



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

May 7, 2020

Mr. Monte Matthews
U.S. Army Corps of Engineers
Raleigh Regulatory Field Office
3331 Heritage Trade Drive, Suite 105
Wake Forest, NC 27587

Dave Wanucha
N.C. Division of Water Resources
450 West Hanes Mill Road, Suite 300
Winston-Salem, NC 27105

ATTN: Mr. Monte Matthews and Mr. Dave Wanucha

SUBJECT: Application for Section 404 Individual Permit and Section 401 Water Quality Certification for the proposed widening and extension of Big Mill Farm Road and widening of Hopkins Road from I-40 Business/US 421 to West Mountain Street with a new partial cloverleaf interchange at I-40 Business/US 421, Forsyth County, Division 9. STIP No. U-5760. WBS Element No. 46381.1.1

Dear Mr. Matthews and Mr. Wanucha:

The North Carolina Department of Transportation (NCDOT) Highway Division 9, proposes to widen and extend Big Mill Farm Road and widen Hopkins Road from I-40 Business/US 421 to West Mountain Street with a new partial cloverleaf interchange at I-40 Business/US 421 in Forsyth County. In addition to this cover letter, the application package consists of an ENG Form 4345, NCDMS in-lieu fee (ILF) program acceptance letter, Preliminary Jurisdictional Determination (Action ID # SAW-2016-01337), Stormwater Management Plan, permit impact drawings, and plan sheets.

PURPOSE AND NEED

The primary purpose of the project is to reduce congestion. Additional purposes for this project include improving mobility and access to major highways in west Kernersville as well as accommodating economic development expansion in the area. South Main Street in Kernersville as traffic approaches I-40 frequently experiences queuing and slowdowns due to congestion. Hopkins Road also experiences congestion as it serves as a regional connection to the I-40 and South Main Street interchange.

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SEPA DOCUMENT STATUS

STIP No. U-5760 is a state-funded project with the USACE being the lead federal agency. An environmental document was not required by the State Environmental Policy Act. Instead, a Minimum Criteria Determination Checklist (MCDC) for the proposed project was completed in October 2018.

ALTERNATIVES ANALYSIS

Preliminary Study Alternatives

Transportation Demand Management (TDM)

TDM programs that promote alternative transportation options other than the single occupant vehicle may include ride sharing, park & ride, vanpooling, and mass transit. Those programs would meet the primary purpose of the project, to reduce congestion, but would not meet the additional purposes of the project which include improving mobility and access to major highways in west Kernersville as well as accommodating economic development expansion in the area.

Alternative Modes of Transportation

Sidewalks and bicycle facilities currently do not exist along Big Mill Farm Road and Hopkins Road, as well as major adjacent roadways. The typical sections proposed for this project include such facilities to improve the multi-modal connectivity along the corridor. These improvements alone would not meet the purpose of the project, to reduce congestion, improve mobility, and improve access to major highways.

Typical Section Options

The proposed project corridor was included in multiple local transportation plans and studies prior to the start of the project. The Winston-Salem MPO *Comprehensive Transportation Plan (2012)* and the *Big Mill Farm/Hopkins Road Feasibility Study (2008)* conducted by the Town of Kernersville both recommended a four-lane typical section be applied to the corridor. More recently, the Winston-Salem MPO *Long-Range Transportation Plan (2013)* and the Town of Kernersville *Thoroughfare and Street Plan (2011)* recommended a two-lane typical section be used for the corridor. All of the previous plans included bicycle and pedestrian accommodations along the corridor.

Traffic data and public input were gathered to determine the appropriate typical section. At public and local officials' meetings held on August 8, 2016 in Kernersville, attendees participated in a series of hands-on activities to provide input on which typical section was most appropriate for the corridor. Three typical section examples from the NCDOT Complete Streets Manual were shown as examples: 2-lane with 23-foot median (**Figure 1**), 2-lane with 17.5-foot median (**Figure 2**), and 4-lane with 23-foot median (**Figure 3**).

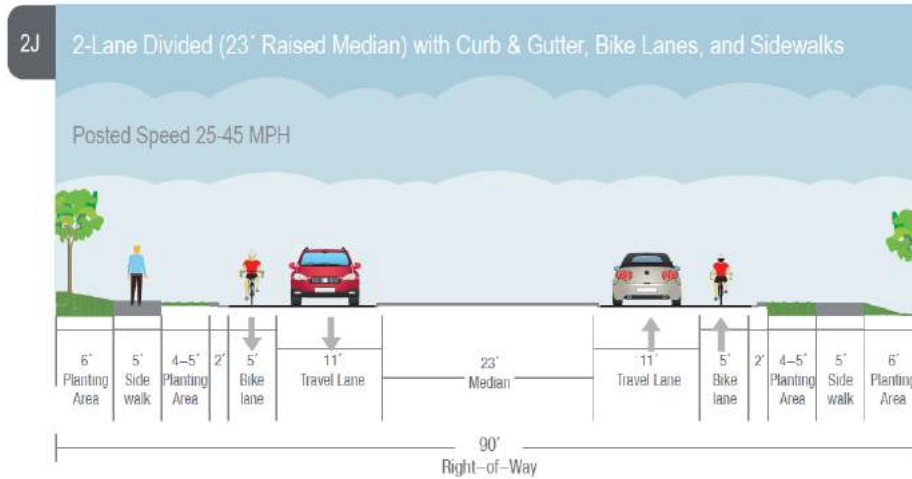


Figure 1: NCDOT Complete Street Typical Section 2J - Two-lane Divided (23-foot median) with Curb and Gutter, Bike Lanes, and Sidewalks

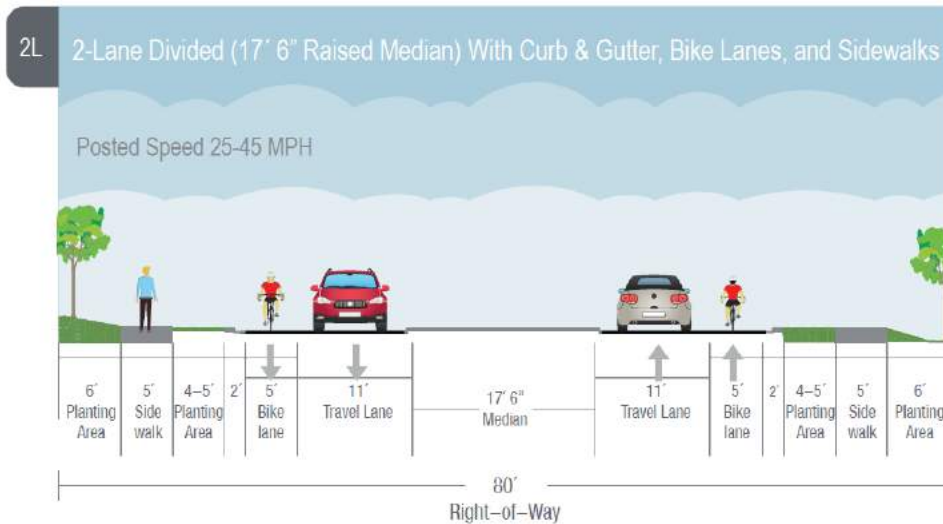


Figure 2: NCDOT Complete Street Typical Section 2L - Two-lane Divided (17.5-foot median) with Curb and Gutter, Bike Lanes, and Sidewalks

4C

4-Lane Divided (23' Raised Median) with Curb & Gutter, Bike Lanes, and Sidewalks

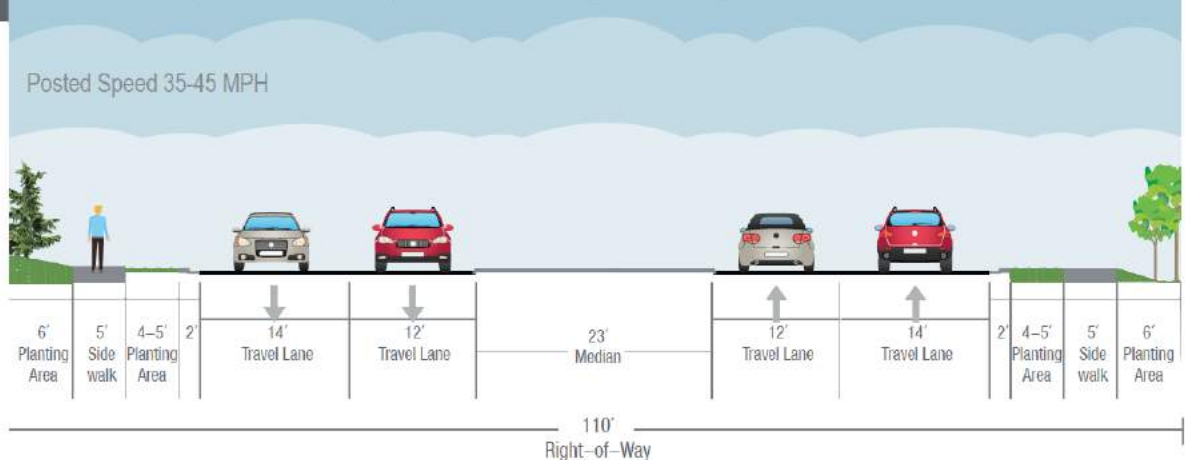


Figure 3: NCDOT Complete Street Typical Section 4C - Four-lane Divided (23-foot median) with Curb and Gutter, Bike Lanes, and Sidewalks

Feedback gathered from the public indicated that most of the respondents preferred a two-lane typical section be used on Big Mill Farm Road/Hopkins Road, if feasible based on traffic volumes. A traffic forecast completed in December 2016 estimated between 9,400 and 14,900 vehicles per day along the proposed segment of Hopkins Road/Big Mill Farm Road in the design year 2040 which did not warrant a four-lane section. From the interchange to West Mountain Street, the two-lane typical section with a 23' median was selected. The southern portion of the proposed Big Mill Farm Road extension which crosses I-40 Business was proposed as a four-lane section to accommodate potential future widening across the interstate and to match the existing southern terminus of the project (Harmon Creek Road).

Feedback gathered from the public indicated that bicycle and pedestrian facilities were desired by a majority of the respondents, although they placed a lower priority on these items in comparison to safety, traffic flow, aesthetics and lighting. Approximately three fourths of the participants preferred a narrow sidewalk, compared to a wide sidewalk or multiuse trail. Similarly, nearly 90% of the participants preferred one-way bicycle facilities over a multiuse trail. Based on this input and in reference with local plans and standard design practices, five-foot bike lanes and five-foot sidewalks were selected.

Big Mill Farm and I-40 Business Interchange Concepts

Five concepts for the proposed interchange on I-40 Business at Big Mill Farm Road were considered as listed below:

- Concept 1: Partial Clover with Southeast Quadrant Loop
- Concept 2: Partial Clover with Northwest and Southeast Quadrant Loops
- Concept 3: Partial Clover with Northeast and Southeast Quadrant Loops
- Concept 4: Diamond Interchange
- Concept 5: Diverging Diamond Interchange

Concepts 1 and 2 were carried forward for detailed study. The remaining three concepts were eliminated for the following reasons:

- Concept 3 – Conceptual designs indicated that the partial clover with loops in the northeast and southeast quadrant would have a larger footprint and more impacts than the other interchange concepts with the same traffic benefits and was therefore excluded from further detailed study.

- Concept 4 – Due to steep topography and large elevation differences in the southwest quadrant, the diamond interchange was excluded from further detailed study.
- Concept 5 – The diverging diamond interchange was originally considered as a concept to potentially reduce the size of the interchange and impacts. After investigating the vertical design required for the ramps, it was found that the alignments of the ramps for the diverging diamond interchange were near to the location of the ramps in the other four concepts. Since the diverging diamond wasn't needed from a traffic perspective and did not present a smaller impact area benefit, Concept 5 was excluded from further detailed study.

Hopkins Road and Big Mill Farm Road Intersection Concepts

Three concepts were considered at the Big Mill Farm Road, Hopkins Road, and Bluff School Road intersection. The estimated impacts during preliminary design for each concept are outlined below in **Table 1**:

- A signalized four-leg intersection
- A roundabout
- An unsignalized offset intersection

Table 1: Estimated Impacts during Preliminary Design for Hopkins Road/Big Mill Farm Road/Bluff School Road Intersection Concepts

Alternative	Newly Disturbed Area (acres)	Intersection LOS ¹ (2040 AM Peak)	Intersection LOS ¹ (2040 PM Peak)	Access
Signalized Four-Leg Intersection	0.4	B	B	Full Access
Roundabout	0.5	D	C	Full access
Unsignalized Offset Intersection	0.5	B	B	Right-in/Right-Out from eastbound Bluff School Road and westbound Hopkins Road

¹Level of Service

All three options would provide acceptable level of service. The signalized four-leg intersection provided the best level of service while maintaining the existing access at the intersection and minimizing the amount of acreage of newly impacted land. This concept was selected as the preferred option for further detailed study.

Kerners Mill Creek Crossing Concepts

During the field review of natural resources, a tributary stream to Kerners Mill Creek (Stream SN) was identified parallel to Hopkins Road. A symmetrical widening alignment would result in impacts along the length of this stream more than 300 linear feet. Therefore, two other concepts were evaluated in this location. Both concepts proposed maintaining the proposed typical section and widening Hopkins Road to the west to avoid or minimize parallel stream impacts. Concept 1 proposed 130 linear feet of stream impacts (Kerners Mill Creek and Stream SS) and 0.1 acres of wetland impacts (Wetland WO). Concept 2 proposed 180 linear feet of stream impacts (Kerners Mill Creek and Stream SS). Concept 1 was selected to be carried forward for detailed design.

“No Build” Alternative

The No Build alternative would not improve Hopkins Road, extend Big Mill Farm Road, construct an interchange on I-40 Business, and would not meet the project purpose and need. It was carried forward to serve as a basis for comparing impacts and benefits of the build alternatives.

Detailed Study Alternatives

Two detailed study alternatives were presented at the second public meeting in August 2017. For both, a four-lane typical section with a 23-foot median, four-foot bike lanes, and sidewalks on both sides is proposed from the existing Harmon Creek Road across the proposed I-40 Business interchange. A two-lane typical section with a 23-foot median, bike lanes, and sidewalks is proposed from the north of the interchange to West Mountain Street.

The two alternatives had different interchange configurations:

- Alternative A – Partial clover interchange on I-40 Business at Big Mill Farm Road with ramps in the northeast and northwest quadrant and a loop and ramp in the southeast quadrant.
- Alternative B – Partial clover interchange on I-40 Business at Big Mill Farm Road with a loop and ramp in the northwest and southeast quadrants.

Estimated impacts based on the preliminary design for the detailed study alternatives are summarized in **Table 2**. In comments received following the August 2017 public meeting, the public had a slight preference for Alternative B over Alternative A. Alternative B was anticipated to have fewer impacts than Alternative A with the same traffic and mobility benefits as Alternative A and was therefore selected as the preferred alternative. The No-Build alternative does not meet the purpose and need of the project.

Table 2: Estimated Impacts for STIP No. U-5760 Detailed Study Alternatives

Topic	Alternative		
	A	B	No-Build
100-Year Floodplain Crossings	1	1	0
Residential Relocations	5	4	0
Wetland Impacts	0.15 acres	0.15 acres	0 acres
Stream Crossings	7	6	0
Stream Impacts	2,525 lf	1,895 lf	0 lf
Total Cost Estimate (in millions)	\$30,150,000	\$29,150,000	\$0
Construction Cost	\$27,100,000	\$26,300,000	\$0
Utility Relocation Cost	\$650,000	\$650,000	\$0
Right of Way Cost	\$2,400,000	\$2,200,000	\$0

NOTE 1: There were no impacts from any detailed study alternatives on railroad crossings, schools, recreational areas and parks, churches, major utility crossings, National Register eligible resources, archaeological sites, federally-listed species, prime and unique farmland, hazardous material sites, riparian buffers, water supply watershed protected areas, wildlife refuges and game lands, section 4(f) impacts, and environmental justice population disproportionate and adverse impacts.

NOTE 2: Impacts were calculated using a 25-foot buffer of the proposed slopes stakes where available and a 25-foot buffer of the potential impact area in other locations as determined by the engineer. The potential impact area was a 20 to 50-foot buffer of the edge of travel.

Preferred Alternative

Alternative B was selected as the preferred interchange alternative on I-40 Business at the Big Mill Farm Road extension. This alternative is a partial cloverleaf interchange with loops and ramps in the northwest and southeast quadrants. A four-lane typical section with a 23-foot median, four-foot bike lanes, and sidewalks on both sides is proposed from the existing Harmon Creek Road across the proposed I-40 Business interchange. A two-lane typical section with a 23-foot median, bike lanes, and sidewalks is proposed from the north of the interchange to West Mountain Street.

RESOURCE STATUS

Wetland delineations within the proposed project study corridor followed the field delineation method outlined in the *1987 Corps of Engineers Wetland Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0)* (USACE, 2010). Stream identification and classification followed the *Methodology for the Identification of Intermittent and Perennial Streams and Their Origins* (NC Division of Water Resources [NCDWR], 2010 and 2005).

Jurisdictional features identified in the project study corridor were verified by USACE Regulatory Specialist John Thomas and NCDWR Regulatory Specialist Dave Wanucha on June 30, 2016 and a Preliminary Jurisdictional Determination (Pre-JD), with Action ID: SAW-2016-01337, was issued for the project study corridor on February 4, 2020.

A majority of the water resources in the study corridor are part of the Yadkin River basin [U.S. Geological Survey (USGS) Hydrologic Unit 03040101], with several of the water resources in the northern portion of the study corridor existing within the Roanoke River Basin [U.S. Geological Survey (USGS) Hydrologic Unit 03010103]. Jurisdictional features within the project study corridor that will be impacted include one unnamed tributary (UT) to Smith Creek (NCDWR Classification WS-III; NCDWR Index No. 12-94-12-2-1), two UTs to Kerners Mill Creek (NCDWR Classification WS-III; NCDWR Index No. 12-94-12-2-(0.3)), Kerners Mill Creek, and three riparian wetlands.

There are no designated anadromous fish waters or Primary Nursery Areas (PNA) present in the study corridor. There are no designated High Quality Waters (HQW) or water supply watersheds (WS-I or WS-II) in or within 1.0-mile downstream of the study corridor. There are no impaired waters in or within 1.0-mile downstream of the study corridor according to the North Carolina 2018 Final 303(d) list of impaired waters.

There are no benthic or fish monitoring data in or within 1.0-mile downstream of the study corridor.

IMPACTS TO WATERS OF THE UNITED STATES

Surface Waters

Total surface water impacts resulting from the proposed project include 1,372 linear feet of permanent stream impacts and 266 linear feet of temporary stream impacts. All pipes carrying jurisdictional features will be buried the required 1 foot or 20% (48 inches or smaller), except the pipe system at Site 6. Site 6 was a challenging design due to the following factors that were discussed with NCDWR:

- The existing stream currently flows at an extreme skew to the proposed roadway, requiring a pipe system design with inlets and other pipes to convey the stream safely through the roadway.
- A 30-foot storm drain enters the system from the Northwest and the additional associated water entering the system would result in sediment deposition at the pipe outlet, potentially causing sedimentation issues downstream.
- The proposed pipe layout was required to maintain traffic during construction. The proposed roadway will be constructed several feet higher than the existing roadway, and the stream is required to cross the road at a specific location to allow for traffic flow at all times during construction.

No temporary or permanent open water impacts will result from the proposed project. The jurisdictional stream impacts are summarized below in **Table 3**. There will be no impacts to surface waters from utilities for the proposed project.

Table 3. STIP No. U-5760 Stream Impacts in the Yadkin River Basin

Permit Site No.	Stream Name/ JD Packet ID	I/P Flow Status	Impact Type	Permanent Impacts (ft)	Temp. Impacts (ft)	Impacts requiring USACE mitigation ¹ (ft)	Impacts requiring NCDWR mitigation (ft)	Mitigation Ratio
1A	SD	P	Culvert Extension	25	-	56	-	2:1
			Channel Improvements	31	82			
1B	SD	P	Culvert Extension	522	-	542	542	2:1
			Channel Improvements	20	20			
2A	SN	P	Fill	233	10	233	233	2:1
2B	SN	P	Culvert	24	-	49	49	2:1
			Channel Improvements	25	10			
2C	SN	P	Fill	82	10	82	82	2:1
4A	Kerners Mill Creek	P	Culvert Extension	61	-	91	-	2:1
			Channel Improvements	30	28			
4B	Kerners Mill Creek	P	Channel Improvements	35	19	35	-	2:1
6A	SS	P	Culvert	122	-	192	-	2:1
			Channel Change	70	22			
6B	SS	P	Culvert	82		92	-	2:1
			Channel Improvements	10	65			
TOTALS (ft)				1,372	266	1,372	906	-

NOTES: I = Intermittent; P = Perennial; ¹Mitigation for bank stabilization not required by USACE.

Wetlands

There will be a total of 0.11 acre of permanent wetland impacts resulting from the proposed project. The permanent wetland impacts will result from road construction and includes impacts due to fill (0.094 acre), excavation (0.002 acre), and mechanized clearing (0.014 acre). No temporary wetland impacts will result from the proposed project. Permanent wetland impacts are summarized in **Table 4**.

Table 4. STIP No. U-5760 Wetland Impacts in the Yadkin River Basin

Permit Site No.	JD Package ID	Permanent Fill (ac)	Excavation (ac)	Mechanized Clearing (ac)	Total Impacts (ac)
2A	WF	-	0.001	0.001	0.002
3	WF	-	0.001	0.001	0.002
5	WQ	0.001	-	0.012	0.013
6A	WO	0.093	-	-	0.093
TOTALS (ac)		0.094	0.002	0.014	0.11

MITIGATION OPTIONS

The USACE has adopted, through the Council on Environmental Quality (CEQ), a wetland mitigation policy that embraces the concept of “no net loss of wetlands” and sequencing. The purpose of this policy is to restore and maintain the chemical, biological, and physical integrity of the waters of the United States. CEQ has defined mitigation of wetland and surface water impacts to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20).

The NCDOT is committed to incorporating all reasonable and practicable design features to avoid and minimize jurisdictional impacts, and to provide full compensatory mitigation of all remaining, unavoidable jurisdictional impacts. Avoidance measures were taken during the planning phase and minimization measures were incorporated as part of the project design. Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts.

Avoidance and Minimization

Avoidance and minimization have been employed in the project corridor to the maximum extent practicable. The following minimization measures were implemented for the proposed project:

- NCDOT’s Best Management Practices (BMPs) for the Protection of Surface Waters will be enforced;
- Impacts to wetlands, streams, and open waters were avoided and/or minimized by adjusting the alignment to follow a best-fit and use a two-lane typical section instead of a four-lane typical section;
- Retaining walls, including one in the southwest quadrant of the proposed interchange, have been proposed to minimize impacts to streams;
- An interchange alternative with impacts to only two quadrants, as opposed to three or four quadrants, was selected to minimize impacts to streams SD and SJ;
- Sidewalk moved to the back of curb to reduce the typical section width near Timberwood Trail to minimize parallel stream impacts to stream SN;
- Shifted horizontal alignment west near Kerners Mill Creek to minimize parallel stream impacts to stream SN;

- A 2:1 slope is proposed along I-40 Business, near stream SD, to minimize the impacts due to the culvert extension;
- A 2:1 slope is proposed near stream SS and wetland WC to minimize impacts;
- All storm drainage will be diffused and designed for non-erosive velocities before entering stream and wetland areas to the maximum extent practicable;
- Rip rap stabilization on banks of jurisdictional streams will be implemented to prevent erosion;

Proposed stream impacts (1,372 linear feet) for the proposed project decreased from the impacts calculated for the MCDC (1,430 linear feet). This decrease is due to the preliminary nature of the MCDC and the assumption of 25 linear feet of impact beyond the slope stakes which have been reduced during final design. In addition, several design enhancements have been incorporated to minimize impacts, including proposed 2:1 slopes and shifting the southbound right turn lane further south to minimize impacts near Kerners Mill Creek.

The final proposed wetland impacts (0.11 acre of permanent wetland impacts) have been avoided and/or minimized by adjusting the alignment to follow a best-fit and proposing 2:1 slopes at specific locations during the final design. In addition, close coordination with utility companies and their proposed relocations has reduced or avoided impacts where possible.

Compensatory Mitigation

Compensatory mitigation requirements for the proposed project are summarized below in **Table 5**. This project will permanently impact 1,372 feet of stream and 0.11 acre of riparian wetland.

The USACE is requiring 2:1 mitigation for 1,372 feet of permanent perennial stream impacts. The mitigation requirements of 500 feet of permanent warm water stream impacts will be provided by the NCDMS for the proposed project (**Table 5**).

This project will also permanently impact 0.11 acre of wetlands for which the USACE will require a 2:1 mitigation ratio. The mitigation requirement of 0.25* acre of permanent wetland impacts will be provided by the NCDMS for the proposed project.

Table 5. STIP No. U-5760 Required Compensatory Mitigation Summary

	Stream Impacts (ft)	Wetland Impacts (ac)
Impacts Requiring Mitigation	1,372	0.11
Required DMS Mitigation (2:1)	1,372	0.11
Total DMS Mitigation	2,744	0.22

FEDERALLY PROTECTED SPECIES

Plants and animals with a Federal classification of Endangered (E) or Threatened (T) are protected under provisions of Section 7 and Section 9 of the Endangered Species Act (ESA) of 1973, as amended. As of June 27, 2018, the U.S. Fish and Wildlife Service (USFWS) lists two federally protected species for Forsyth County: northern long-eared bat (*Myotis septentrionalis*), and small-anthered bittercress (*Cardamine micranthera*). The N.C. Natural Heritage Program

(NCNHP) element occurrence database records (updated January 2020) indicates there are no known federally listed species occurrences in or within 1-mile of the project study corridor.

Small-anthered bittercress is listed as endangered on the current USFWS list of protected species in Forsyth County. The plant species is endemic to the Dan River drainage of Roanoke River sub and occurs in moist, wet woods along small to intermittent sized streams, stream bank edges and seepages above the actual stream channel, wet rock crevices, and sand and gravel bars of small streams. Suitable habitat for small-anthered bittercress exists along the small forested streams found throughout the project corridor. Kimley-Horn biologists conducted pedestrian surveys for small-anthered bittercress in areas of suitable habitat on May 10, 2016 and no individuals were observed. In addition, a review of NCNHP records (updated January 2020) indicates no known occurrences of small-anthered bittercress within 1.0 mile of the study corridor. Due to the lack of known occurrences and the lack of observed individuals, it has been determined that the proposed project will have “No Effect” on small-anthered bittercress.

The northern long-eared bat (NLEB) is listed as a threatened species on the current USFWS list of protected species in Forsyth County. A review of the NCNHP records (updated January 2020) indicates no known occurrences of NLEB in or within 1.0 mile of the study corridor. Selective tree clearing will occur during the construction of this project. No known NLEB roosting sites or hibernacula are documented within the project study corridor. Potentially suitable habitat is present due to the presence of 3-inch diameter trees in the area, however, there are no known hibernacula or roosting sites in Forsyth County. In addition, Forsyth County is not identified by the USFWS Raleigh Ecological Services Field Office as a county where incidental take may be a special consideration for NLEB. While the proposed project will involve percussive activities, the project corridor is located outside of a known hibernacula or area of mature roosting trees. Given these circumstances, USACE’s Alternative Local Procedure (ALP) 1 would be used. Due to the presence of potentially suitable habitat but the lack of known occurrences, hibernacula, or roosting sites within the project corridor, it has been determined that the proposed project “May Affect, Not Likely to Adversely Affect” the NLEB.

The bald eagle is protected by the Bald Eagle and Golden Eagle Protection Act (BGPA). Habitat for the bald eagle primarily consists of mature forest in proximity to large bodies of open water for foraging. Large dominant trees are utilized for nesting sites, typically within 1.0 mile of open water. A desktop-GIS assessment of the project study corridor, as well as the area within a 1.13-mile radius (1.0 mile plus 660 feet) of the project limits, was performed. Numerous man-made ponds, large enough and sufficiently open to be considered potential feeding sources, were identified within or near the project corridor. Some forested natural areas within the study corridor contain trees of sufficient size for bald eagle nests. Foraging and nesting habitat is present within the study corridor; therefore, a survey of the project study corridor and the area within 660 feet of the project limits was conducted on May 10, 2016. No bald eagle nests or individuals were observed. In addition, a review of the NCNHP records (updated January 2020) indicates no known occurrences of the bald eagle within 1.0 mile of the project study corridor. Due to the lack of known occurrences, the lack of observed individuals, and the minimal impact anticipated for this project, it has been determined that the proposed project will have “No Effect” on the bald eagle.

CULTURAL RESOURCES

A “No Survey Required Form” was completed by NCDOT on July 13, 2017 for historic architecture and landscapes due to the lack of National Register listed properties within the Area of Potential Effects (APE). A “No National Register of Historic Places Eligible or Listed

Archaeological Sites Present Form” was completed by NCDOT on January 10, 2017 and indicated that no National Register listed, or eligible archaeological sites were identified nor did any of the subsurface investigations reveal the presence of any archaeological resources. Therefore, no further archaeological investigations are required for the proposed project. The above referenced letters are attached as part of this permit package.

A “Tribal Coordination Request” was prepared by NCDOT and submitted to the Catawba Indian Nation on March 4, 2020. No response has been received from the Catawba Indian Nation. The letter request is attached as part of this permit package.

FEMA COMPLIANCE

The Hopkins Road portion of the project corridor crosses Kerners Mill Creek, a FEMA-regulated stream. A Conditional Letter of Map Revision (CLOMR) will be required due to the anticipated culvert extensions or replacement within the regulated floodway. The CLOMR will be submitted to the North Carolina Floodplain Mapping Program (NCFMP) in compliance with the Memorandum of Agreement between NCDOT and NCFMP.

INDIRECT AND CUMULATIVE EFFECTS

An *Indirect and Cumulative Effect* (ICE) screening was completed in December 2016. Indirect and cumulative effects were considered for the time period between 2012 and 2035, which is the horizon date of the Winston Salem Metropolitan Planning Organization’s *Long Range Transportation Plan*.

Indirect Effects

The proposed project is anticipated to result in a minor amount of new development and redevelopment. Additional access to I-40 Business/US 421 that will be provided by the proposed interchange at Big Mill Farm Road will make the area north of West Mountain Street more attractive to industry and will create an opportunity for new development and higher density redevelopment and infill at the interchange.

For these reasons construction of this project is expected to have some indirect effects on land use decisions in the Future Land Use Study Area (FLUSA). A Land Use Scenario Assessment is not likely.

Cumulative Effects

The proposed project, in combination with other projects currently proposed within the FLUSA, is anticipated to change land from pervious to impervious uses. However, with the environmental and geographical restrictions on undeveloped land, only minor impacts to the local watershed are anticipated. This project may have an effect on the pace at which some development occurs.

Direct natural environmental impacts by NCDOT projects will be addressed by avoidance, minimization, and mitigation measures consistent with programmatic agreements with the natural resource agencies. All developments will be required to follow local, state, and federal guidelines and permitting regulations.

Conclusion

Cumulatively, this project and other planned transportation improvements are expected to enhance mobility and improve travel time locally and regionally. Local planners expect that the proposed project will have only a slight impact on the level or pace of development.

WILD AND SCENIC RIVERS

This project will not impact any designated Wild and Scenic Rivers or any rivers included in the list of study rivers (Public Law 90-542, as amended) or North Carolina Natural and Scenic Rivers.

ESSENTIAL FISH HABITAT

The project will not impact any essential fish habitat afforded protection under the Magnuson-Stevens Act of 1996 (16 U.S.C 1801 *et seq.*).

REGULATORY APPROVALS

Application is hereby made for a Department of the Army Section 404 Individual Permit as required for the above-described activities for the proposed project. We are also hereby requesting a Section 401 Water Quality Certification from NCDWR. In compliance with Section 143-215.3D (e) of the NCAC, we will provide you permission to debit the WBS number for \$570.00 to act as payment for processing the Section 401 permit. We are providing two copies of this application to NCDWR for their review and approval.

Thank you for your time and assistance with this project. Please contact me at (336) 747-7800 or aeuliss@ncdot.gov if you have any questions or need additional information.

Sincerely,



Amy Euliss
NCDOT Division 9, Environmental Officer

cc: Amy Chapman, NCDWR
Beth Harmon, Division of Mitigation Services
Rhodes Hunt, PE Kimley Horn
Phil Suggs, NCDOT Roadside Environmental Field Operations Divisions 9 and 10
Connie James, PE NCDOT Division 9 Project Manager
Marcus Kiser, PE NCDOT Division 9 Resident Engineer

TIP# U-5760
Application for
Department of Army
Permit

**U.S. ARMY CORPS OF ENGINEERS
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT**

33 CFR 325. The proponent agency is CECW-CO-R.

**Form Approved -
OMB No. 0710-0003
Expires: 30-SEPTEMBER-2015**

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
--------------------	----------------------	------------------	------------------------------

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Amy Middle - Last - Euliss Company - NCDOT - Division 9 E-mail Address - aeuliss@ncdot.gov		8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Middle - Last - Company - E-mail Address -	
6. APPLICANT'S ADDRESS: Address- 375 Silas Creek Parkway City - Winston Salem State - NC Zip - 27127 Country - USA		9. AGENT'S ADDRESS: Address- City - State - Zip - Country -	
7. APPLICANT'S PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax 919-747-7800		10. AGENTS PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax	

STATEMENT OF AUTHORIZATION

11. I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT

DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions) Big Mill Farm Road and Hopkins Road from south of I-40 Business/US 421 to West Mountain Street (NCDOT TIP# U-5760)			
13. NAME OF WATERBODY, IF KNOWN (if applicable) Kerners Mill Creek		14. PROJECT STREET ADDRESS (if applicable) Address N/A - Linear Transportation Project	
15. LOCATION OF PROJECT Latitude: °N 35.595274 Longitude: °W 78.815630		City - Kernersville State- NC Zip-	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID N/A-Linear Transportation Project Municipality Kernersville Section - Township - Range -			

17. DIRECTIONS TO THE SITE

The proposed project is located at Big Mill Farm Road and Hopkins Road from I-40 Business/US 421 to West Mountain Street in Forsyth County, NC (See Figure 1: Vicinity Map). The project and its vicinity are primarily composed of dense residential and commercial development, with scattered forested areas throughout.

18. Nature of Activity (Description of project, include all features)

The North Carolina Department of Transportation (NCDOT) proposes to widen Hopkins Road from West Mountain Street to the intersection with Big Mill Farm Road; this intersection will also be improved. Big Mill Farm Road will be widened, improved, and extended from Hopkins Road to Harmon Creek Road. A new interchange will be added at I-40 Bus/US 421 and the Big Mill Road extension (TIP U-5760) in Forsyth County.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The primary purpose of the project is to reduce congestion. Additional purposes for this project include improving mobility and access to major highways in west Kernersville as well as accommodating economic development expansion in the area. South Main Street in Kernersville as traffic approaches I-40 frequently experiences queuing and slowdowns due to congestion. Hopkins Road also experiences congestion as it serves as a regional connection to the I-40 and South Main Street interchange.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Impacts will result from the widening, improvement, and extension of existing roadway, shoulders, and associated hydraulic structures.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
Soil/Fill: 10,124 Cubic Yards	Rip-Rap: 285 Cubic Yards	

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 0.11
or
Linear Feet 1,372

23. Description of Avoidance, Minimization, and Compensation (see instructions)

See attached cover letter

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- See attached Permit Impact Drawings and Adjacent Property Owner Table

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

TIP# U-5760
Figures

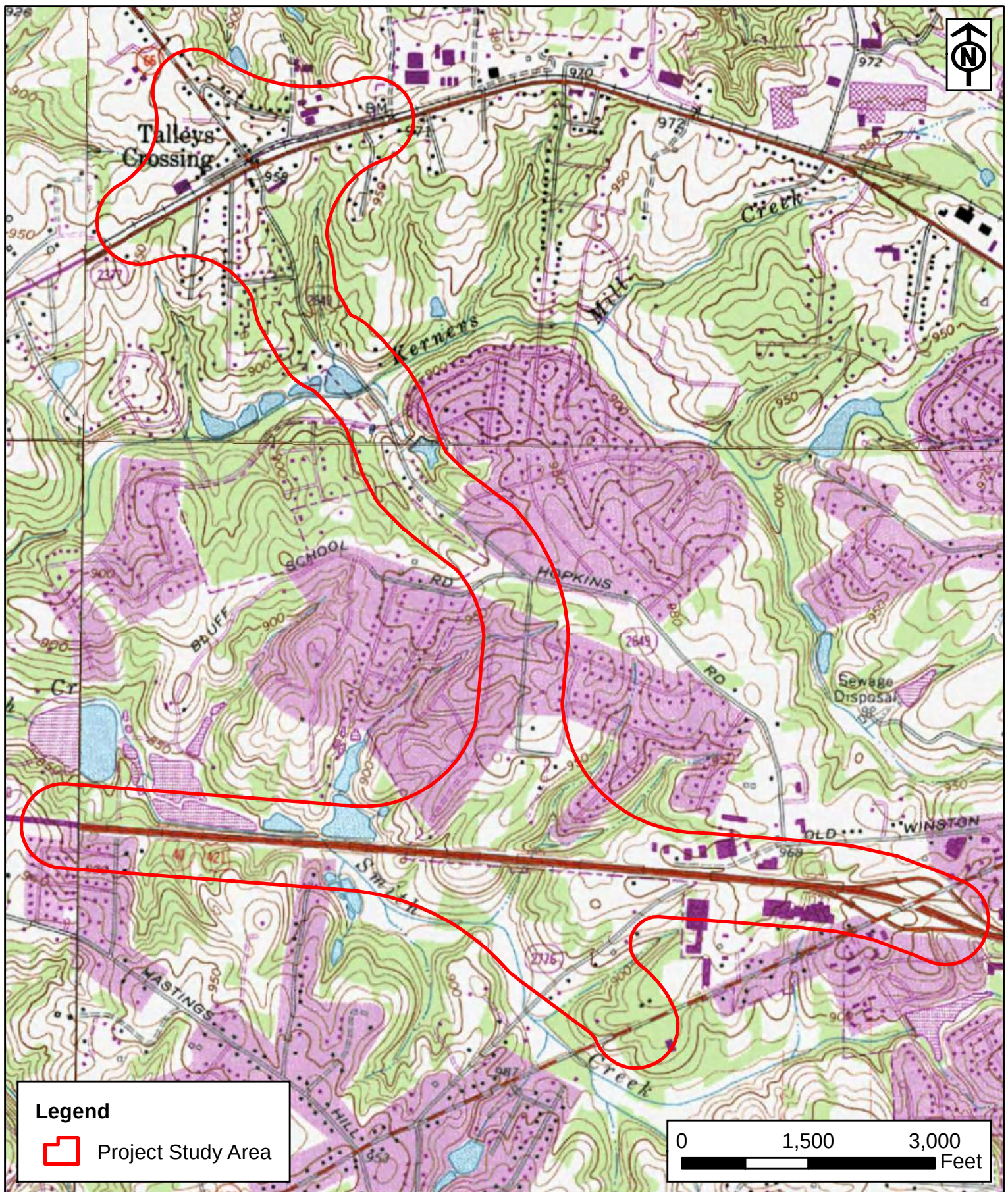


Figure 2: USGS Topographic Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County



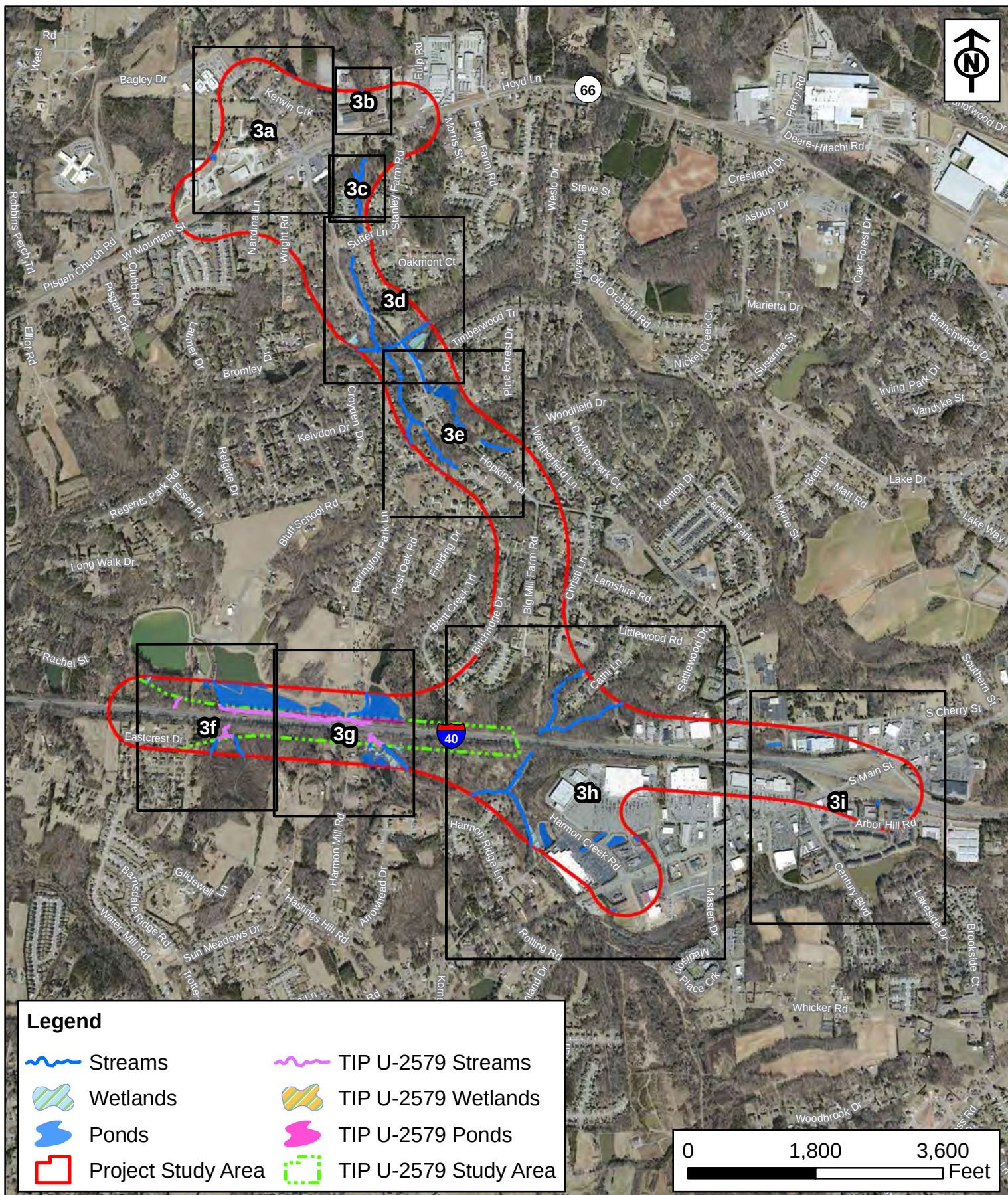


Figure 3: Jurisdictional Features Index Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County



