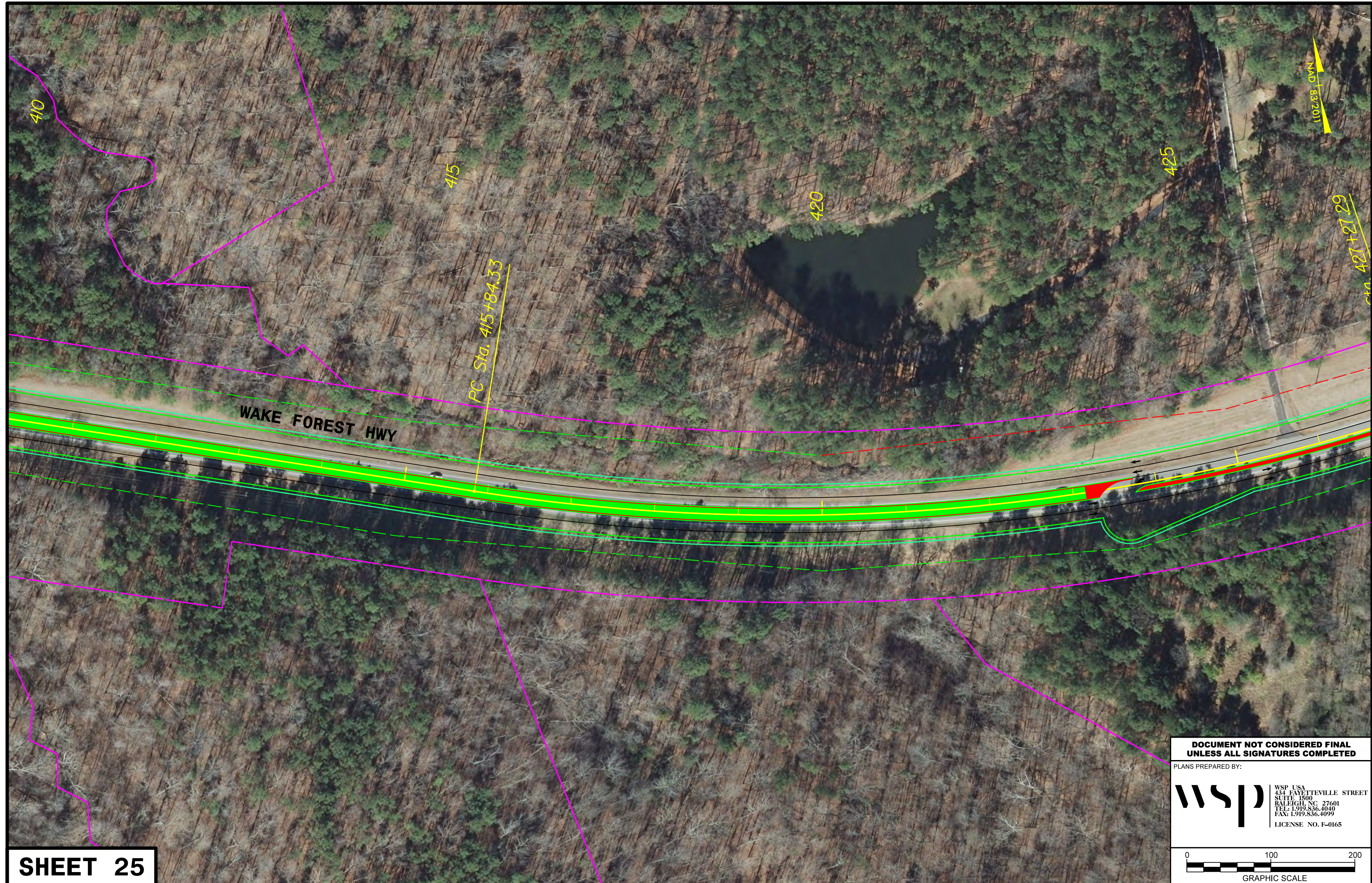


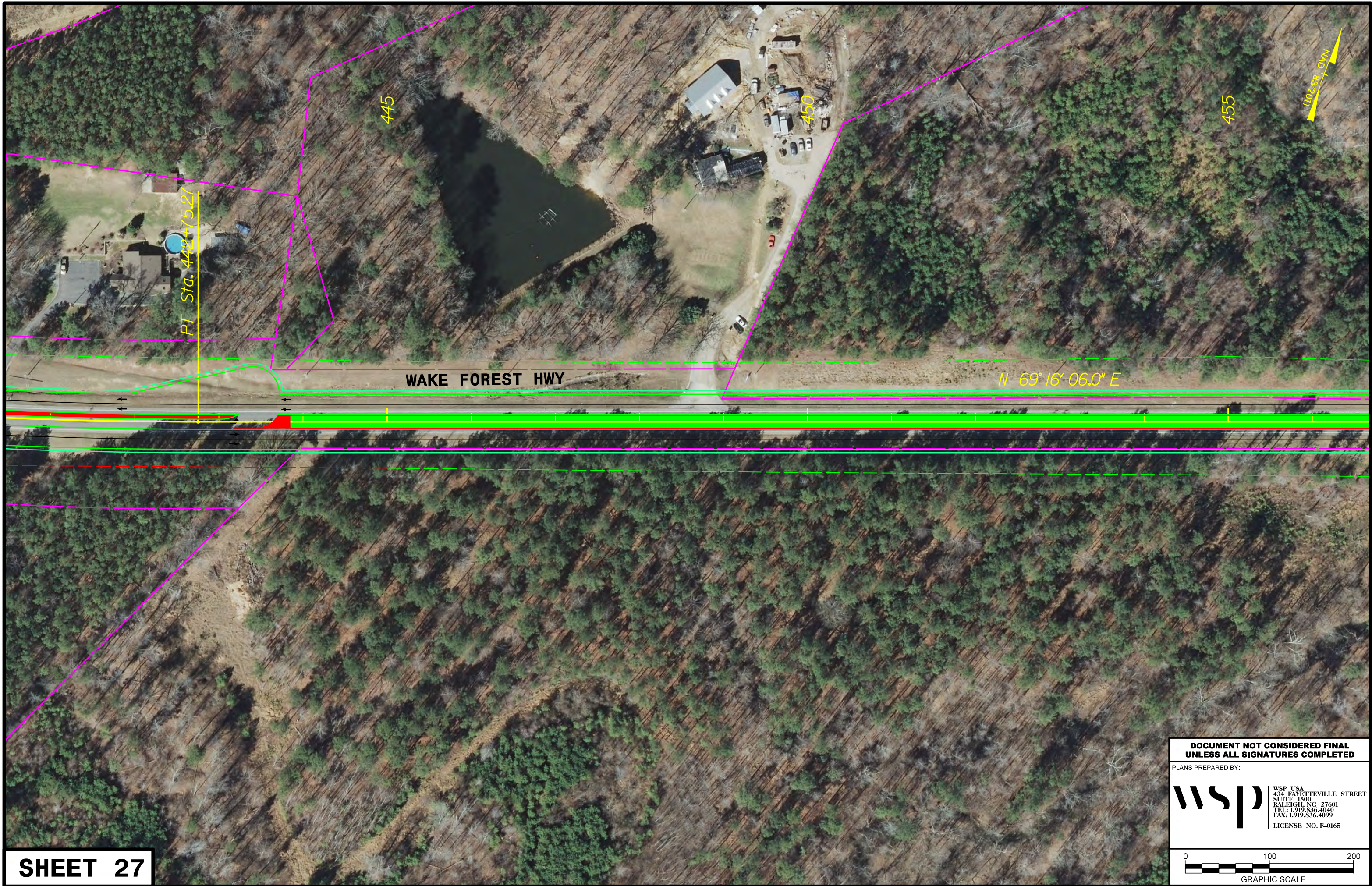












WAKE FOREST HWY

PT Sta. 442+75.27

N 69° 16' 06.0" E

445

450

455

N 00° 00' 00" E

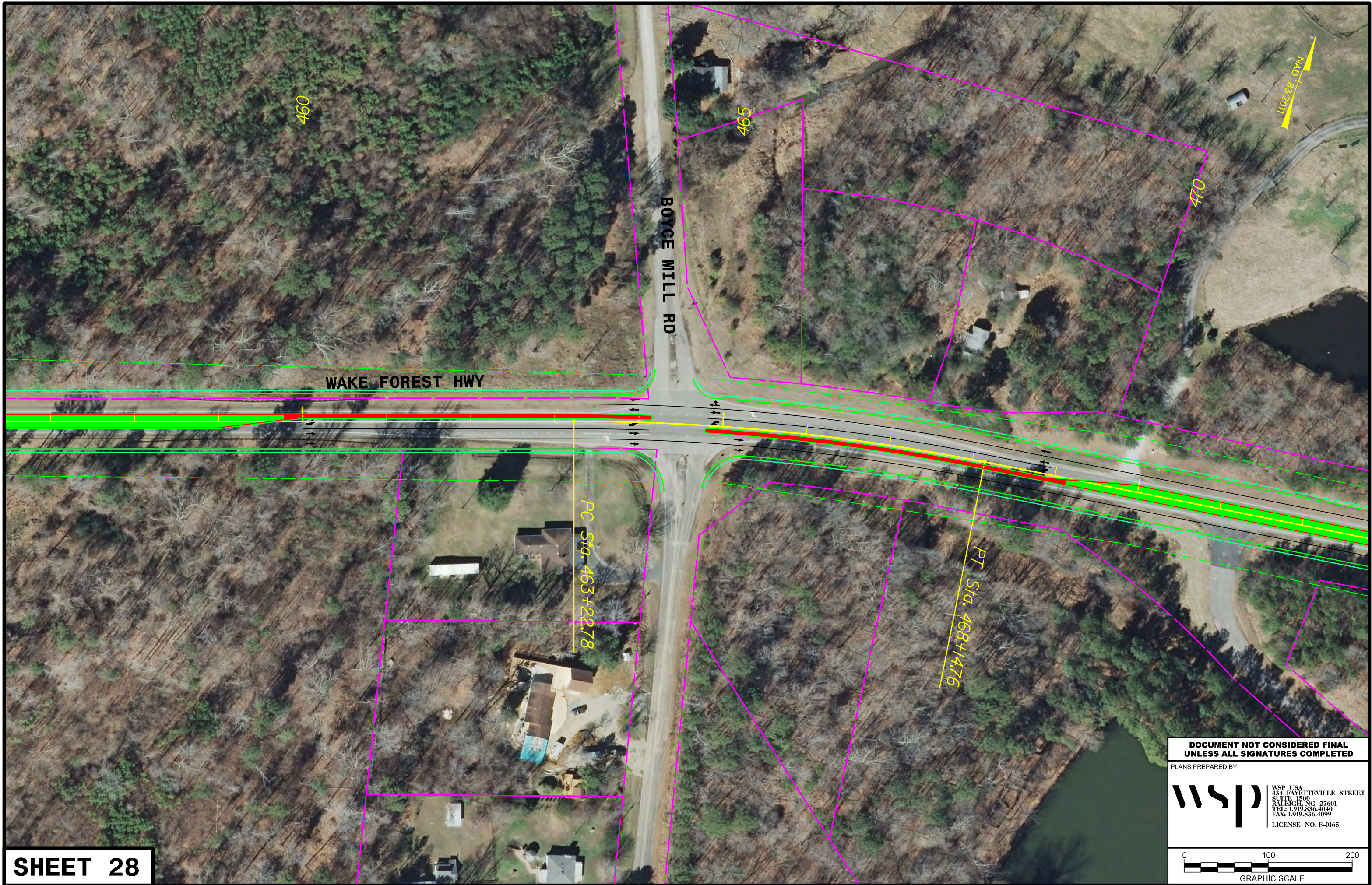
SHEET 27

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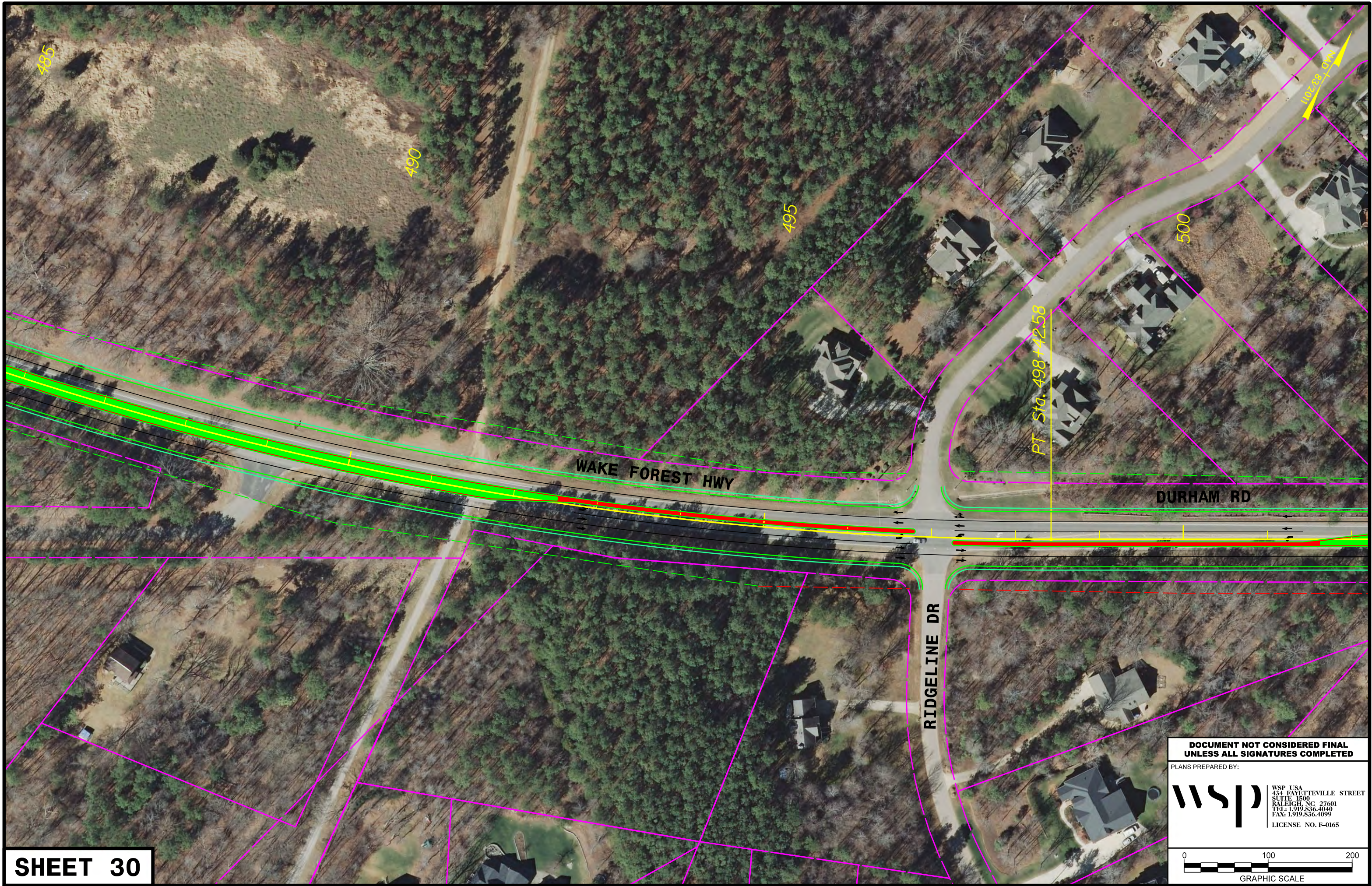
PLANS PREPARED BY:

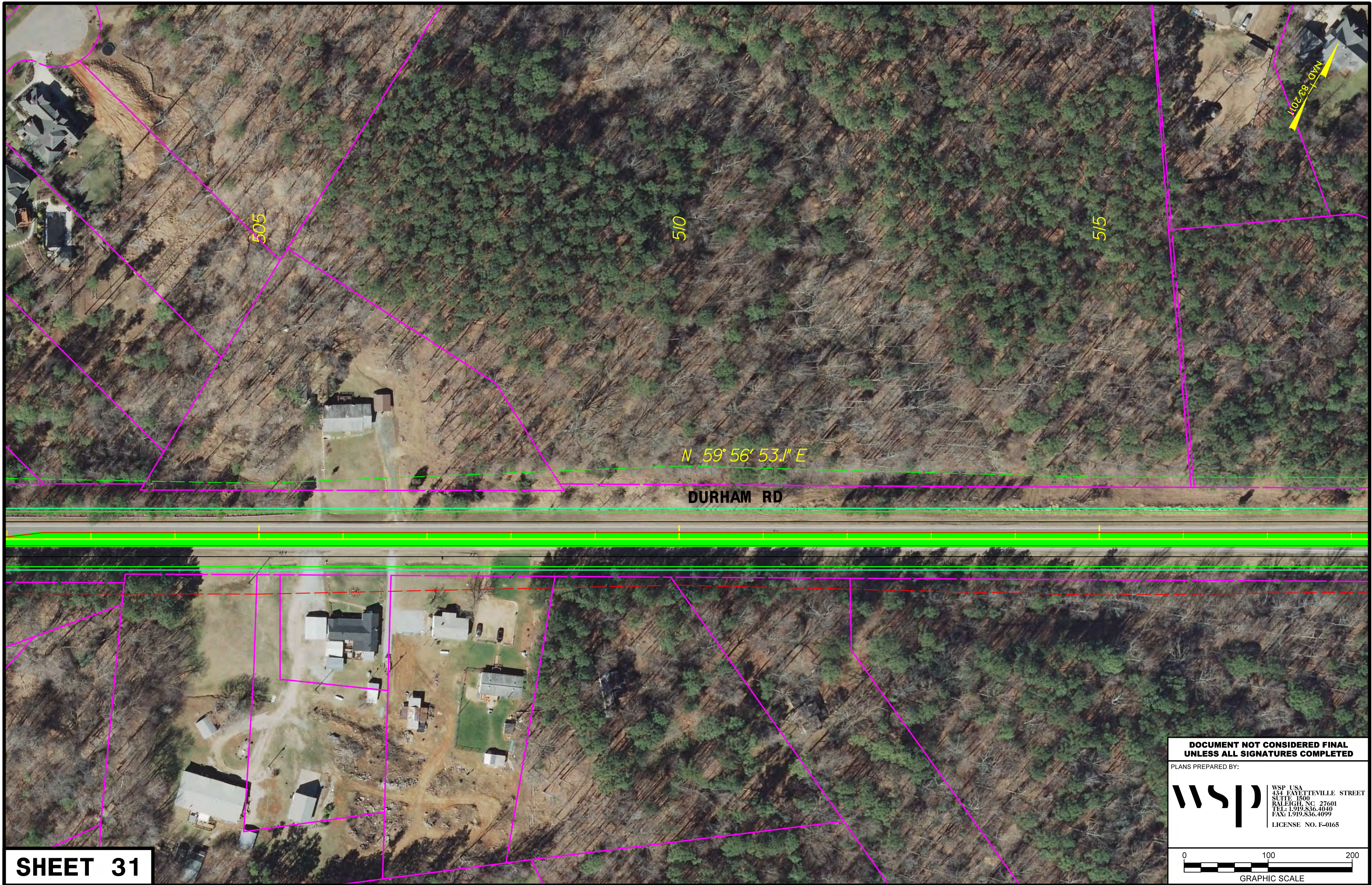
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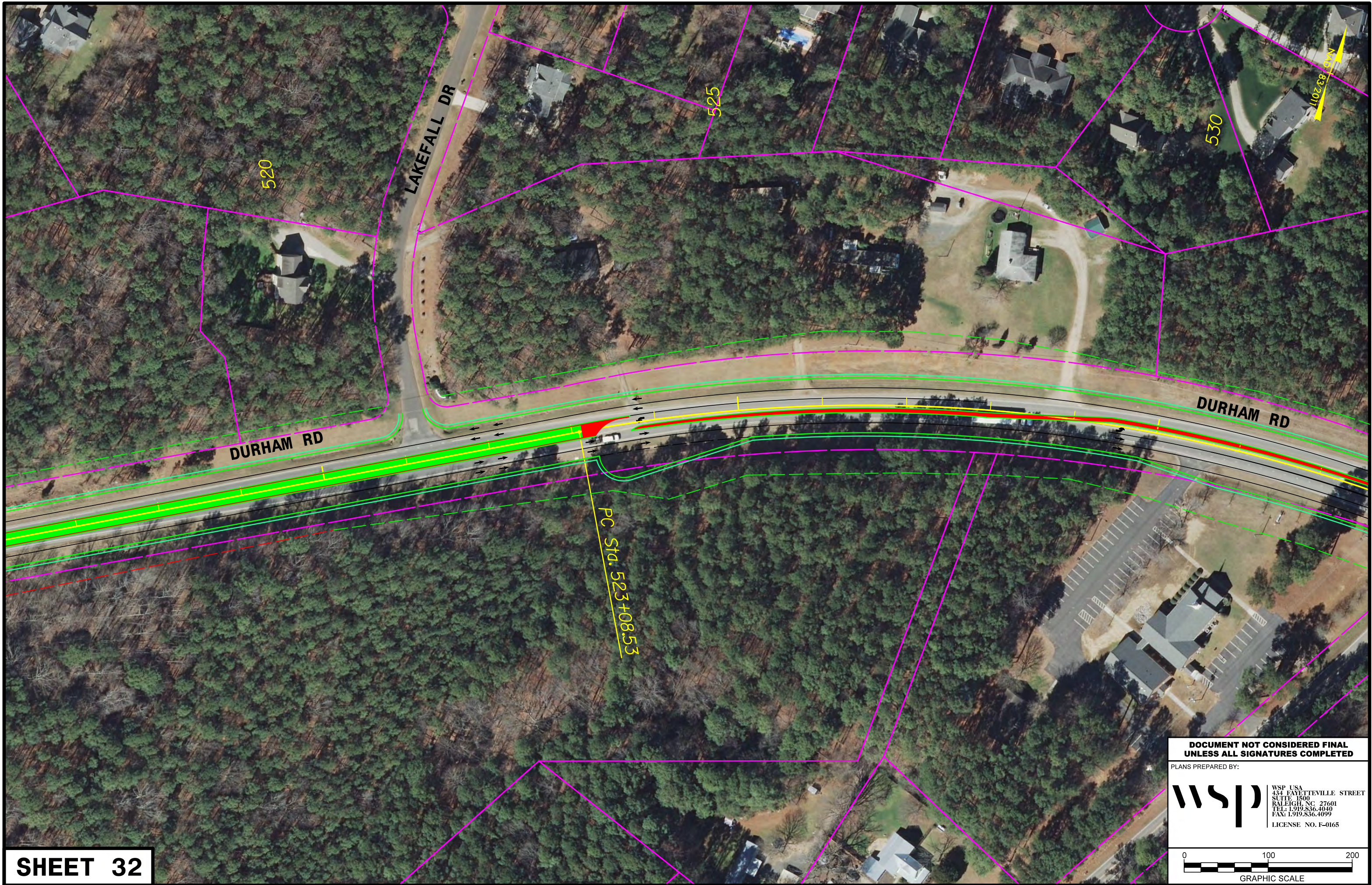
0 100 200
GRAPHIC SCALE

