

Concurrence Point 3: LEDPA/Preferred Alternative Selection

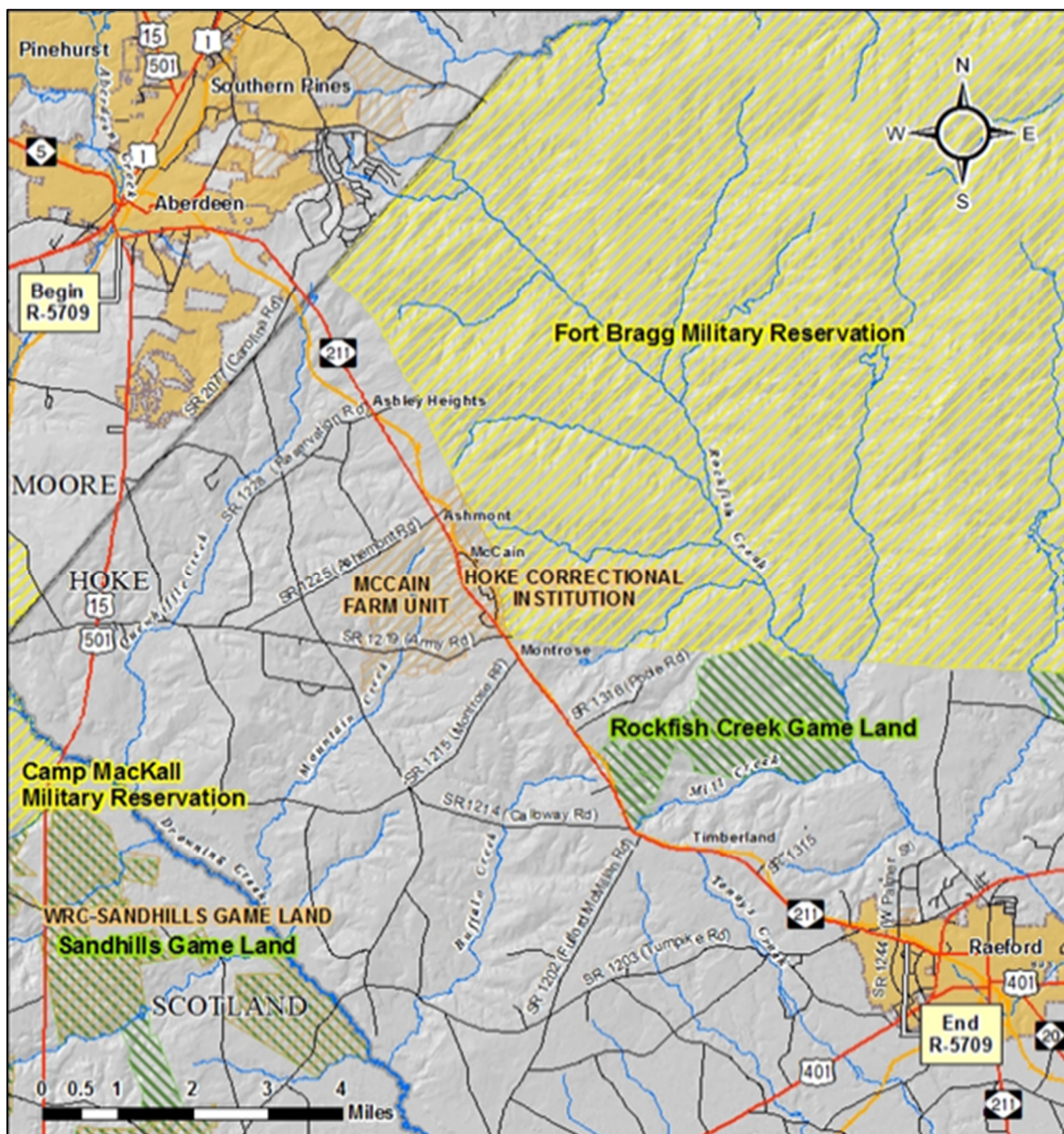
Concurrence Point 4A: Avoidance and Minimization

NC 211

from US 15-501 in Aberdeen to
east of SR 1244 (West Palmer Street) / SR 1311 (Mockingbird Hill Road) in Raeford
Moore and Hoke Counties

STIP Project R-5709
WBS No. 50205.1.1

June 3, 2020



Contents

| | | |
|----|---|---|
| 1. | Purpose of Meeting | 1 |
| 2. | Project Description | 1 |
| 3. | Project Status..... | 2 |
| | Concurrence Point 1 (June 15, 2017) | 2 |
| | Concurrence Point 2 (June 15, 2017) | 2 |
| | Concurrence Point 2-Revisited (February 20, 2019)..... | 2 |
| | Concurrence Point 2A (February 20, 2019) | 3 |
| | Concurrence Point 1-Study Area and 2-Revisited Design Refinement (March 23, 2020 Update Memo) | 3 |
| 4. | Public Involvement | 3 |
| | Open House Public Meetings and Local Officials’ Informational Meetings..... | 3 |
| | Small Group Meetings | 3 |
| 5. | Concurrence Point 3: Least Environmentally Damaging and Practicable Alternative | 4 |
| | Summary of Potential Impacts | 5 |
| 6. | Concurrence Point 4A: Avoidance and Minimization | 6 |
| | Additional Avoidance and Minimization Measures..... | 6 |

Tables

Table 1. STIP Cost Estimate

Table 2. Widening Options Selected for the Preferred Alternative

Table 3. Anticipated Impacts of the Preferred Alternative (25% Design)

Table 4. Stream and Wetland Impacts (25% Design)

Figures

Environmental Features Map (1 – 20) (25% Design)

1. Purpose of Meeting

The purpose of today's meeting is to discuss the Least Environmentally Damaging and Practicable Alternative (LEDPA) (CP 3) and Avoidance and Minimization (CP 4A). Concurrence will be requested on LEDPA and Avoidance and Minimization during today's meeting and pending any comments from the USACE Public Notice.

2. Project Description

The NCDOT proposes to widen NC 211 to a four-lane divided roadway with a grass median from US 15-501 in Aberdeen (Moore County) to east of SR 1244 (West Palmer Street) / SR 1311 (Mockingbird Hill Road) in Raeford (Hoke County), a distance of approximately 15.4 miles.

In Moore County, the roadway will have a 30-foot-wide raised median. In Hoke County, the roadway will have a 46-foot-wide depressed median. The proposed median widths are based on the posted speed limits, which will not change with the project (45 mph in Moore County and 55 mph in Hoke County). There will be curb and gutter with sidewalks along NC 211 in Aberdeen.

Widening is proposed primarily along the existing alignment. Hills/crests and valleys/sags will be flattened to correct problems with the existing alignment such as sight distance and ponding issues. In Hoke County, NC 211 will be realigned to eliminate the existing at-grade railroad crossing at Reservation Road. The new section of the roadway will include dual bridges over the Aberdeen & Rockfish Railroad. Dual bridges will also carry NC 211 over the railroad just east of Central Drive in Aberdeen.

The improved roadway will have Reduced Conflict Intersections. Traffic from most side streets and driveways will be directed to turn right (no left turns). A motorist desiring to cross NC 211 or go in the opposite direction will make a U-turn at designated areas. (U-turn bulbs are designed to accommodate up to 68-foot tractor-trailers.) At the NC 211 intersections with E. Indiana Avenue and Carolina Road, right and left-turns will be permitted onto NC 211 but motorists along NC 211 will only be permitted to turn right onto those side streets. Instead of making a left turn onto those side streets, motorists traveling along NC 211 would utilize a U-turn bulb followed by a right turn.

In Raeford, a section of Turnpike Road (north of NC 211) near Mockingbird Hill Road will tie to a proposed roundabout at the intersection with NC 211 and the section of Turnpike Road between NC 211 and Mockingbird Hill Road will be closed, eliminating the existing at-grade railroad crossing.

The project is included in the 2020-2029 State Transportation Improvement Program (STIP) and is state funded. Right of way acquisition and construction are scheduled for October 2020 and September 2023, respectively.

Table 1. Cost Estimate

| Total | Right-of-Way | Utilities | Construction |
|---------------|--------------|-------------|---------------|
| \$172,400,428 | \$51,823,970 | \$4,976,458 | \$115,600,000 |

3. Project Status

A Minimum Criteria Determination Checklist will be prepared in compliance with North Carolina's State Environmental Policy Act (SEPA). Public meetings were held in July 2016 and July 2019. Public involvement activities also included local officials' meetings and small group meetings. A combined Concurrence Point 1 / Concurrence Point 2 meeting was held on June 15, 2017 and a combined Concurrence Point 2-Revisited / Concurrence Point 2A meeting was held on February 20, 2019. In a Memo dated March 23, 2020, the Merger Team was provided an update regarding modifications to the project study area (Concurrence Point 1) and the detailed study alternative to carry forward (Concurrence Point 2). Concurrence is summarized below.

Concurrence Point 1 (June 15, 2017)

Project Purpose: The purpose of the proposed project is to reduce traffic congestion and travel delays, and correct roadway deficiencies along NC 211 within the project limits.

Screening Criteria: The following performance measures explain how alternatives that meet the Purpose stated above will be evaluated. Specifically, alternatives considered for the project must achieve the following along NC 211 within the project limits:

- provide additional traffic capacity in order to achieve a level of service "C" or better for the NC 211 roadway (mainline) segments during the peak hours in 2040;
- improve traffic operations by reducing travel delays and queue lengths and achieving an overall level of service "D" or better at signalized intersections during the peak hours in 2040;
- improve NC 211's horizontal and vertical alignment, clear zones and sight distance to reduce, mitigate or eliminate existing design deficiencies; and
- provide at least minimum acceptable standards for lane and shoulder widths based on the current NCDOT Roadway Design Manual.

Secondary Benefits: Additional benefits of the proposed project include:

- potential traffic safety improvements by reducing the number and type of conflict points as compared to the existing conditions and
- operational improvements by providing the opportunity for motorists to pass slower-moving or stopped vehicles.

Concurrence Point 2 (June 15, 2017)

Options for widening NC 211 on either side of the roadway were presented at the June 2017 merger meeting, as well as options for grade-separated railroad crossings and/or the realignment of intersecting roadways. The widening options were presented in 15 sections for evaluation individually. Selected options could be combined to provide an overall "best fit" alternative, in addition to asymmetrical widening. Following discussion of each section and option, several were eliminated from further consideration. However, more than one widening option was carried forward for 10 of the 15 project sections.

Concurrence Point 2-Revisited (February 20, 2019)

Following the Concurrence Point 2 meeting, preliminary design was developed and a best-fit alternative, which included a combination of north and south widening, was identified by NCDOT. Recommendations for each section were presented at a combined Concurrence Point 2-Revisited / Concurrence Point 2A meeting on February 20, 2019. At the meeting, the merger team concurred on the detailed study alternative to carry forward by selecting an option for each section.

Concurrence Point 2A (February 20, 2019)

The project includes no bridges over jurisdictional features; however, new bridges are proposed over the Aberdeen & Rockfish railroad tracks.

Concurrence Point 1-Study Area and 2-Revisited Design Refinement (March 23, 2020 Update Memo)

As noted in the March 23, 2020 Section 404/NEPA Merger Process Update Memo, the study area expanded slightly to accommodate the revised alignment in Section 2; however, the logical termini remained the same. The Merger Team agreed with the refinements and to proceed forward to Concurrence Point 3/4A meeting. Design revisions noted in the March 23, 2020 Update Memo included:

- Section 2 - Shift a portion of NC 211 to the north side of the existing roadway retaining the proposed bridge over the railroad, and
- Section 3 - Maintain the current off-set alignment of the NC 211 intersections with E. Indiana Avenue and Carolina Road with reverse RCI design.

4. Public Involvement

Open House Public Meetings and Local Officials' Informational Meetings

The best-fit alternative was presented to the public at open house public meetings in July 2019. Two public meetings were held:

- July 23, 2019 at West Hoke Middle School – Gymnasium
- July 25, 2019 at the Aberdeen Elementary School - Cafeteria

The same project information was available at both meetings. Maps showing the preliminary roadway design were also available on the project website: publicinput.com/NC-211-AberdeenToRaeford. Local officials' meetings preceded each public meeting. A total of 263 people, including ten local officials, signed into the meetings. NCDOT collected 58 comments during the comment period. Comments are summarized below:

- Concern about specific impacts to properties such as loss of structures, parking, driveways, and land (11)
- Questions regarding right of way acquisition (10)
- Design requests or questions including U-turn bulb placement, turn lanes, signals, roadway design (22)
- Questions about drainage improvements (3)
- Barrier and landscaping requests (6)
- Utility questions and placement (3)
- General comments (3)

Note: Several people submitted multiple comments that were recorded in different categories.

Small Group Meetings

An open house small group meeting was scheduled for March 17, 2020 in Aberdeen to present the revised design at the railroad tracks; however, the meeting was canceled in response to the coronavirus threat. NCDOT provided updated project information in a newsletter instead of holding an in-person meeting at a later date. The newsletter was mailed on March 24 and input was requested April 10, 2020. In addition, the small group meeting map was posted to the project website.

Eight small group meetings have been held with property owners as requested since the July 2019 public meetings.

5. Concurrence Point 3: Least Environmentally Damaging and Practicable Alternative

Based on Merger Team coordination and public input, one best-fit alternative was carried forward for detailed study. Rationale for selecting the preferred alternative is summarized by section in Table 2. Design refinement included transitions between north and south widening, incorporation of Reduced Conflict Intersection (RCI) design elements (e.g., U-turn bulbs, control of access, left-overs), and incorporation of a roundabout at the NC 211 intersection with W. Palmer Street/Mockingbird Hill Road (future Turnpike Road). In addition, design revisions noted in the March 23, 2020 Update Memo avoided impacts to a Superfund site by shifting a portion of NC 211 to the north in Section 2 and minimized impacts to properties by retaining the current off-set alignment of the NC 211 intersections with E. Indiana Avenue and Carolina Road (consistent with public comments) in Section 3.