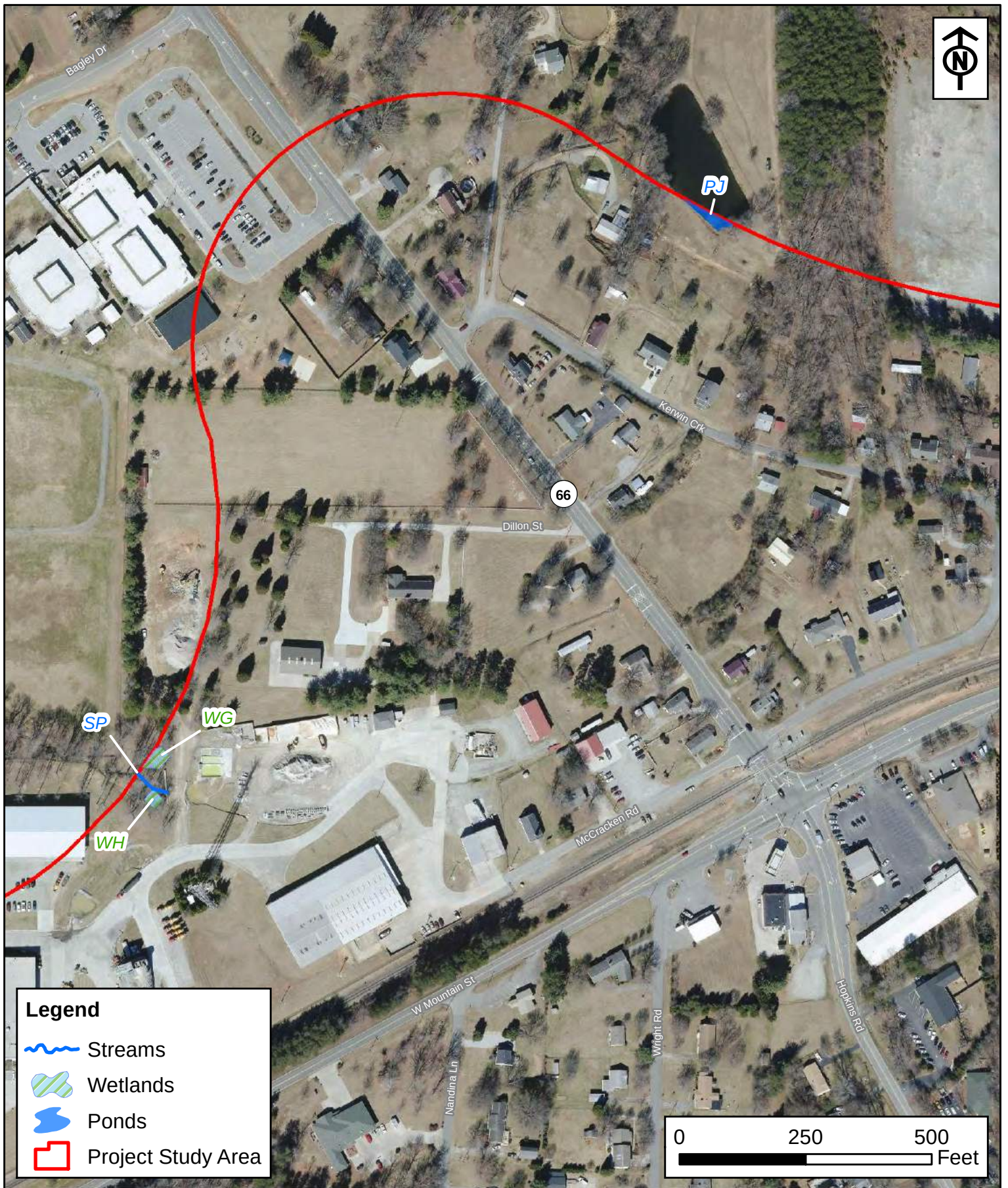


Figure 3a: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County



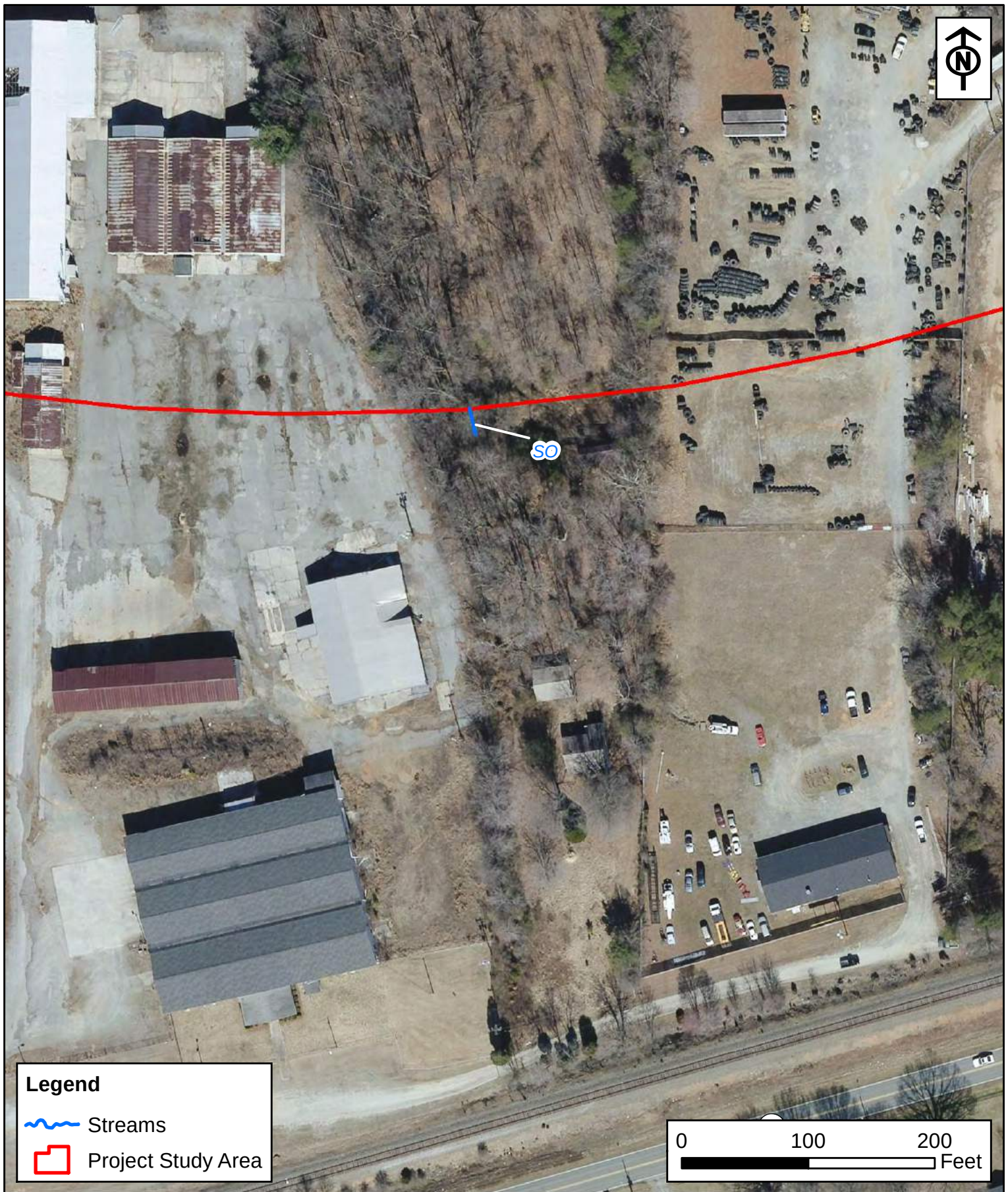


Figure 3b: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County



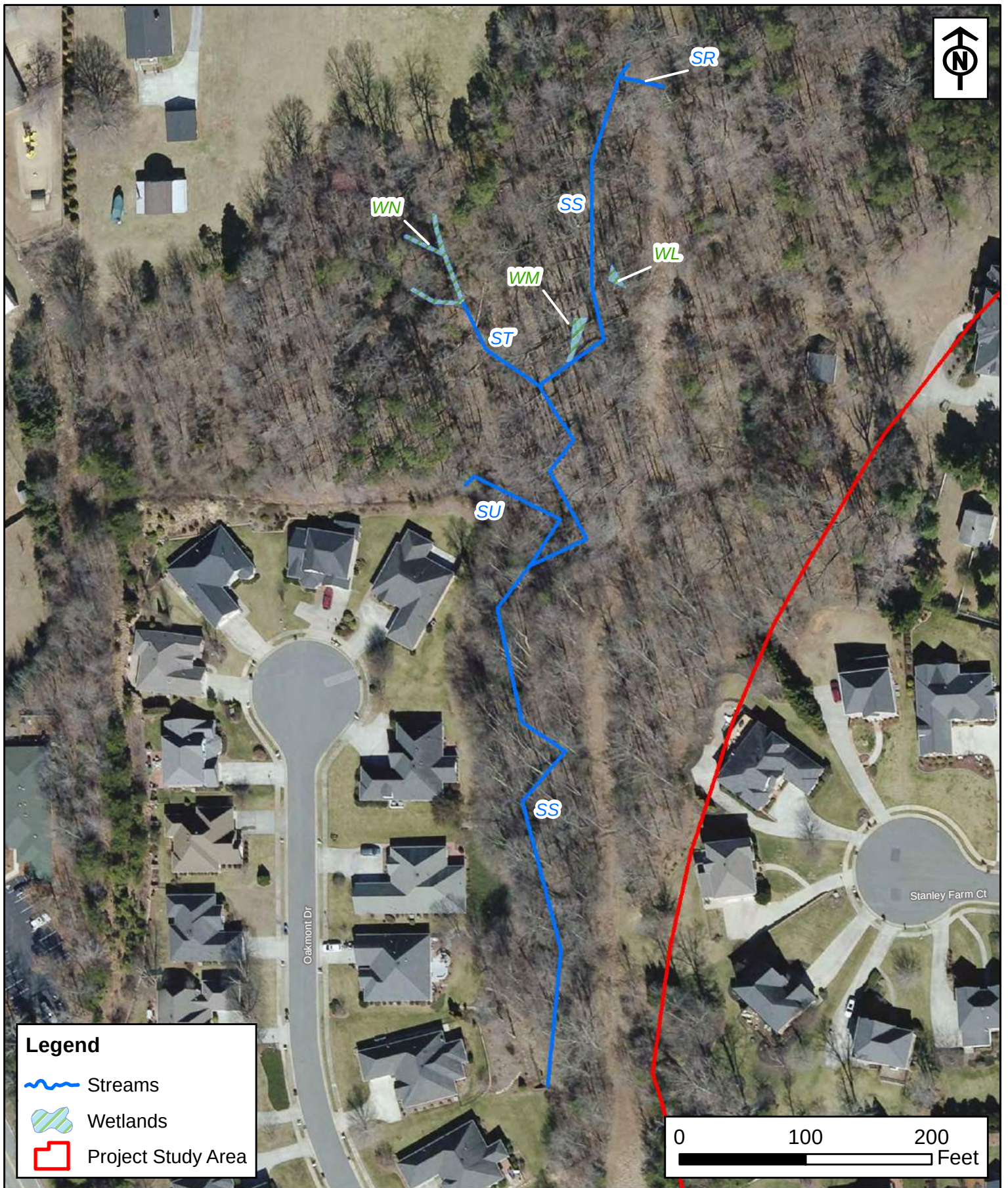


Figure 3c: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County

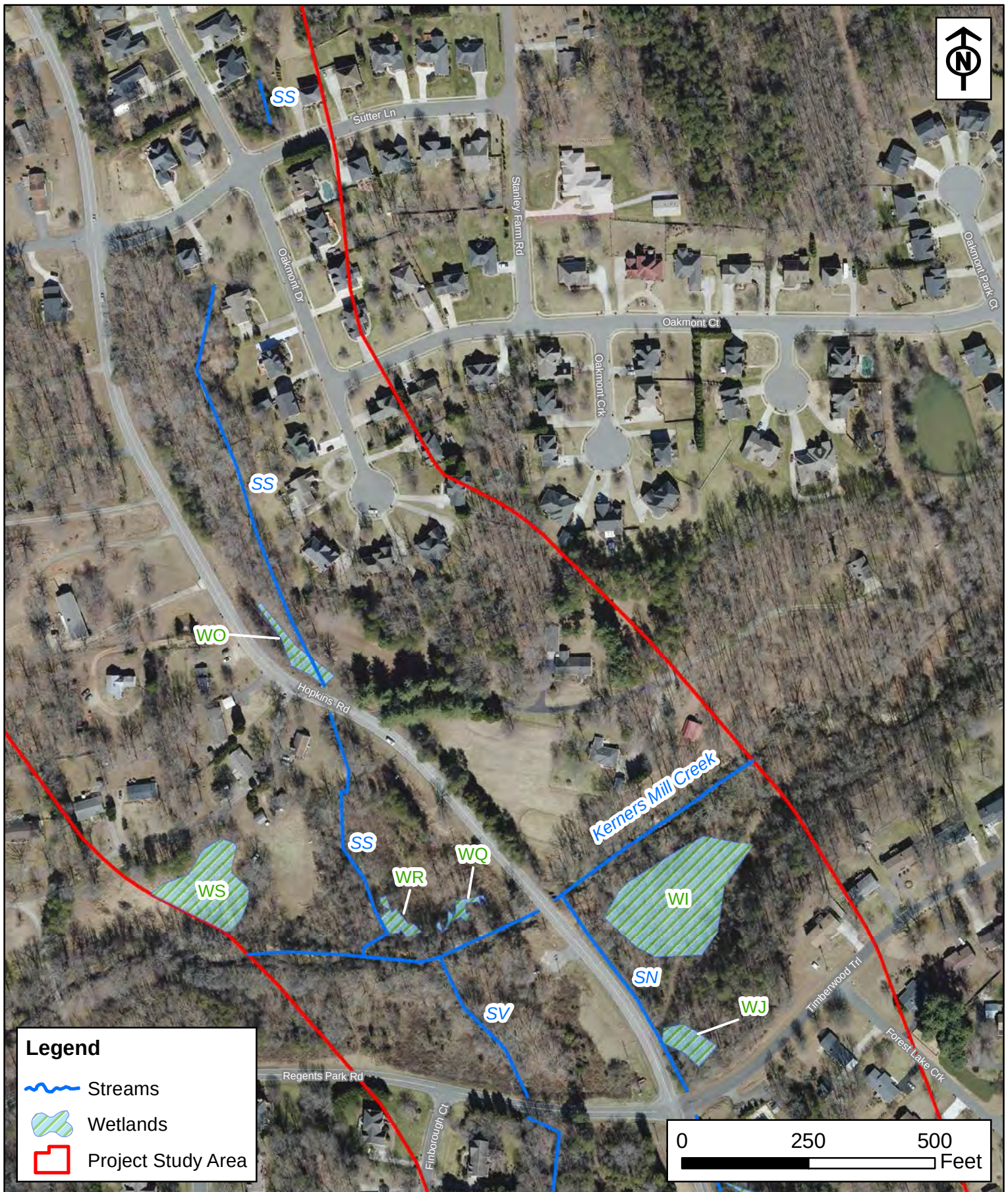


Figure 3d: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County



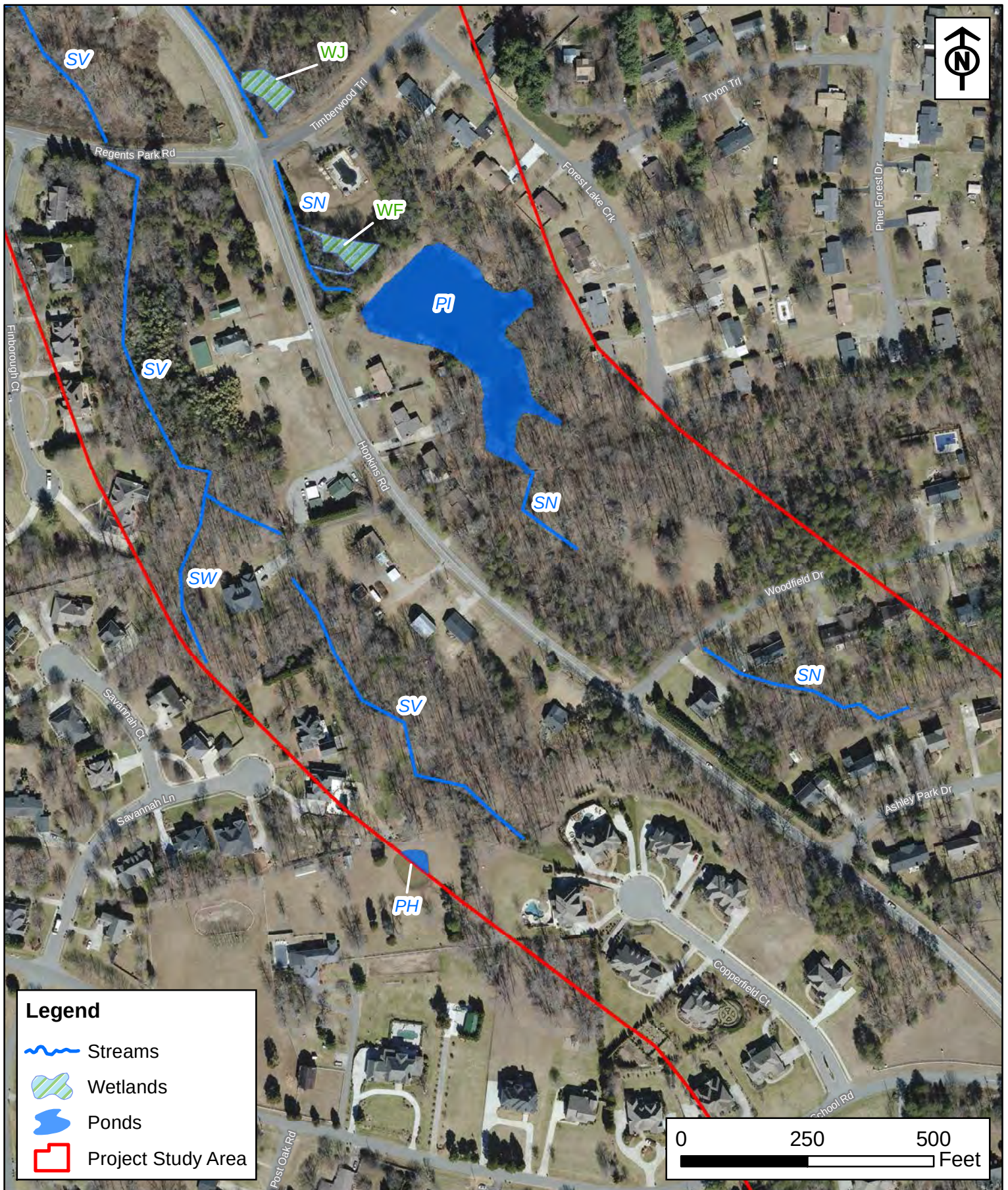


Figure 3e: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County





Figure 3f: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County

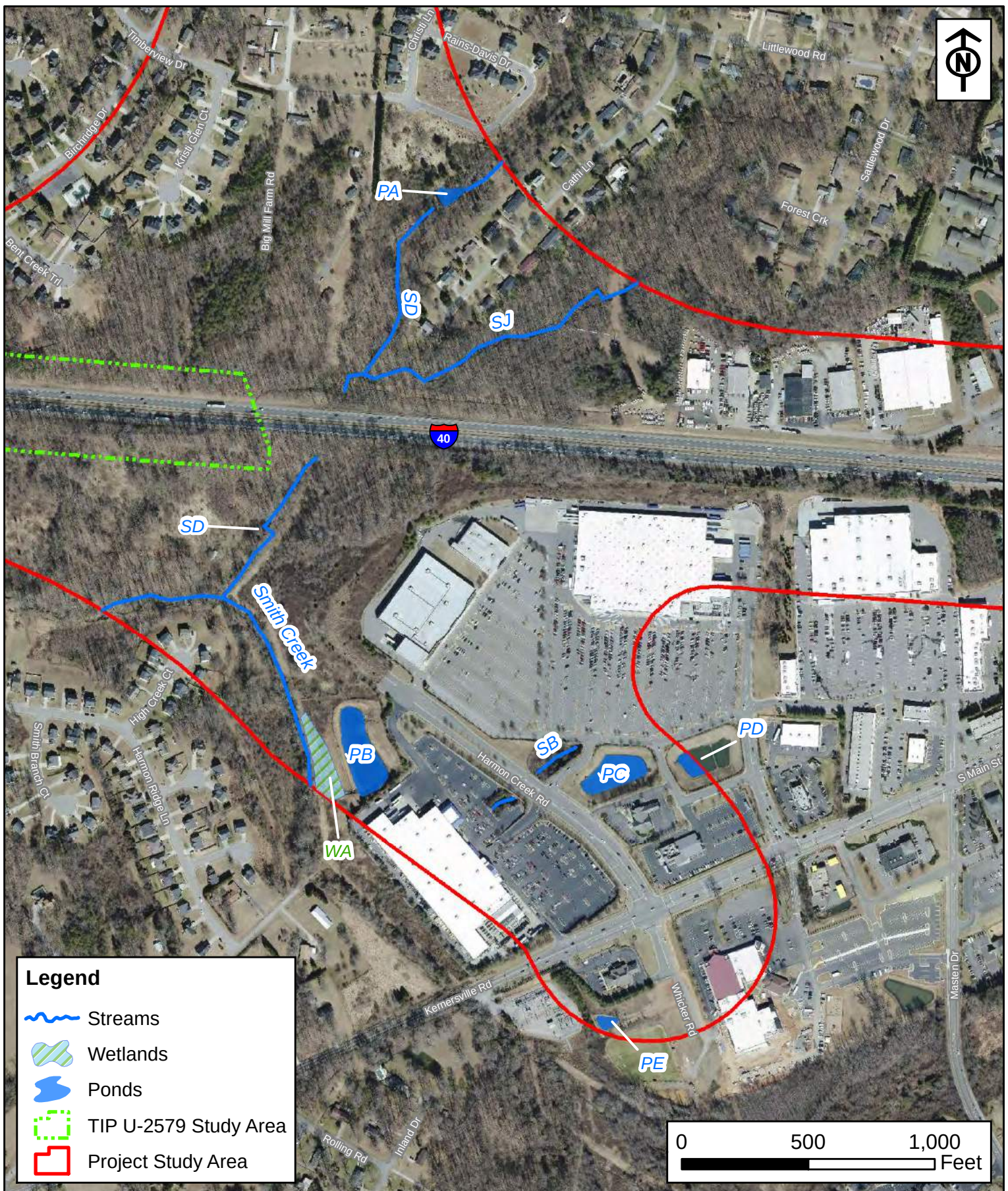


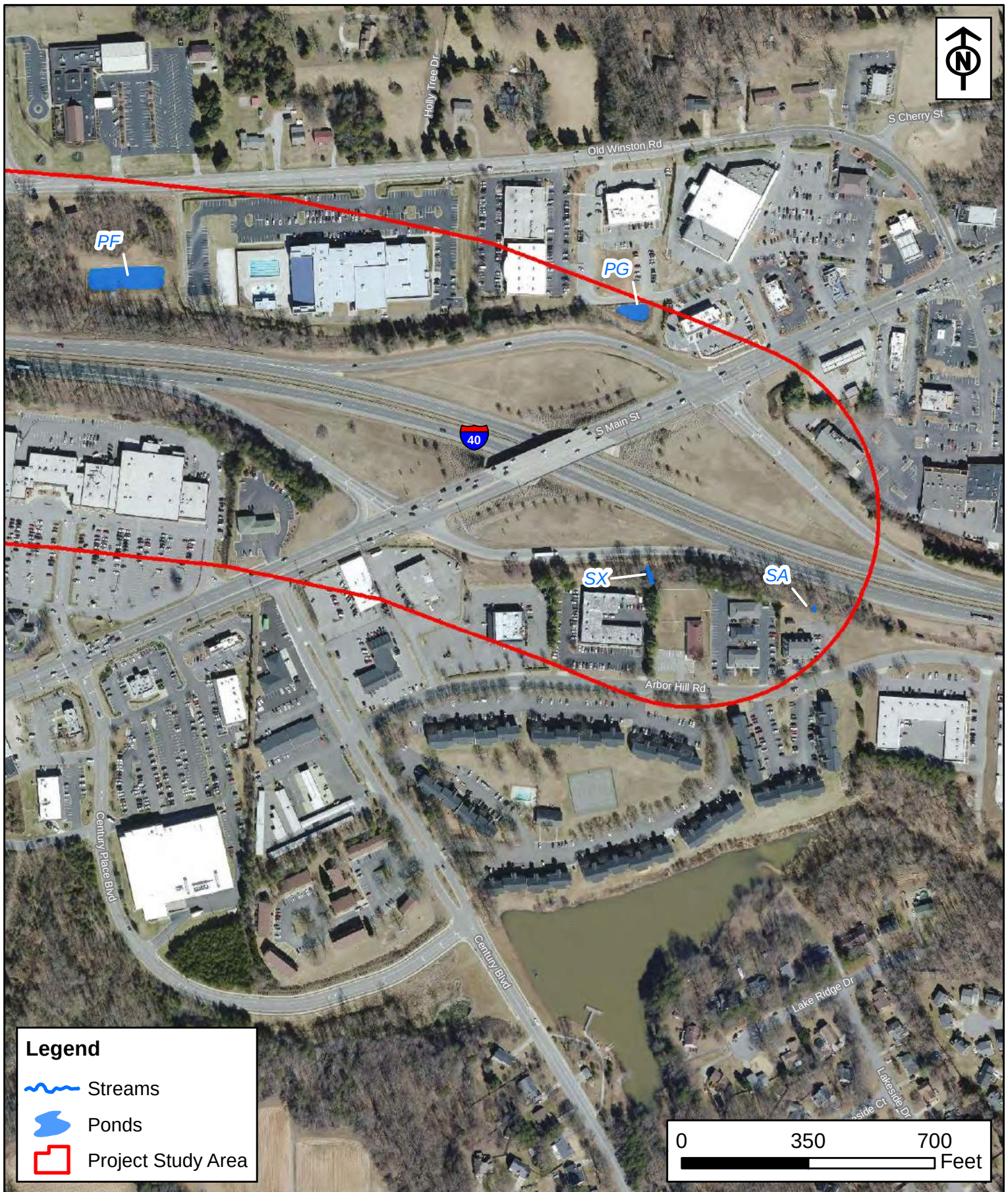


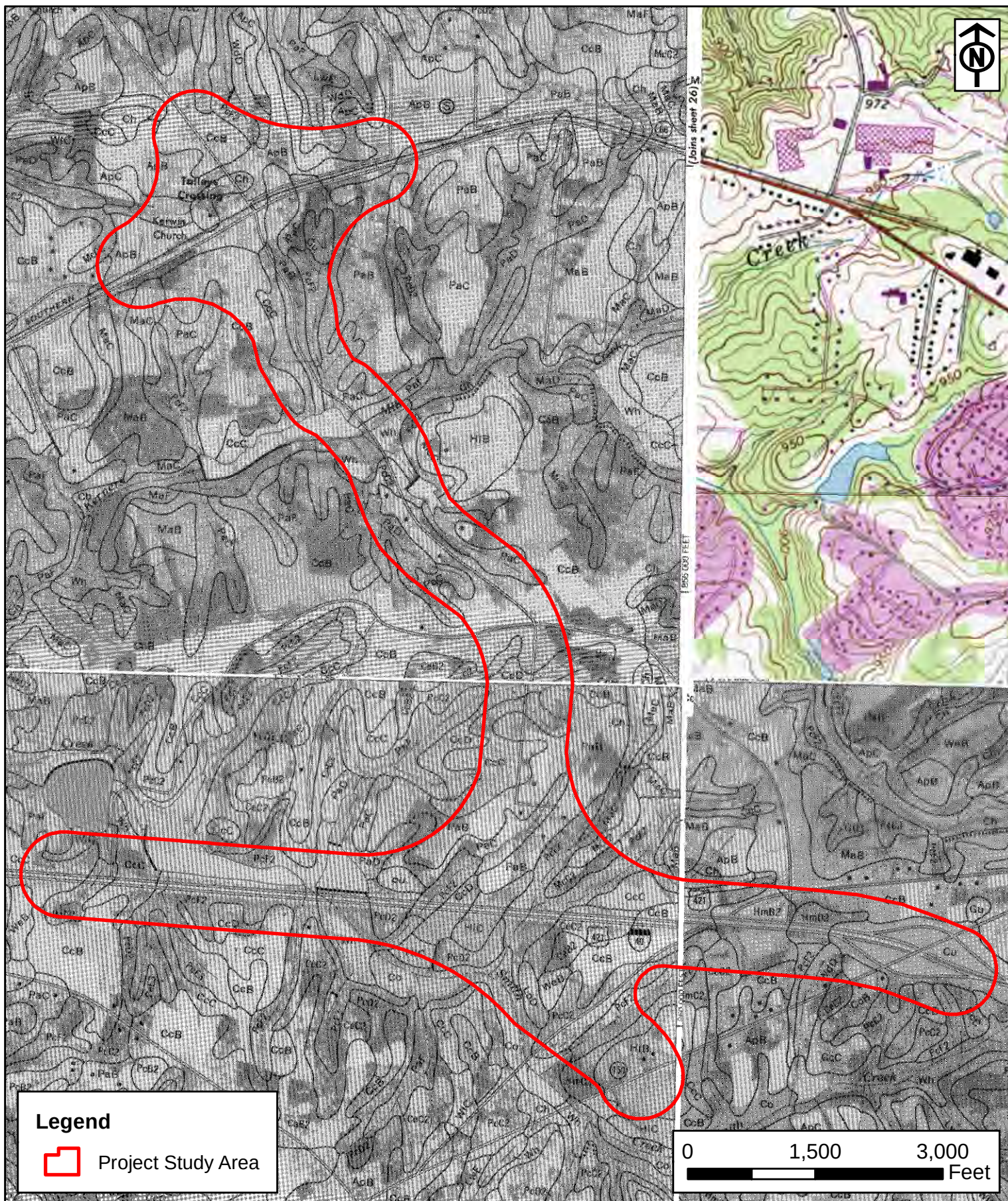
Figure 3f: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County









TIP# U-5760
NC DMS Mitigation
Acceptance Letter



NORTH CAROLINA
Environmental Quality

ROY COOPER
Governor

MICHAEL S. REGAN
Secretary

TIM BAUMGARTNER
Director

April 13, 2020

Ms. Amy Euliss
NCDOT Division 9 Environmental Officer
North Carolina Department of Transportation
375 Silas Creek Parkway
Winston-Salem, North Carolina 27127

Dear Ms. Euliss:

Subject: Mitigation Acceptance Letter:

Division 9, TIP Number U-5760, Kernersville Southern Loop (Phase I) Forsyth County, WBS No 46381.1.1

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the stream and wetland mitigation for the subject project. Based on the information supplied by you in April 2020, the impacts are located in CU 03040101 of the Yadkin River basin in the Central Piedmont (CP) Eco-Region, and are as follows:

Stream & Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Yadkin	03040101	CP	0	0	1,372.0	0.11	0	0

*Some of the stream and wetland impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

DMS commits to implementing sufficient compensatory stream and wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,

Elizabeth Harmon

James B. Stanfill
DMS Asset Management Supervisor

Cc: Ms. Nicholle Braspennickx, USACE – Asheville Regulatory Field Office
Mr. Monte Matthews, USACE – Raleigh Regulatory Field Office
Ms. Amy Chapman, NC Division of Water Resources – Raleigh
Mr. Dave Wanucha, NC Division of Water Resources
File: U-5760 – Division 9



TIP# U-5760
Preliminary
Jurisdictional
Determination

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. SAW No. 2016-01337 County: Forsyth U.S.G.S. Quad: NC- Kernersville

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Requestor: North Carolina Department of Transportation
Jeff Hemphill
Address: 1598 Mail Service Center
Raleigh, North Carolina 27699-1598
Telephone Number: 919-707-6126
E-mail: jhemphill@ncdot.gov

Size (acres) 674.25 acres
Nearest Waterway Kerners Mill Creek
USGS HUC 03040101

Nearest Town Kernersville
River Basin Upper Pee Dee
Coordinates Latitude: 36.111732
Longitude: -80.106633

Location description: Big Mill Road and Hopkins Road from south of I-40Business/US-421 to West Mountain Street, Kernersville, Forsyth County, North Carolina.

Indicate Which of the Following Apply:

A. Preliminary Determination

- ☒ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). The **waters, including wetlands** have been delineated, and the delineation has been verified by the Corps to be sufficiently accurate and reliable. The approximate boundaries of these waters are shown on the **enclosed delineation maps, Figures 1-3 a-i dated 8/1/2016**. Therefore this preliminary jurisdiction determination may be used in the permit evaluation process, including determining compensatory mitigation. For purposes of computation of impacts, compensatory mitigation requirements, and other resource protection measures, a permit decision made on the basis of a preliminary JD will treat all waters and wetlands that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331). However, you may request an approved JD, which is an appealable action, by contacting the Corps district for further instruction.
- ☐ There appear to be **waters, including wetlands** on the above described project area/property, that may be subject to Section 404 of the Clean Water Act (CWA)(33 USC § 1344) and/or Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403). However, since the **waters, including wetlands** have not been properly delineated, this preliminary jurisdiction determination may not be used in the permit evaluation process. Without a verified wetland delineation, this preliminary determination is merely an effective presumption of CWA/RHA jurisdiction over all of the **waters, including wetlands** at the project area, which is not sufficiently accurate and reliable to support an enforceable permit decision. We recommend that you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

B. Approved Determination

- ☐ There are Navigable Waters of the United States within the above described project area/property subject to the permit requirements of Section 10 of the Rivers and Harbors Act (RHA) (33 USC § 403) and Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☐ There are **waters, including wetlands** on the above described project area/property subject to the permit requirements of Section 404 of the Clean Water Act (CWA) (33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☐ We recommend you have the **waters, including wetlands** on your project area/property delineated. As the Corps may not be able to accomplish this wetland delineation in a timely manner, you may wish to obtain a consultant to conduct a delineation that can be verified by the Corps.

SAW No. 2016-01337

- ☐ The **waters, including wetlands** on your project area/property have been delineated and the delineation has been verified by the Corps. The approximate boundaries of these waters are shown on the enclosed delineation map dated **DATE**. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.
- ☐ The **waters, including wetlands** have been delineated and surveyed and are accurately depicted on the plat signed by the Corps Regulatory Official identified below on **DATE**. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☐ There are no waters of the U.S., to include wetlands, present on the above described project area/property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.
- ☐ The property is located in one of the 20 Coastal Counties subject to regulation under the Coastal Area Management Act (CAMA). You should contact the Division of Coastal Management in **Morehead City, NC, at (252) 808-2808** to determine their requirements.

Placement of dredged or fill material within waters of the US, including wetlands, without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). Placement of dredged or fill material, construction or placement of structures, or work within navigable waters of the United States without a Department of the Army permit may constitute a violation of Sections 9 and/or 10 of the Rivers and Harbors Act (33 USC § 401 and/or 403). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Nicholle Braspennickx at 704-510-0162 or Nicholle.M.Braspennickx.usace.army.mil**.

C. Basis For Determination: Basis For Determination: See the preliminary jurisdictional determination form dated 02/04/2020.

D. Remarks: None.

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Phillip Shannin, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **Not applicable**.

****It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.****

Corps Regulatory Official: _____

Date of JD: **02/04/2020** Expiration Date of JD: **Not applicable**

SAW No. 2016-01337

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

Copy furnished:

Agent:	<u>Kimley Horn</u>
	<u>Willie Sullivan</u>
Address:	<u>421 Fayetteville Street, Suite 600</u>
	<u>Raleigh, North Carolina 27601</u>
Telephone Number:	<u>919-677-2113</u>
E-mail:	<u>William.Sullivan@kimley-horn.com</u>

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: **North Carolina Department of Transportation, Jeff Hemphill**

File Number: **SAW No. 2016-01337**

Date: **02/04/2020**

Attached is:

See Section below

☐	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
☐	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
☐	PERMIT DENIAL	C
☐	APPROVED JURISDICTIONAL DETERMINATION	D
☒	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at or <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx> or the Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the district engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

**District Engineer, Wilmington Regulatory Division
Attn: Nicholle Braspenickx
Charlotte Regulatory Office
U.S Army Corps of Engineers
8430 University Executive Park Drive, Suite 615
Charlotte, North Carolina 28262**

If you only have questions regarding the appeal process you may also contact:

**Mr. Phillip Shannin, Administrative Appeal Review Officer
CESAD-PDO
U.S. Army Corps of Engineers, South Atlantic Division
60 Forsyth Street, Room 10M15
Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.	Date:	Telephone number:
----------------------------------	-------	-------------------

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, Attn: Nicholle Braspenickx, 69 Darlington Avenue, Wilmington, North Carolina 28403

For Permit denials, Proffered Permits and Approved Jurisdictional Determinations send this form to:

**Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Phillip Shannin, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801
Phone: (404) 562-5137**

PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD: 02/04/2020

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: North Carolina Department of Transportation, Jeff Hemphill, 1598 Mail Service Center, Raleigh, North Carolina 27699-1598

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: Wilmington District, NCDOT/U-5760, Big Mill Road and Hopkins Road, from south of I-40B/US-421 to West Mountain Street, SAW No. 2016-01337

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION: Big Mill Road and Hopkins Road from south of I-40Business/US-421

(USE THE TABLE BELOW TO DOCUMENT MULTIPLE AQUATIC RESOURCES AND/OR AQUATIC RESOURCES AT DIFFERENT SITES)

State: NC County: Forsyth City: Kernersville
Center coordinates of site (lat/long in degree decimal format): Latitude: 36.111732 Longitude: -80.106633

Universal Transverse Mercator:

Name of nearest waterbody: Kerners Mill Creek

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: January 24, 2020

☐ Field Determination. Date(s):

TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO REGULATORY JURISDICTION.

Site number	Latitude	Longitude	Cowardin Class	Estimated amount of aquatic resource in review area	Class of aquatic resource
Kerners Mill Creek	36.1268	-80.1151	Riverine	1,075 linear feet	non-section 10 – non-tidal
Smith Creek	36.1097	-80.1089	Riverine	4,432 linear feet	non-section 10 – non-tidal
SA	36.1092	-80.0888	Riverine	10 linear feet	non-section 10 – non-tidal
SB	36.1080	-80.1034	Riverine	275 linear feet	non-section 10 – non-tidal
SD	36.1136	-80.1056	Riverine	1,775 linear feet	non-section 10 – non-tidal
SG	36.1114	-80.1146	Riverine	164 linear feet	non-section 10 – non-tidal
SH	36.1113	-80.1220	Riverine	566 linear feet	non-section 10 – non-tidal
SI	36.1113	-80.1209	Riverine	426 linear feet	non-section 10 – non-tidal
SJ	36.1125	-80.1043	Riverine	1,252 linear feet	non-section 10 – non-tidal
SM	36.1127	-80.1149	Riverine	531 linear feet	non-section 10 – non-tidal

SN	36.1262	-80.1125	Riverine	1,441 linear feet	non-section 10 – non-tidal
SO	36.1368	-80.1153	Riverine	21 linear feet	non-section 10 – non-tidal
SP	36.1342	-80.1223	Riverine	73 linear feet	non-section 10 – non-tidal
SR	36.1341	-80.1151	Riverine	36 linear feet	non-section 10 – non-tidal
SS	36.1286	-80.1151	Riverine	2,420 linear feet	non-section 10 – non-tidal
ST	36.1335	-80.1155	Riverine	91 linear feet	non-section 10 – non-tidal
SU	36.1332	-80.1154	Riverine	131 linear feet	non-section 10 – non-tidal
SV	36.1242	-80.1128	Riverine	1,994 linear feet	non-section 10 – non-tidal
SW	36.1236	-80.1129	Riverine	351 linear feet	non-section 10 – non-tidal
SX	36.1094	-80.0903	Riverine	47 linear feet	non-section 10 – non-tidal
ESE-S38	36.1122	-80.1147	Riverine	135 linear feet	non-section 10 – non-tidal

ESE-S41	36.1122	-80.1147	Riverine	202 linear feet	non-section 10 – non-tidal
PA	36.1141	-80.1051	Lacustrine	0.13 acre	non-section 10 – non-tidal
PI	36.1250	-80.1110	Lacustrine	1.51 acres	non-section 10 – non-tidal
WA	36.1079	-80.1067	Palustrine	0.55 acre	non-section 10 – wetland
WB	36.1110	-80.1138	Palustrine	0.87 acre	non-section 10 – wetland
WD	36.1113	-80.1132	Palustrine	0.17 acre	non-section 10 – wetland
WE	36.1139	-80.1252	Palustrine	0.11 acre	non-section 10 – wetland
WF	36.1254	-80.1118	Palustrine	0.11 acre	non-section 10 – wetland
WG	36.1343	-80.1223	Palustrine	0.03 acre	non-section 10 – wetland
WH	36.1341	-80.1223	Palustrine	0.02 acre	non-section 10 – wetland
WI	36.1271	-80.1125	Palustrine	0.96 acre	non-section 10 – wetland
WJ	36.1263	-80.1124	Palustrine	0.11 acre	non-section 10 – wetland
WL	36.1337	-80.1152	Palustrine	0.003 acre	non-section 10 – wetland
WM	36.1336	-80.1153	Palustrine	0.006 acre	non-section 10 – wetland

WN	36.1337	-80.1157	Palustrine	0.01 acre	non-section 10 –wetland
WO	36.1284	-80.1150	Palustrine	0.11 acre	non-section 10 –wetland
WQ	36.1270	-80.1139	Palustrine	0.04 acre	non-section 10 –wetland
WR	36.1269	-80.1143	Palustrine	0.06 acre	non-section 10 –wetland
WS	36.1271	-80.1156	Palustrine	0.43 acre	non-section 10 –wetland
ESE-W20	36.1118	-80.1214	Palustrine	0.14 acre	non-section 10 –wetland
ESE-W21	36.1120	-80.1214	Palustrine	0.03 acre	non-section 10 –wetland
ESE-W22	36.1115	-80.1131	Palustrine	0.08 acre	non-section 10 –wetland

- 1) The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
- 2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

- ☒ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor: Figures 1-3 a-i, dated August 1, 2016, prepared by Kimley Horn.
- ☒ Data sheets prepared/submitted by or on behalf of the PJD requestor.
- ☒ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report. Rationale: _____
- ☐ Data sheets prepared by the Corps: _____
- ☐ Corps navigable waters' study: _____
- ☐ U.S. Geological Survey Hydrologic Atlas: _____
- ☐ USGS NHD data.
- ☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s). Cite scale & quad name: _____
- ☐ Natural Resources Conservation Service Soil Survey. Citation: _____
- ☐ National wetlands inventory map(s). Cite name: _____
- ☐ State/local wetland inventory map(s): _____
- ☐ FEMA/FIRM maps: _____
- ☐ 100-year Floodplain Elevation is: _____ (National Geodetic Vertical Datum of 1929)
- ☐ Photographs: ☐ Aerial (Name & Date): _____
or ☐ Other (Name & Date): _____
- ☐ Previous determination(s). File no. and date of response letter: _____
- ☒ Other information (please specify): _____

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Smith Creek flows to Kerners Mill Creek. Kerners Mill Creek flows to Salem Creek. Salem Creek, flows to Muddy Creek, Muddy Creek flows to the Yadkin River. Corps of Engineers regulations at 33 CFR Part 328.3(a)(5) asserts Clean Water Act jurisdiction over tributaries to other waters of the U.S. The delineated tributaries to Smith Creek, Kerners Mill Creek are also potential waters of the U.S.

The delineated wetlands are adjacent to the aforementioned stream channels. Corps of Engineers regulations at 33 CFR Part 328.3(a)(7) asserts CWA jurisdiction over wetlands adjacent to waters of the U.S. stream channels.

Signature and date of Regulatory
staff member completing PJD
02/04/2020

Signature and date of person requesting PJD
(REQUIRED, unless obtaining the signature is
impracticable)¹

¹ Districts may establish timeframes for requester to return signed PJD forms. If the requester does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

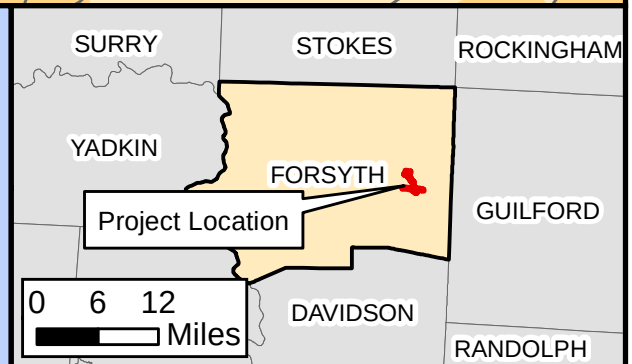
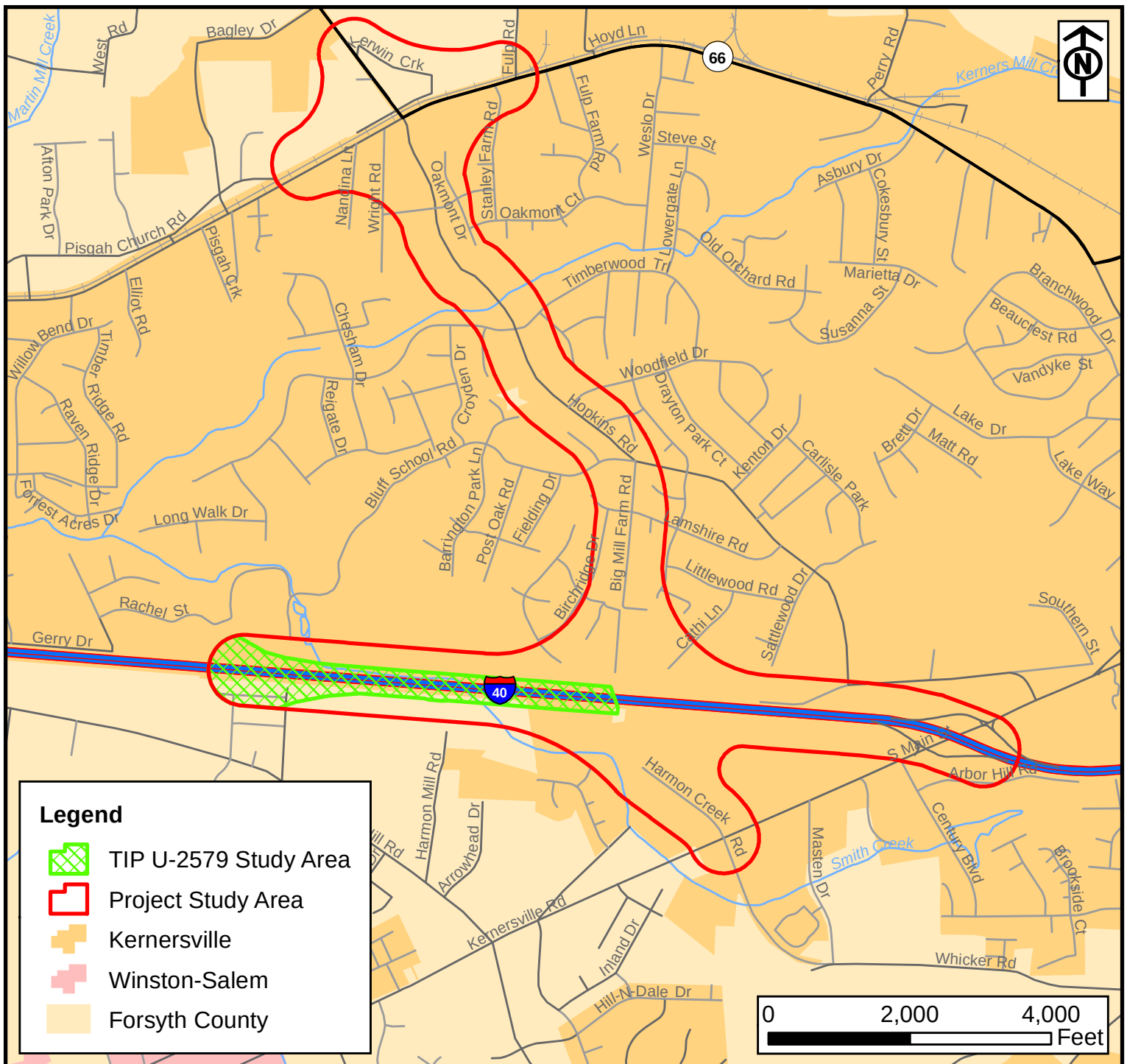


Figure 1: Vicinity Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County

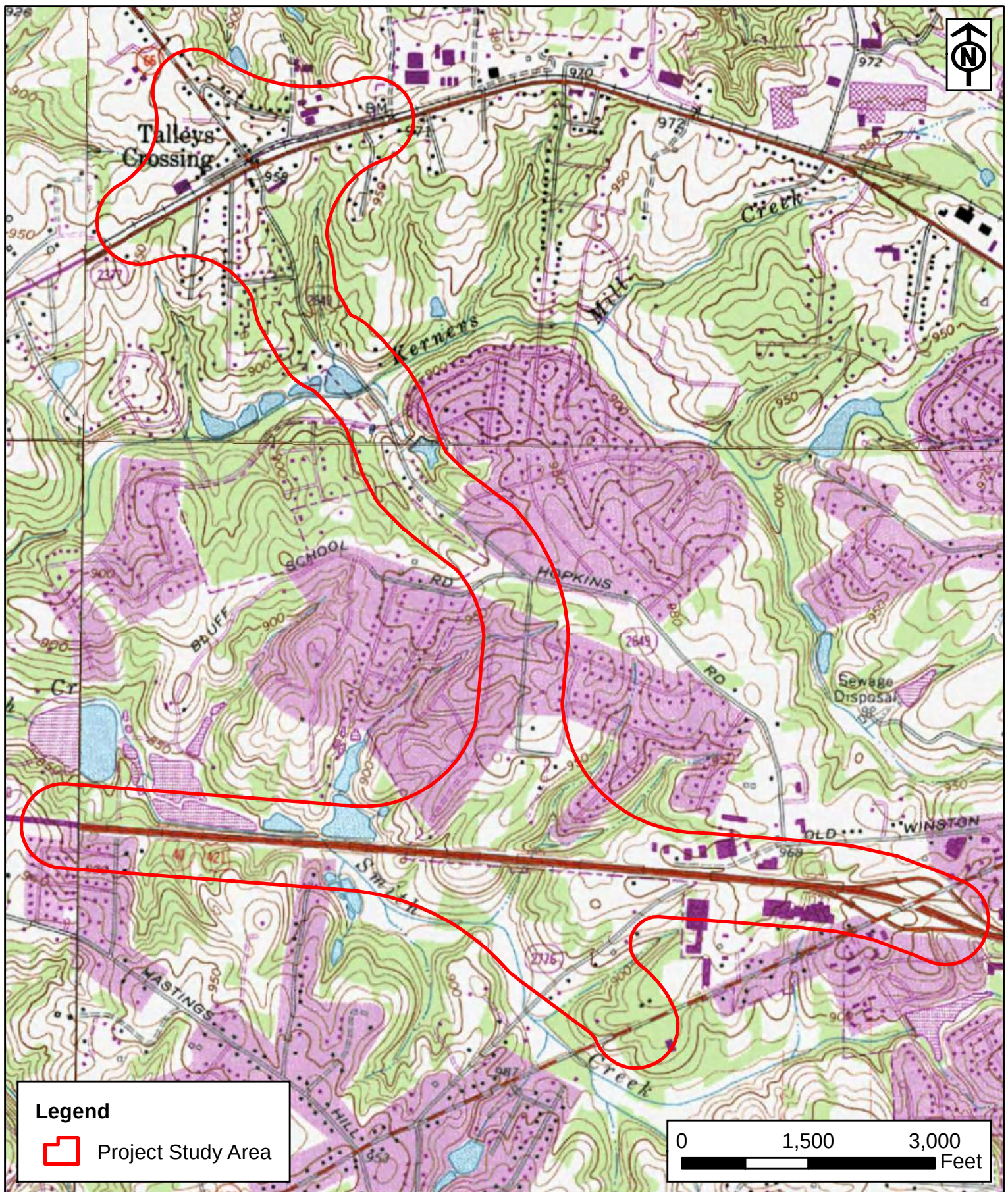


Figure 2: USGS Topographic Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County



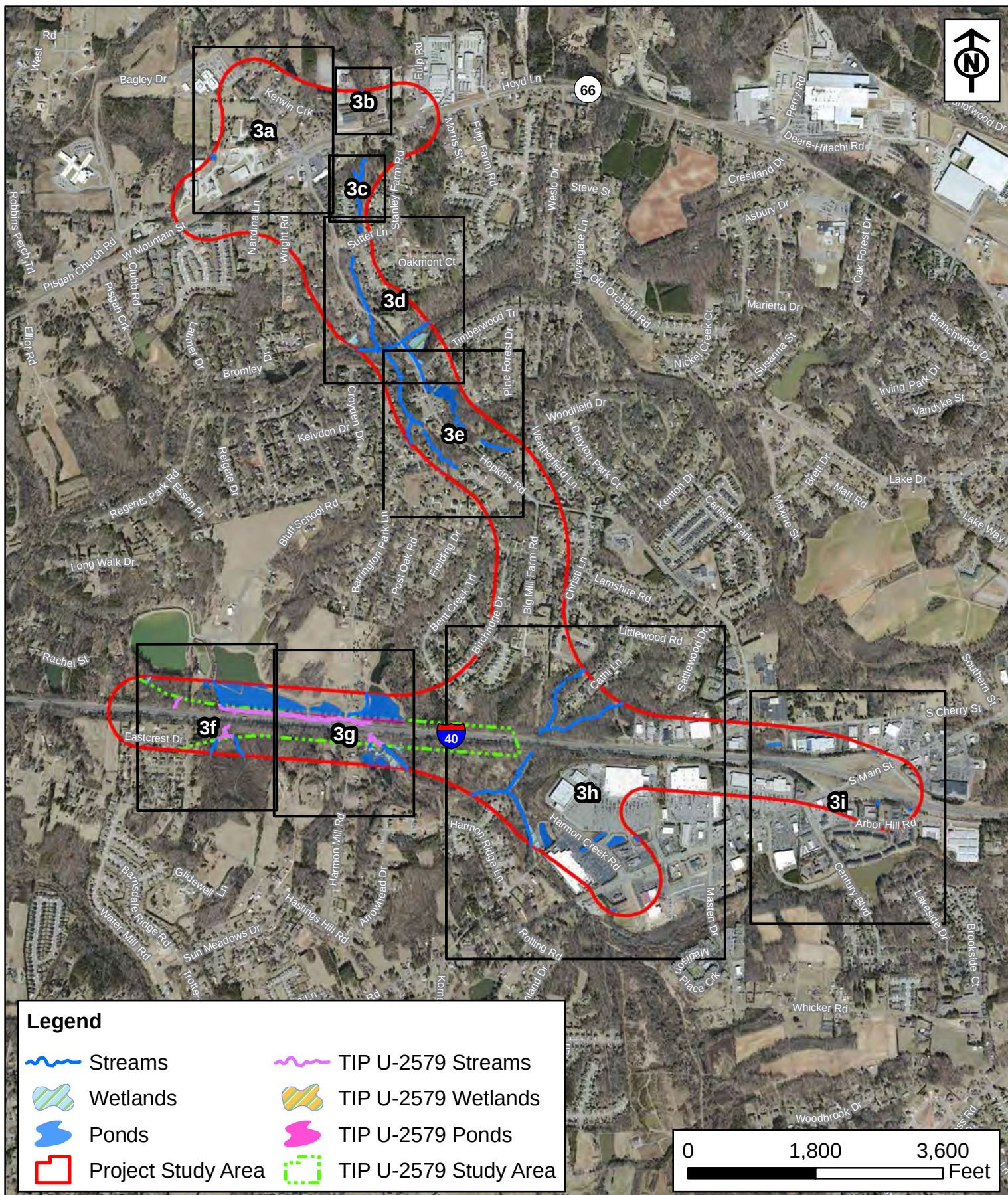


Figure 3: Jurisdictional Features Index Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County



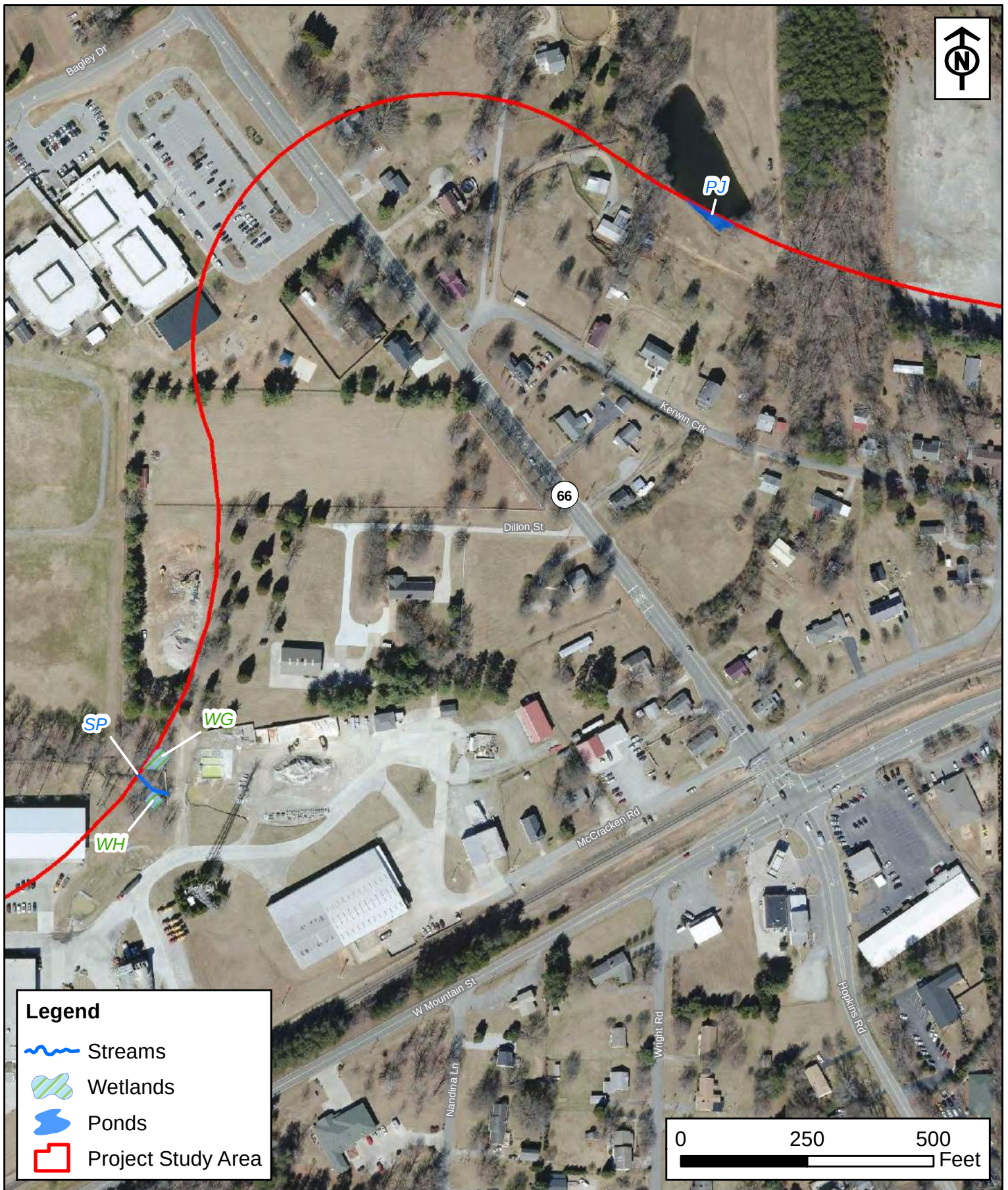


Figure 3a: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County

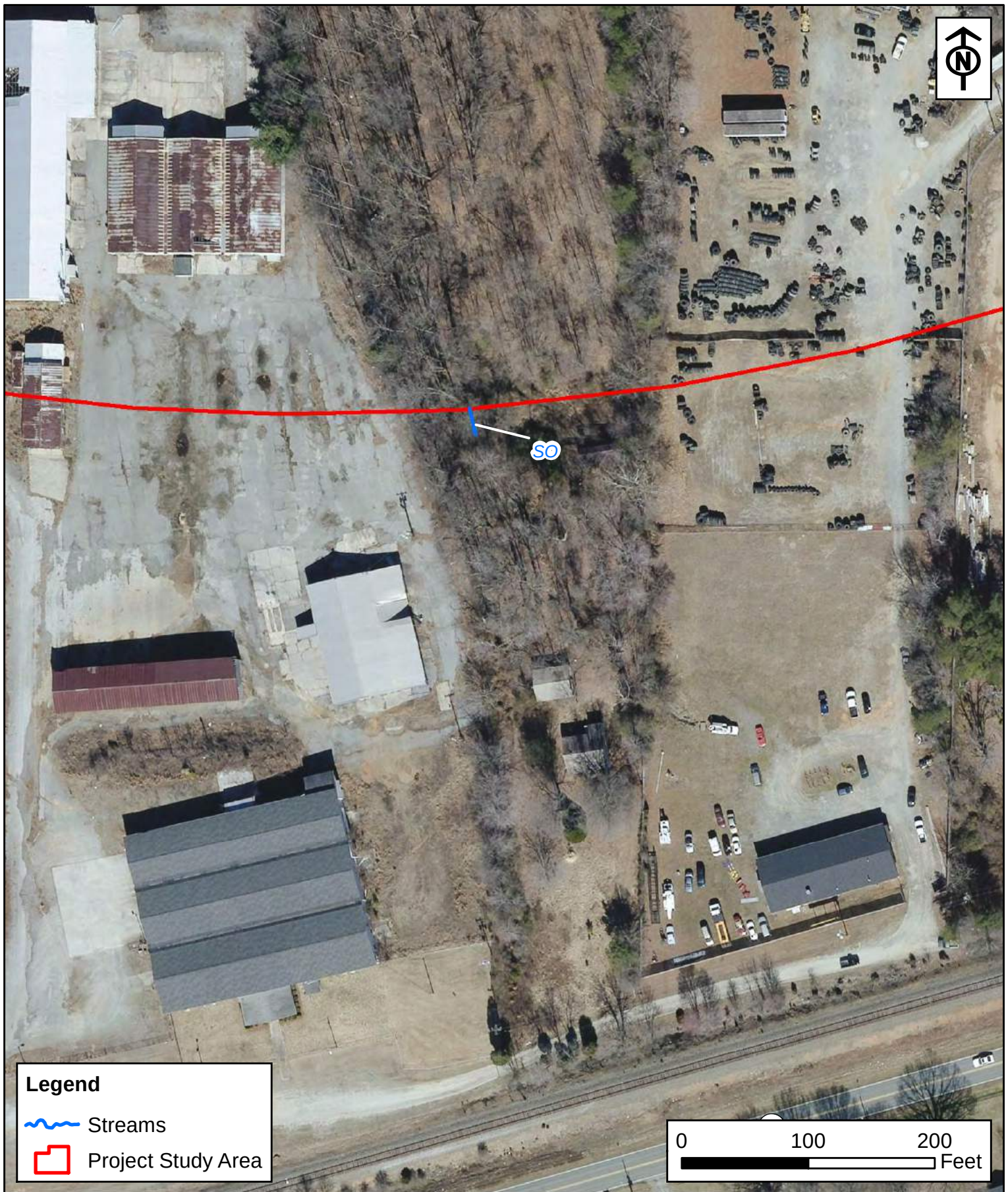


Figure 3b: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County



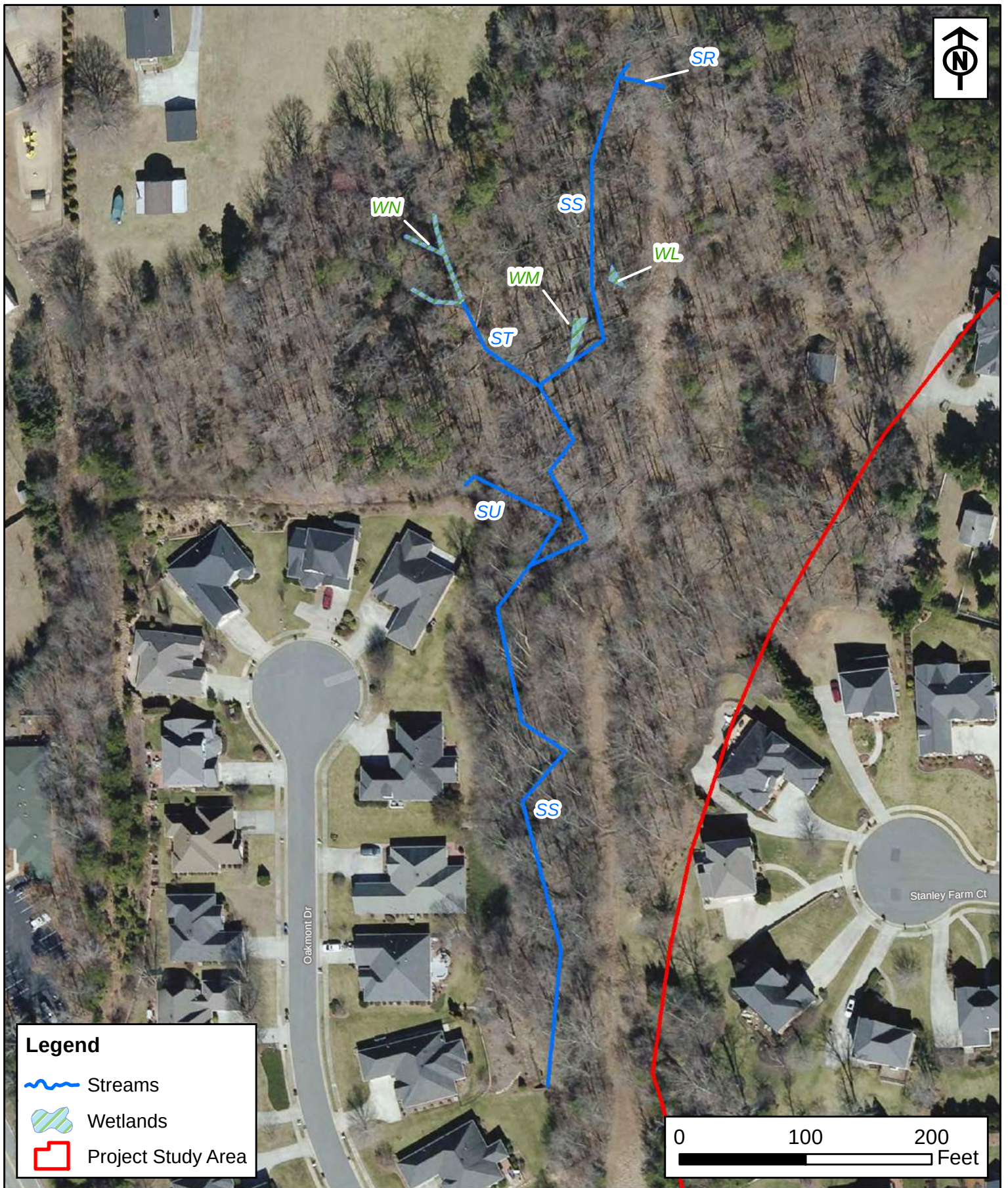


Figure 3c: Jurisdictional Features Map

TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County

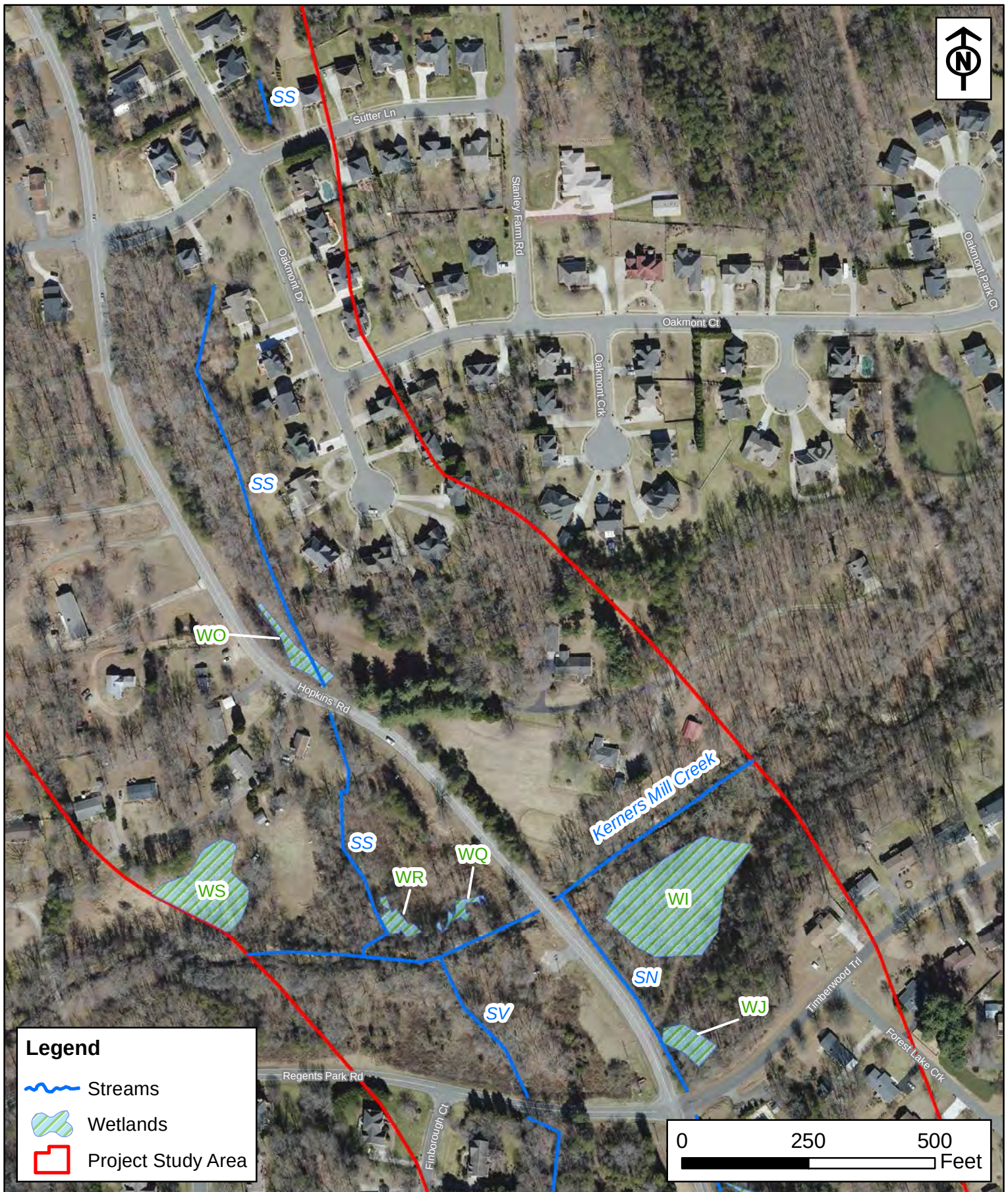


Figure 3d: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County



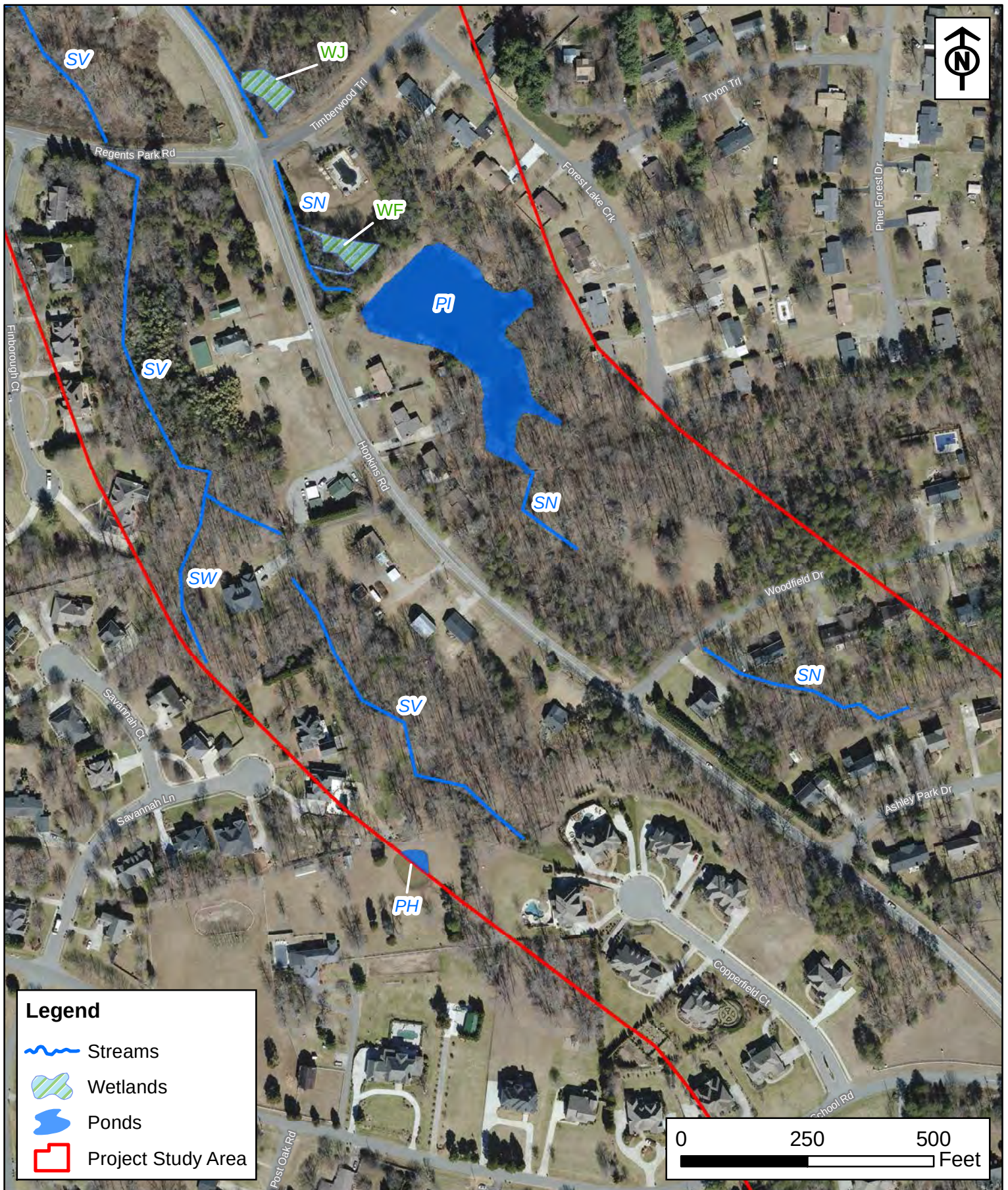


Figure 3e: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County





Figure 3f: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County

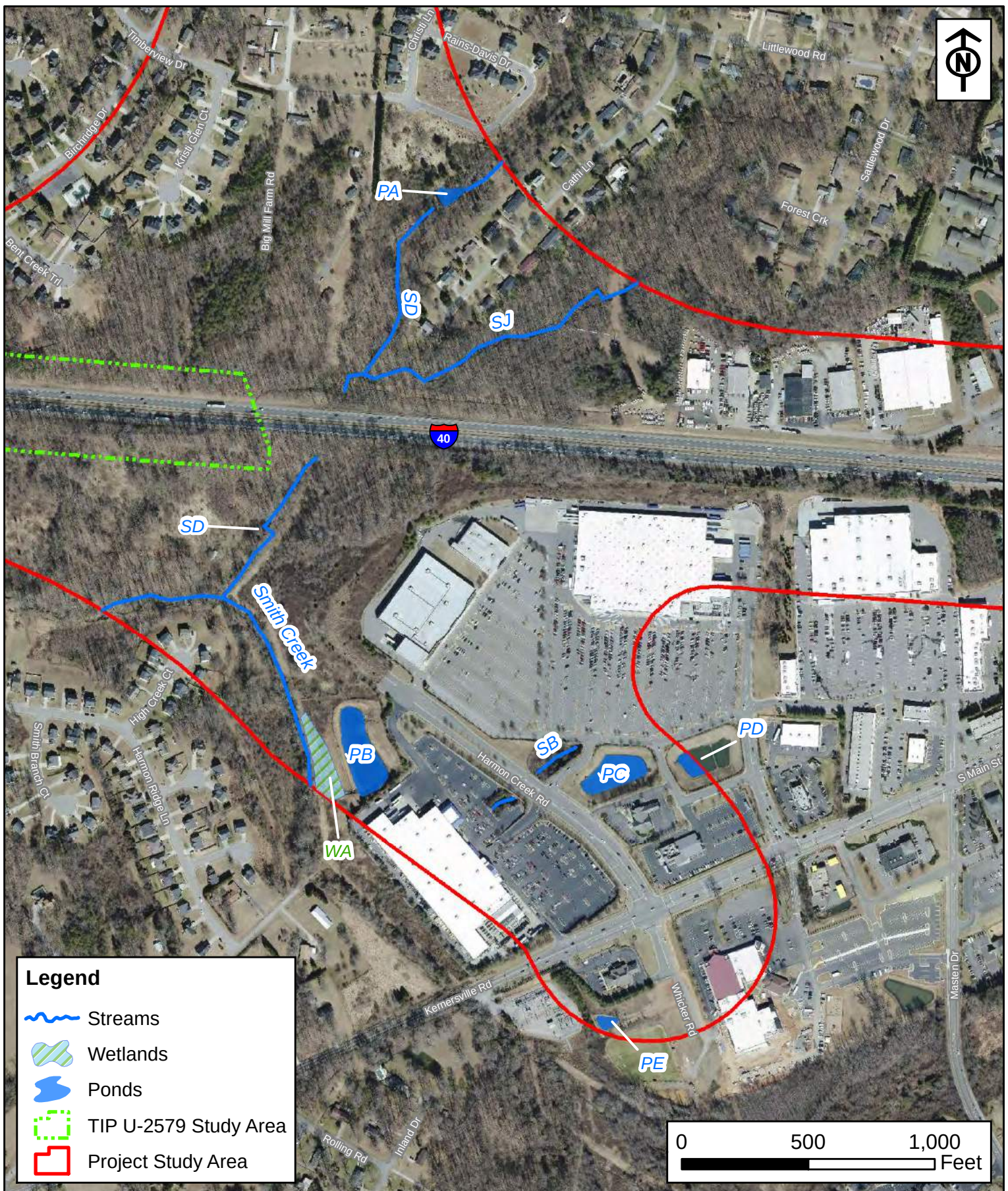




Figure 3f: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County





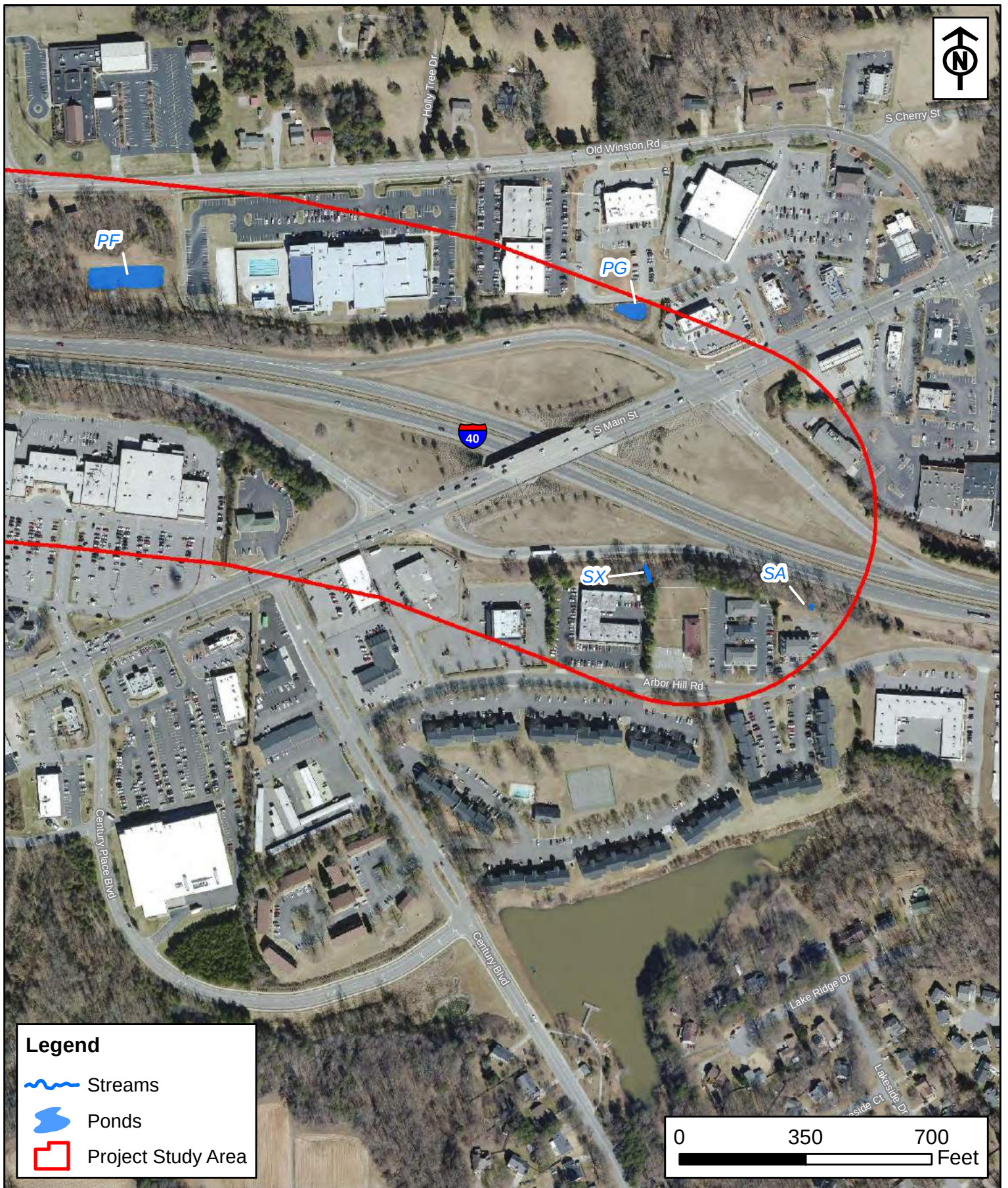
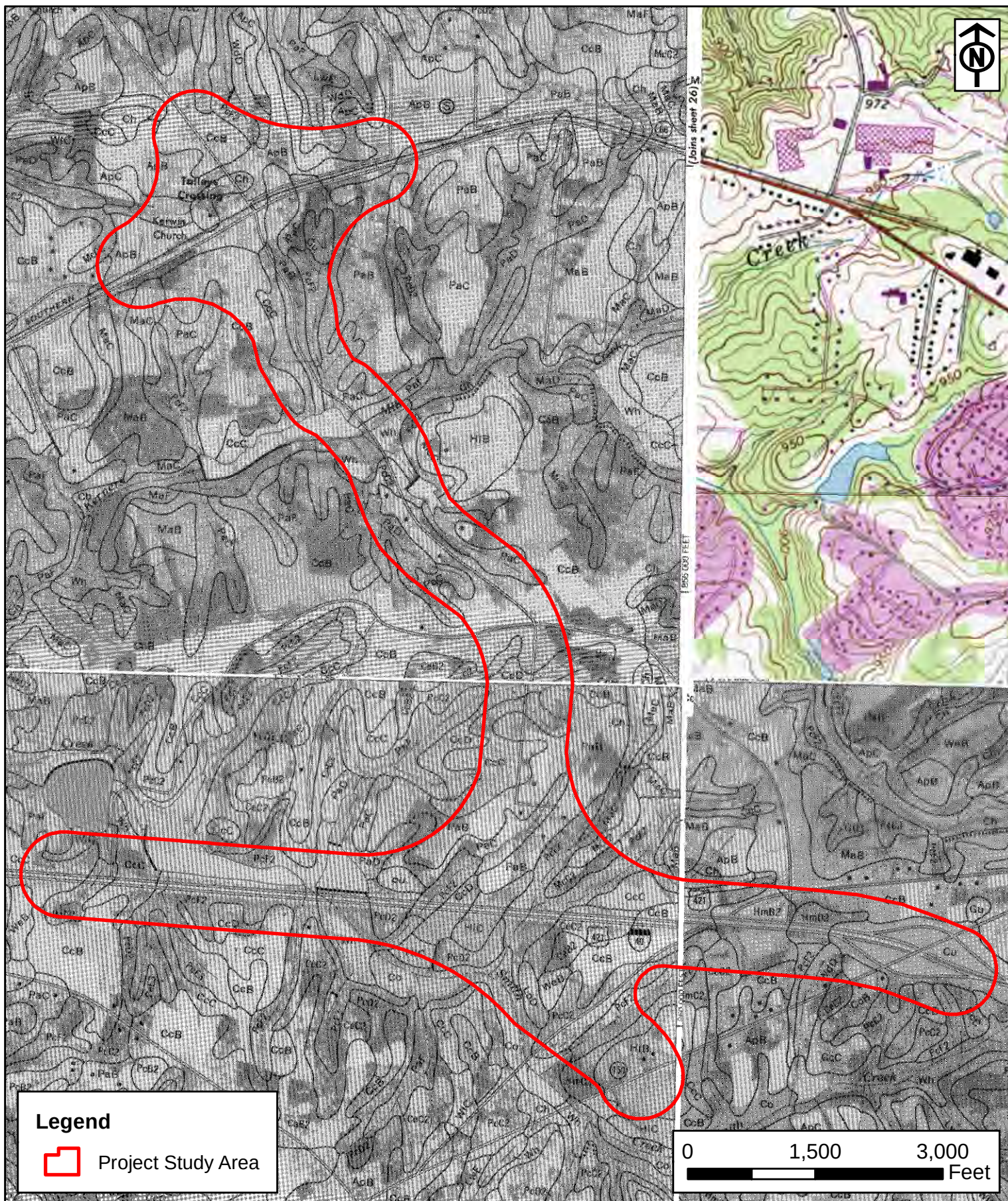


Figure 3i: Jurisdictional Features Map
TIP U-5760

Widen Big Mill Farm Road and Hopkins Road from
south of I-40 Business/US 421 to West Mountain Street
Kernersville, Forsyth County





TIP# U-5760
Cultural Resources
Letters

16-09-0014



HISTORIC ARCHITECTURE AND LANDSCAPES NO SURVEY REQUIRED FORM

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	U-5760	County:	Forsyth
WBS No.:	46381.1.1	Document Type:	
Fed. Aid No:		Funding:	X State Federal
Federal Permit(s):	X Yes No	Permit Type(s):	NWP

Project Description: Widen Hopkins Road (SR2649)/Big Mill Farm Road (including Y-line improvements) and construct interchange at US 421/I-40 Business, - Kernersville Southern Loop at US 421/I-40 Business to NC 66 (West Mountain Street) in Kernersville (no off-site detour planned).

SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

Description of review activities, results, and conclusions: HPOWeb reviewed on 12 July 2017 and yielded no NR, SL, LD, DE, or SS properties in the Area of Potential Effects (APE). Forsyth County current GIS mapping, aerial photography, and tax information indicated a mostly developed APE containing residential, commercial, and institutional resources dating from the 1930s to the 2000s (viewed 12 July 2017). Pre-1970 resources are concentrated at the northern end of the project area (none within the presumed permit area at Kerners Mill Creek), and all are unexceptional examples (many altered) of their types. Google Maps "Street View" confirmed the absence of critical historic structures and landscapes in the APE (viewed 12 July 2017). Completion of review awaited availability of design, funding, and permitting information. The project is reviewed under both GS 121-12(a) and Section 106.

No architectural survey is required for the project as currently defined.

Why the available information provides a reliable basis for reasonably predicting that there are no unidentified significant historic architectural or landscape resources in the project area: APE reflects study area provided in 2017 (see attached). Comprehensive historic architectural survey of Forsyth County is extensive and eminently reliable (1979-80, 2006-9), and county GIS/tax materials and other visuals clearly illustrate the absence of significant architectural resources. No National Register-listed properties are located within the APE.

**Should the design of the project change, please notify
NCDOT Historic Architecture as additional review may be necessary.**

SUPPORT DOCUMENTATION

X Map(s) ☐ Previous Survey Info. ☐ Photos ☐ Correspondence ☐ Design Plans

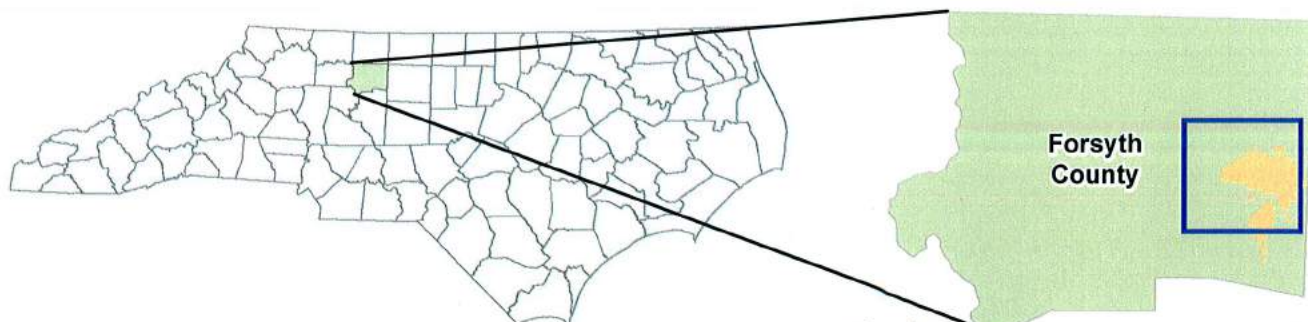
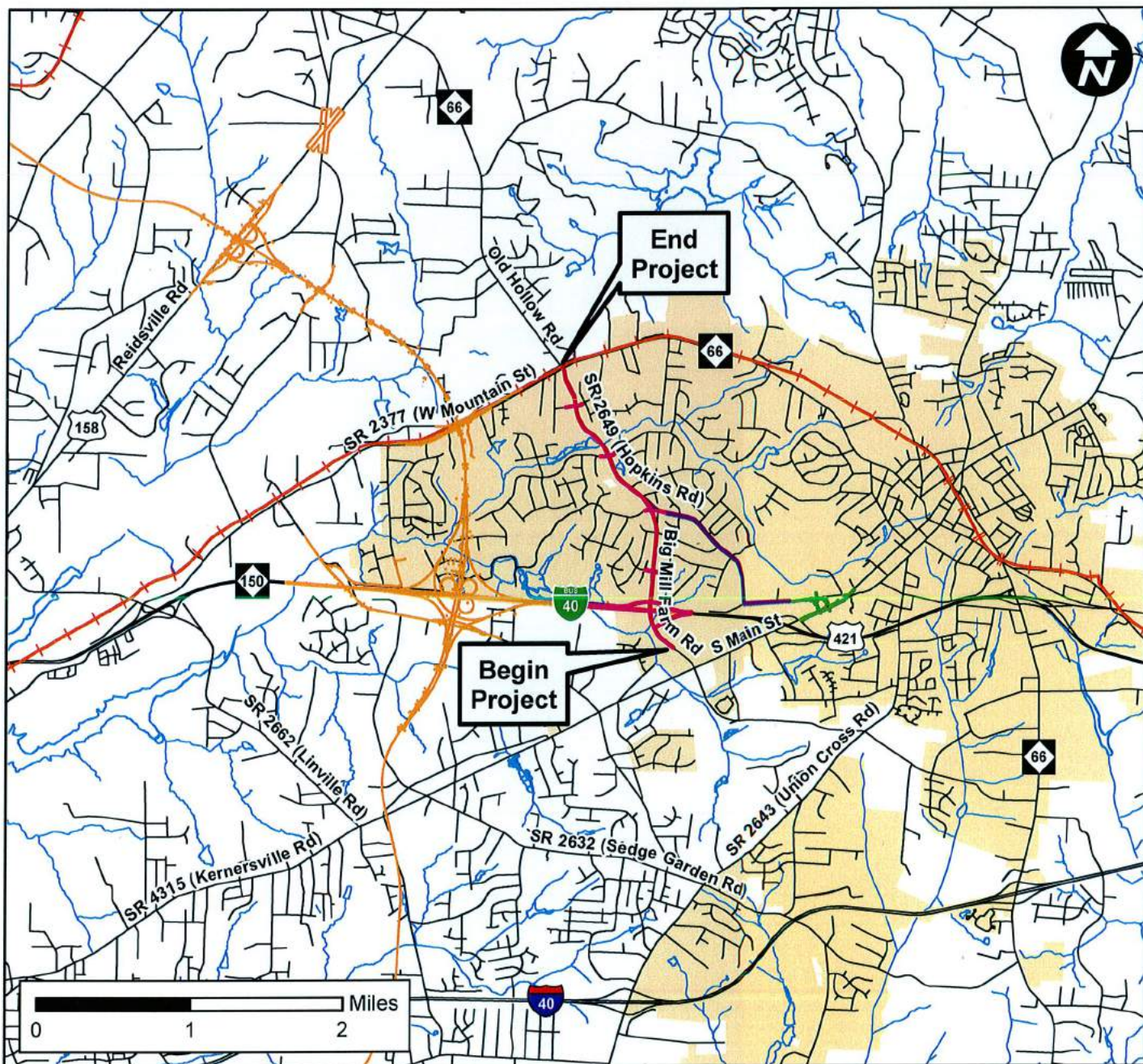
FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes -- NO SURVEY REQUIRED

Vanessa C. Patrick

NCDOT Architectural Historian

13 July 2017
Date

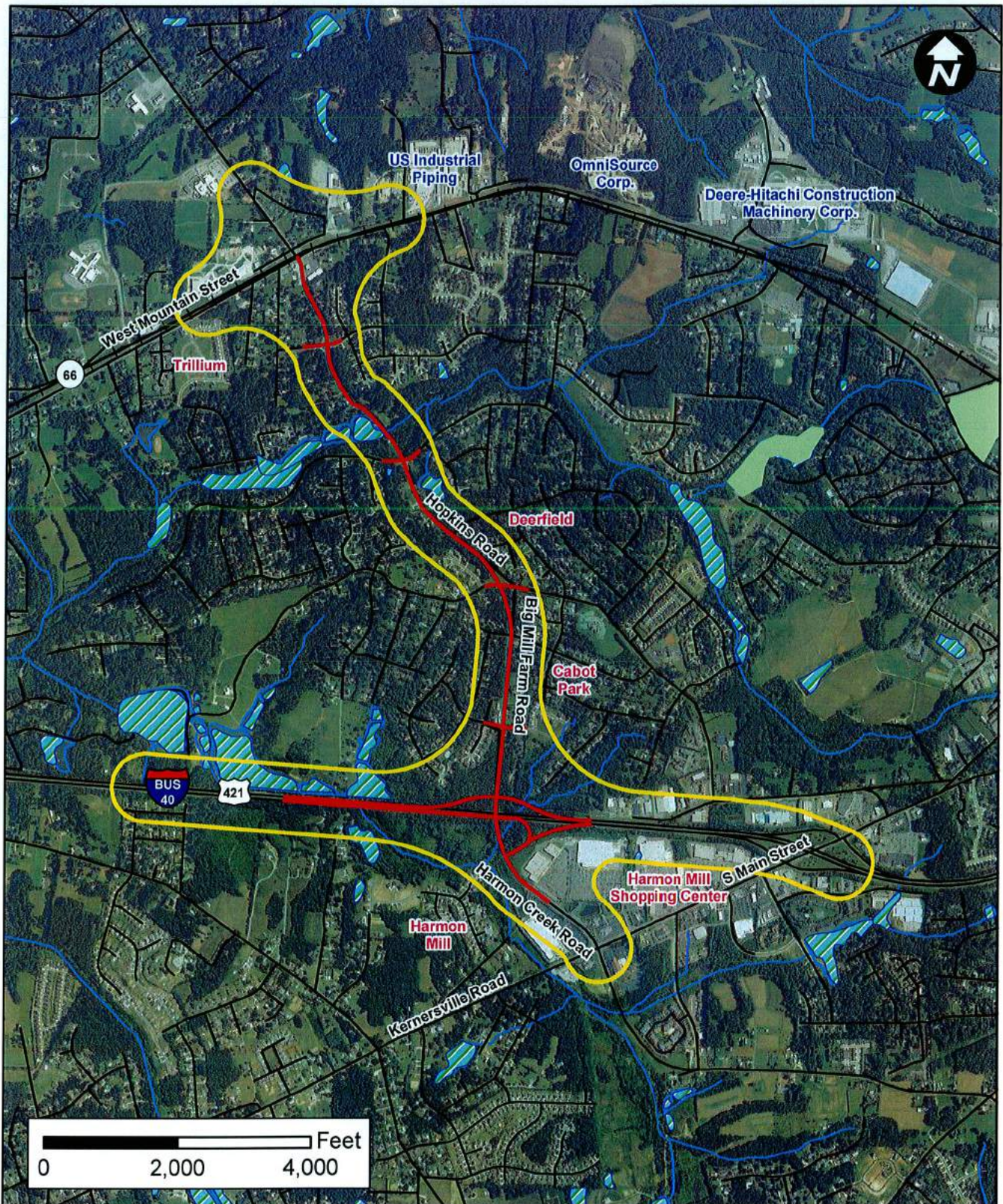


Tracking No. 16-09-0014



- Proposed Alignment
- Existing Travel Route
- Town of Kernersville
- Forsyth County
- Railroad
- Project W-5510 (Roundabout)
- Project U-2579 (Winston-Salem Northern Beltway)

Figure 1
Vicinity Map
 Project No. U-5760
 Widen Big Mill Farm Road
 and Hopkins Road
 Kernersville, Forsyth County



- Proposed Alignment
- Environmental Study Area
- Parks

- Wetlands
- + + Railroad
- Streams

Figure 1
Environmental Study Area
 NCDOT Project No. U-5760
 Big Mill Farm Road Widening
 Forsyth County

Tracking No. 16-09-0014

16-09-0014



ARCHAEOLOGICAL SURVEY REQUIRED FORM

This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.



PROJECT INFORMATION

Project No: **U-5760** County: **Forsyth**
 WBS No: **46381.1.1** Document: **State EA/FONSI**
 F.A. No: **N/A** Funding: ☒ State ☐ Federal

Federal Permit Required? ☐ Yes ☐ No Permit Type: **Not Specified**

Project Description: The NCDOT is proposing to widen Big Mill Farm Road (non-system) and Hopkins Road (SR 2649) from I-40 Business/US 421 to West Mountain Street (NC 66/SR 2377) and construct a new interchange at I-40 Business/US 421 in the Town of Kernersville. Currently, Big Mill Farm Road is a partially unpaved, undivided, 2-lane facility; Hopkins Road (SR 2649) is a paved, undivided, 2-lane facility. Project length measures about 2.1 miles. Although the existing ROW along all associated roads (including the interstate system) varies, proposed ROW is anticipated to be 80 to 100 feet wide, depending on traffic forecasts, number of travel lanes, and multimodal accommodations. The width of the Study Area centered on the associated roads measures about 300 feet, and increases substantially in the location of the proposed interchange. Overall, the Study Area will encompass about 223 acres, inclusive of all existing roadways and development.

SUMMARY OF ARCHAEOLOGICAL RESOURCES REVIEW: **SURVEY REQUIRED**

Brief description of review activities, results of review, and conclusions:

This project was accepted on Monday, September 26, 2016. A map review and site file search was conducted at the Office of State Archaeology (OSA) on Monday, September 26, 2016. In addition to the large-scale archaeological survey for the Winston-Salem Beltway (TIP# U-2579), small-scale surveys for the replacement of Bridge No. 168 on SR 2776 over Smith Creek (TIP# B-3333) and sewer lines along Kerner's Mill Creek have been conducted nearby; however, none have occurred specifically within the Study Area, although at least twelve (12) archaeological sites have been recorded within one-half mile of the Study Area. Digital copies of HPO's maps (Kernersville, Belews Creek, and Winston-Salem East Quadrangles) as well as the HPOWEB GIS Service (<http://gis.ncdcr.gov/hpoweb/>) were last reviewed on Friday, September 30, 2016. There are two (2) known historic architectural resources (FY0337 [Bluff School] and FY0332 [George Washington Smith House]) located within or adjacent to the Study Area; however, both resources are now listed as "GONE" and intact archaeological deposits associated with those resources would not be anticipated within the footprint of the proposed project. In addition, topographic maps, historic maps (NCMaps website), USDA soil survey maps, and aerial photographs were utilized and inspected to gauge environmental factors that may have contributed to historic or prehistoric settlement within the project limits, and to assess the level of modern, slope, agricultural, hydrological, and other erosive-type disturbances within and surrounding the archaeological APE.

Although State funds will be utilized for this project, Federal involvement from FHWA and USACE may become necessary because of the interstate system and the potential need for permits. Although temporary and/or permanent easements will not be necessary, additional ROW along the overall corridor and the proposed interchange location will be needed. However, the overall dimensions of the Study

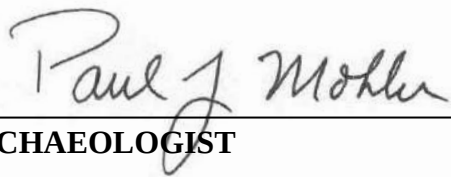
16-09-0014

Area will capture any areas to be impacted beyond the NCDOT's existing ROW. At this time, we are in compliance with NC GS 121-12a since there are no eligible (i.e. National Register-listed) archaeological resources located within the project's Study Area that would require our attention. Based on the description of the project and the size of the Study Area, activities will take place beyond the NCDOT's existing ROW. From an environmental perspective, the Study Area can be classified as commercial/residential, consisting primarily of Big Mill Farm Road, Hopkins Road (SR 2649), and I-40 Business/US 421 (and their intersecting roadways) and the immediately adjacent property. However, intact pockets of undeveloped land and buffers adjacent to streams/rivers are present along the corridor. Various soil types are present throughout the Study Area, with most soil conditions (eroded, developed, sloped, poorly drained) considered not favorable for intact archaeological sites/resources to be present. Preservation of archaeological materials within these soil type areas is likely to be poor. Nevertheless, sections of well-drained soils (e.g. Hiwassee loam, 6-10% slopes [HIC], Pacolet fine sandy loam, 2-6% slopes [PaB], Pacolet fine sandy loam, 6-10% slopes [PaC], and Cecil sandy loam, 2-6% slopes [CcB]) and relatively level terrain are present throughout the overall Study Area. These areas appear to have not been disturbed by development and have not been subjected to previous archaeological survey/review work. Such areas may be deemed favorable for containing intact archaeological deposits and will require formal archaeological investigations. The Office of State Archaeology (OSA) has reviewed various projects within the vicinity of the proposed Study Area for environmental compliance, including transportation improvements (CH 93-0764, ER 98-7769, ER 03-2323, ER 05-2432, ER 06-0281), utilities (ER 00-9580, CH 05-0267), and commercial development (ER 99-7429, ER 00-9985), just to name a few. As part of their review, OSA did not recommend archaeological surveys for many of these projects based on their eroded and disturbed environmental contexts. However, archaeological surveys were recommended and conducted for projects involving large swaths of undisturbed land situated in upland settings along drainages, i.e. favorable topographic and hydrological situations. Based on the information provided, an archaeological survey is, therefore, recommended for the proposed project. A visual inspection of the entire Study Area should be conducted, followed then by systematic archaeological excavations within areas of moderate to high archaeological probability, focusing on areas of well-drained soils that have not been impacted by modern development. None of the property within the Study Area that requires further investigation is owned by the State of North Carolina so a State Archaeological Resources Protection Act (ARPA) permit should not be necessary. Should the description of this project change or design plans be made available prior to construction, additional consultation regarding archaeology will be required.

SUPPORT DOCUMENTATION

See attached: ☒ Map(s) ☒ Previous Survey Info ☐ Photos ☐ Correspondence
☐ Photocopy of County Survey Notes Other:

FINDING BY NCDOT ARCHAEOLOGIST – SURVEY REQUIRED



NCDOT ARCHAEOLOGIST

September 30, 2016

Date

PROPOSED FIELDWORK COMPLETION DATE

March 27, 2017

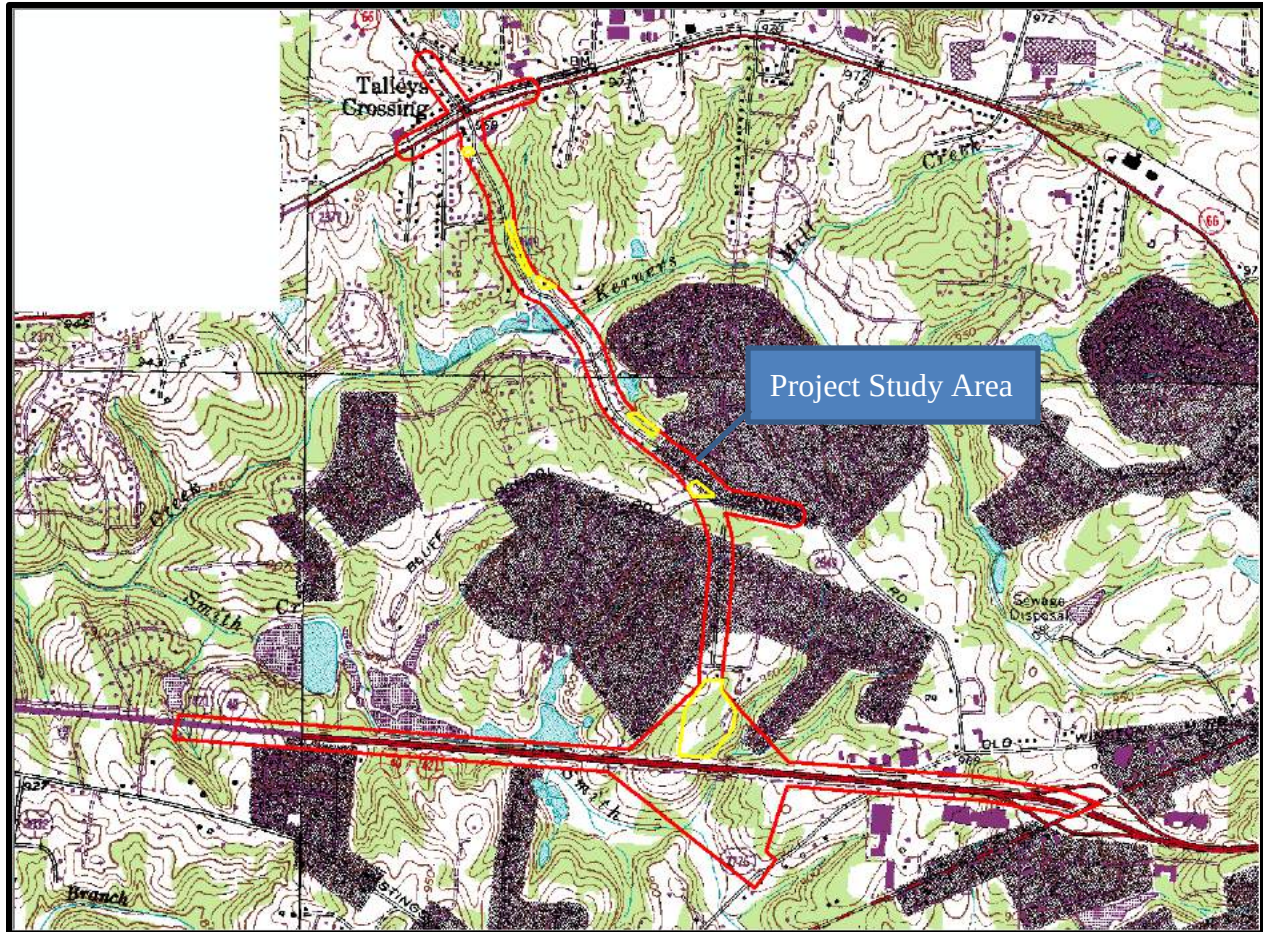
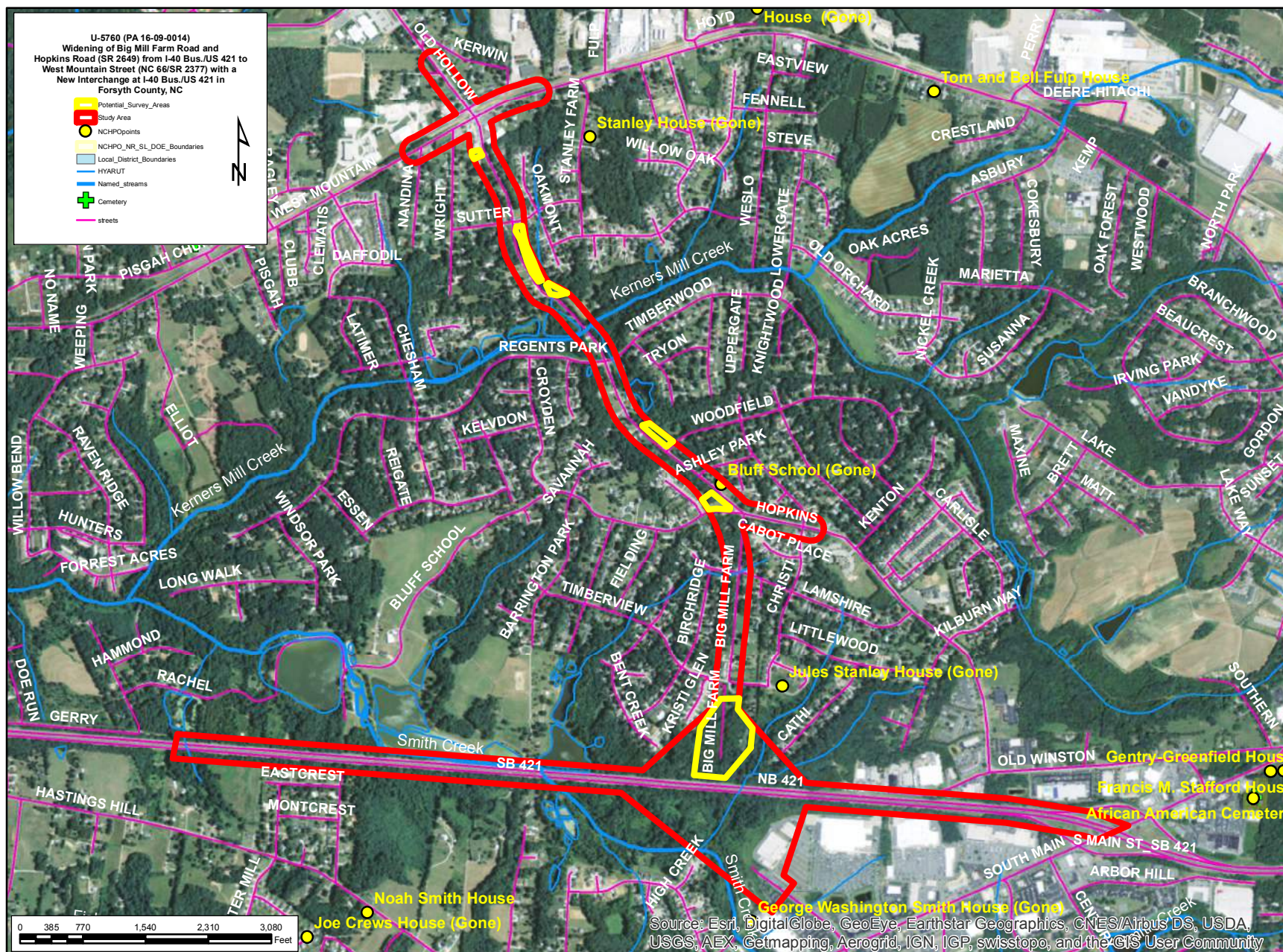


Figure 1: West – Winston-Salem East, NC (USGS 1950 [PR1971]); North – Belews Creek, NC (USGS 1969); South – Kernersville, NC (USGS 1969).





**NO NATIONAL REGISTER OF HISTORIC PLACES
ELIGIBLE OR LISTED ARCHAEOLOGICAL SITES
PRESENT FORM**



This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Group.

PROJECT INFORMATION

Project No: **U-5760** County: **Forsyth**
WBS No: **46381.1.1** Document: **State EA/FONSI**
F.A. No: **N/A** Funding: ☒ State ☐ Federal

Federal Permit Required? ☐ Yes ☐ No Permit Type: **Not Specified**

Project Description:

The NCDOT proposes to widen Big Mill Farm Road (non-system) and Hopkins Road (SR 2649) from I-40 Business/US 421 to West Mountain Street (NC 66/SR 2377) and construct a new interchange at I-40 Business/US 421 in the Town of Kernersville. Currently, Big Mill Farm Road is a partially unpaved, undivided, two-lane facility; Hopkins Road (SR 2649) is a paved, undivided, two-lane facility. According to the Request for Cultural Resources Review form, the proposed project length measures about 2.1 miles. Although the existing right-of-way (ROW) along all associated roads (including the interstate system) varies, proposed ROW is anticipated to be 80-100 feet wide, depending on traffic forecasts, number of travel lanes, and multimodal accommodations. The width of the Study Area centered on the associated roads measures about 300 feet, and increases substantially in the location of the proposed interchange. Overall, the Study Area will encompass about 223 acres, inclusive of all existing roadways and development.

SUMMARY OF ARCHAEOLOGICAL FINDINGS

The North Carolina Department of Transportation (NCDOT) Archaeology Group reviewed the subject project and determined:

- ☒ **There are no National Register listed or eligible ARCHAEOLOGICAL SITES present within the project's area of potential effects. (Attach any notes or documents as needed)**
- ☐ No subsurface archaeological investigations were required for this project.
- ☒ **Subsurface investigations did not reveal the presence of any archaeological resources.**
- ☐ Subsurface investigations did not reveal the presence of any archaeological resources considered eligible for the National Register.
- ☐ All identified archaeological sites located within the APE have been considered and all compliance for archaeological resources with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.

Brief description of review activities, results of review, and conclusions:

The project's study area for the proposed road widening of Big Mill Farm Road and Hopkins Road (SR 2649) from I-40 Business/US 421 to West Mountain Street (NC 66/SR 2377) and construction of a new interchange at I-40 Business/US 421 in Kernersville, North Carolina in Forsyth County was subjected to an intensive archaeological survey (Figure 1). In December 2016, New South Associates, Inc. completed shovel testing at 30-meter intervals to survey for potential archaeological resources within the study area. The purpose of the fieldwork was to investigate the possibility of unknown archaeological resources that might be impacted by the proposed undertaking. The area of potential effects (APE) for this study was broken into six sections measuring 633,231.72 square feet (14.537 ac.) in size.

The APE is characterized by gently to moderately sloping forested areas interspersed with housing developments. Figures 2a, 2b, 3a, and 3b show the general landscape within the project area. An examination of the USDA soil survey map showed that the APE consisted of three different soil types. The majority of the APE is comprised of Clifford sandy loam (CIB), a well-drained soil type that is found in areas of 2-6 percent slopes. The southern portion of the APE differs somewhat in its soil composition from the rest of the APE, with Tomlin loam (TmB) and Fairview fine sandy loam (FaC) components. Tomlin loam exists at 2-6 percent slopes, is well drained, and is infrequently flooded. Fairview fine sandy loam is well-drained and is found in areas of 6-10 percent slopes (Soil Survey Staff 2016).

Historic maps of Forsyth County were reviewed for former structure locations and land use patterns. No historic structures or features were found within the APE. Archaeological and historical references were also inspected. The review concluded that no NRHP-listed properties or archaeological sites were located within the APE. Five non-NRHP-listed sites were located within one-half mile of the APE during research at the North Carolina Office of State Archaeology. One of these sites, 31FY209, was prehistoric in nature and contained artifacts from the Middle Archaic-Early Woodland periods. Three of the sites (31FY218, 31FY269, and 31FY1029) had no time period or artifact information included in the site file. The final site, 31FY1028, was modern in nature.

On December 15 and 16, 2016, New South Associates conducted an archaeological survey and evaluation of the proposed widening of Big Mill Farm Road and Hopkins Road and construction of an interchange at I-40 Business/US 421 in Forsyth County. The intensive archaeological survey consisted of 98 shovel tests placed at 30-meter intervals (100 ft.) throughout the study area (Table 1, Figures 4-7). All shovel tests measured at least 30 centimeters (12 in.) in diameter and were excavated to at least 10 centimeters (4 in.) into sterile subsoil. All excavated soils and sediments were screened through mesh screen (0.64-cm, 0.25-in.) and all shovel tests were backfilled. A visual inspection of the surface was also done in conjunction with subsurface testing. Two typical soil profiles were observed within the APE and consisted of 0-20 centimeters of yellowish red (5YR 5/8) sandy clay or 0-10 centimeters of dark yellowish brown (10YR 4/4) sandy loam (Stratum I) over a red (2.5YR 5/8) clay (Stratum II).

Archaeological investigation of the APE included both pedestrian walkover and systematic shovel testing. Surface visibility in the majority of the APE was approximately 50 percent. No surface features or subsurface artifacts were located during shovel testing. Much of Area 6, the area of the proposed interchange, was revealed to be deflated in many places, completely devoid of any Ap/A/O (plow zone, organic) horizon. No artifacts or subsurface features were found in these deflated areas.

Table 1. Shovel Test Table

Shovel Test Pit	Level	Depth (top)	Depth (base)	Munsell	Color	Soil Texture	Artifacts	Notes
1	1	0	40	5YR 5/8	Yellowish Red	Loamy Clay	No	
2	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
3	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
4	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
5	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	~5% slope
6	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
7	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
8	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
9	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
10	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
11	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
12	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
13	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
14	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
15	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
16	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
17	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
18	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
19	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
20	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
21	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
22	1	0	40	2.5YR 5/8	Red	Loamy Clay	No	
23	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
24	1	0	10	5YR 5/8	Yellowish Red	Loamy Clay	No	
25	1	0	20	5YR 5/8	Yellowish Red	Silty Clay	No	
26	1	0	15	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
26	2	15	25	2.5YR 5/8	Red	Sandy Clay	No	
27	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
28	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
29	1	0	10	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
29	2	10	20	2.5YR 5/8	Red	Sandy Clay	No	
30	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
31	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
32	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
33	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
34	1	0	5	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
34	2	5	20	2.5YR 5/8	Red	Sandy Clay	No	
35	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
36	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
37	1	0	9	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	

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form for Minor Transportation Projects as Qualified in the 2007 Programmatic Agreement.

Table 1. Shovel Test Table

Shovel Test Pit	Level	Depth (top)	Depth (base)	Munsell	Color	Soil Texture	Artifacts	Notes
37	2	9	20	2.5YR 5/8	Red	Sandy Clay	No	
38	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
39	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
40	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
41	1	0	30	5YR 5/8	Yellowish Red	Sandy Loam	No	
42	1	0	15	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
42	2	15	25	2.5YR 5/8	Red	Sandy Clay	No	
43	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
44	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
45	1	0	12	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
45	2	12	22	2.5YR 5/8	Red	Sandy Clay	No	
46	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
47	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
48	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
49	1	0	30	5YR 5/8	Yellowish Red	Sandy Loam	No	
50	1	0	15	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
50	2	15	25	2.5YR 5/8	Red	Sandy Clay	No	
51	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
52	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
53	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
54	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
55	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
56	1	0	40	5YR 5/8	Yellowish Red	Loamy Clay	No	
57	1	0	20	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
57	2	20	30	2.5YR 5/8	Red	Clay	No	
58	1	0	10	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
58	2	10	20	2.5YR 5/8	Red	Sandy Clay	No	
59	1	0	15	5YR 5/8	Yellowish Red	Loamy Clay	No	
60	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
61	1	0	40	5YR 5/8	Yellowish Red	Loamy Clay	No	
62	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
63	1	0	30	5YR 5/8	Yellowish Red	Loamy Clay	No	
64	1	0	20	5YR 5/8	Yellowish Red	Sandy Loam	No	
65	1	0	15	10YR 4/4	Dk. Yellowish Br	Sandy Loam	No	
65	2	15	25	2.5YR 5/8	Red	Sandy Clay	No	
66	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
67	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
68	1	0	20	5YR 5/8	Yellowish Red	Loam Clay	No	
69	1	0	30	5YR 5/8	Yellowish Red	Sandy Loam	No	
70	1	0	23	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	

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Table 1. Shovel Test Table

Shovel Test Pit	Level	Depth (top)	Depth (base)	Munsell	Color	Soil Texture	Artifacts	Notes
70	2	23	33	2.5YR 5/8	Red	Sandy Clay	No	
71	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
72	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
73	1	0	5	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
73	2	5	20	2.5YR 5/8	Red	Sandy Clay	No	
74	1	0	15	2.5YR 5/8	Red	Sandy Clay	No	
75	1	0	20	5YR 5/8	Yellowish Red	Loamy Clay	No	
76	1	0	25	2.5YR 5/8	Red	Sandy Clay	No	
77	1	0	10	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
77	2	10	40	5YR 5/8	Yellowish Red	Sandy Clay	No	
78	1	0	5	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	utility box
78	2	5	15	2.5YR 5/8	Red	Clay	No	
79	1	0	10	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
79	2	10	30	2.5YR 5/8	Red	Clay	No	
80	1	0	5	10YR 4/4	Dk. Yellowish Br.	Clay	No	
80	2	5	40	10YR 6/4	Dull Yellow Orange	Sandy Loam	No	
80	3	40	50	2.5YR 5/8	Red	Clay	No	
81	1	0	20	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
81	2	20	40	2.5YR 5/8	Red	Clay	No	
82	1	0	35	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
82	2	35	45	2.5YR 5/8	Red	Clay	No	
83	1	0	40	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
83	2	40	50	2.5YR 5/8	Red	Clay	No	
84	1	0	20	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
84	2	20	30	2.5YR 5/8	Red	Clay	No	
85	1	0	30	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
85	2	30	50	2.5YR 5/8	Red	Clay	No	
86	1	0	15	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	~5% slope
86	2	15	25	2.5YR 5/8	Red	Clay	No	
87	1	0	10	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
87	2	10	30	2.5YR 5/8	Red	Clay	No	
88	1	0	10	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
88	2	10	25	2.5YR 5/8	Red	Clay	No	
89	1	0	10	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
89	2	10	30	2.5YR 5/8	Red	Clay	No	
90	1	0	10	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
90	2	10	25	2.5YR 5/8	Red	Clay	No	
91	1	0	20	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
91	2	20	30	2.5YR 5/8	Red	Clay	No	
92	1	0	5	10YR 4/4	Dk. Yellowish Br.	Clay	No	

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Table 1. Shovel Test Table

Shovel Test Pit	Level	Depth (top)	Depth (base)	Munsell	Color	Soil Texture	Artifacts	Notes
92	2	5	15	2.5YR 5/8	Red	Clay	No	
93	1	0	15	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
93	2	15	25	2.5YR 5/8	Red	Clay	No	
94	1	0	15	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
94	2	15	25	2.5YR 5/8	Red	Clay	No	
95	1	0	40	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
95	2	40	50	2.5YR 5/8	Red	Clay	No	
96	1	0	20	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
96	2	20	35	10YR 6/4	Dull Yellow Orange	Sandy Loam	No	
96	3	35	45	2.5YR 5/8	Red	Clay	No	
97	1	0	30	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
97	2	30	40	2.5YR 5/8	Red	Clay	No	
98	1	0	20	10YR 4/4	Dk. Yellowish Br.	Sandy Loam	No	
98	2	20	29	10YR 6/4	Dull Yellow Orange	Sandy Loam	No	
98	3	29	40	2.5YR 5/8	Red	Clay	No	
99	1	0	30	10YR 4/4	Dk. Yellowish Br.	Loamy Silt	No	
99	2	30	50	2.5YR 5/8	Red	Clay	No	

RECOMMENDATION:

New South Associates, Inc. conducted an archaeological survey and evaluation of the proposed road widening of Big Mill Farm Road and Hopkins Road (SR 2649) from I-40 Business/US 421 to West Mountain Street (NC 66/SR 2377) and construction of a new interchange at I-40 Business/US 421 in Kernersville, Forsyth County on December 15 and 16, 2016. No archaeological resources were recorded as a result of this survey; therefore, no further archaeological investigations are needed for this project. I concur with this recommendation, as the proposed road-widening project will not impact significant archaeological resources. If the project expands and impacts subsurface areas beyond the defined APE, further archaeological consultations may be necessary.

REFERENCES CITED:

Soil Survey Staff

- 2016 Web Soil Survey. *Natural Resources Conservation Service, United States Department of Agriculture*. Electronic document, <http://websoilsurvey.nrcs.usda.gov/app/homepage.htm>, accessed May 12, 2016.

Figure List

Figure 1. Topographic Map Showing Survey Areas
Figure 2a. Area 4 Facing North
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Figure 4. Aerial View of Area 1
Figure 5. Aerial View of Areas 2 & 3
Figure 6. Aerial View of Areas 4 & 5
Figure 7. Aerial View of Area 6

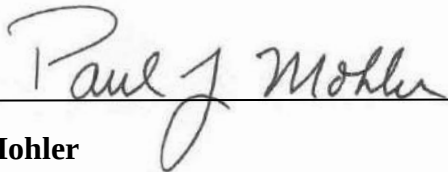
New South Associates, Inc.
Colin Bean
Archaeologist

SUPPORT DOCUMENTATION

See attached: ☒ Map(s) ☐ Previous Survey Info ☒ Photos ☐ Correspondence

Other:

Signed:

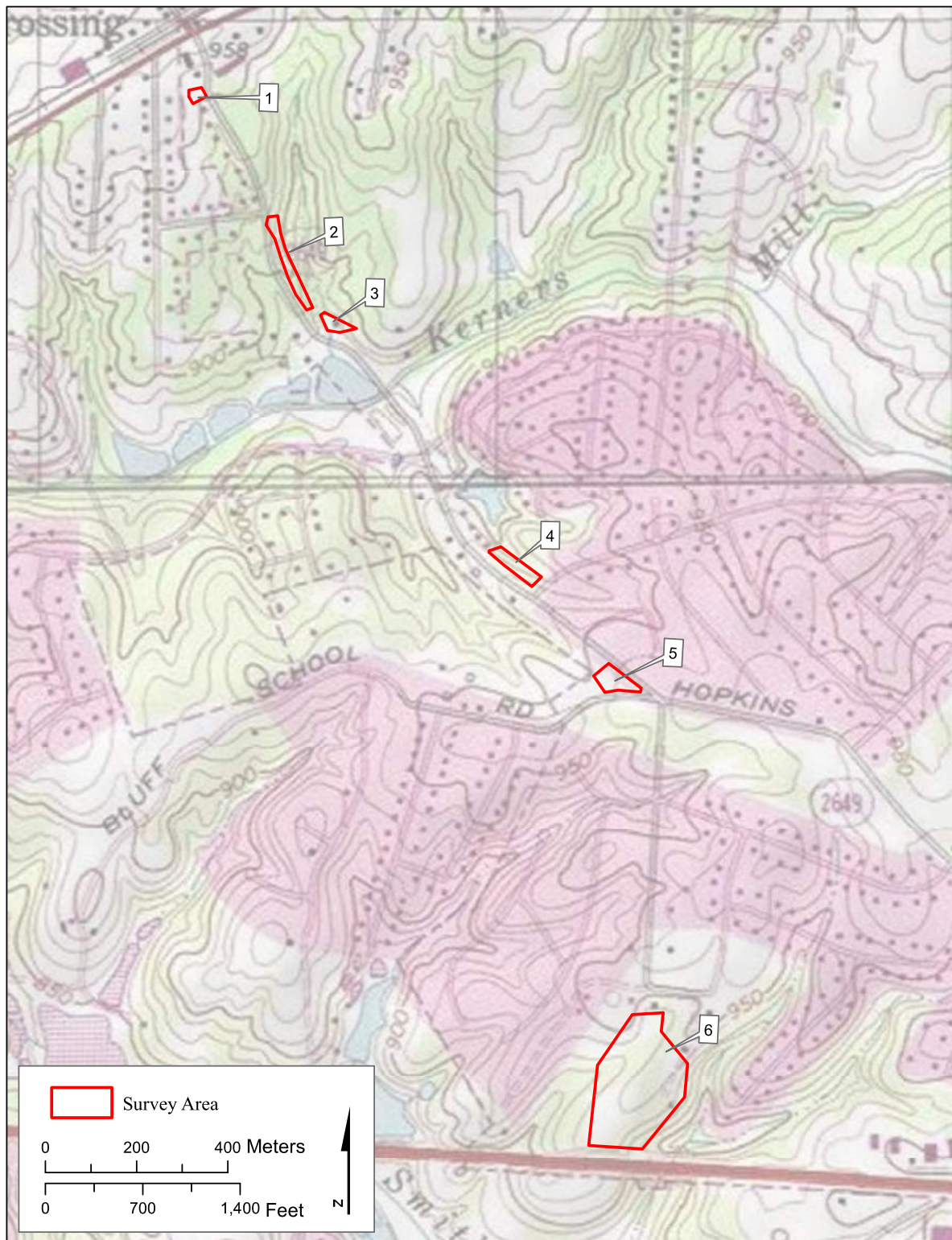


January 10, 2017

Paul J. Mohler
NCDOT ARCHAEOLOGIST

Date

Figure 1. Topographic Map Showing the Location of Survey Areas



Source: USGS Topographic Quadrangle Map, Belews Creek and Kernersville North Carolina

Figure 2a. View of Area 4 Facing North



Figure 2b. View of Area 4 Facing South



Figure 3a. View of Area 6 Facing North



Figure 3b. View of Area 6 Facing South



Figure 4. Aerial View of Area 1 Showing Shovel Tests



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Figure 5. Aerial View of Areas 2 and 3 Showing Shovel Tests



Figure 6. Aerial View of Areas 4 & 5 Showing Shovel Tests



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Figure 7. Aerial View of Area 6 Showing Shovel Tests



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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

March 4, 2020

Dr. Wenonah Haire
Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, SC 29730

Dear Dr. Haire,

The North Carolina Department of Transportation is starting the project development, environmental, and engineering studies for the widening of Big Mill Farm Road (non-system) and Hopkins Road (SR 2649) from I-40 Business/US 421 to West Mountain Street (NC 66/SR 2377) and construct a new interchange at I-40 Business/US 421 in Forsyth County as project U-5760. The US Army Corps of Engineers (USACE) is the lead federal agency for compliance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA) and a Permit is anticipated under the Section 404 Process with the USACE. The project vicinity map is attached. The coordinates of this project are approximately 36.111534, -80.107409.

We would appreciate any information you might have that would be helpful in evaluating potential environmental impacts of the project including recommendation of alternates to be studied. Your comments may be used in the preparation of a NEPA/ State Environmental Policy Act (SEPA) Environmental Document.

In accordance with Section 106 of the NHPA, we also request that you inform us of any historic properties of traditional religious or cultural importance that you are aware of that may be affected by the proposed project. Be assured that, in accordance with confidentiality and disclosure stipulations in Section 304 of the NHPA, we will maintain strict confidentiality about certain types of information regarding historic properties.

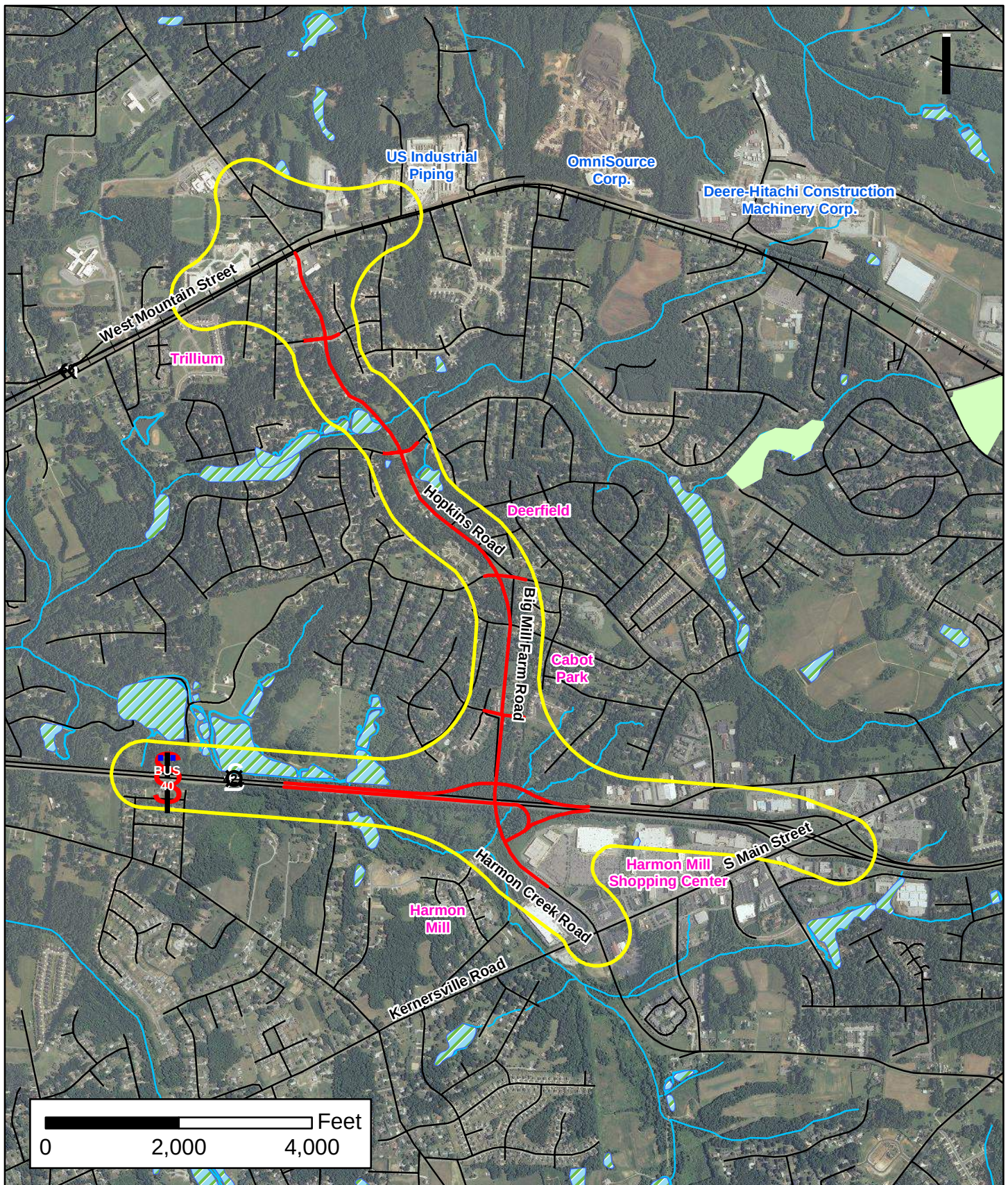
Please respond by March 31st so that your comments can be used in the scoping of this project. If you have any questions concerning this project, or would like any additional information, please contact me at aeuliss@ncdot.gov or (336) 747-7800.

Thank you,

A handwritten signature in cursive script that reads "Amy Euliss".