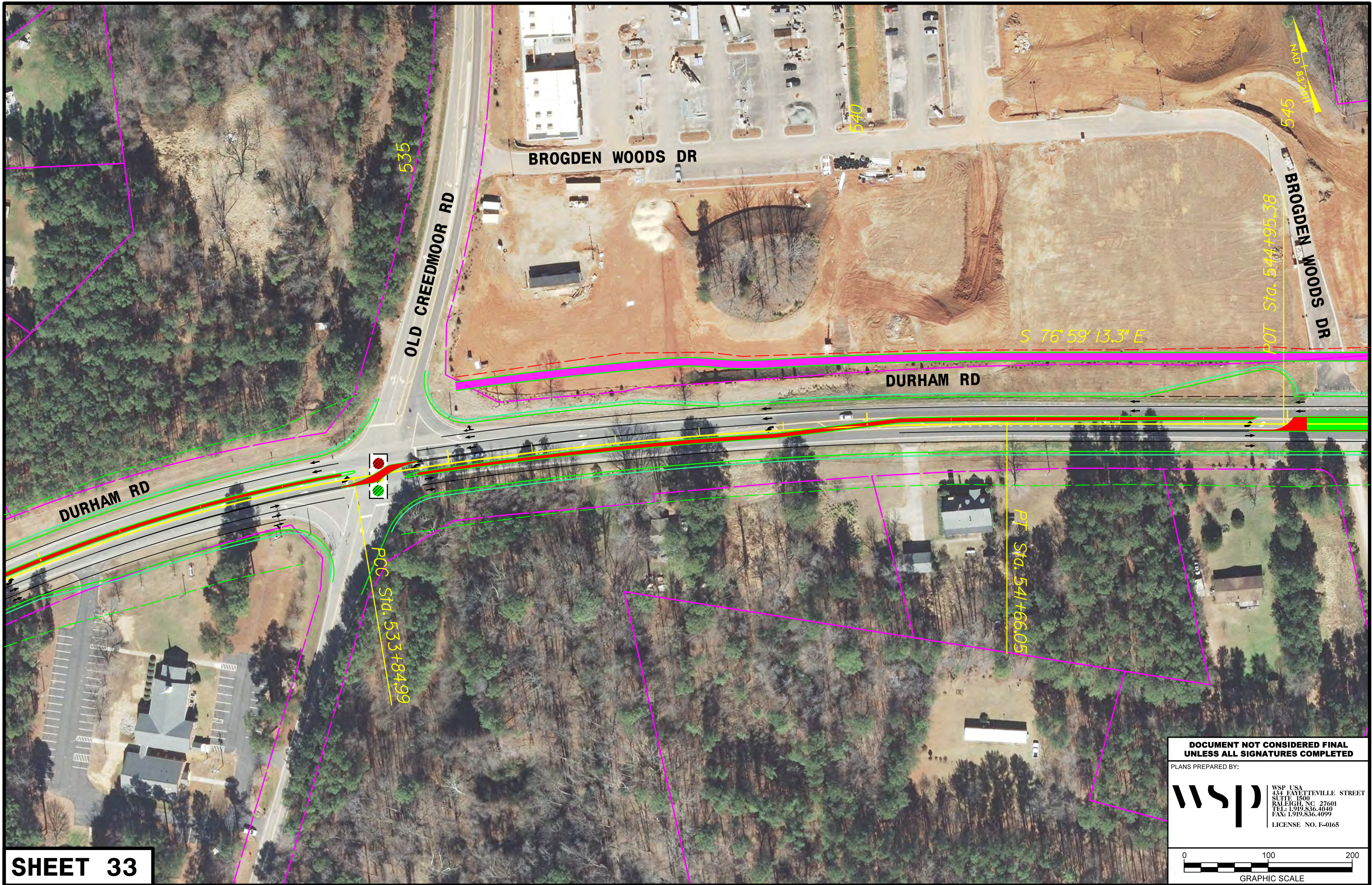












SHEET 33

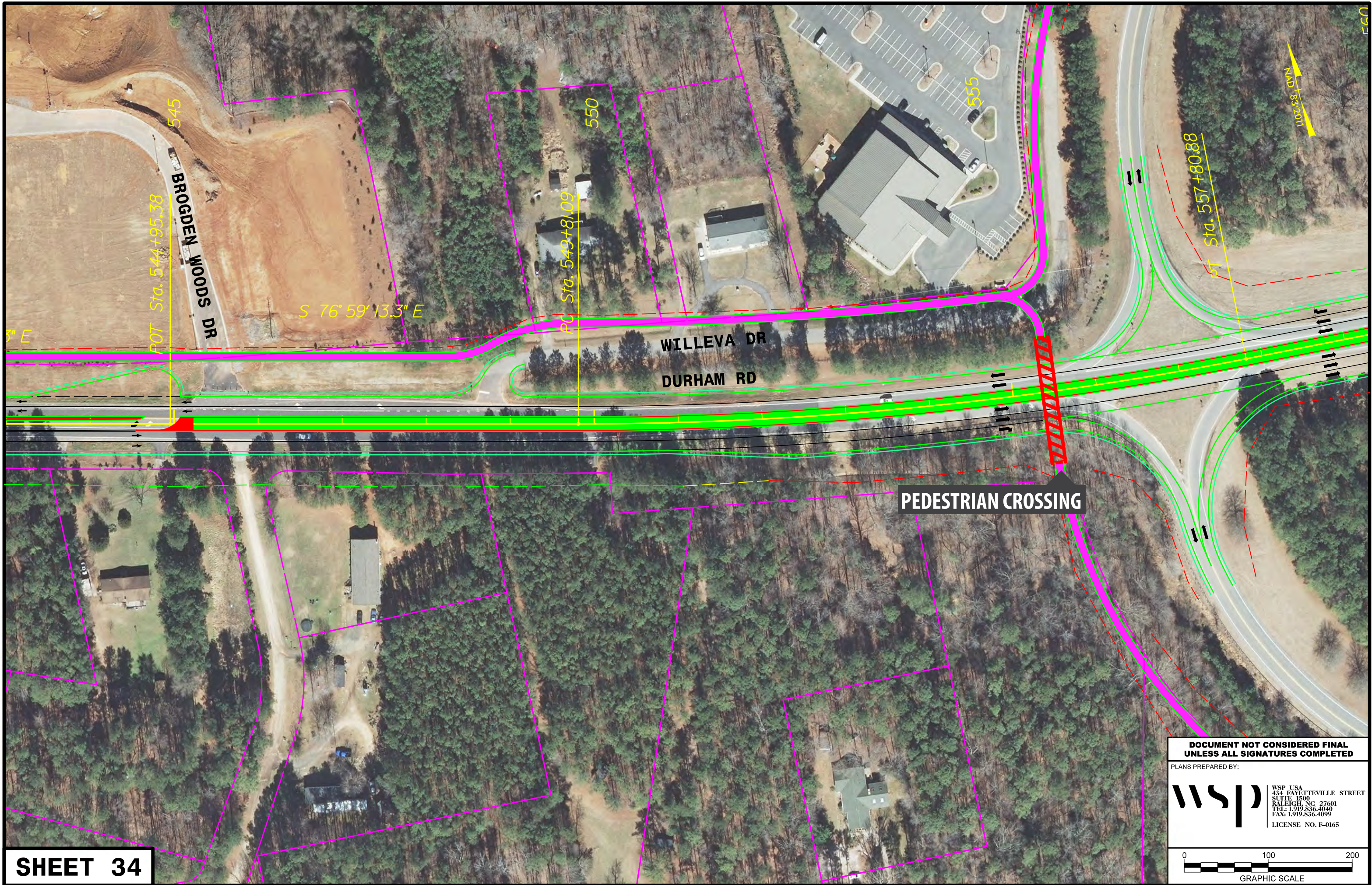
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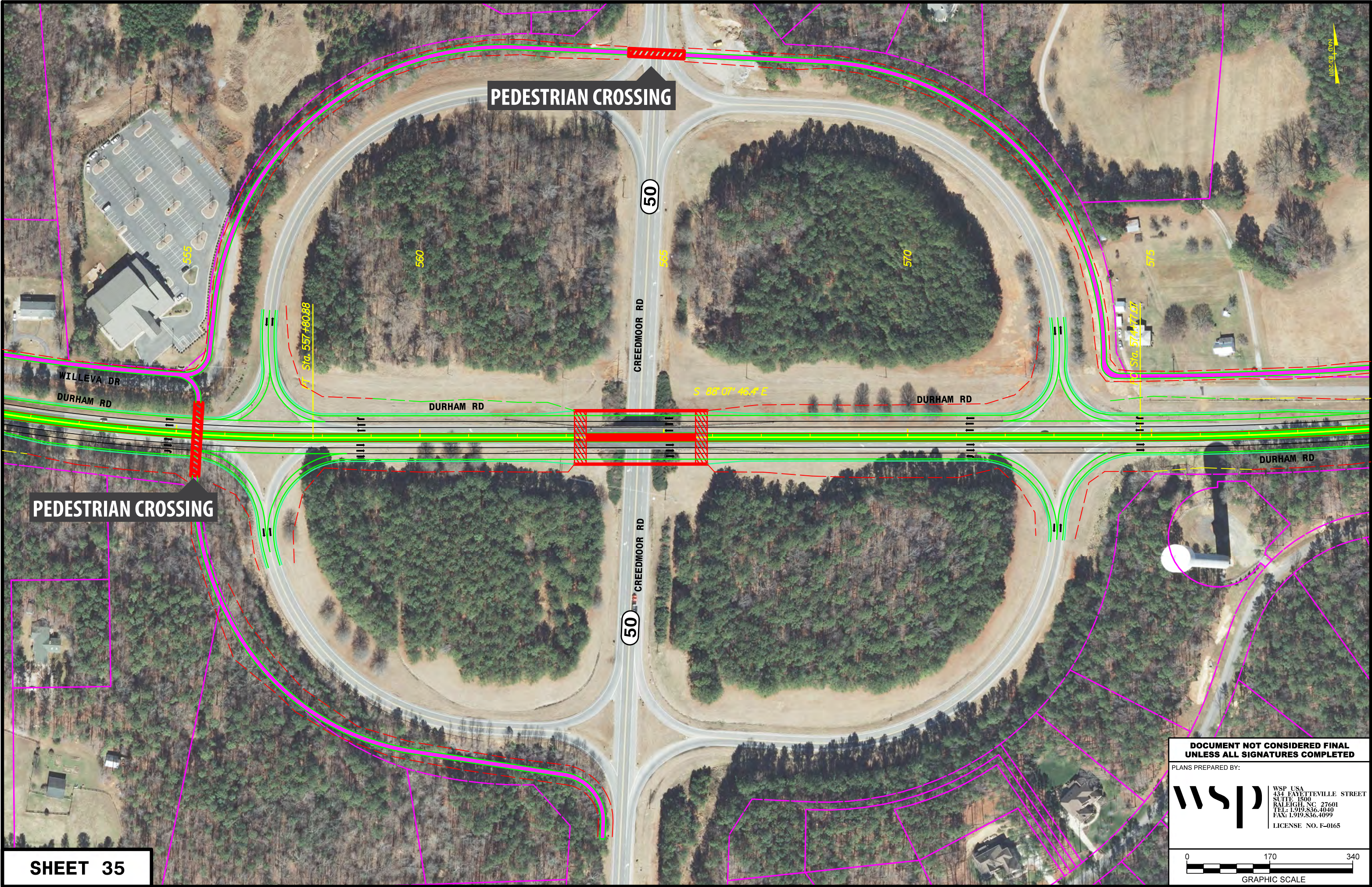
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0 100 200
GRAPHIC SCALE





PEDESTRIAN CROSSING

PEDESTRIAN CROSSING

SHEET 35

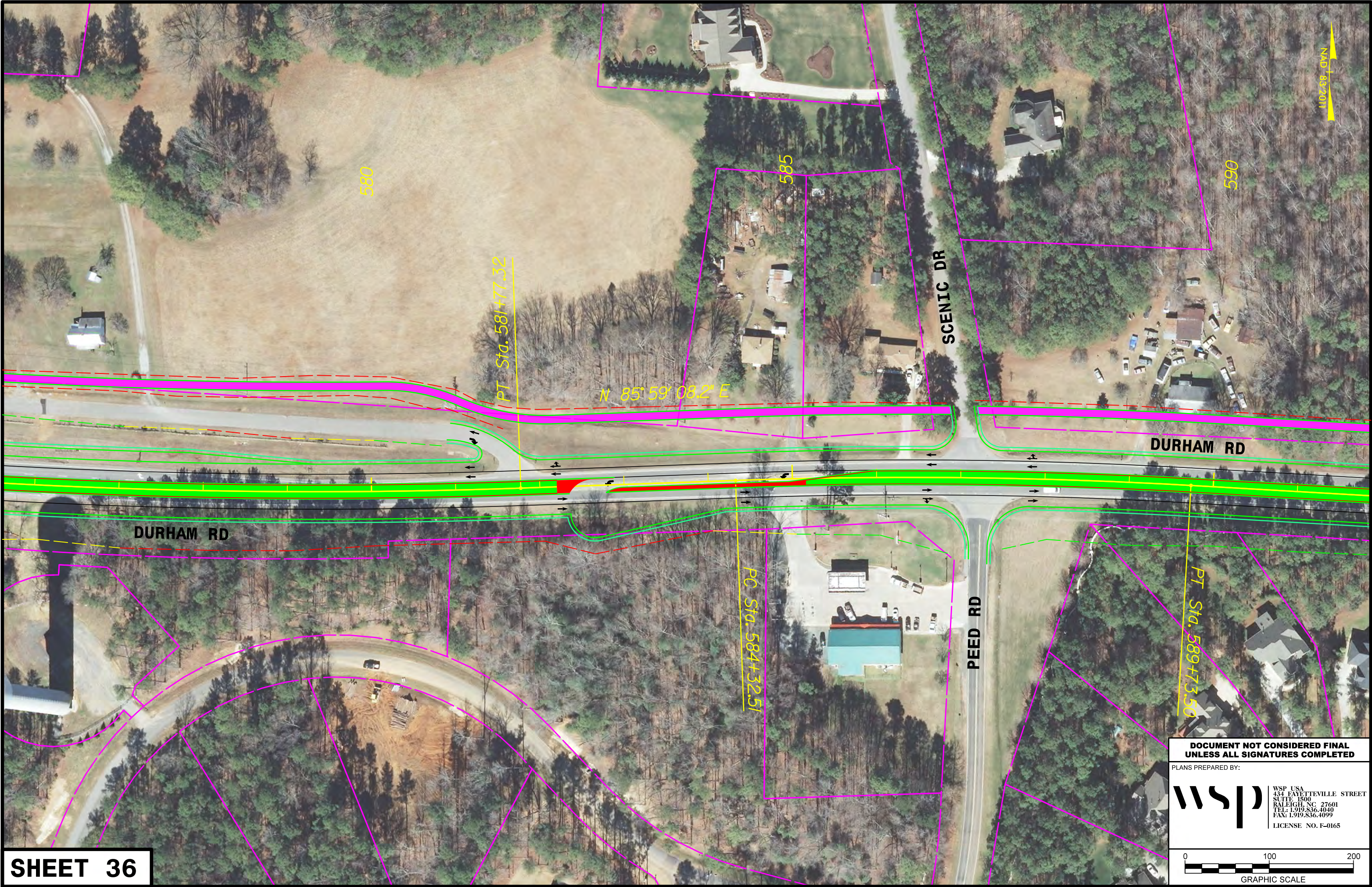
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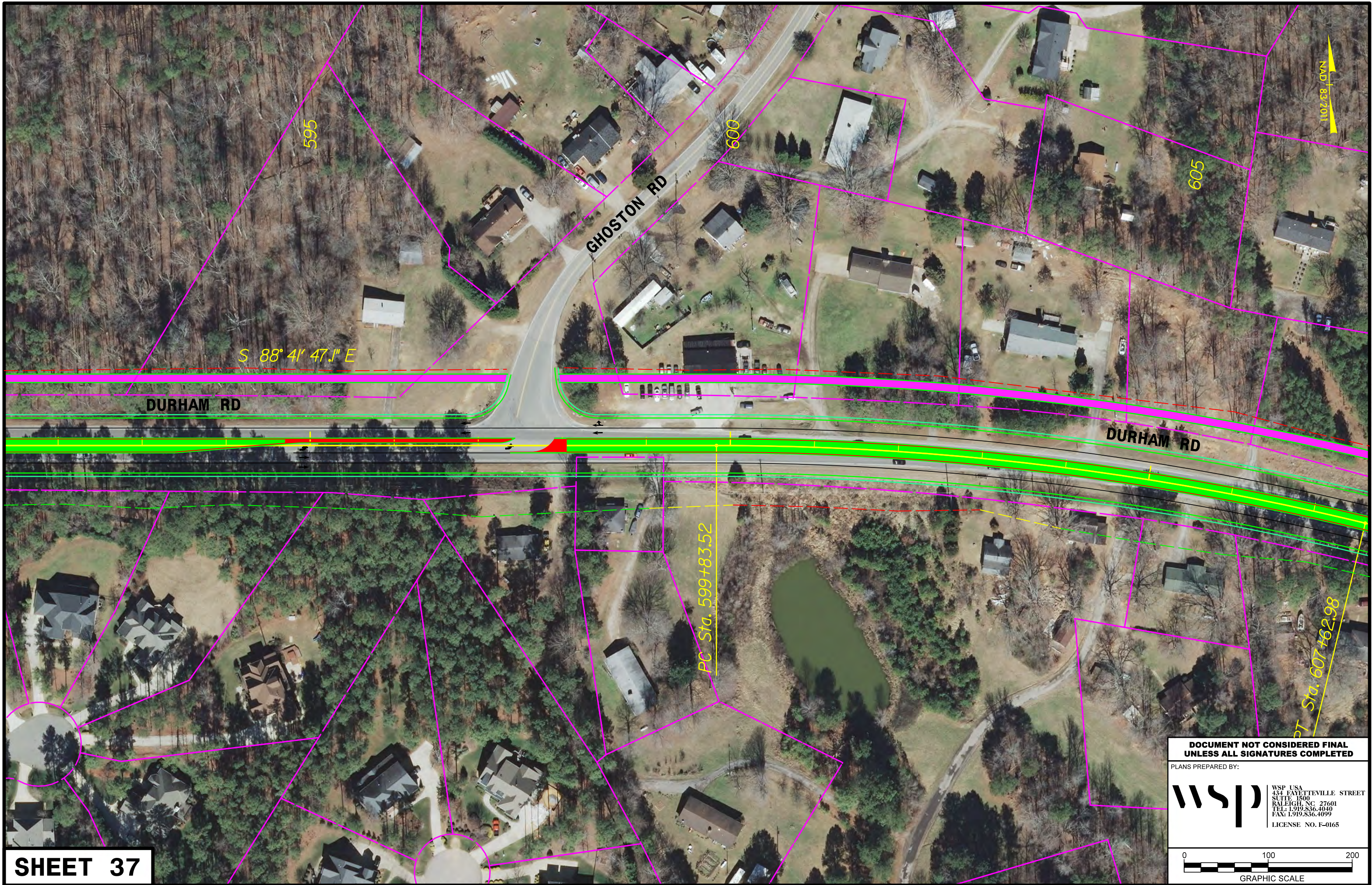
PLANS PREPARED BY:

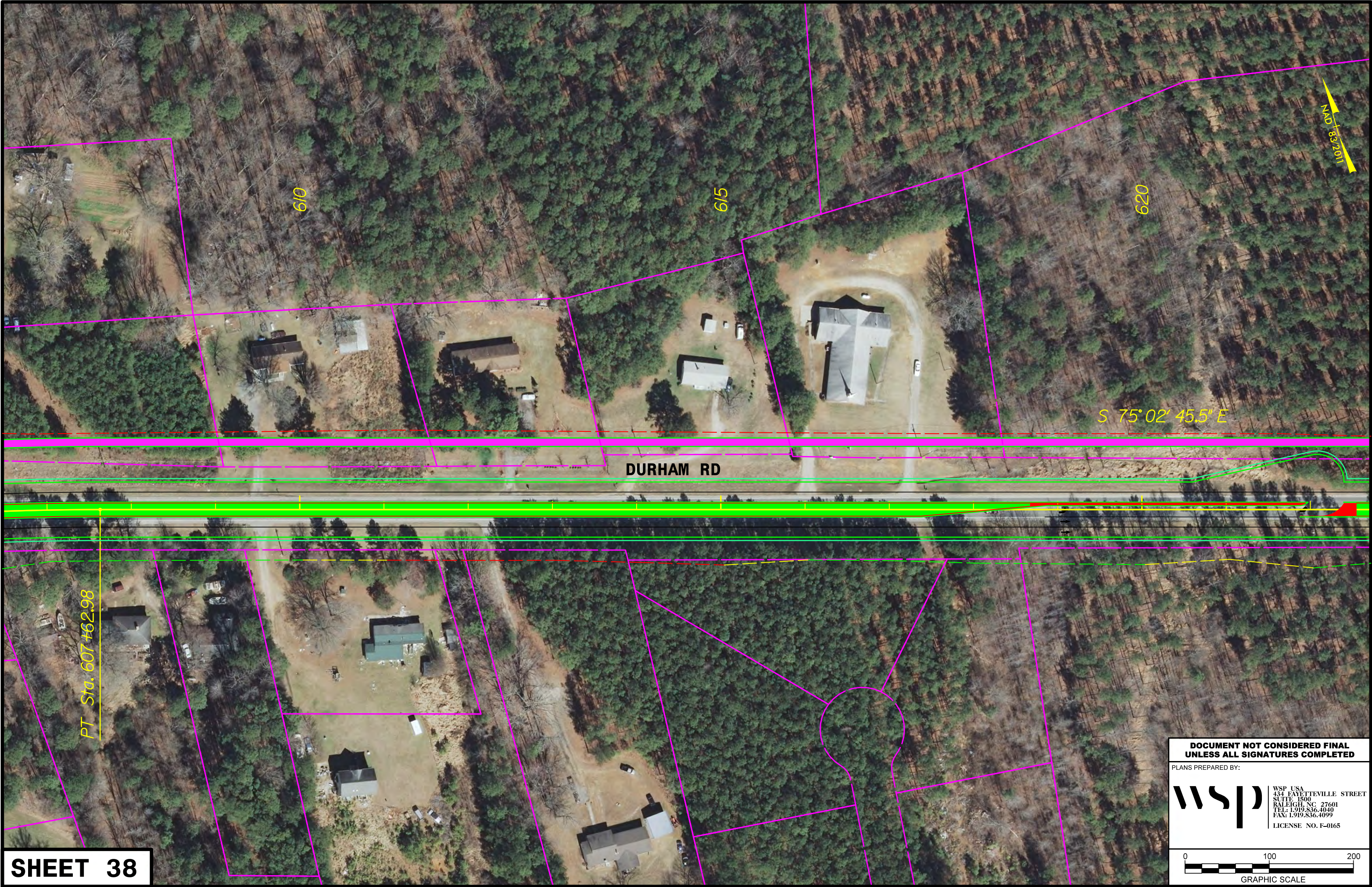
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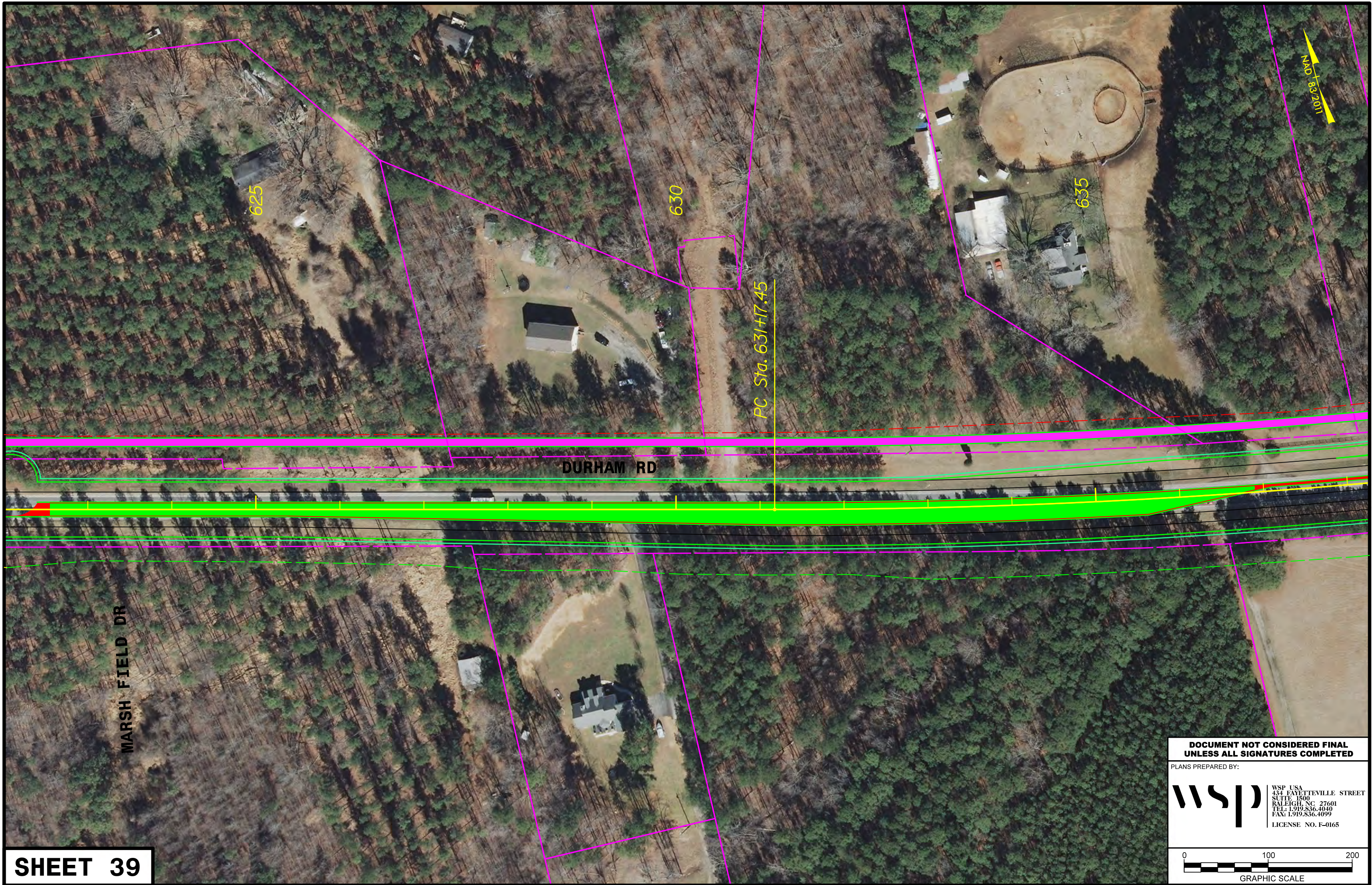
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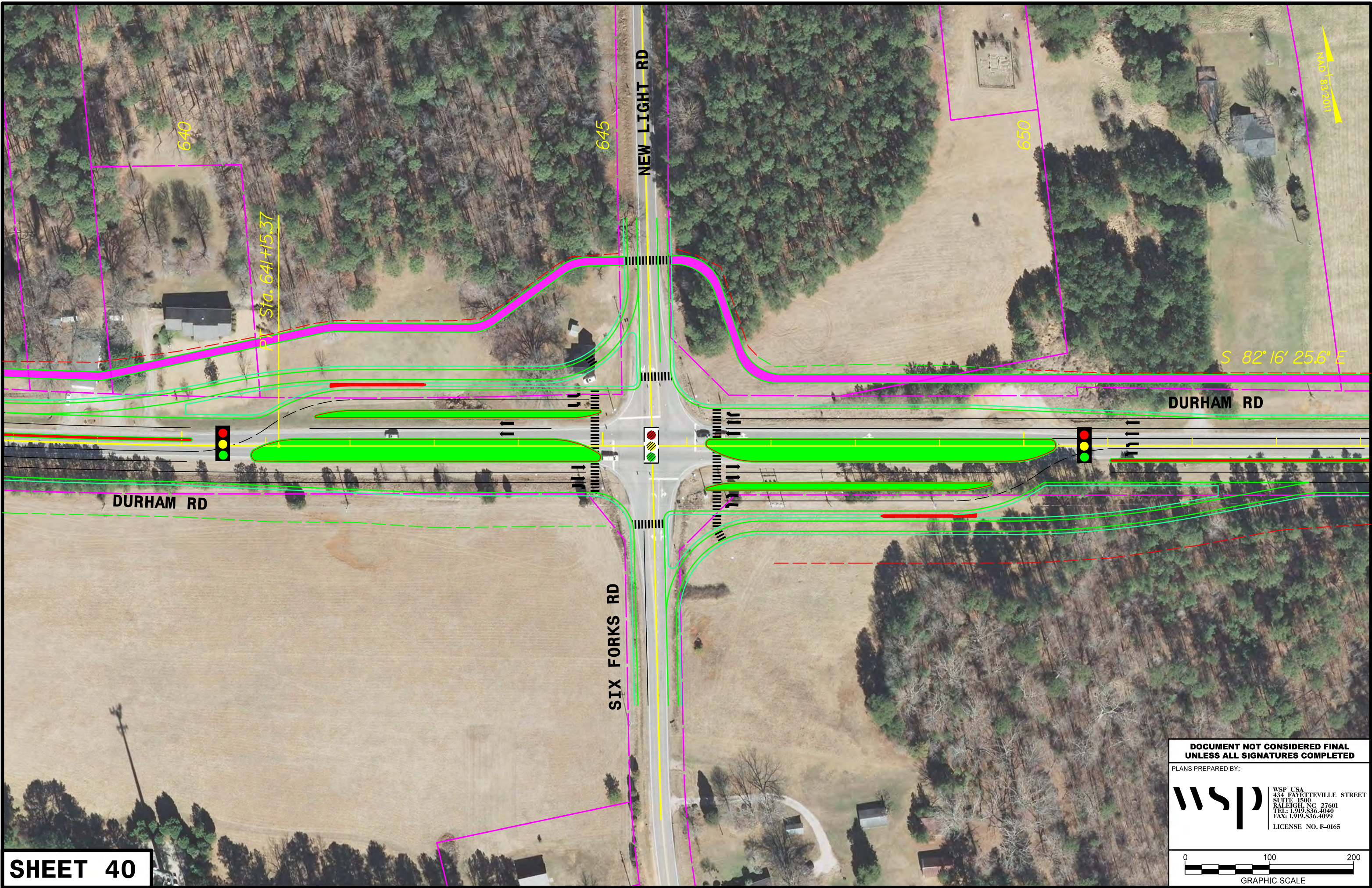
0 170 340
GRAPHIC SCALE