Table 2. Widening Options Selected for the Preferred Alternative

| Section/Option | Widening Side Selected | Reason For Selection |
|-----------------|------------------------|---|
| 1 | South | Fewer total relocations, Avoids church relocation (New Hope Church of God in Christ), Less stream/wetland impacts |
| 2B ¹ | North | Avoids Superfund site; Grade-separates railroad crossing <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 3A ² | North | Fewer relocations; Better traffic operations <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 4 | North | Fewer residential relocations; Less wetland impacts |
| 5 | South | Avoids a dam; Less stream/wetland impacts |
| 6C ³ | South | Avoids business relocations; Minimizes impacts to Ashley Heights Baptist Church buildings (avoids relocation of sanctuary) and Church supports this option; Grade-separates railroad crossing |
| 7 | North | Fewer relocations; Less impact to RCW foraging partitions (minus non-RCW habitat) and creates fewer acres of noncontiguous habitat <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 8 | South | Less impact to the Hoke Correctional Institution Property; Less RCW foraging habitat impacted |
| 9 | South | Less impact to RCW foraging partitions (minus non-RCW habitat); Avoids railroad realignment <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 10-11 | South | Fewer residential relocations; Less stream impacts; Avoids railroad realignment <i>There are no jurisdictional streams or wetlands in section 10.</i> |
| 12 | South | Avoids impacts to Calloway Nature Park <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 13 | South | Avoids impacts to Calloway Nature Park |
| 14 | South | Reduce impacts to the railroad; Better tie-in with Section 13 <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 15 | South | Less wetland impact; Avoids railroad realignment |

1 – Option 2A included an at-grade railroad crossing; Option 2B (selected) included NC 211 bridges over the railroad. Option 2B was revised based on the March 23, 2020 Merger Process Update Memo. The Merger Team agreed to shifting a portion of the alignment to the north to avoid impacts to a Superfund site with comparable relocations.

2 – Option 3A (selected) realigned Indiana Avenue to intersect NC 211 at the existing Carolina Road intersection; Option 3B realigned Indiana Avenue to increase the distance from the existing Carolina Road intersection. Option 3A was revised based on the March 23, 2020 Merger Process Update Memo. The Merger Team agreed to maintain Indiana Avenue on existing alignment with reverse reduced-conflict intersection design at the NC 211 intersections with Indiana Avenue and Carolina Road.

3 – Option 6A included a railroad bridge over the existing NC 211 intersection with Reservation Road; Option 6B realigned Reservation Road to provide two, three-legged intersections away from the railroad intersection (no grade separation); Option 6C (selected) proposed NC 211 bridges over the railroad with NC 211 and Reservation Road on new alignment (removing the at-grade railroad crossing); and Option 6D proposed NC 211 bridges over the railroad with NC 211 on new alignment (maintaining the Reservation Road at-grade railroad crossing).

Summary of Potential Impacts

Table 3 summarizes resources and anticipated impacts for the preferred alternative for the NC 211 improvements project. Impacts are calculated based on preliminary design slope stakes with a 25-foot buffer. Preliminary design incorporates horizontal and vertical design elements and cross sections. The preliminary designs do not include hydraulic design or utilities design, which are being completed during a later phase of final design.

Table 3. Anticipated Impacts of the Preferred Alternative (25% Design)

| Resource | Preferred Alternative |
|---|---|
| Human Environment | |
| Residential Relocations | 80 |
| Business Relocations | 20 |
| Church Relocations | 5 ¹ |
| Community Facility Relocations | 2 – Aberdeen Transfer Station No. 4, Canyon Hills Treatment Facility |
| Environmental Justice (low income or minority communities) | Impacts to minority and low-income populations do <u>not</u> appear to be disproportionately high and adverse. Benefits and burdens resulting from the project are anticipated to be equitably distributed throughout the community. |
| Level of Public Controversy | Moderate (overall supportive of project but with concern for relocations / property acquisition) |
| Cemeteries (grave relocations) | 3 – Faith Cemetery (6), Shiloh Presbyterian Church cemetery (5), cemetery adjacent to Total Praise Holiness Church (5) |
| Cemeteries (right of way impacts, no grave relocations identified) | 1 – unnamed cemetery adjacent to the Moore/Hoke County line |
| Cultural Resources | No historic properties present or affected; No National Register listed or eligible archaeological sites present within the project's area of potential effects |
| Farmland Soils | 95 acres – prime agricultural and forest land expected to be converted into non-farmland use |
| Potentially Contaminated Sites of Concern | 17 - sites with low concern ² |
| Natural Environment | |
| Stream Crossings (number) | 3 |
| Streams (linear feet) | 1,460 linear feet – total for 9 streams; stream impacts are individually under 300 linear feet with the exception of one stream [303 lf] |
| Ponds (acres) | 0 acres |
| Wetlands (acres) | 3.27 acres |
| Conservation Properties (CP) or Natural Heritage Program Site (acres) | 25.59 acres 3.14 acres - Crowley Tract (TNC), 2.78 acres - Bowling Tract (TNC), 2.78 acres - Cedar Hall (TNC – easement), 3.91 acres - Moses Tract (TNC), 12.98 acres - McCain Tract (NHP/NCDA) |
| Federally Protected Species | No effect – Saint Francis' Satyr butterfly, Cape Fear shiner, American chaffseed, Michaux's sumac, Rough-leafed loosestrife, Bald eagle, Northern long-eared bat May affect, not likely to adversely affect – Red-cockaded woodpecker (RCW) ³ |

Note: Impacts are subject to change as the design process progresses.

1 – In addition, three buildings associated with Ashley Heights Baptist Church would also be relocated.

2 – Sites identified in the GeoEnvironmental Phase I Report, October 15, 2019.

3 – No RCW cavity trees will be taken and the project does not come within 200 feet of any known RCW cavity trees. The project will remove approximately 17.92 acres of RCW foraging habitat and result in 18.90 acres of noncontiguous habitat collectively from within three affected RCW partitions. Each partition will still meet the Standard for Managed Stability guidelines post-project when both suitable and potentially suitable habitat are considered. The Section 7 Concurrence Letter from the USFWS was received on February 19, 2020.

6. Concurrence Point 4A: Avoidance and Minimization

Avoidance and minimization of impacts were incorporated throughout the project development process. Project development included selection of one best-fit alignment, which compared potential impacts of widening on each side of the roadway for 15 project sections. Table 2 lists avoidance and minimization measures that were the basis for selecting widening options in each section. After the widening side was selected, additional avoidance and minimization measures were explored through design refinements.

The following discussion identifies additional ways in which NCDOT has avoided and minimized impacts. Impacts listed in Table 3 include avoidance and minimization to date. Once hydraulic design, utilities design, and geotechnical recommendations are complete, there may be minor refinements at CP 4B – 30 Percent Hydraulic Review and CP 4C– Permit Drawing Review for each project section.

Additional Avoidance and Minimization Measures

- To minimize impacts to a business (Thermal Metal Treating), a U-turn bulb was removed and a driveway from Glasgow Street was added at this property. (*Figure 1*)
- The NC 211 alignment was shifted to the north side of the existing roadway at the existing railroad crossing in Aberdeen to avoid impacts to a USEPA Superfund site and an active groundwater remediation system. The revised design would relocate a similar number of homes and businesses, as compared to the previous design, and would avoid the potential relocation of a church (Church of God of Prophecy-Aberdeen). (*Figures 2 and 3*)
- The design of the proposed cul-de-sac at Central Drive was revised to avoid the relocation of a home. (*Figure 2*)
- The current off-set alignment of the NC 211 intersections with E. Indiana Avenue and Carolina Road will be retained. Impacts will be reduced compared to the previous option that shifted E. Indiana Avenue to align with Carolina Road. Public input did not support the realignment of E. Indiana Avenue primarily due to potential property impacts. (*Figure 4*)
- Based on input from property owners following the July 2019 public meetings, the locations of several U-turn bulbs were shifted to avoid impacts. With full access control at U-turn bulbs, relocations could be avoided depending on the specific location and property configuration. By eliminating a U-turn bulb in proximity to Arthur Lane, right of way impacts would be reduced and the proposed NC 211 alignment would be shifted farther from a home and several businesses (Quantico Tactical, Tactical Gear Distributors). (*Figure 8*)
- The design includes expressway gutter in front of the Shiloh Presbyterian Church and cemetery to avoid relocation of the church and minimize impacts to grave sites. (*Figure 12*)
- A roundabout is proposed at the NC 211 intersection with W. Palmer Street/Mockingbird Hill Road (future Turnpike Road). Compared to an RCI design, the roundabout design would reduce impacts to a business (Karen L Smith, MD), church (Church of God of Prophecy-Raeford), and several homes east of the intersection. (*Figure 20*) [Note: The church is shown as a relocation at this stage due to the 25-foot offset from slope stake lines.]

The following options were reviewed to further minimize impacts to jurisdictional features during the 25% design stage: steepened side slopes, reducing median widths, adding retaining walls, and revising U-turn bulb locations. Specific measures taken at the sites are listed under the Avoidance and Minimization Review column in Table 4.

Side Slopes: Based on the soil conditions along the project, a maximum slope of 3:1 has been used throughout the project limits. (See typical sections.) Steepening side slopes is not recommended for the following reasons:

- Sloughing of soils may occur in slopes steeper than 3:1, so a slope of any height steeper than 3:1 would require additional reinforcement.
- Steeper slopes even with reinforcement could create additional maintenance concerns or construction in soft and unsuitable soils presents risk of future degradation and slope failure.

Median Width: Based on the NCDOT Roadway Design Manual, the standard median width for widening existing two-lane roadways to four-lane divided facilities is 46 feet. The median width used through Moore County is 30 feet due to the restricted right of way and lower design speed. For the Hoke County section, a 46-foot median is appropriate based on the volume of traffic, type of roadway, and design speed.

- Reducing the median width further in Moore County would restrict options in the future to provide dual left turn lanes at intersections and U-turn bulbs. Based on the Roadway Design Manual, a 30-foot minimum median width is needed where provision for U-turn bulbs is needed.
- The current median widths help reduce the overall footprint at U-turn bulb locations by limiting the size of U-turn bulbs needed for truck traffic.
- Reducing the median to less than 30-foot would encourage the use of median protection since opposing traffic would then be located within the clear zone. Median protection would add additional fixed objects within the clear zone.
- A wider median allows for flatter slopes within the median while still providing clear separation from subgrade to ditch point. Reducing the median width would require steeper slopes in the median to maintain positive drainage

For these reasons, reducing median width is not recommended.

Retaining Walls: Based on the soils in the area, placing a retaining wall adjacent to wetlands or stream may still require undercut to stabilize the area. Additional retaining walls will also increase long term maintenance. For these reasons, retaining walls are not recommended along the facility to reduce impacts at jurisdictional sites.

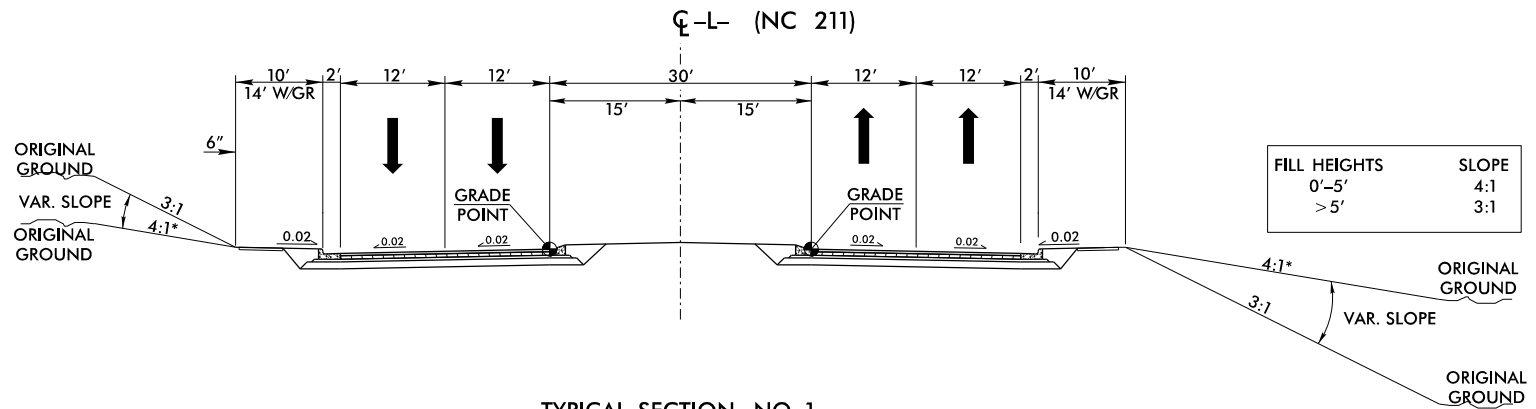
U-turn Bulb Locations: U-turn bulbs have been placed approximately every 0.5 to 1 mile along NC 211 to facilitate traffic from driveways and minor y-lines. At major y-lines, the U-turn bulbs have been placed at a minimum 800-foot spacing as recommended by FHWA. U-turn bulb locations have been adjusted as noted in Table 4 if it would not restrict access to adjacent parcels.

Additional minimization may be achieved during the final design including hydraulic design and utility relocation design.