Amy Euliss
NCDOT Division 9 Environmental Officer

cc: Matt Wilkerson, NCDOT Archaeology Team Leader
Nicholle Braspennickx, USACE Project Manager
Connie James, P.E. NCDOT Division 9 Project Manager



- | | |
|---|--|
| — Proposed Alignment | Wetlands |
| Environmental Study Area | Railroad |
| Parks | — Streams |

Figure 1
Environmental Study Area
 NCDOT Project No. U-5760
 Big Mill Farm Road Widening
 Forsyth County

TIP# U-5760
Adjacent Property
Owners Table

PROJ. REFERENCE NO.	SHEET NO.
U-5760	3P-1

[illegible][illegible]

		North Carolina Department of Transportation Highway Stormwater Program STORMWATER MANAGEMENT PLAN FOR NCDOT PROJECTS					
(Version 2.08; Released April 2018)							
WBS Element:		TIP No.: U-5760		County(ies): Forsyth		Page 1 of 3	
General Project Information							
WBS Element:		TIP Number: U-5760		Project Type:		Date: 3/6/2020	
NCDOT Contact:		Galen Cail, P.E.		Contractor / Designer:		Bryan Vickery, P.E.	
	Address:	1000 Birch Ridge Drive Raleigh, NC 27610			Address:	Kimley-Horn 421 Fayetteville Street Suite 600 Raleigh, NC, 27601	
	Phone:	(919)-707-6700			Phone:	(919)-653-2905	
	Email:	gcail@ncdot.gov			Email:	bryan.vickery@kimley-horn.com	
City/Town:		Kernersville		County(ies):		Forsyth	
River Basin(s):		Yadkin-Pee Dee		CAMA County?		No	
Wetlands within Project Limits?		Yes					
Project Description							
Project Length (lin. miles or feet):		2.034 miles		Surrounding Land Use:		Commercial/Residential	
Proposed Project				Existing Site			
Project Built-Upon Area (ac.)		45.9 ac.		28.9 ac.			
Typical Cross Section Description:		Big Mill Farm Rd. and Hopkins Rd. will have single 12' Lanes with turn lanes at intersections. Grade Separation over Bus-40. Bus-40 is 3 12' lanes in each direction with a 30' grass median.		Bus-40 is 3 12' lanes in each direction. Hopkins Rd. has one 12' lane in each direction with Big Mill Farm Rd. has one 10' lane in each direction and transitions into a gravel road with 9' lanes the is a dead end before it would meet BUS-40.			
Annual Avg Daily Traffic (veh/hr/day):		Design/Future: 14,900 Year:		Existing: 10,700 Year:			
General Project Narrative: (Description of Minimization of Water Quality Impacts)		This is a Division 9 managed project. Existing drainage patterns to be maintained to the best extent practical. The only noteworthy drainage pattern change is the diversion of the existing open channel flow to no longer cross BUS-40 twice, but rather to stay on the North side of Bus-40 and reach the same ultimate outfall. Drainage systems were sized to accomodate future development. The culvert crossing at 91+00 -L- has two systems that tie into the side of the culvert. Each pipe was considered during the hydraulic design. The pipe 1002 to 1001 ties into the culvert primarily for constructability and energy dissipation. The parcel that this pipe could outfall to is home to a utility station that is being rebuilt due to impacts from the project. The size of the ditch required to outfall on this parcel would be too large and conflict with the utility station. The pipe 1021 to 1020 ties into the culvert to avoid and minimize the impacts to the adjacent wetland. If the pipe were outlet to the adjacent parcel and ditched to the stream, the wetland would be drained. The culvert is still appropriately sized with the addition of these systems into the culvert.					
Waterbody Information							
Surface Water Body (1):		Kerners Mill Creek		NCDWR Stream Index No.:		12-94-12-2-(0.3)	
NCDWR Surface Water Classification for Water Body		Primary Classification:		Water Supply III (WS-III)			
		Supplemental Classification:		None			
Other Stream Classification:		None		None			
Impairments:		None		None			
Aquatic T&E Species?		No		Comments:			
NRTR Stream ID:		Kerners Mill Creek, SV, SS, SN		Buffer Rules in Effect:		N/A	
Project Includes Bridge Spanning Water Body?		No		Deck Drains Discharge Over Buffer?		No	
Deck Drains Discharge Over Water Body?		N/A		(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)							

		North Carolina Department of Transportation Highway Stormwater Program STORMWATER MANAGEMENT PLAN FOR NCDOT PROJECTS					
(Version 2.08; Released April 2018)							
WBS Element:		TIP No.: U-5760		County(ies): Forsyth		Page 2 of 3	
Additional Waterbody Information							
Surface Water Body (2):		Smith Creek		NCDWR Stream Index No.:		12-94-12-2-1	
NCDWR Surface Water Classification for Water Body		Primary Classification:		Water Supply III (WS-III)			
		Supplemental Classification:		None			
Other Stream Classification:		None					
Impairments:		None					
Aquatic T&E Species?		Comments:					
NRTR Stream ID:		Smith Creek, SH, SI, SM, SG, SD, SJ, ESE-S38			Buffer Rules in Effect:		N/A
Project Includes Bridge Spanning Water Body?		No	Deck Drains Discharge Over Buffer?		N/A	Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?		N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)							
Surface Water Body (3):				NCDWR Stream Index No.:			
NCDWR Surface Water Classification for Water Body		Primary Classification:					
		Supplemental Classification:					
Other Stream Classification:							
Impairments:							
Aquatic T&E Species?		Comments:					
NRTR Stream ID:					Buffer Rules in Effect:		
Project Includes Bridge Spanning Water Body?			Deck Drains Discharge Over Buffer?			Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?			(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)							
Surface Water Body (4):				NCDWR Stream Index No.:			
NCDWR Surface Water Classification for Water Body		Primary Classification:					
		Supplemental Classification:					
Other Stream Classification:							
Impairments:							
Aquatic T&E Species?		Comments:					
NRTR Stream ID:					Buffer Rules in Effect:		
Project Includes Bridge Spanning Water Body?			Deck Drains Discharge Over Buffer?			Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?			(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)							
Surface Water Body (5):				NCDWR Stream Index No.:			
NCDWR Surface Water Classification for Water Body		Primary Classification:					
		Supplemental Classification:					
Other Stream Classification:							
Impairments:							
Aquatic T&E Species?		Comments:					
NRTR Stream ID:					Buffer Rules in Effect:		
Project Includes Bridge Spanning Water Body?			Deck Drains Discharge Over Buffer?			Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?			(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)		
(If yes, provide justification in the General Project Narrative)							



North Carolina Department of Transportation
Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
FOR NCDOT PROJECTS



(Version 2.08; Released April 2018)

WBS Element: TIP No.: U-5760 County(ies): Forsyth Page 3 of 3

Swales															
Sheet No.	Station & Coordinates (Road and Non Road Projects)	Surface Water Body	Base Width (ft)	Front Slope (H:1)	Back Slope (H:1)	Drainage Area (ac)	Recommended Treatm't Length (ft)	Actual Length (ft)	Longitudinal Slope (%)	Q2 (cfs)	V2 (fps)	Q10 (cfs)	V10 (fps)	Rock Checks Used	BMP Associated w/ Buffer Rules?
5	13+35 -Y1LPD- (LT)	(2)Smith Creek	0.0	4.0	3.0	0.8	79	165	2.10%	1.0	2.0	1.3	2.1	No	No
	15+00 -Y1LPD- (LT)														
5	55+40 -Y1- (MD)	(2)Smith Creek	0.0	6.0	4.0	0.9	90	85	1.50%	0.2	1.1	0.2	1.1	No	No
	56+25 -Y1- (MD)														
5	56+25 -Y1- (MD)	(2)Smith Creek	0.0	6.0	4.0	0.0	3	75	2.90%	0.1	1.2	0.2	1.3	No	No
	57+00 -Y1- (MD)														
5	57+00 -Y1- (MD)	(2)Smith Creek	0.0	6.0	5.0	0.2	19	100	0.90%	0.6	1.1	0.7	1.2	No	No
	58+00 -Y1- (MD)														
5	58+00 -Y1- (MD)	(2)Smith Creek	0.0	6.0	5.0	0.6	58	465	1.50%	1.7	1.8	2.2	1.9	No	No
	62+65 -Y1- (MD)														
5	62+65 -Y1- (MD)	(2)Smith Creek	0.0	6.0	4.0	0.4	36	550	1.30%	1.1	1.6	1.4	1.7	No	No
	68+15 -Y1- (MD)														
5,14	68+15 -Y1- (MD)	(2)Smith Creek	0.0	6.0	4.0	0.5	50	400	1.30%	1.5	1.7	1.9	1.8	No	No
	72+15 -Y1- (MD)														
6	44+50 -L- (RT)	(2)Smith Creek	0.0	3.0	3.0	0.8	76	100	1.00%	1.1					No
	45+50 -L- (RT)														
8	13+00 -Y4- (LT)	(2)Smith Creek	0.0	3.0	3.0	0.1	9	100	2.50%	0.1	1.3	0.2	1.4	No	No
	14+00 -Y4- (LT)														
14	72+15 -Y1- (MD)	(2)Smith Creek	0.0	6.0	4.0	0.4	44	350	1.30%	1.3	1.6	1.6	1.7	No	No
	75+65 -Y1- (MD)														
14	75+65 -Y1- (MD)	(2)Smith Creek	0.0	6.0	4.0	0.6	56	450	1.30%	1.6	1.7	2.1	1.9	No	No
	80+15 -Y1- (MD)														
14	80+15 -Y1- (MD)	(2)Smith Creek	0.0	6.0	4.0	0.4	37	300	1.30%	1.1	1.6	1.4	1.7	No	No
	83+15 -Y1- (MD)														
14	80+50 -Y1- (LT)	(2)Smith Creek	0.0	4.0	3.0	0.1	8	30	2.40%	0.2	1.4	0.3	1.5	No	No
	80+80 -Y1- (LT)														
14,15	83+15 -Y1- (MD)	(2)Smith Creek	0.0	6.0	4.0	0.4	38	310	0.80%	1.1	1.3	1.4	1.4	No	No
	86+25 -Y1- (MD)														
15	86+25 -Y1- (MD)	(2)Smith Creek	0.0	6.0	4.0	0.4	41	340	0.80%	1.2	1.3	1.5	1.4	No	No
	89+65 -Y1- (MD)														
15	88+00 -Y1- (RT)	(2)Smith Creek	0.0	6.0	6.0	0.6	56	150	2.30%	1.4	2.0	1.7	2.1	No	No
	89+50 -Y1- (MD)														
15	89+65 -Y1- (MD)	(2)Smith Creek	0.0	6.0	4.0	0.4	35	300	0.90%	1.0	1.5	1.3	1.6	No	No
	92+65 -Y1- (MD)														

Additional Comments

09/08/19

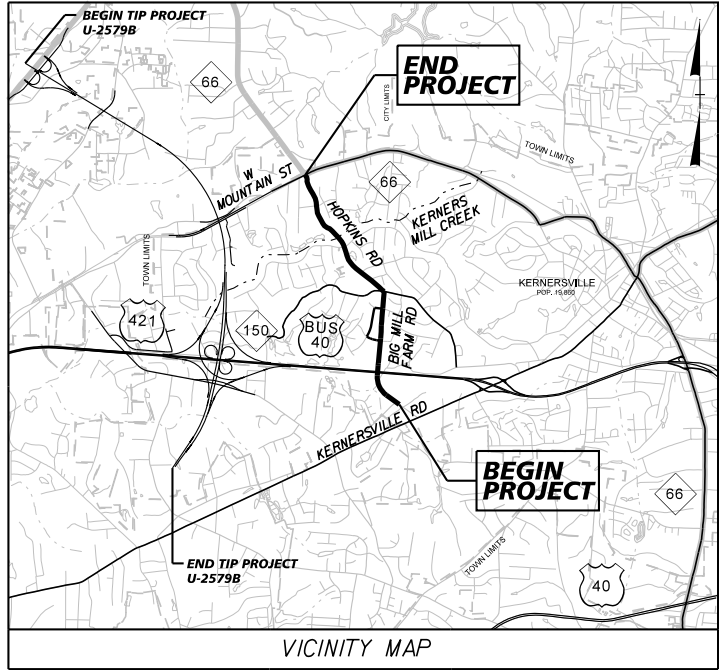
\$FILE\$

\$DATE\$

TIP PROJECT: U-5760

CONTRACT:

See Sheet 1B For Conventional Plan Sheet Symbols



PERMIT DRAWING
SHEET 1 OF 27

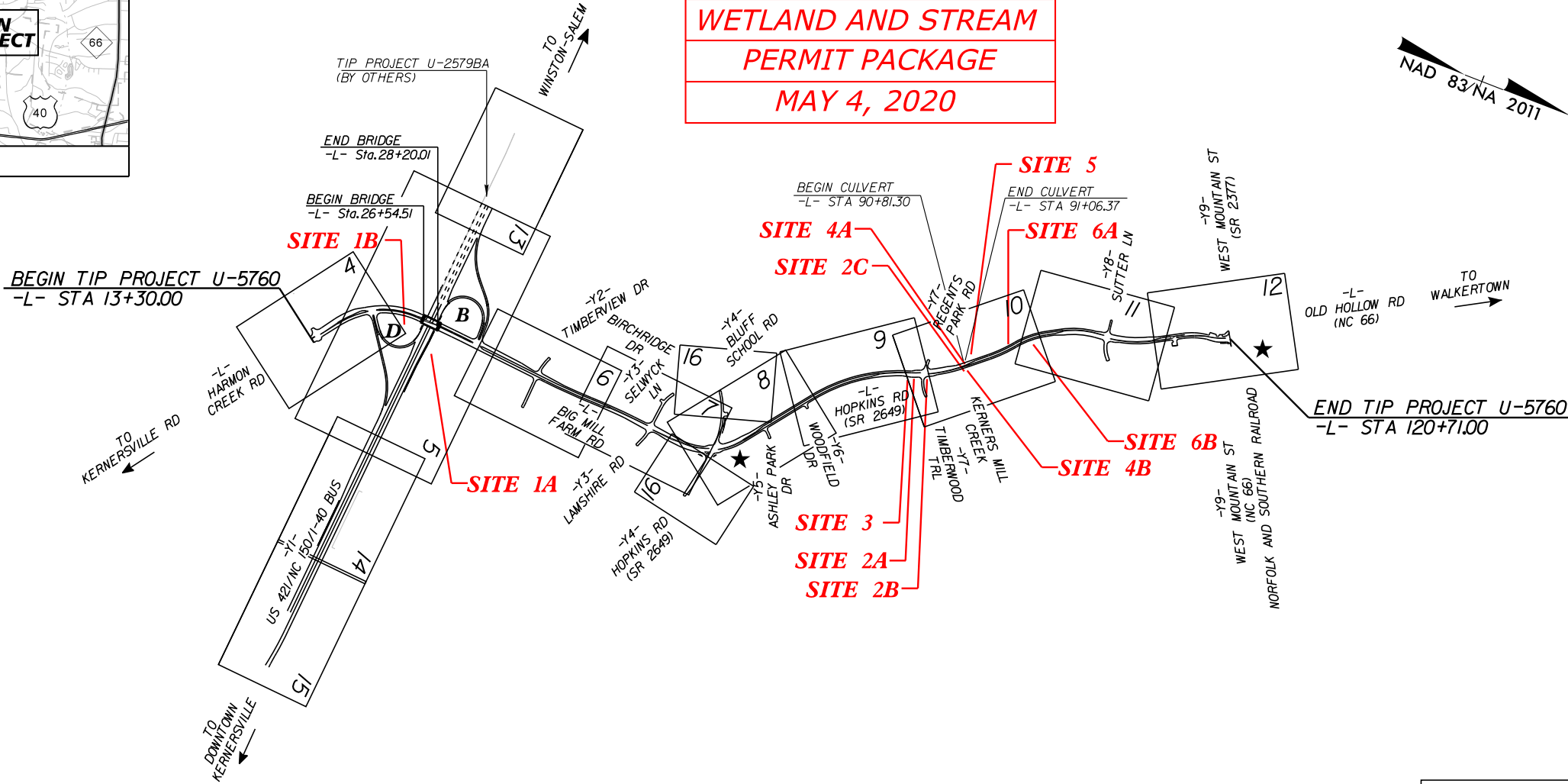
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: HOPKINS ROAD/BIG MILL FARM ROAD IN KERNERSVILLE FROM
SOUTH OF US 421/1-40 BUS/NC 150 TO NC 66 (W MOUNTAIN ST)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, CULVERTS, RETAINING WALLS, AND STRUCTURES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5760	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
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45721.2.1		R/W	
45721.2.1		UTL	
45721.3.1		CONST.	

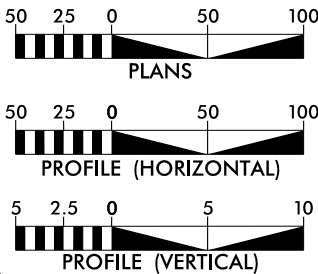


★ TRAFFIC SIGNAL

THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS LIMITED TO POINTS AS SHOWN ON THE PLANS
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF KERNERSVILLE

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

AADT 2023 = 10,700
AADT 2040 = 14,900
K = 10%
D = 60%
T = 3%*
V = 50 MPH
* (TTST 1% + DUAL 2%)
FUNCTIONAL CLASSIFICATION:
URBAN COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-5760 = 1.998 MILES
LENGTH STRUCTURES TIP PROJECT U-5760 = 0.036 MILES
TOTAL LENGTH TIP PROJECT U-5760 = 2.034 MILES

PLANS PREPARED FOR
THE NCDOT BY:

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 16, 2021

LETTING DATE:
APRIL 18, 2023

Kimley»Horn

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

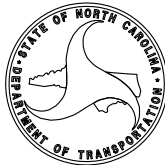
RHODES S. HUNT, P.E.
PROJECT DESIGN ENGINEER

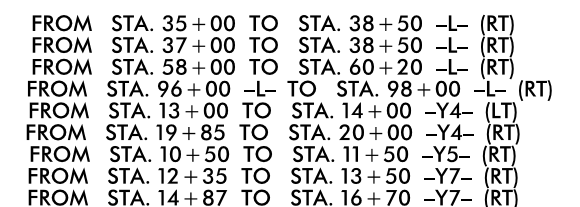
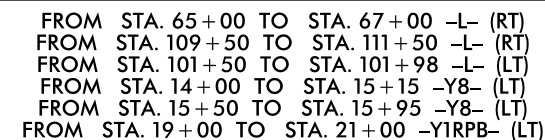
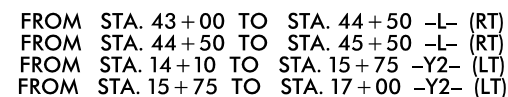
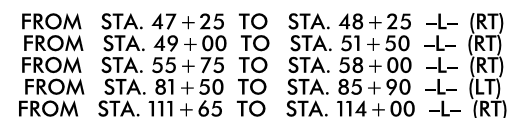
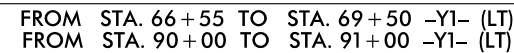
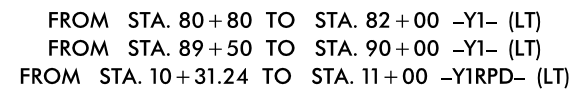
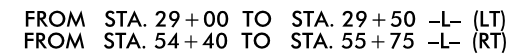
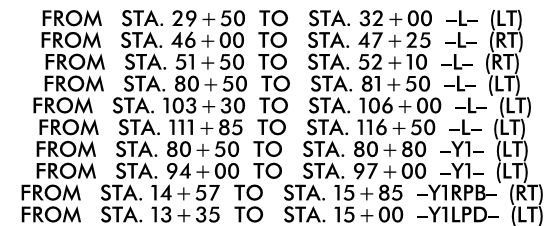
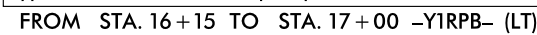
W. AL BLANTON, P.E., P.L.S.
PROJECT TEAM LEAD
NCDOT DIVISION 9

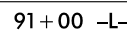
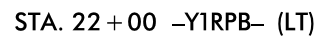
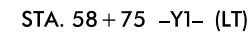
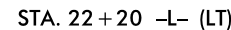
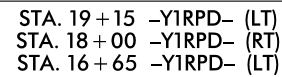
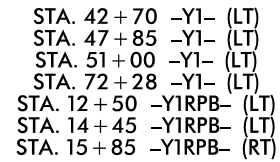
HYDRAULICS ENGINEER

SIGNATURE: P.E.
ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.







NOTE:
USE CLASS I RIP RAP IN STREAM BED
AND SUPPLEMENT WITH CLASS B
TO FILL VOIDS AS NECESSARY

DETAIL 27
SPECIAL OUTLET PROTECTION
(NOT TO SCALE)

[illegible]

LEGEND



TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER



S S DENOTES IMPACTS IN SURFACE WATER

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 400
RALEIGH, NC 27601

PROJECT REFERENCE NO. U-5760
SHEET NO. 5

ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR B/F/A ACQUISITION

PERMIT DRAWING
SHEET 4 OF 27

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CHANNEL IMPROVEMENTS
CLASS II RIP RAP
ON BANKS,
SEE DETAIL 21,
SHEET 2D-2
(STRUCTURES PAY
ITEM)

LATERAL 'V' DITCH
SEE DETAIL
2/SHEET 2D-1
RCBC EXTENSION
SITE 1A
LATERAL
BASE DITCH
SEE DETAIL
3/SHEET
2D-1
EST 120 CY
DDE

CHANNEL IMPROVEMENTS
CLASS II RIP RAP ON BANKS,
CLASS I RIP RAP COUNTERSUNK
W/CLASS 'B' RIP RAP TO FILL
VOIDS IN CHANNEL
SEE DETAIL 20, SHEET 2D-2
(STRUCTURES PAY ITEM)

JS
SITE 1B

Smith Creek

\$DATE\$

LEGEND



TS TS DENOTES TEMPORARY IMPACTS IN SURFACE WATER

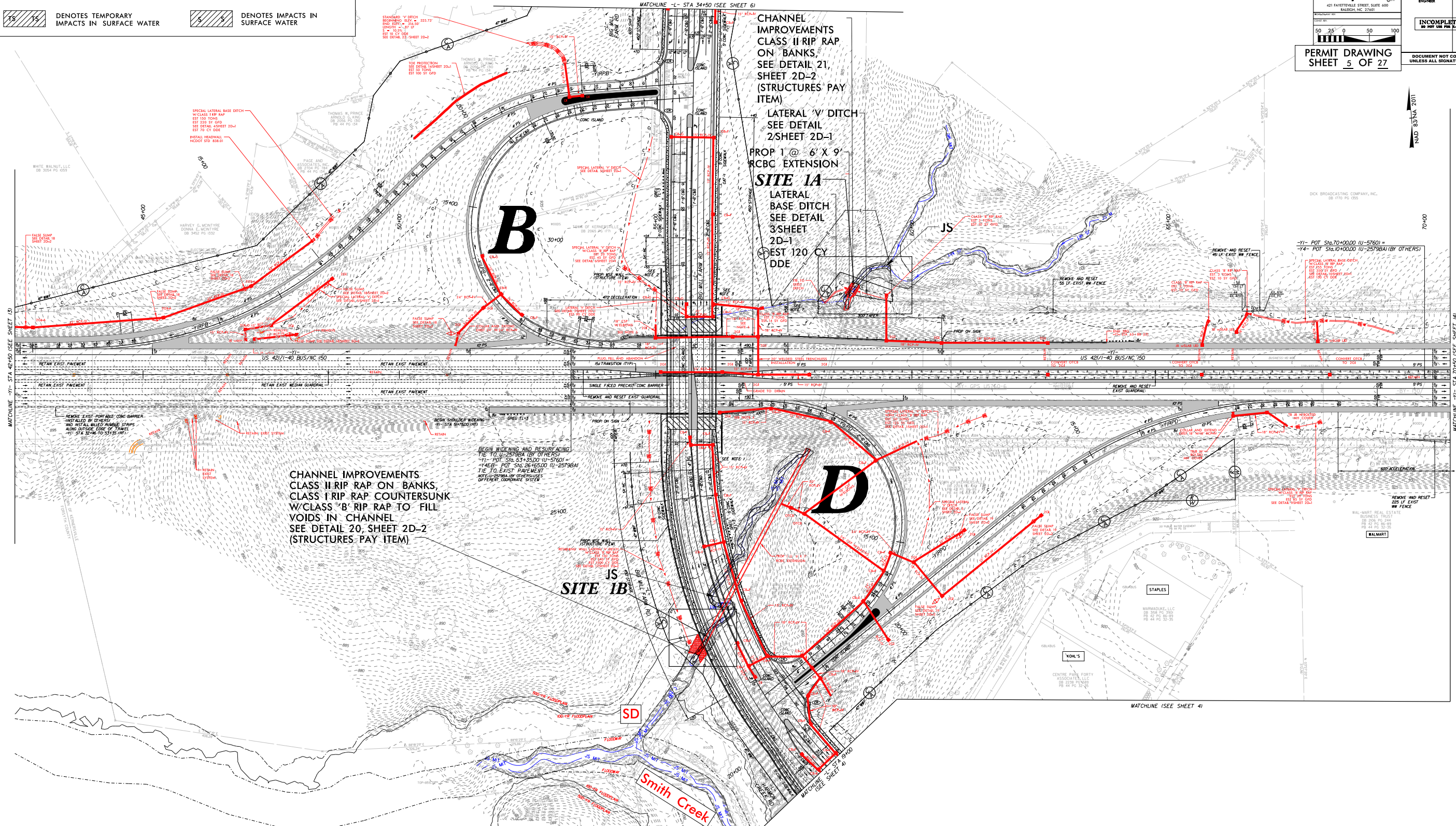


S S DENOTES IMPACTS IN SURFACE WATER

KimleyHorn
421 FAYETTEVILLE STREET, SUITE 400
RALEIGH, NC 27601

PROJECT REFERENCE NO.	SHEET NO.
U-5760	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR Bidding	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

PERMIT DRAWING
SHEET 5 OF 27



\$DATE\$

5/14/99

LEGEND



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



DENOTES IMPACTS IN
SURFACE WATER

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PERMIT DRAWING
SHEET 6 OF 27

PROJECT REFERENCE NO.

U-5760

SHEET NO.

5A

ROADWAY DESIGN
ENGINEER

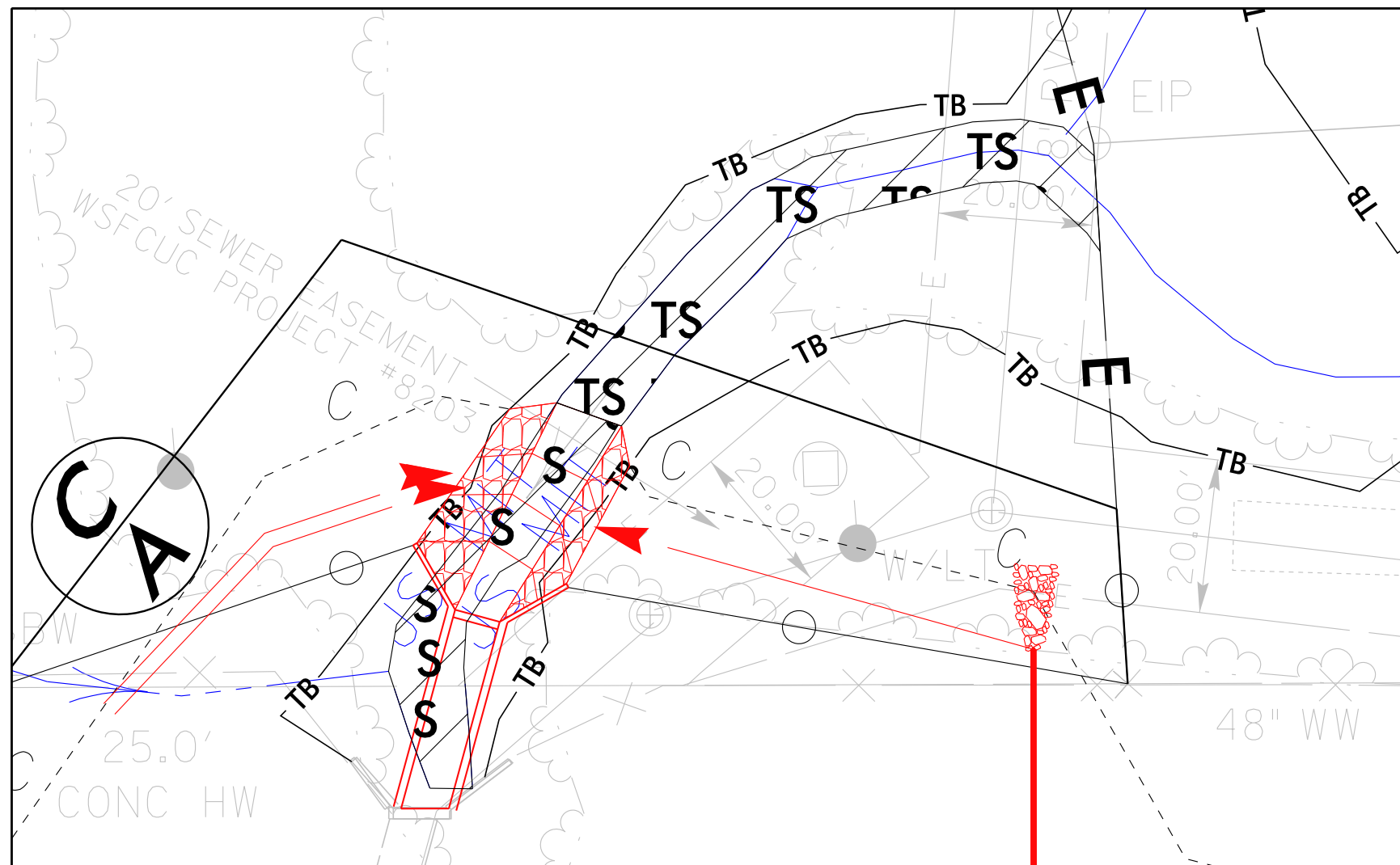
HYDRAULICS
ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

REVISIONS

SITE IMPACT ZOOM: 1"=20'



DETAIL SHEET FOR SITE 1A

\$DATE\$

5/14/99

LEGEND



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



DENOTES IMPACTS IN
SURFACE WATER

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RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

U-5760

SHEET NO.

5A

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

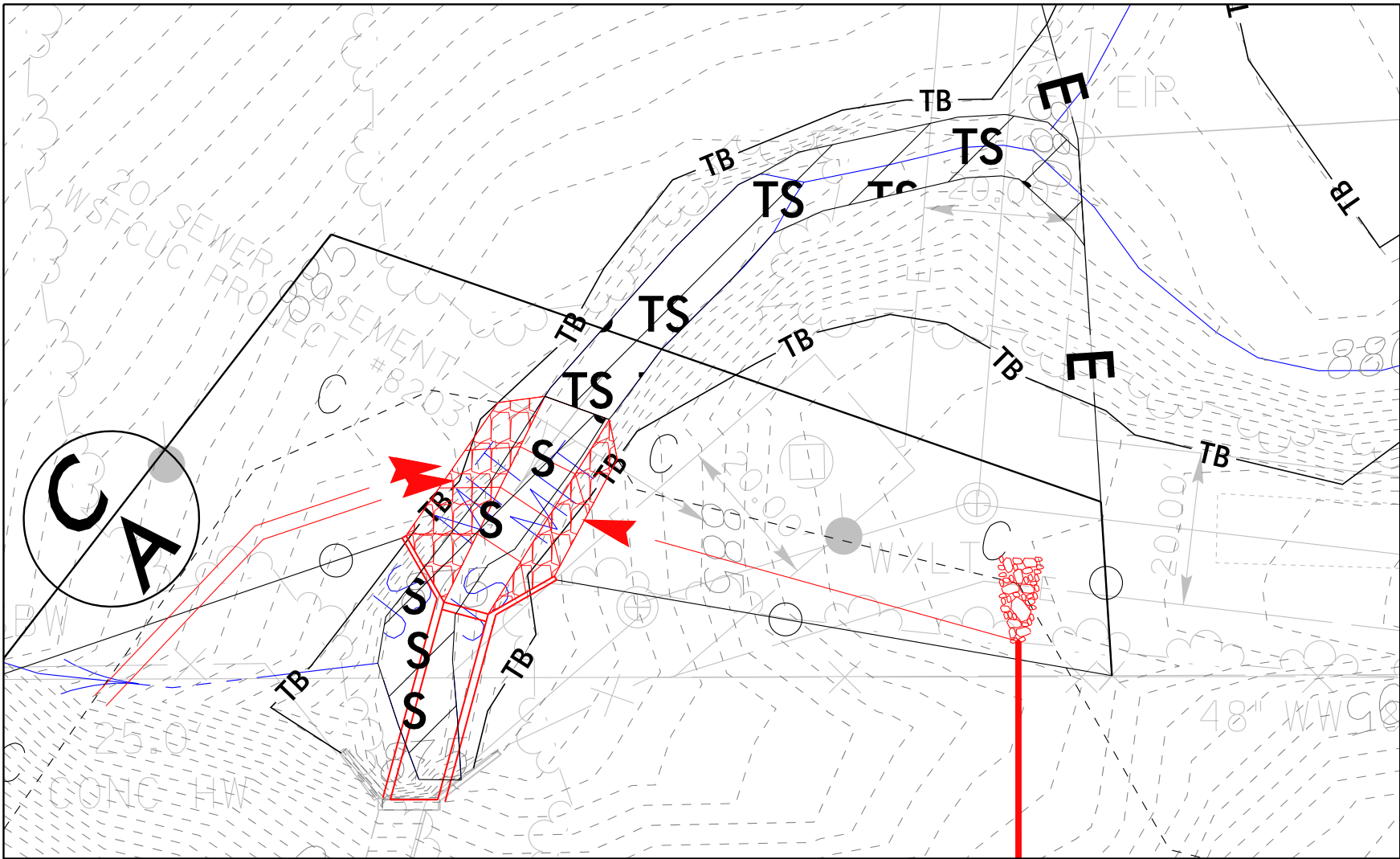
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PERMIT DRAWING
SHEET 7 OF 27

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

REVISIONS

SITE IMPACT ZOOM: 1"=20'



DETAIL SHEET FOR SITE 1A

NAD 83/NA 2011

\$DATE\$

5/14/99

LEGEND



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



DENOTES IMPACTS IN
SURFACE WATER

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

U-5760

SHEET NO.

5B

ROADWAY DESIGN
ENGINEER

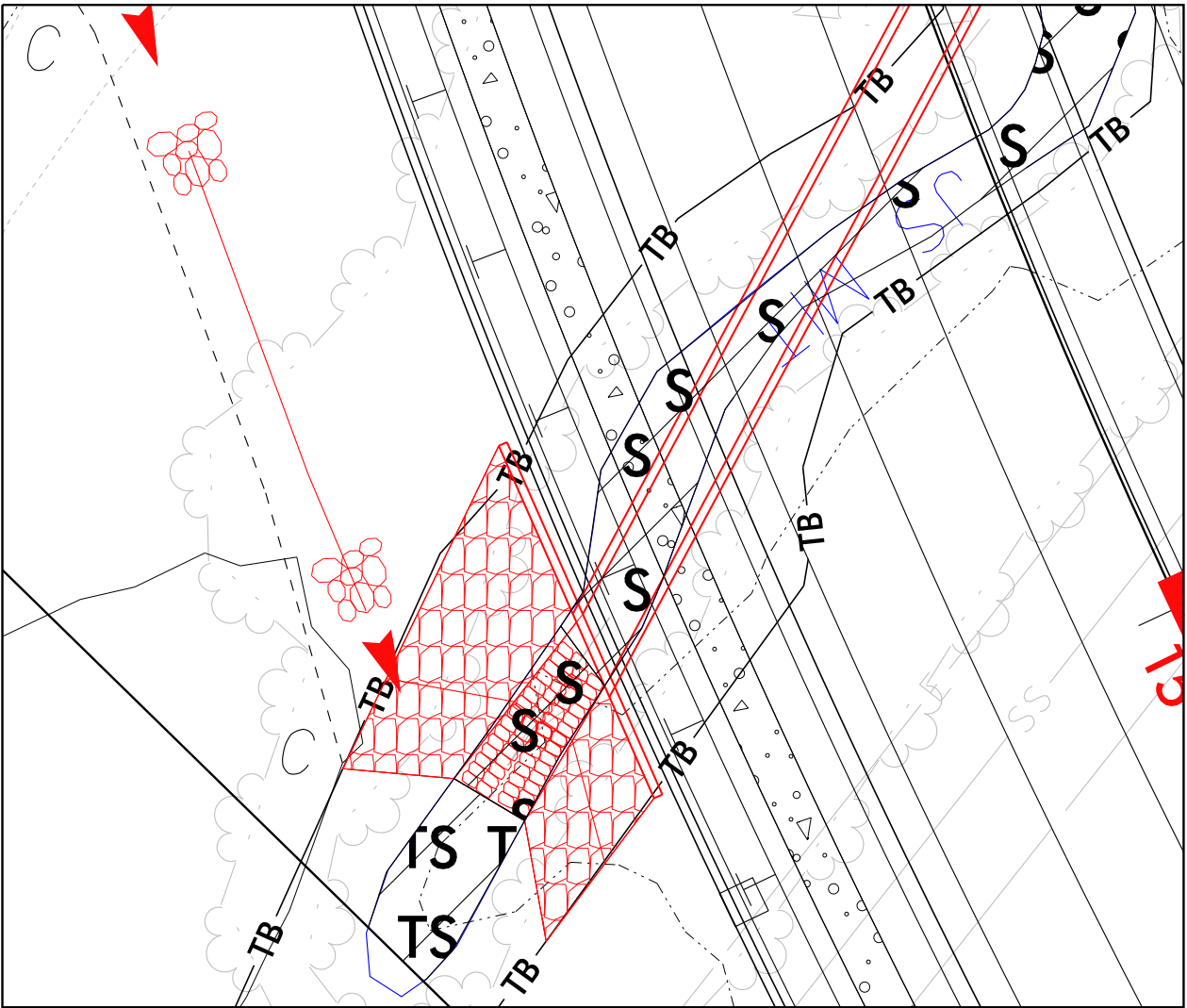
HYDRAULICS
ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PERMIT DRAWING
SHEET 8 OF 27

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SITE IMPACT ZOOM: 1"=20'



NAD 83/NA 2011

DETAIL SHEET FOR SITE 1B

REVISIONS

\$DATE\$

5/14/99

LEGEND



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



DENOTES IMPACTS IN
SURFACE WATER

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

U-5760

SHEET NO.

5B

ROADWAY DESIGN
ENGINEER

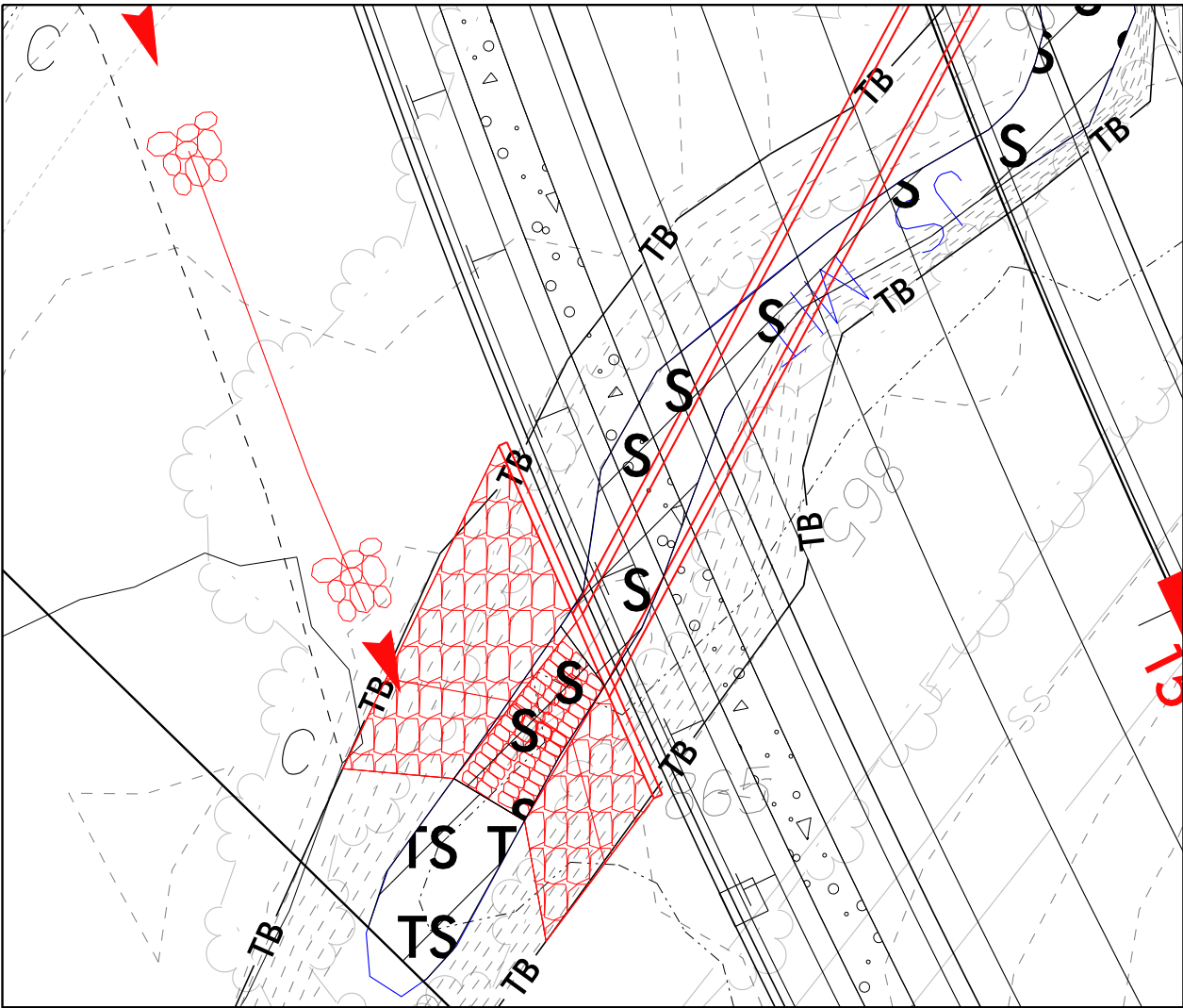
HYDRAULICS
ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PERMIT DRAWING
SHEET 9 OF 27

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SITE IMPACT ZOOM: 1"=20'



NAD 83/NA 2011

DETAIL SHEET FOR SITE 1B

REVISIONS

\$DATE\$

5/14/99

REVISIONS

\$DATE\$

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PERMIT DRAWING
SHEET 10 OF 27

PROJECT REFERENCE NO.

U-5760

SHEET NO.

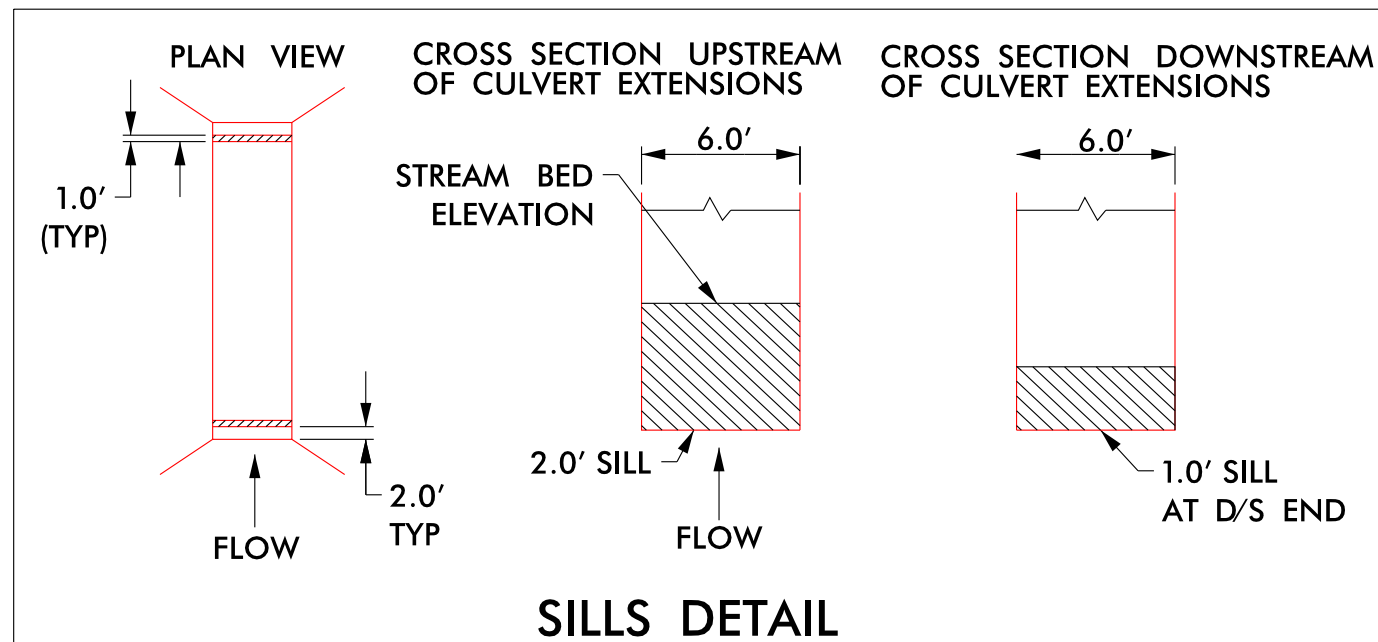
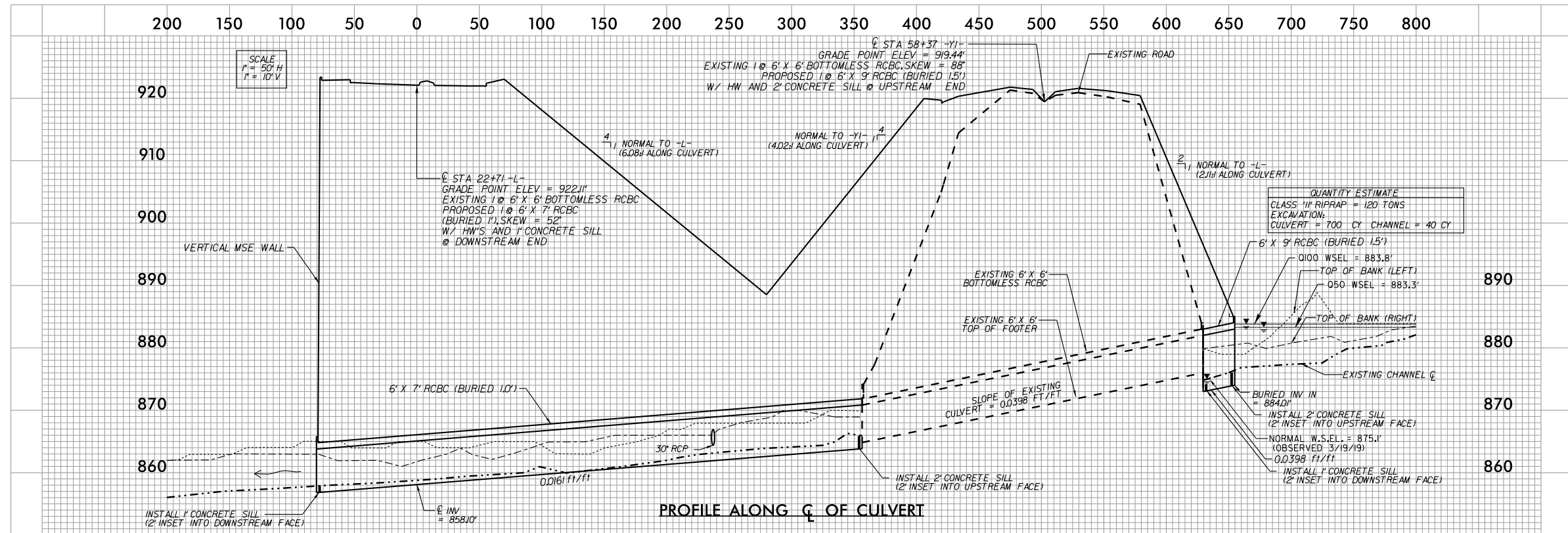
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SITE 1A /1B – CULVERT EXTENSION



NOTE: NATIVE BED MATERIAL SHALL BE PLACED IN THE PROPOSED CULVERT EXTENSIONS BETWEEN SILLS. NATIVE MATERIALS CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL. IF RIP RAP IS USED, THE NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FACILITATE ANIMAL PASSAGE. THE TOP SURFACE OF THE NATURAL STREAM BED MATERIAL SHALL BE PLACED AND LEVELED TO A FLAT SURFACE TO ALLOW FOR ANIMAL PASSAGE. NATIVE MATERIAL AND RIP RAP ARE SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

5/14/99

\$DATE\$

REVISIONS

LEGEND			
	DENOTES IMPACTS IN SURFACE WATER		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES MECHANIZED CLEARING		DENOTES EXCAVATION IN WETLAND

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PERMIT DRAWING
SHEET 11 OF 27

PROJECT REFERENCE NO.

U-5760

SHEET NO.

9

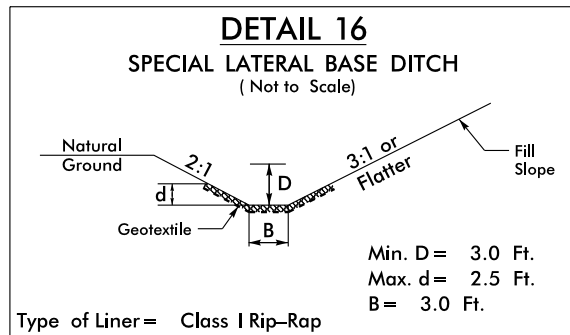
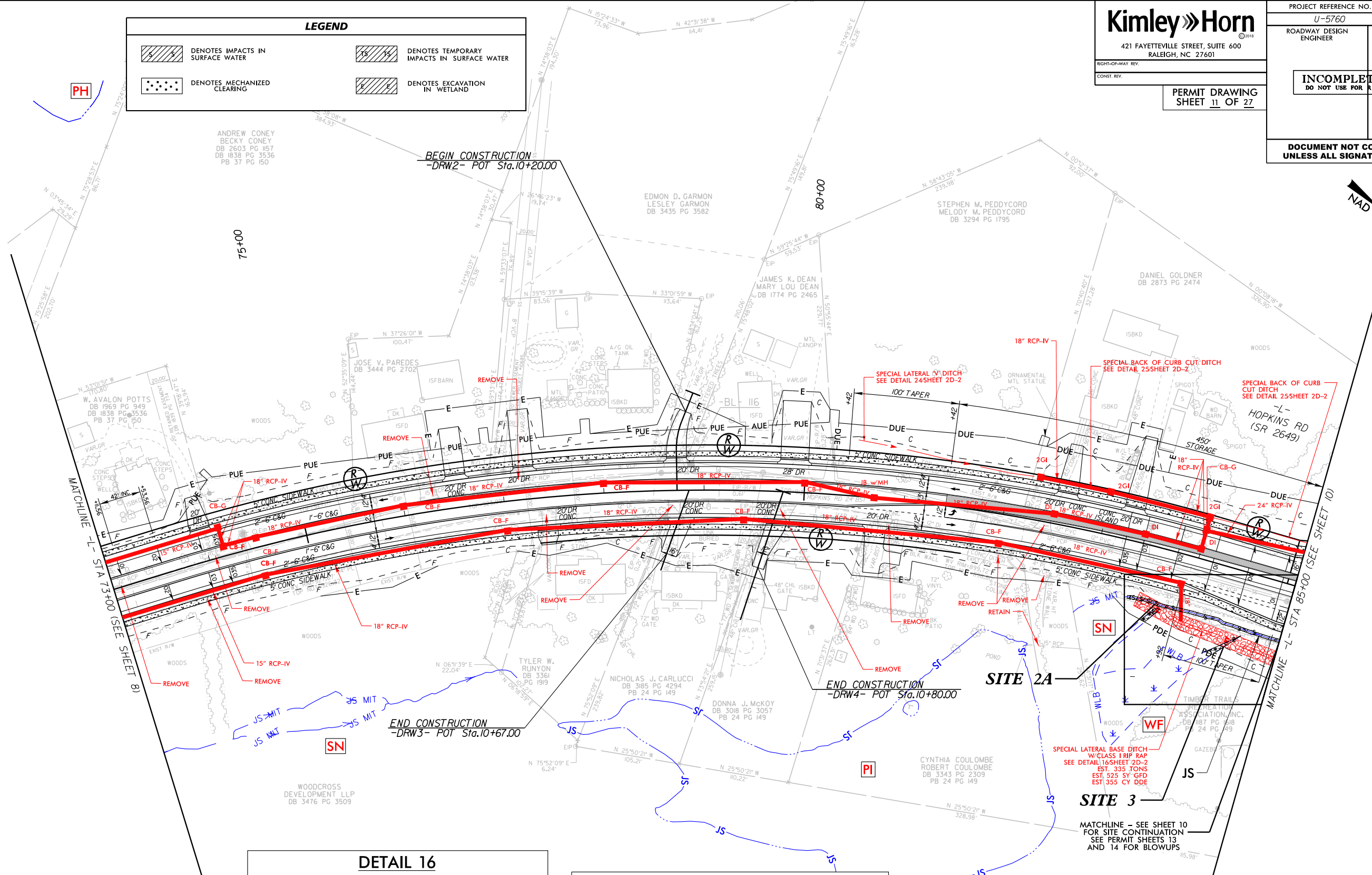
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

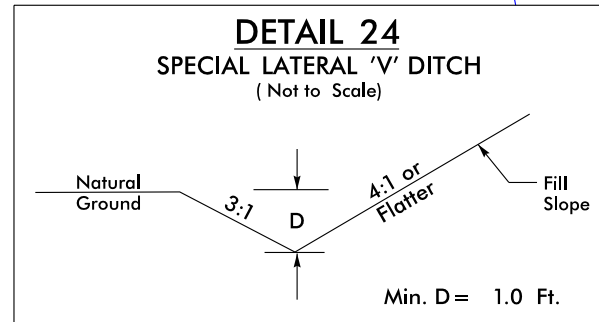
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

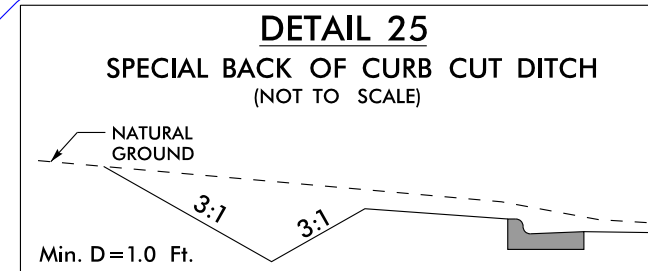
NAD 83/NA 2011



FROM STA. 83+50 TO STA. 85+75 -L- (RT)
FROM STA. 90+00 TO STA. 90+75 -L- (RT)



FROM STA. 80+50 TO STA. 82+30 -L- (LT)



FROM STA. 82+30 TO STA. 85+90 -L- (LT)

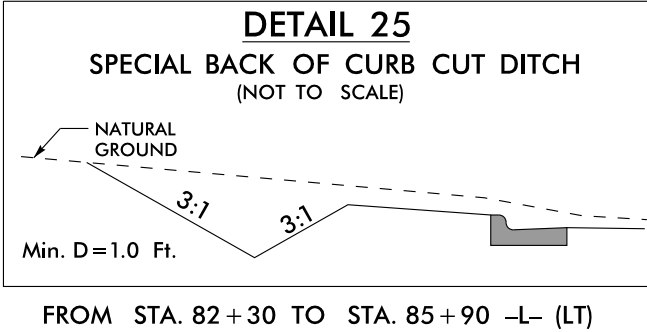
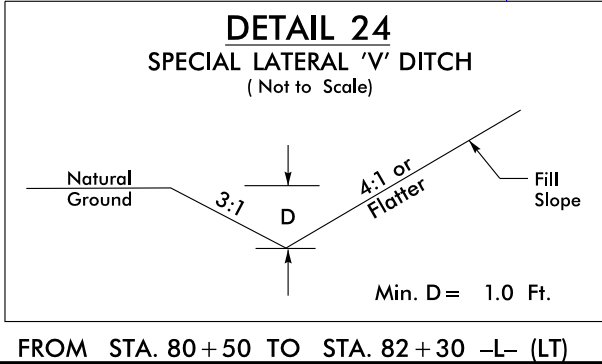
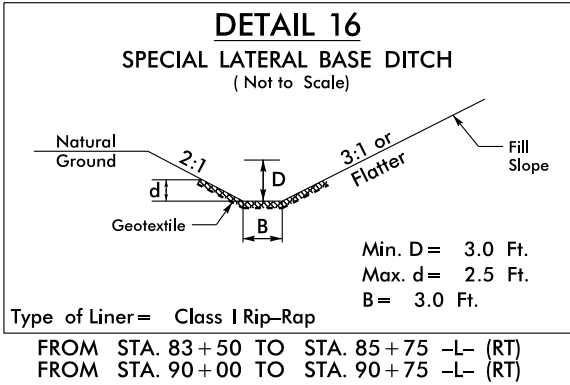
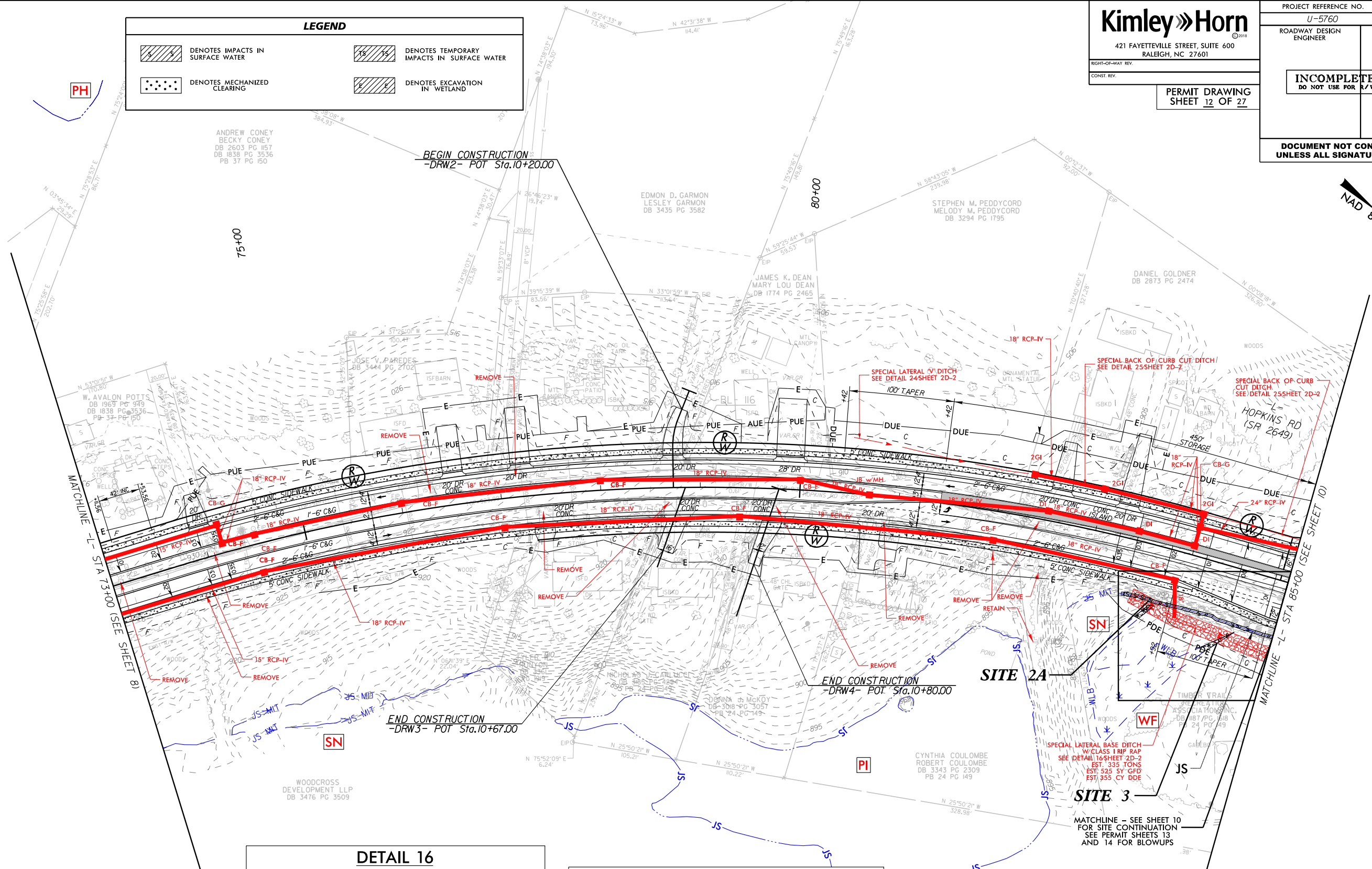
44 HUNTER P. COFER
DB 3333 PG 2638

SEE SHEET 19 FOR -L- PROFILE
SEE SHEET 29 FOR -DRW2-, -DRW3-
AND -DRW4- PROFILES

5/14/99

REVISIONS

\$DATE\$



44 HUNTER P. COFER
DB 3333 PG 2638

SEE SHEET 19 FOR -L- PROFILE
SEE SHEET 29 FOR -DRW2-, -DRW3-
AND -DRW4- PROFILES

Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.
U-5760

ROADWAY DESIGN ENGINEER

SHEET NO.
9

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PERMIT DRAWING
SHEET 12 OF 27

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NAD 83 NA 2011

5/14/99

LEGEND



DENOTES IMPACTS IN
SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



DENOTES MECHANIZED
CLEARING



DENOTES EXCAVATION
IN WETLAND

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PERMIT DRAWING
SHEET 13 OF 27

PROJECT REFERENCE NO.

U-5760

SHEET NO.

9A

ROADWAY DESIGN
ENGINEER

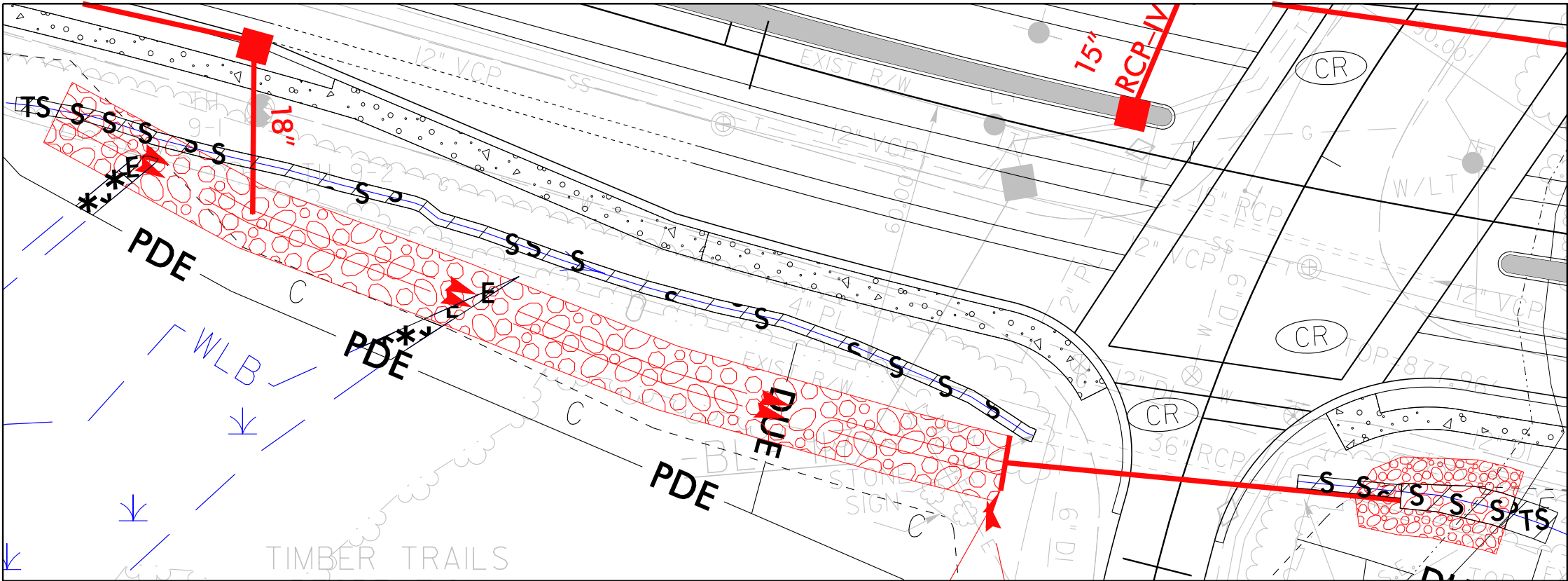
HYDRAULICS
ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

SITE IMPACT ZOOM: 1"=30'

NAD 83/NA 2011



DETAIL SHEET FOR SITES 2A, 2B, 3

REVISIONS

\$DATE\$

5/14/99

LEGEND



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES MECHANIZED CLEARING



DENOTES EXCAVATION IN WETLAND

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

U-5760

SHEET NO.