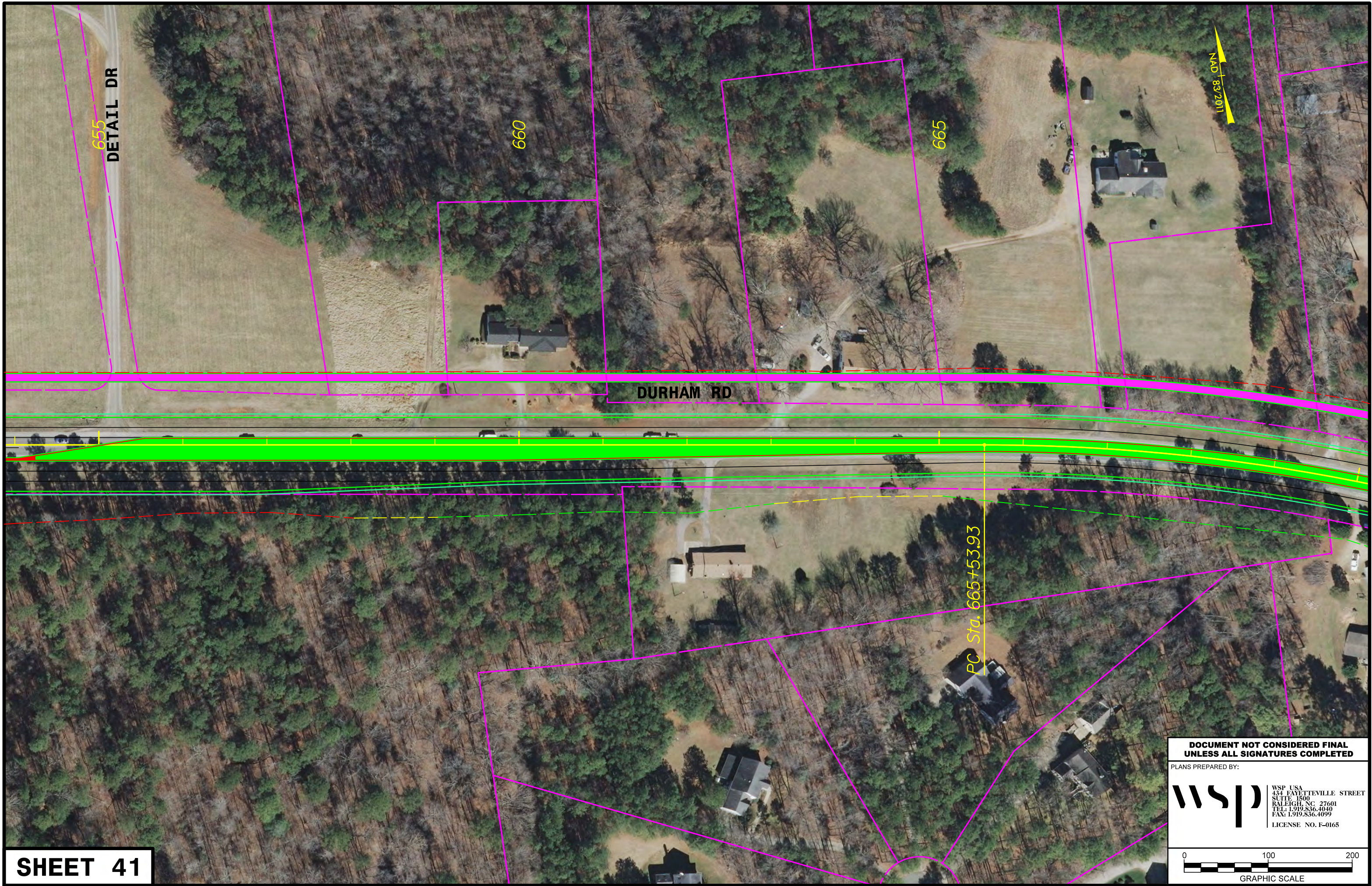


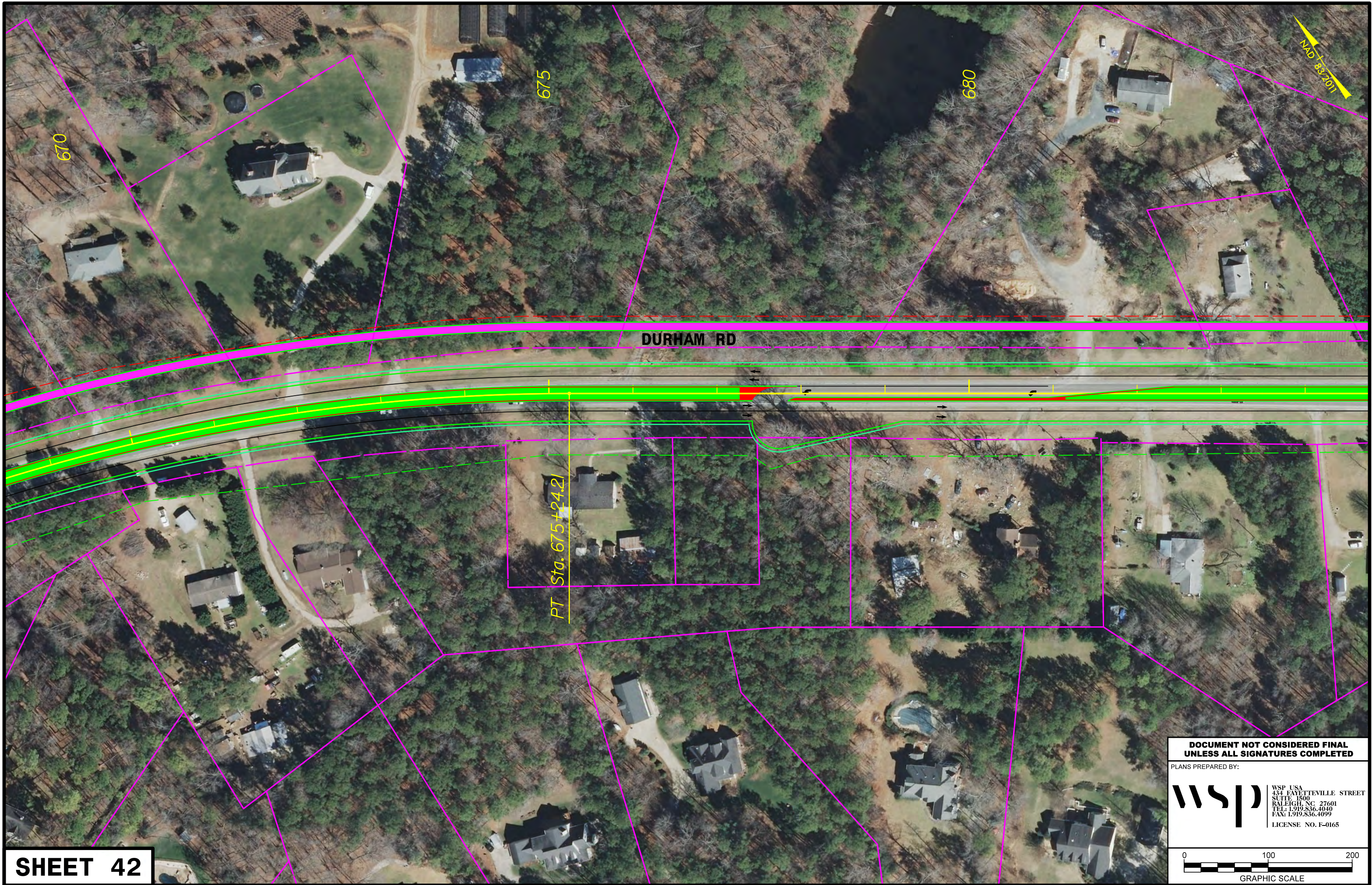


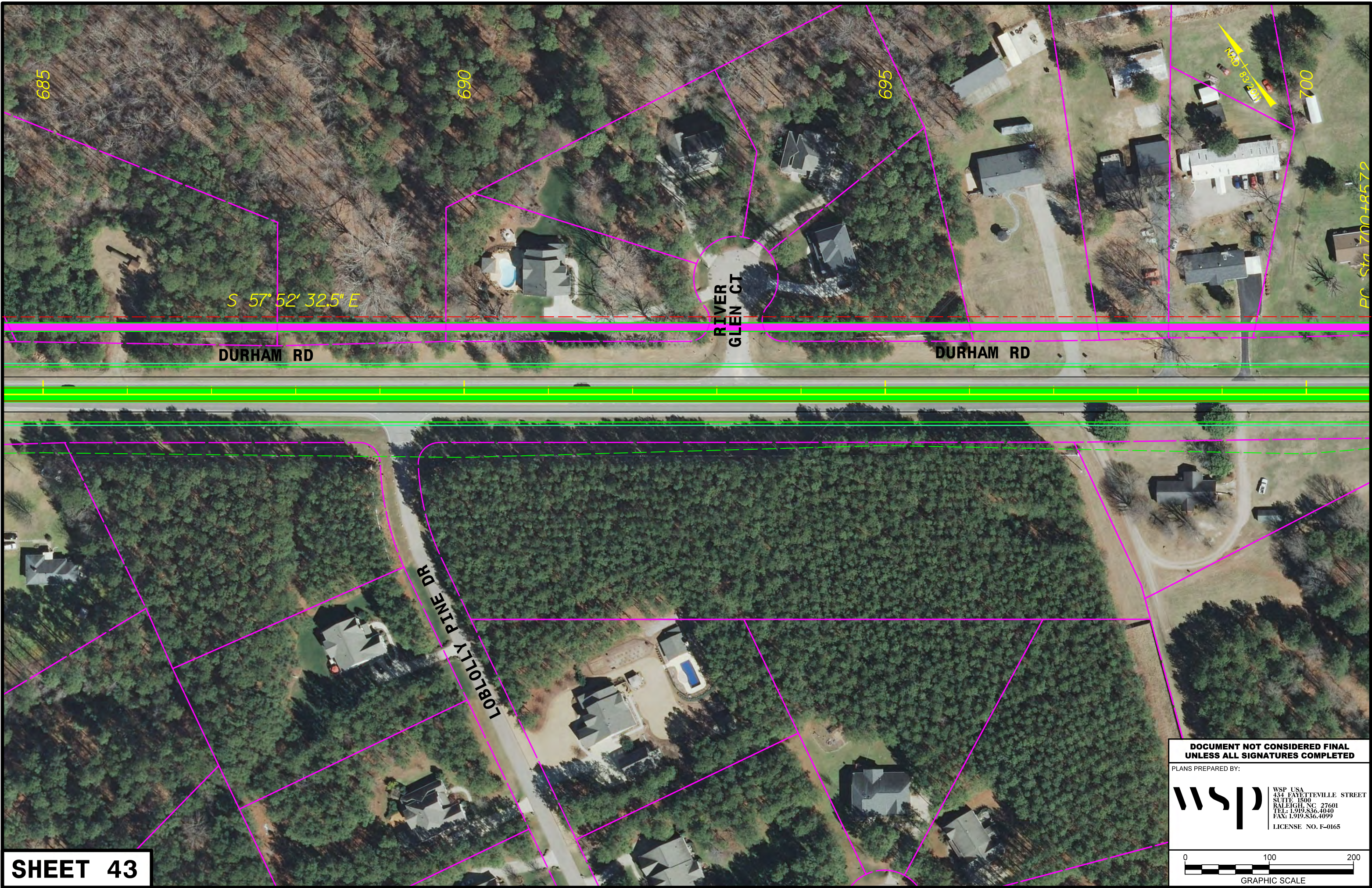












S 57° 52' 32.5" E

DURHAM RD

RIVER
GLEN CT

DURHAM RD

LOBLOLY PINE DR

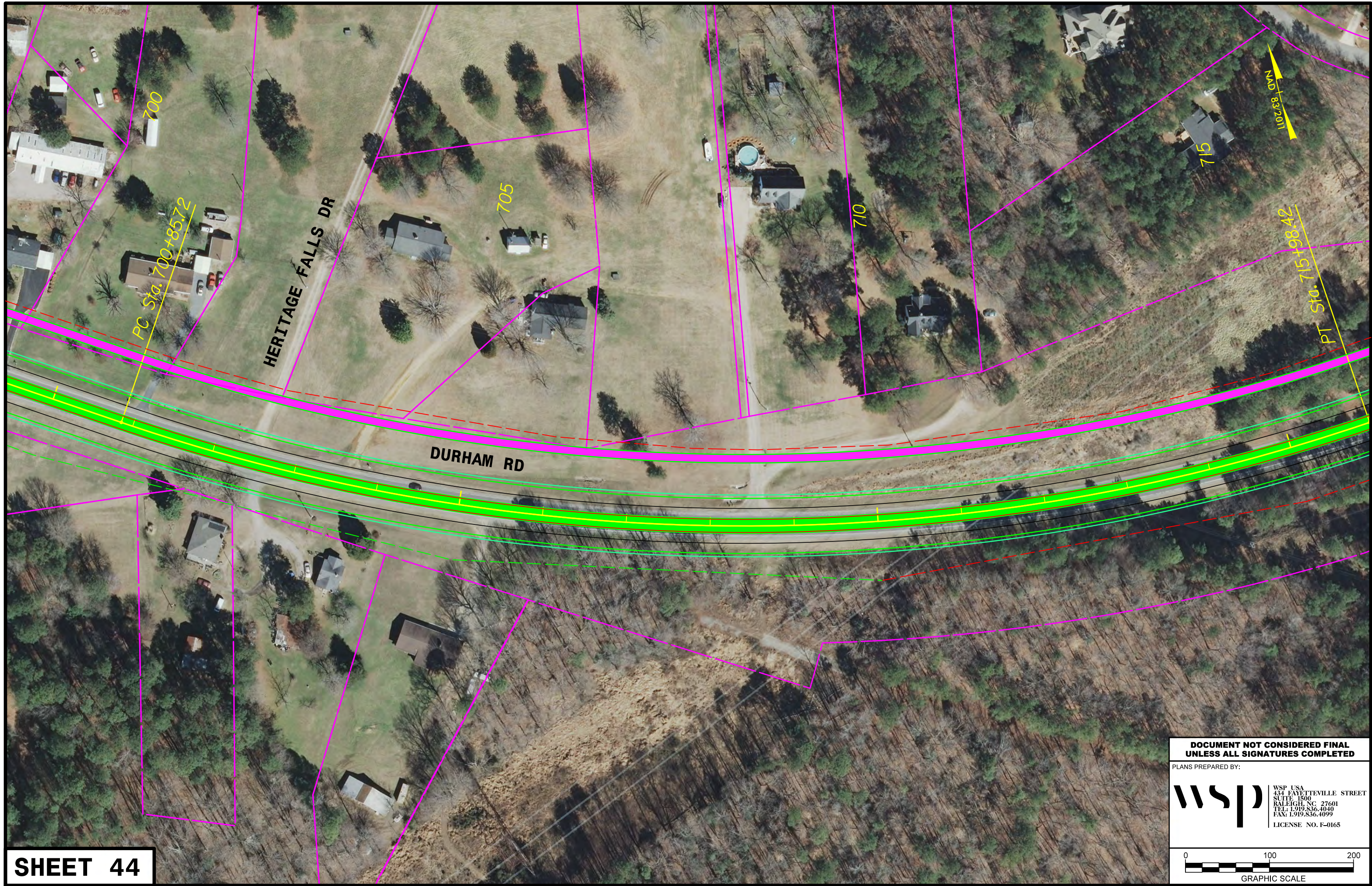
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0 100 200
GRAPHIC SCALE



SHEET 44

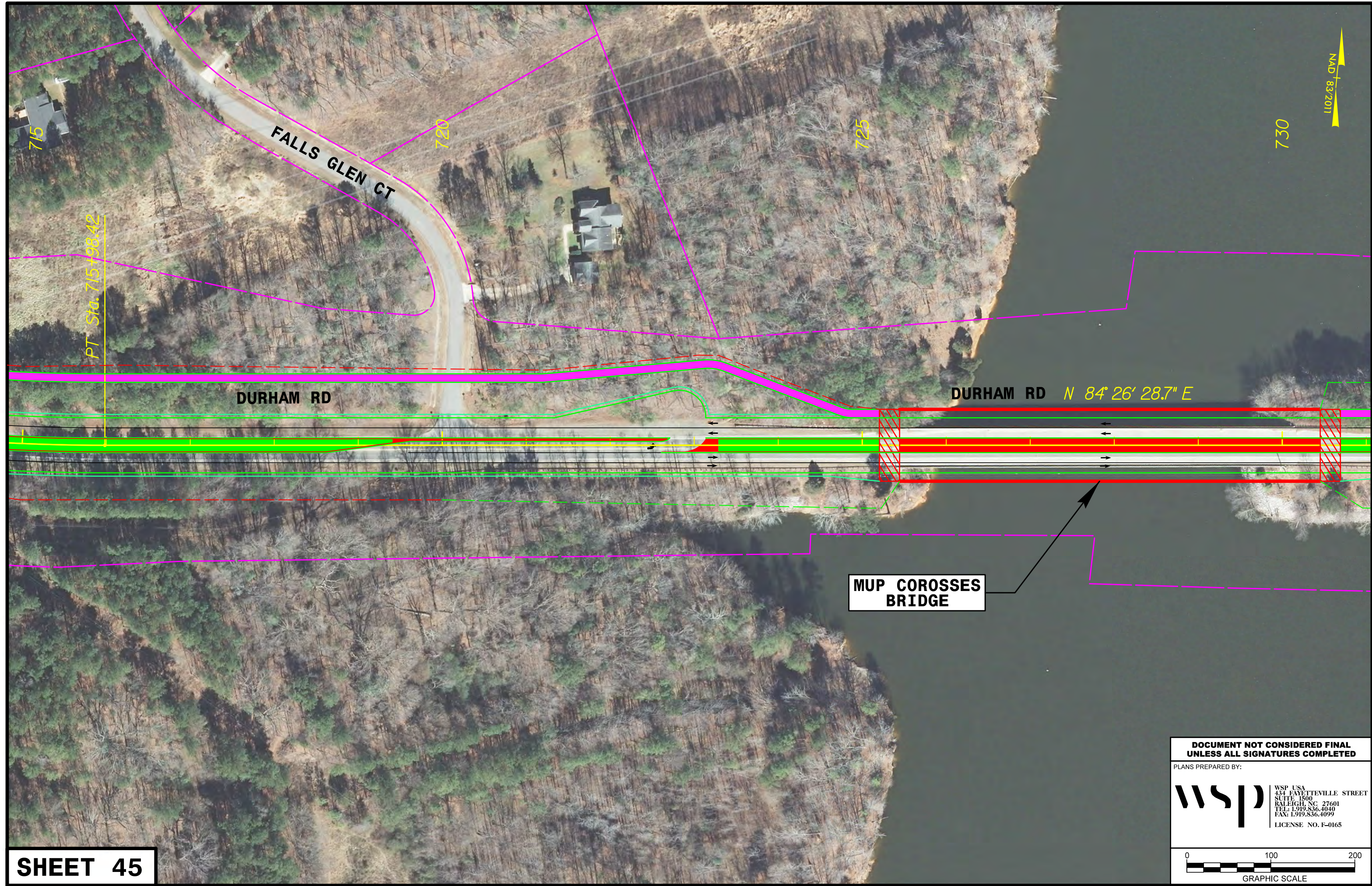
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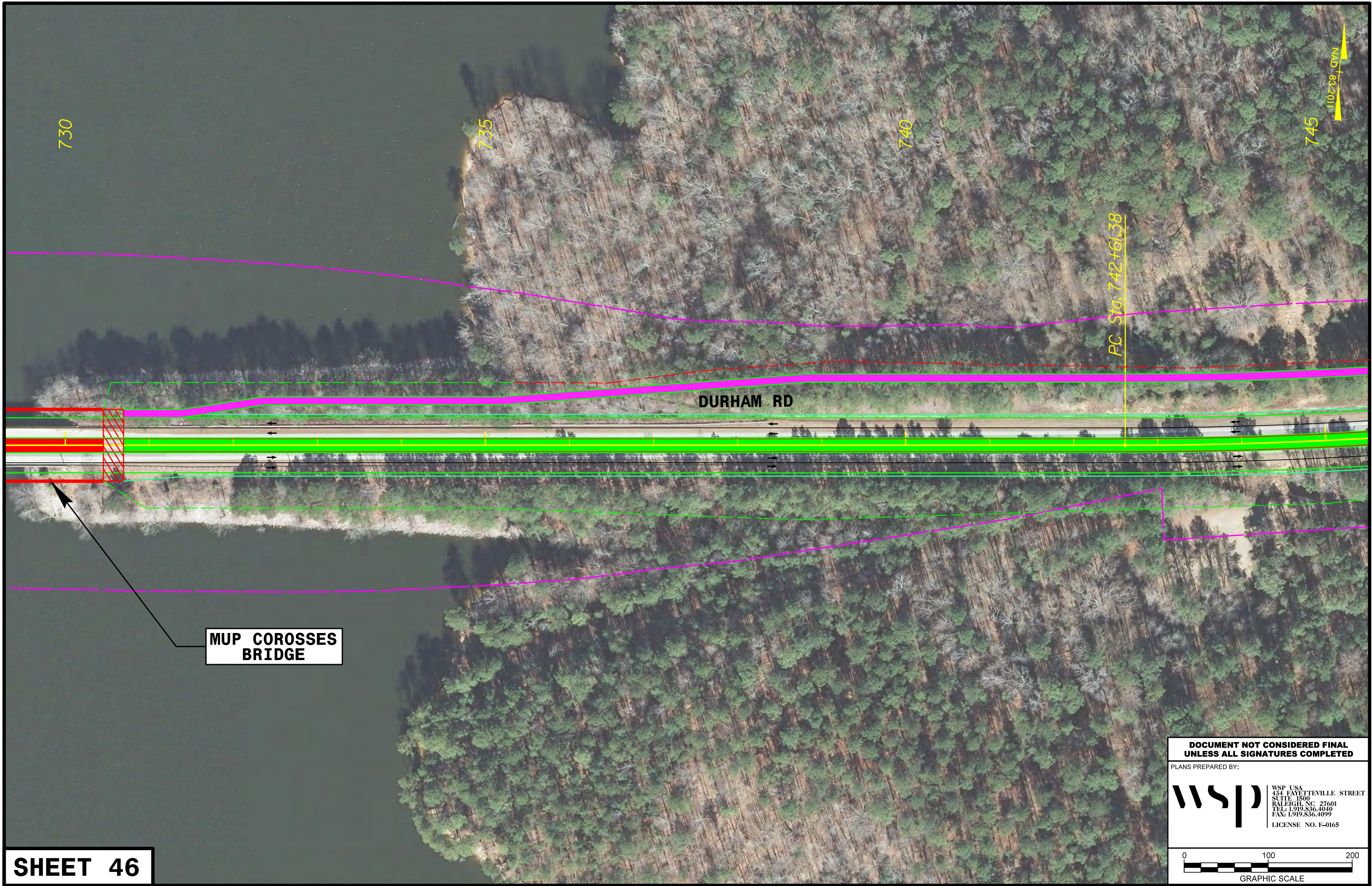
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0 100 200
GRAPHIC SCALE