Table 4. Stream and Wetland Impacts (25% Design)

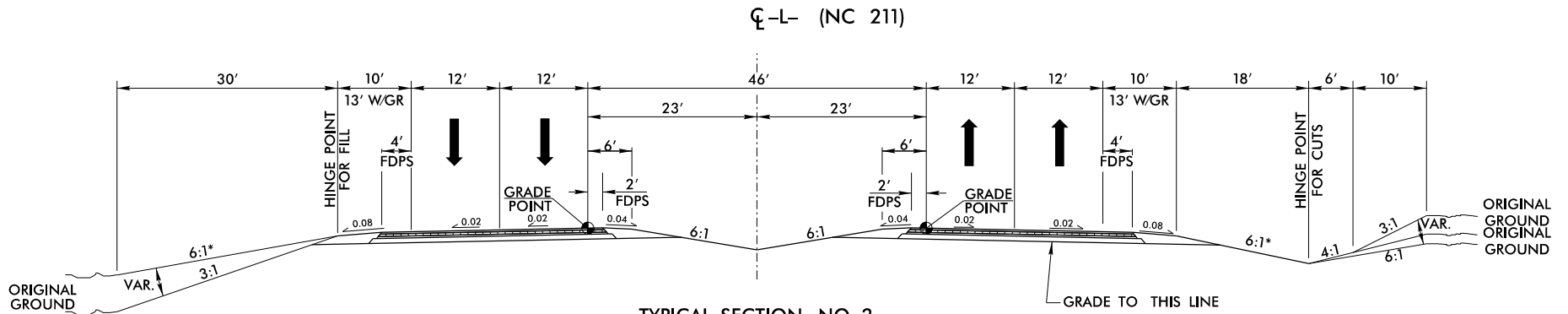
Impacts are calculated based on 25% design slope stakes with a 25-foot buffer. Impacts are subject to change as the design process progresses. The 25% designs do not include final hydraulic design or design of relocated utilities, which are being completed during later phases of final design.

| Stream Name, Map ID | Figure Number | Classification | Stream Length in Study Area (lf) | Stream Channel Length of Impact (lf) | Avoidance and Minimization Review |
|--|---------------|--|----------------------------------|--------------------------------------|--|
| UT to Devil Gut Branch, SA | 1 | C | 509 lf | 139 lf | South side widening option chosen to reduce impacts at other streams and wetlands in this section. Max 3:1 slopes used with guardrail to minimize impacts. |
| Devil Gut Branch, SC | 1 | C | 1,698 lf | 169 lf | South side widening option chosen to reduce impacts at this site. Max 3:1 slopes used instead of 4:1 slopes to minimize impacts. |
| UT to Devil Gut Branch, SD | 1 | C | 202 lf | 34 lf | South side widening option chosen to reduce impacts at this site. Glasgow St. realigned to eastern side to reduce impacts at this site. Max 3:1 slopes used to minimize impacts. |
| Quewhiffle Creek, SE | 4 | C | 56 lf | 56 lf | North side widening option chosen to reduce impacts at this site. Max 3:1 slopes used with guardrail to minimize impacts. |
| UT Quewhiffle Creek (including pond), SF | 5 | C | 189 lf | 189 lf | South side widening option chosen to reduce impacts. 3:1 slopes used with guardrail along dam to minimize impacts. |
| UT to Mountain Creek, SG | 11 | C | 228 lf | 144 lf | South side widening option chosen with less impacts to Hoke Correctional Institution Property. Shifted U-turn bulb 100-feet to reduce impacts to stream. Max 3:1 slopes used with guardrail to minimize impacts. |
| UT to Buffalo Creek, SH | 14 | C | 538 lf | 298 lf | South side widening option chosen to reduce residential impacts. Max 3:1 slopes used with guardrail to minimize impacts. |
| UT Quewhiffle Creek, SJ | 6, 8 | C | 475 lf | 128 lf | South side widening option chosen to reduce residential and business impacts. Max 3:1 slopes instead of 6:1 slopes used to minimize impacts. |
| UT to Toney's Creek, SM | 19, 20 | C; Sw | 448 lf | 303 lf | South side widening option chosen to reduce wetland impacts (WT). Max 3:1 slopes instead of 4:1 slopes used to minimize impacts. [A section of SM is parallel to NC 211.] |
| Total | | | 5,149 lf | 1,460 lf | |
| Wetland Map ID | Figure Number | NCWAM Classification - NCDWQ Rating for Wetlands | Wetland Area in Study Area (ac) | Wetland Area of Impact (ac) | Avoidance and Minimization Review |
| WA | 1 | Bottomland Hardwood Forest - 65 | 0.77 ac | 0.11 ac | South side widening option chosen to reduce impacts at other streams and wetlands in this section. Max 3:1 slopes used with guardrail to minimize impacts. |
| WB | 1 | Bottomland Hardwood Forest - 52 | 0.07 ac | 0.01 ac | South side widening option chosen to reduce impacts at this site. Max 3:1 slopes used with guardrail to minimize impacts. |
| WF | 1 | Bottomland Hardwood Forest - 73 | 0.75 ac | 0.11 ac | South side widening option chosen to reduce impacts at this site. Glasgow St. realigned to eastern side to reduce impacts at this site. Max 3:1 slopes used to minimize impacts. |
| WG | 1 | Bottomland Hardwood Forest - 71 | 4.46 ac | 0.26 ac | South side widening option chosen to reduce impacts at this site. Max 3:1 slopes used to minimize impacts. |
| WH | 1 | Seep - 45 | 0.33 ac | 0.13 ac | South side widening option chosen to reduce impacts at other streams and wetlands in this section. Max 3:1 slopes used instead of 4:1 slopes to minimize impacts. |
| WI | 4 | Bottomland Hardwood Forest - 64 | 0.96 ac | 0.24 ac | North side widening option chosen to reduce impacts at this site. Max 3:1 slopes used with guardrail to minimize impacts. |
| WJ | 4 | Basin Wetland - 62 | 0.34 ac | 0.06 ac | North side widening option chosen to reduce impacts at this site. Max 3:1 slopes used with guardrail to minimize impacts. Impacts are unavoidable to retain driveway access. |
| WL | 5 | Bottomland Hardwood Forest - 69 | 0.46 ac | 0.34 ac | South side widening option chosen to reduce impacts to dam. Max 3:1 slopes used with guardrail to minimize impacts. |
| WM | 5 | Basin wetland - 47 | 0.33 ac | 0.16 ac | South side widening option chosen to reduce impacts at this site. Max 3:1 slopes used with guardrail to minimize impacts instead of varying 3:1 to 4:1 slopes. |
| WP | 14 | Seep - 54 | 1.88 ac | 1.07 ac | South side widening option chosen to reduce residential impacts. Max 3:1 slopes used with guardrail to minimize impacts. |
| WQ | 14 | Bottomland Hardwood Forest/Seep - 66 | 1.33 ac | 0.70 ac | South side widening option chosen to reduce residential impacts. Max 3:1 slopes used with guardrail to minimize impacts. |
| WR | 16 | Basin Wetland - Isolated - 29 | 0.03 ac | 0.03 ac | South side widening option chosen to avoid impacts to Calloway Nature Park, which was developed with funding from NCDOT as mitigation for impacts to red-cockaded woodpecker. |
| WT | 19, 20 | Basin Wetland - 20 | 2.09 ac | 0.05 ac | South side widening option chosen to reduce impacts at this site. Max 3:1 slopes instead of 6:1 slopes used to minimize impacts. |
| Total | | | 15.48 ac | 3.27 ac | |



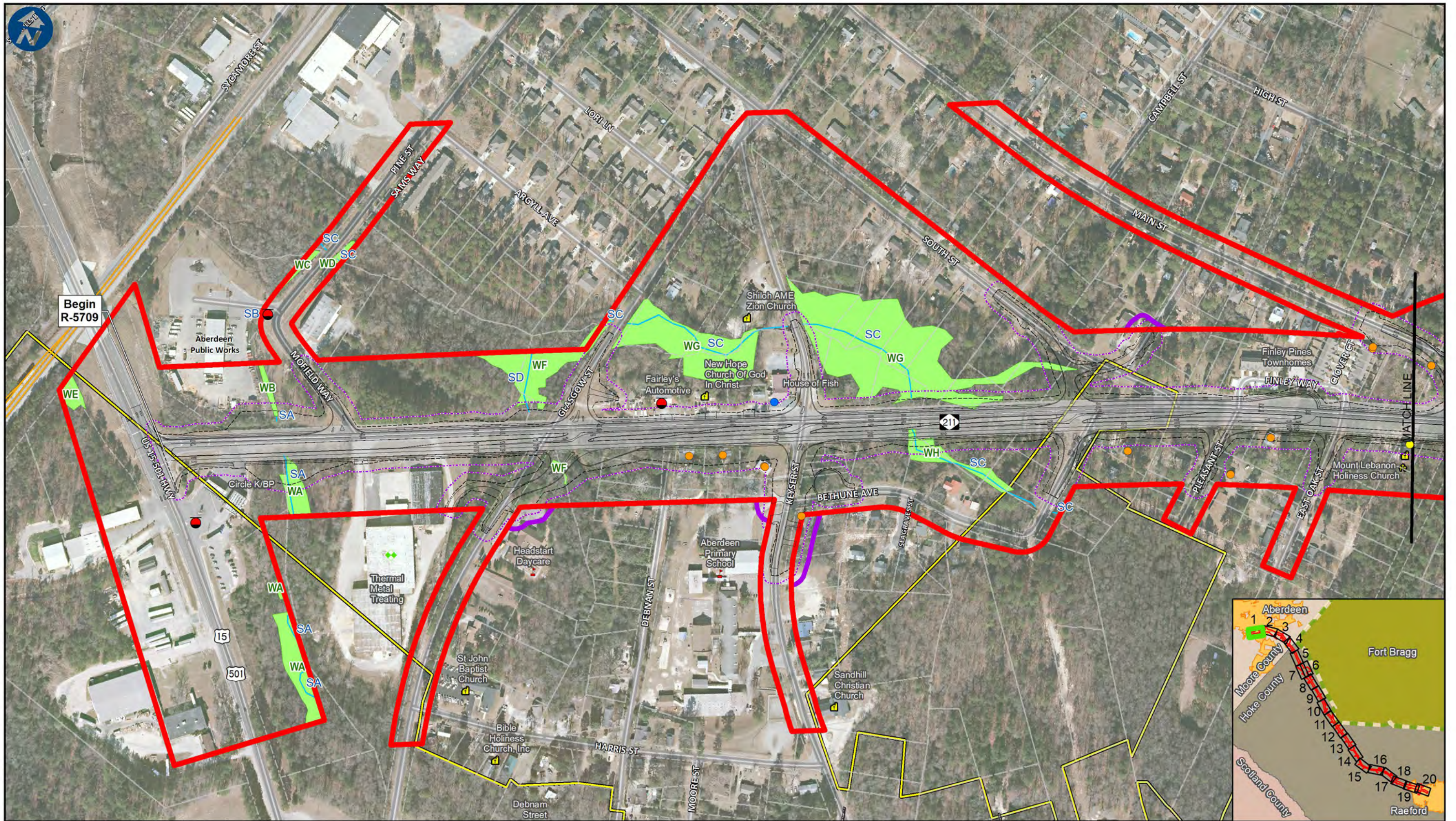
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* SLOPES STEEPENED TO 3:1 IN AREAS WITH JURISDICTIONAL FEATURES

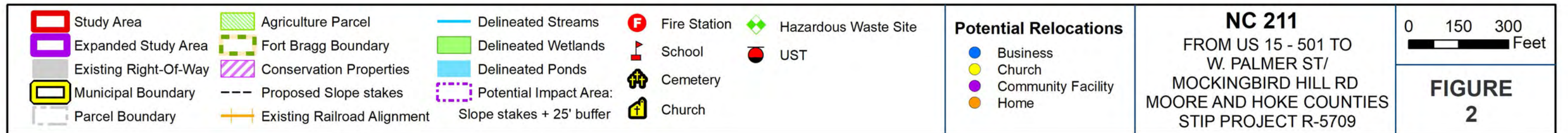
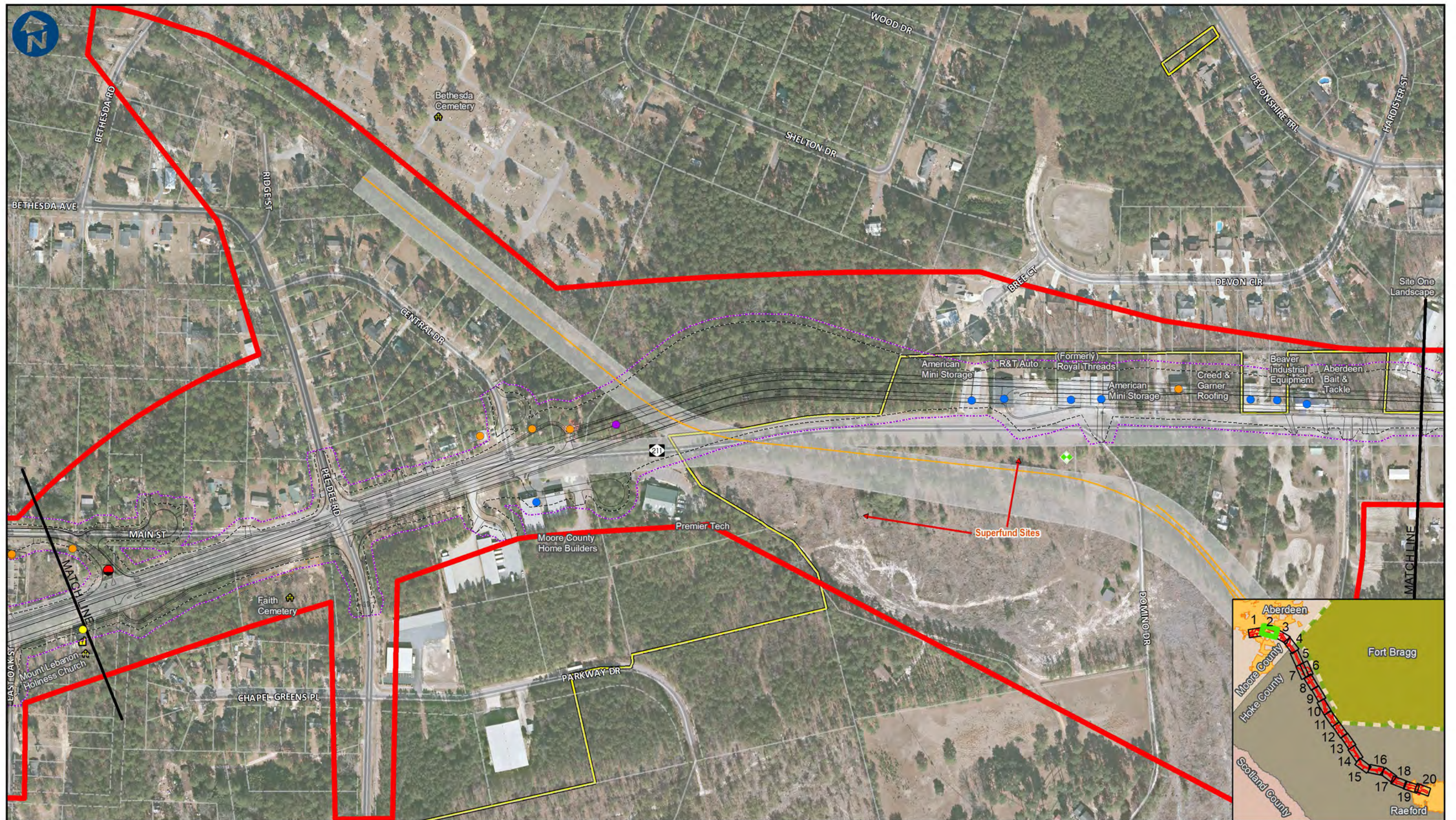