9A

ROADWAY DESIGN
ENGINEER

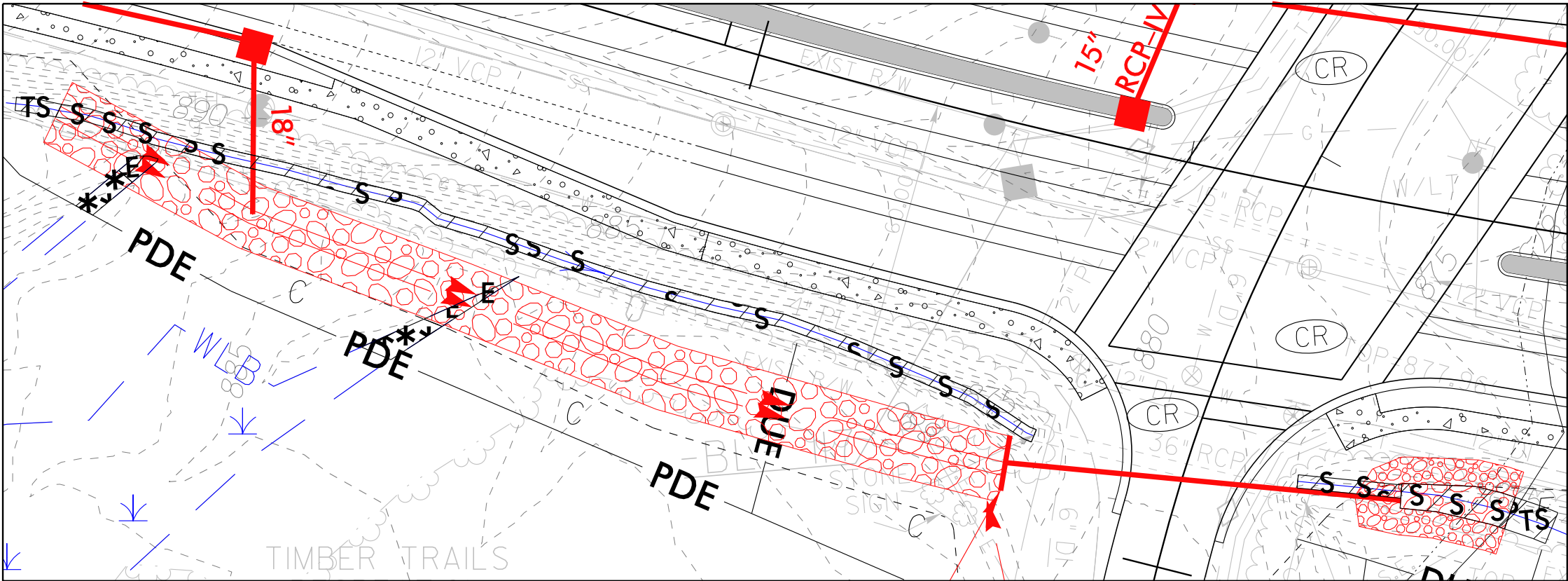
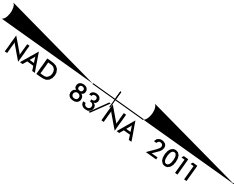
HYDRAULICS
ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PERMIT DRAWING
SHEET 14 OF 27

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SITE IMPACT ZOOM: 1"=30'

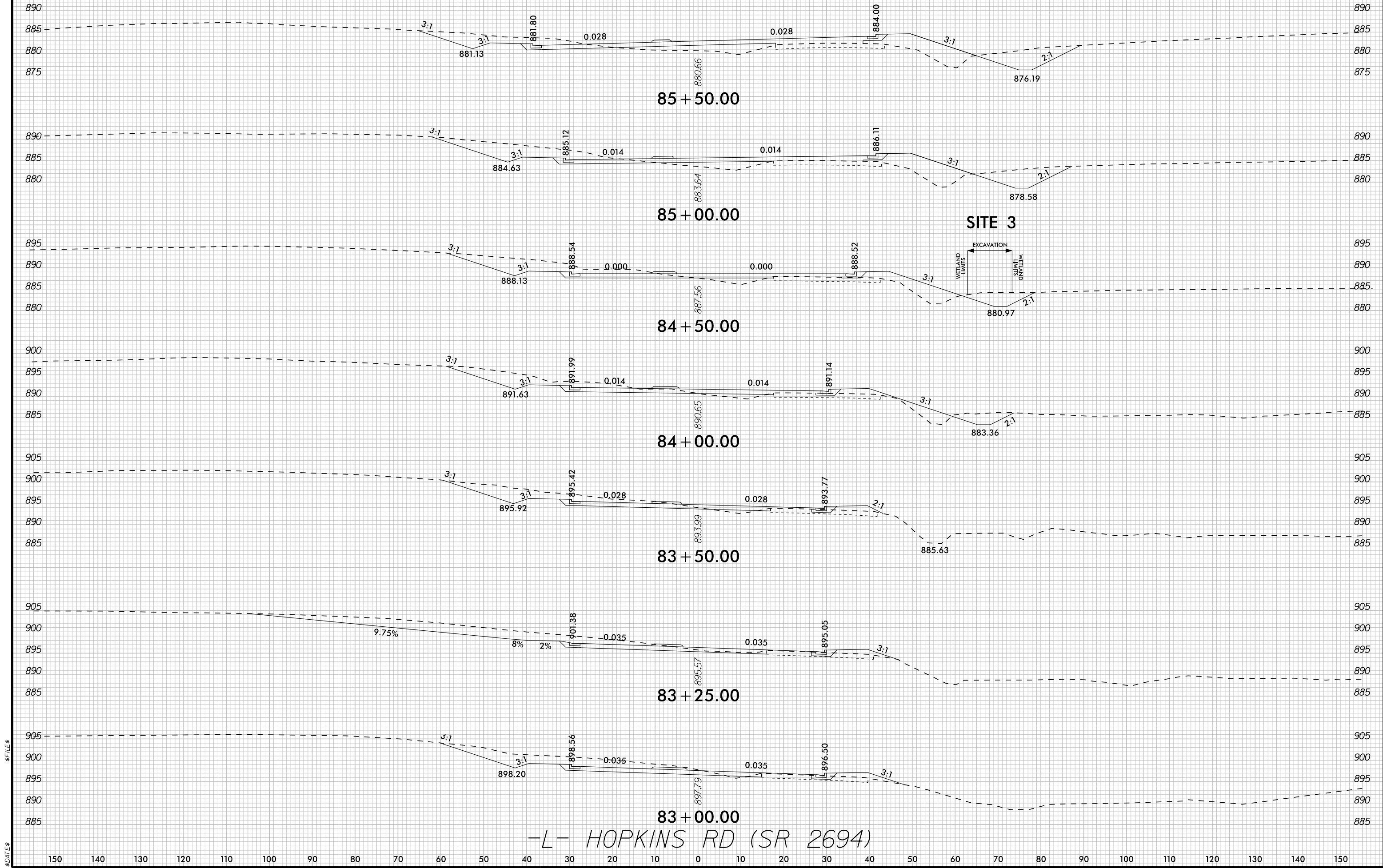


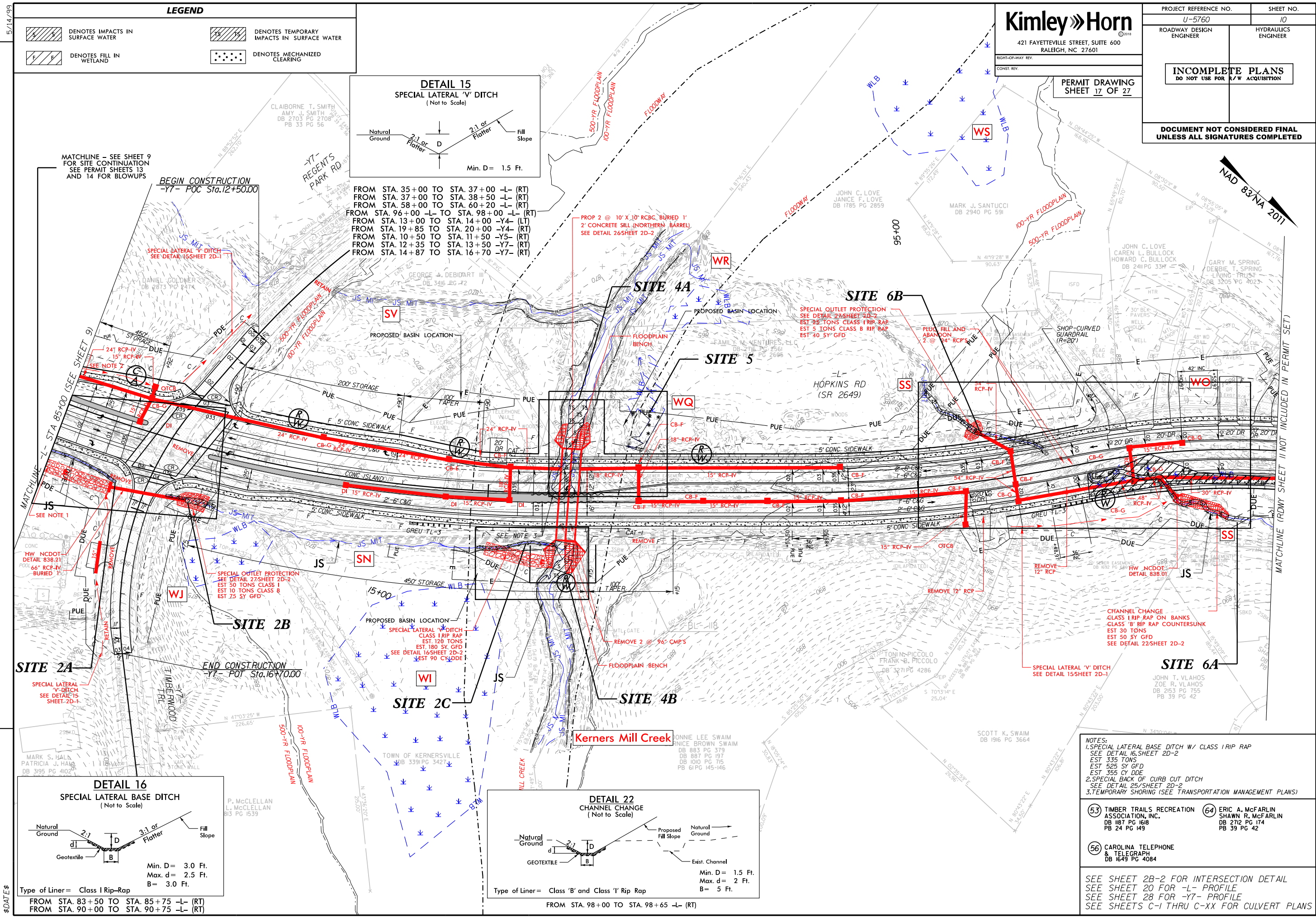
DETAIL SHEET FOR SITES 2A, 2B, 3

REVISIONS

\$DATE\$

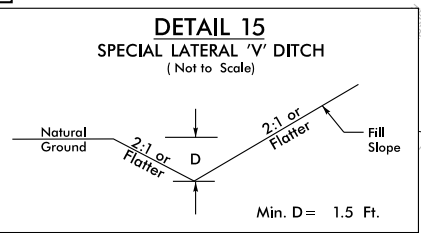
8/23/99





LEGEND

	DENOTES IMPACTS IN SURFACE WATER		DENOTES TEMPORARY IMPACTS IN SURFACE WATER
	DENOTES FILL IN WETLAND		DENOTES MECHANIZED CLEARING



Kimley»Horn
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.
U-5760

ROADWAY DESIGN ENGINEER

SHEET NO.
10

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

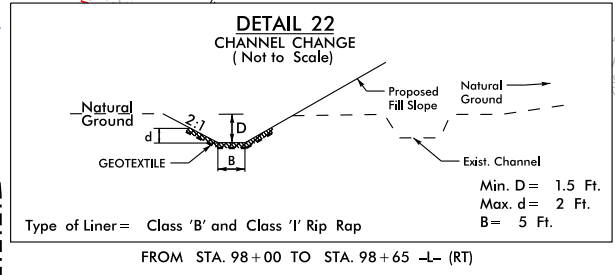
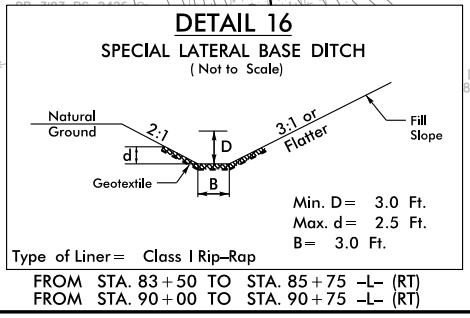
PERMIT DRAWING
SHEET **17** OF **27**

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

MATCHLINE - SEE SHEET 9 FOR SITE CONTINUATION SEE PERMIT SHEETS 13 AND 14 FOR BLOWUPS

BEGIN CONSTRUCTION
-Y7- POC Sta.12+50.00

FROM STA. 35+00 TO STA. 37+00 -L- (RT)
FROM STA. 37+00 TO STA. 38+50 -L- (RT)
FROM STA. 58+00 TO STA. 60+20 -L- (RT)
FROM STA. 96+00 -L- TO STA. 98+00 -L- (RT)
FROM STA. 13+00 TO STA. 14+00 -Y4- (LT)
FROM STA. 19+85 TO STA. 20+00 -Y4- (RT)
FROM STA. 10+50 TO STA. 11+50 -Y5- (RT)
FROM STA. 12+35 TO STA. 13+50 -Y7- (RT)
FROM STA. 14+87 TO STA. 16+70 -Y7- (RT)



NOTES:
1. SPECIAL LATERAL BASE DITCH W/ CLASS I RIP RAP
SEE DETAIL 16, SHEET 2D-2
EST 335 TONS
EST 525 SY GFD
EST 355 CY DDE
2. SPECIAL BACK OF CURB CUT DITCH
SEE DETAIL 25, SHEET 2D-2
3. TEMPORARY SHORING (SEE TRANSPORTATION MANAGEMENT PLANS)

(53) TIMBER TRAILS RECREATION ASSOCIATION, INC.
DB 883 PG 379
DB 887 PG 197
DB 1010 PG 715
PB 24 PG 149

(64) ERIC A. McFARLIN SHAWN R. McFARLIN
DB 2712 PG 174
PB 39 PG 42

(56) CAROLINA TELEPHONE & TELEGRAPH
DB 1649 PG 4084

SEE SHEET 2B-2 FOR INTERSECTION DETAIL
SEE SHEET 20 FOR -L- PROFILE
SEE SHEET 28 FOR -Y7- PROFILE
SEE SHEETS C-1 THRU C-XX FOR CULVERT PLANS

5/14/99

LEGEND



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

U-5760

SHEET NO.

10A

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

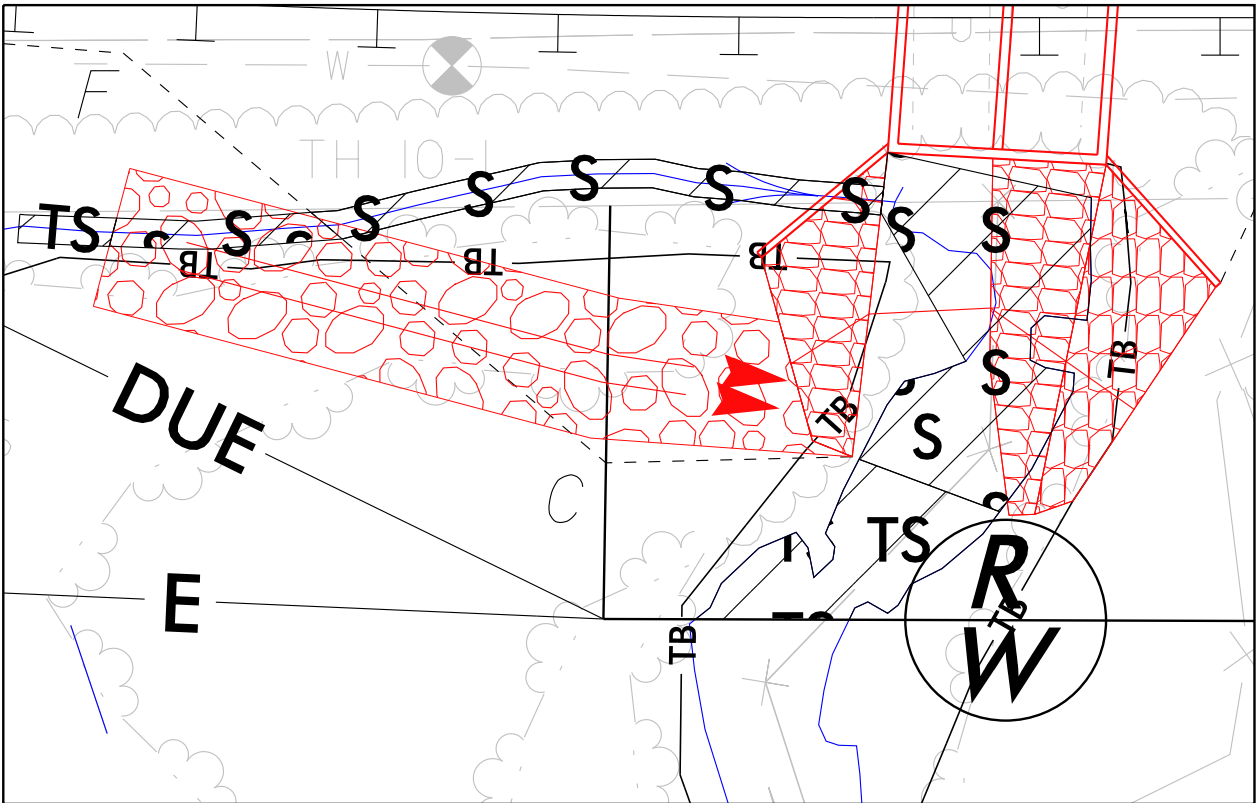
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 18 OF 27

NAD 83/NA 2011

SITE IMPACT ZOOM: 1"=20'



DETAIL SHEET FOR SITES 2C, 4B

REVISIONS

\$DATE\$

5/14/99

LEGEND



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
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CONST. REV.

PROJECT REFERENCE NO.

U-5760

SHEET NO.

10A

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

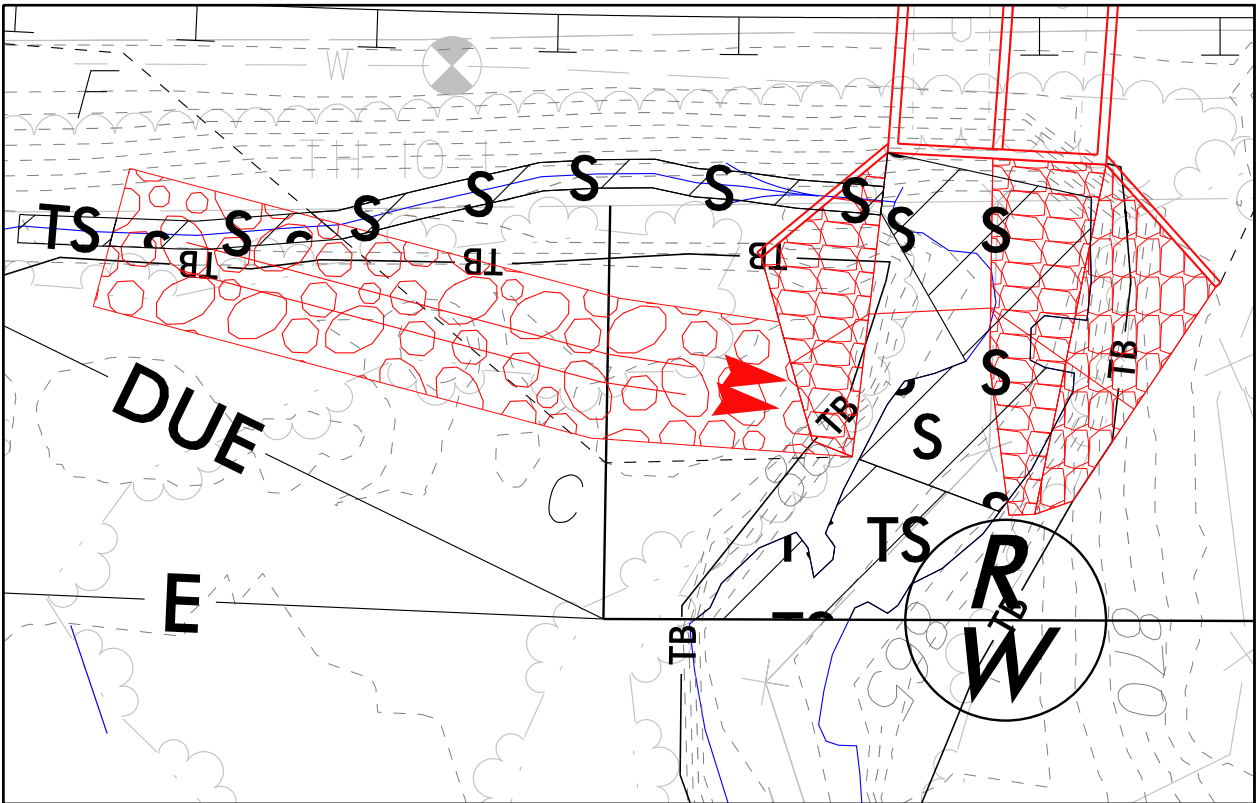
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 19 OF 27

NAD 83/NA 2011

SITE IMPACT ZOOM: 1"=20'



DETAIL SHEET FOR SITES 2C, 4B

REVISIONS

\$DATE\$

5/14/99

LEGEND



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

U-5760

SHEET NO.

10B

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

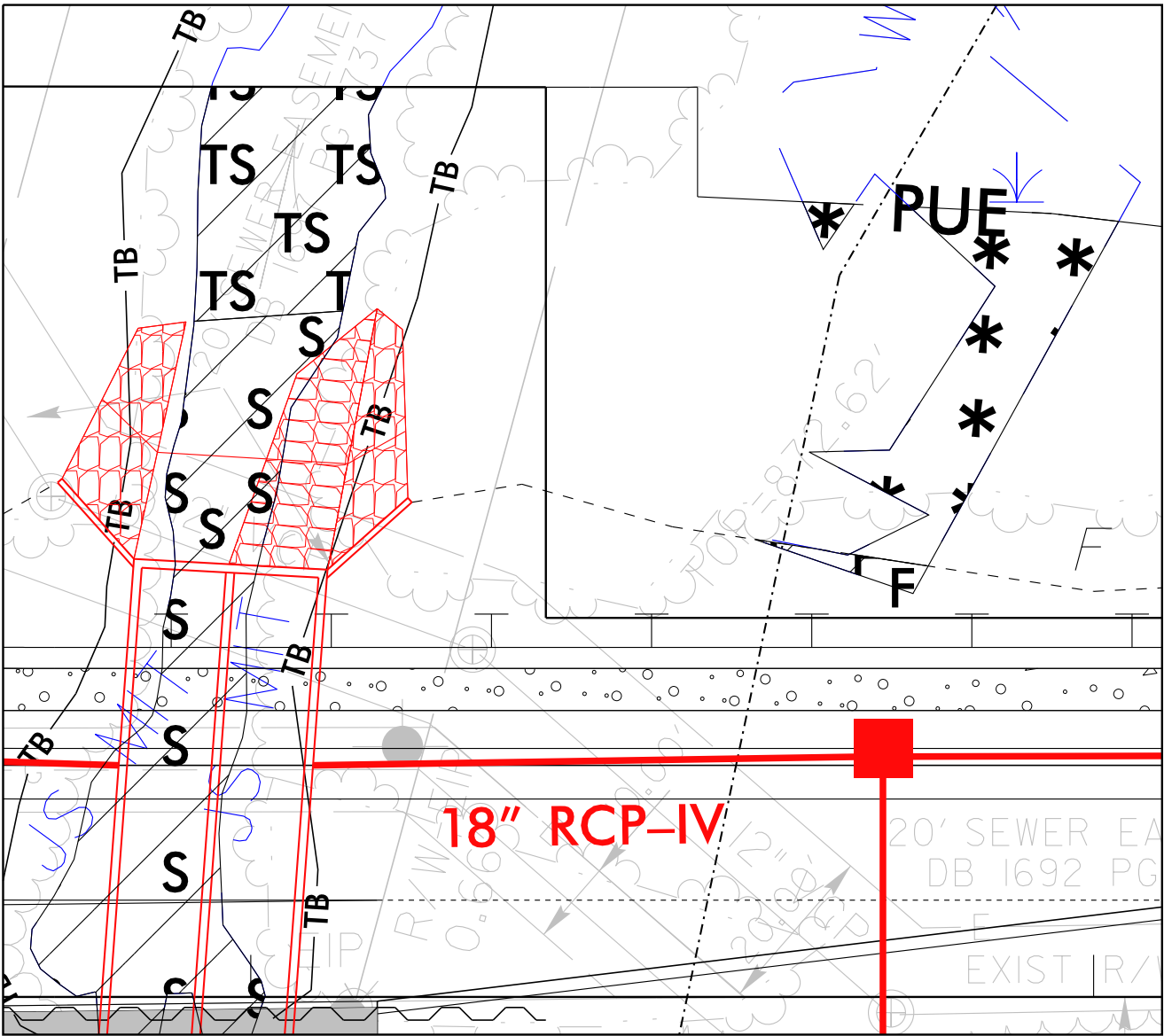
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PERMIT DRAWING
SHEET 20 OF 27

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



SITE IMPACT ZOOM: 1"=20'



DETAIL SHEET FOR SITES 4A, 5

REVISIONS

\$DATE\$

5/14/99

LEGEND



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

U-5760

SHEET NO.

10B

ROADWAY DESIGN
ENGINEER

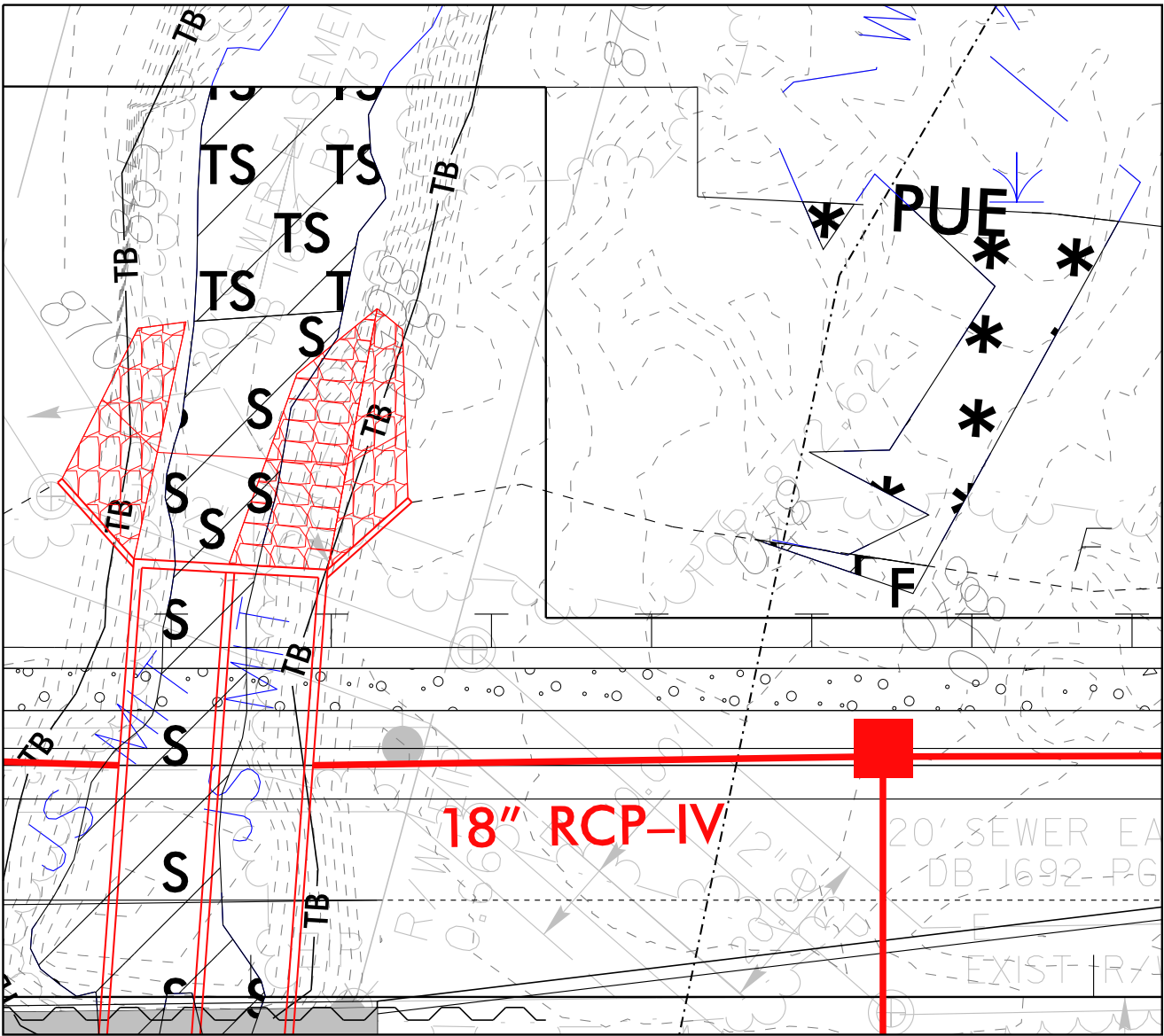
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ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

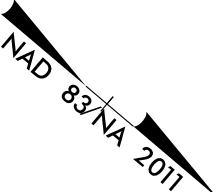
PERMIT DRAWING
SHEET 21 OF 27

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SITE IMPACT ZOOM: 1"=20'



DETAIL SHEET FOR SITES 4A, 5



REVISIONS

\$DATE\$

5/14/99

LEGEND



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PERMIT DRAWING
SHEET 22 OF 27

PROJECT REFERENCE NO.

U-5760

SHEET NO.

10C

ROADWAY DESIGN
ENGINEER

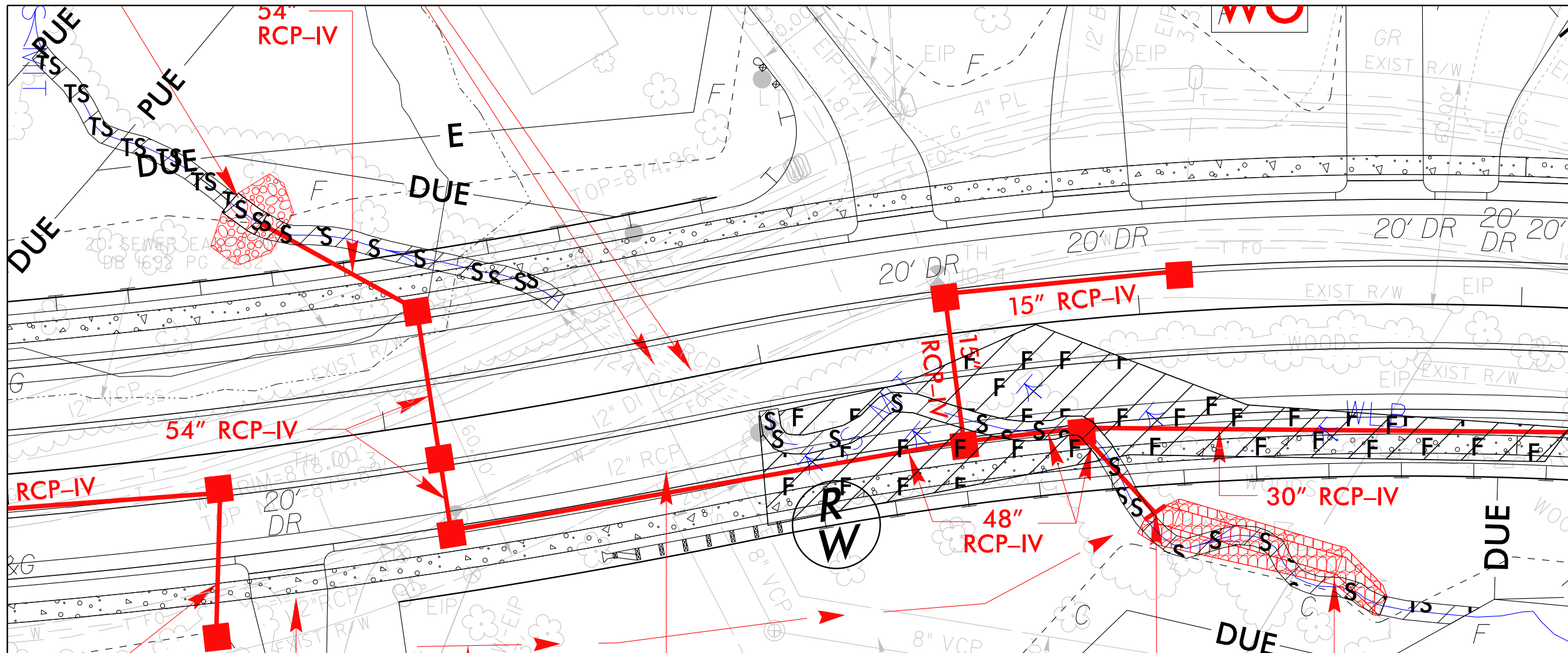
HYDRAULICS
ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



SITE IMPACT ZOOM: 1"=30'



DETAIL SHEET FOR SITES 6A, 6B

REVISIONS

\$DATE\$

5/14/99

LEGEND



DENOTES IMPACTS IN SURFACE WATER



DENOTES TEMPORARY IMPACTS IN SURFACE WATER



DENOTES FILL IN WETLAND



DENOTES MECHANIZED CLEARING

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

U-5760

SHEET NO.

10C

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

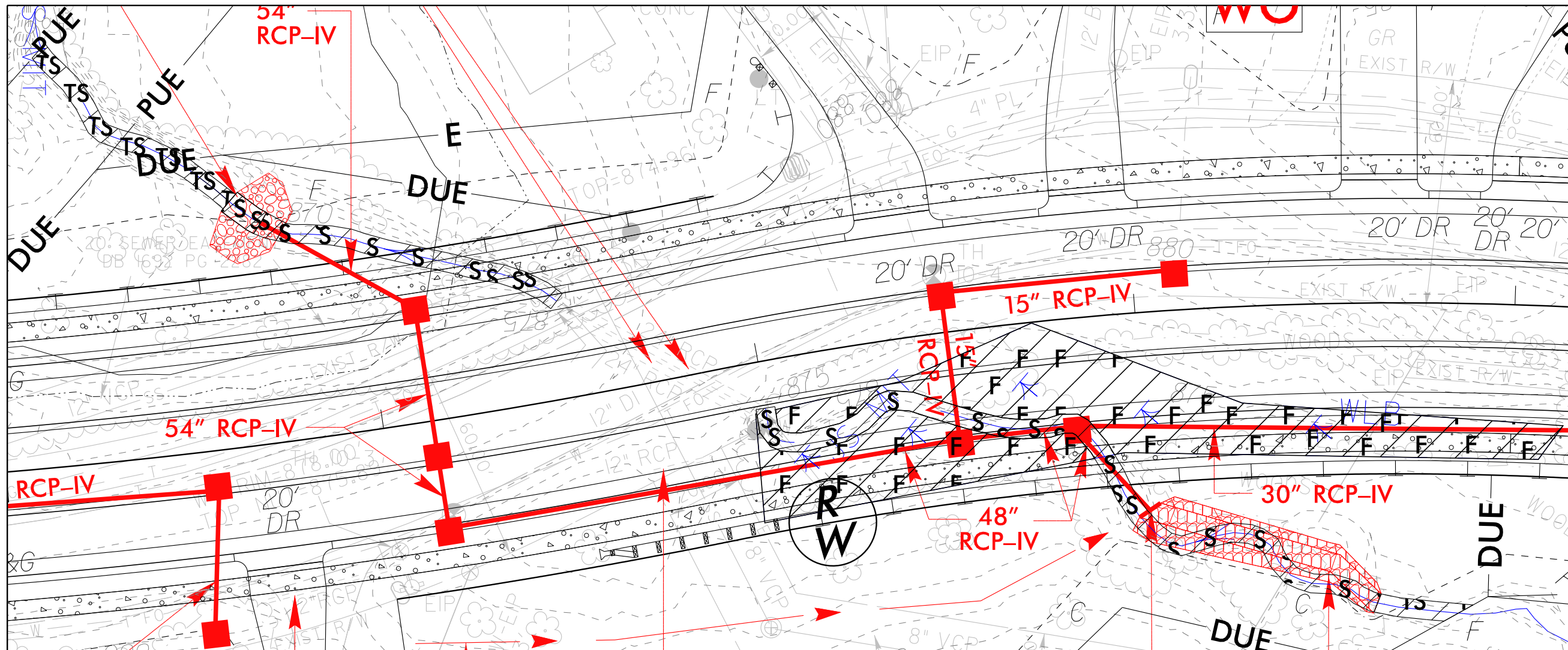
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PERMIT DRAWING
SHEET 23 OF 27

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**



SITE IMPACT ZOOM: 1"=30'

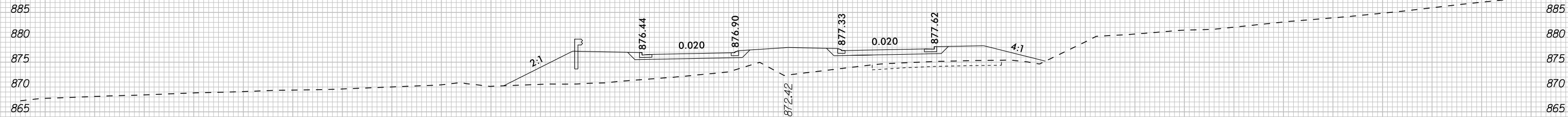


DETAIL SHEET FOR SITES 6A, 6B

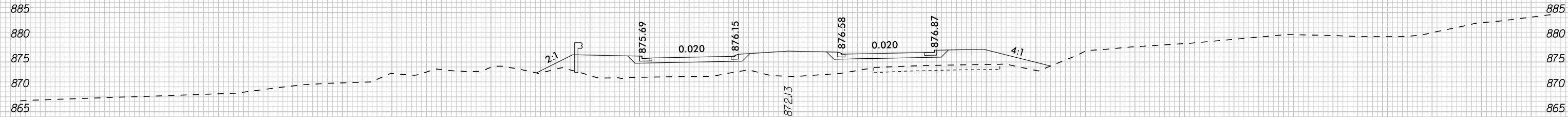
REVISIONS

\$DATE\$

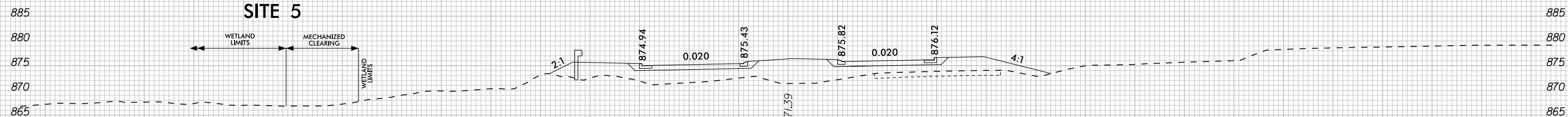
8/23/99



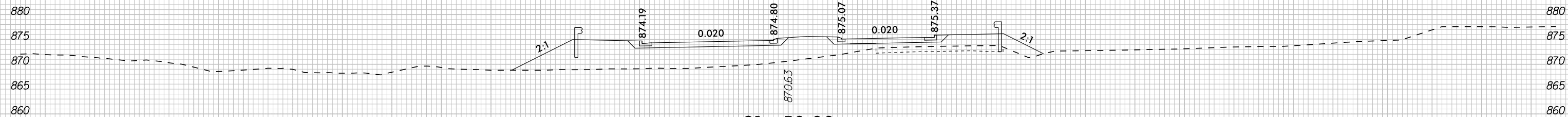
93+00.00



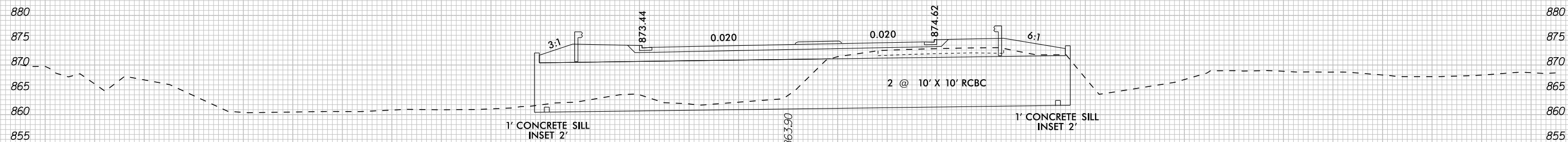
92+50.00



92+00.00



91+50.00

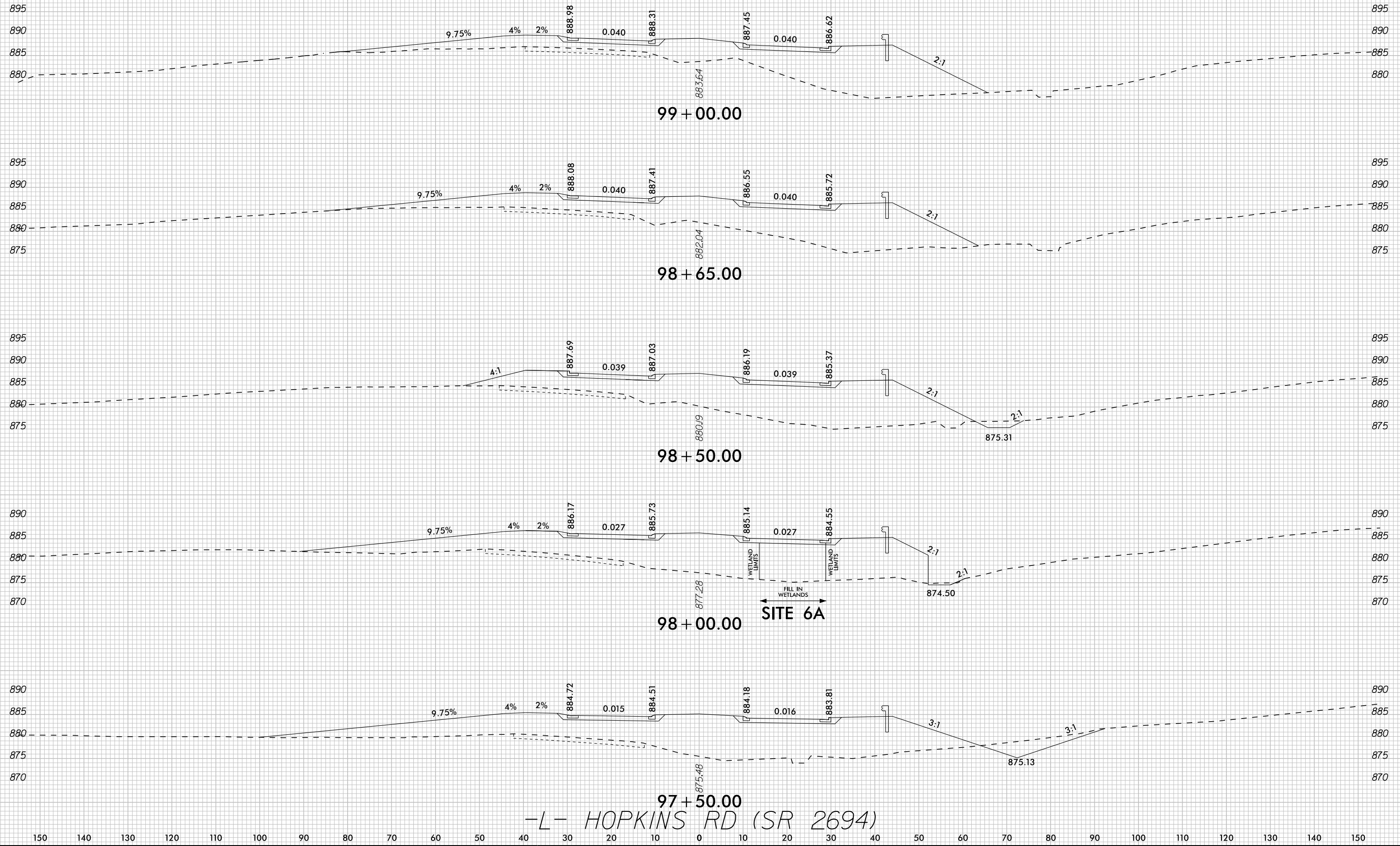


91+00.00

-L- HOPKINS RD (SR 2694)

8/23/99

8/23/99



5/14/99

REVISIONS

\$DATE\$

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PERMIT DRAWING
SHEET 26 OF 27

PROJECT REFERENCE NO.

U-5760

SHEET NO.

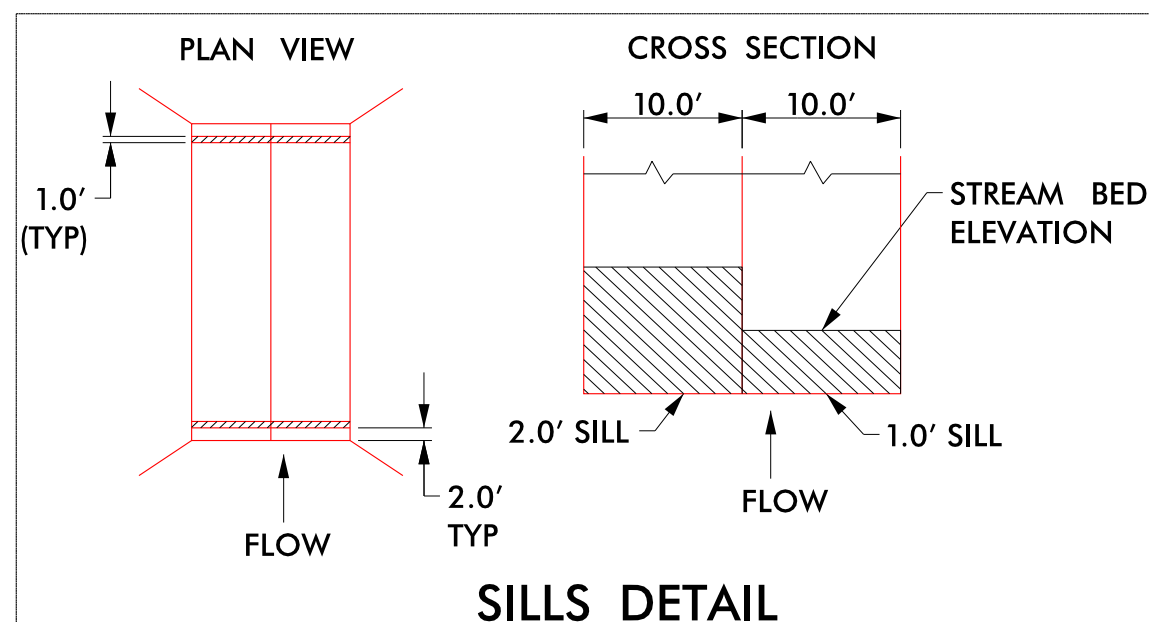
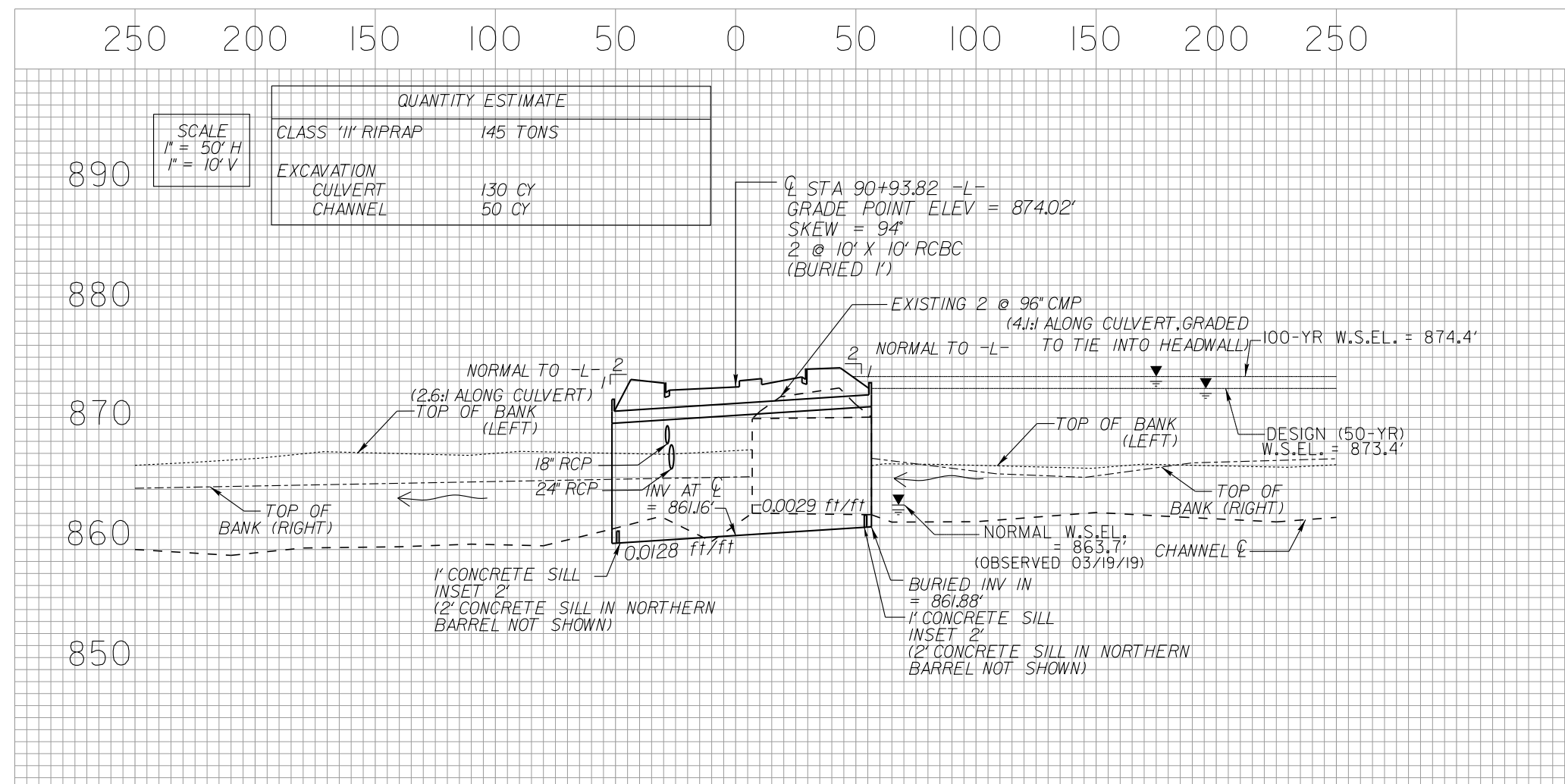
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SITE 4A /4B – CULVERT REPLACEMENT



NOTE: FOR CUT CONDITION, USE CLASS II RIP RAP FLOODPLAIN BENCH BORDER WITH NATURAL GROUND COVERED WITH COIR FIBER MAT INSIDE BORDER. IN FILL CONDITION, USE CLASS II RIP RAP FILL THROUGHOUT WITH NATIVE BED MATERIAL FILLING THE VOIDS ON TOP.

NOTE: NATIVE BED MATERIAL SHALL BE PLACED BETWEEN THE SILLS IN THE LOW FLOW CULVERT. NATIVE MATERIALS CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED OR FLOODPLAIN AT THE PROJECT SITE DURING CULVERT CONSTRUCTION. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL. IF RIP RAP IS USED, THE NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FACILITATE ANIMAL PASSAGE. THE TOP SURFACE OF THE NATURAL STREAM BED MATERIAL SHALL BE PLACED AND LEVELED TO A FLAT SURFACE TO ALLOW FOR ANIMAL PASSAGE. THE HIGH FLOW BARRELS SHALL BE BACK FILLED WITH NATIVE MATERIAL AND/OR RIP RAP. NATIVE MATERIAL AND RIP RAP ARE SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

WETLAND AND SURACE WATER IMPACTS SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1A	58+66/59+59 -Y1- (LT)	1 @ 6' x 9' RCBC Extension						< 0.01		25		
	58+66/59+59 -Y1- (LT)	Channel Improvements						< 0.01	0.02	31	82	
1B	21+97/25+90 -L- (RT)	1 @ 6' x 7' RCBC Extension						0.09		522		
	21+97/25+90 -L- (RT)	Channel Improvements						< 0.01	< 0.01	20	20	
2A	83+40/85+80 -L- (RT)	Roadway Fill			< 0.01	< 0.01		0.02	< 0.01	233	10	
2B	86+38/86+80 -L- (RT)	66" RCP						< 0.01		24		
		Channel Improvements						< 0.01	< 0.01	25	10	
2C	89+96/90+79 -L- (RT)	Roadway Fill						< 0.01	< 0.01	82	10	
3	83+60/84+62 -L- (RT)	Roadway Fill			< 0.01	< 0.01						
4A	90+74/91+16 -L- (LT)	2 @ 10' x 10' RCBC						0.02		61		
		Channel Improvements						< 0.01	0.01	30	28	
4B	90+59/91+00 -L- (RT)	Channel Improvements						0.01	< 0.01	35	19	
5	91+60/92+06 -L- (LT)	Roadway Fill	< 0.01			0.01						
6A	96+98/98+87 -L- (RT)	48" RCP						0.01		122		
		Channel Change						< 0.01	< 0.01	70	22	
		Roadway Fill	0.09									
6B	95+22/96+53 -L- (LT)	54" RCP						< 0.01		82		
		Channel Improvements						< 0.01	< 0.01	10	65	
TOTALS*:			0.09		< 0.01	0.01		0.21	0.04	1372	266	0

*Rounded totals are sum of actual impacts

NOTES:

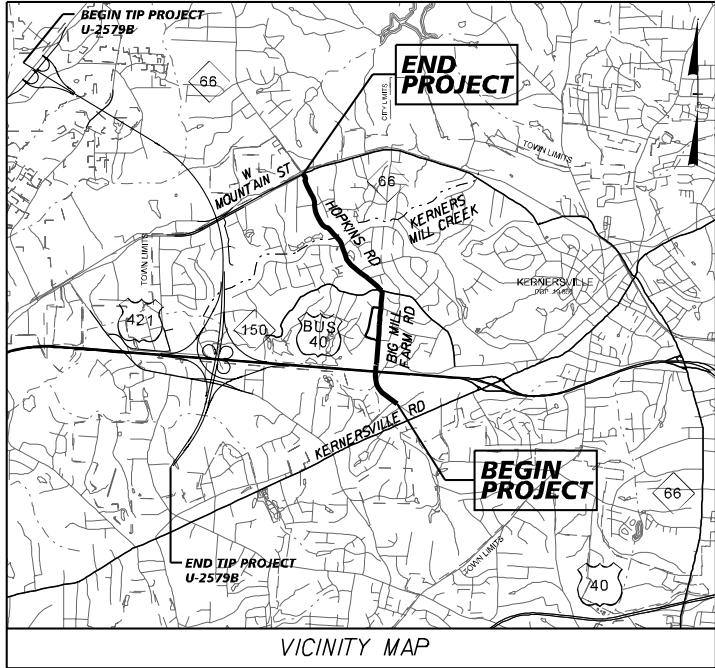
NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
03/06/2020
FORSYTH
U-5760
46381.1.1

SHEET27OF27

TIP PROJECT: U-5760

CONTRACT:

See Sheet IB For Conventional Plan Sheet Symbols



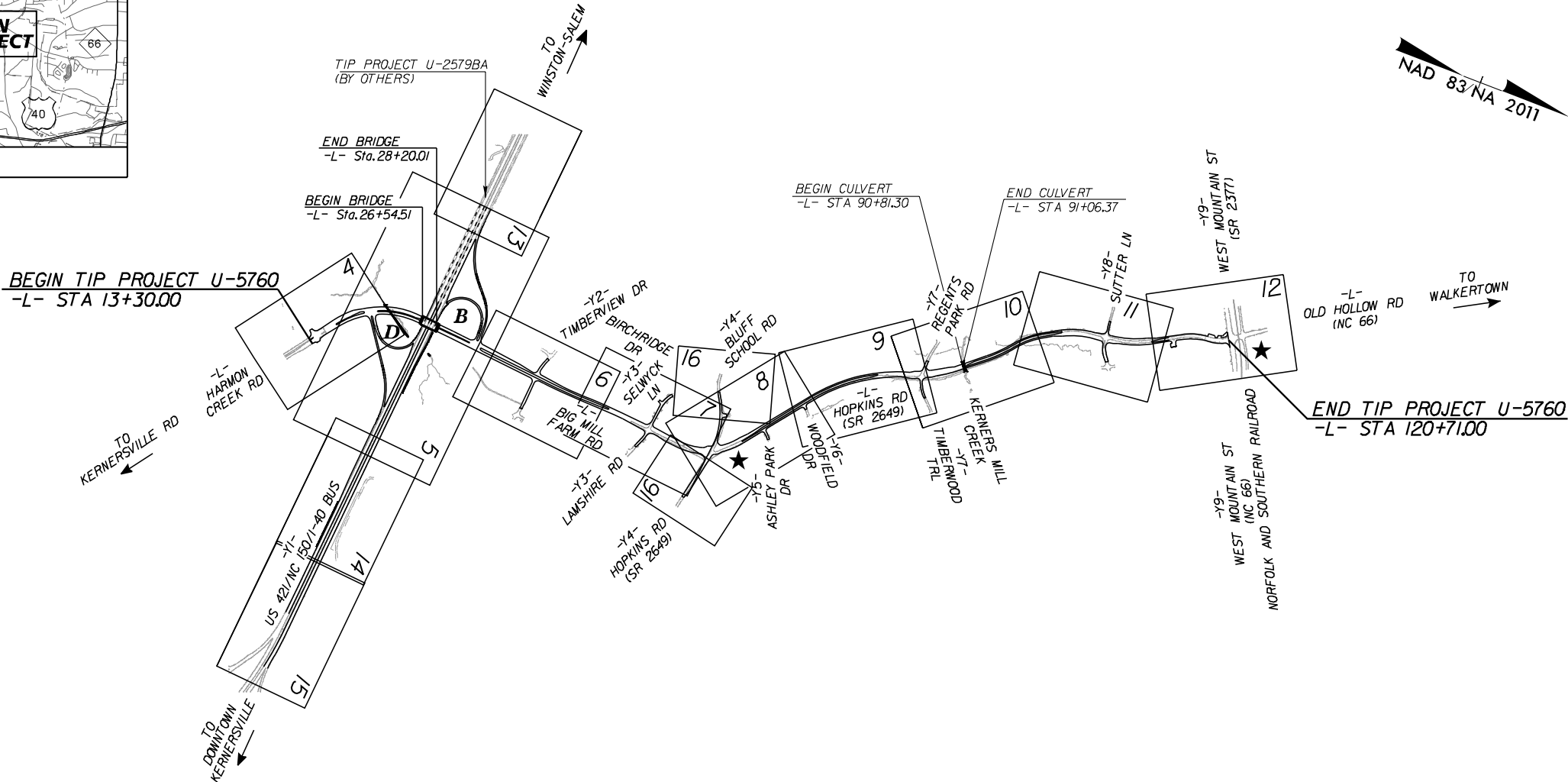
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: HOPKINS ROAD/BIG MILL FARM ROAD IN KERNERSVILLE FROM SOUTH OF US 421/1-40 BUS/NC 150 TO NC 66 (W MOUNTAIN ST)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, CULVERTS, RETAINING WALLS, AND STRUCTURES

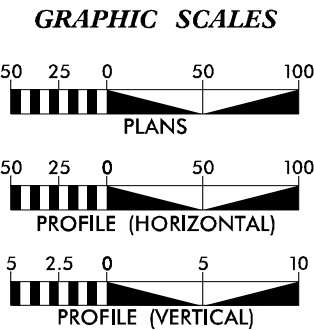
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5760	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
46381.1.1		P.E.	
45721.2.1		R/W	
45721.2.1		UTL	
45721.3.1		CONST.	