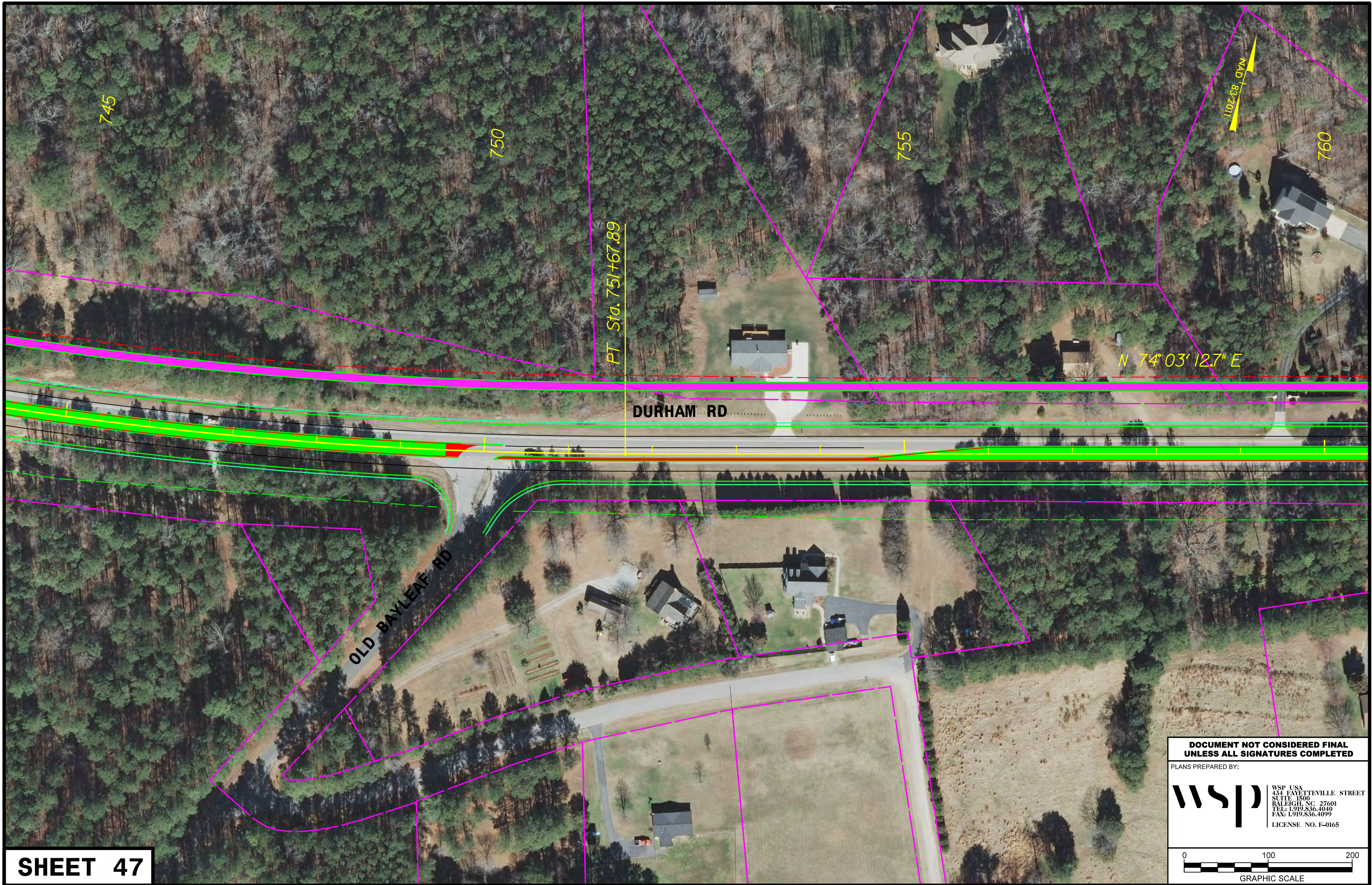


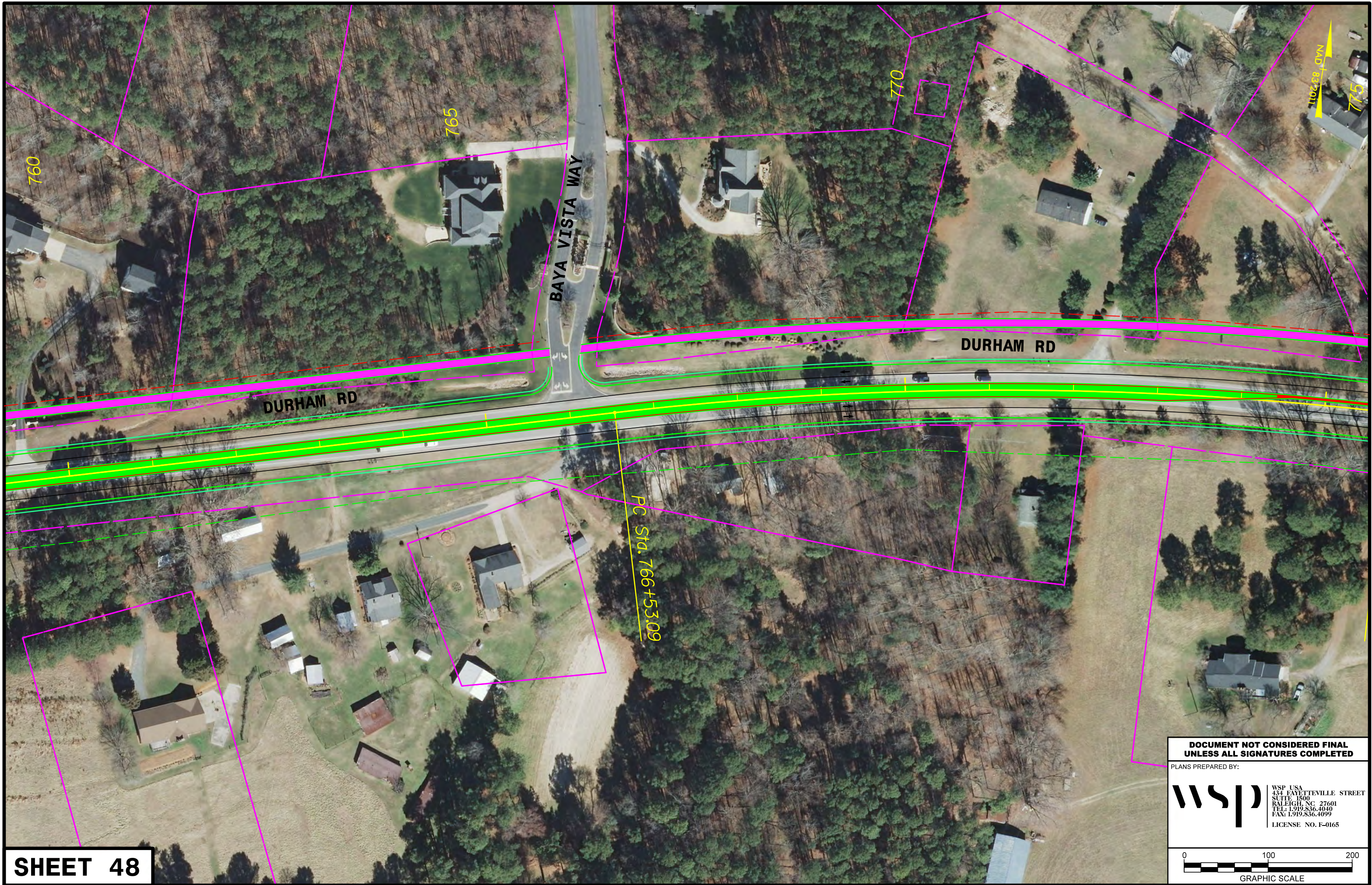


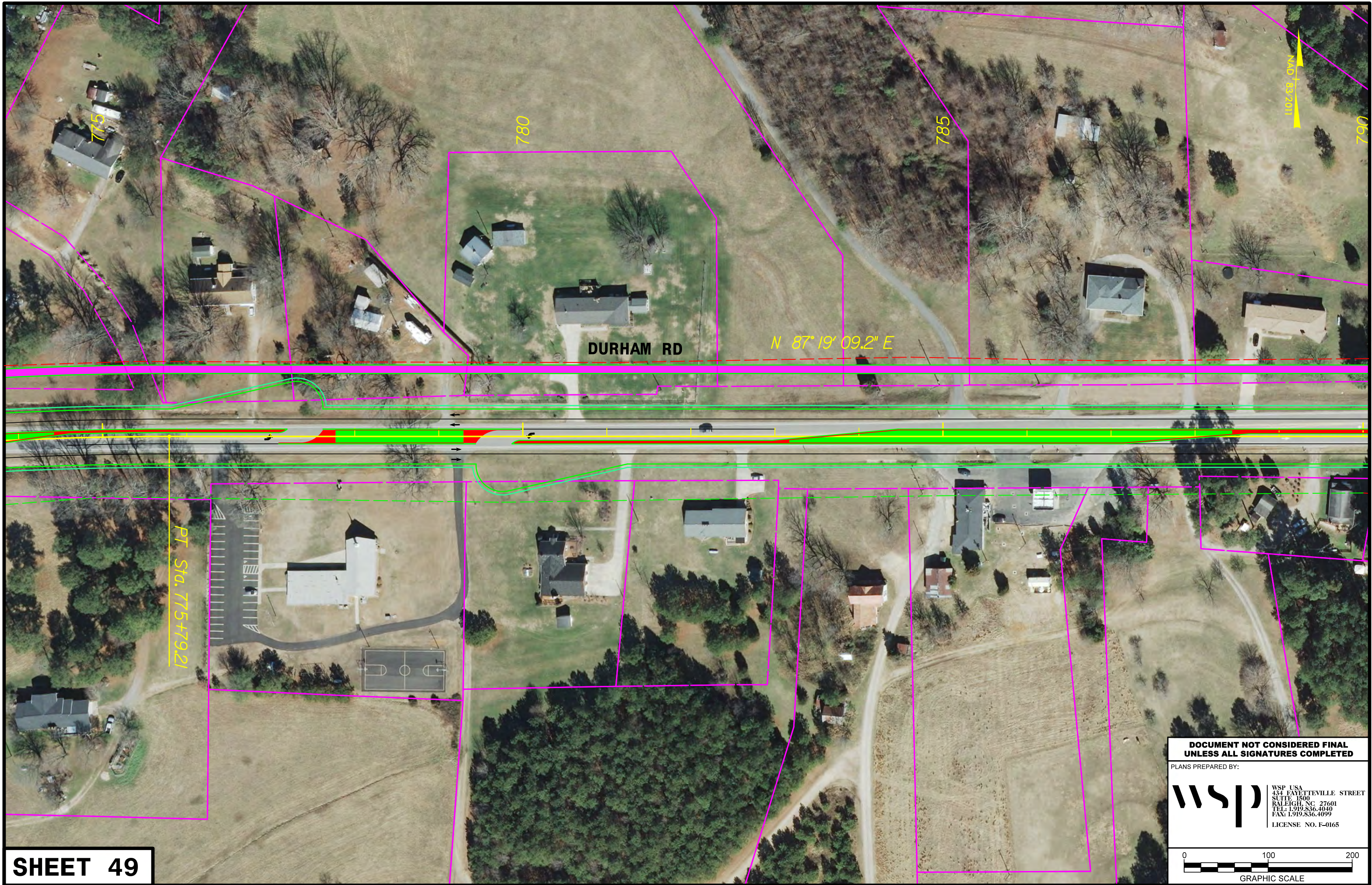
**MUP COROSSES
BRIDGE**

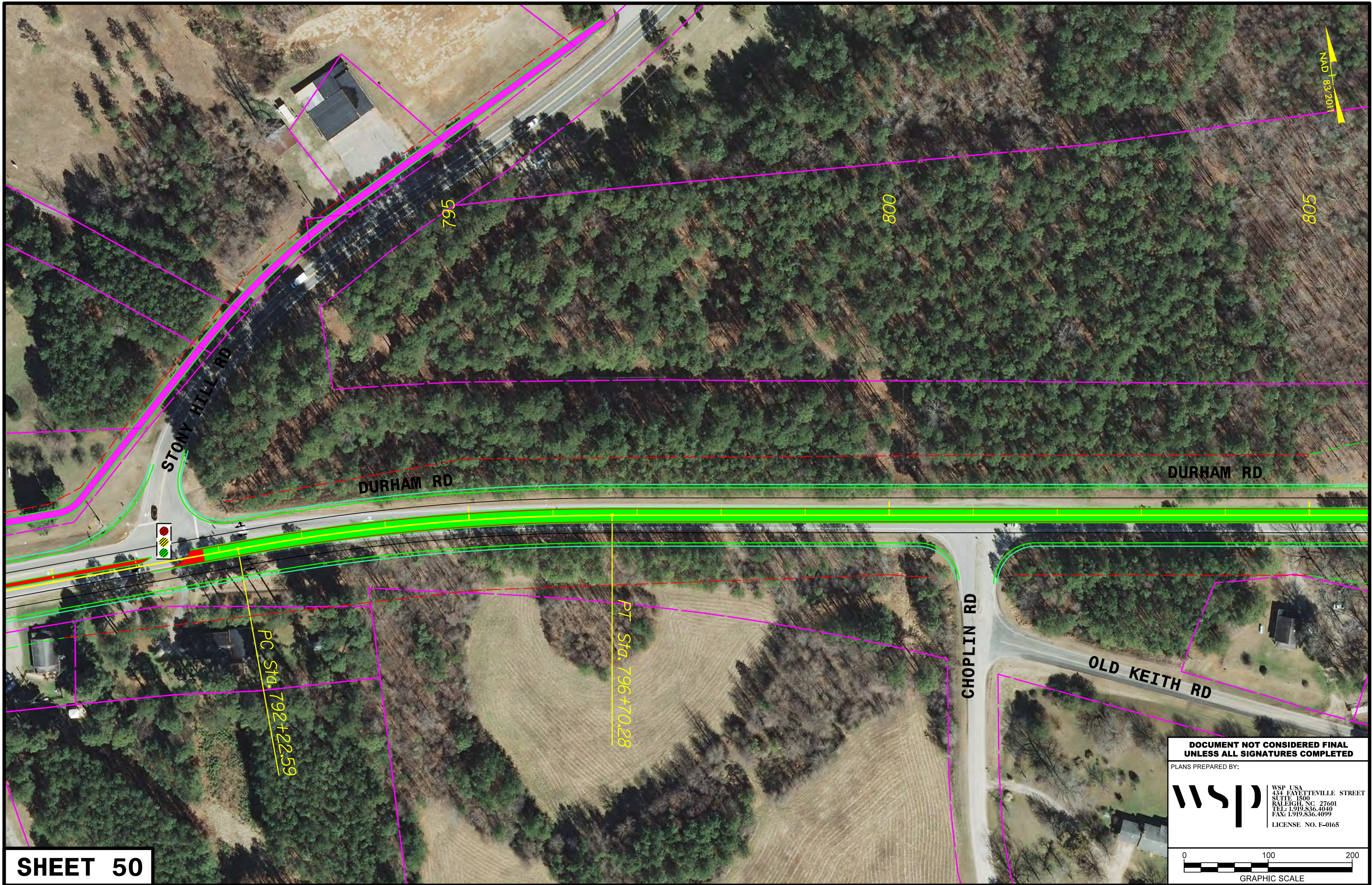
DURHAM RD

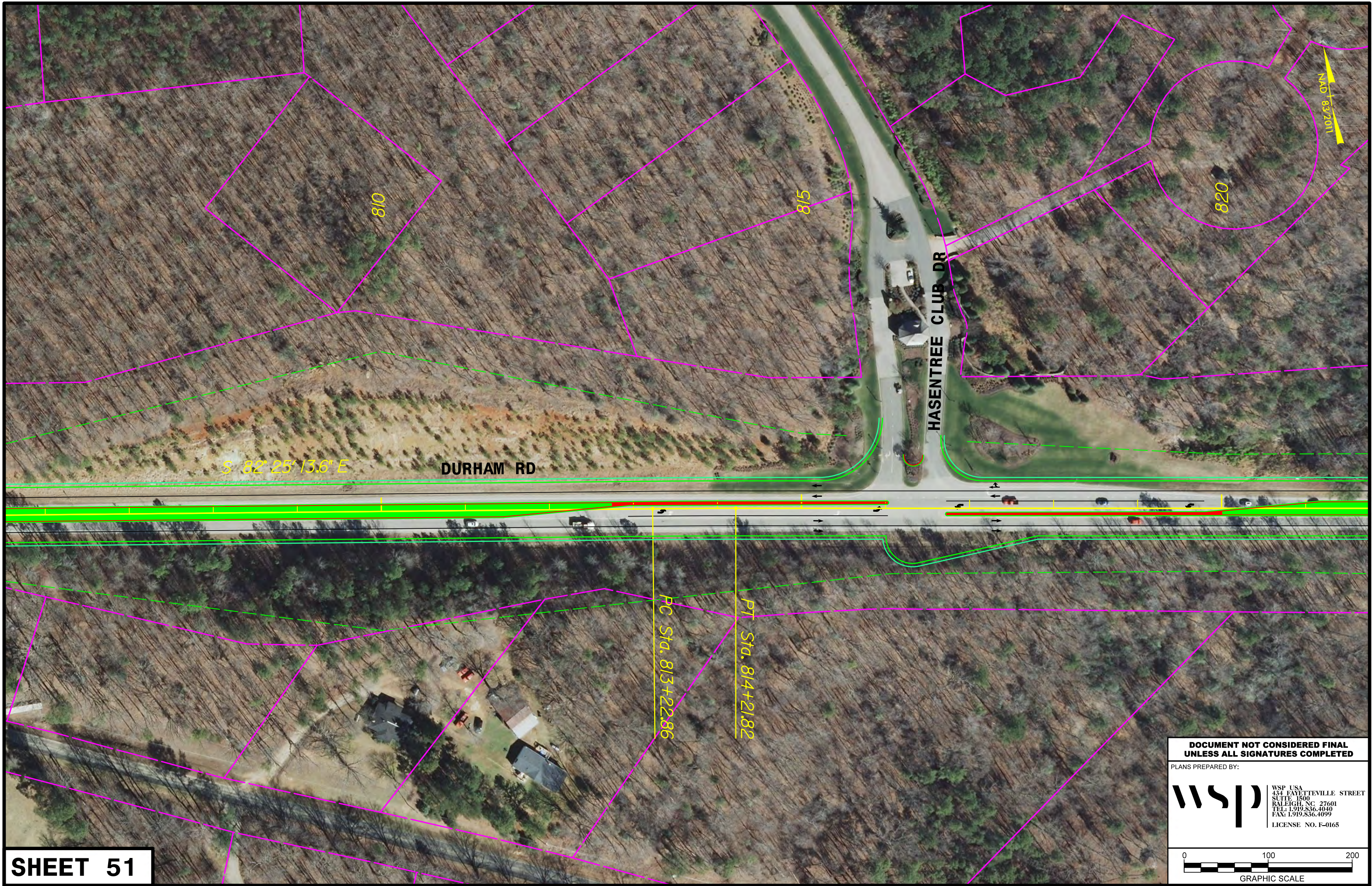
PC Sta. 742+61.38











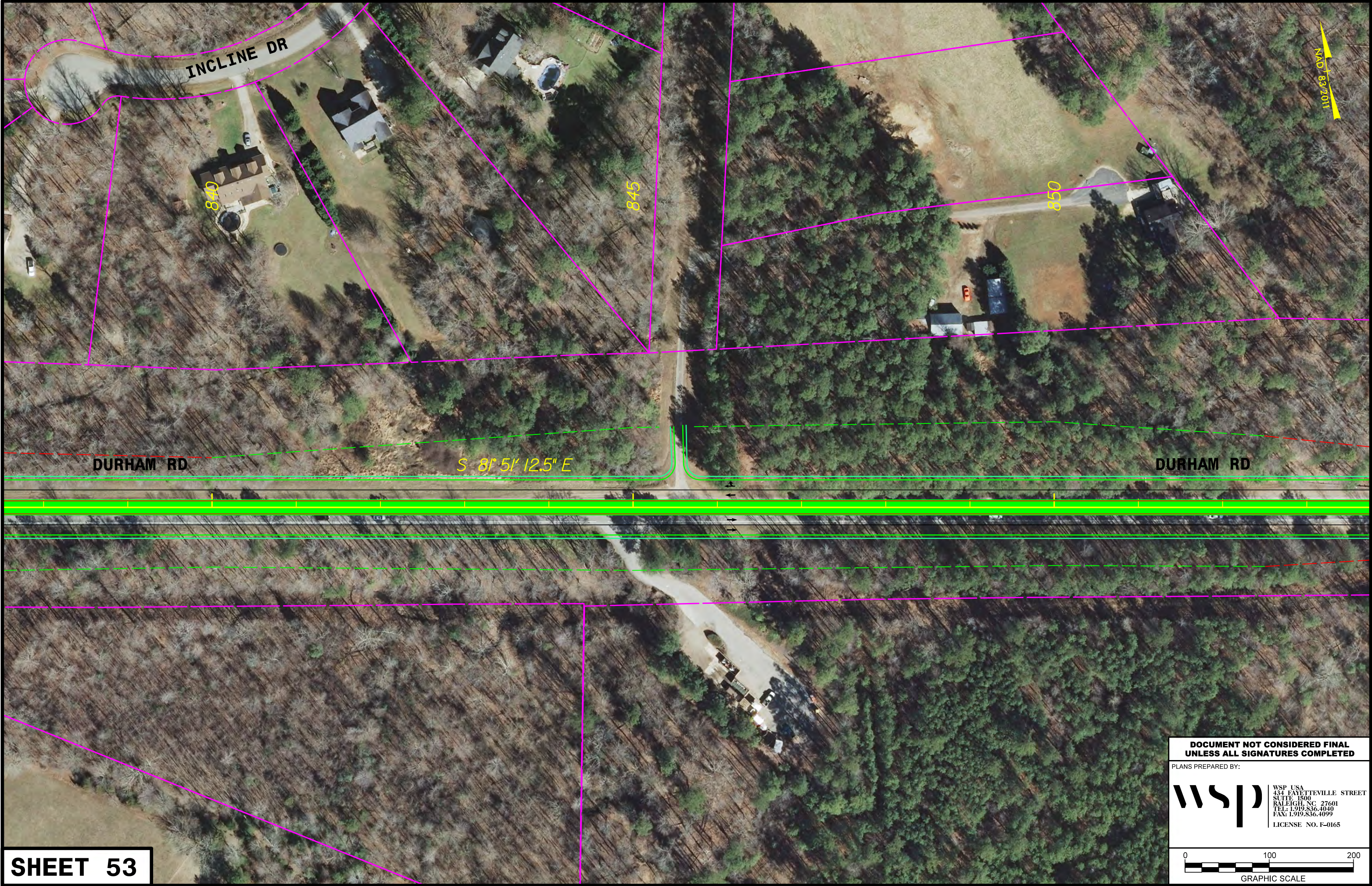
825

830

835

NAD 83 2011

DURHAM RD



INCLINE DR

840

845

850

NAD 83/2011

DURHAM RD


S 81° 51' 12.5" E

DURHAM RD

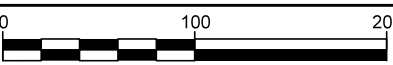
SHEET 53

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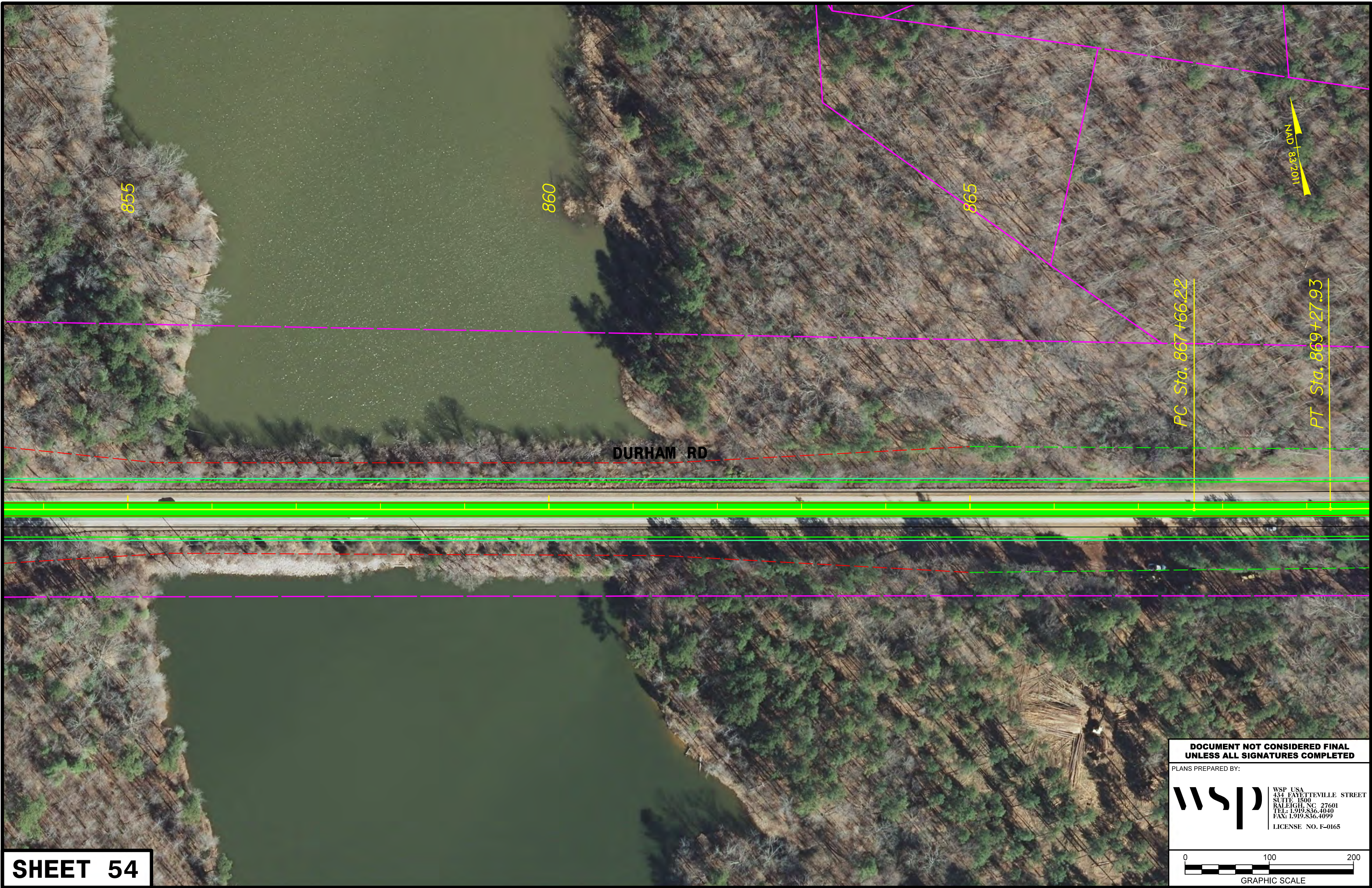
PLANS PREPARED BY:

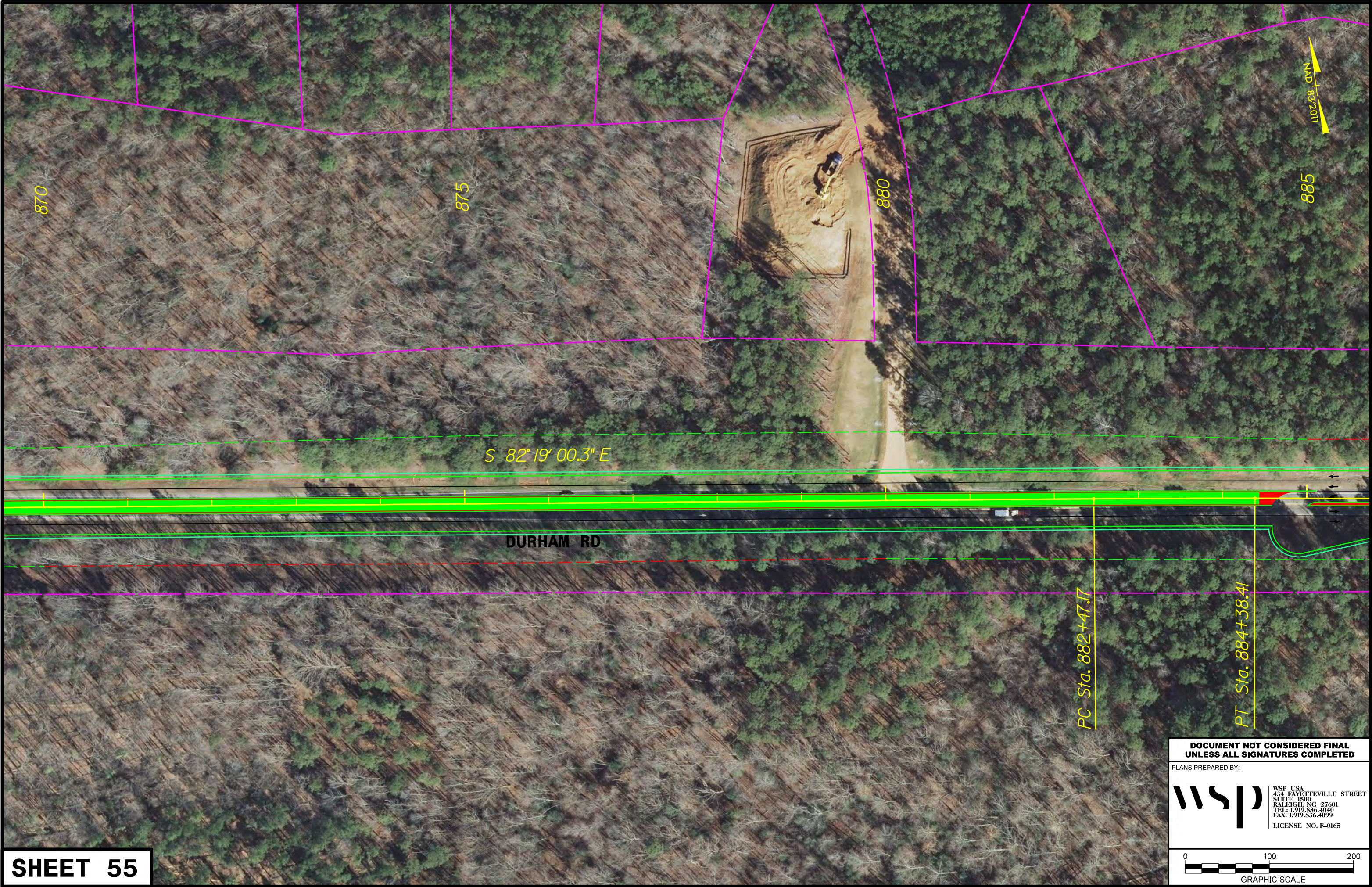


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0 100 200
GRAPHIC SCALE





S 82° 19' 00.3" E

DURHAM RD

PC Sta. 882+47.77

PT Sta. 884+38.41

NAD 83/2011

870

875

880

885

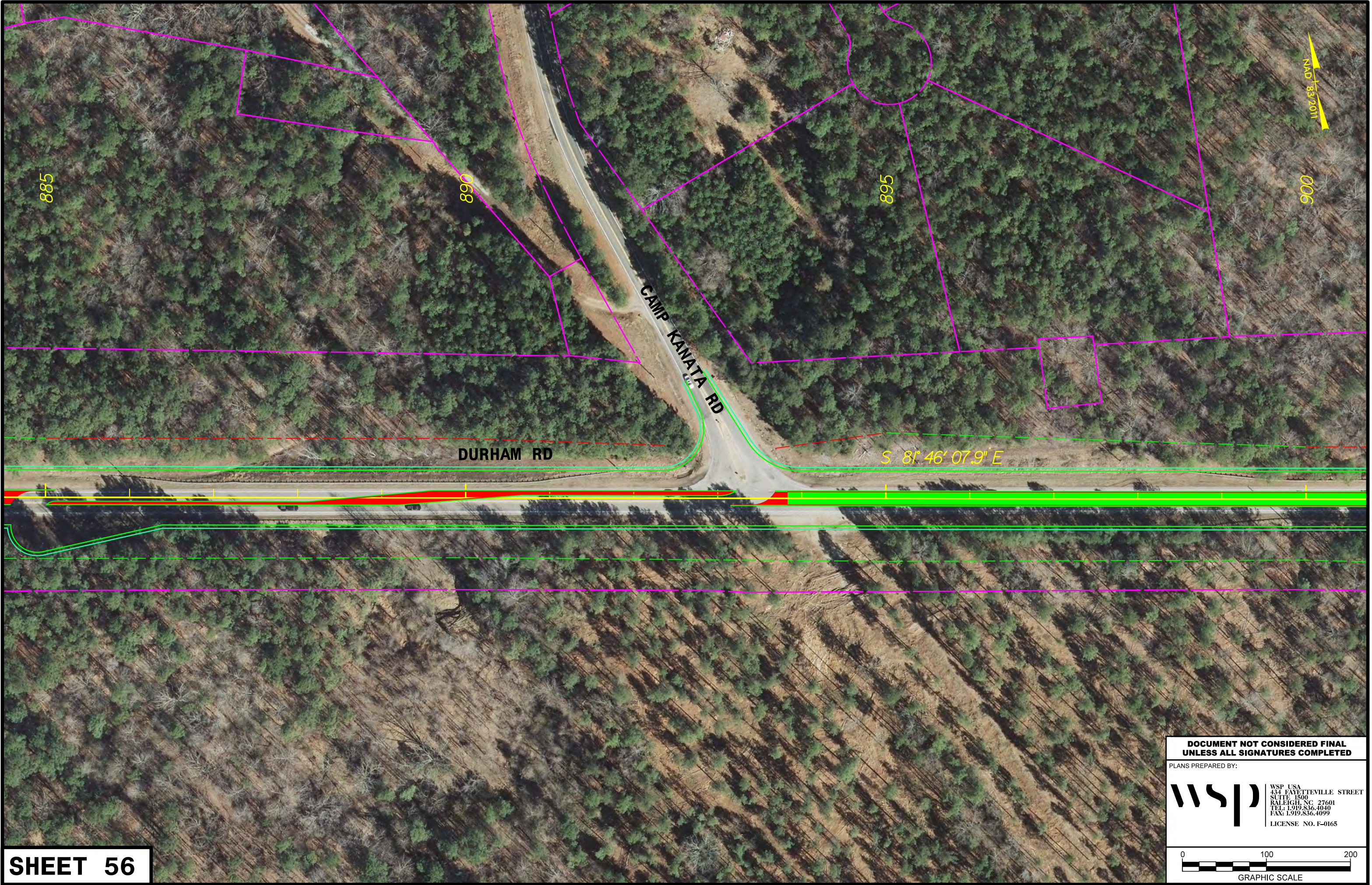
SHEET 55

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0 100 200
GRAPHIC SCALE





PT Sta. 904+43.32

905

0/6

9/5

S 81° 59' 17.2" E

DURHAM RD

SHEET 57

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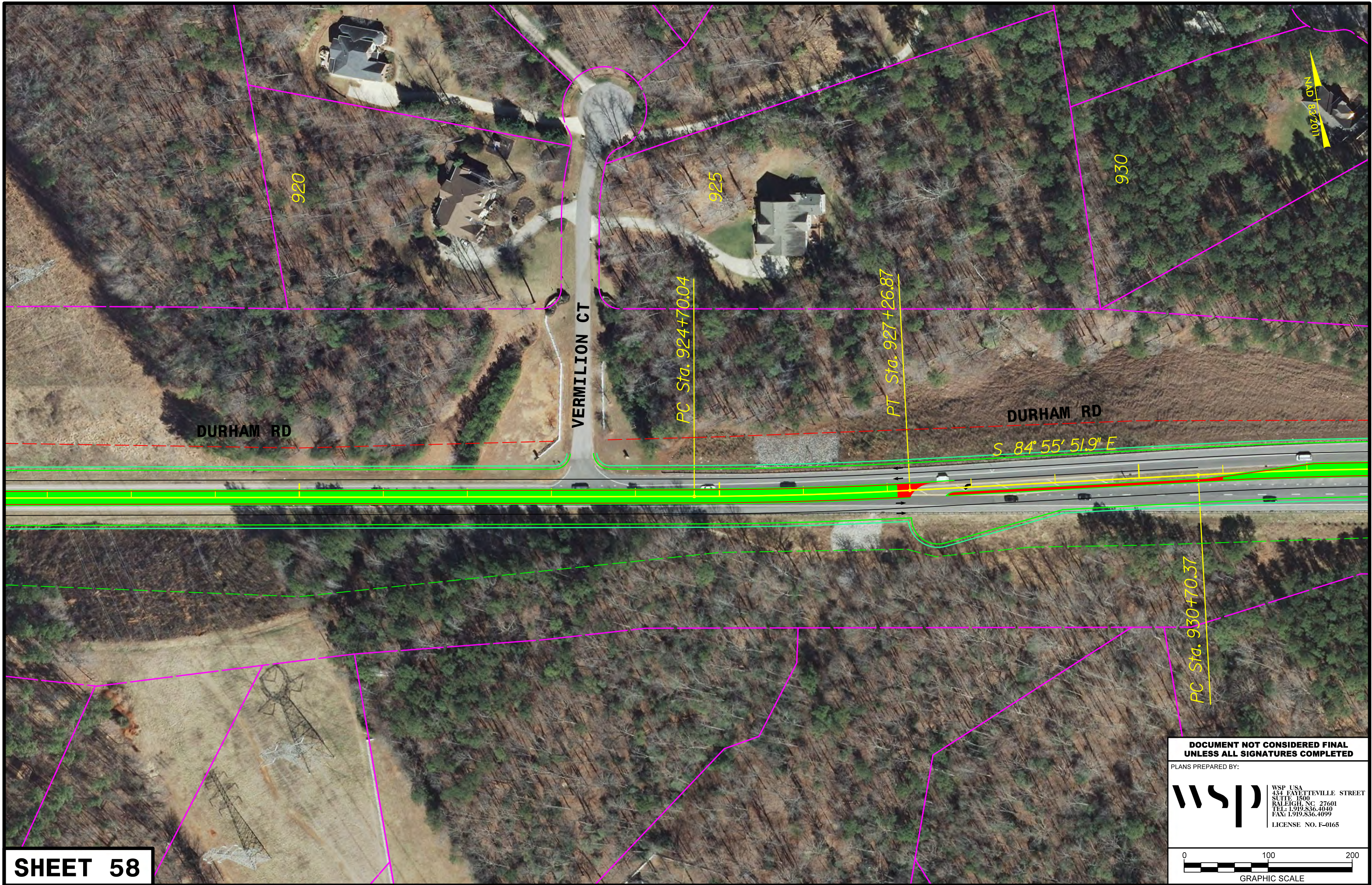
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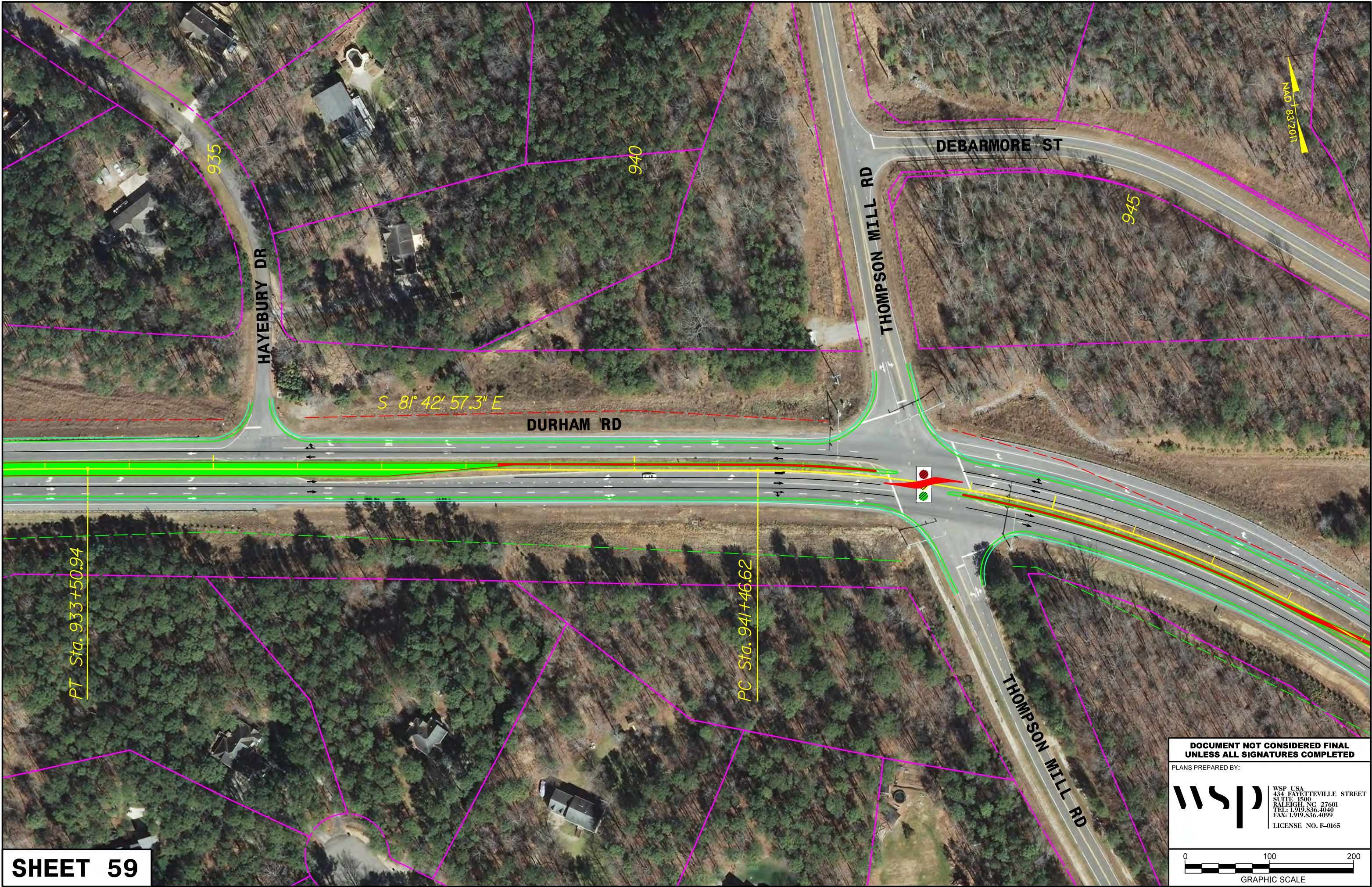
The logo for WSP, consisting of the letters 'W', 'S', and 'P' in a bold, stylized, sans-serif font. The 'W' and 'S' are connected, and the 'P' is separate.

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A horizontal graphic scale bar. It is divided into three main sections labeled '0', '100', and '200'. The first section (0 to 100) is further divided into five equal segments, each with a black and white checkerboard pattern. The second section (100 to 200) is a solid black bar. The third section (200 to the end) is a solid white bar.


GRAPHIC SCALE






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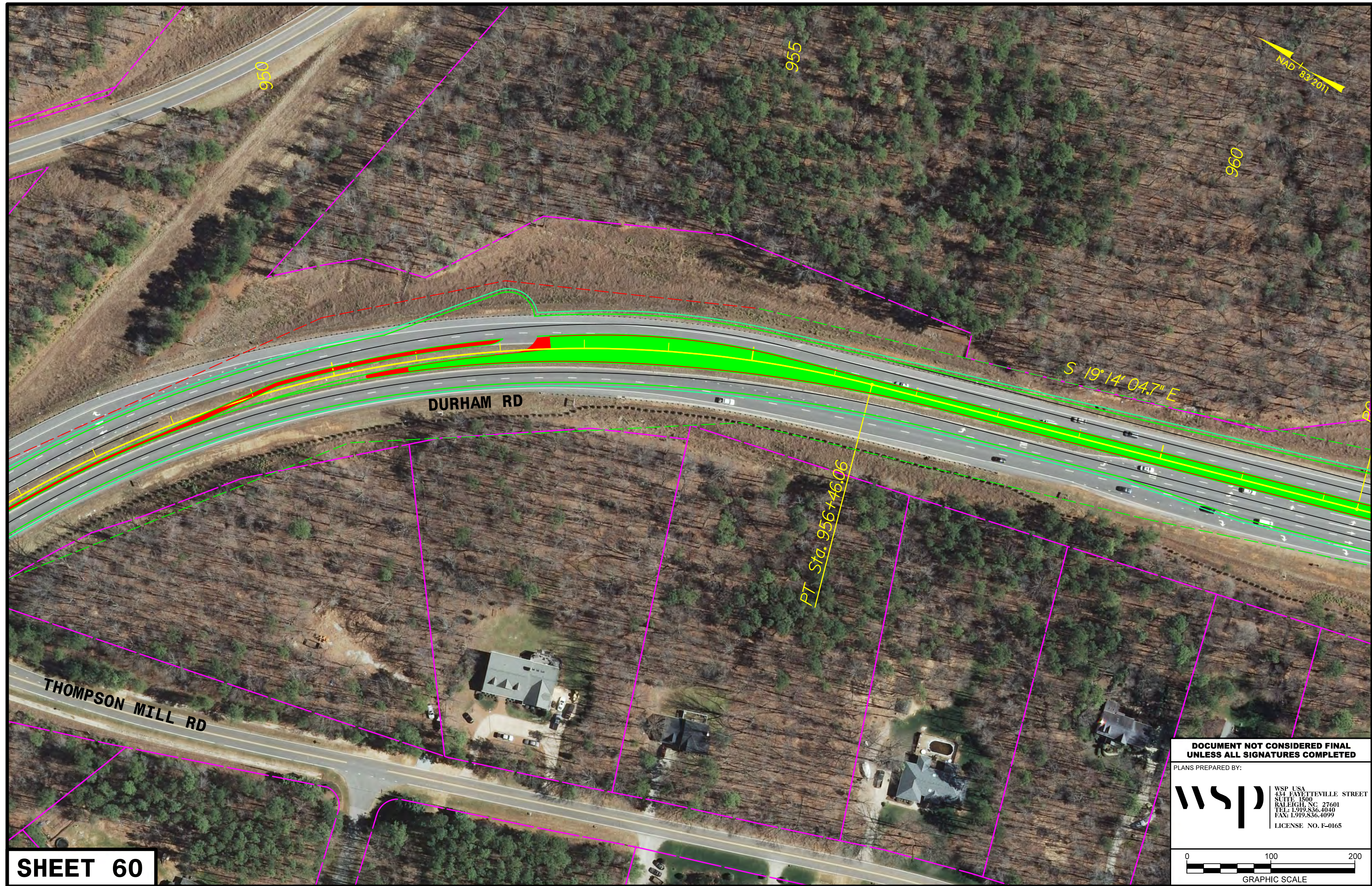
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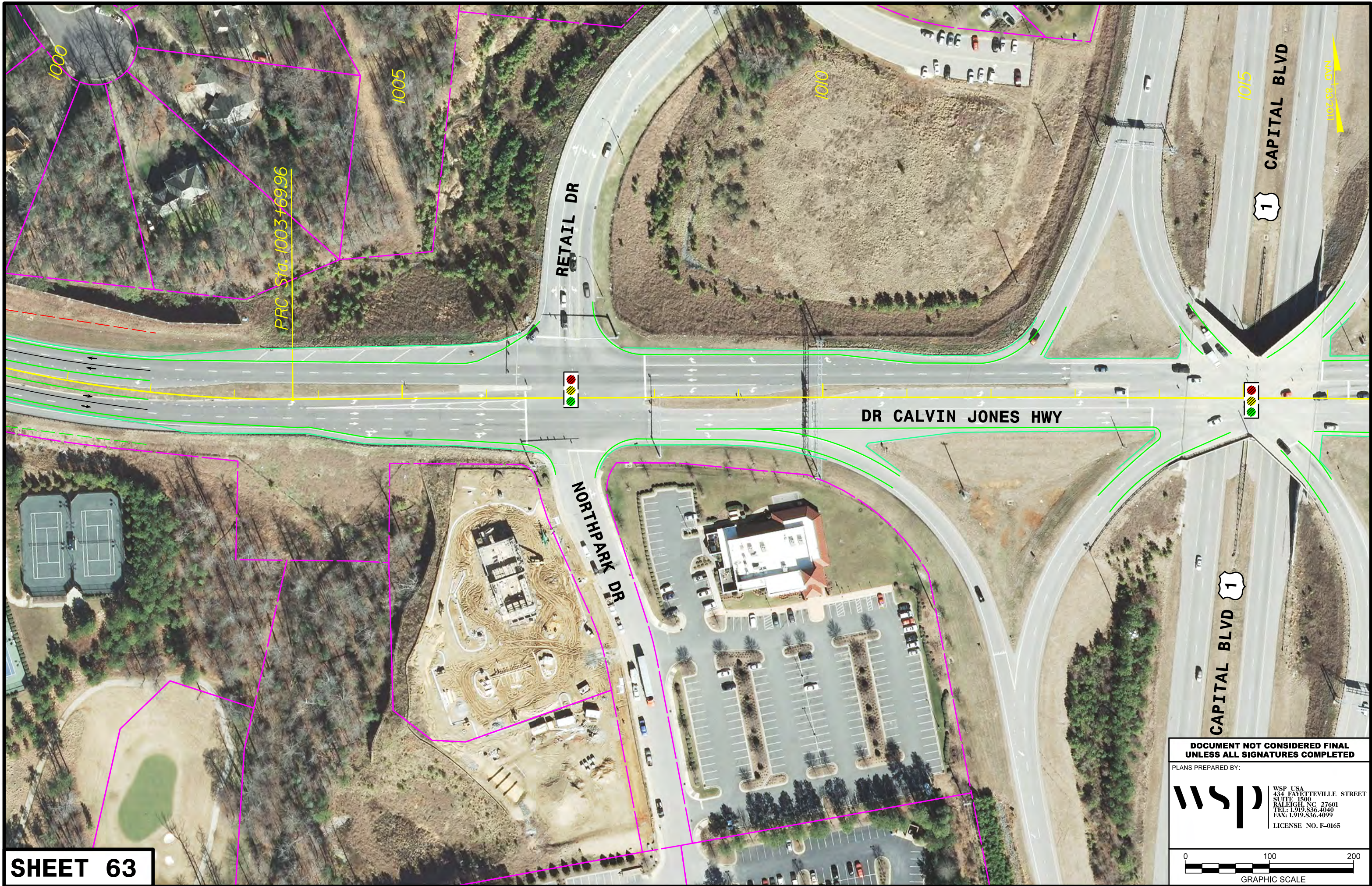


0 100 200
GRAPHIC SCALE









SHEET 63

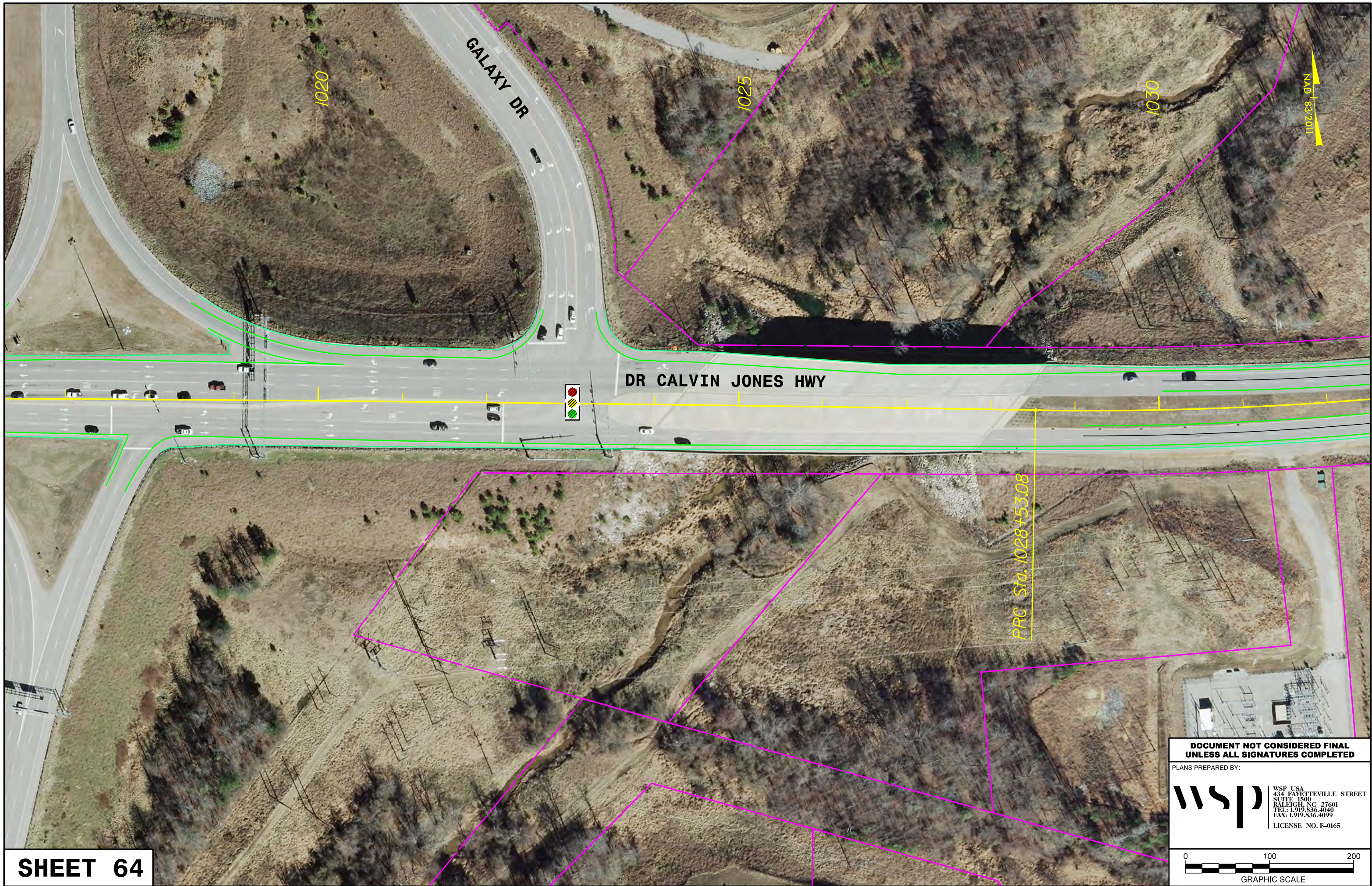
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0 100 200
GRAPHIC SCALE