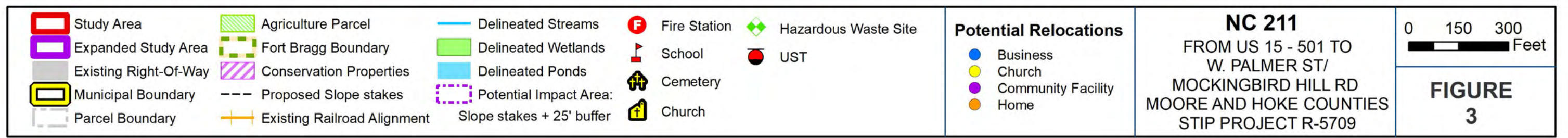
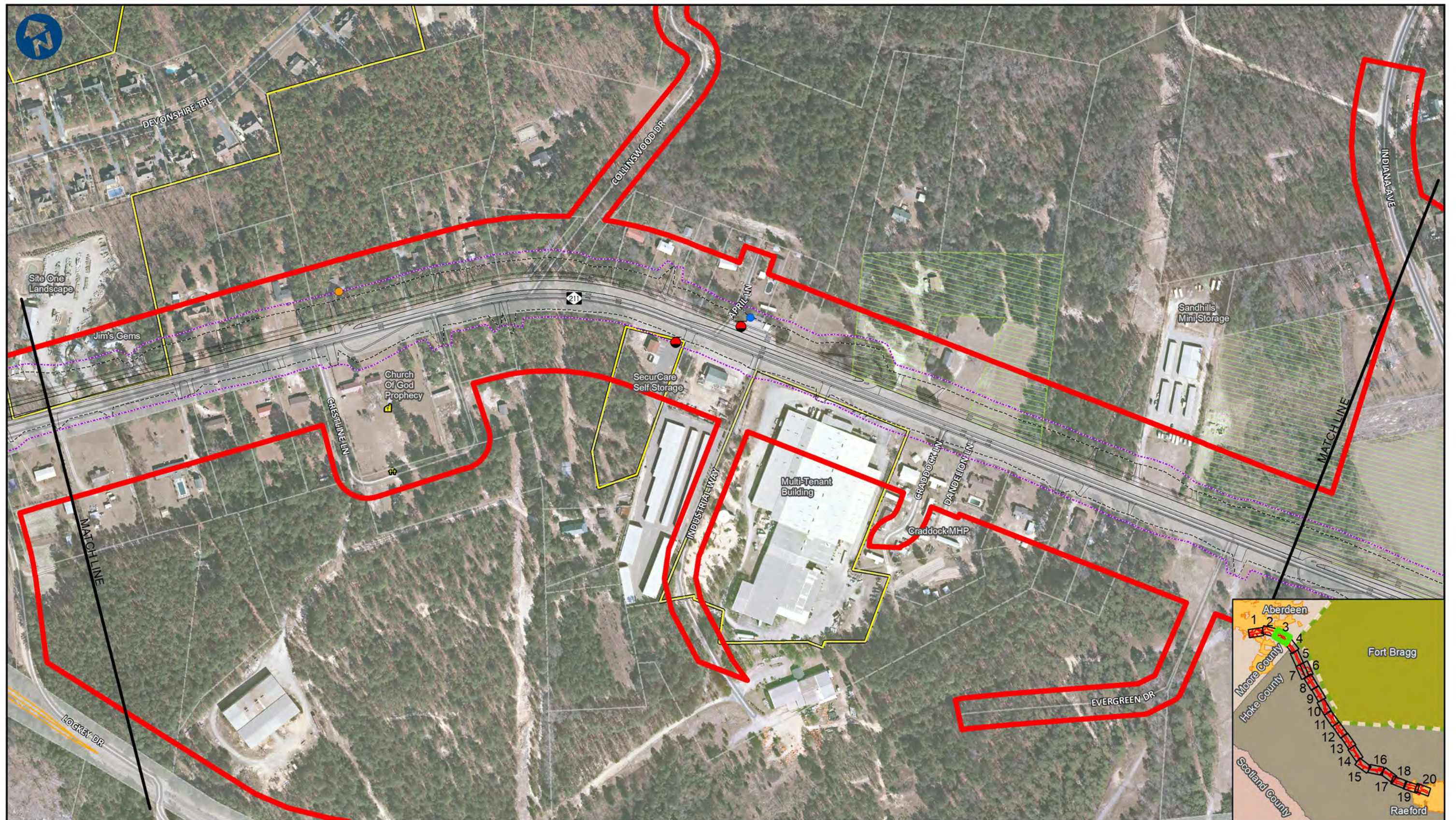
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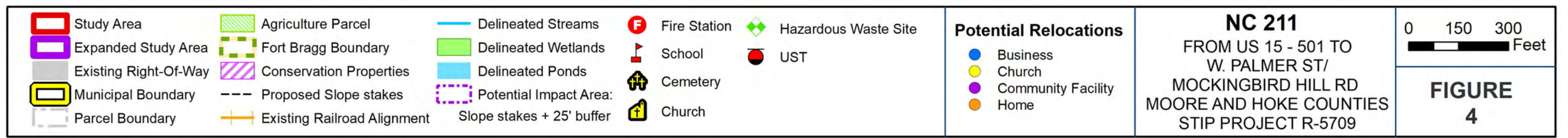
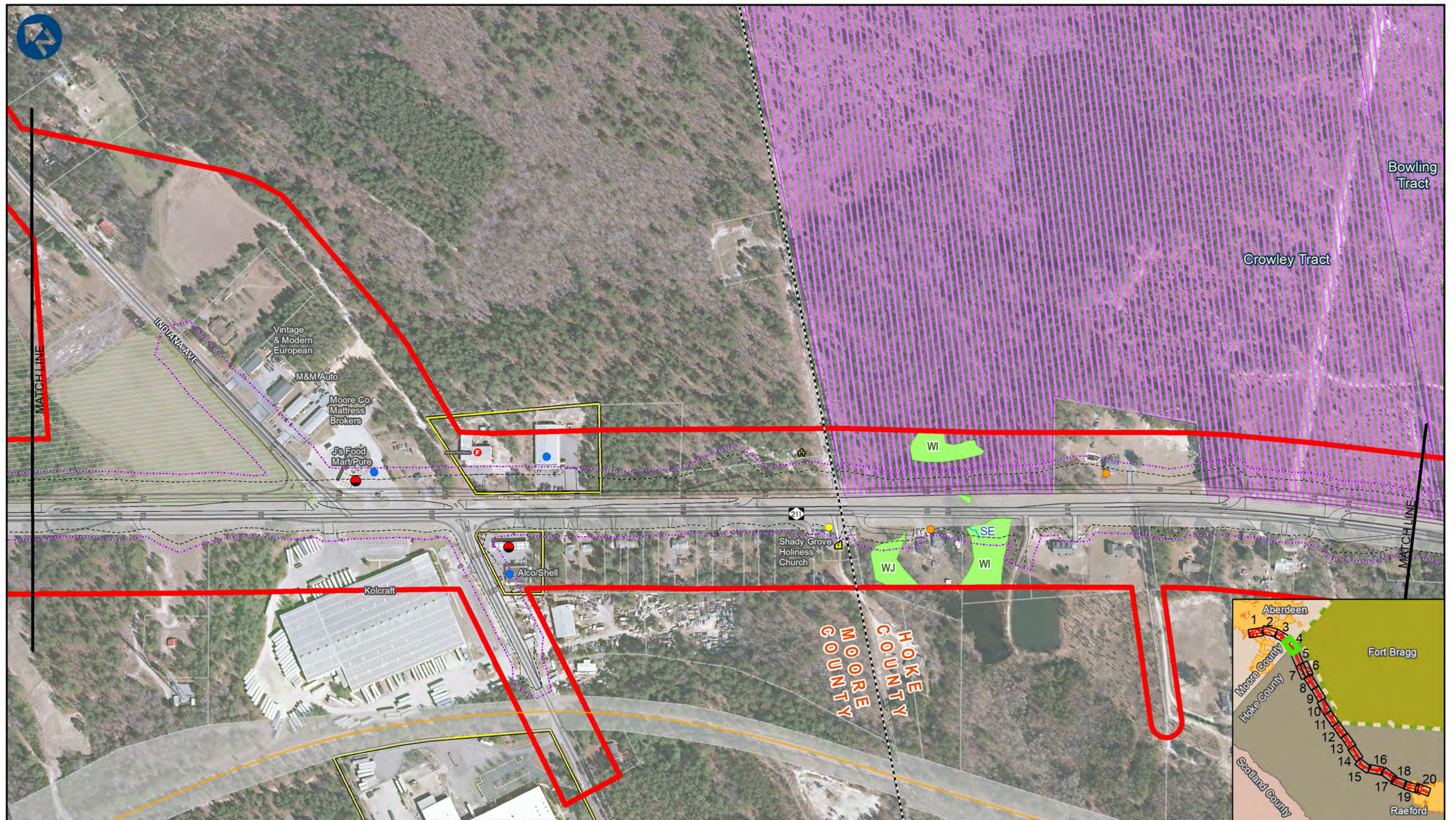
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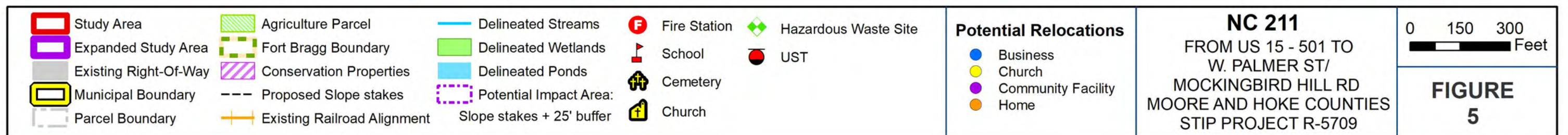
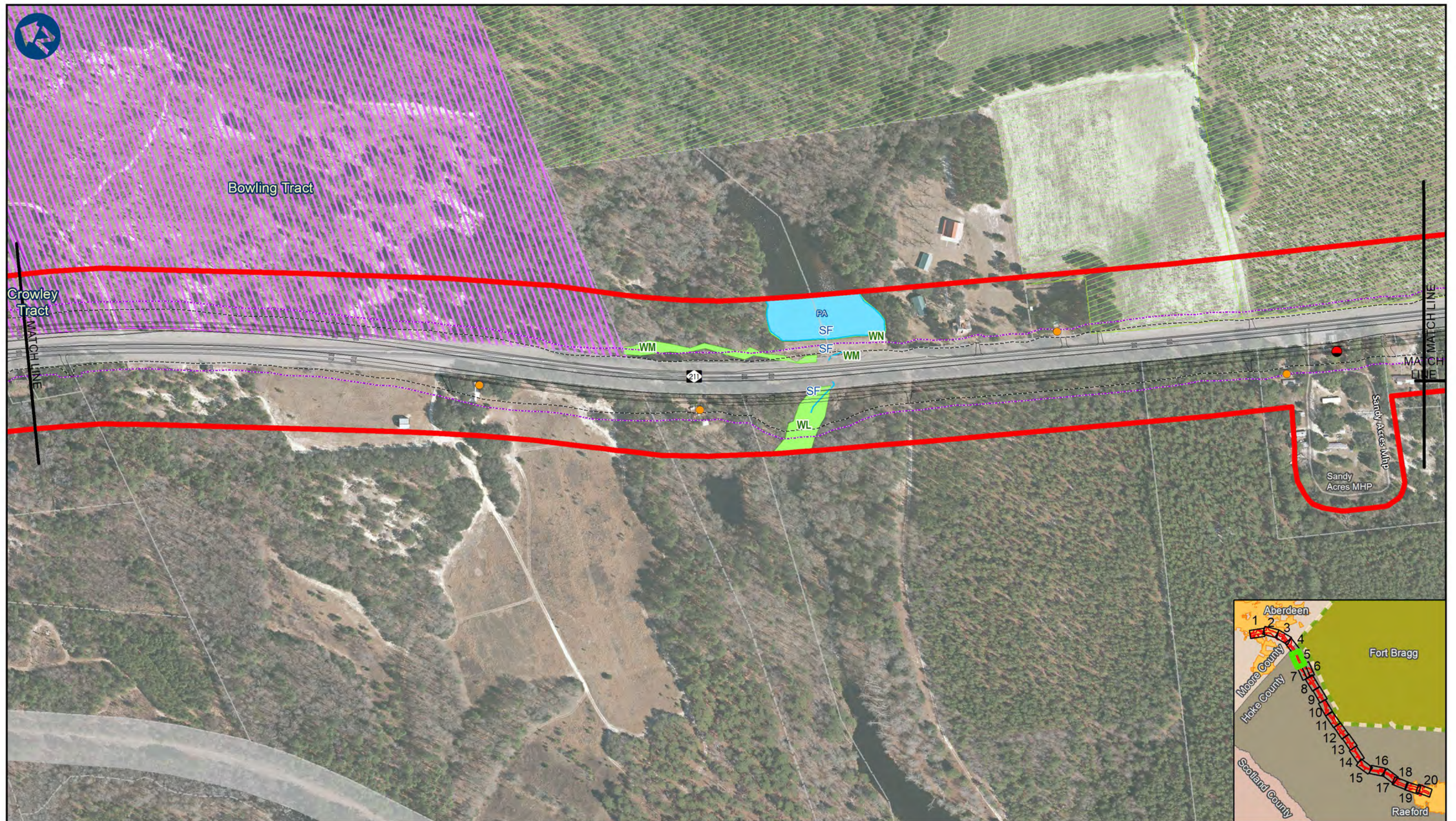