★ TRAFFIC SIGNAL

THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS LIMITED TO POINTS AS SHOWN ON THE PLANS
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE TOWN OF KERNERSVILLE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA	
AADT 2023 =	10,700
AADT 2040 =	14,900
K =	10%
D =	60%
T =	3%*
V =	50 MPH
* (TTST 1% + DUAL 2%)	
FUNCTIONAL CLASSIFICATION:	
URBAN COLLECTOR	
REGIONAL TIER	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT U-5760	= 1.998 MILES
LENGTH STRUCTURES TIP PROJECT U-5760	= 0.036 MILES
TOTAL LENGTH TIP PROJECT U-5760	= 2.034 MILES

PLANS PREPARED FOR THE NCDOT BY:

Kimley»Horn

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: APRIL 16, 2021

LETTING DATE: APRIL 18, 2023

JEFFREY W. MOORE, P.E.
PROJECT ENGINEER

RHODES S. HUNT, P.E.
PROJECT DESIGN ENGINEER

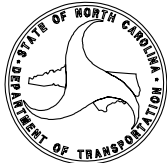
W. AL BLANTON, P.E., P.L.S.
PROJECT TEAM LEAD
NCDOT DIVISION 9

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Computed Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Exist Permanent Easment Pin and Cap	
New Permanent Easement Pin and Cap	
Vertical Benchmark	
Existing Right of Way Marker	
Existing Right of Way Line	
New Right of Way Line	
New Right of Way Line with Pin and Cap	
New Right of Way Line with Concrete or Granite RW Marker	
New Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
New Control of Access	
Existing Easement Line	
New Temporary Construction Easement	
New Temporary Drainage Easement	
New Permanent Drainage Easement	
New Permanent Drainage / Utility Easement	
New Permanent Utility Easement	
New Temporary Utility Easement	
New Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	

*S.U.E. = Subsurface Utility Engineering

Hedge	
Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

POWER:	
Existing Power Pole _____	
Proposed Power Pole _____	
Existing Joint Use Pole _____	
Proposed Joint Use Pole _____	
Power Manhole _____	
Power Line Tower _____	
Power Transformer _____	
U/G Power Cable Hand Hole _____	
H-Frame Pole _____	
U/G Power Line LOS B (S.U.E.*) _____	-----P-----
U/G Power Line LOS C (S.U.E.*) _____	-----P-----
U/G Power Line LOS D (S.U.E.*) _____	-----P-----

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Cable LOS B (S.U.E.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line LOS B (S.U.E.*)	
U/G Water Line LOS C (S.U.E.*)	
U/G Water Line LOS D (S.U.E.*)	
Above Ground Water Line	

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Cable LOS B (S.U.E.*)	
U/G TV Cable LOS C (S.U.E.*)	
U/G TV Cable LOS D (S.U.E.*)	
U/G Fiber Optic Cable LOS B (S.U.E.*)	
U/G Fiber Optic Cable LOS C (S.U.E.*)	
U/G Fiber Optic Cable LOS D (S.U.E.*)	

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line LOS B (S.U.E.*)	
U/G Gas Line LOS C (S.U.E.*)	
U/G Gas Line LOS D (S.U.E.*)	
Above Ground Gas Line	

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Forced Main Line LOS B (S.U.E.*)	
SS Forced Main Line LOS C (S.U.E.*)	
SS Forced Main Line LOS D (S.U.E.*)	

MISCELLANEOUS:

Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line LOS B (S.U.E.*)	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
U/G Test Hole LOS A (S.U.E.*)	
Abandoned According to Utility Records	
End of Information	

PAVEMENT SCHEDULE

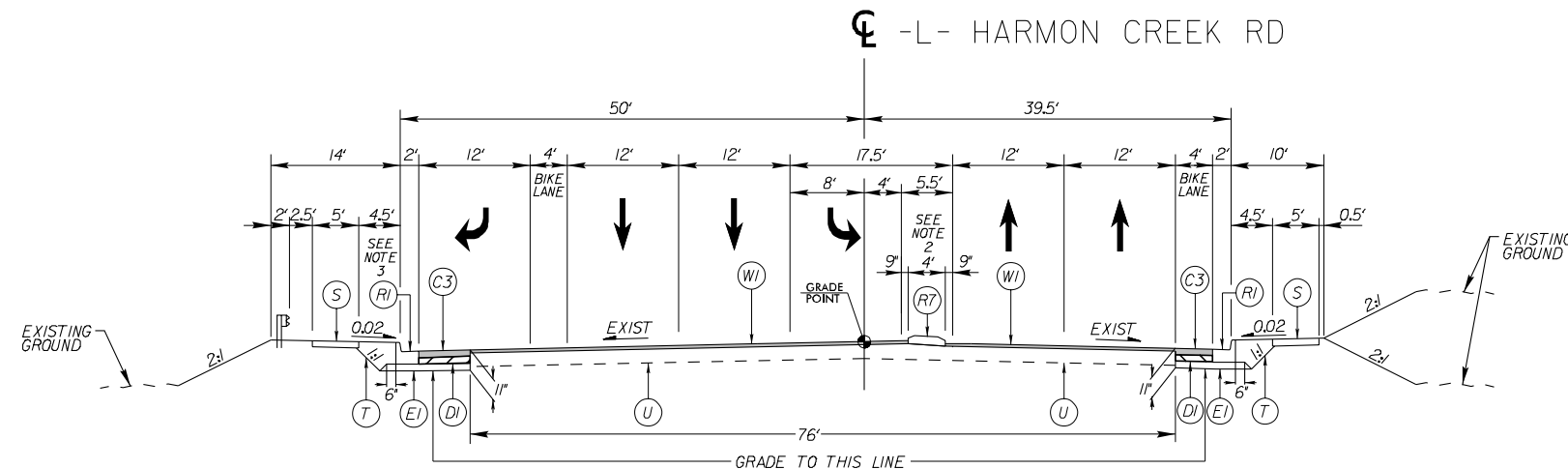
(PRELIMINARY PAVEMENT DESIGN)

C1	PROPOSED APPROX. 15' ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROPOSED APPROX. 2.5' ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 138 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROPOSED APPROX. 3' ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C4	PROPOSED APPROX. 3' ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C5	PROPOSED VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 15" IN DEPTH.
C6	PROPOSED VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 15" OR GREATER THAN 2" IN DEPTH.
D1	PROPOSED APPROX. 4' ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1190C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROPOSED VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1190C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4" IN DEPTH.
E1	PROPOSED APPROX. 4' ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROPOSED APPROX. 4.5' ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YD.
E3	PROPOSED APPROX. 8.5' ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 485 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E4	PROPOSED VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" OR GREATER THAN 5.5" IN DEPTH.
J	PROPOSED 6' AGGREGATE BASE COURSE
K	PROPOSED 12' CLASS IV SUBGRADE STABILIZATION
L	SELECT GRANULAR MATERIAL
N	GEOTEXTILE FOR SOIL STABILIZATION
P	PRIME COAT AT THE RATE OF 0.35 GAL. PER SQ. YD.
R1	PROPOSED 2'-6" CONCRETE CURB & GUTTER
R2	PROPOSED 1'-6" CONCRETE CURB & GUTTER
R3	PROPOSED 8' x 12' CONCRETE CURB
R4	PROPOSED SHOULDER BERM GUTTER
R5	PROPOSED EXPRESSWAY GUTTER
R6	PROPOSED CONCRETE VALLEY GUTTER
R7	PROPOSED 5' MONOLITHIC CONCRETE ISLAND (KEYED-IN)
S	PROPOSED 4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	VARIABLE DEPTH MILLING
W1	WEDGING DETAIL FOR RESURFACING (SEE DETAIL, SHEET 2A-3)
Y	MILLED RUMBLE STRIPS

NOTES:

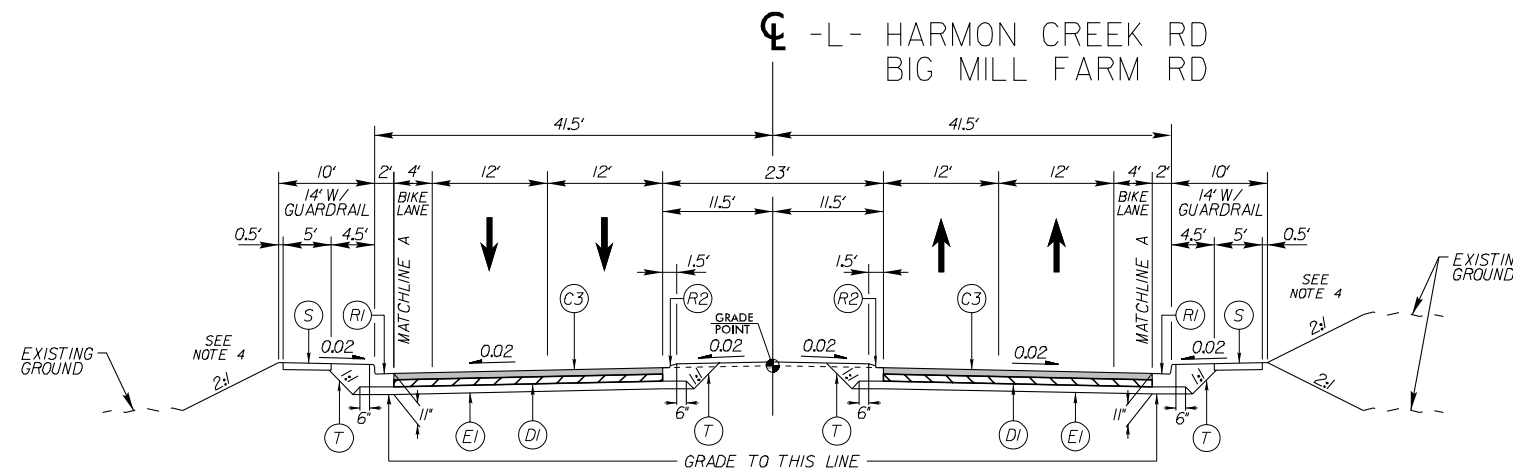
NOTES:

1. FOR FILL OR CUT SLOPE HEIGHTS < 5', USE 4:1 SLOPES
2. FOR FILL OR CUT SLOPE HEIGHTS 5' - 10', USE 3:1 SLOPES
3. FOR FILL OR CUT SLOPE HEIGHTS > 10', USE 2:1 SLOPES
2. RETAIN EXIST CONC ISLAND FROM -L- STA 13+30.00 TO 13+66.77
3. RETAIN EXIST 2'-6" C&G FROM -L- STA 13+30.00 TO 13+80.92 (LT)
4. USE 4:1 (MAX) SLOPES INSIDE INTERCHANGE FROM -L- STA 21+66.86 TO 25+80.00 (RT) AND FROM -L- STA 29+44.26 TO 32+07.93 (LT)
5. PAVEMENT EDGE SLOPES 1:1 UNLESS OTHERWISE INDICATED



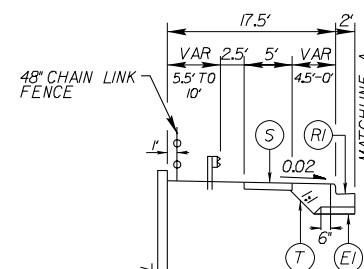
TYPICAL SECTION NO. 1

-L- STA 13+30.00 TO 14+86.93



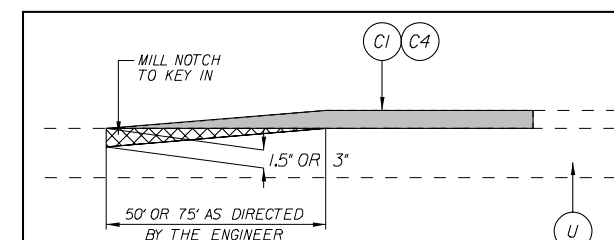
TYPICAL SECTION NO. 2

-L- STA 14+86.93 TO 26+54.51 (BEGIN BRIDGE)
-L- STA 28+20.01 (END BRIDGE) TO 40+33.74

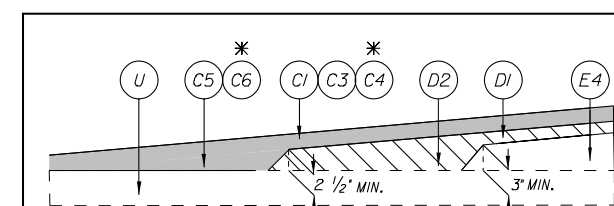


TYPICAL SECTION NO. 2A

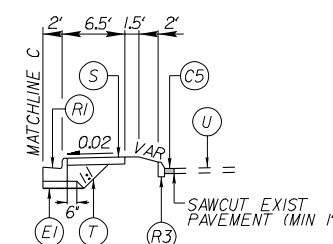
-L STA 15+00.00 TO 26+54.51 (BEGIN BRIDGE) (LT)
 -L STA 25+80.00 TO 26+54.51 (BEGIN BRIDGE) (RT)
 -L STA 28+20.01 (END BRIDGE) TO 29+44.26 (LT)
 -L STA 28+20.01 (END BRIDGE) TO 28+70.26 (RT)



INCIDENTAL MILLING DETAIL

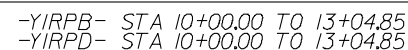


WEDGING DETAIL (WI) FOR RESURFACING



-L- STA 119+65.00 TO 120+53.52 (RT)

NOTES:
1. USE 4:1 (MAX) SLOPES INSIDE INTERCHANGE FROM -YI- STA 45+89.44
TO 52+47.87 (LT)
2. INSTALL MILLED RUMBLE STRIPS FROM -YI- STA 24+12.00 TO 41+50.00 (LT) AND
FROM -YI- STA 32+46.00 TO 53+35.00 (RT)
3. MATCH EXISTING CROWN POINT AS CONSTRUCTED BY U-2579BA (BY OTHERS)
FROM -YI- STA 41+50.00 TO 53+35.00
4. USE DETAIL FOR BENCH MILLING ADJACENT TO WIDENING (SEE DETAIL, THIS SHEET)
5. PAVEMENT EDGE SLOPES 1:1 UNLESS OTHERWISE INDICATED



Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

PROJECT REFERENCE NO.

U-5760

SHEET NO.

2A-5

ROADWAY DESIGN ENGINEER

PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.		SHEET NO.
U-5760		2A-5
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
PAVEMENT SCHEDULE		
(PRELIMINARY PAVEMENT DESIGN)		
C1	1.5" S9.5B	
C2	2.5" S9.5B	
C3	3" S9.5B	
C4	3" S9.5C	
C5	VAR. DEPTH S9.5B	
C6	VAR. DEPTH S9.5C	
D1	4" I19.0C	
D2	VAR. DEPTH I19.0C	
E1	4" B25.0C	
E2	4.5" B25.0C	
E3	8.5" B25.0C	
E4	VAR. DEPTH B25.0C	
J	6" AGGREGATE BASE COURSE	
K	12" CLASS IV SUBGRADE STABILIZATION	
L	SELECT GRANULAR MATERIAL	
N	GEOTEXTILE FOR SOIL STABILIZATION	
P	PRIME COAT	
R1	2'-6" CONCRETE CURB & GUTTER	
R2	1'-6" CONCRETE CURB & GUTTER	
R3	8" X 12" CURB	
R4	SHOULDER BERM GUTTER	
R5	EXPRESSWAY GUTTER	
R6	VALLEY GUTTER	
R7	5" MONOLITHIC CONCRETE ISLAND (KEYED-IN)	
S	4" CONCRETE SIDEWALK	
T	EARTH MATERIAL	
U	EXISTING PAVEMENT	
V	MILLING	
W1	WEDGING	
Y	MILLED RUMBLE STRIPS	

CL -YIRPB- US 421/I-40 BUS/NC 150 RAMP B
CL -YIRPD- US 421/I-40 BUS/NC 150 RAMP D

OUTSIDE INSIDE

30' 17' W/GR 4' 12' 15' W/GR 15' 6' 10'

HINGE POINT FOR FILLS 4' FDPS 4' FDPS HINGE POINT FOR CUTS

EXISTING GROUND VAR. SLOPES 6:1 2:1 6:1 4:1

GRADE POINT C3 0.08 0.02 0.02 0.02 0.08

1" GRADE TO THIS LINE

T DI EI T

TYPICAL SECTION NO. 8
-YIRPB- STA 13+04.85 TO 21+12.76
-YIRPD- STA 13+04.85 TO 19+86.45

CL -YILPB- US 421/I-40 BUS/NC 150 LOOP B

VARIES 2' MIN 12' 2' 14' SEE NOTE 1

MATCH TYPICAL SECTION NO.6

GRADE POINT C4 0.0208 0.02

EXISTING GROUND 4:1 4:1

15.5' 6' T

GRADE TO THIS LINE

DI E3 T

TYPICAL SECTION NO. 9
-YILPB- STA 10+00.00 TO 12+23.27

CL -YILPD- US 421/I-40 BUS/NC 150 LOOP D

VARIES 2' MIN 12' 2' 14' SEE NOTE 2

MATCH TYPICAL SECTION NO.6

GRADE POINT C4 0.0208 0.02

EXISTING GROUND 4:1

15.5' 6' T

GRADE TO THIS LINE

DI E3 T

TYPICAL SECTION NO. 10
-YILPD- STA 10+00.00 TO 12+23.42

CL -YILPB- US 421/I-40 BUS/NC 150 LOOP B
CL -YILPD- US 421/I-40 BUS/NC 150 LOOP D

OUTSIDE INSIDE

10' 6' 15' 12' 6' 12' 2' 14'

HINGE POINT FOR CUTS 4' FDPS 4' FDPS HINGE POINT FOR FILLS

EXISTING GROUND VAR. SLOPES 6:1 4:1 6:1 4:1

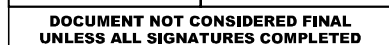
GRADE POINT C3 0.04 0.02 0.02 0.08 0.02

1" GRADE TO THIS LINE

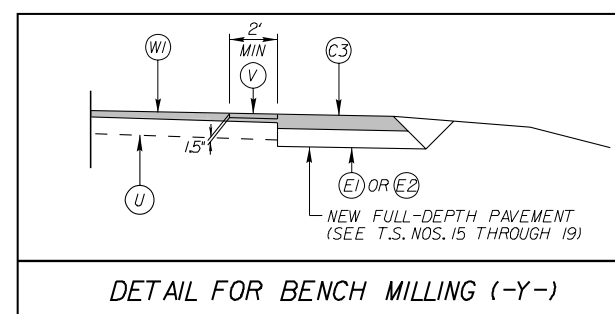
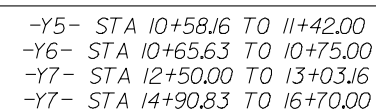
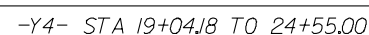
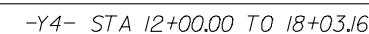
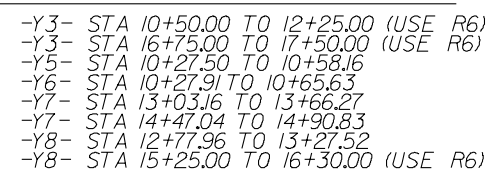
T DI EI T

TYPICAL SECTION NO. 11
-YILPB- STA 12+23.27 TO 17+08.66
-YILPD- STA 12+23.42 TO 16+05.58

NOTES:
1. MATCH LEFT SIDE OF TYPICAL SECTION NO.6A FROM -YILPB- STA 10+00.00 TO 10+20.91 (RT)
2. MATCH RIGHT SIDE OF TYPICAL SECTION NO.6A FROM -YILPD- STA 10+00.00 TO 10+39.74 (RT)
3. PAVEMENT EDGE SLOPES 1:1 UNLESS OTHERWISE INDICATED

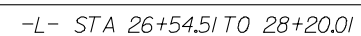
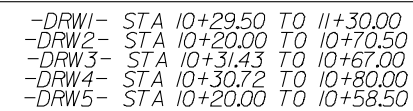
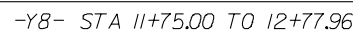


NOTES:
1. SEE PLANS FOR ISLAND (R7) LOCATIONS
2. SEE PLANS FOR SIDEWALK LOCATIONS ALONG -Y2- AND -Y8-
3. PAVEMENT EDGE SLOPES 1:1 UNLESS OTHERWISE INDICATED

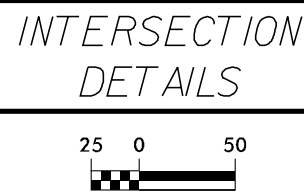
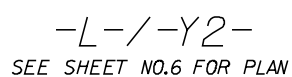
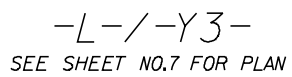
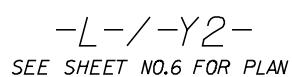


DETAIL FOR BENCH MILLING (-Y-)

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NOTES:
1. USE DETAIL FOR BENCH MILLING ADJACENT TO WIDENING (SEE DETAIL SHEET 2A-7)
2. SEE PLANS FOR PAVEMENT WIDTH
3. SEE CROSS-SECTIONS FOR CROSS-SLOPES
4. CONSTRUCT ALL DRIVEWAYS TO LIMITS SHOWN ON PLANS AND
WITH ASPHALT PAVEMENT UNLESS OTHERWISE NOTED
5. SURFACE MOUNTED (STRUCTURE ITEM)
6. PAVEMENT EDGE SLOPES 1:1 UNLESS OTHERWISE INDICATED

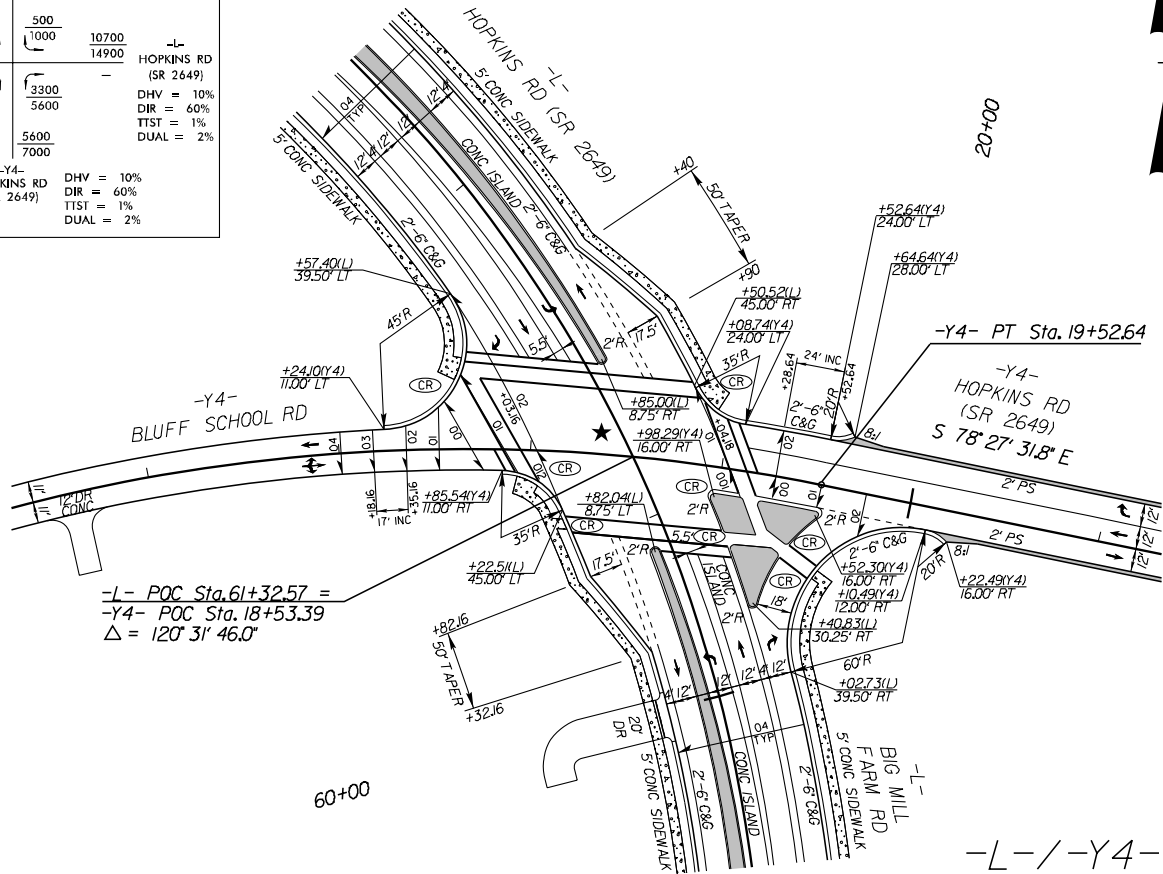


5/14/2020

K:\RAL_Roadway\01036312 - U-5760 Big Mill Farm Road\Roadway\Pro\U5760_rdy.dsh.2B-2.dgn

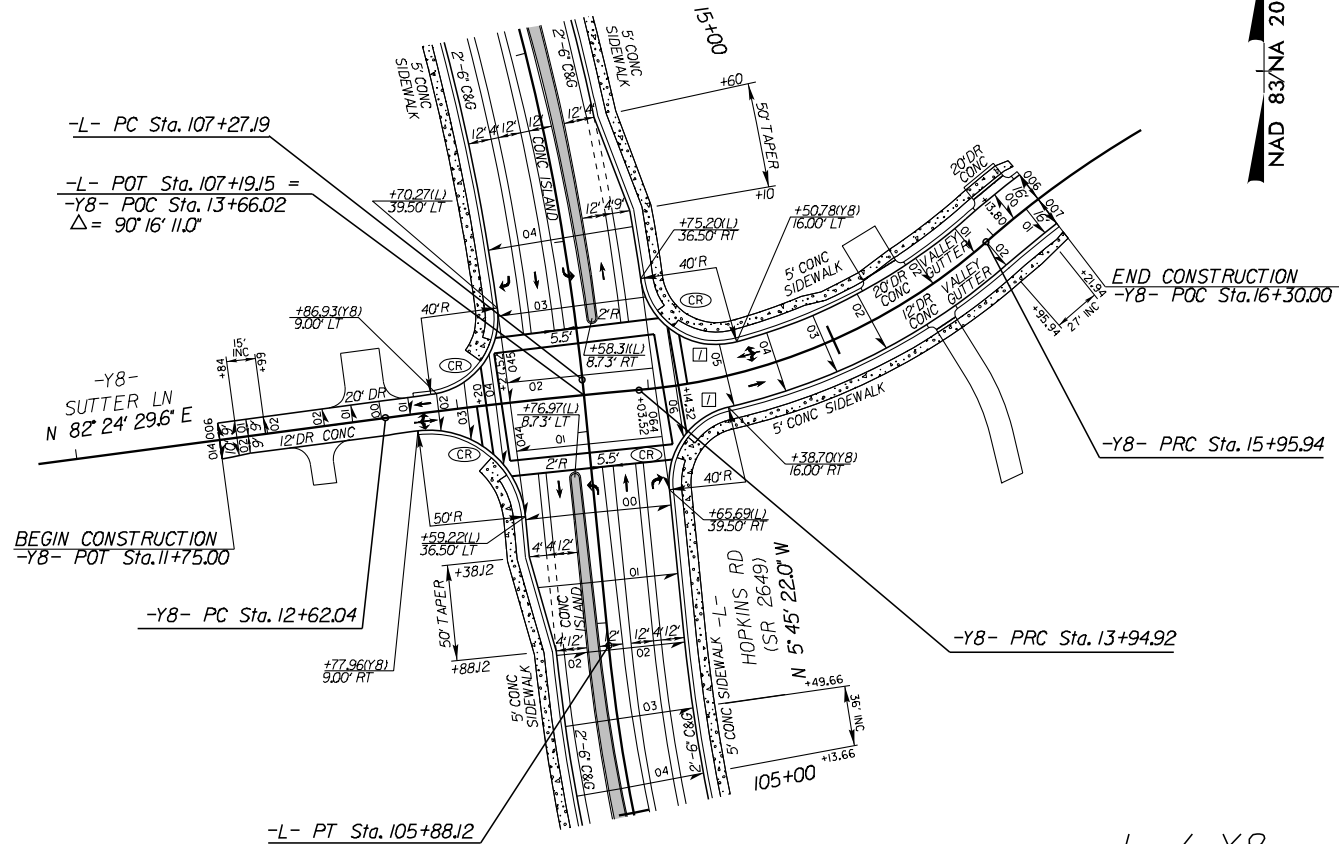
5/14/2020

2023 ADT 2040 ADT	-Y4- BLUFF SCHOOL RD		DHV = 9% DIR = 55% TTST = 1% DUAL = 2%
1200 1300	100 100	500 1000	10700 14900
8600 9400	1700 1100	3300 5600	5600 7000
-L- BIG MILL FARM RD		-L- HOPKINS RD (SR 2649)	
DHV = 10% DIR = 60% TTST = 1% DUAL = 2%		DHV = 10% DIR = 60% TTST = 1% DUAL = 2%	



★ TRAFFIC SIGNAL

-L-/-Y4-
SEE SHEET NOS.7 AND 8 FOR PLAN



□ TRANSITION FROM 2'-6" C&G TO VALLEY GUTTER ALONG RADIUS (TYP) SEE DETAIL SHEET 2A-3

-L-/-Y8-
SEE SHEET NO.11 FOR PLAN

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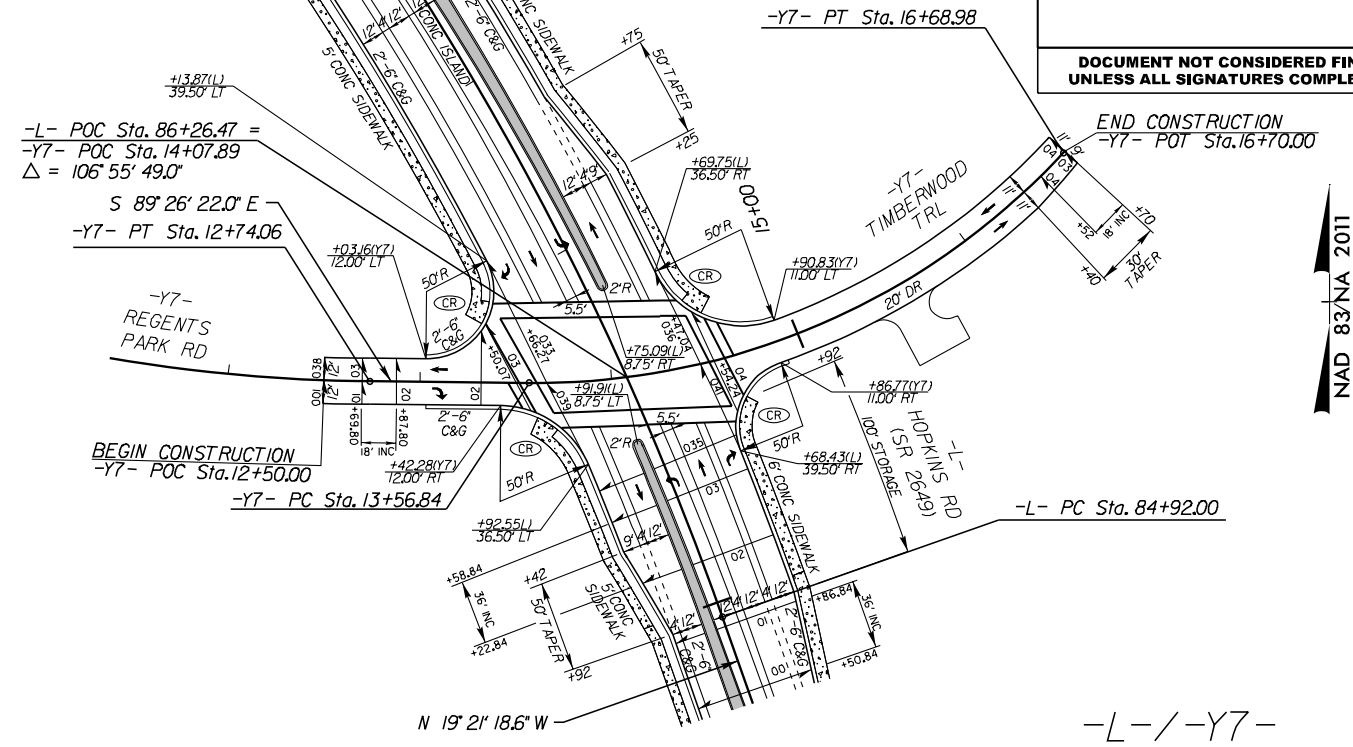
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

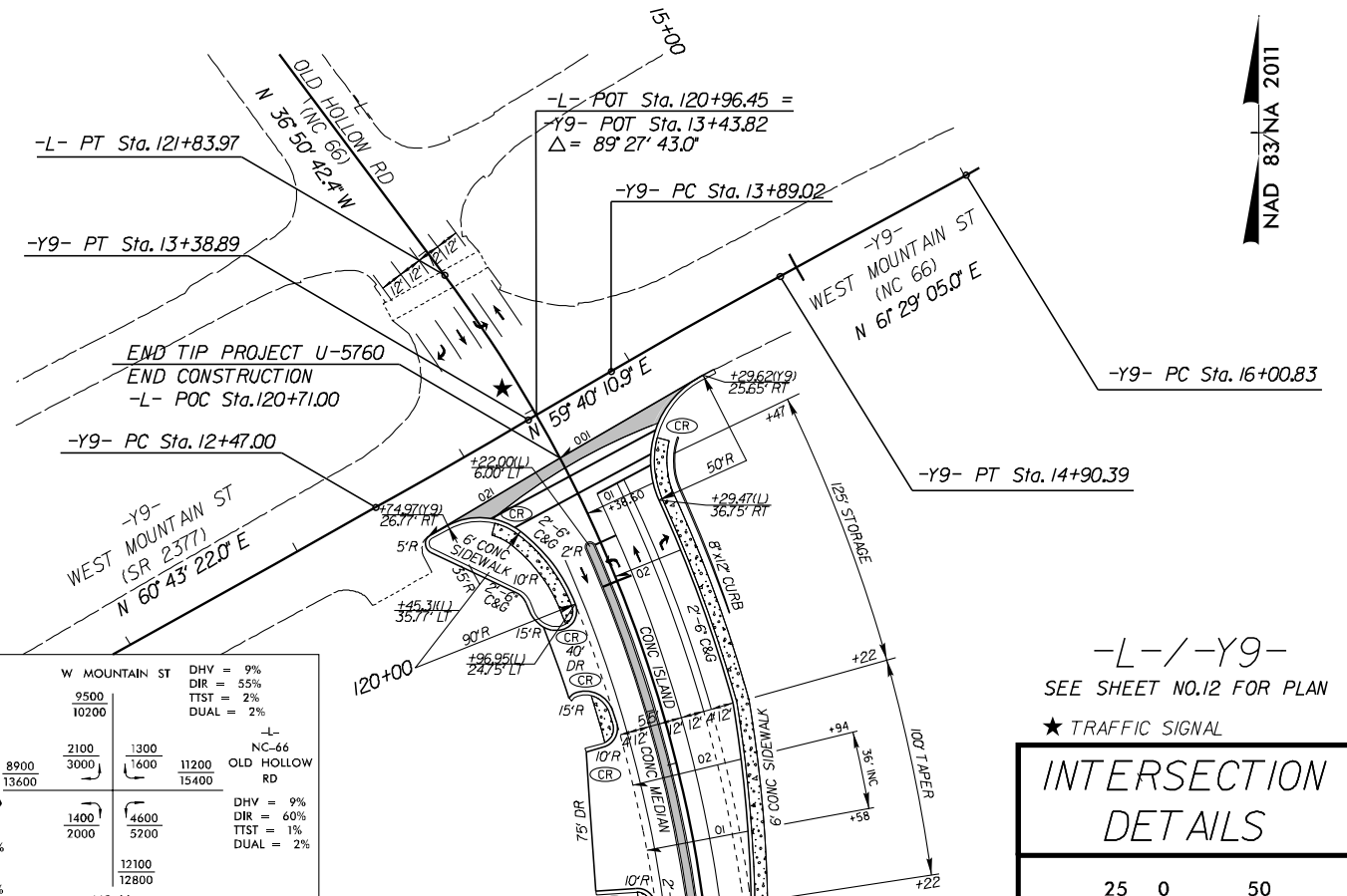
PROJECT REFERENCE NO. U-5760 SHEET NO. 2B-2

ROADWAY DESIGN
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



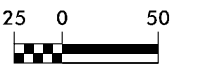
-L-/-Y7-
SEE SHEET NOS.9 AND 10 FOR PLAN



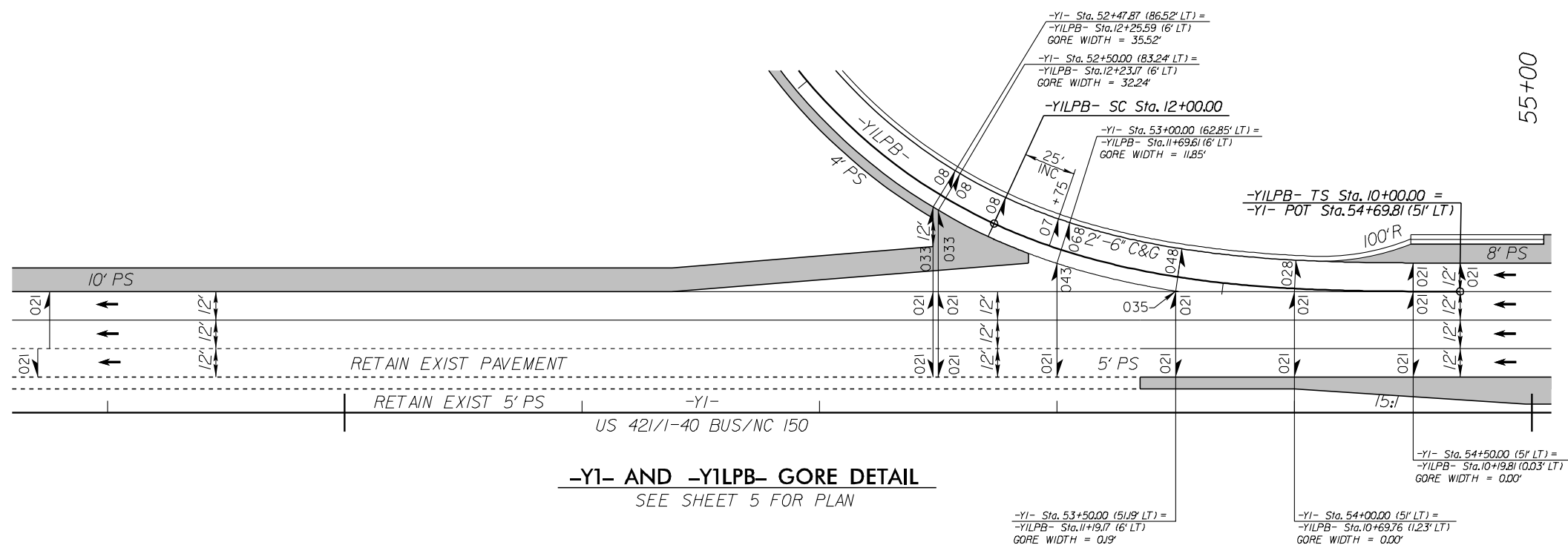
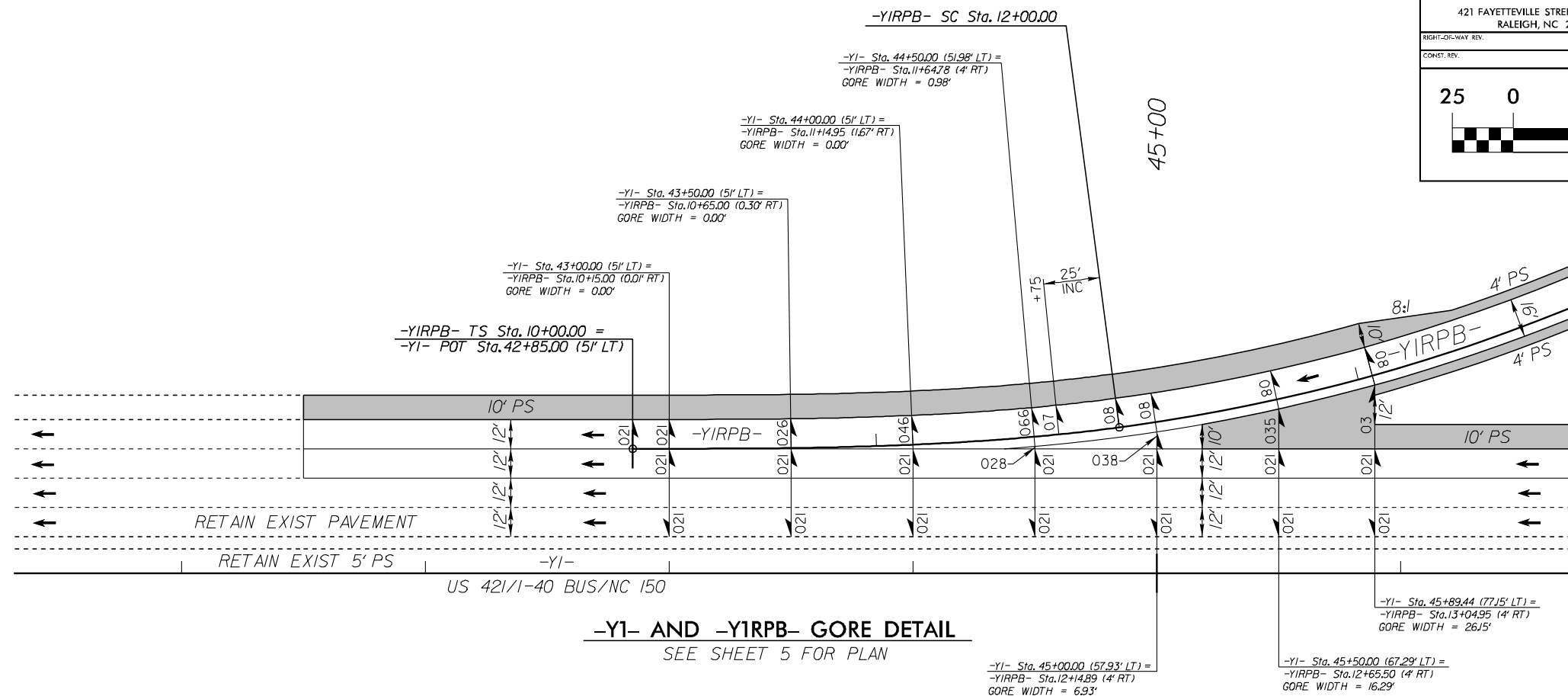
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SEE SHEET NO.12 FOR PLAN

★ TRAFFIC SIGNAL

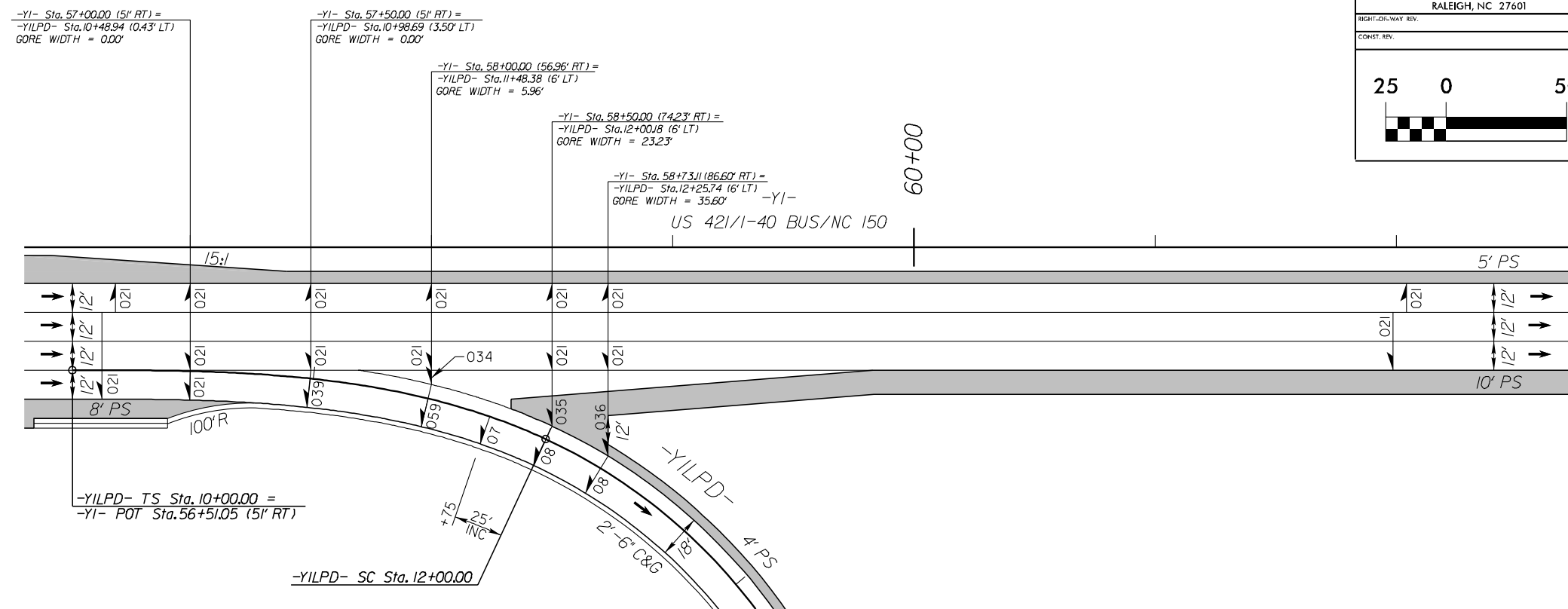
INTERSECTION
DETAILS



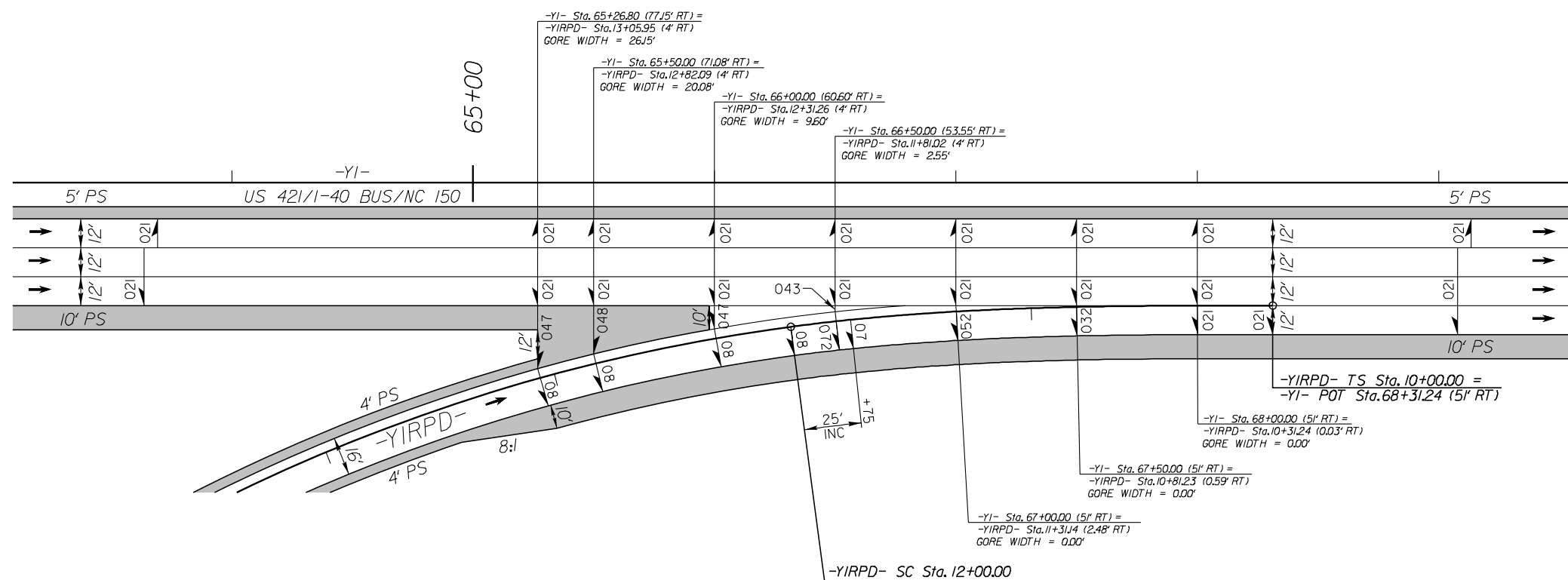
Kimley»Horn ©2020 421 FAYETTEVILLE STREET, SUITE 600 RALEIGH, NC 27601	PROJECT REFERENCE NO. U-5760 SHEET NO. 2B-3
RIGHT-OF-WAY REV. CONST. REV.	ROADWAY DESIGN ENGINEER PAVEMENT DESIGN ENGINEER
25 0 50 	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



 421 FAYETTEVILLE STREET, SUITE 600 RALEIGH, NC 27601 RIGHT-OF-WAY REV. CONST. REV. 25 0 50 	PROJECT REFERENCE NO. <i>U-5760</i>		SHEET NO. <i>2B-4</i>
	ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER
	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



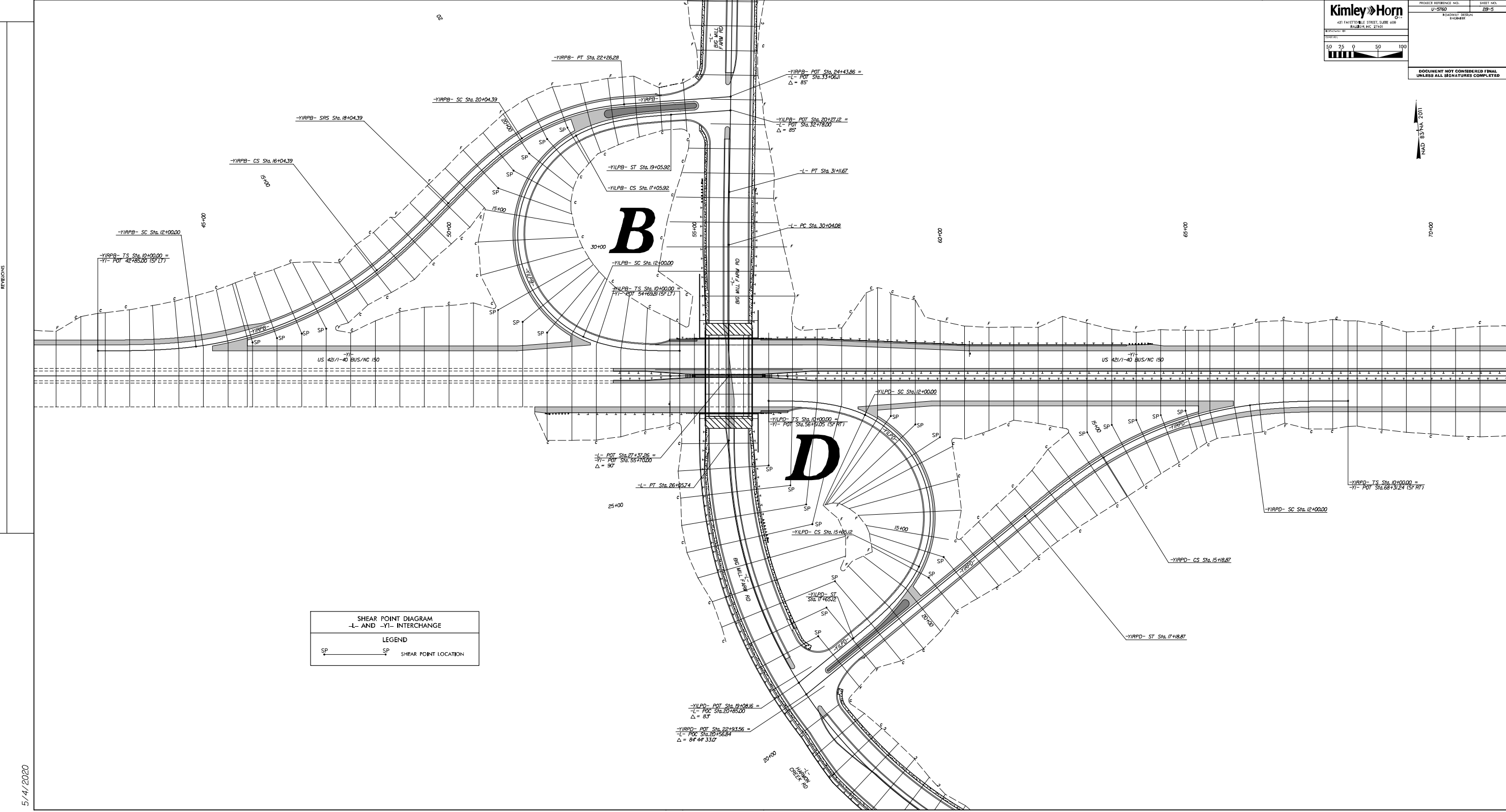
-Y1- AND -Y1LPD- GORE DETAIL
SEE SHEET 5 FOR PLAN



-Y1- AND -Y1RPD- GORE DETAIL
SEE SHEET 5 FOR PLAN

Kimley-Horn
421 FAYETTEVILLE STREET, SUITE 600
RICHMOND, NC 27103
PHONE: 704.344.1111
FAX: 704.344.1112
WWW.KIMLEY-HORN.COM

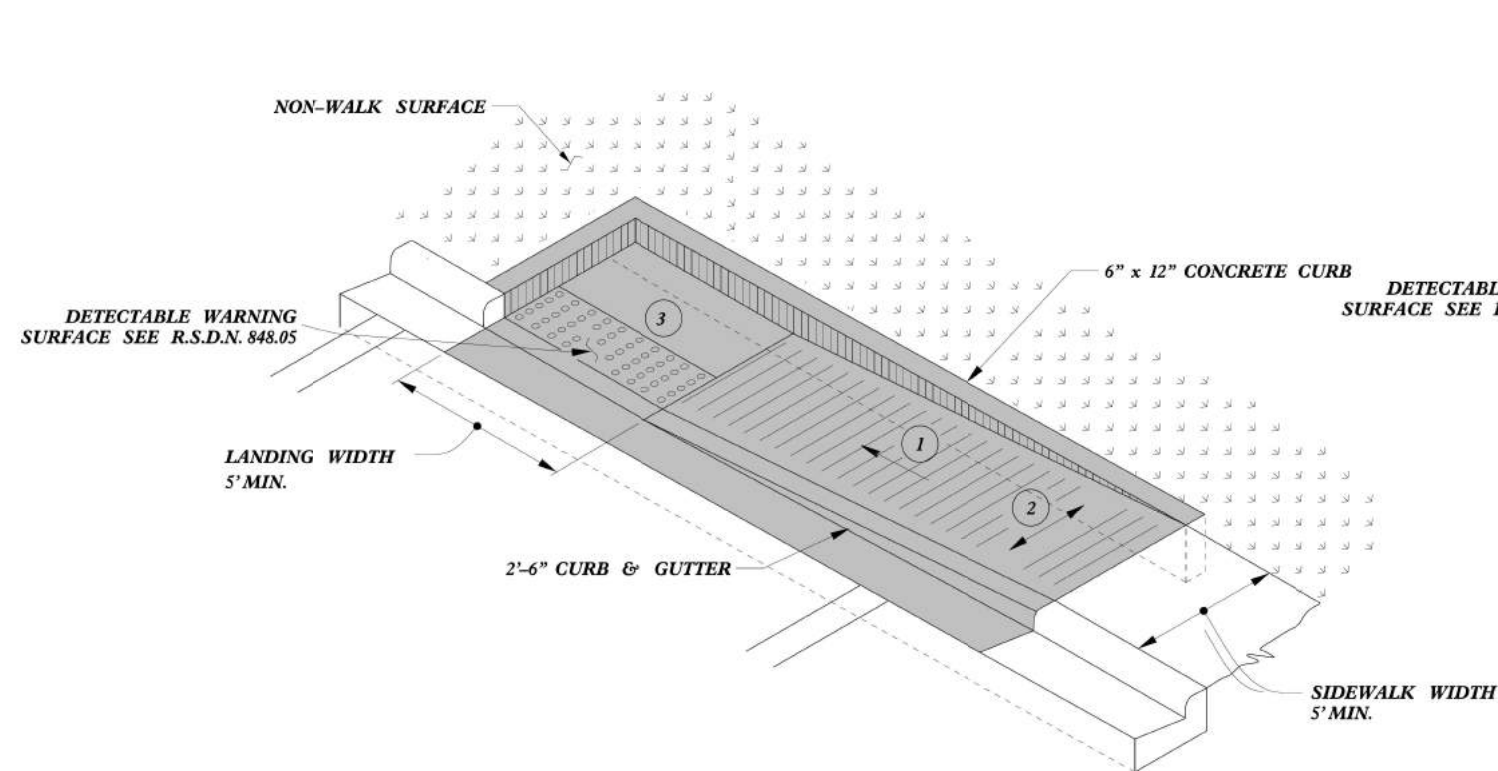
PROJECT REFERENCE NO.	SHEET NOS.
U-5760	28-5
ROADWAY DESIGN	INTERCHANGE
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



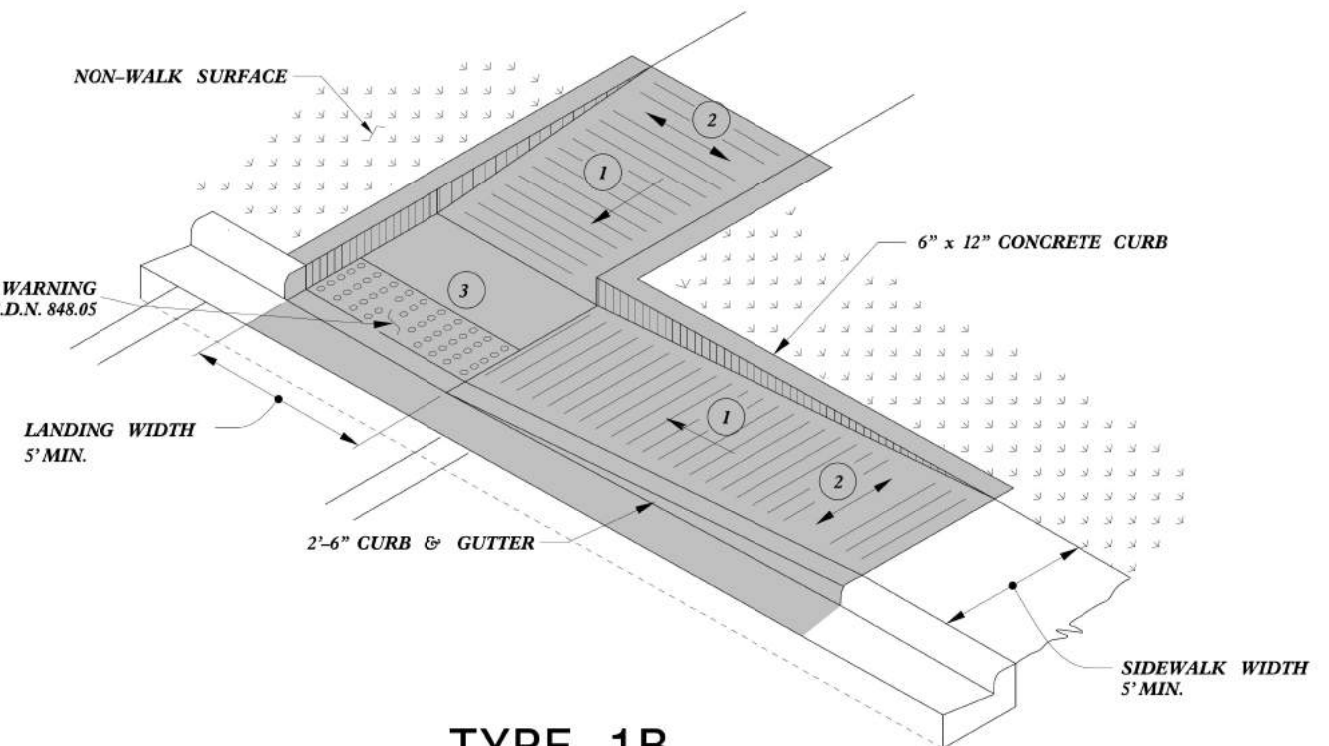
SHEAR POINT DIAGRAM -L- AND -YI- INTERCHANGE	
LEGEND	
SP	SHEAR POINT LOCATION

REVISIONS

5/4/2020



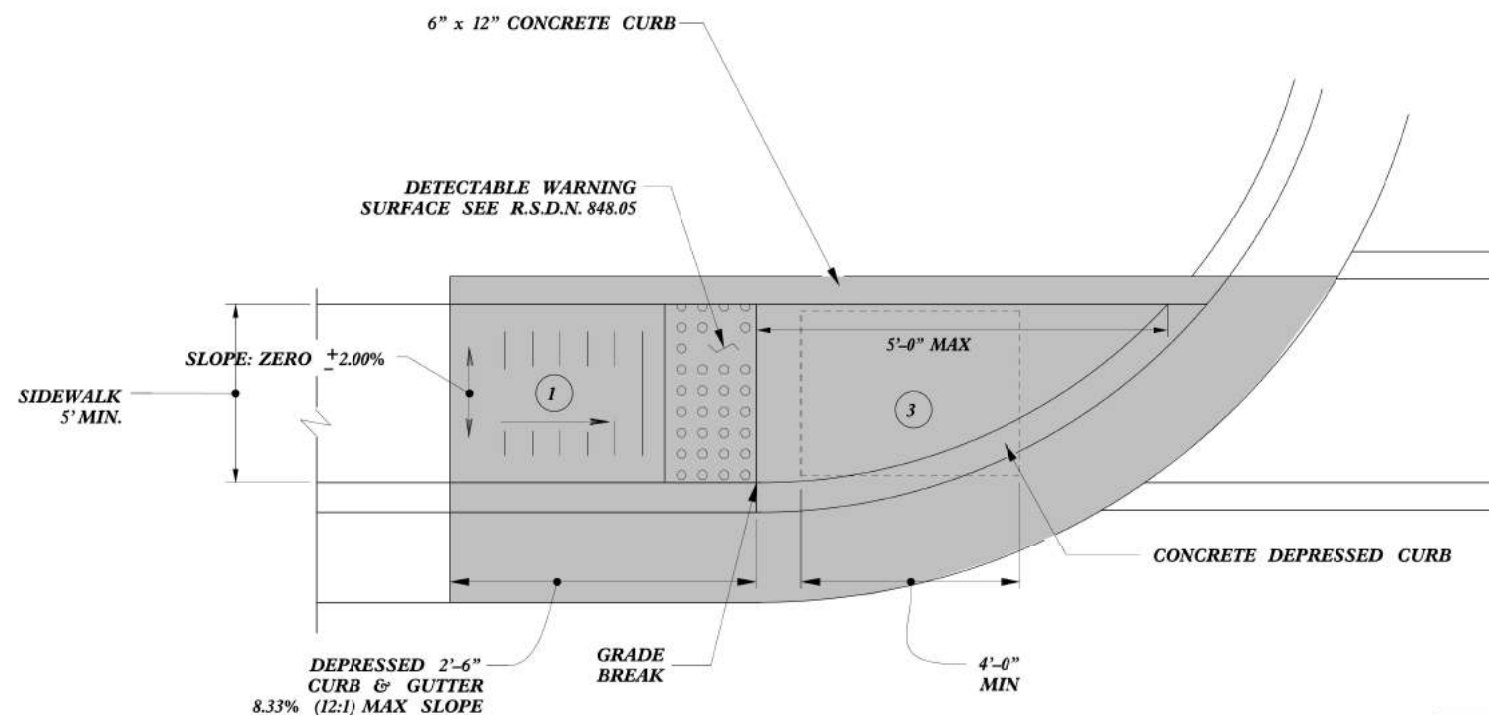
TYPE 1A



TYPE 1B

PAY LIMITS FOR 1 CURB RAMP

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

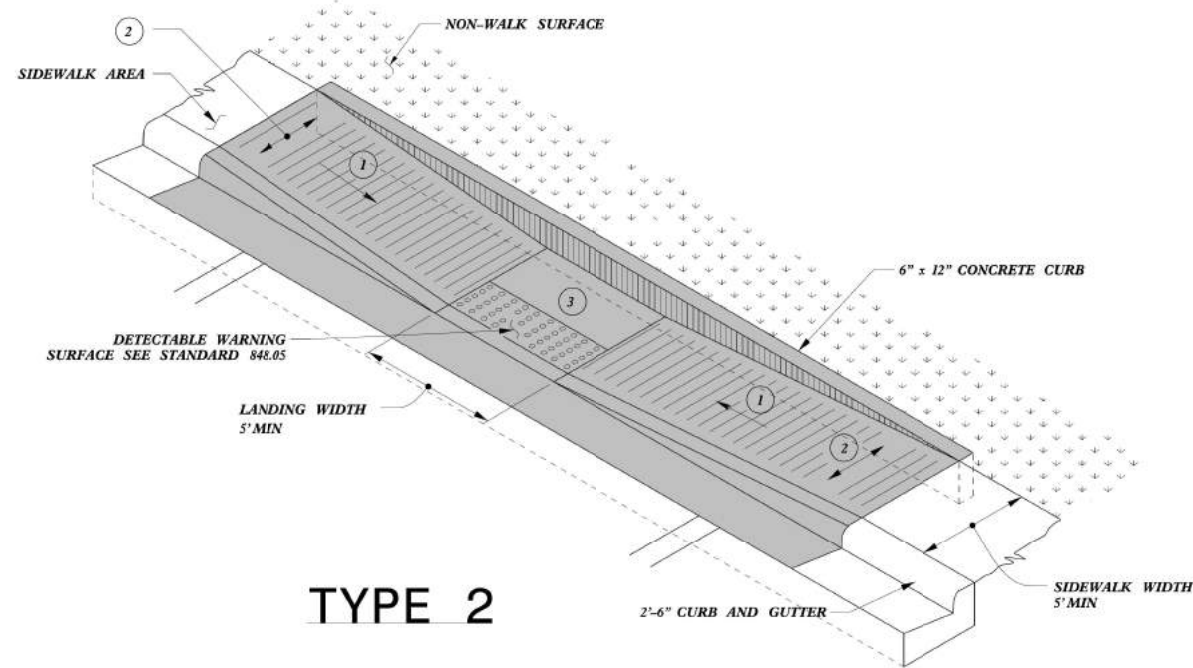


TYPE 1



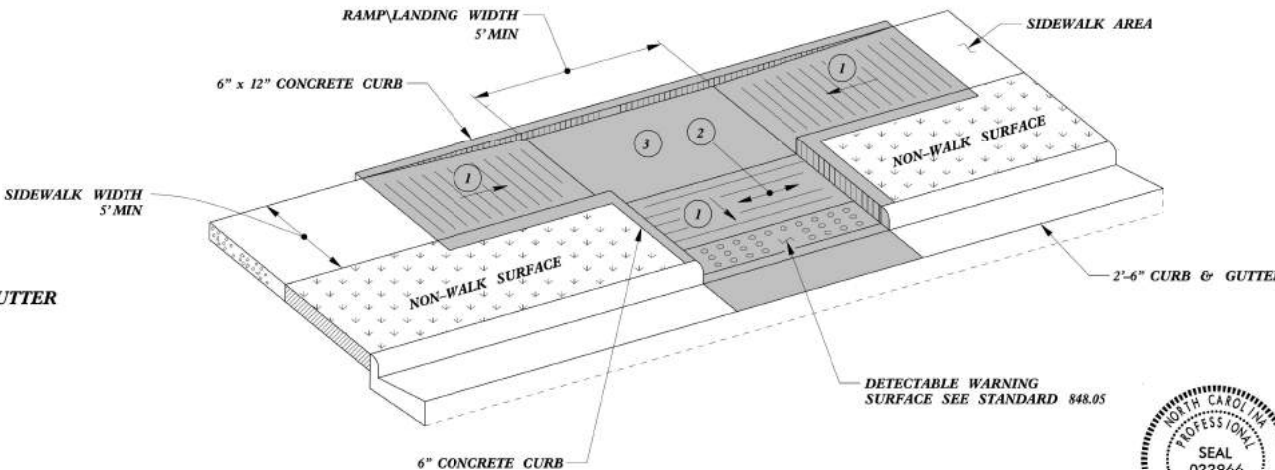
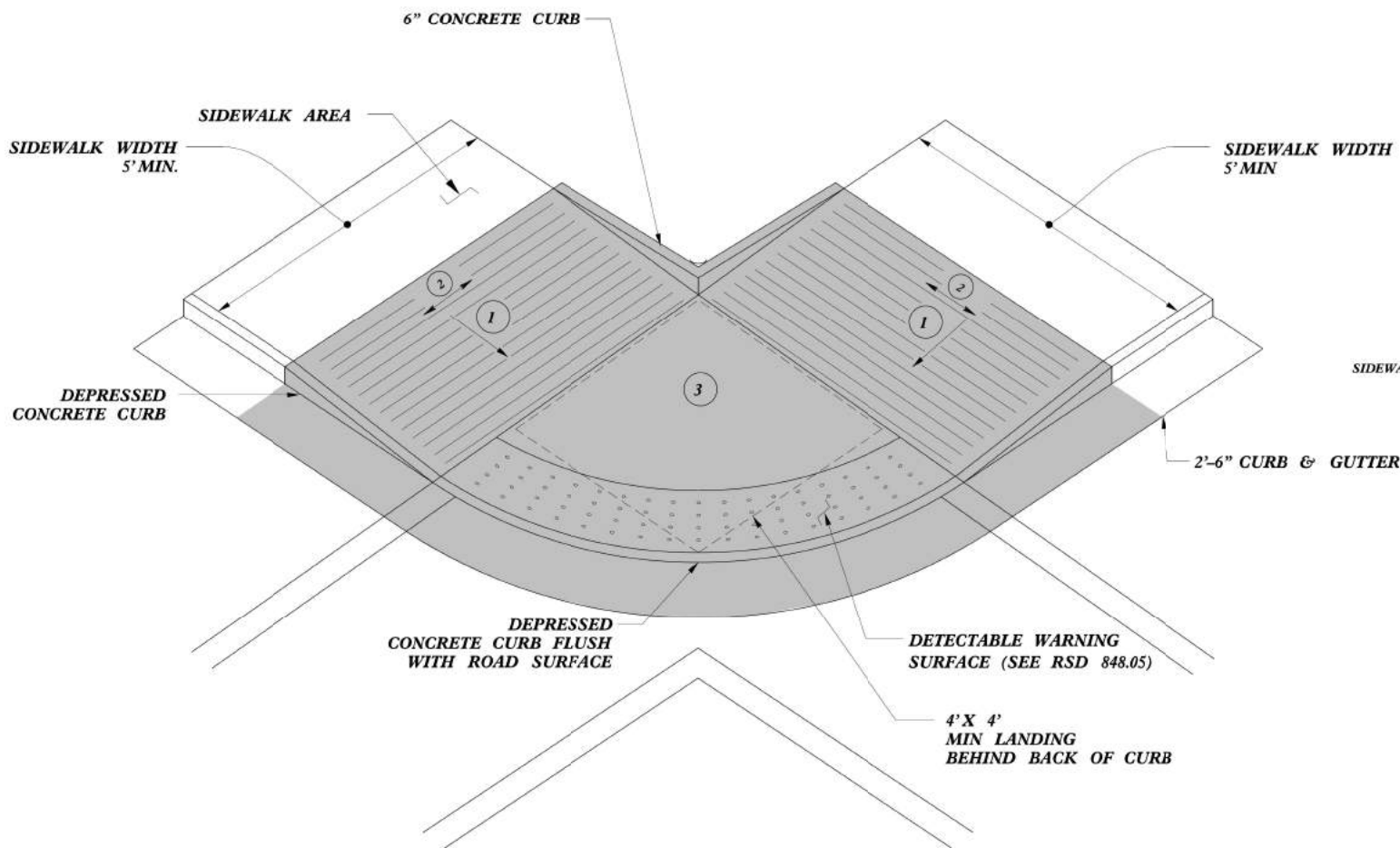
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
CURB RAMPS	
Directional Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: sds/2012CurbRamp/CurbRampDetails.dgn	

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES



PAY LIMITS FOR 1 CURB RAMP

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.