SHEET 65

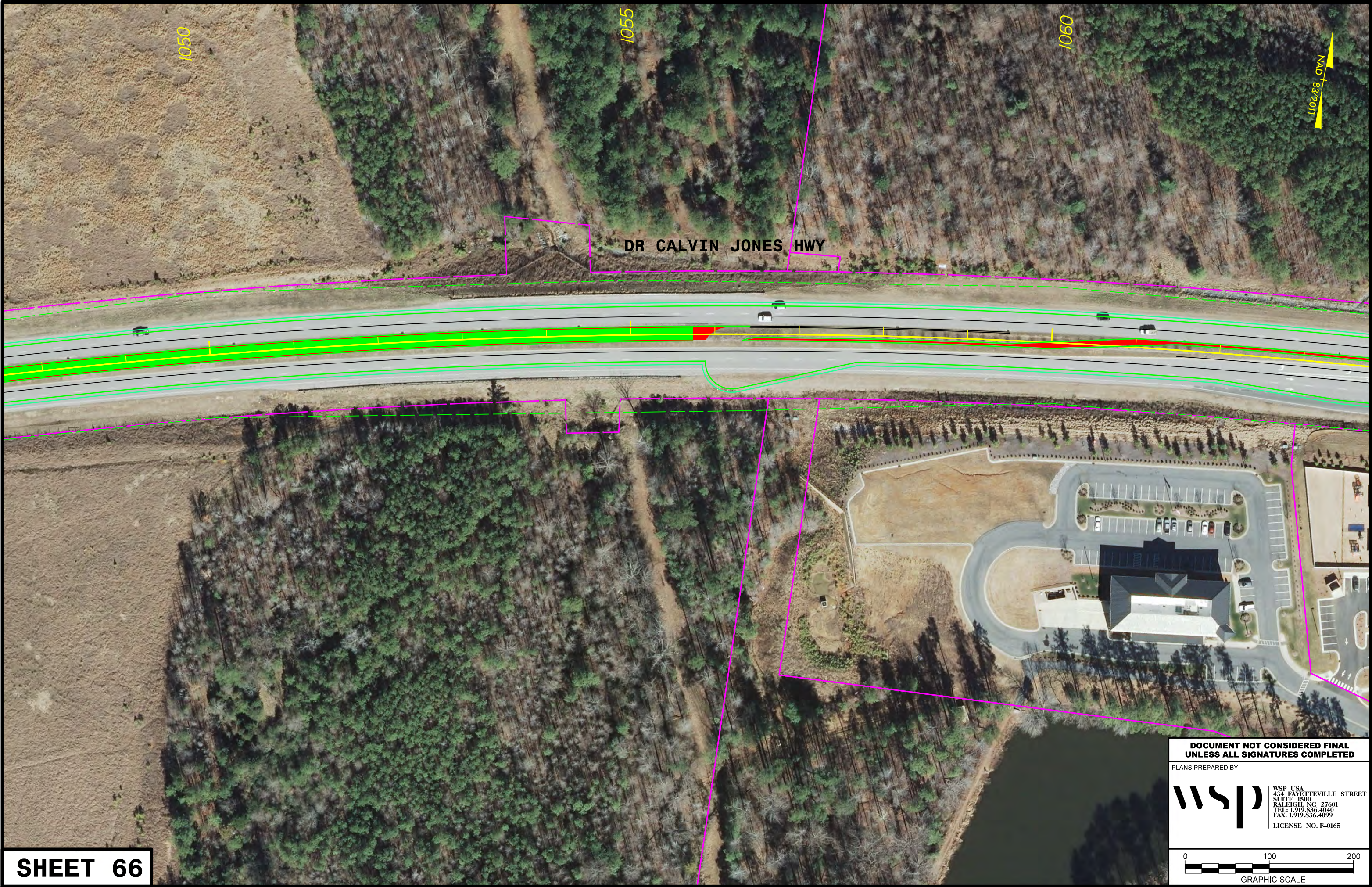
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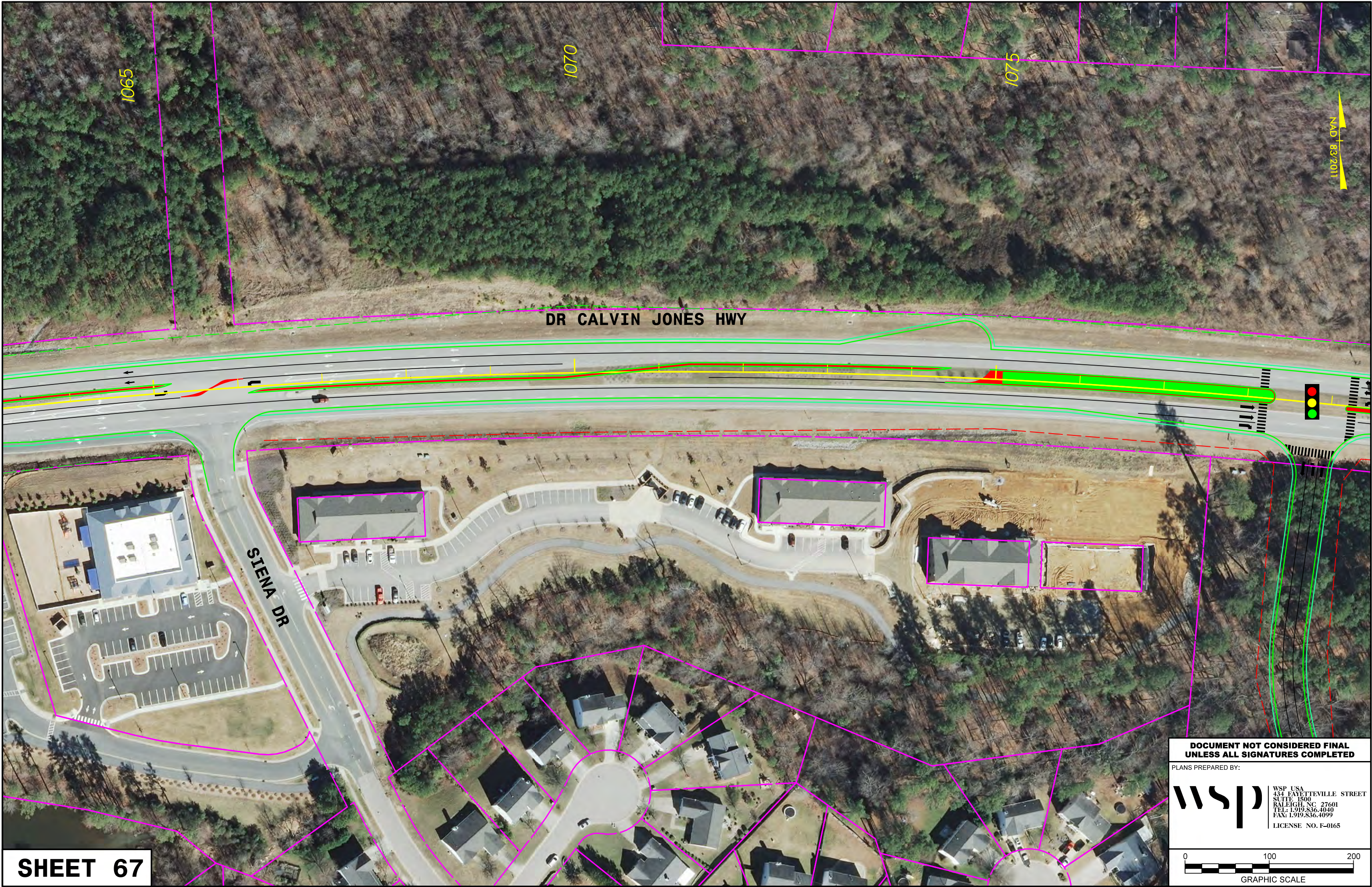
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0 100 200
GRAPHIC SCALE





1065

1070

1075

DR CALVIN JONES HWY

SIENA DR

NAD 83/2011

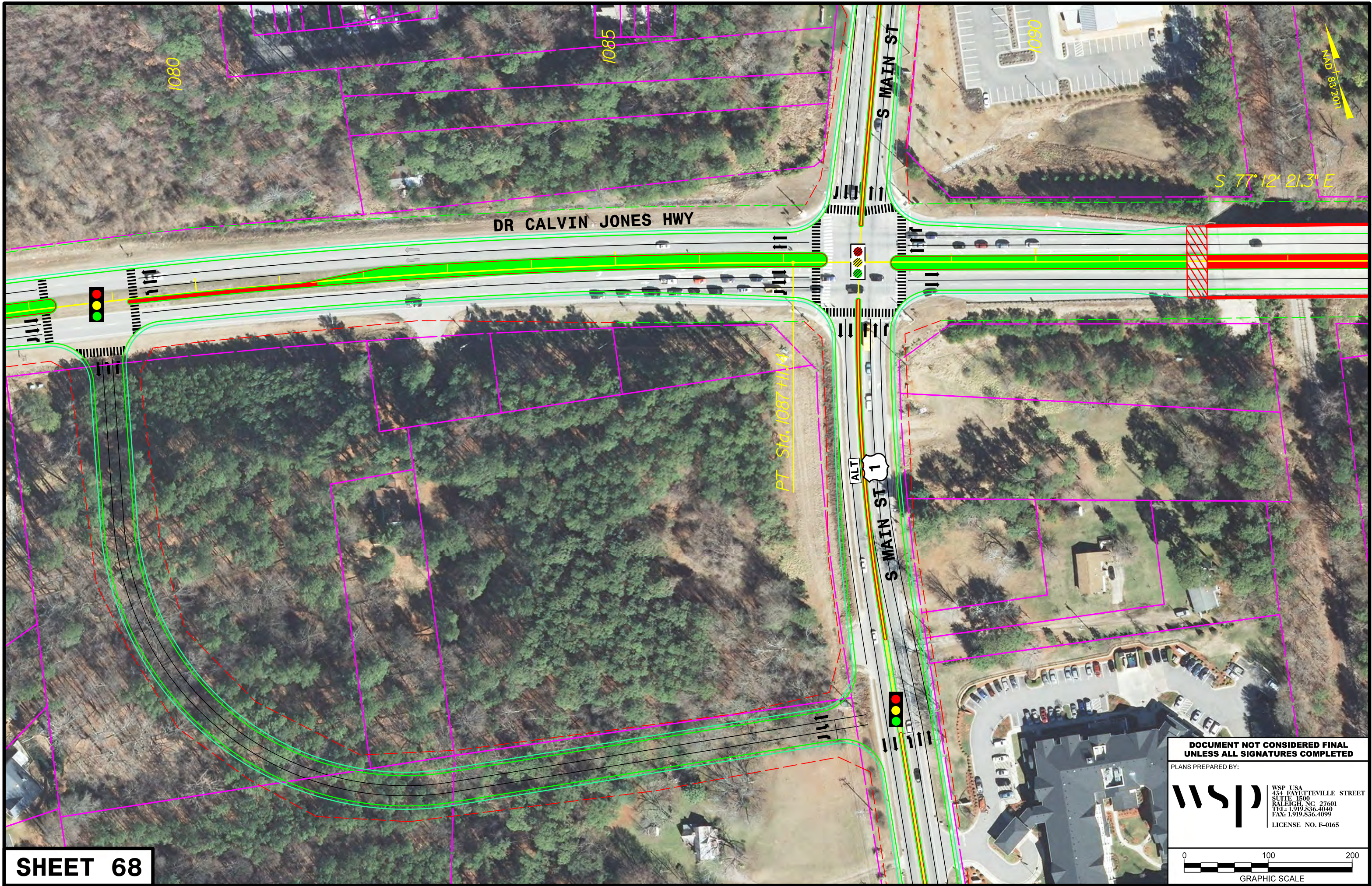
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0 100 200
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SHEET 68

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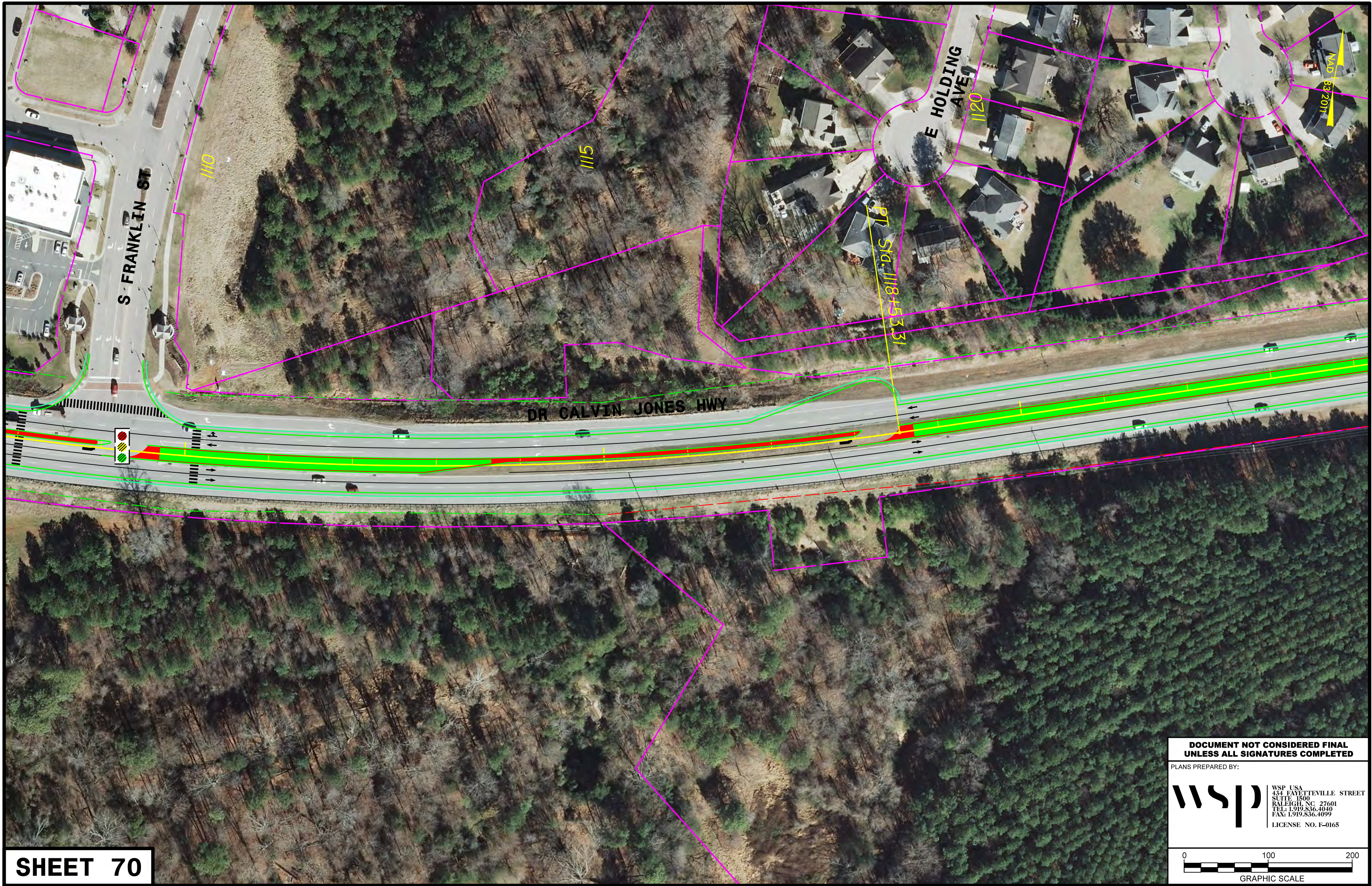
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0 100 200
GRAPHIC SCALE





SHEET 70

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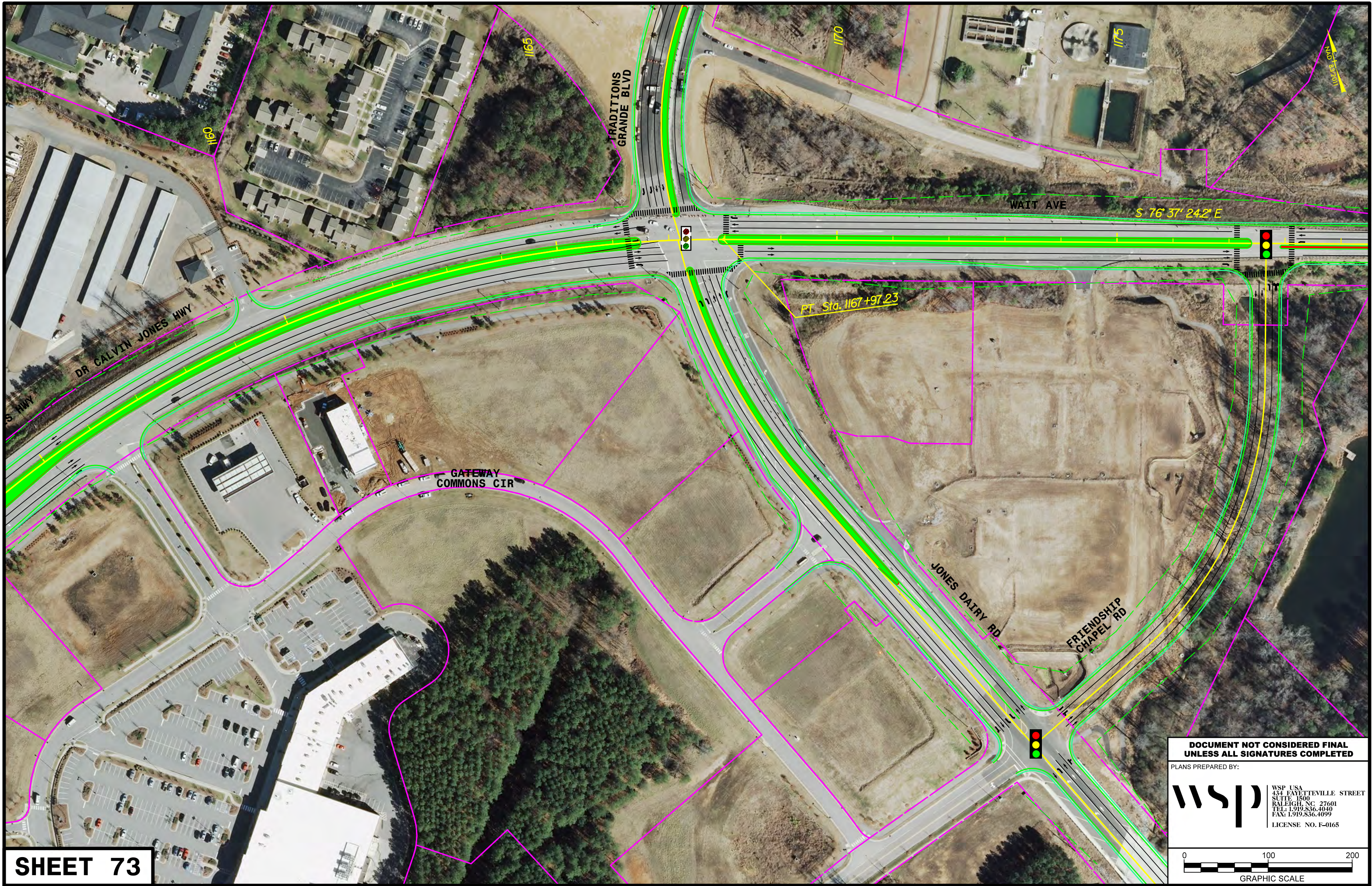
PLANS PREPARED BY:

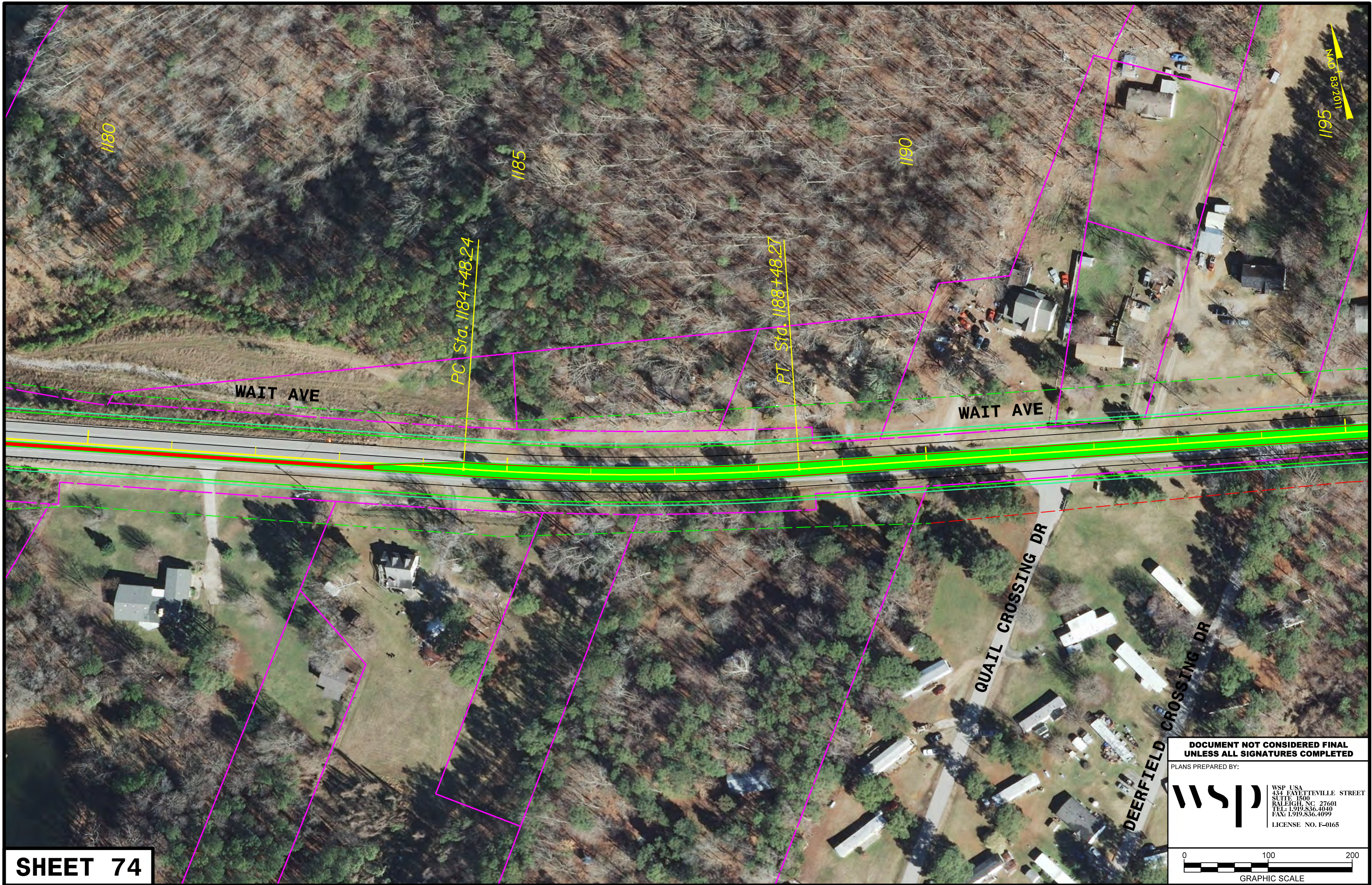
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0 100 200
GRAPHIC SCALE









SHEET 74

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0 100 200
GRAPHIC SCALE



1195

1200

1205

1210

WAIT AVE

S 84° 15' 48.0" E

NAD 83/2011

SHEET 75

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0 100 200
GRAPHIC SCALE



SHEET 76

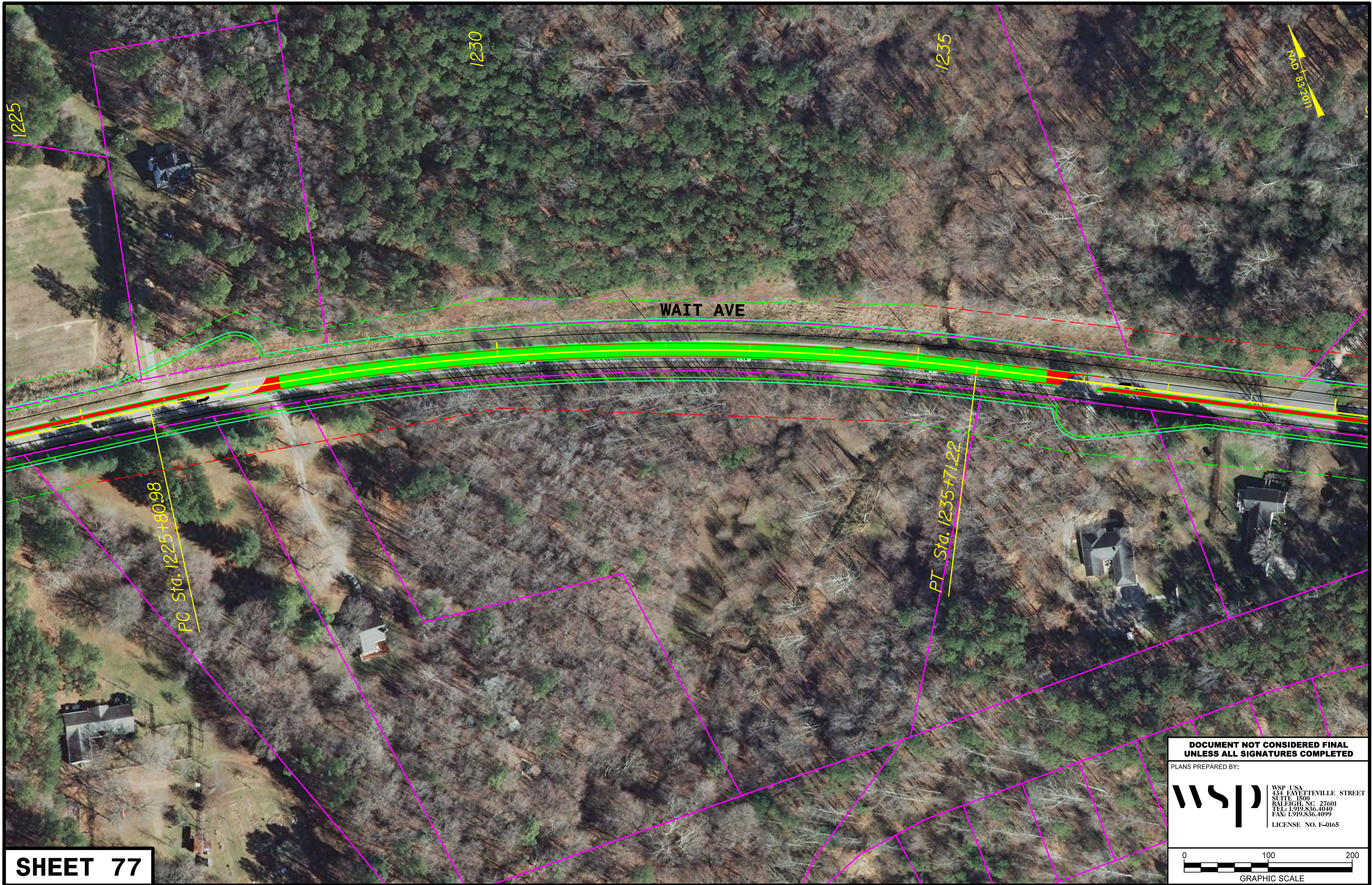
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0 100 200
GRAPHIC SCALE