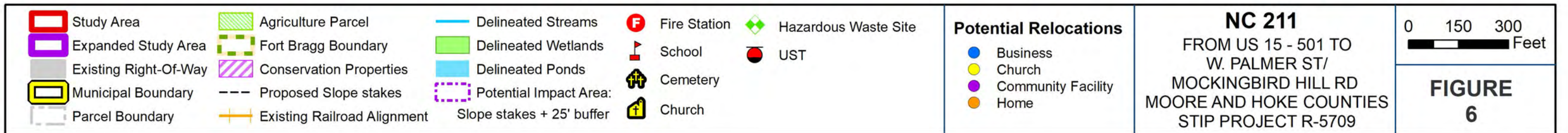
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|---|--|---|--|---|---|--|-----------------------------------|
| <ul style="list-style-type: none"> Study Area Expanded Study Area Existing Right-Of-Way Municipal Boundary Parcel Boundary | <ul style="list-style-type: none"> Agriculture Parcel Fort Bragg Boundary Conservation Properties Proposed Slope stakes Existing Railroad Alignment | <ul style="list-style-type: none"> Delineated Streams Delineated Wetlands Delineated Ponds Potential Impact Area: Slope stakes + 25' buffer | <ul style="list-style-type: none"> Fire Station School Cemetery Church | <ul style="list-style-type: none"> Hazardous Waste Site UST | Potential Relocations <ul style="list-style-type: none"> Business Church Community Facility Home | NC 211 FROM US 15 - 501 TO W. PALMER ST/ MOCKINGBIRD HILL RD MOORE AND HOKE COUNTIES STIP PROJECT R-5709 | 0 150 300 Feet FIGURE 1 |
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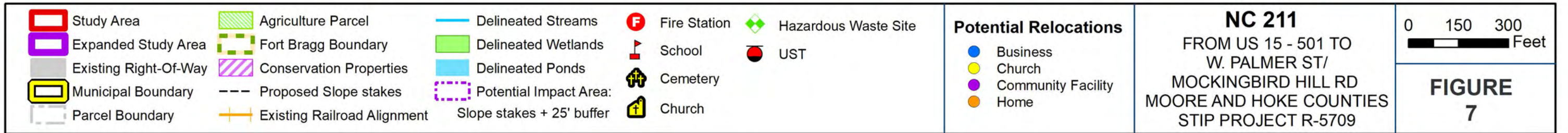
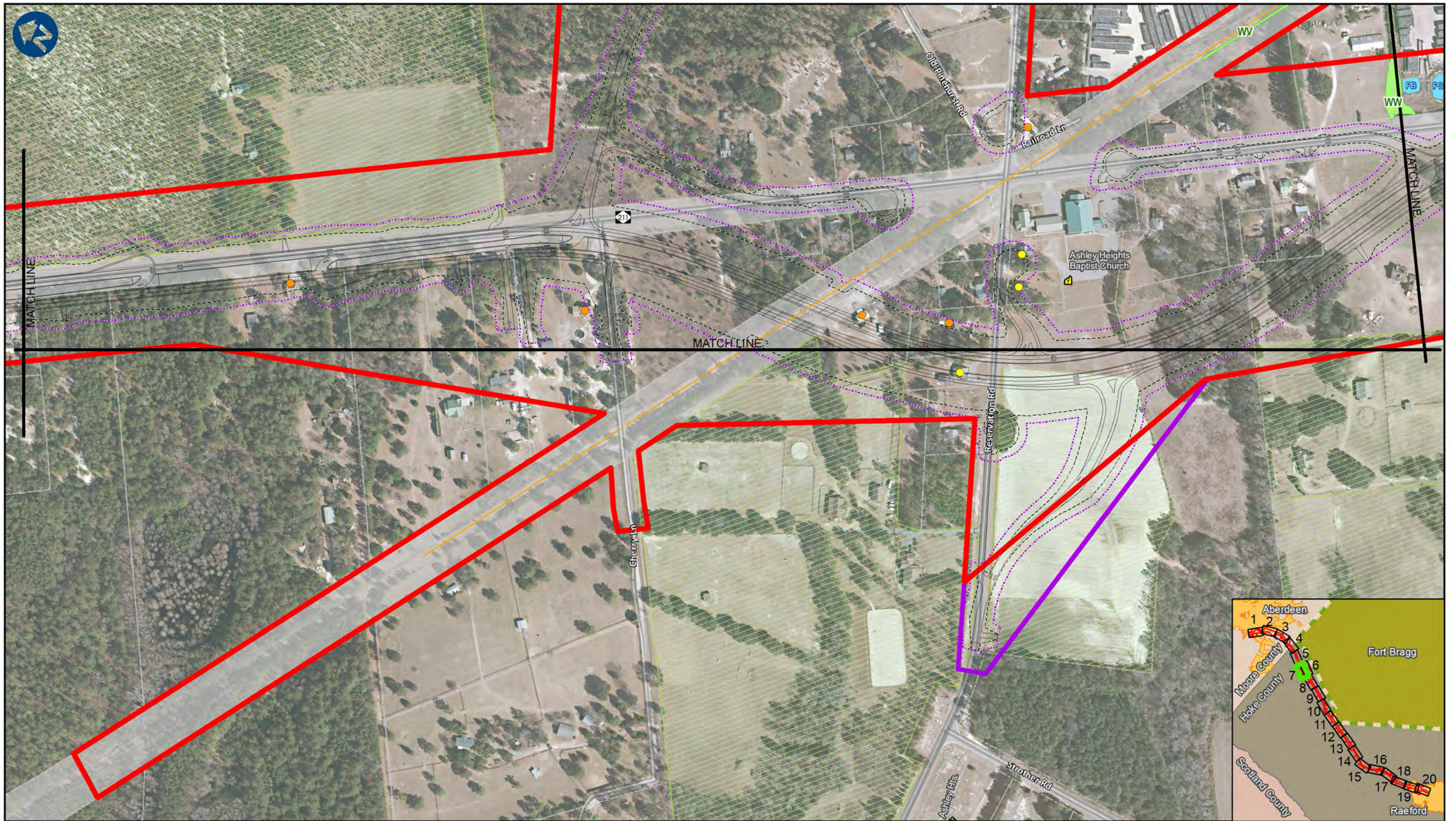


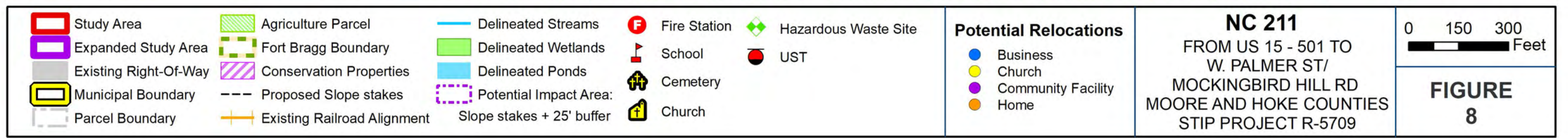
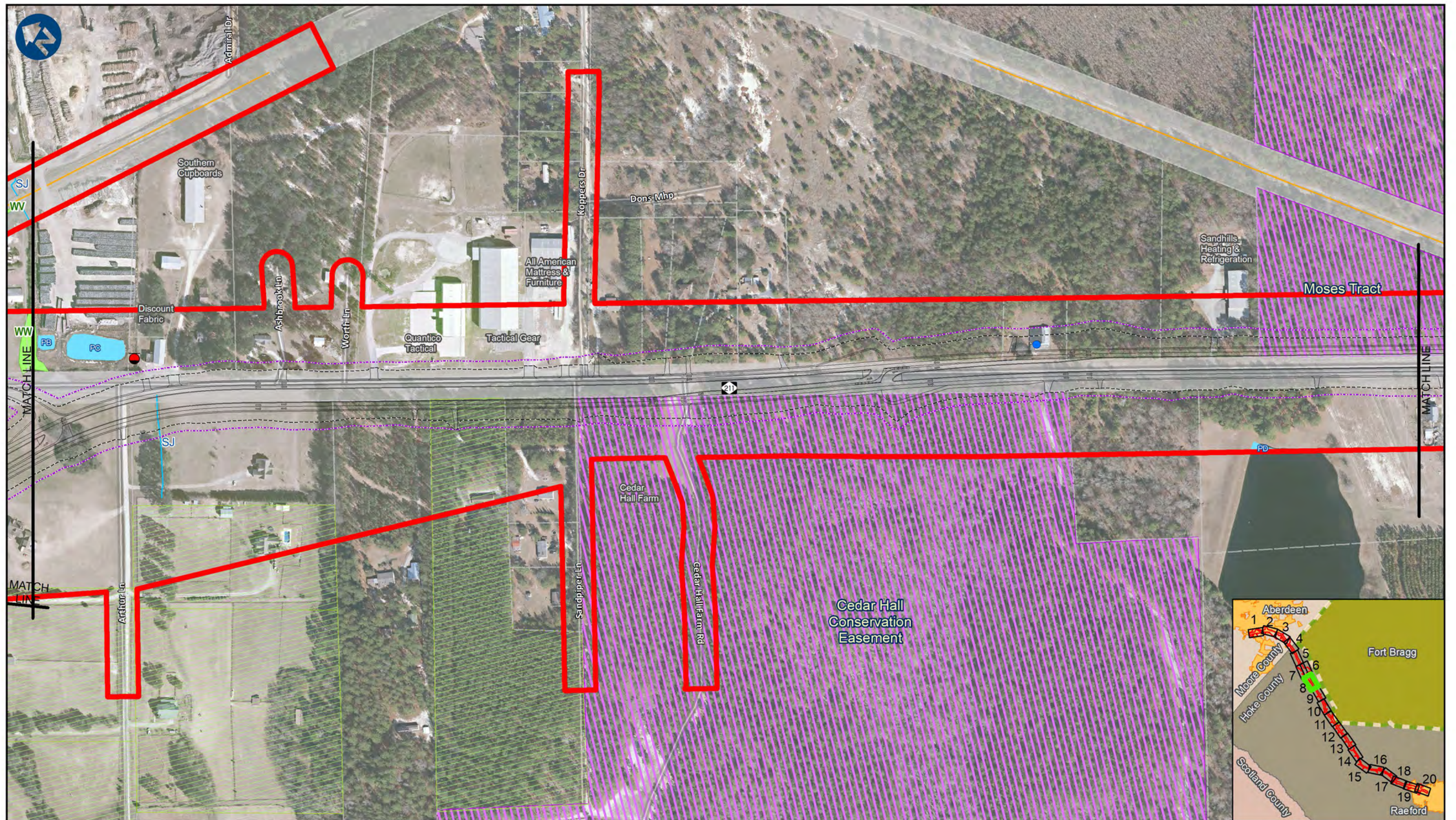


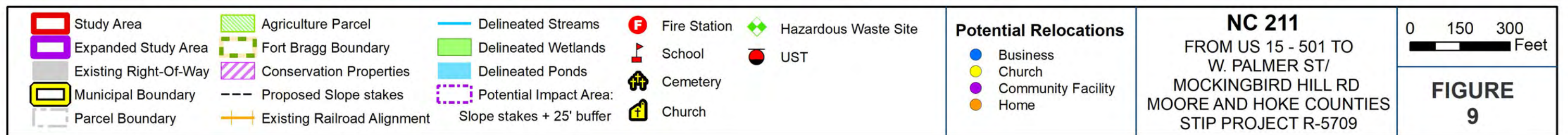
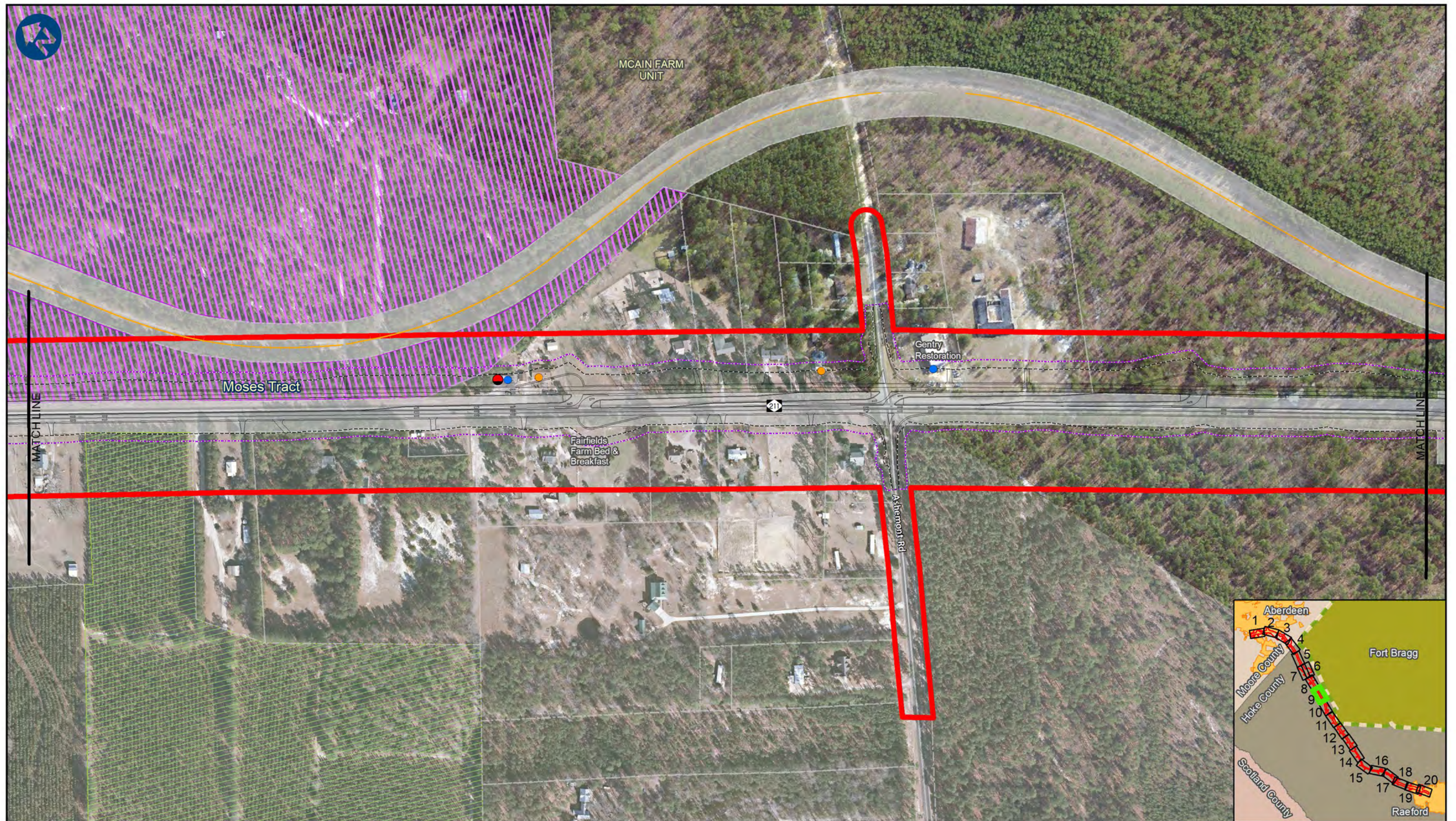