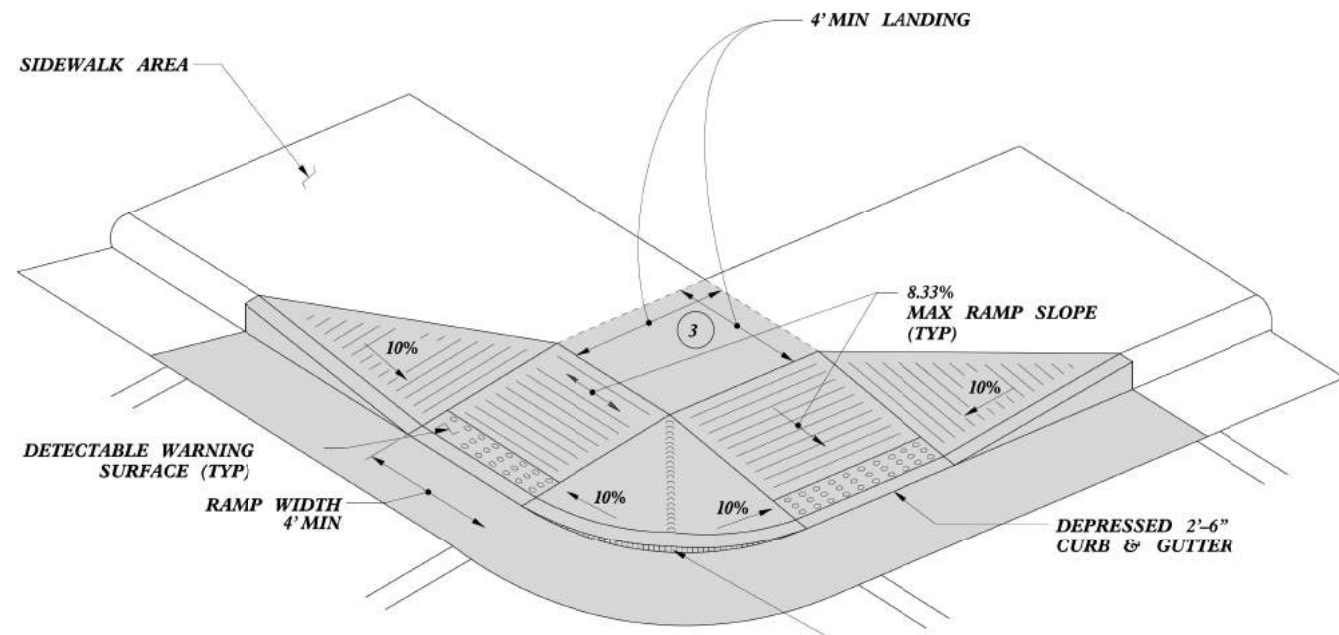


TYPE 3

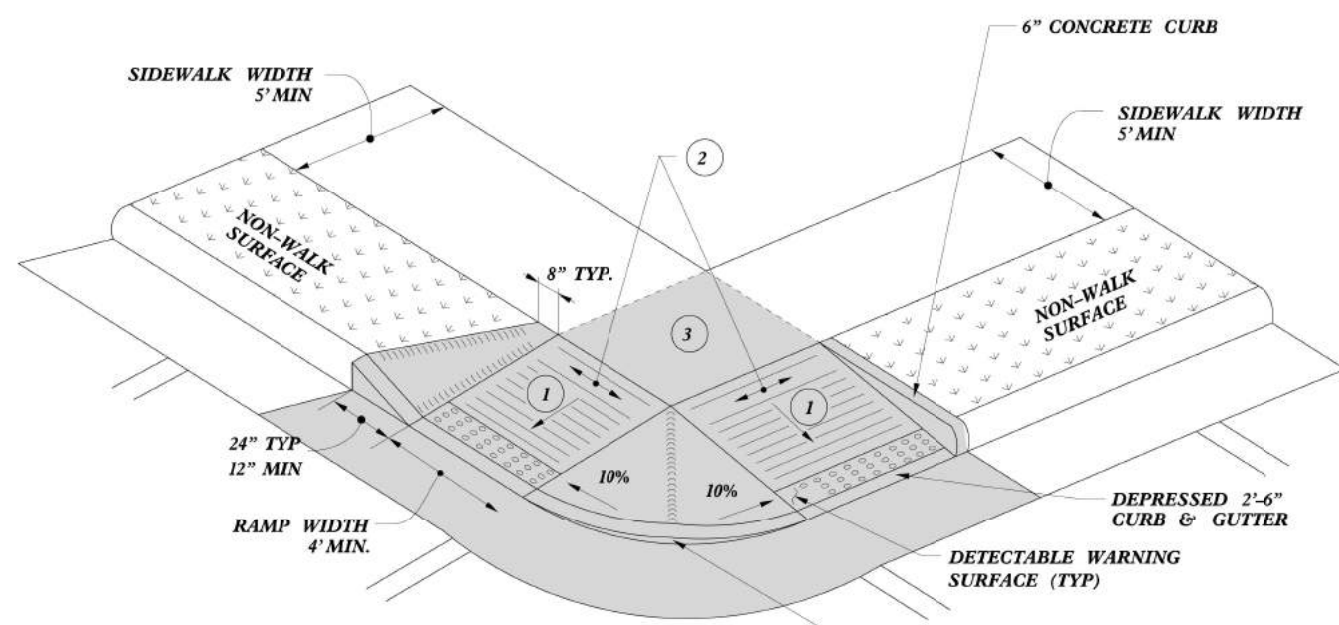
TYPE 2A

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
CURB RAMPS	
Parallel Ramps	
ORIGINAL BY: J.S. HOWERTON	DATE: 7/7/11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC: sds/2012CurbRamp/CurbRampDetails.dgn	

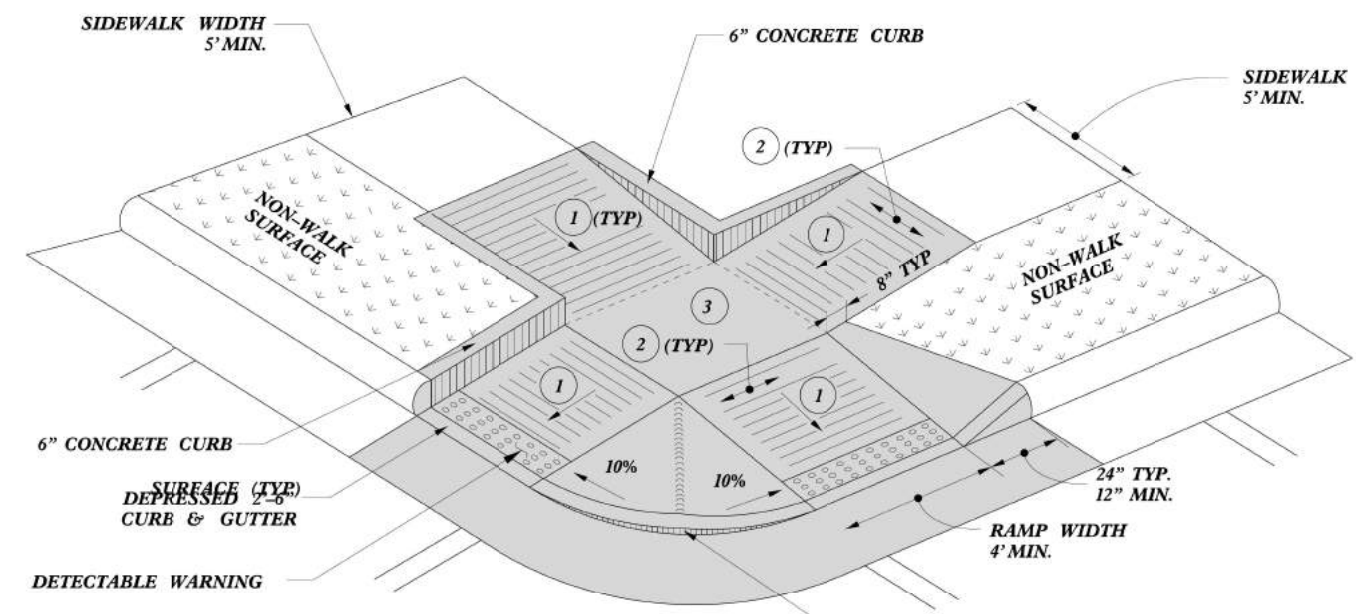


TYPE 4



TYPE 4A

PAY LIMITS FOR 2 CURB RAMPS



TYPE 5

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

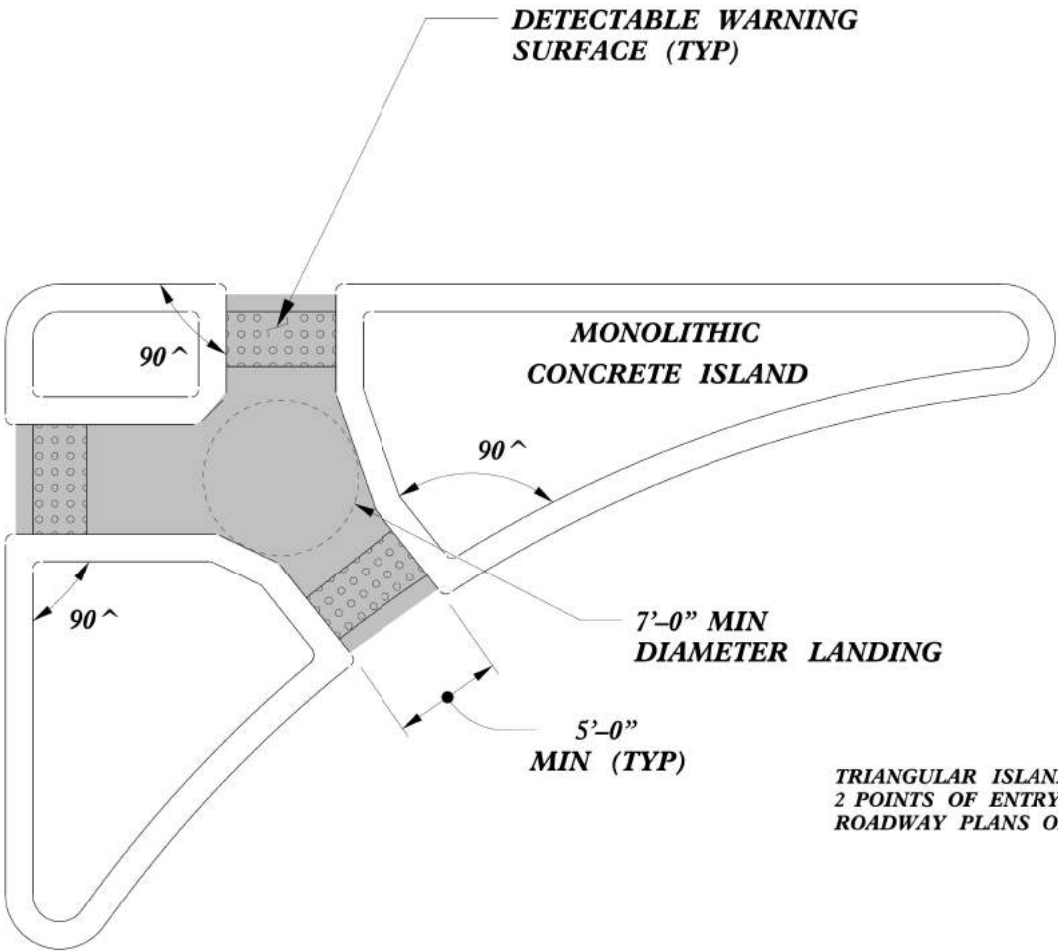
CURB RAMPS
Shared Landing

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC: sds/2012CurbRamp/CurbRampDetails.dgn

5/14/99

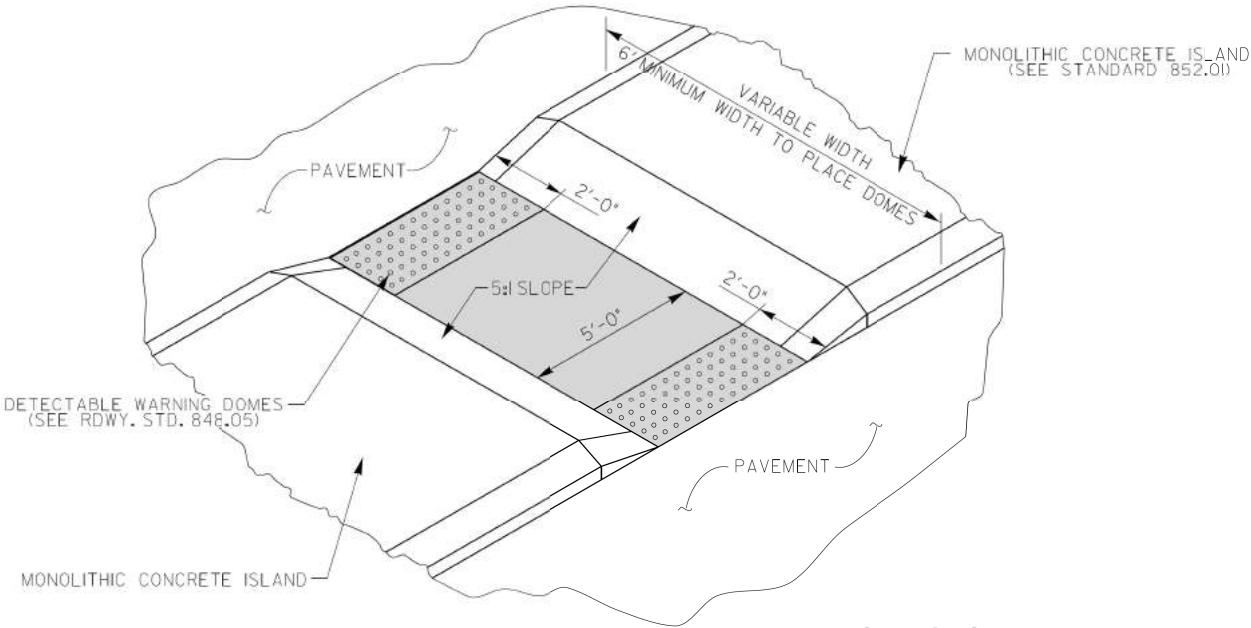
PROJECT REFERENCE NO.	SHEET NO.
U-5760	2C-4

PAY LIMITS FOR 2 OR 3 CURB RAMPS
(CALCULATE BASED ON NUMBER OF
SETS OF TRUNCATED DOMES)

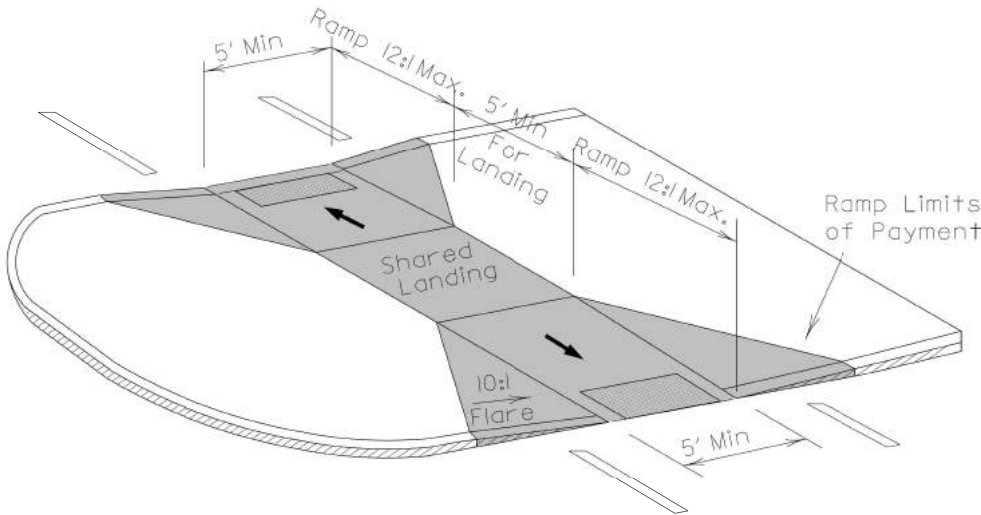


TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY
2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE
ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

**TRIANGULAR ISLAND
WITH CUT THROUGH**



**MEDIAN ISLAND
WITH CUT THROUGH**



**MEDIAN ISLAND
CURB RAMPS**



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

CURB RAMPS
Median or Turn Lane Islands

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC: sds/2012CurbRamp/CurbRampDetails.dgn

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

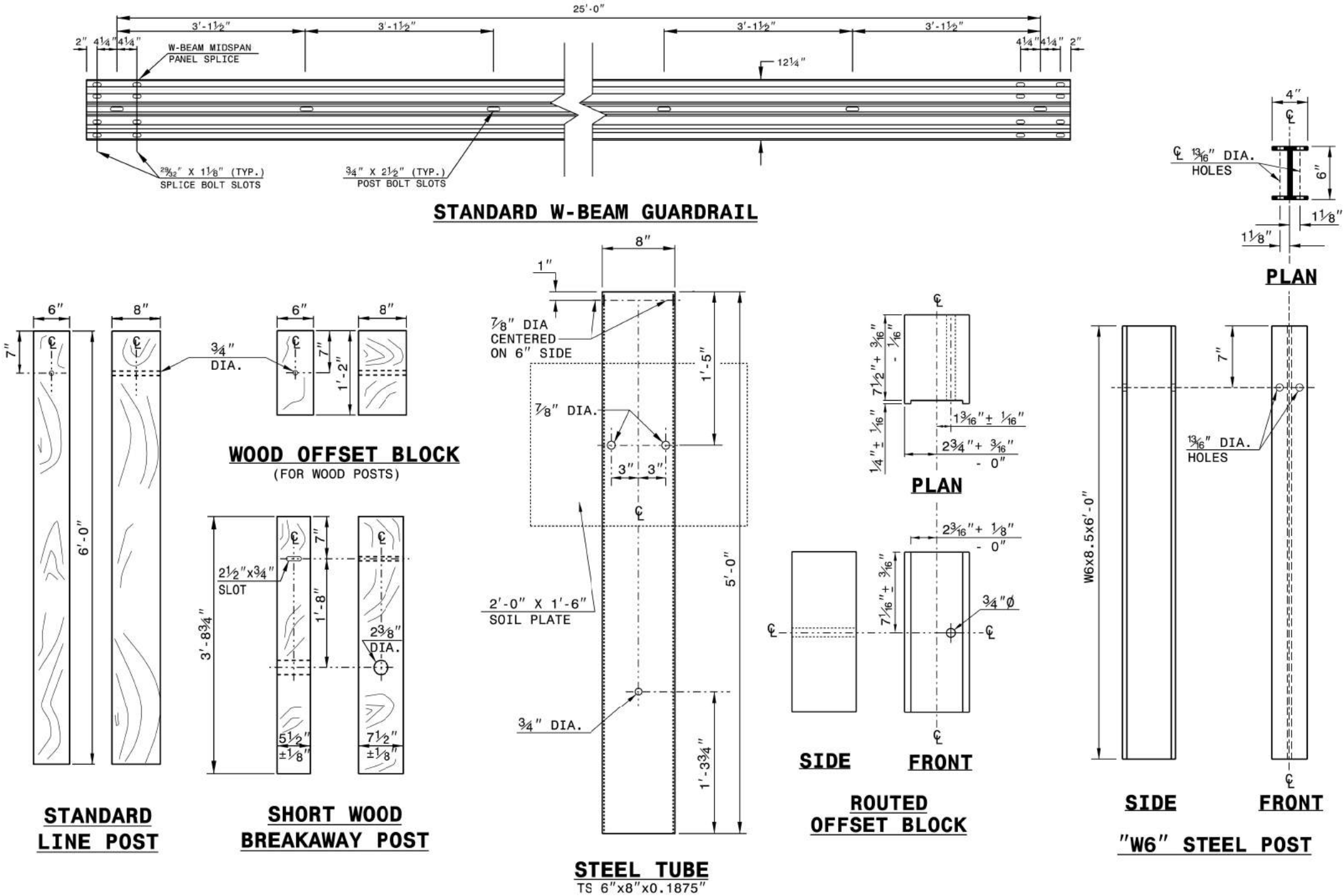
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

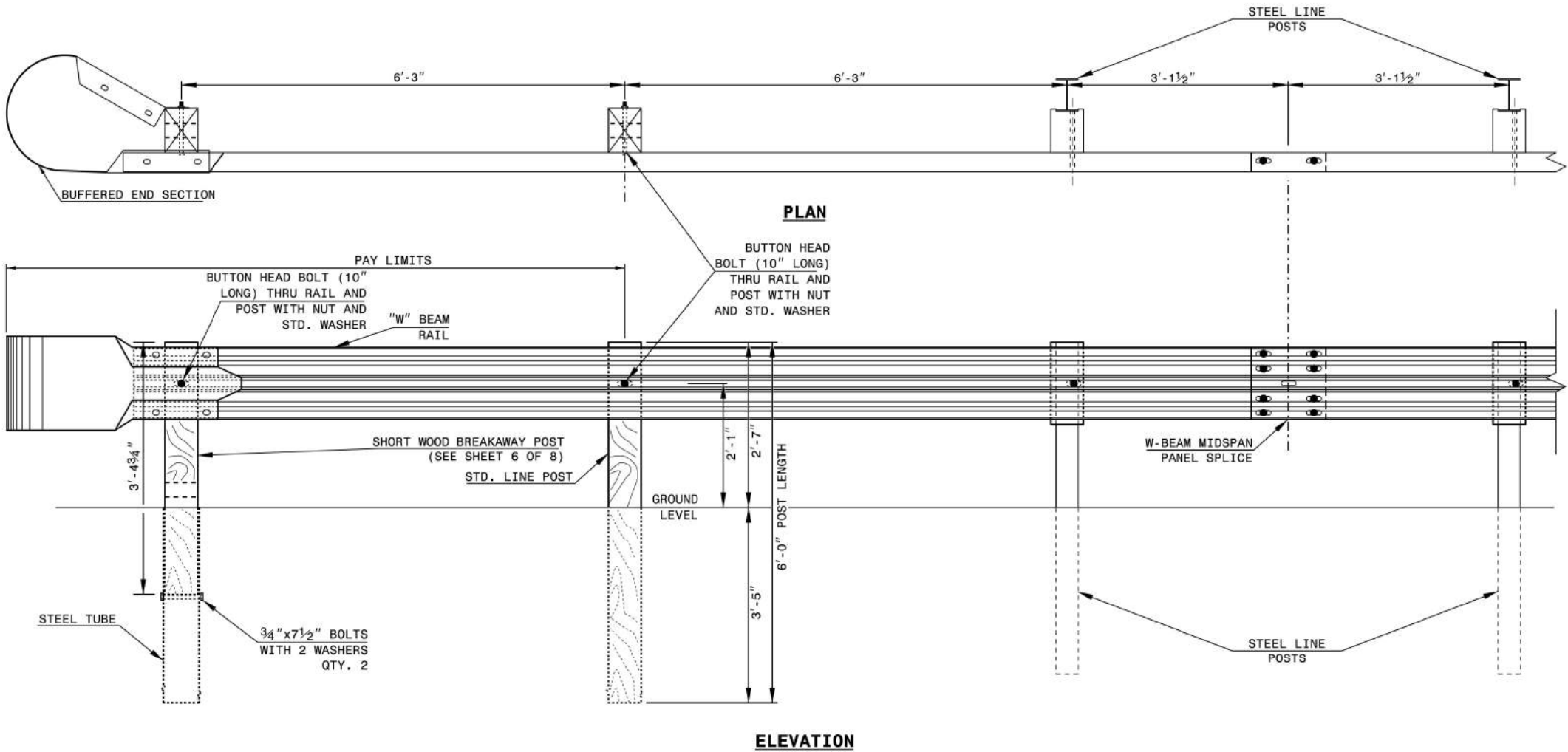
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY
A.T. - 1 SYSTEM



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACTS STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950 FAX 919-250-4119	
A.T. - 1 SYSTEM	
ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

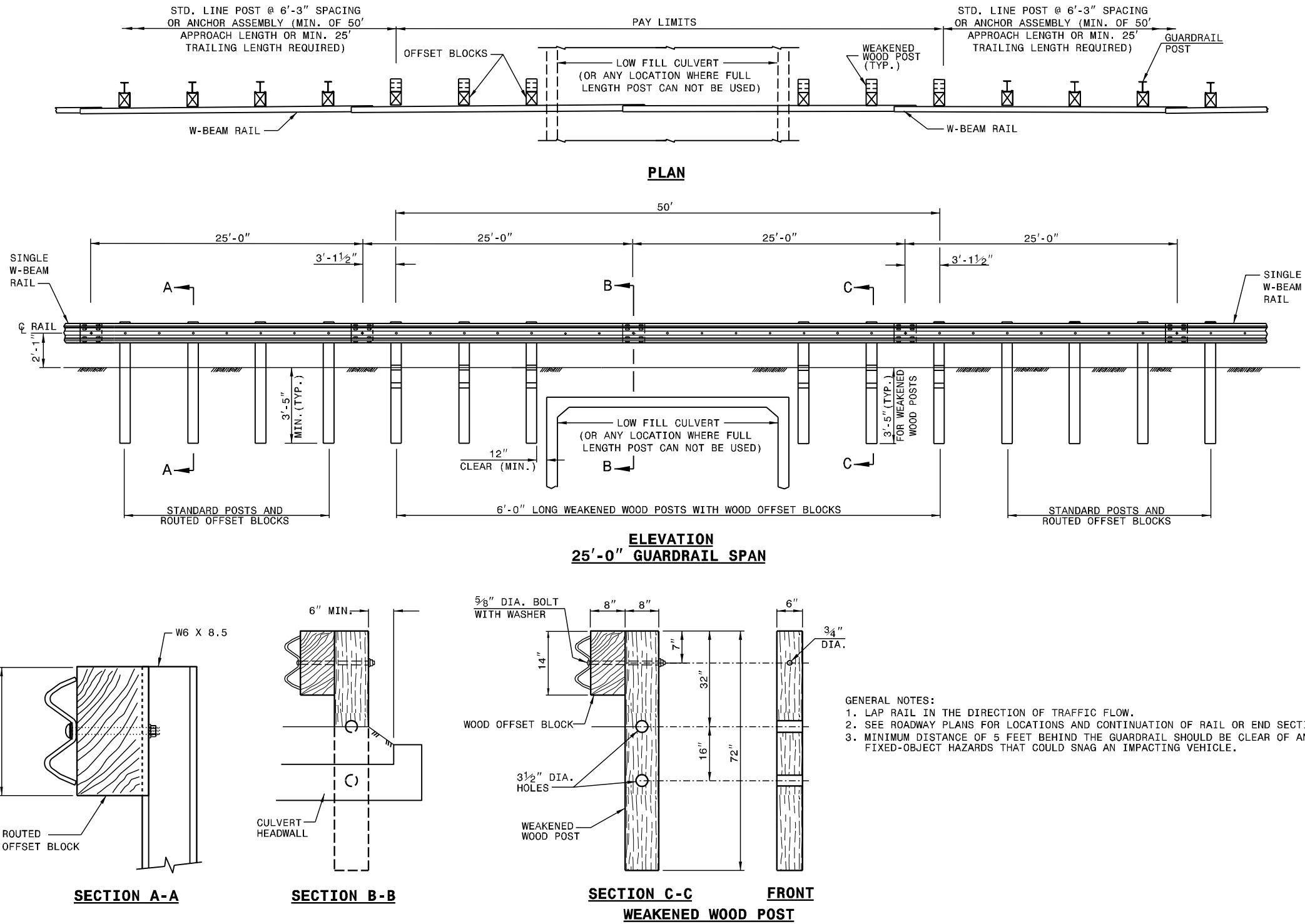
SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25'-0" CLEAR SPAN

SHEET - OF -
862D01

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

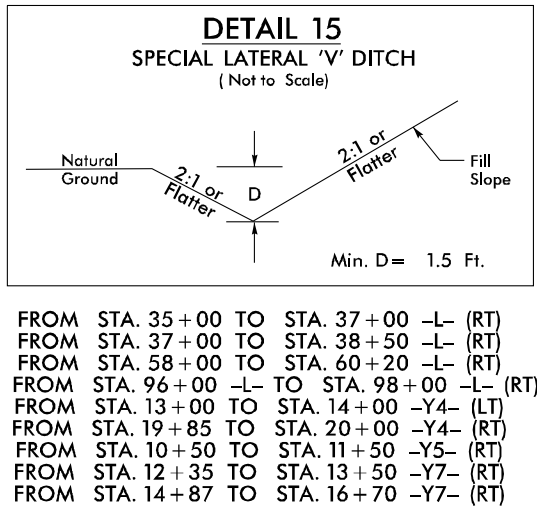
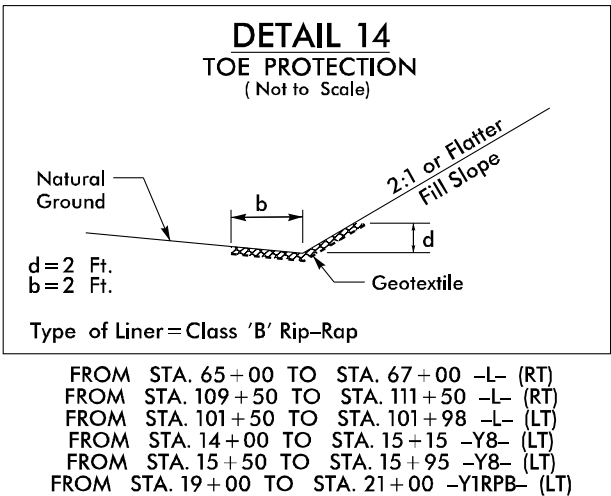
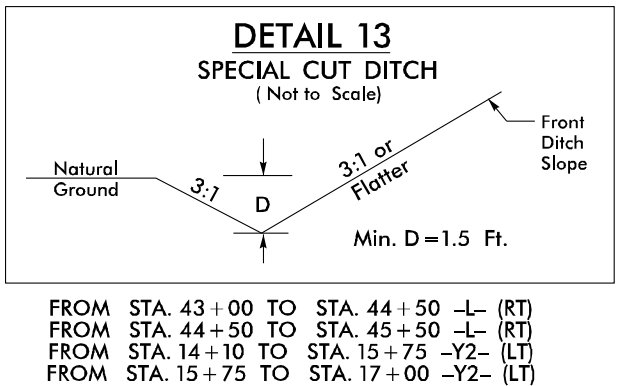
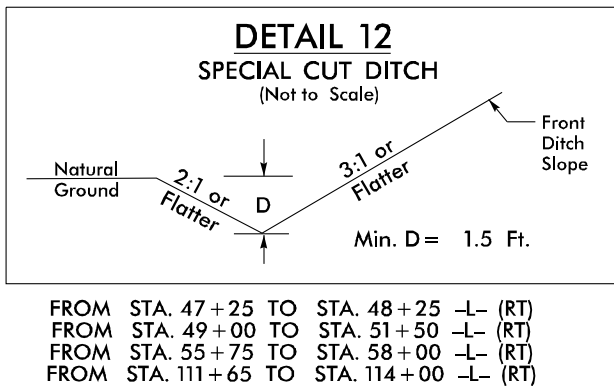
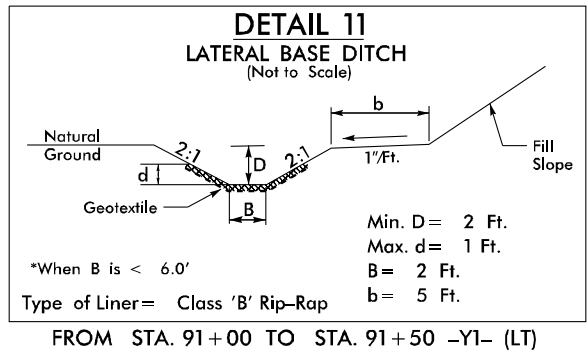
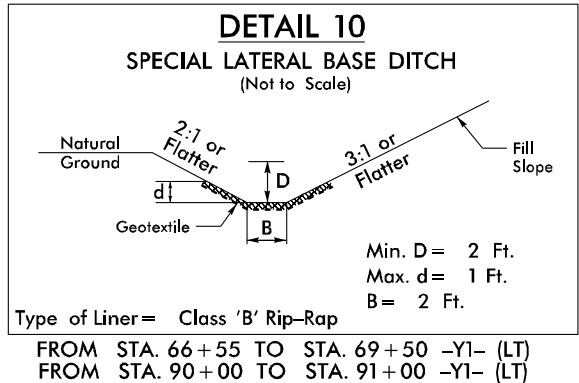
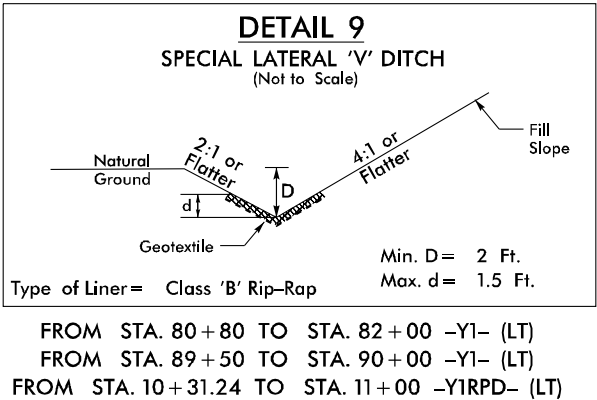
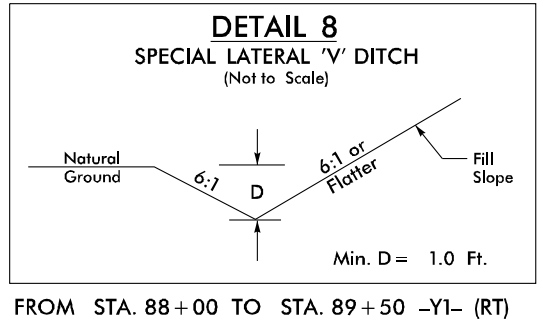
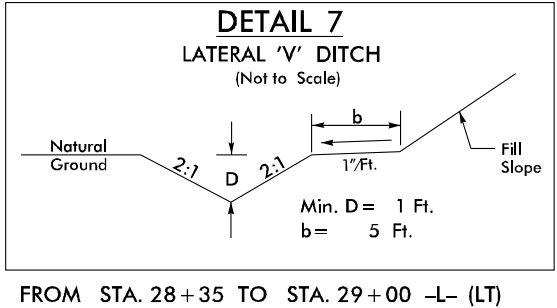
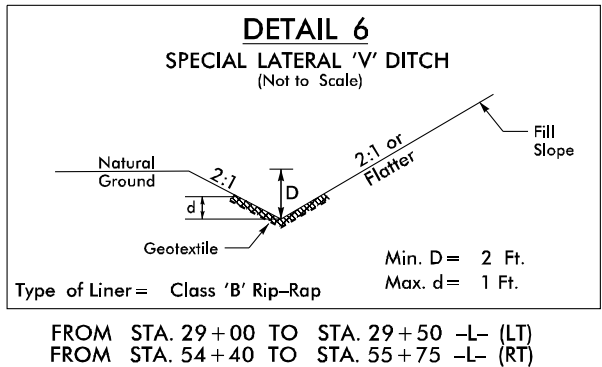
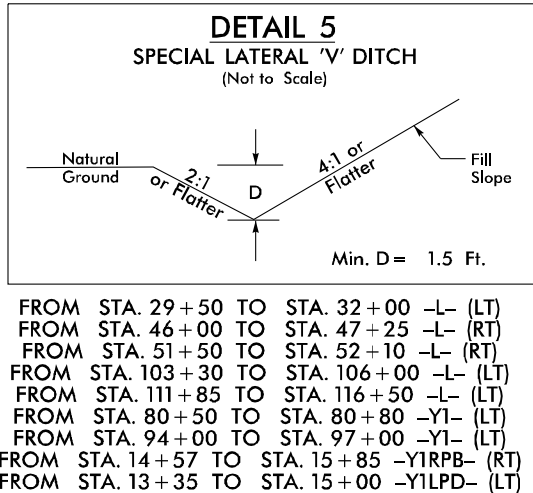
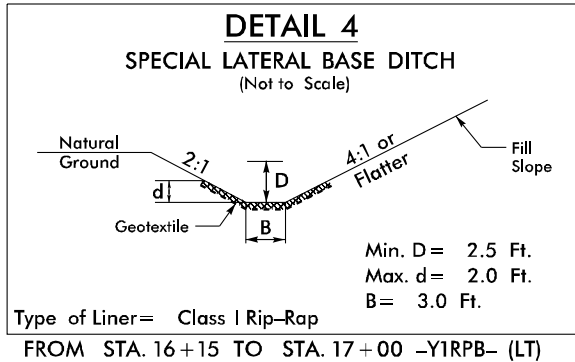
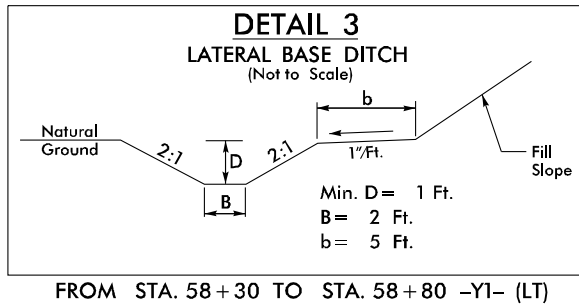
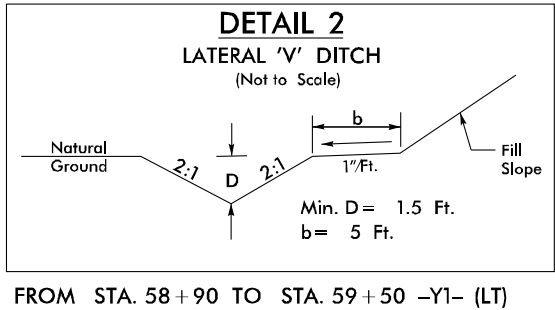
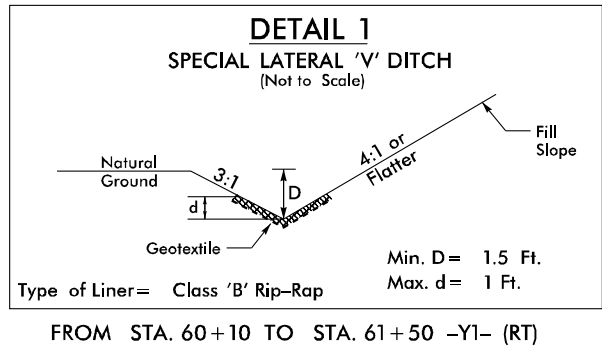
SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25'-0" CLEAR SPAN

SHEET - OF -
862D01

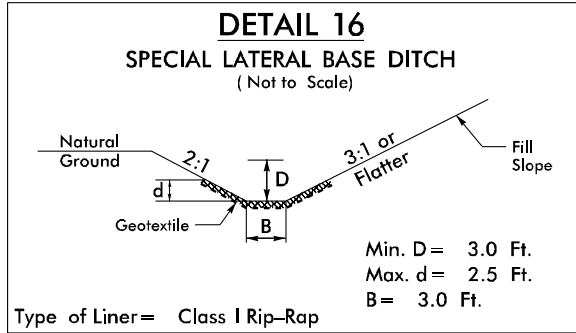


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

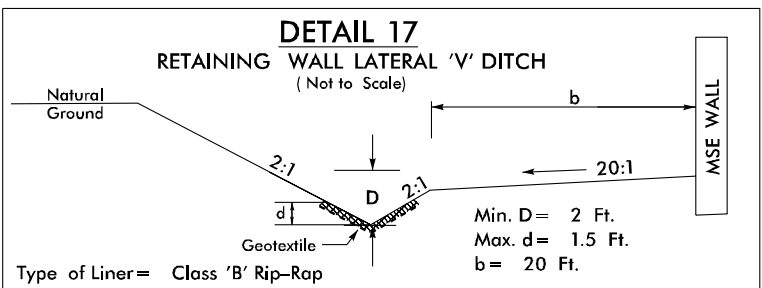
CONTRACTS STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
25'-0" CLEAR SPAN GUARDRAIL PLACEMENT	
ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	



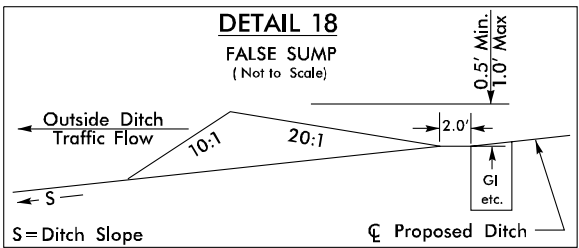
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



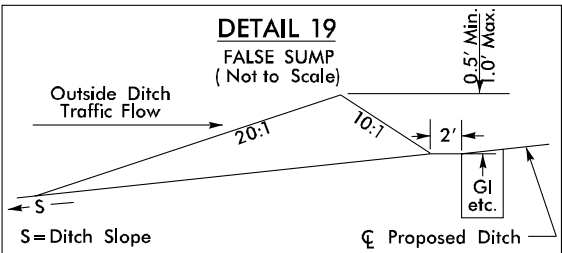
FROM STA. 83+50 TO STA. 85+75 -L- (RT)
FROM STA. 90+00 TO STA. 90+75 -L- (RT)



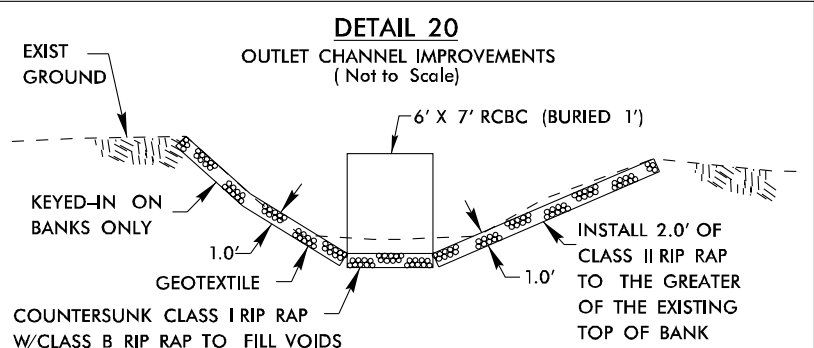
FROM STA. 22+25 TO STA. 26+50 -L- (LT)



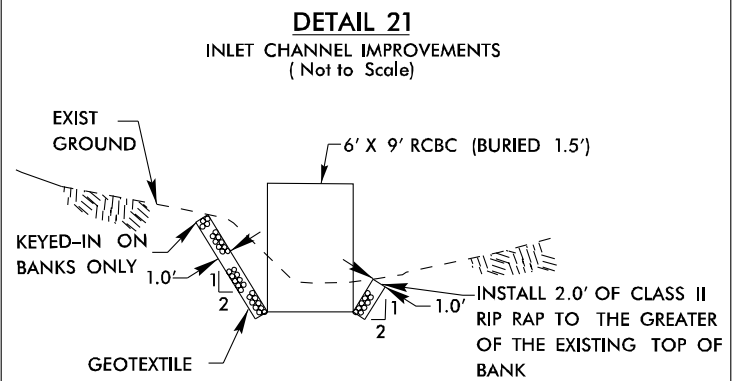
STA. 42+70 -Y1- (LT)
STA. 47+85 -Y1- (LT)
STA. 51+00 -Y1- (LT)
STA. 72+28 -Y1- (LT)
STA. 12+50 -Y1RPB- (LT)
STA. 14+45 -Y1RPB- (LT)
STA. 15+85 -Y1RPB- (RT)



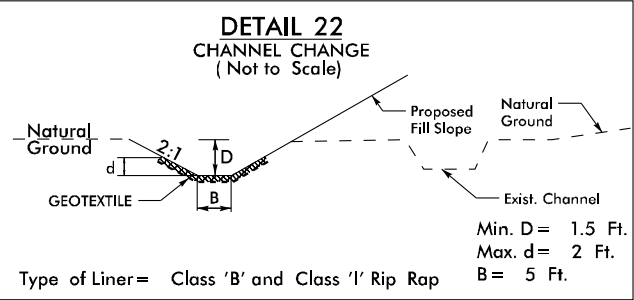
STA. 19+15 -Y1RPD- (LT)
STA. 18+00 -Y1RPD- (RT)
STA. 16+65 -Y1RPD- (LT)



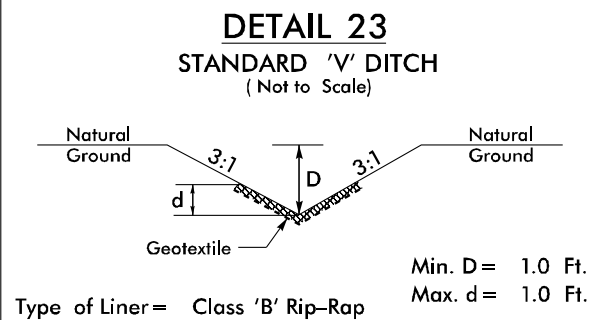
STA. 22+20 -L- (LT)



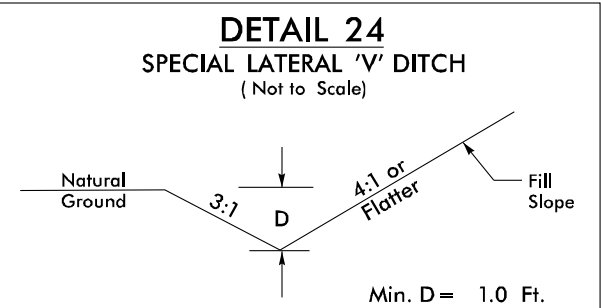
STA. 58+75 -Y1- (LT)



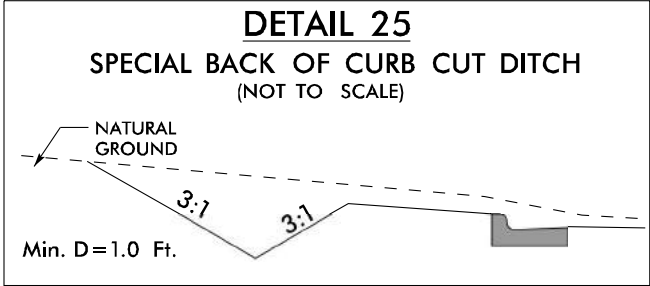
FROM STA. 98+00 TO STA. 98+65 -L- (RT)



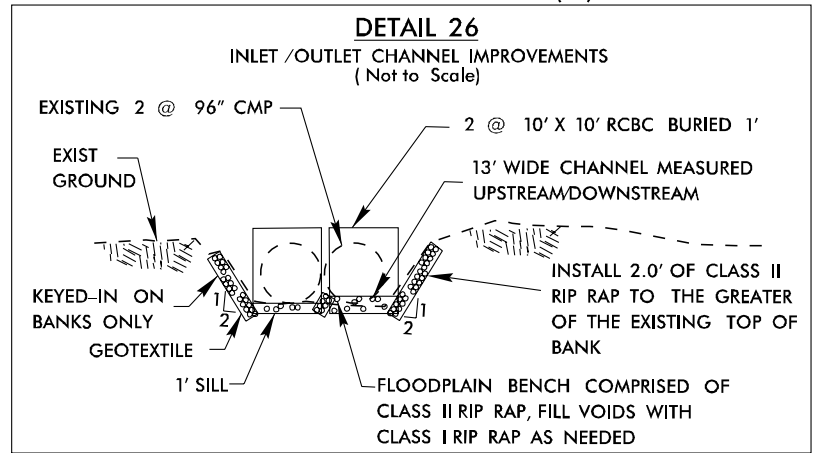
STA. 22+00 -Y1RPB- (LT)



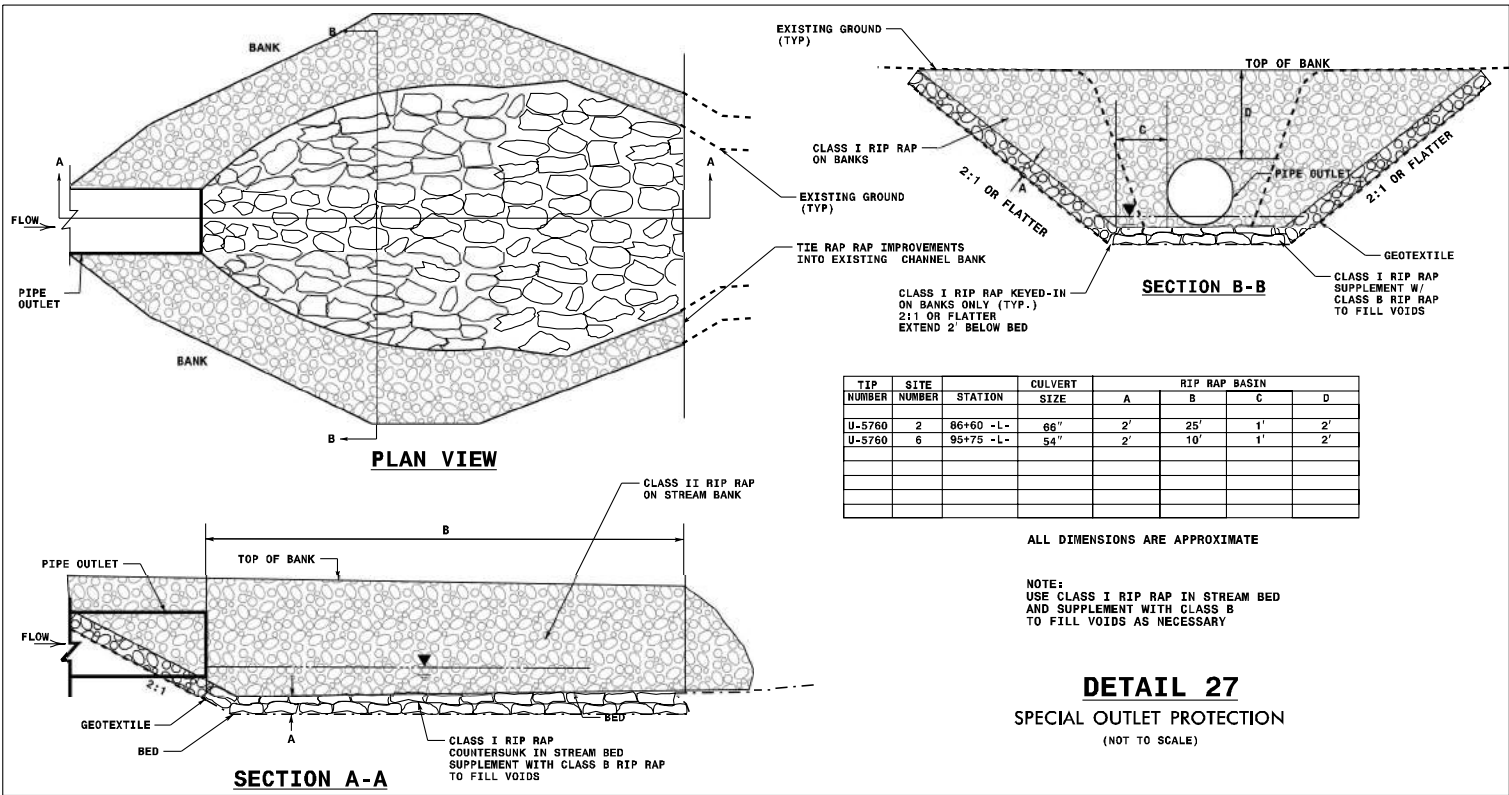
FROM STA. 80+50 TO STA. 82+30 -L- (LT)



FROM STA. 82+75 TO STA. 83+00 -L- (LT)
FROM STA. 83+50 TO STA. 85+90 -L- (LT)



91+00 -L-



TIP NUMBER	SITE NUMBER	STATION	CULVERT SIZE	RIP RAP BASIN			
				A	B	C	D
U-5760	2	86+60 -L-	66"	2'	25'	1'	2'
U-5760	6	95+75 -L-	54"	2'	10'	1'	2'

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

PROJECT REFERENCE NO.

U-5760

SHEET NO.

3B-1

Kimley»Horn

©2020

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.

CONST. REV.