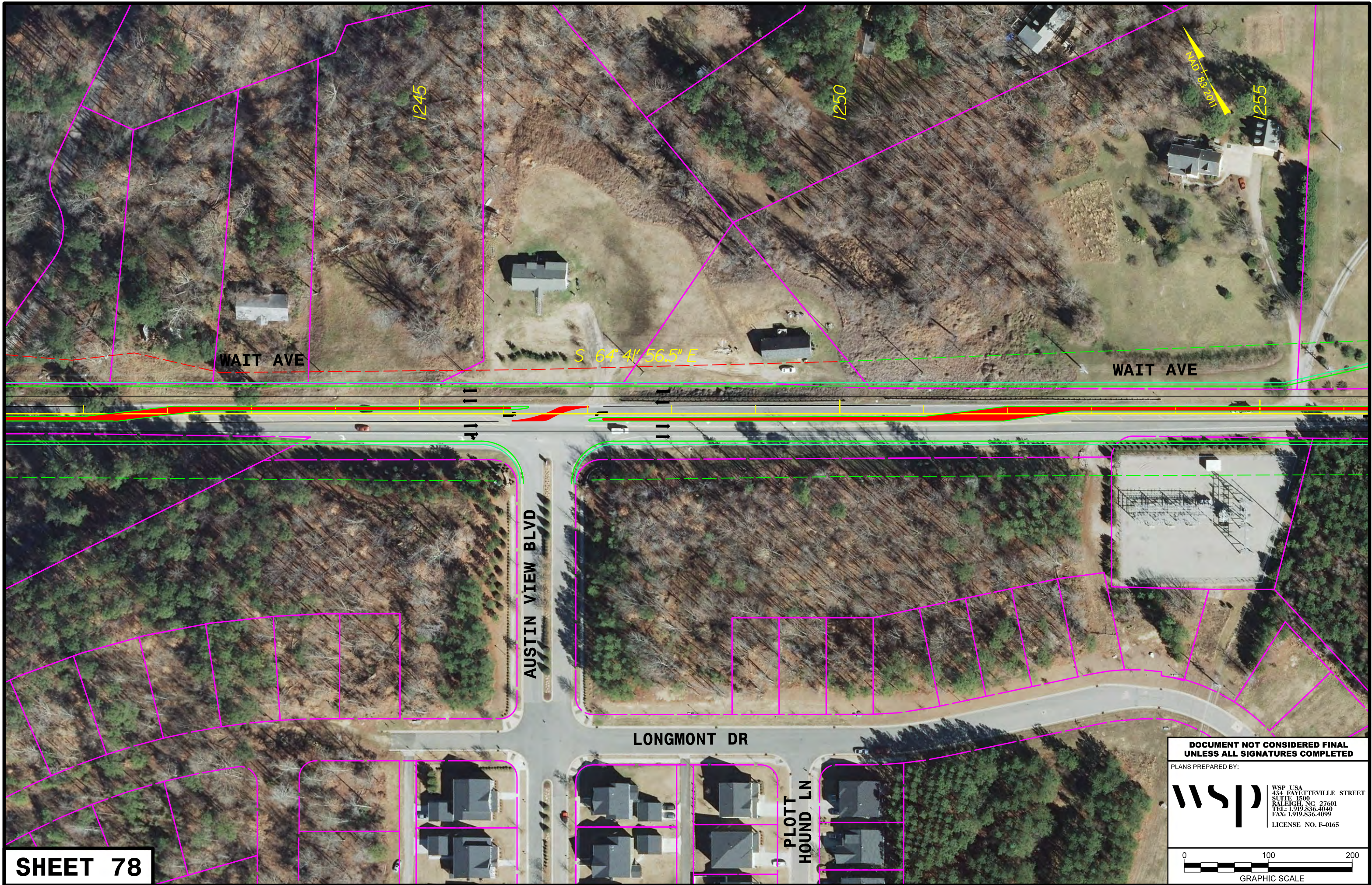
SHEET 77

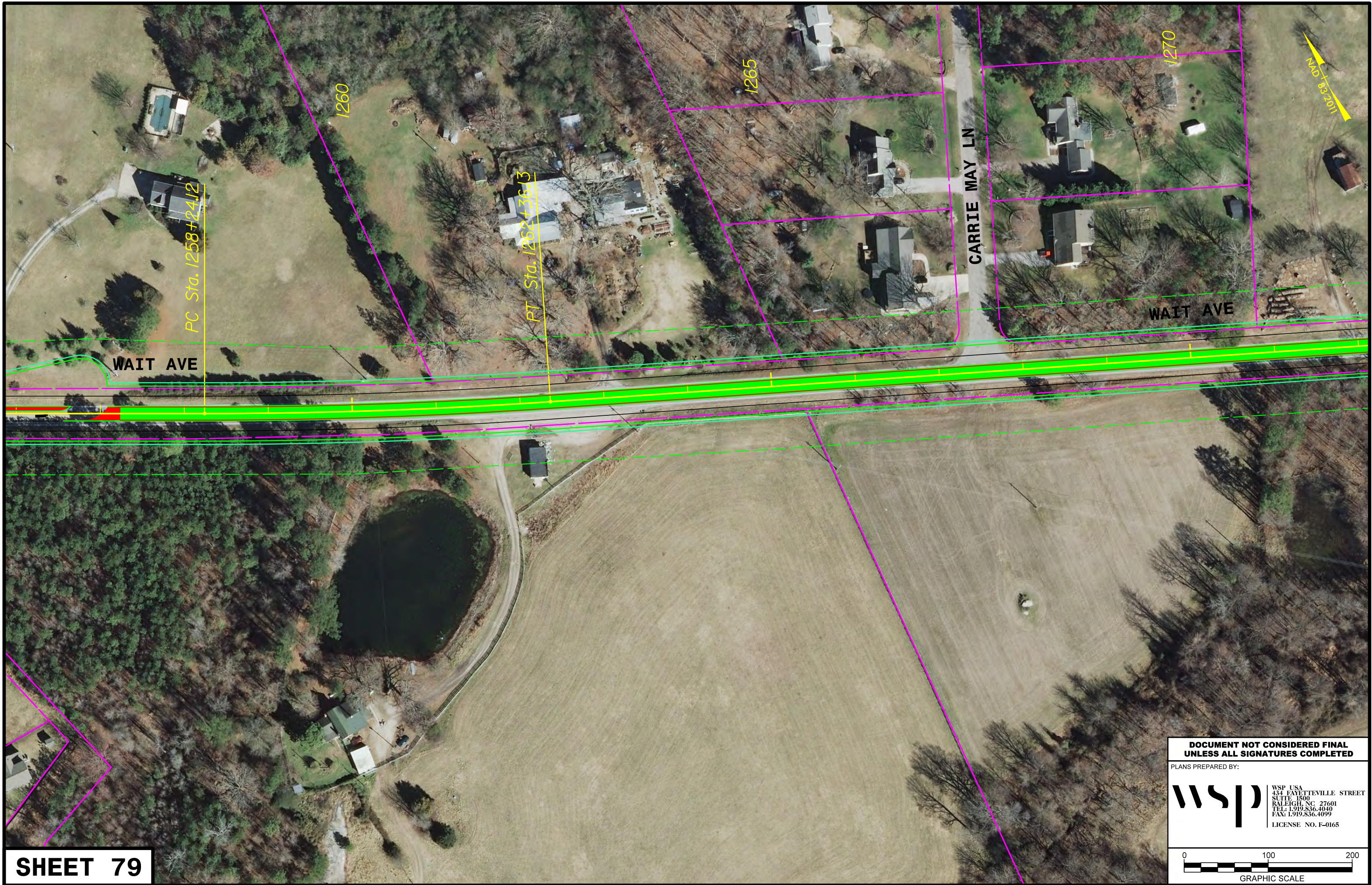
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UNLESS ALL SIGNATURES COMPLETED**

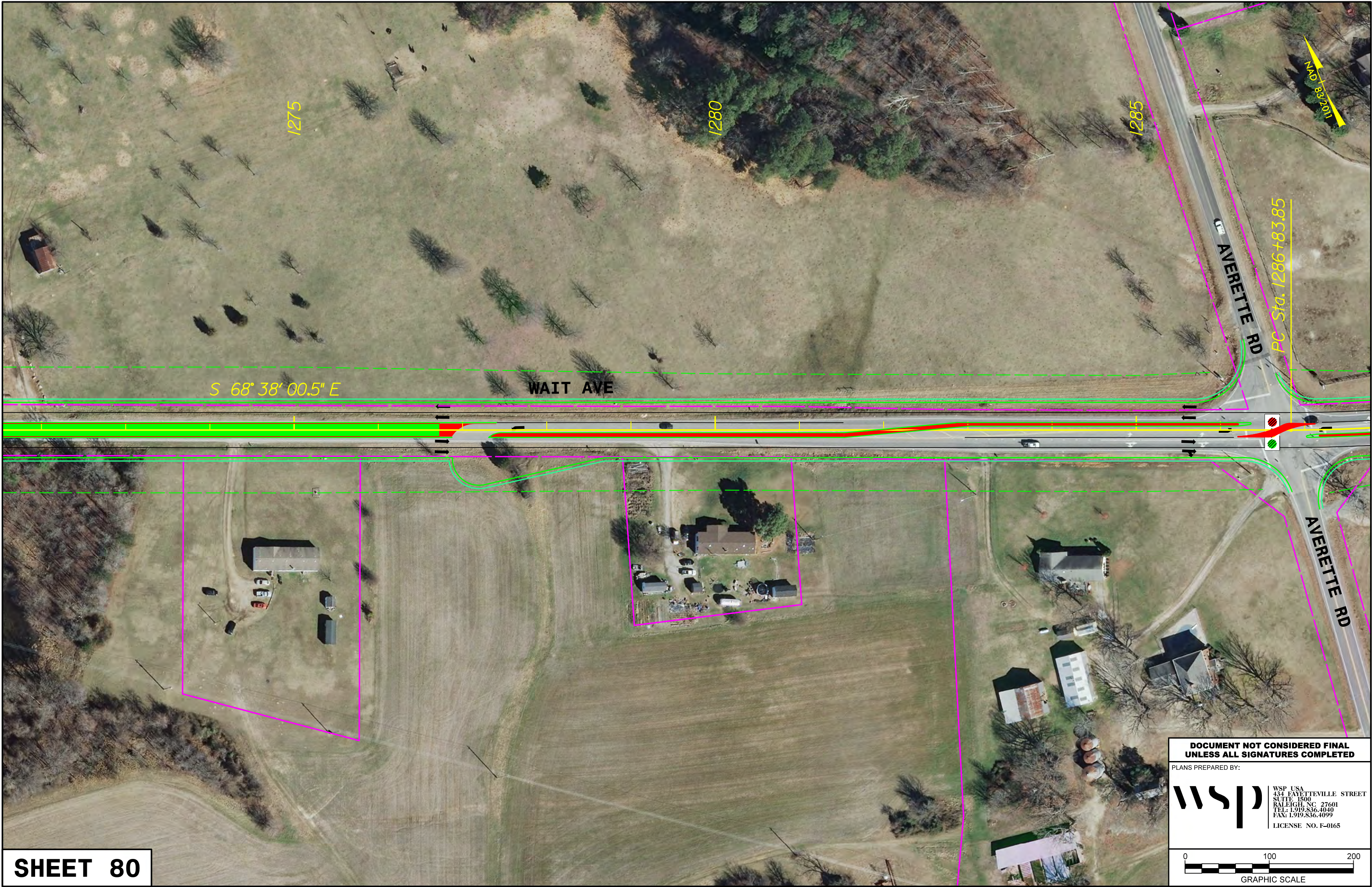
PLANS PREPARED BY:

wsp | WSP USA
434 FAYETTEVILLE STREET
SUITE 1500
RALEIGH, NC 27601
TEL: 1.919.836.4040
FAX: 1.919.836.4099
LICENSE NO. F-0165

0 100 200
GRAPHIC SCALE







S 68° 38' 00.5" E

WAIT AVE

PC Sta. 1286+83.85

AVERETTE RD

AVERETTE RD

SHEET 80

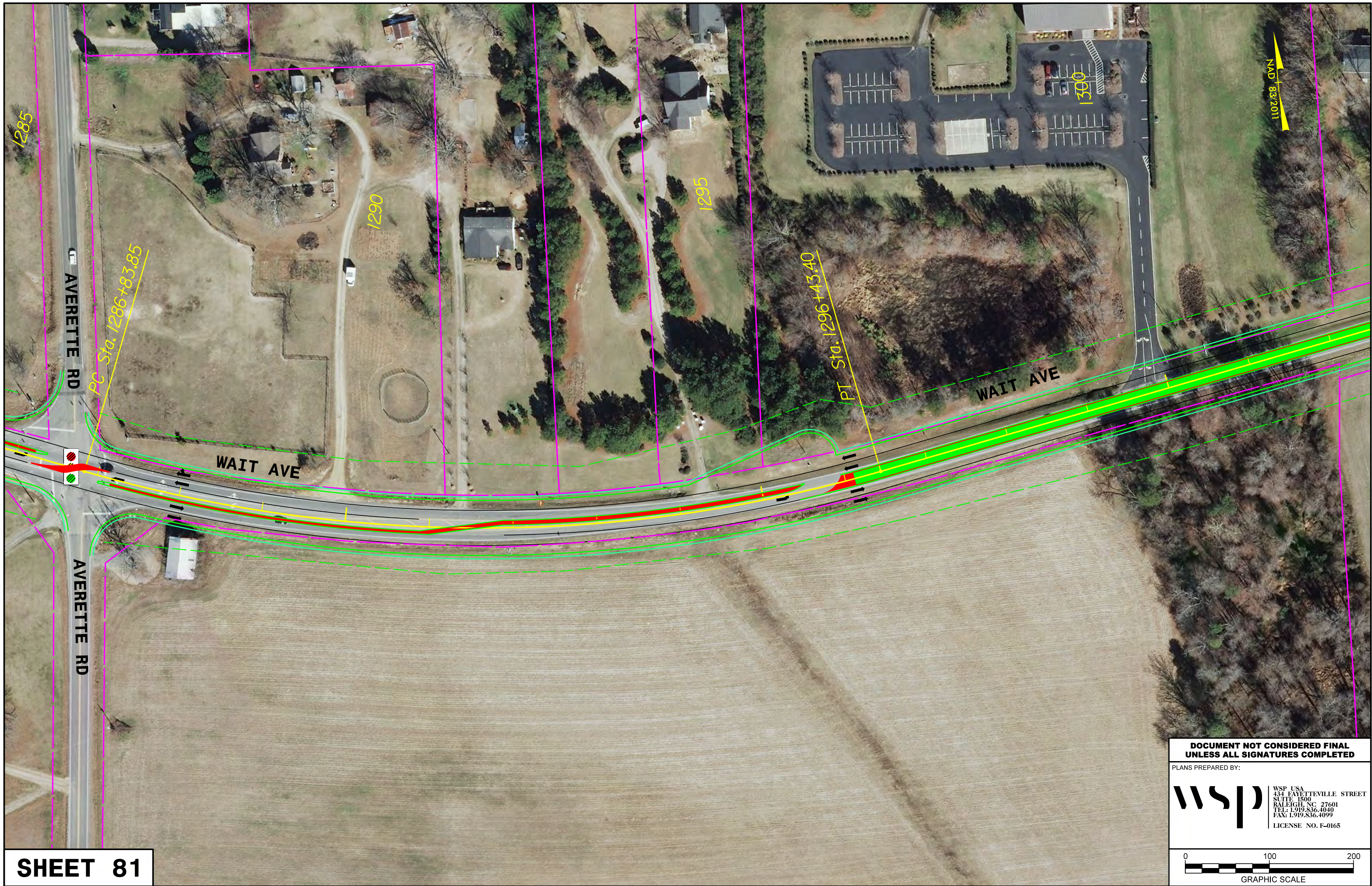
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wsp

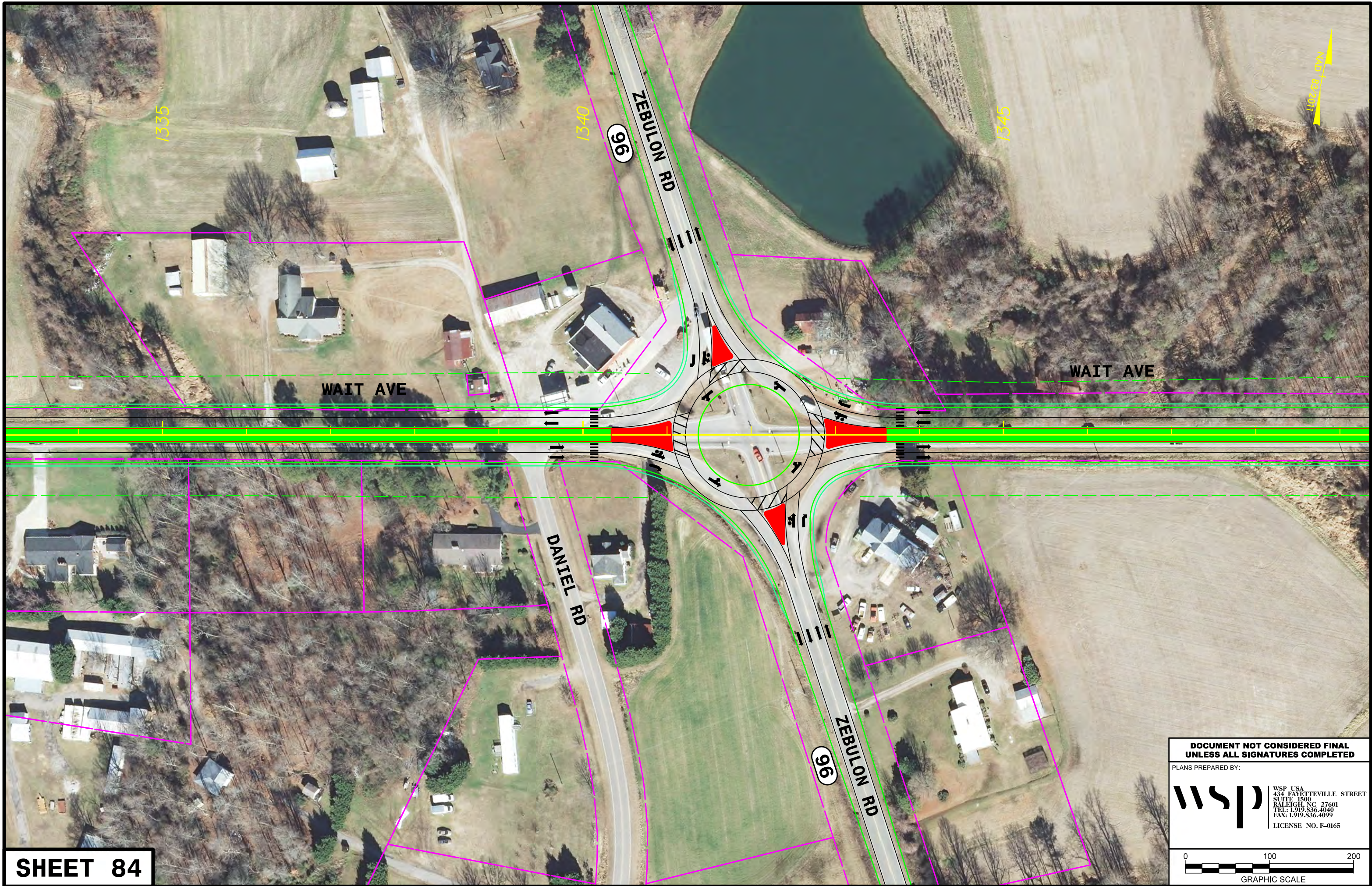
WSP USA
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LICENSE NO. F-0165

0 100 200
GRAPHIC SCALE









SHEET 84

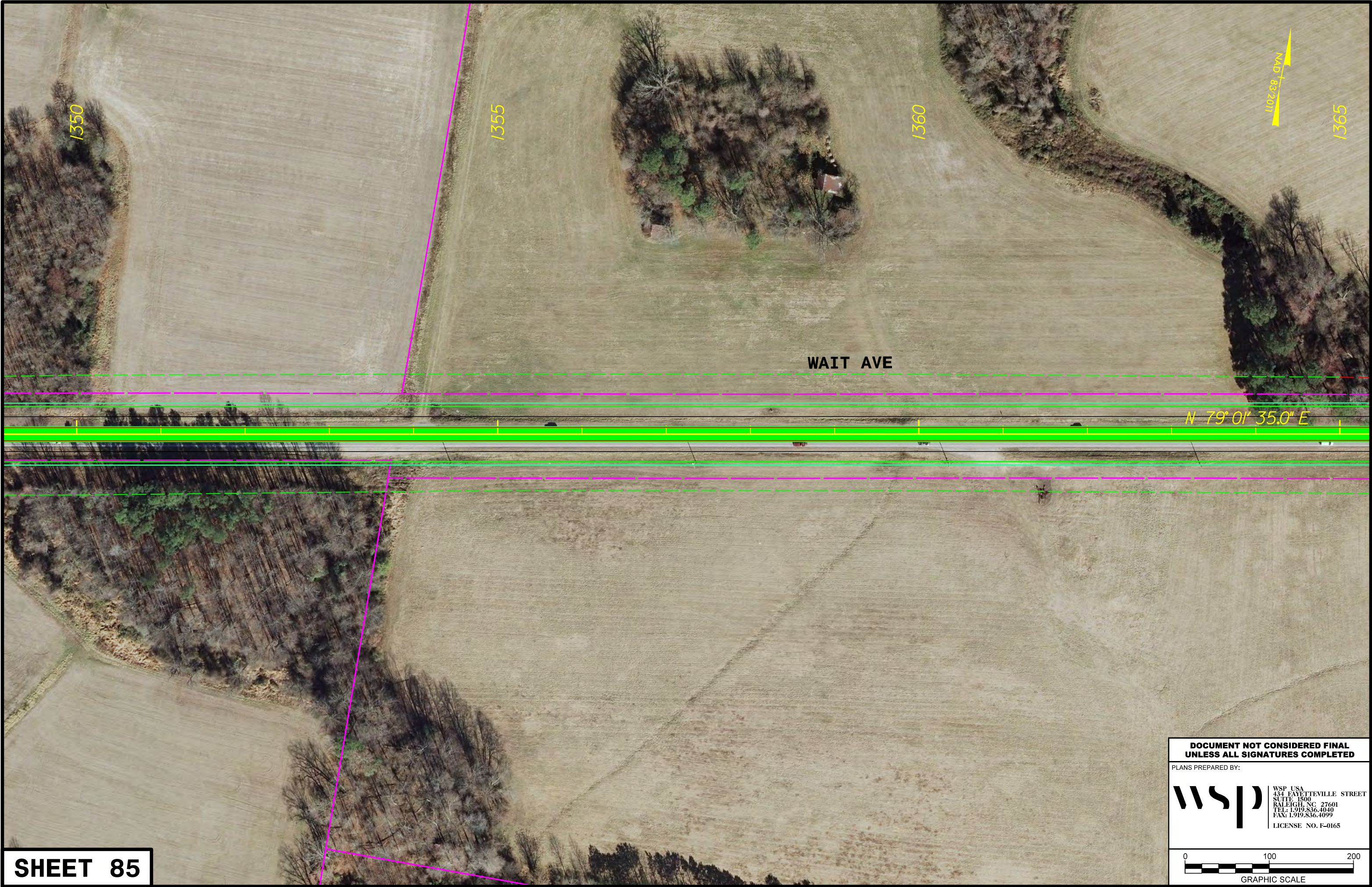
**DOCUMENT NOT CONSIDERED FINAL
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PLANS PREPARED BY:

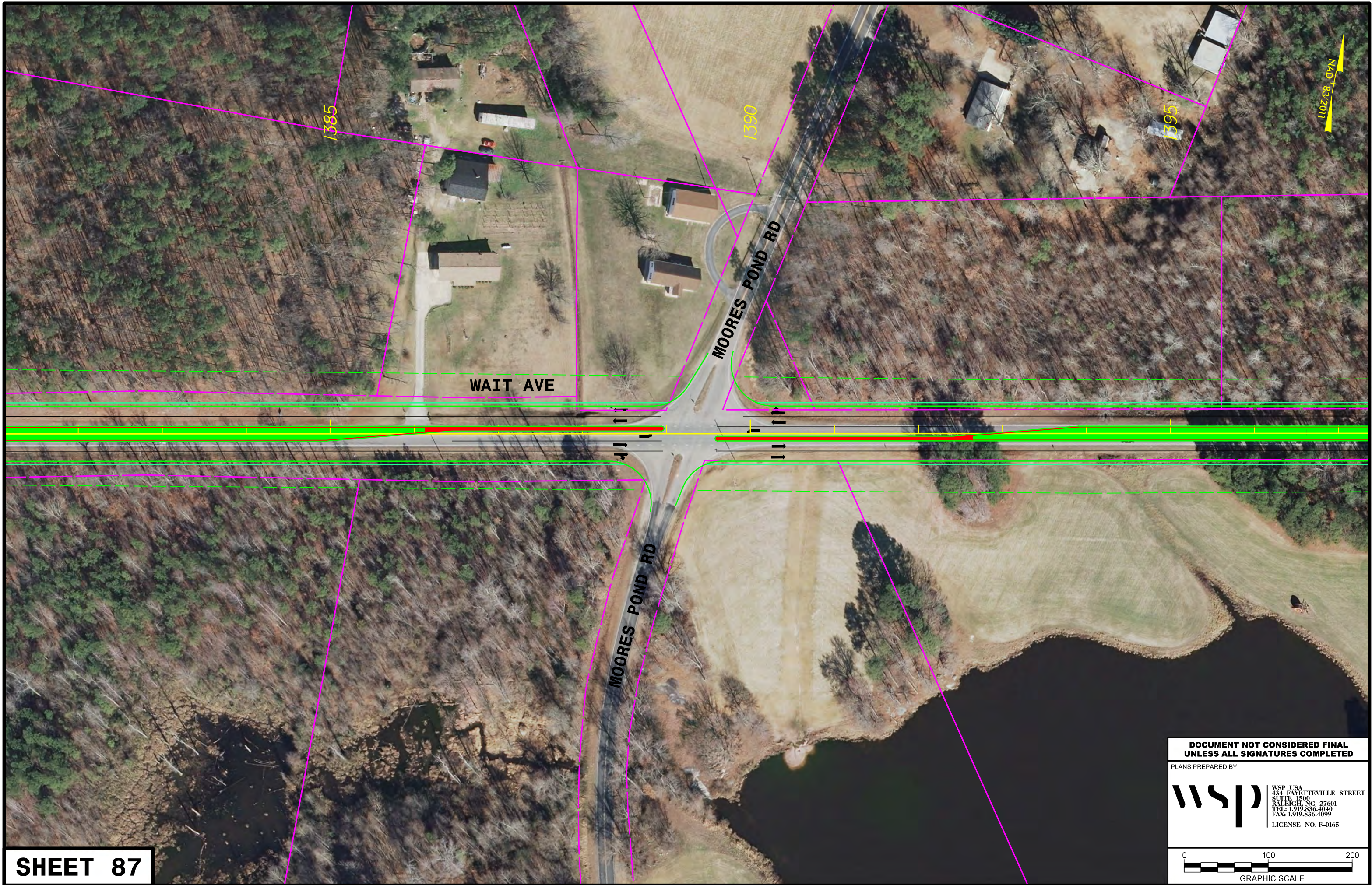
wsp

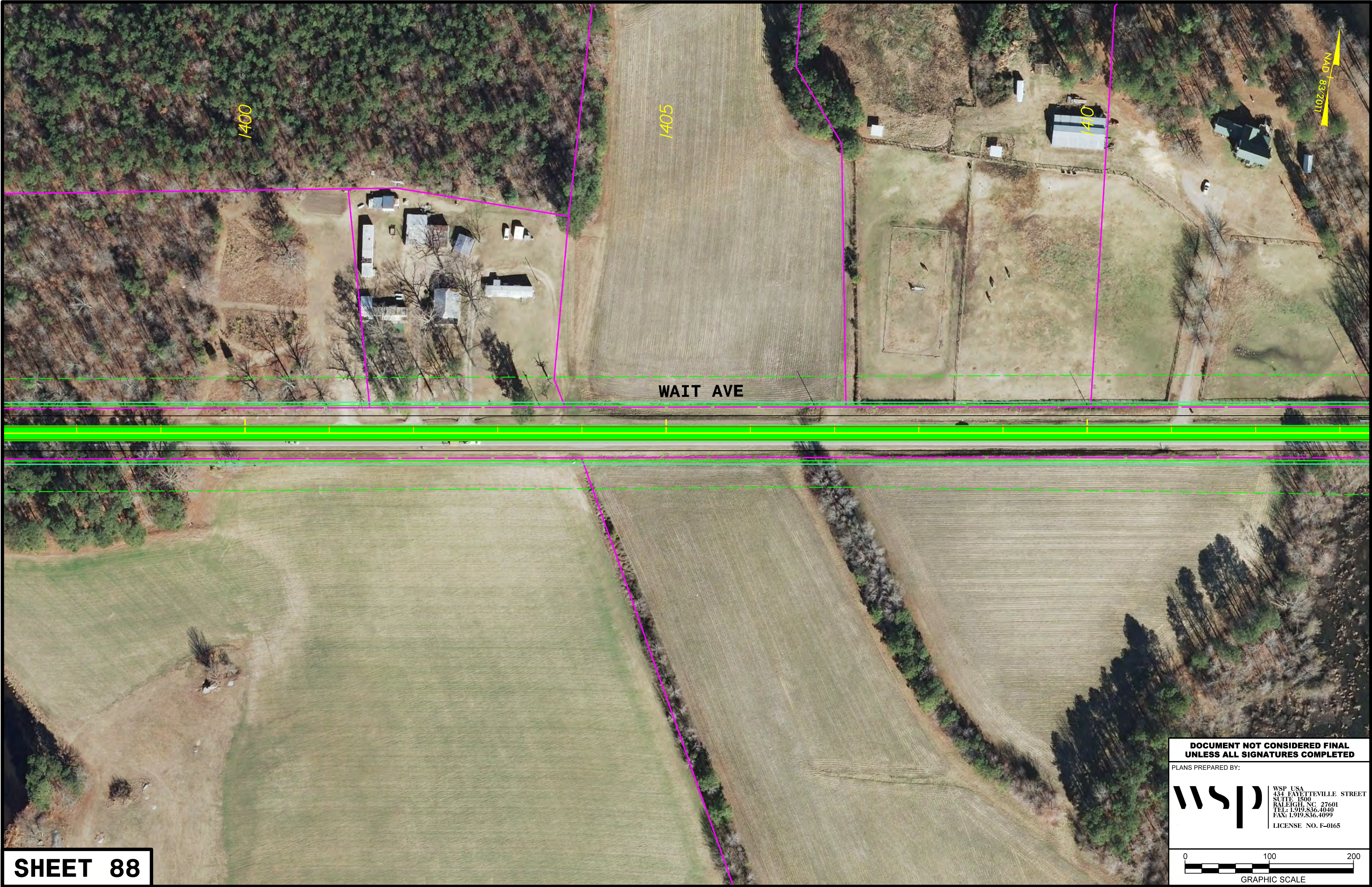
WSP, USA
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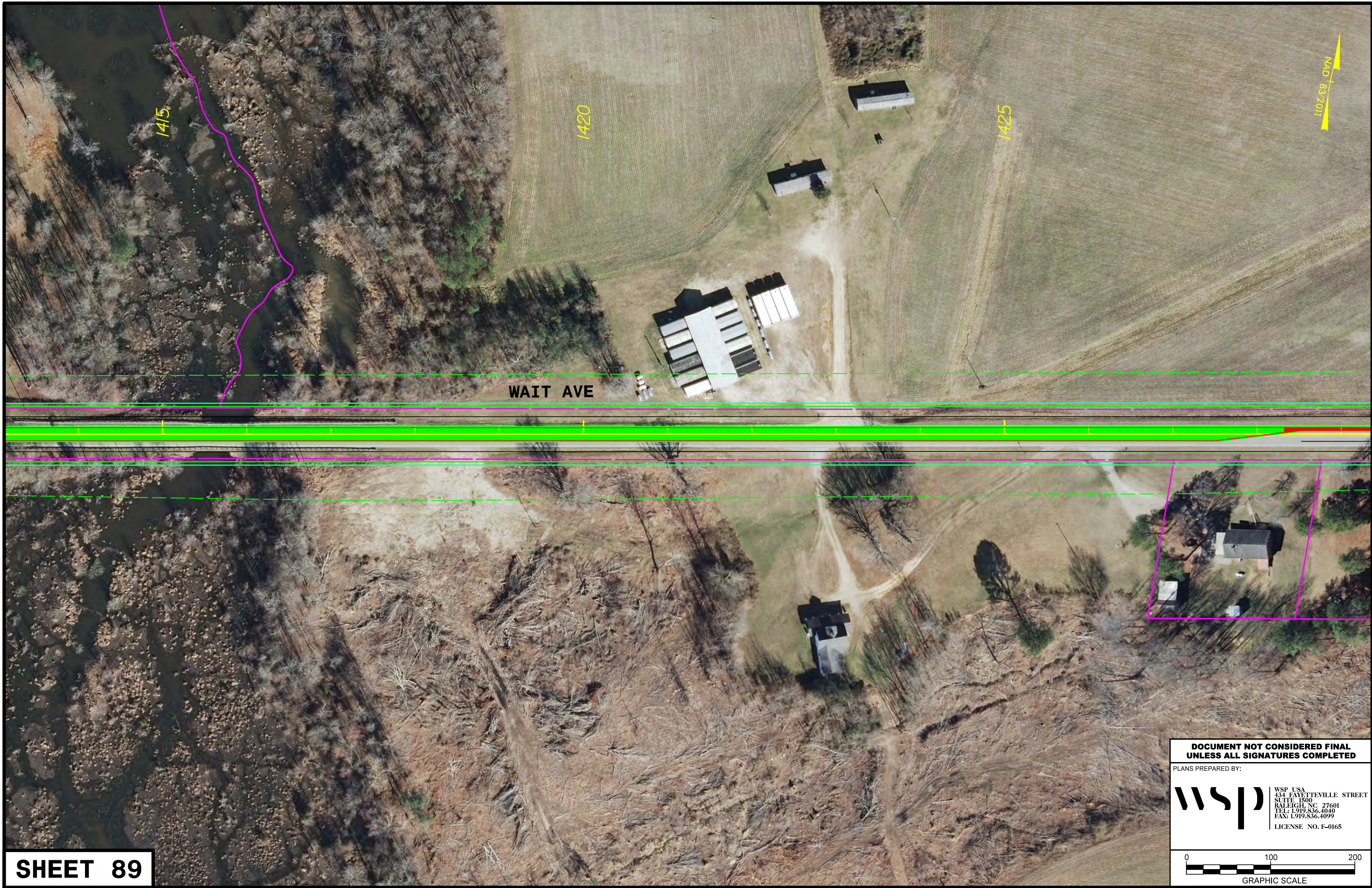
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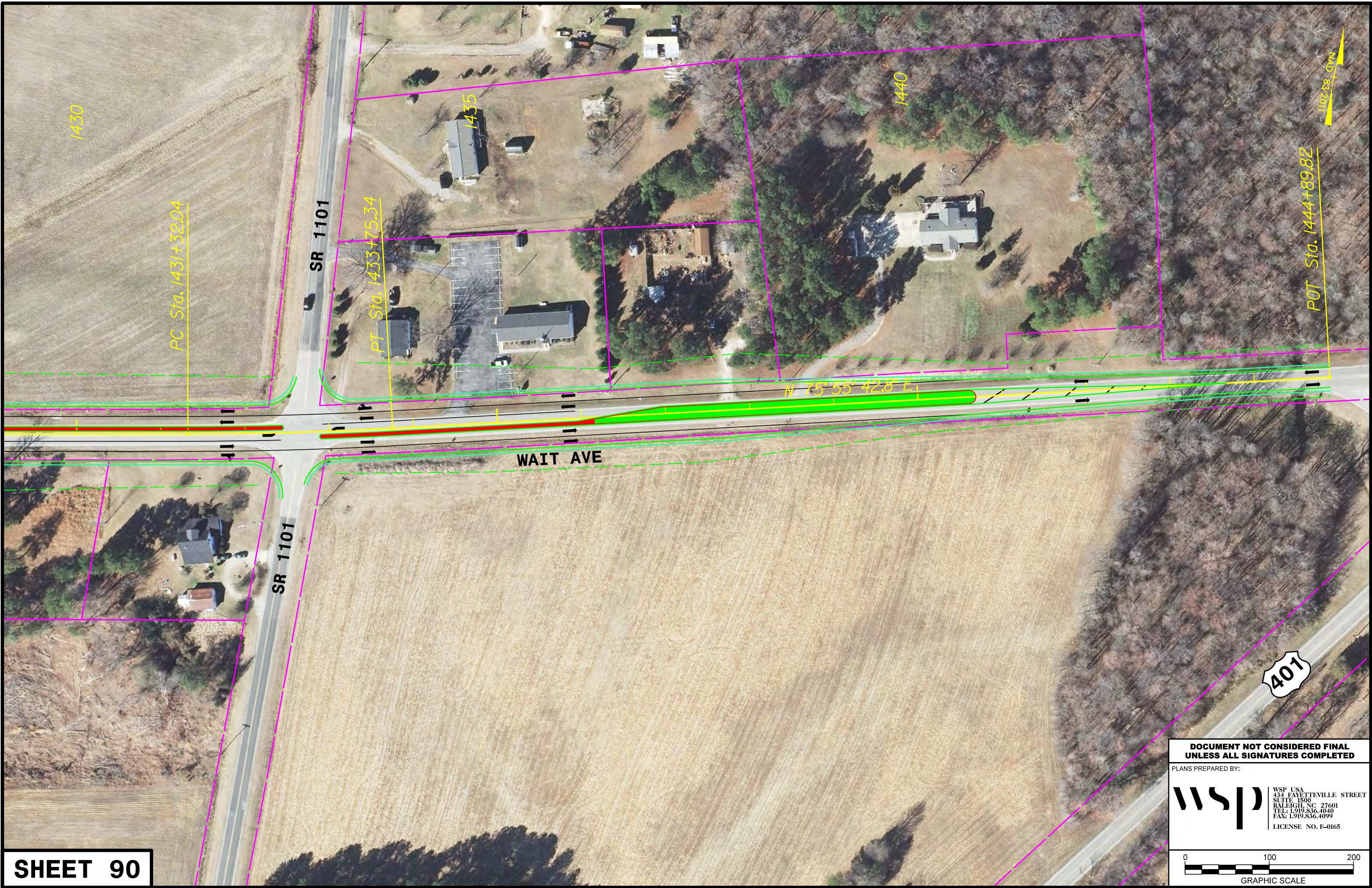








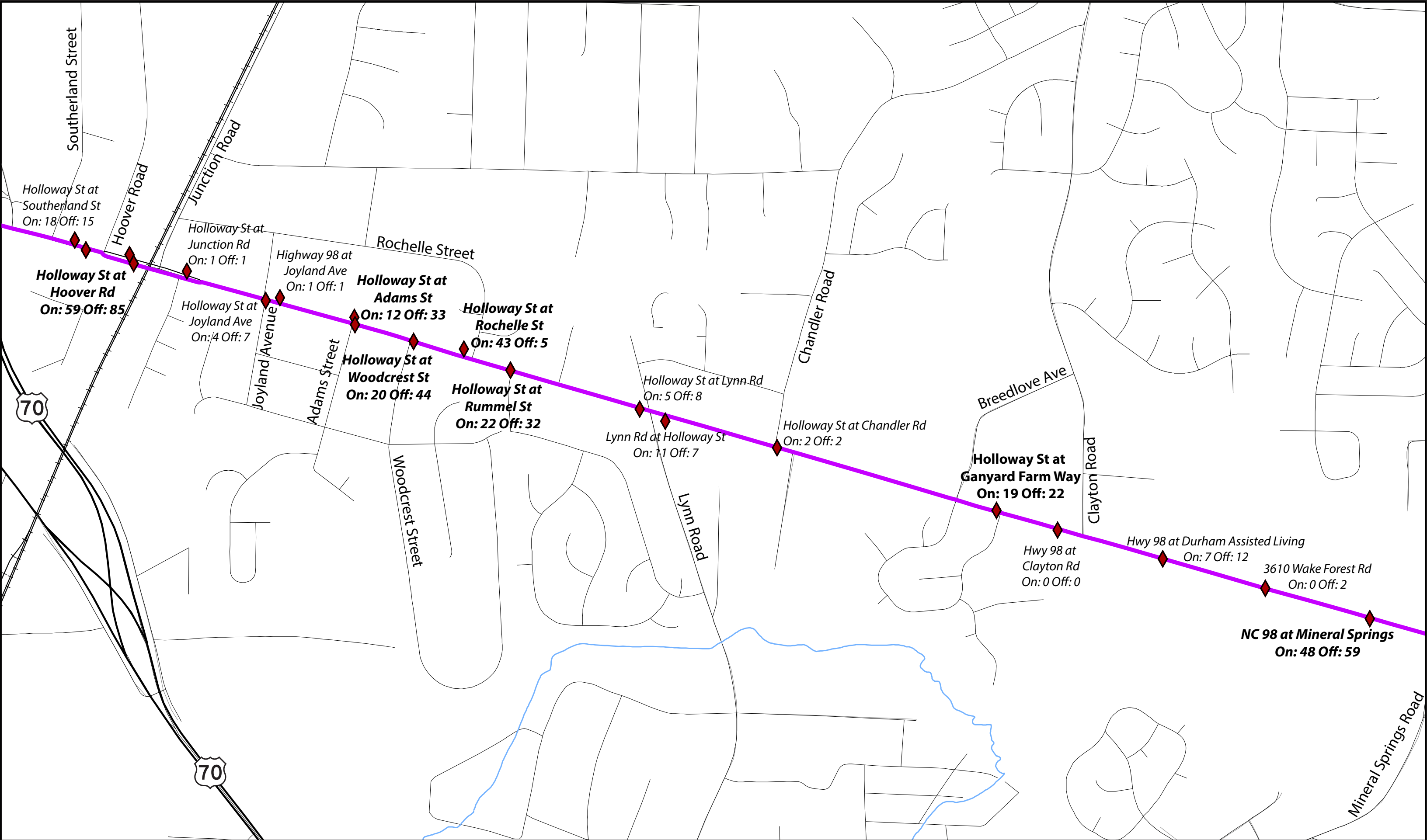




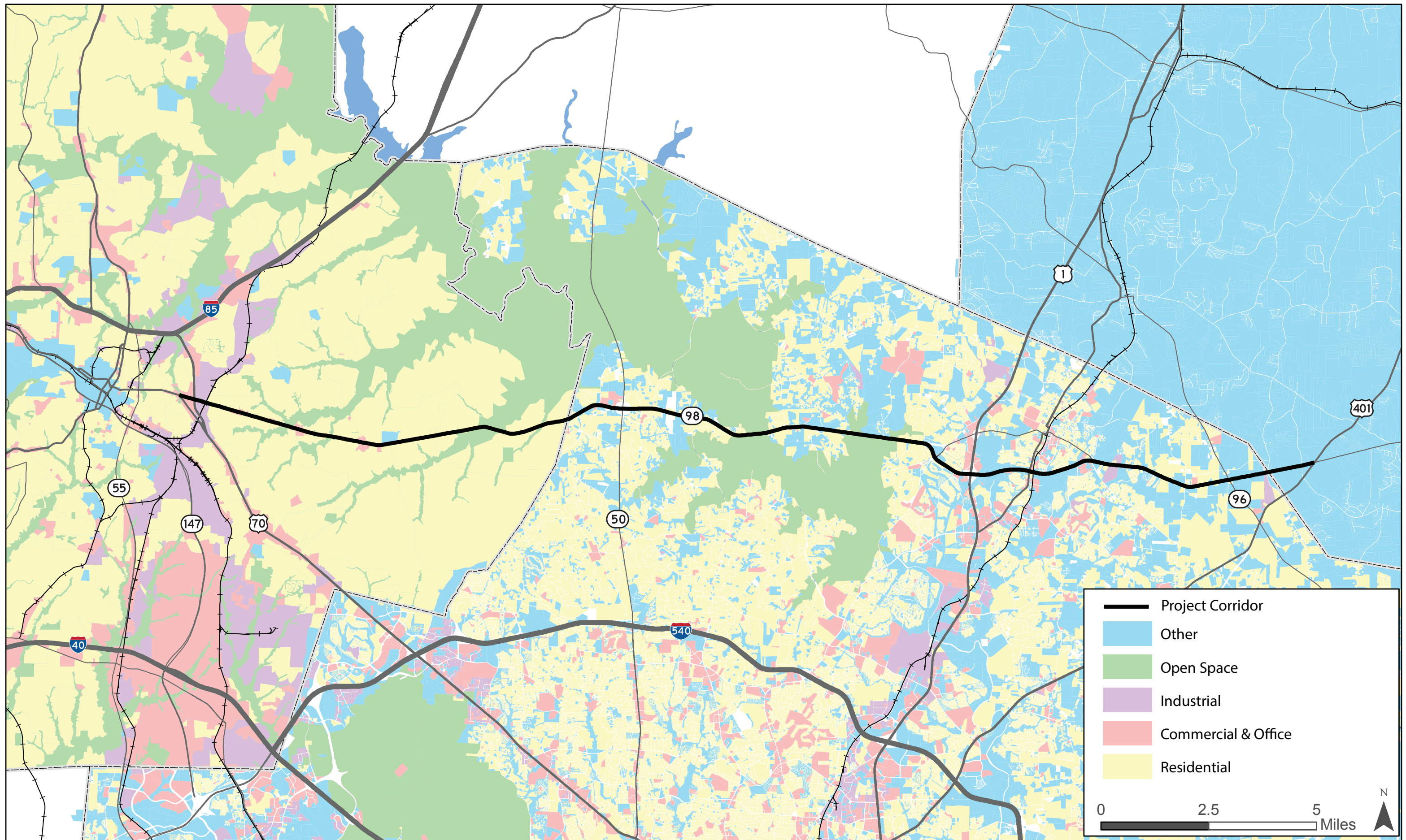


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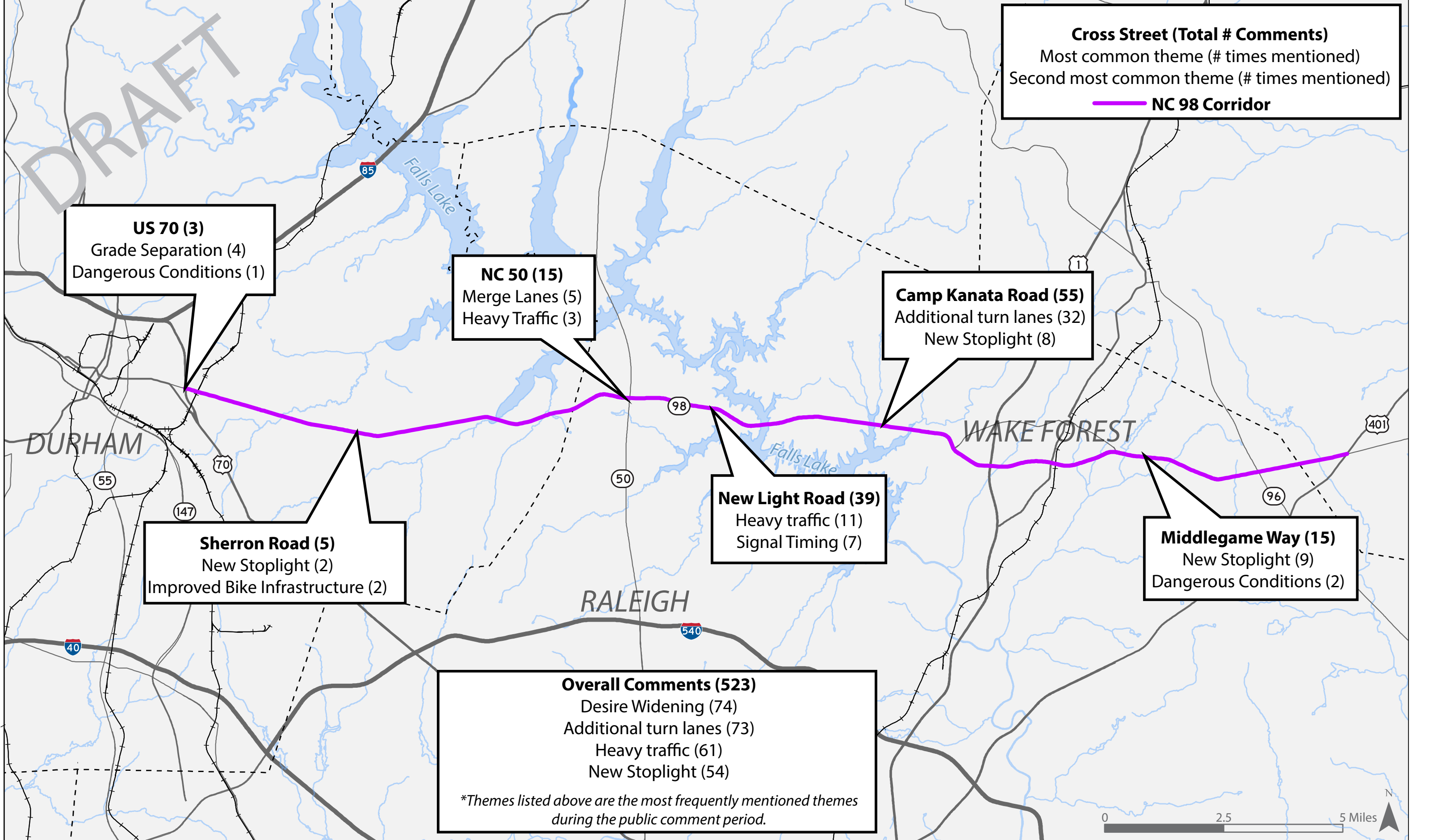
OTHER MAPS



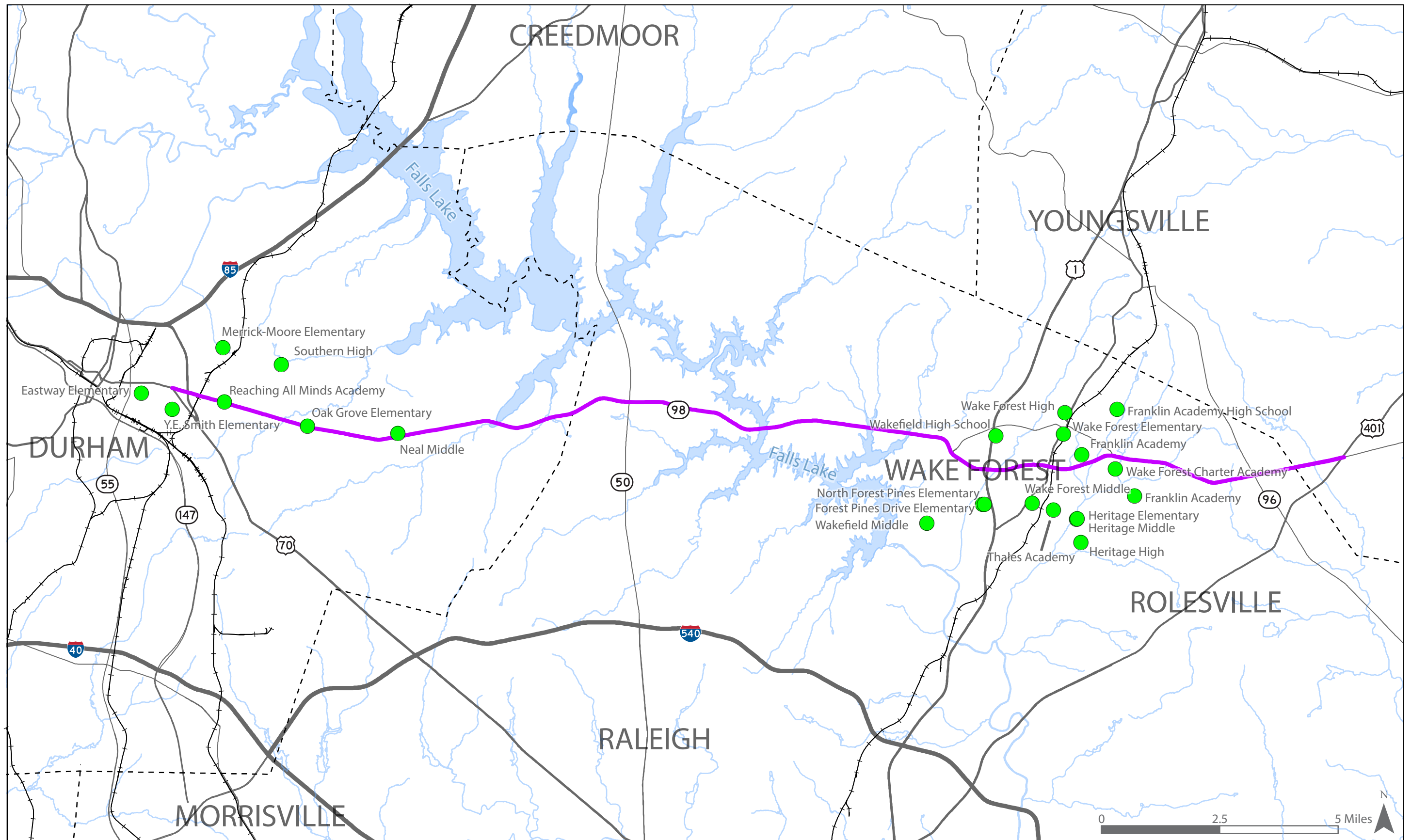
GoDurham Bus Stop Boardings and Alightings



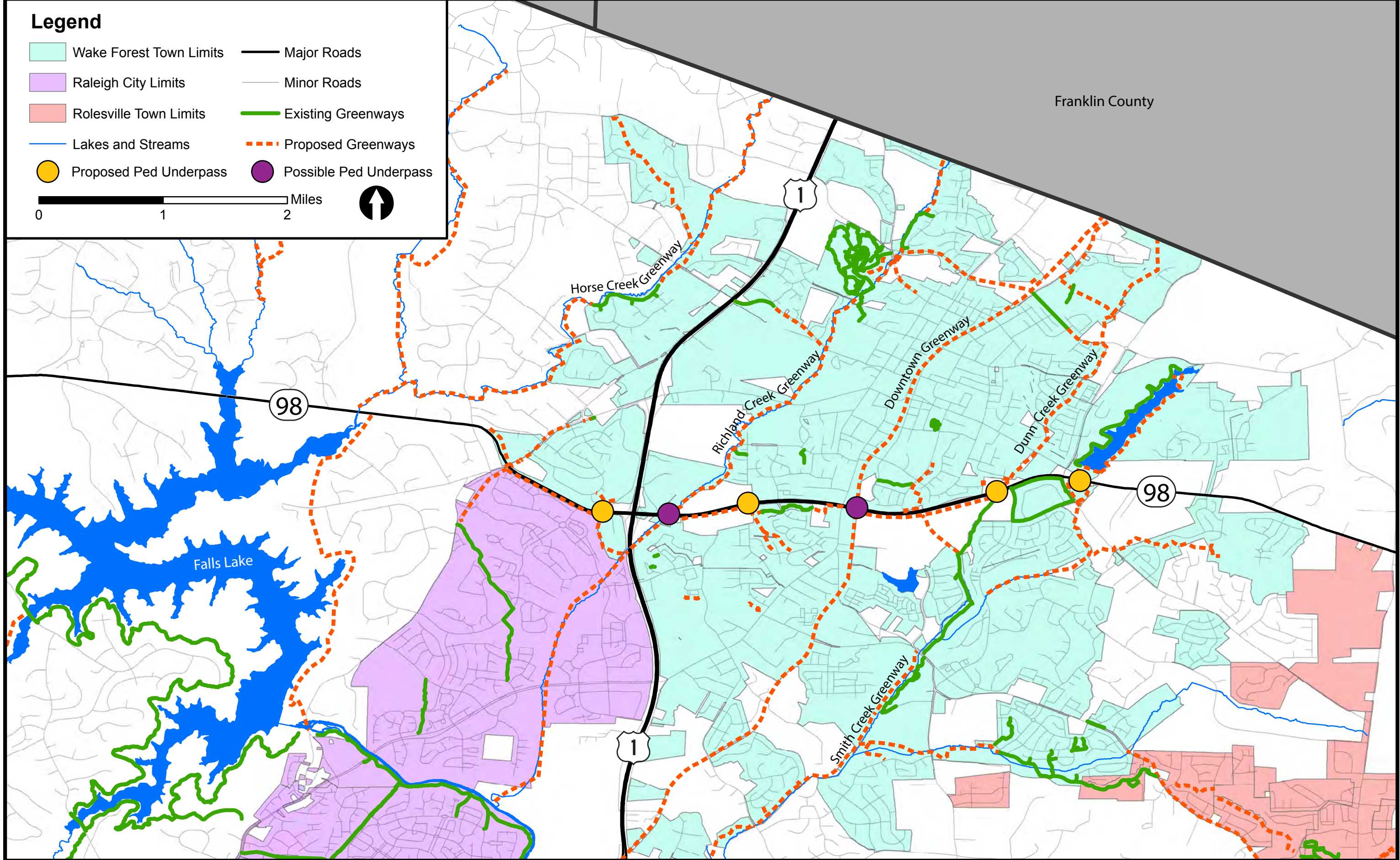
Land Use Along NC 98 Corridor



NC 98 Public Comments - Themes



Schools Along NC 98



Greenways Along NC 98 in Wake Forest



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