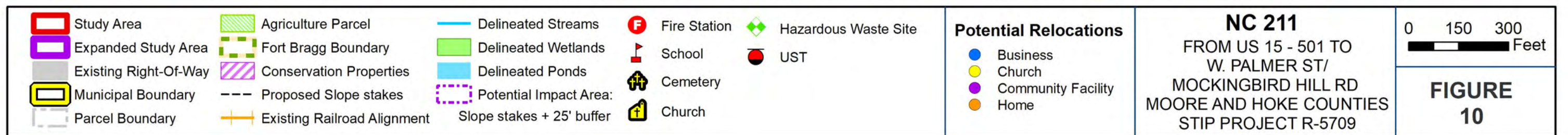


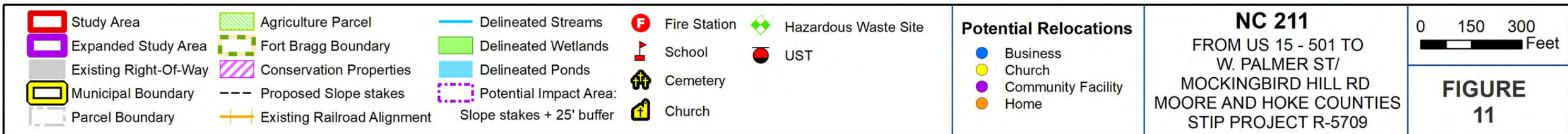


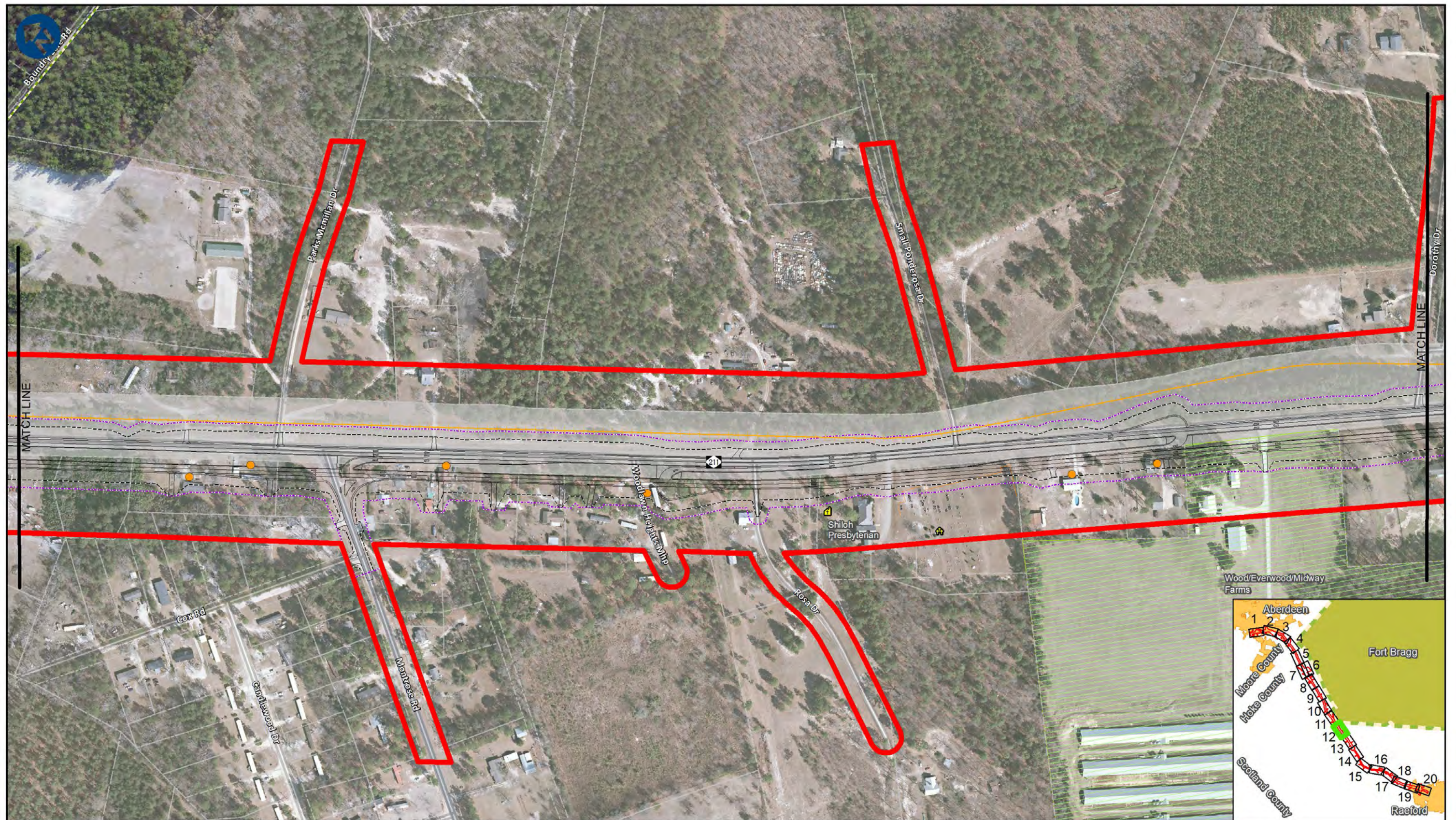




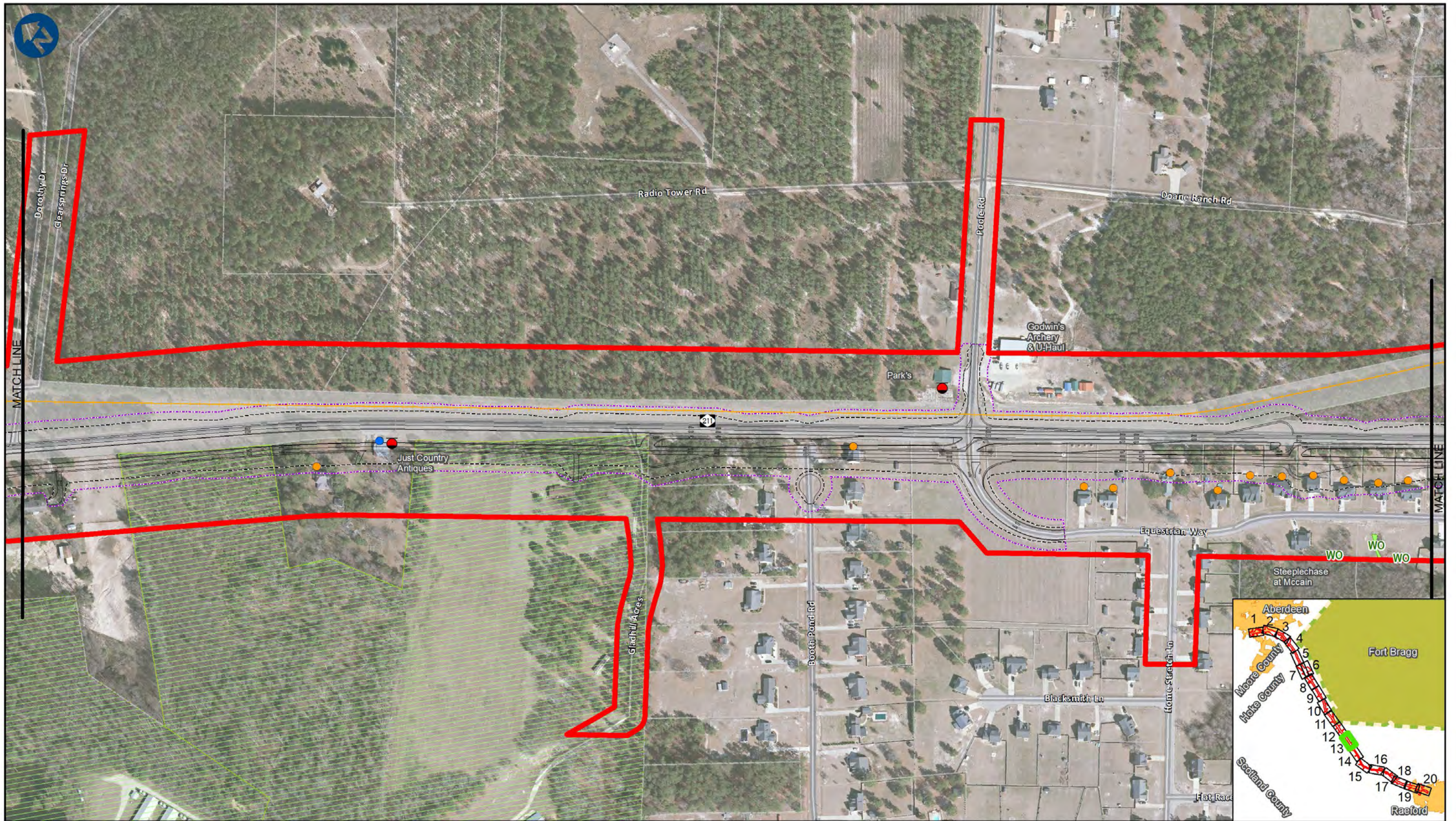




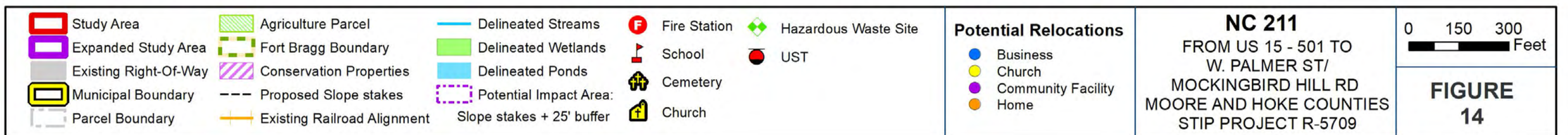
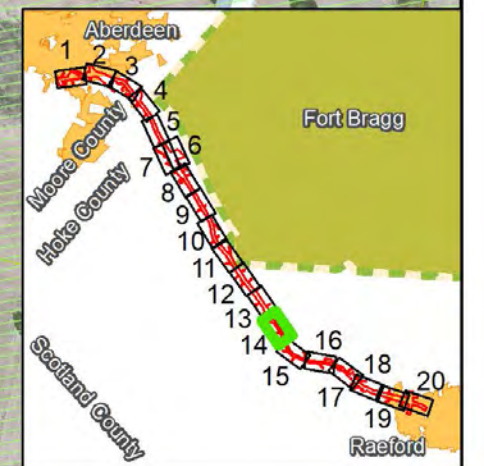
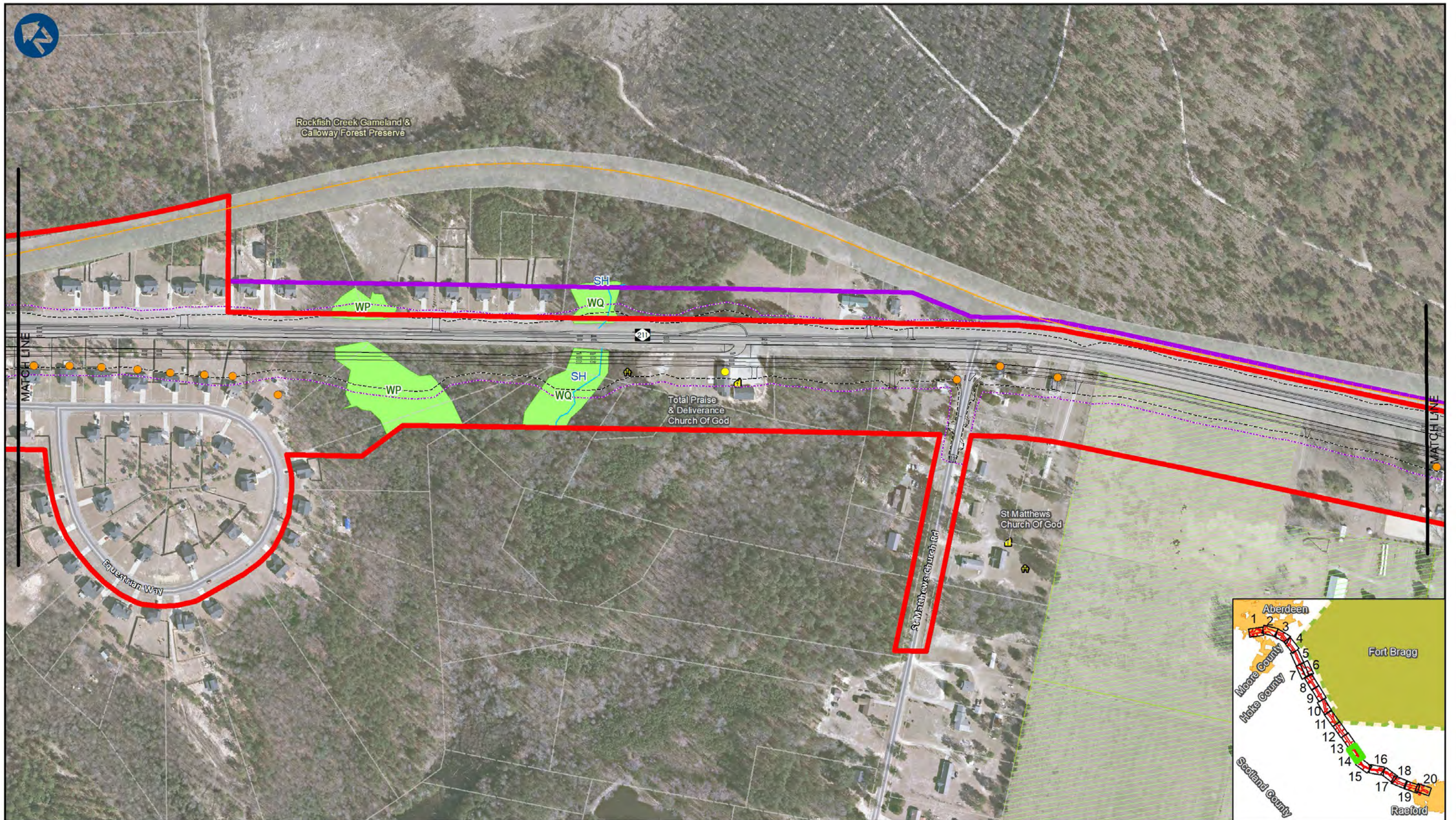


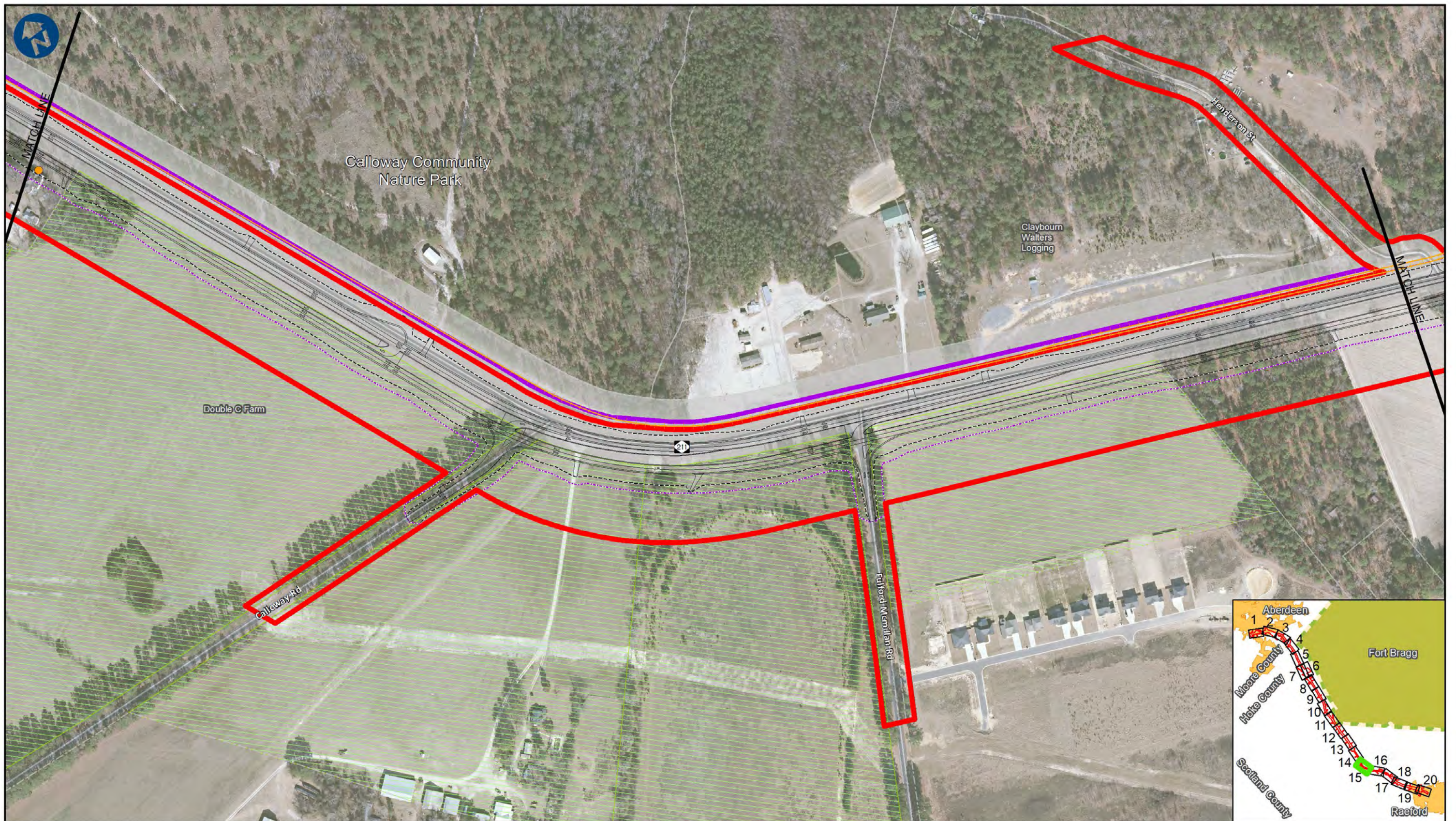


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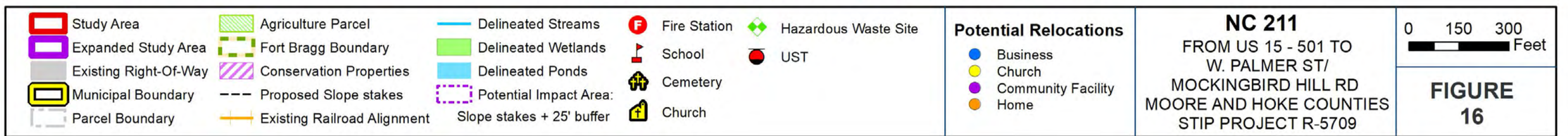
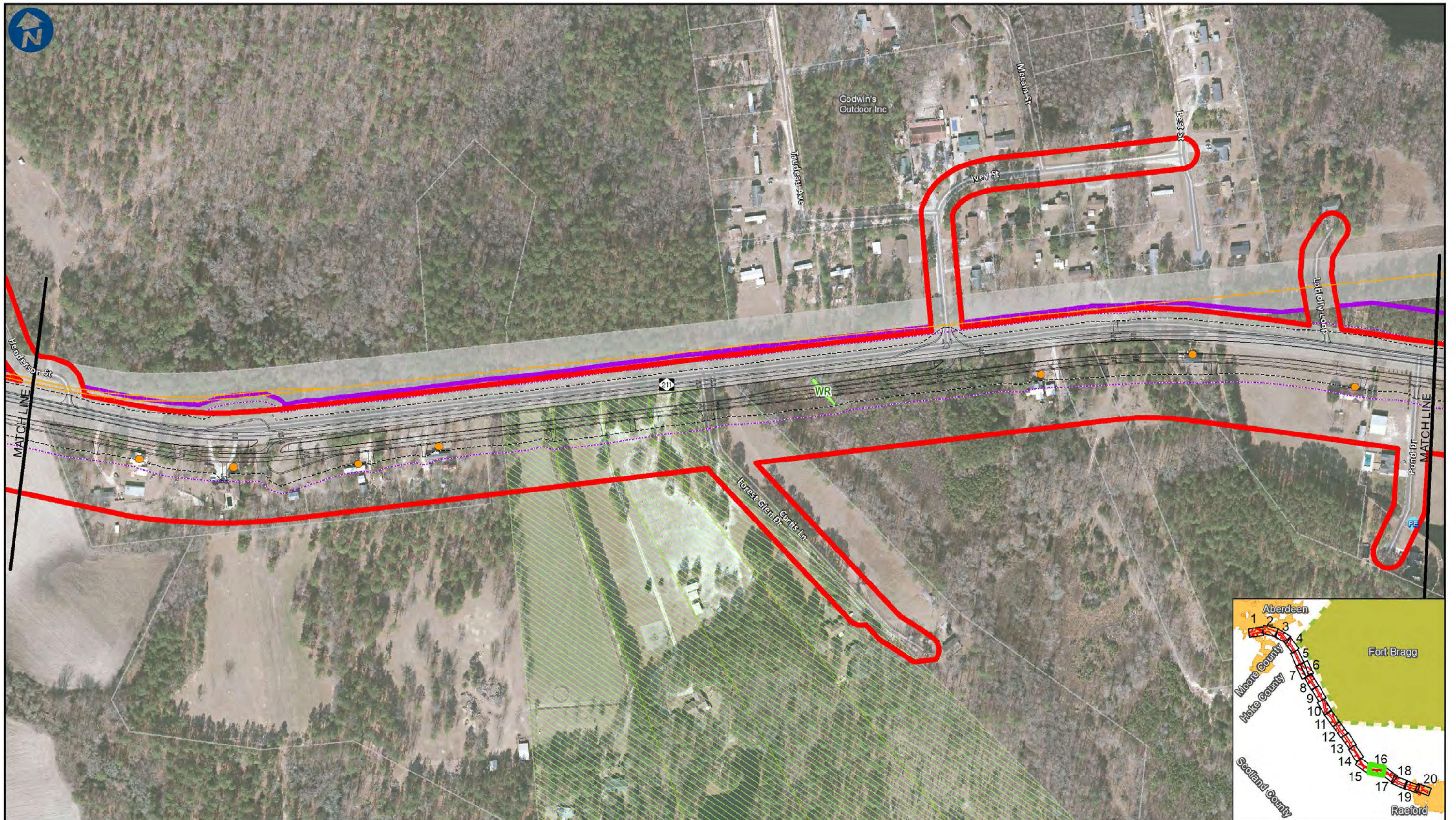


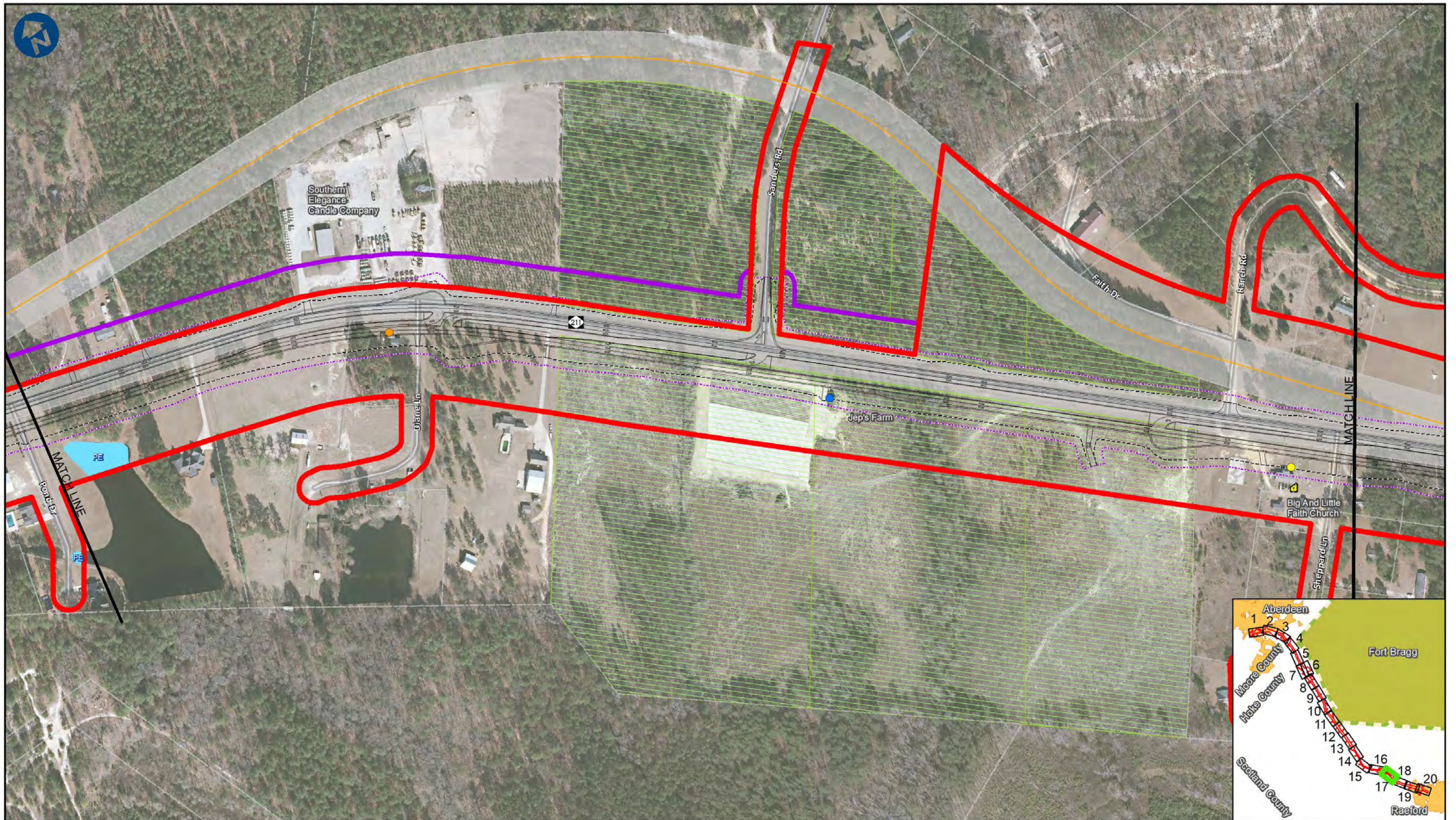
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|---|--|---|--|---|---|--|------------------------------------|



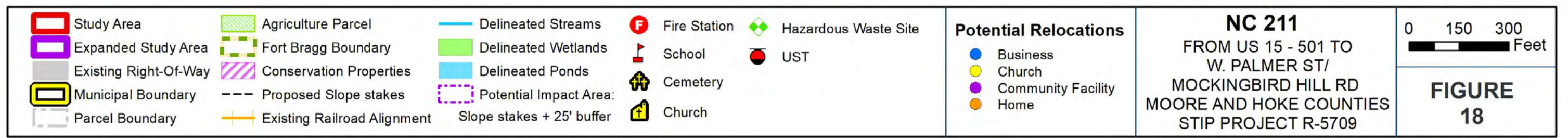
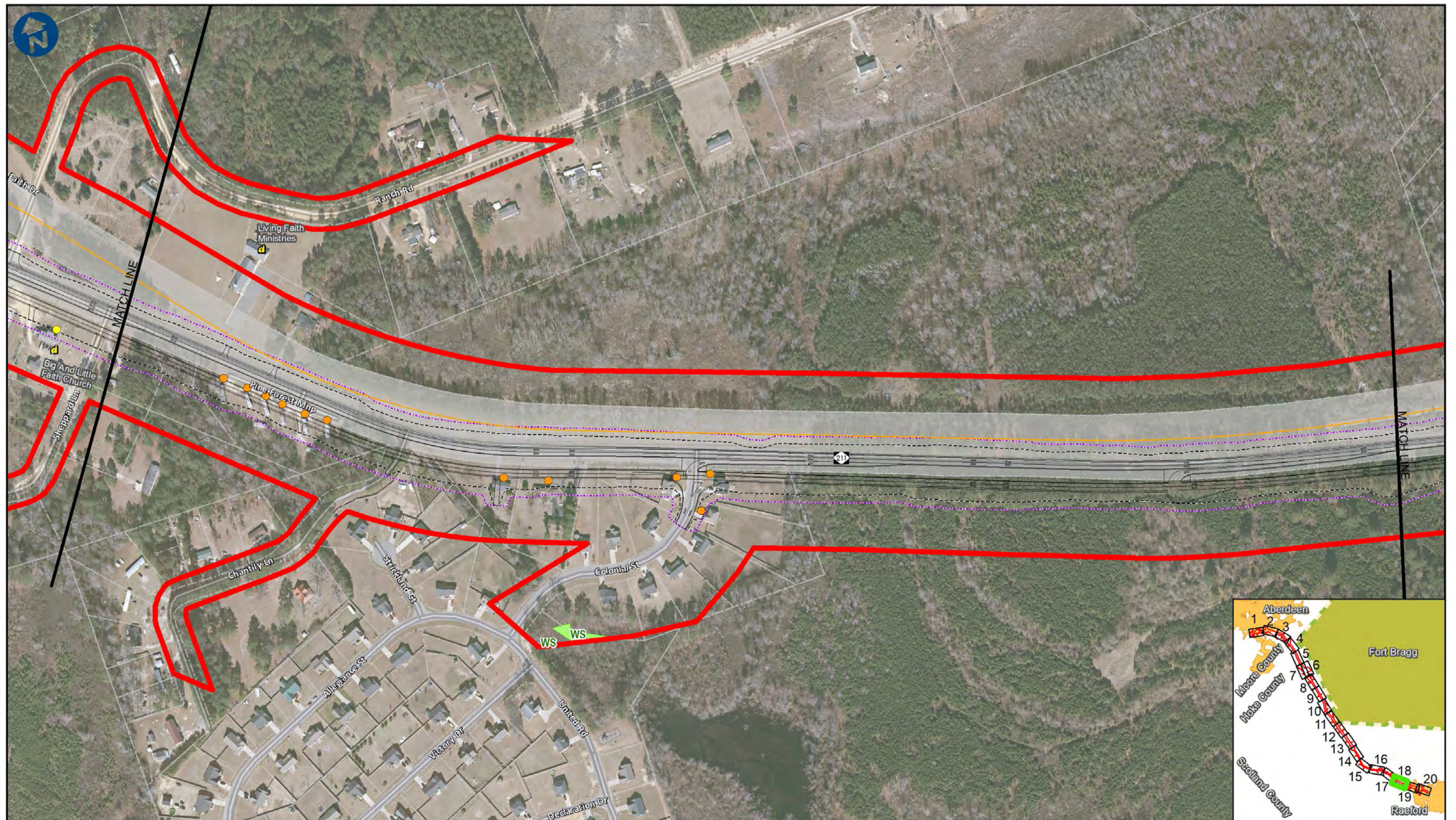


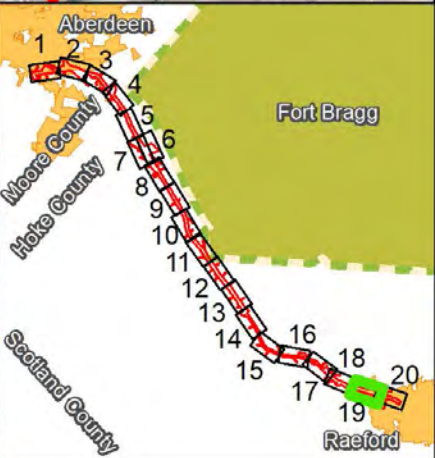
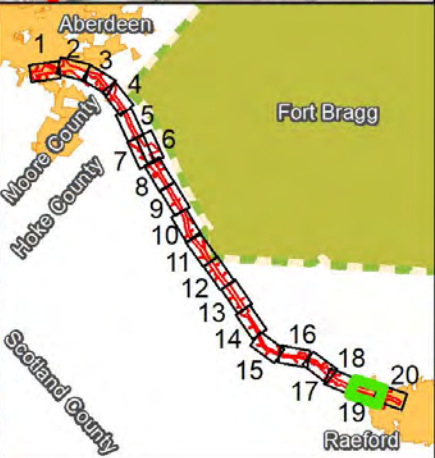
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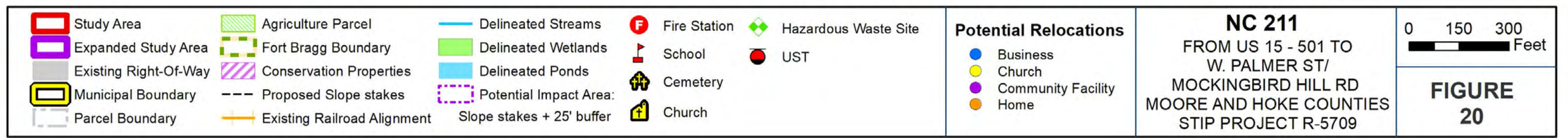
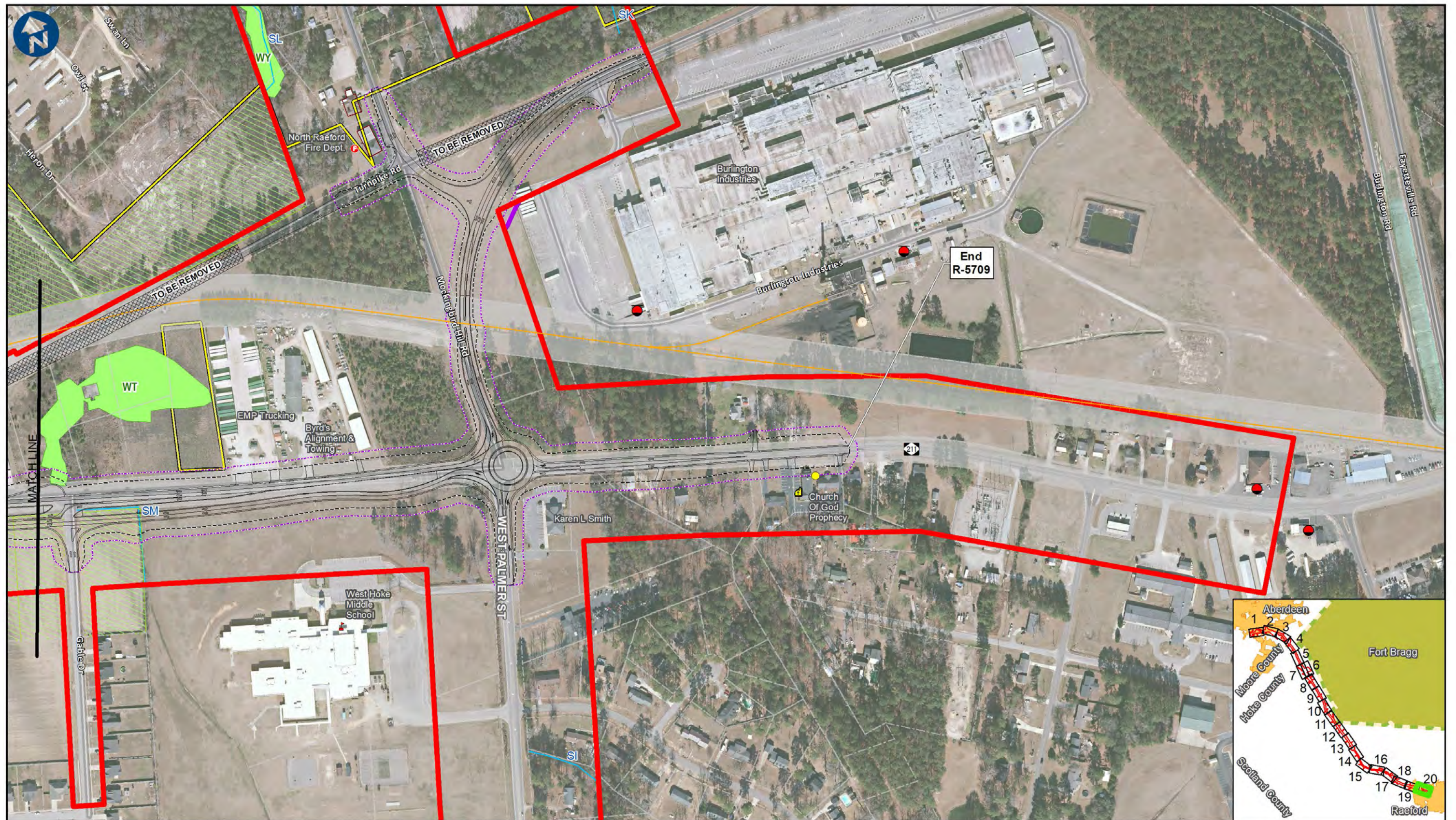




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Section 404/NEPA Merger Project Team Meeting Agreement

Concurrence Point 3: LEDPA/Preferred Alternative Selection

Concurrence Point 4A: Avoidance and Minimization

STIP Project: R-5709

Project Name/Description: NC 211, from US 15-501 in Aberdeen to SR 1244 (West Palmer Street) / SR 1311 (Mockingbird Hill Road) in Raeford, Moore and Hoke Counties. Widen to multi-lanes.

LEDPA/Preferred Alternative: Based on CP 2 and CP 2-Revisited decisions in the table below, and with March 2020 revisions to shift NC 211 at the railroad crossing in Aberdeen and maintain E. Indiana Avenue on existing alignment, one best-fit alternative was determined and selected to be the LEDPA/Preferred Alternative.

| Section/Option | Widening Side Selected | Reason For Selection |
|-----------------|------------------------|---|
| 1 | South | Fewer total relocations; Avoids church relocation (New Hope Church of God in Christ); Less stream/wetland impacts |
| 2B ¹ | North | Avoids Superfund site; Grade-separates railroad crossing <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 3A ² | North | Fewer relocations; Better traffic operations <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 4 | North | Fewer residential relocations; Less wetland impacts |
| 5 | South | Avoids a dam; Less stream/wetland impacts |
| 6C ³ | South | Avoids business relocations; Minimizes impacts to Ashley Heights Baptist Church buildings (avoids relocation of sanctuary) and Church supports this option; Grade-separates railroad crossing |
| 7 | North | Fewer relocations; Less impact to RCW foraging partitions (minus non-RCW habitat) and creates fewer acres of noncontiguous habitat <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 8 | South | Less impact to the Hoke Correctional Institution Property; Less RCW foraging habitat impacted |
| 9 | South | Less impact to RCW foraging partitions (minus non-RCW habitat); Avoids railroad realignment <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 10-11 | South | Fewer residential relocations; Less stream impacts; Avoids railroad realignment <i>There are no jurisdictional streams or wetlands in section 10.</i> |
| 12 | South | Avoids impacts to Calloway Nature Park <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 13 | South | Avoids impacts to Calloway Nature Park |
| 14 | South | Reduce impacts to the railroad; Better tie-in with Section 13 <i>There are no jurisdictional streams or wetlands in this section.</i> |
| 15 | South | Less wetland impact; Avoids railroad realignment |

1 – Option 2A included an at-grade railroad crossing; Option 2B (selected) included NC 211 bridges over the railroad. Option 2B was revised based on the March 23, 2020 Merger Process Update Memo. The Merger Team agreed to shifting a portion of the alignment to the north to avoid impacts to a Superfund site with comparable relocations.

2 – Option 3A (selected) realigned Indiana Avenue to intersect NC 211 at the existing Carolina Road intersection; Option 3B realigned Indiana Avenue to increase the distance from the existing Carolina Road intersection. Option 3A was revised based on the March 23, 2020 Merger Process Update Memo. The Merger Team agreed to maintain Indiana Avenue on existing alignment with reverse reduced-conflict intersection design at the NC 211 intersections with Indiana Avenue and Carolina Road.

3 – Option 6A included a railroad bridge over the existing NC 211 intersection with Reservation Road; Option 6B realigned Reservation Road to provide two, three-legged intersections away from the railroad intersection (no grade separation); Option 6C (selected) proposed NC 211 bridges over the railroad with NC 211 and Reservation Road on new alignment (removing the at-grade railroad crossing); and Option 6D proposed NC 211 bridges over the railroad with NC 211 on new alignment (maintaining the Reservation Road at-grade railroad crossing).

Avoidance and Minimization: As detailed in the Merger Handout dated June 3, 2020, avoidance and minimization of impacts were incorporated throughout the project development process. After the widening side was selected (CP 2 and CP 2-Revisited), additional avoidance and minimization measures were incorporated through design refinements, such as shifting U-turn bulbs, minor adjustments to the alignment, revising intersection design, and steepening slopes.

The Project Team has concurred on this date of _____, 2020, on the above-mentioned **LEDPA/Preferred Alternative and Avoidance and Minimization** for STIP Project R-5709.

USACE _____

NCDOT _____

USFWS _____

LRRPO _____

NCWRC _____

TARPO _____

NCDWR _____

FAMPO _____

HPO _____