LOCATION				UNCLASSIFIED EXCAVATION	UNDERCUT EXCAVATION	EMBANKMENT + %	BORROW	TOTAL WASTE
-L-	13 + 30.00	TO	26 + 54.51	9332	1100	219093	209761	1100
-L-	28 + 20.01	TO	120 + 71.00	23131	2150	103569	80438	2150
-Y1-	41 + 50.00	TO	90 + 85.00	32757		21040		11717
-Y1- (LT)	90 + 85.00	TO	97 + 22.00	1279		2067	788	
-Y1RPB-	10 + 00.00	TO	24 + 04.21	21938		6079		15859
-Y1RPD-	10 + 00.00	TO	22 + 53.88	35306		20521		14785
-Y1LPB-	10 + 00.00	TO	16 + 99.41	40514		12		40503
-Y1LPD-	10 + 00.00	TO	15 + 75.27	99		84627	84528	
-Y2-	11 + 22.00	TO	13 + 28.41	243		584	341	
-Y2-	13 + 83.42	TO	17 + 40.00	935		248		687
-Y3-	10 + 50.00	TO	14 + 78.61	104		2912	2808	
-Y3-	15 + 33.63	TO	17 + 50.00	16		1343	1327	
-Y4-	12 + 00.00	TO	18 + 03.16	1465		99		1366
-Y4-	19 + 04.18	TO	24 + 55.00	407		534	150	
-Y5-	10 + 27.50	TO	11 + 42.00	50		45		5
-Y6-	10 + 27.91	TO	10 + 75.00	10		35	25	
-Y7-	12 + 50.00	TO	13 + 66.27	67		68	1	
-Y7-	14 + 47.04	TO	16 + 70.00	102		438	336	
-Y8-	11 + 75.00	TO	13 + 27.52	24		152	128	
-Y8-	14 + 03.52	TO	16 + 30.00	12		1099	1087	
-DRW1-	10 + 29.50	TO	11 + 30.00	603				603
-DRW2-	10 + 20.00	TO	10 + 70.50			51	51	
-DRW3-	10 + 31.43	TO	10 + 67.00	3		70	67	
-DRW4-	10 + 30.72	TO	10 + 80.00	4		109	105	
-DRW5-	10 + 20.00	TO	10 + 58.50	25		6		19
SUBTOTAL				168426	3250	464800	381918	88794
LOSS DUE TO CLEARING AND GRUBBING				-4500			4500	
ADDITIONAL UNDERCUT					1800	2070	2070	1800
TOTALS				163926	5050		388488	90594
SAY				164000	5050		389000	

NOTE: EARTHWORK QUANTITES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME	DEED BOOK
1	4	LOWE'S HOME CENTERS, INC #1141	DB 2123 PG 3174 DB 2123 PG 3176 DB 2123 PG 3177 DB 2123 PG 3179 PB 43 PG 128
2	4,5	CENTRE PARK FORTY ASSOCIATES, LLC	DB 2238 PG 589 PB 44 PG 32-35
3	4,5	ARNOLD G. KING & HELEN H. PRINCE	DB 2250 PG 829 DB 3267 PG 197
4	5	ROSS D. WALL & PATRICIA O. WALL	DB 2188 PG 355
5	5,6	ROSS D. WALL & PATRICIA O. WALL	DB 2188 PG 355
6	5	TOWN OF KERNERSVILLE	DB 2065 PG 1771
7	5,6	THOMAS W. PRINCE & ARNOLD G. KING	DB 2056 PG 1310 PB 44 PG 134
8	6	NCDOT	DB 3405 PG 3903
9	6	FRANK HOLBROOK & BRENDA W. HOLBROOK	SDB 2351 PG 3391 PB 44 PG 134
10	6	GARY T. DAVIS & DOROTHY R. DAVIS	DB 2347 PG 2760 PB 44 PG 134
11	6	REBECCA DAVIS FLYNT & K. WAYNE DAVIS	DB 3270 PG 2528 DB 1975 PG 1824 PB 14 PG 11
12	6	JACK W. DAVIS	DEED REF. NOT FOUND
13	6	BETTY M. PELFREY	DB 916 PG 324
14	6	GARY T. DAVIS & DOROTHY R. DAVIS	DB 2332 PG 400
15	6,7	RICHARD M. CROWDER, JR. & SARA N . CROWDER	DB 1889 PG 4361 PB 33 PG 21
16	6	JACK W. DAVIS	DB 1380 PG 501
17	6,7	BRUCE W. BARNARD & JOAN W. BARNARD	DB 1039 PG 599
18	7	JOSEPH W. ELLENDER, III	DB 2830 PG 2839 PB 32 PG 35
19	7	ROBIN R. CAUDLE	DB 3144 PG 3312 PB 32 PG 35
20	7	DAVID A. CASANEGA & JENNIFER CASANEGA	DB 1797 PG 3740 PB 32 PG 35
21	7	DANIEL G. REAVIS & JOY B. REAVIS	DB 1785 PG 1470 PB 32 PG 35
22	7	DOUGLAS A. BROWN	DB 3283 PG 2123 PB 32 PG 35
23	7	JAMES E. WILSON & DONNA C. WILSON	DB 2237 PG 12 PB 32 PG 35
24	7	JOHN M. ABERNATHY & TERRY W. ABERNATHY	DB 1943 PG 2568 PB 32 PG 35
25	7	RANDALL EPPERSON & SUSAN EPPERSON	DB 2083 PG 2845 PB 32 PG 35
26	7	PHILLIP E. BAUGUESS & PAULA R. BAUGUESS	DB 3008 PG 4260 PB 41 PG 100
27	7,8	RAYMOND D. THOMAS & PATRICIA T. THOMAS	DB 1661 PG 503
28	7	BETTY M. REID	DB 2157 PG 4574 PB 41 PG 100
29	7,8	DAVID A. GRIX & MELODY K. GRIX	DB 2729 PG 3569 PB 41 PG 100
30	8	MEDFORD CONSTRUCTION COMPANY., INC	DB 2375 PG 3372
31	8	TIMOTHY R. SMITH & ANITA R. SMITH	DB 2099 PG 3205 PB 30 PG 133
32	8	CALVIN C. HARRIS & SANDRA BLUE HARRIS	DB 1974 PG 1786 PB 30 PG 133
33	8	CHRISTOPHER T. BROOKS & LESLIE C. BROOKS	DB 3298 PG 39 PB 46 PG 153 PB 47 PG 58
34	8	CHRISTOPHER T. BROOKS & LESLIE C. BROOKS	DB 3261 PG 1876 PB 46 PG 153 PB 47 PG 58
35	8	SHAWAN GABRIEL & KEISHA GABRIEL	DB 3307 PG 70 PB 30 PG 133

PARCEL No.	SHEET No.	PROPERTY OWNER NAME	DEED BOOK
36	8	DEREK J. LIGHT & REBECCA L. LIGHT	DB 3042 PG 434 PB 30 PG 133
37	8	JOSEPH B. FLETCHER & TAMMY W. FLETCHER	DB 3314 PG 1664 PB 46 PG 153 PB 47 PG 58
38	8	GEORGE D. PALOUMBAS & MELISSA I. PALOUMBAS	DB 2810 PG 3757 PB 46 PG 153 PB 47 PG 58
39	8	JIMMIE C. MICKEY, JR. & SUSAN H. MICKEY	DB 1967 PG 315 PB 28 PG 80
40	8,9	W. AVALON POTTS	DB 1969 PG 949 DB 1838 PG 3536 PB 37 PG 150
41	8,9	WOODCROSS DEVELOPMENT, LLP	DB 3476 PG 3509
42	8,9	ANDREW CONEY & BECKY CONEY	DB 2603 PG 1157 DB 1838 PG 3536 PB 37 PG 150
43	9	JOSE V. PAREDES	DB 3444 PG 2702
44	9	HUNTER P. COFER	DB 3333 PG 2638
45	9	TYLER W. RUNYON	DB 3361 PG 1919
46	9	EDMON D. GARMON & LESLEY GARMON	DB 3435 PG 3582
47	9	NICHOLAS J. CARLUCCI	DB 3185 PG 4294 PB 24 PG 149
48	9	JAMES K. DEAN & MARY LOU DEAN	DB 1774 PG 2465
49	9	DONNA J. MCKOY	DB 3018 PG 3057 PB 24 PG 149
50	9	STEPHEN M. PEDDYCORD & MELODY M. PEDDYCORD	DB 3294 PG 1795
51	9	CYNTHIA COULOMBE & ROBERT COULOMBE	DB 3343 PG 2309 PB 24 PG 149
52	9,10	DANIEL GOLDNER	DB 2873 PG 2474
53	9,10	TIMBER TRAILS RECREATION ASSOCIATION, INC.	DB 1187 PG 1618 PB 24 PG 149
54	10	TOWN OF KERNERSVILLE	DB 3391 PG 3427
55	10	GEORGE A. DEBIDART III	DB 3416 PG 72
56	10	CAROLINA TELEPHONE & TELEGRAPH	DB 1649 PG 4084
57	10	DONNIE LEE SWAIM & BERNICE BROWN SWAIM	DB 883 PG 379 DB 887 PG 197 DB 1010 PG 715 PB 61 PG 145-146
58	10	FAMILY M VENTURES, LLC	DB 2716 PG 2561 DB 1976 PG 2695
59	10	TONI N. PICCOLO & FRANK B. PICCOLO	DB 3271 PG 4286
60	10	SCOTT K. SWAIM	DB 1916 PG 3664
61	10	MARK J. SANTUCCI	DB 2940 PG 591
62	10	JOHN C. LOVE, CAREN L. BULLOCK & HOWARD C. BULLOCK	DB 2411 PG 3317
63	10,11	GARY M. SPRING & DEBBIE T. SPRING LIVING TRUST	DB 3205 PG 4023
64	10,11	ERIC A. MCFARLIN & SHAWN R. MCFARLIN	DB 2712 PG 174 PB 39 PG 42
65	11	SANDRA M. GONZALEZ	DB 3455 PG 2983
66	11	JASON D. SMITH & REGINA V. SMITH	DB 2481 PG 2119 PB 39 PG 42
67	11	CHRISTOPHER B. ELLINGSON & ELIZABETH S. ELLINGSON	DB 3201 PG 1606 PB 39 PG 42
68	11	BRICE A. WALL & DEBBIE E. WALL	DB 1835 PG 2313 DB 2625 PG 2351
69	11	BARRY D. COLLINS & LINDA S. COLLINS	DB 1964 PG 821 PB 39 PG 42
70	11	GROVER W. PARKS & JANICE A. PARKS	DB 1250 PG 643

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PROJ. REFERENCE NO.		SHEET NO.	
U-5760		3P-2	

PARCEL No.	SHEET No.	PROPERTY OWNER NAME	DEED BOOK
71	11	KENNETH G. BOONE & CYNTHIA U. BOONE	DB 3417 PG 2491 PB 39 PG 42
72	11	ROBERT J. GLASTETTER & PAMELA J. GLASTETTER	DB 2733 PG 2506
73	11	STEPHEN S. FULLER & DEIDRA E. FULLER	DB 3246 PG 3119 PB 39 PG 42
74	11	TIMOTHY C. MARTIN & MICHELLE A. MARTIN	DB 2669 PG 2554 PB 41 PG 51
75	11	BUILDER PRODUCTS INC.	DB 2937 PG 3671 PB 39 PG 42
76	11	BRIAN D. LOCKHART & TAMMY G. LOCKHART	DB 3312 PG 1772 PB 23 PG 44
77	11	TUNNIE M. SHEPHERD & LORI J. SHEPHERD	DB 3389 PG 2084 PB 39 PG 42
78	11	DENNIS L. BELCHER & BEVERLY C. BELCHER	DB 3247 PG 4322 PB 39 PG 42
79	11	HOWARD P. ELLIS & JO LISA ELLIS	DB 2226 PG 4477 PB 23 PG 44
80	11	BRADLEY K. ALBERT	DB 2781 PG 4092 PB 23 PG 44
81	11	WILFORD A. SORRELL & SANDRA SORRELL	DB 3200 PG 425 DB 39 PG 42
82	11	JERRY M. DUNCAN & PAMELA M. DUNCAN	DB 2656 PG 2252 PB 23 PG 44
83	11	SUE INGRAM REVOCABLE TRUST OF 1999	DB 2097 PG 2609 PB 39 PG 42
84	11	ANNIE K. MCHONE	DB 3087 PG 4132 PB 39 PG 42
85	11,12	JOHN M. KANE & PATRICK B. KANE	DB 1218 PG 1651 PB 23 PG 44
86	11,12	633 HOPKINS LLC	DB 2790 PG 2136
87	12	WILLIAM M. AVANT, III & MARY L. AVANT	DB 1916 PG 1805 PB 23 PG 44
88	12	CHARLES A. ISENHOUR & NELDA T. ISENHOUR	DB 1158 PG 1336 PB 23 PG 44
89	12	PARKS PROPERTY INVESTMENTS, LLC	DB 2768 PG 1037 PB 36 PG 190
90	12	ALONZO J. RUCKER, SR.	DB 3276 PG 742 PB 23 PG 44
91	12	THE CITY VIEW VOLUNTEER FIRE DEPARTMENT, INC.	DB 3427 PG 2753
92	12	UNIVERSAL SKATE WORLD, INC.	DB 1275 PG 680 DB 2662 PG 3148
93	12	DEBORAH ANN STERNBERG REVOCABLE TRUST	DB 3186 PG 4258 DB 1857 PG 336 DB 1729 PG 4170
94	5,13	WHITE WALNUT, LLC	DB 3054 PG 1059
95	5	WHITE WALUNT, LLC	DB 3078 PG 373
96	5	HARVEY G. MCINTYRE & DONNA E. MCINTYRE	DB 3452 PG 1332
97	5	KEION K. SAMUEL	DB 3332 PG 150 PB 44 PG 134
98	5	PAGE AND ASSOCIATES, INC.	DB 2704 PG 784 PB 44 PG 134
99	5,6	RICHARD M. MARTIN, II	DB 3049 PG 74
100	5	TOWN OF KERNERSVILLE	DB 2207 PG 106 PB 42 PG 86-89 PB 44 PG 32-35
101	5	TRIAD COMMERCIAL CORPORATION	DB 1019 PG 193
102	5,14	WAL-MART REAL ESTATE BUSINESS TRUST	DB 2106 PG 244 PB 42 PG 86-89 PB 44 PG 32-35
103	14	TARGET CORPORATION	DB 2567 PG 2982 PB 48 PG 134 PB 50 PG 83
104	14	TRIAD COMMERCIAL CORPORATION	DB 944 PG 377 DB 1237 PG 146
105	14	SOUTHSIDE RE-DEVELOPMENT COMPANY, LLC	DB 2697 PG 732 PB 48 PG 134

PARCEL No.	SHEET No.	PROPERTY OWNER NAME	DEED BOOK
106	14	SCOTLAND CROSSING-LAURINBURG, LLC	DB 2602 PG 2109
107	14	TRIANGLE PROPERTIES OF KERNERSVILLE, LLC	DB 2928 PG 2560
108	15	HIGH POINT REGIONAL HEALTH SYSTEM	DB 2532 PG 1233
109	6	ROSS D. WALL & PATRICIA O. WALL	DB 2188 PG 355
110	6	BRANCH BANKING AND TRUST COMPANY	DB 2864 PG 2436 PB 50 PG 24
111	6	LOLITA C. AIKEN	DB 3340 PG 251 PB 65 PG 1
112	6	JEFFERY A. WILLIS & SHARON C. WILLIS	DB 2898 PG 439 PB 50 PG 24
113	7	JOHN B. HAGLER & ELIZABETH H. HAGLER	DB 1891 PG 2647 PB 32 PG 35
114	7	BRIAN H. ASHLEY & SHANNA E. ASHLEY	DB 2987 PG 604 PB 32 PG 35
115	7	KERI A. LONG & JEREMY LONG	DB 3476 PG 1269 PB 32 PG 35
116	7	CHRISTIAN W. SCHROEDER & RACHEL M. SCHROEDER	DB 3289 PG 17 PB 32 PG 35
117	7	JAMES E. SHETZLER & DANA L. SHETZLER	DB 3294 PG 3703 PB 32 PG 35
118	7	HARVEY D. COVELL & CLAUDIA M. COVELL	DB 1676 PG 3032 PB 32 PG 35
119	7	MATTHEW G. TUBBY & DEBORAH A. DIAMOND TUBBY	DB 1958 PG 1068 PB 32 PG 35
120	7	BLAKLEY W. MURPHY & JESSICA R. MURPHY	DB 3242 PG 2601 PB 32 PG 35
121	7	BARRY G. LAWSON	DB 1768 PG 443 PB 32 PG 35
122	7,8,16	BRUCE E. HOUSEKNECHT & DAWN M. HOUSEKNECHT	DB 2101 PG 4080 PB 34 PG 83
123	16	STONEBROOK PROPERTIES, LLC	DB 2924 PG 3245 PB 46 PG 153 PB 47 PG 58
124	8,16	RANDY CLARDIA & AMANDA CLARDIA	DB 3391 PG 1051 PB 46 PG 153 PB 47 PG 58
125	8	VINCENT A. HOLBROOK & SUSAN D. HOLBROOK	DB 2303 PG 3484 PB 30 PG 133
126	8,16	TRACY L. SNIDER & RUTH Z. SNIDER	DB 2077 PG 4129 PB 41 PG 100
127	8,16	DAVID S. HARDISON & CYNTHIA G. HARDISON	DB 1841 PG 3145 PB 30 PG 133
128	16	CHRISTOPHER L. DIGGS	DB 3022 PG 886 PB 30 PG 133
129	7,8,16	GREGORY G. FELTS & ELIZABETH S. FELTS	DB 2128 PG 4040 PB 41 PG 100
130	16	JOSHUA KOTELNICKI & SARAH KOTELNICKI	DB 3419 PG 1224 PB 30 PG 133
131	10	MARK S. HALL & PATRICIA J. HALL	DB 3195 PG 4102 PB 3183 PG 2426
132	11	SECU*RE INC.	DB 3274 PG 410 PB 39 PG 42
133	11	DONALD G. SAULS & TAMMY L. SAULS	DB 3413 PG 4175 PB 39 PG 42

REVISIONS

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.

U-5760

ROADWAY DESIGN
ENGINEER

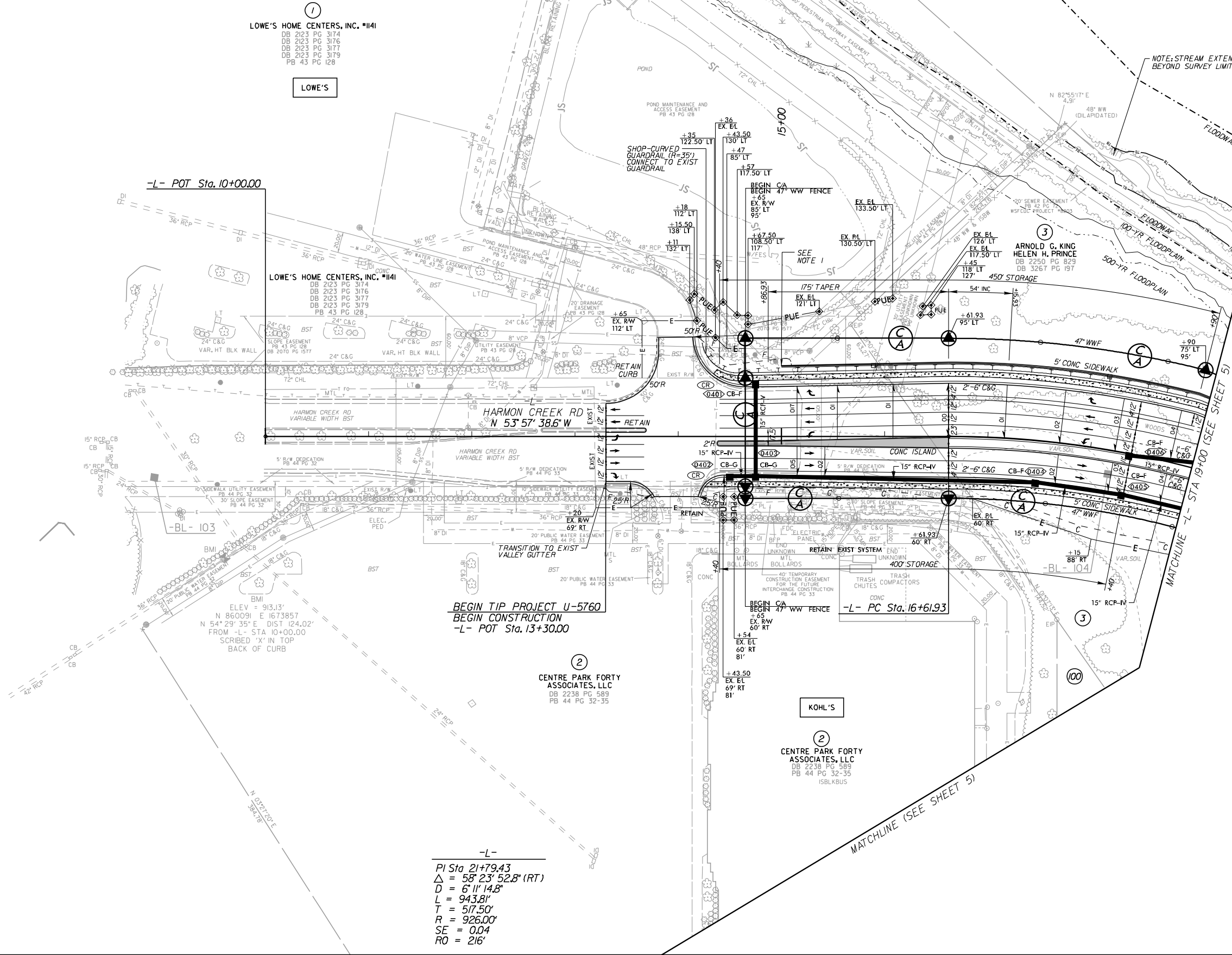
SHEET NO.

4

HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011



NOTE:
1. BEGIN MSE WALL -WALL J- (STRUCTURES ITEM)
-L- STA 15+00.00 (68.75' LT)
INSTALL 48\"/>

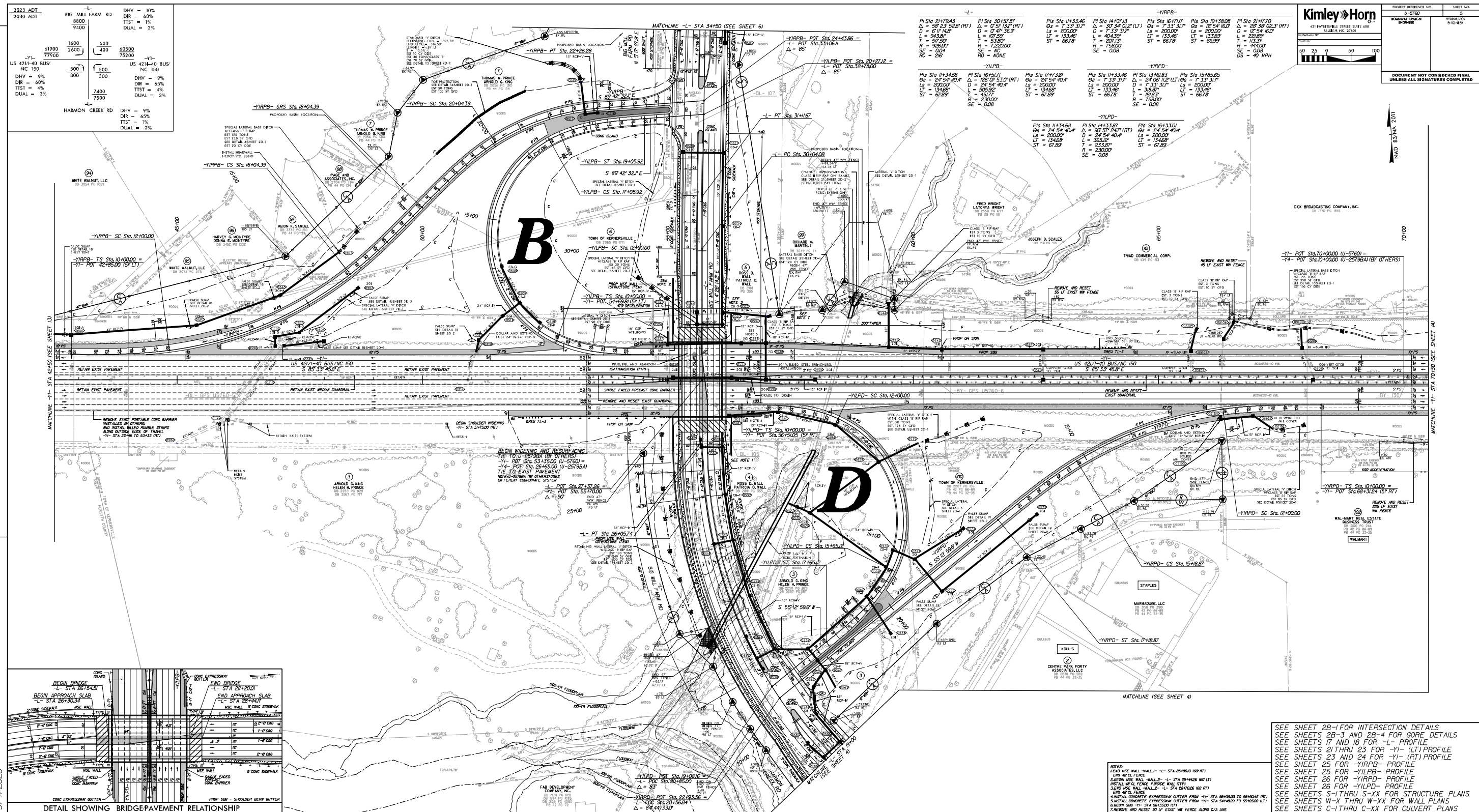
3 ARNOLD G. KING
HELEN H. PRINCE
DB 2250 PG 829
DB 3267 PG 197

100 TOWN OF KERNERSVILLE
DB 2207 PG 106
PB 42 PG 86-89
PB 44 PG 32-35

RADI DIMENSIONS ARE TO THE EDGE OF
PAVEMENT UNLESS OTHERWISE NOTED
(APPLIES TO ALL SHEETS)

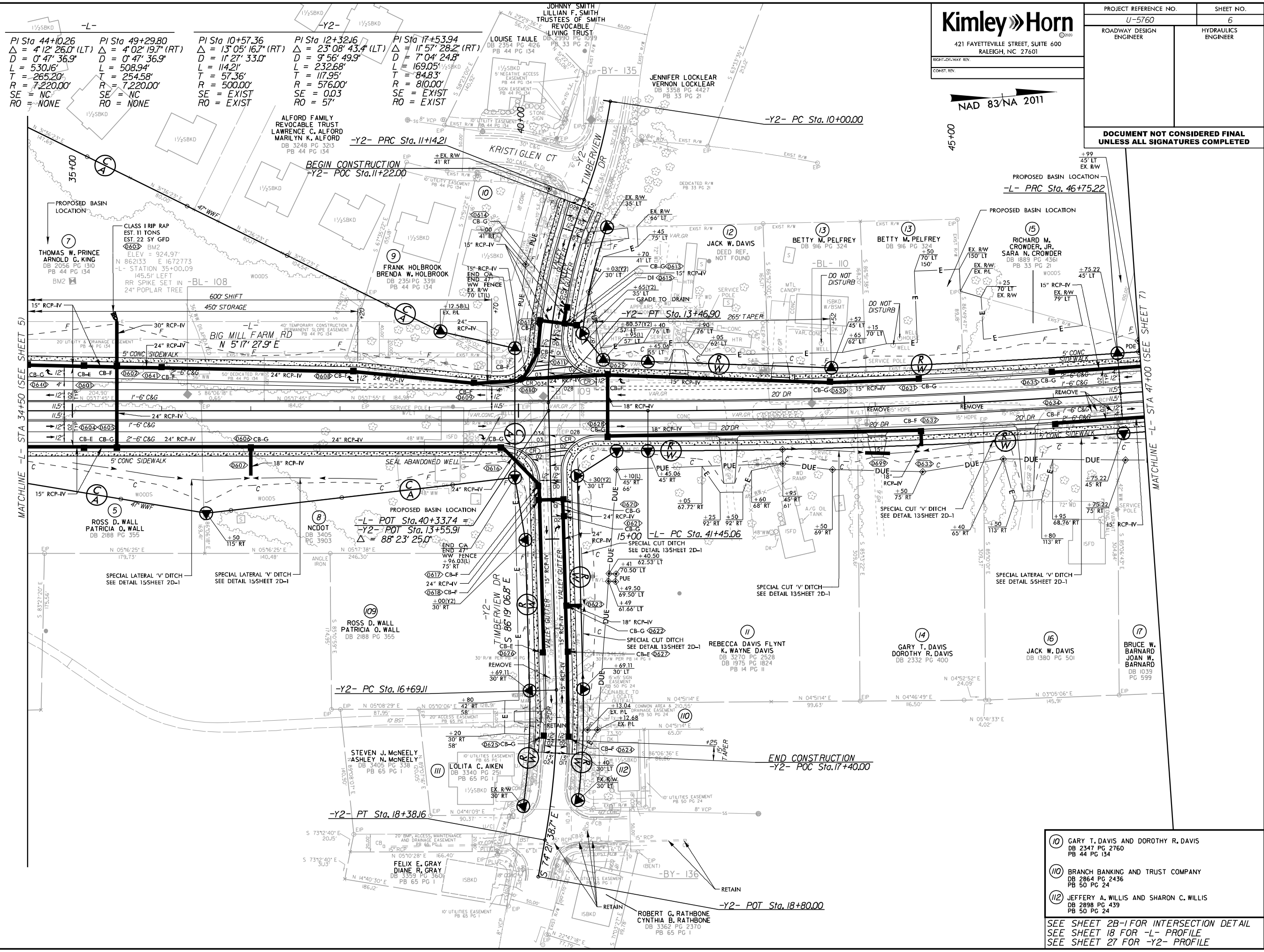
ALL DRIVEWAY RADII ARE 10' UNLESS
OTHERWISE NOTED (APPLIES TO ALL SHEETS)

SEE SHEET 17 FOR -L- PROFILE
SEE SHEETS W-1 THRU W-XX FOR WALL PLANS



PROJECT REFERENCE NO.		SHEET NO.
U-5760		6
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



- (10) GARY T. DAVIS AND DOROTHY R. DAVIS
DB 2347 PG 2760
PB 44 PG 134
 - (110) BRANCH BANKING AND TRUST COMPANY
DB 2864 PG 2436
PB 50 PG 24
 - (112) JEFFERY A. WILLIS AND SHARON C. WILLIS
DB 2898 PG 439
PB 50 PG 24
- SEE SHEET 28-I FOR INTERSECTION DETAIL
SEE SHEET 18 FOR -L- PROFILE
SEE SHEET 27 FOR -Y2- PROFILE

REVISIONS

5/14/99

5/14/2020

5/4/2020

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RALEIGH, NC 27601

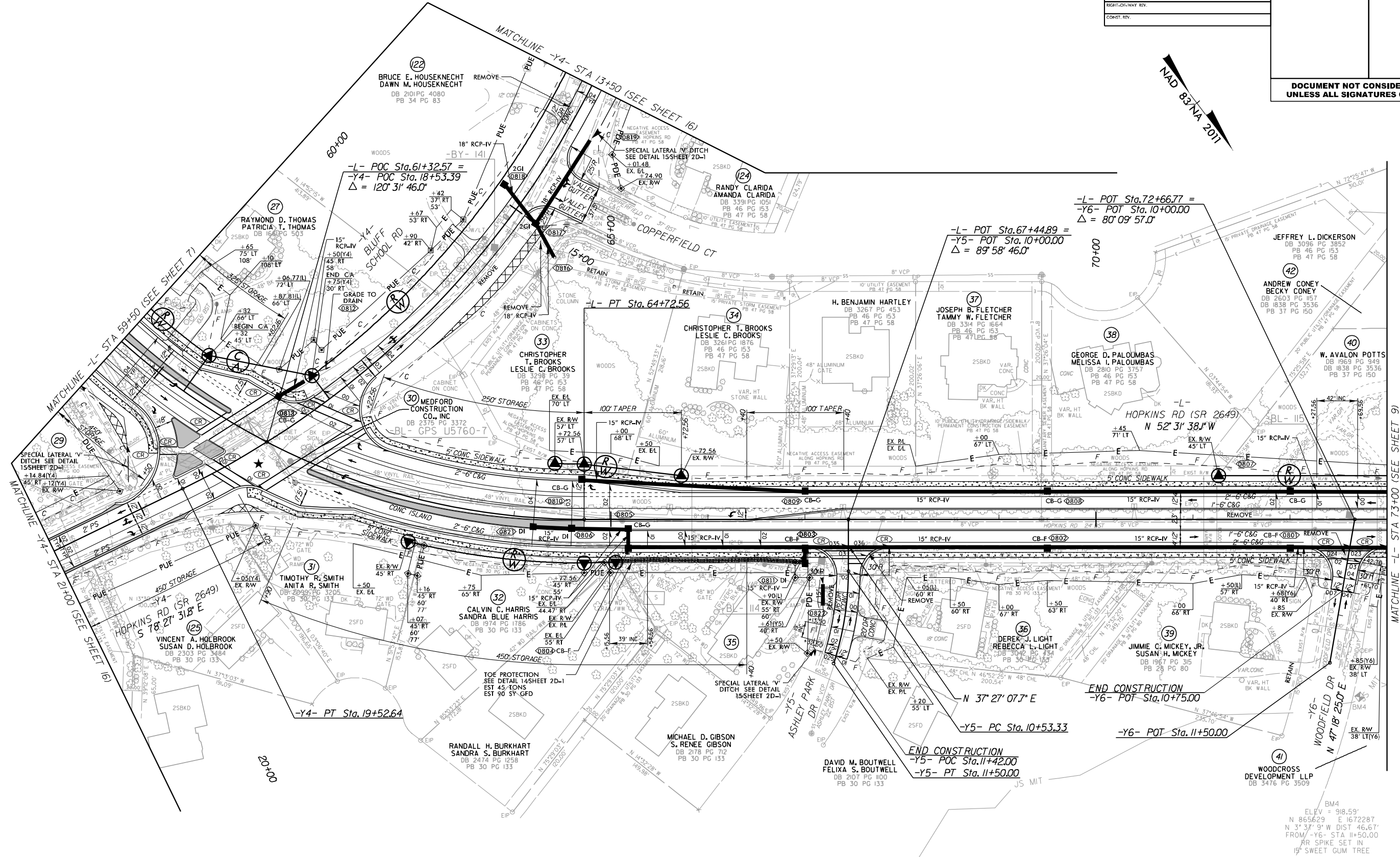
ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PROJECT REFERENCE NO.
U-5760

SHEET NO.
8

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



-L-	-Y4-	-Y5-
PI Sta 61+48.44	PI Sta 16+19.08	PI Sta 11+02.06
$\Delta = 57^{\circ}38'59.7''$ (LT)	$\Delta = 43^{\circ}29'40.1''$ (RT)	$\Delta = 18^{\circ}27'42.9''$ (RT)
D = 8'03'30.5"	D = 6'11'14.8"	D = 19'05'54.9"
L = 715.39'	L = 702.95'	L = 96.73'
T = 391.28'	T = 369.38'	T = 48.79'
R = 711.00' (DS = 45 MPH)	R = 926.00'	R = 300.00'
SE = 0.04	SE = SEE PLANS	SE = SEE PLANS
RO = 156'	RO = SEE PLANS	RO = SEE PLANS

(29) DAVID A. GRIX
MELODY K. GRIX
DB 2729 PG 3569
PB 41 PG 100

(35) SHAWAN GABRIEL
KEISHA GABRIEL
DB 3301 PG 70
PB 30 PG 133

★ TRAFFIC SIGNAL

☒ REMOVAL OF EXIST ASPHALT PAVEMENT

SEE SHEET 2B-2 FOR INTERSECTION DETAIL
SEE SHEET 19 FOR -L- PROFILE
SEE SHEET 28 FOR -Y4- PROFILE
SEE SHEET 28 FOR -Y5- PROFILE
SEE SHEET 28 FOR -Y6- PROFILE

REVISIONS

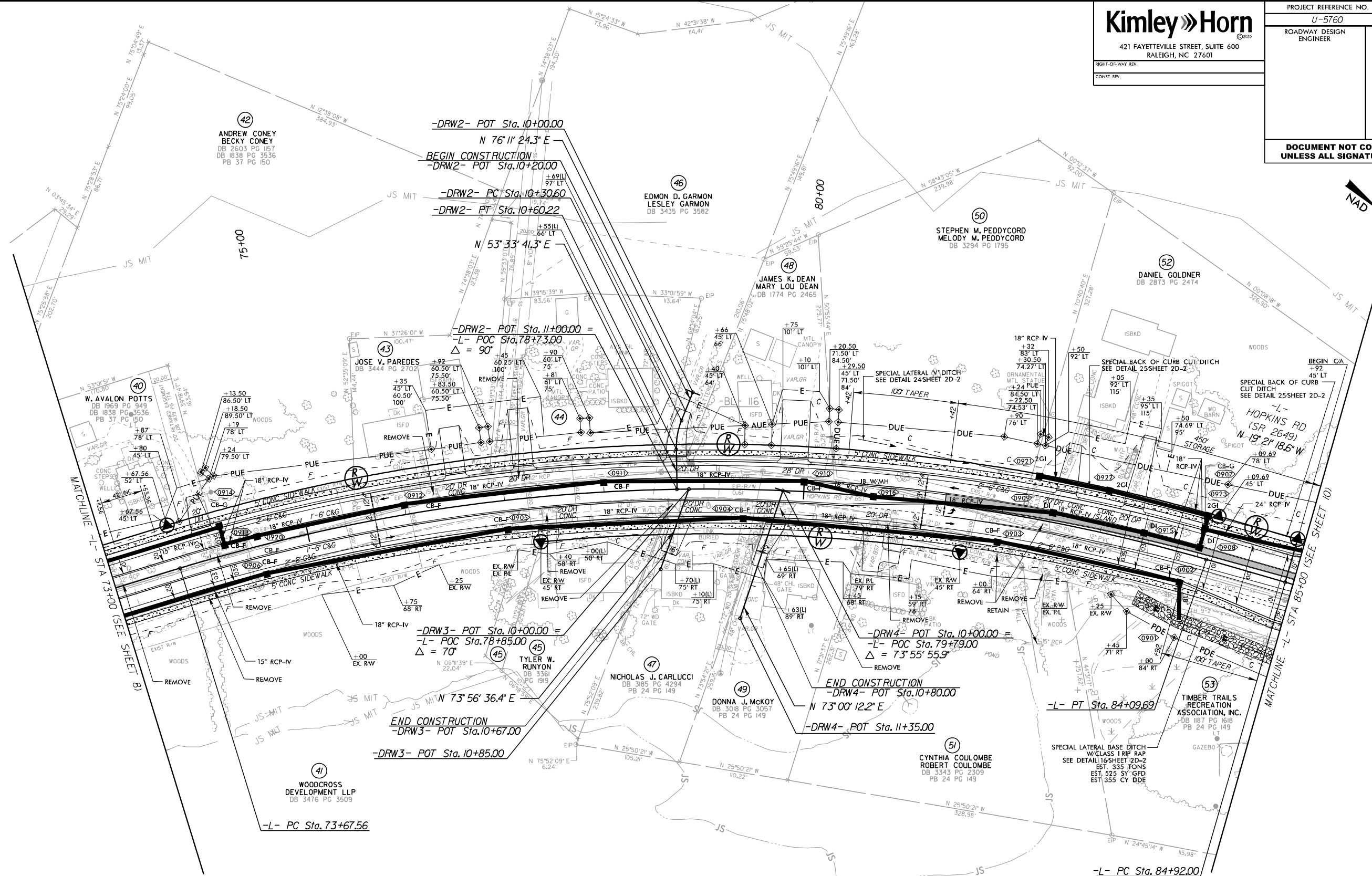
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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
U-5760	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

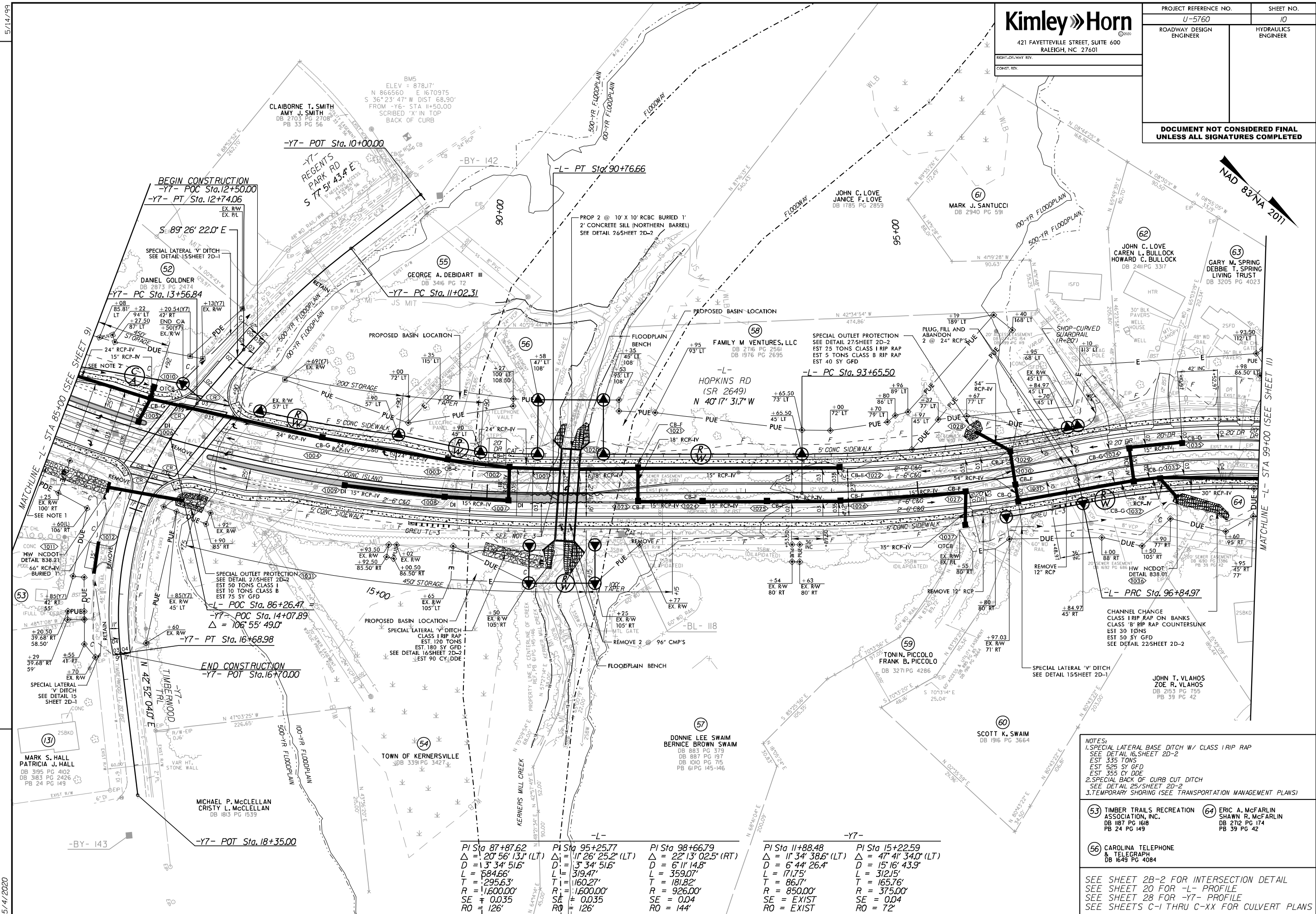
NAD 83/NA 2011



PI Sta 79+03.68	PI Sta 87+87.62	PI Sta 10+45.61
$\Delta = 33^{\circ}10'19.5''$ (RT)	$\Delta = 20^{\circ}56'13.1''$ (LT)	$\Delta = 22^{\circ}37'43.0''$ (LT)
$D = 3^{\circ}10'59.2''$	$D = 3^{\circ}34'51.6''$	$D = 76^{\circ}23'39.7''$
$L = 1,042.13'$	$L = 584.66'$	$L = 296.2'$
$T = 536.13'$	$T = 295.63'$	$T = 15.0'$
$R = 1,800.00'$	$R = 1,600.00'$	$R = 75.00'$
$SE = 0.035$	$SE = 0.035$	
$RO = 147'$	$RO = 126'$	

44 HUNTER P. COFER
DB 3333 PG 2638

SEE SHEET 19 FOR -L- PROFILE
SEE SHEET 29 FOR -DRW2-, -DRW3-
AND -DRW4- PROFILES



NOTES:
1. SPECIAL LATERAL BASE DITCH W/ CLASS 1 RIP RAP
SEE DETAIL 16, SHEET 2D-2
EST 335 TONS
EST 525 SY GFD
EST 355 CY DEE
2. SPECIAL BACK OF CURB CUT DITCH
SEE DETAIL 25, SHEET 2D-2
3. TEMPORARY SHORING (SEE "TRANSPORTATION MANAGEMENT PLANS")

(53) TIMBER TRAILS RECREATION
ASSOCIATION, INC.
DB 1187 PG. 1618
PB 24 PG. 149

(64) ERIC A. MCFARLIN
SHAWN R. MCFARLIN
DB 2712 PG. 174
PB 39 PG. 42

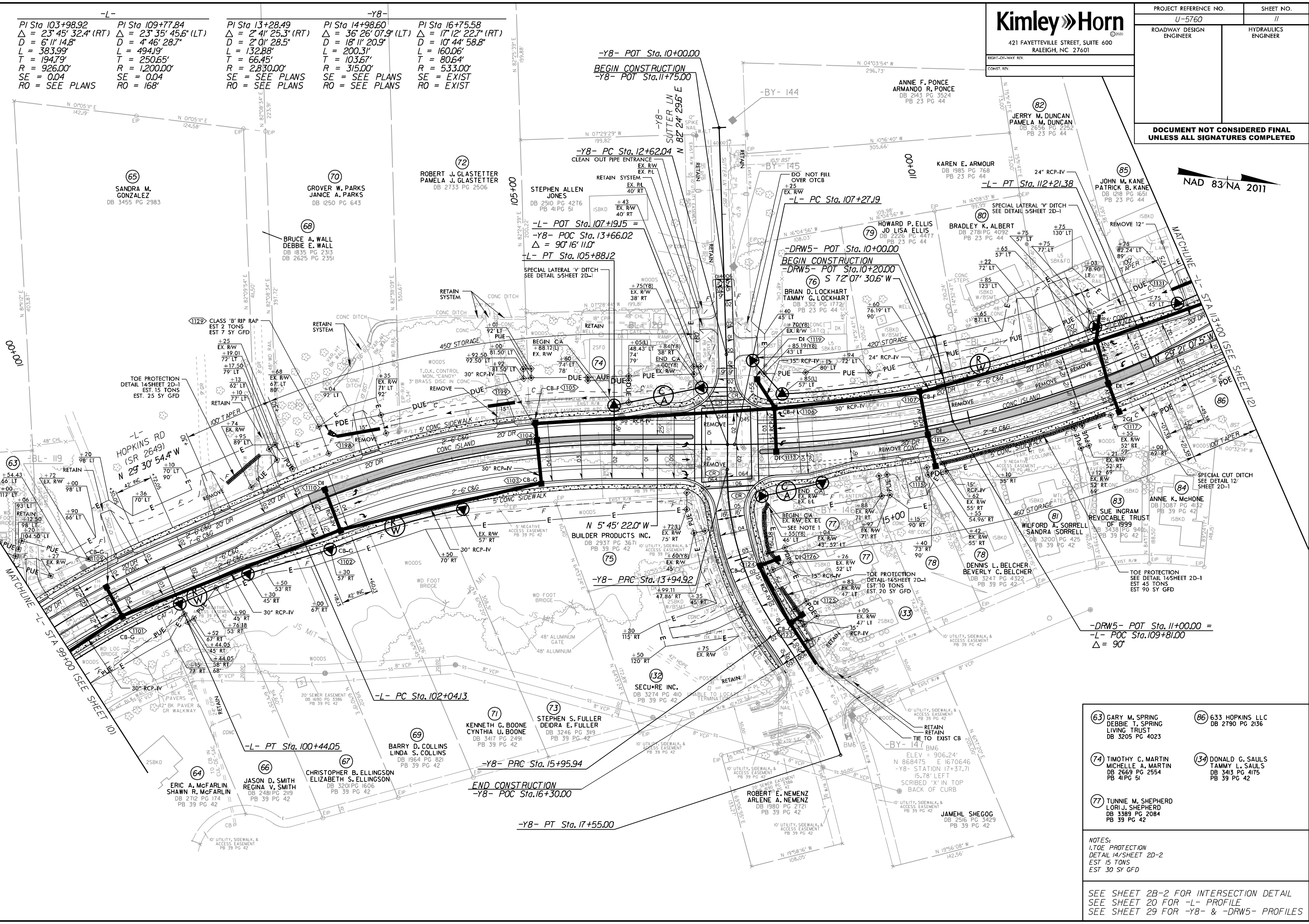
(56) CAROLINA TELEPHONE
& TELEGRAPH
DB 1649 PG. 4084

SEE SHEET 2B-2 FOR INTERSECTION DETAIL
SEE SHEET 2D FOR -L- PROFILE
SEE SHEET 28 FOR -Y7- PROFILE
SEE SHEETS C-I THRU C-XX FOR CULVERT PLANS

PROJECT REFERENCE NO.		SHEET NO.
U-5760		11
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER

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63 GARY M. SPRING DEBBIE T. SPRING LIVING TRUST DB 3205 PG 4023	86 633 HOPKINS LLC DB 2790 PG 2136
74 TIMOTHY C. MARTIN MICHELLE A. MARTIN DB 2669 PG 2554 PB 41 PG 51	134 DONALD G. SAULS TAMMY L. SAULS DB 3413 PG 4175 PB 39 PG 42
77 TUNNIE M. SHEPHERD LORI J. SHEPHERD DB 3389 PG 2084 PB 39 PG 42	

NOTES:
1. TOE PROTECTION
DETAIL 14/SHEET 2D-2
EST 15 TONS
EST 30 SY GFD

SEE SHEET 2B-2 FOR INTERSECTION DETAIL
SEE SHEET 20 FOR -L- PROFILE
SEE SHEET 29 FOR -Y8- & -DRW5- PROFILES

5/14/99

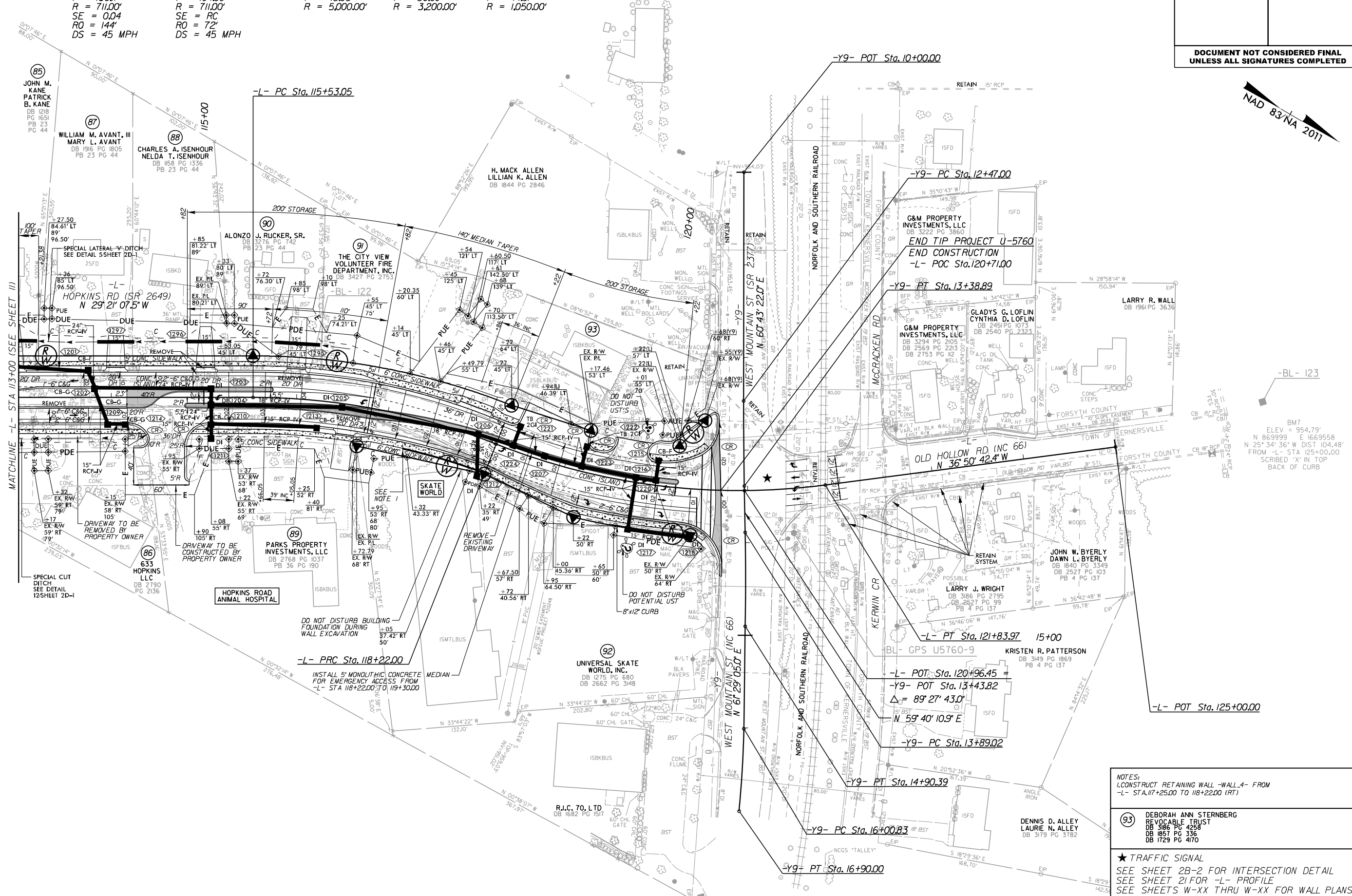
REVISIONS

5/4/2020

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UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

-L-		-Y9-	
PI Sta 116+89.16 $\Delta = 21' 40'' 28.2''$ (RT) $D = 8' 03'' 30.5''$ $L = 268.97'$ $T = 136.11'$ $R = 711.00'$ $SE = 0.04$ $RO = 144'$ $DS = 45$ MPH	PI Sta 120+07.00 $\Delta = 29' 10'' 03.1''$ (LT) $D = 8' 03'' 30.5''$ $L = 361.97'$ $T = 184.99'$ $R = 711.00'$ $SE = RC$ $RO = 72'$ $DS = 45$ MPH	PI Sta 12+92.95 $\Delta = 1' 03'' 11.1''$ (LT) $D = 1' 08'' 45.3''$ $L = 91.90'$ $T = 45.95'$ $R = 5,000.00'$	PI Sta 14+39.71 $\Delta = 1' 48'' 54.1''$ (RT) $D = 1' 47'' 25.8''$ $L = 101.37'$ $T = 50.69'$ $R = 3,200.00'$
PI Sta 16+45.44 $\Delta = 4' 51'' 55.9''$ (RT) $D = 5' 27'' 24.3''$ $L = 89.17'$ $T = 44.61'$ $R = 1,050.00'$			



NOTES:
1. CONSTRUCT RETAINING WALL - WALL 4 - FROM
-L- STA 117+25.00 TO 118+22.00 (RT)

93 DEBORAH ANN STERNBERG
REVOCABLE TRUST
DB 386 PG 4258
DB 1851 PG 336
DB 1729 PG 4170

★ TRAFFIC SIGNAL
SEE SHEET 2B-2 FOR INTERSECTION DETAIL
SEE SHEET 21 FOR -L- PROFILE
SEE SHEETS W-XX THRU W-XX FOR WALL PLANS

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5/14/2020

5/14/99

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5/14/2020

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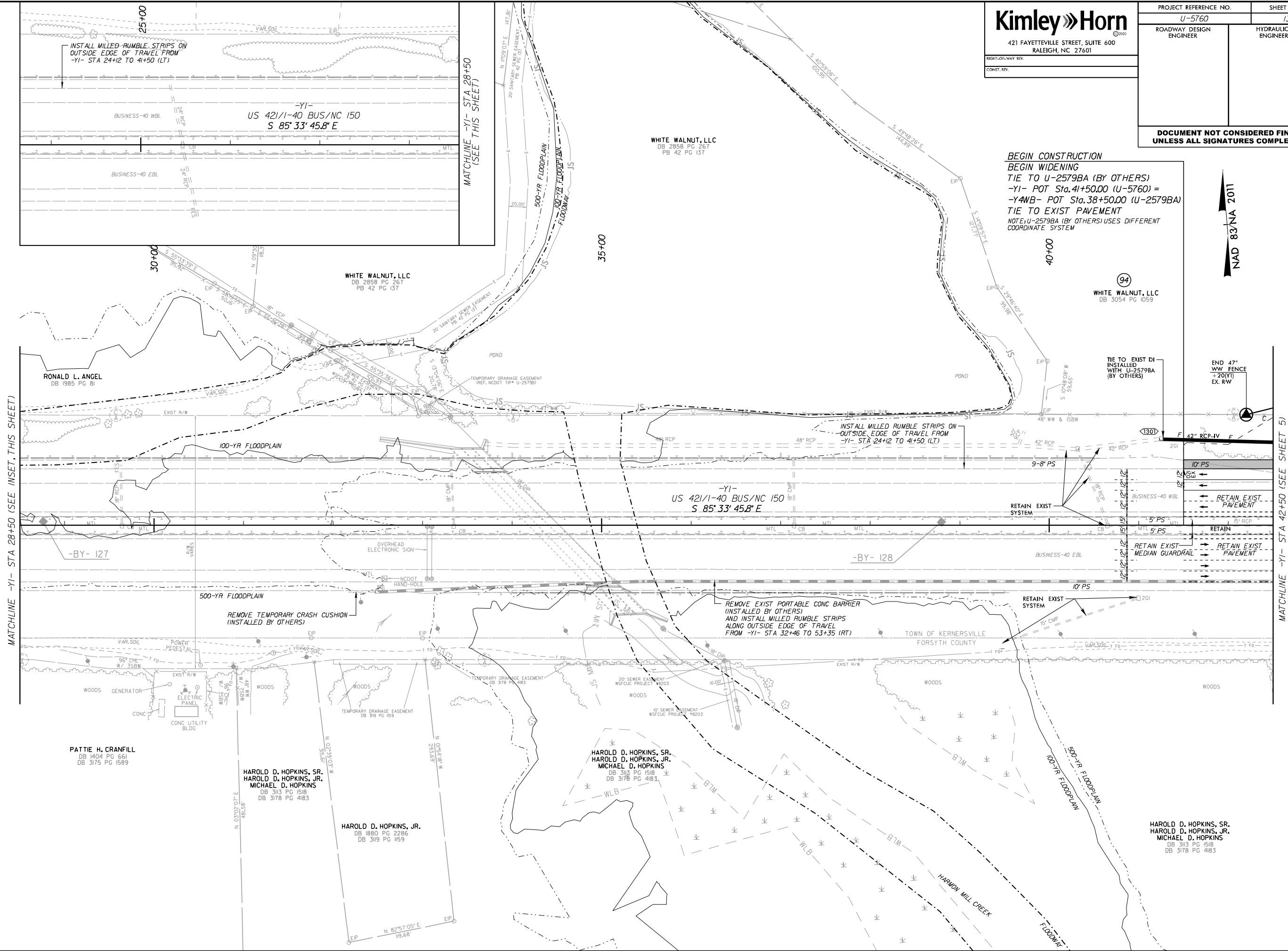
421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
U-5760	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
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BEGIN CONSTRUCTION
BEGIN WIDENING
TIE TO U-2579BA (BY OTHERS)
-YI- POT Sta. 41+50.00 (U-5760) =
-Y4WB- POT Sta. 38+50.00 (U-2579BA)
TIE TO EXIST PAVEMENT
NOTE: U-2579BA (BY OTHERS) USES DIFFERENT
COORDINATE SYSTEM

NAD 83/NA 2011



421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

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CONST. REV.

PROJECT REFERENCE NO.	SHEET NO.
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U-5760

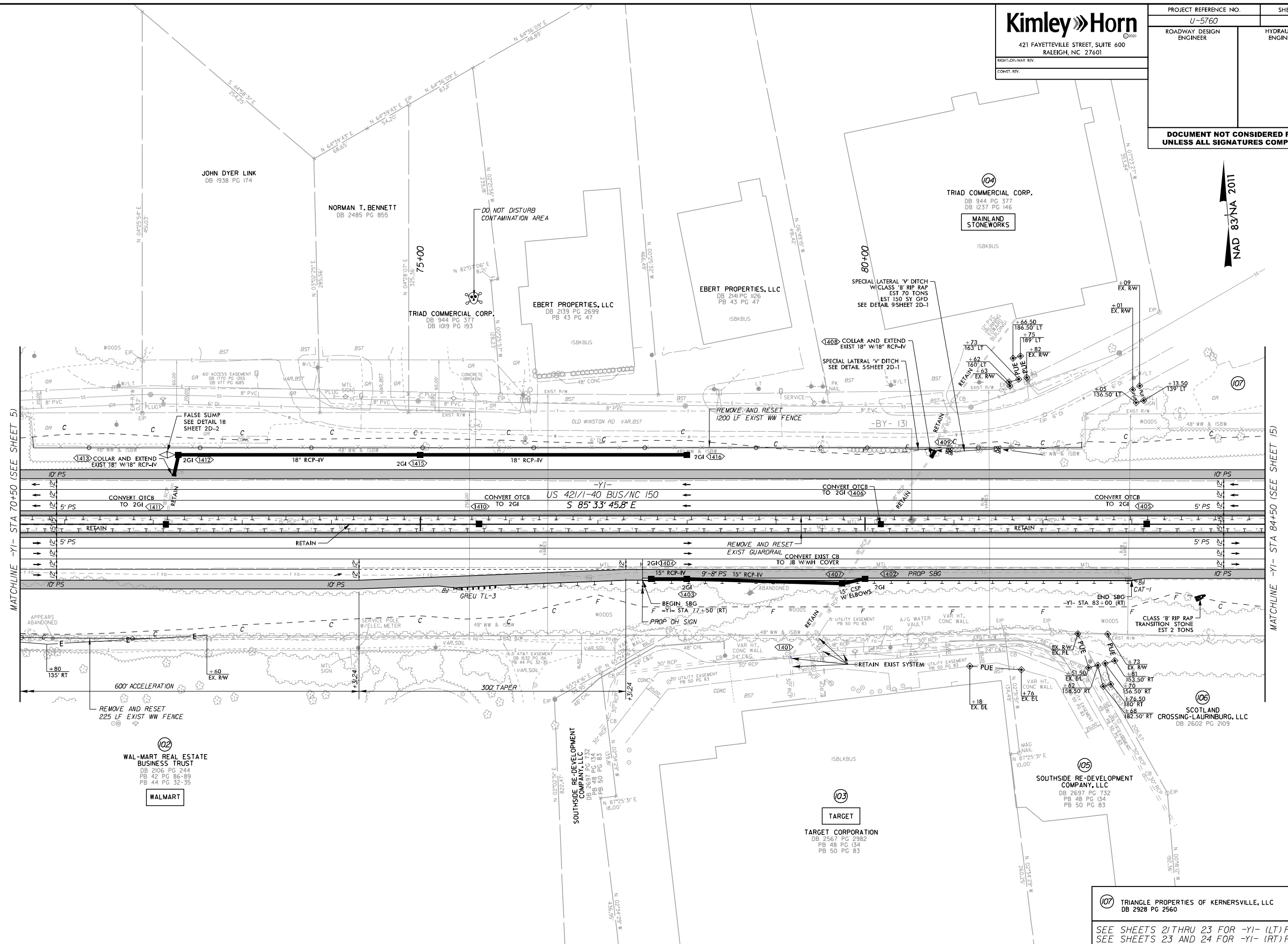
ROADWAY DESIGN
ENGINEER

14

HYDRAULICS
ENGINEER

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UNLESS ALL SIGNATURES COMPLETED**

NAD 83/NA 2011



107 TRIANGLE PROPERTIES OF KERNERSVILLE, LLC
DB 2928 PG 2560

SEE SHEETS 21 THRU 23 FOR -YI- (LT) PROFILE
SEE SHEETS 23 AND 24 FOR -YI- (RT) PROFILE

5/14/99

5/14/2020

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RALEIGH, NC 27601

RIGHT-OF-WAY REV.
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PROJECT REFERENCE NO.

U-5760

ROADWAY DESIGN
ENGINEER

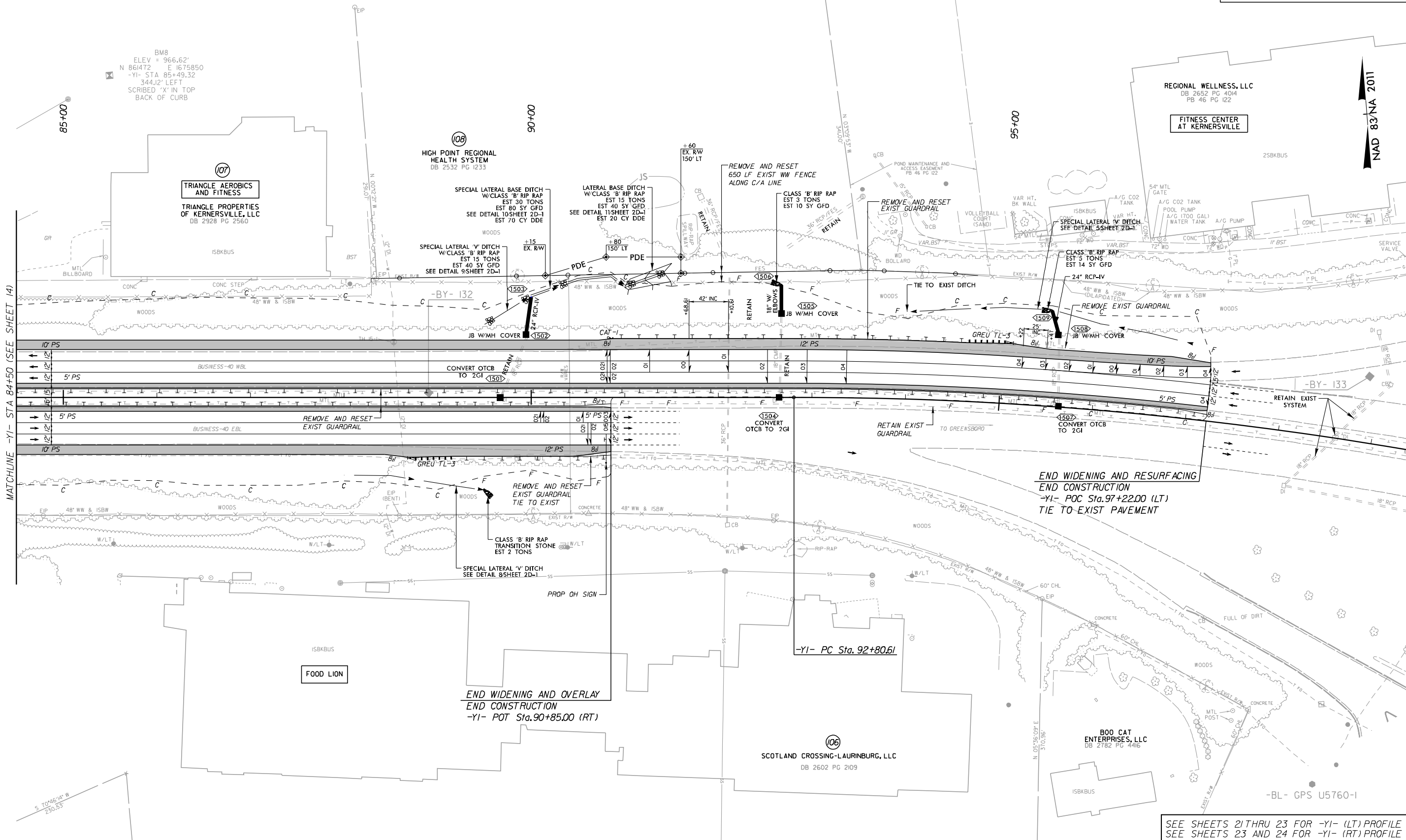
SHEET NO.

15

HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

-YI-
PI Sta 97+75.59
 $\Delta = 14' 36" 52.6" (RT)$
 $D = 1' 29' 03.6"$
 $L = 984.58'$
 $T = 494.98'$
SE = EXIST
RO = EXIST

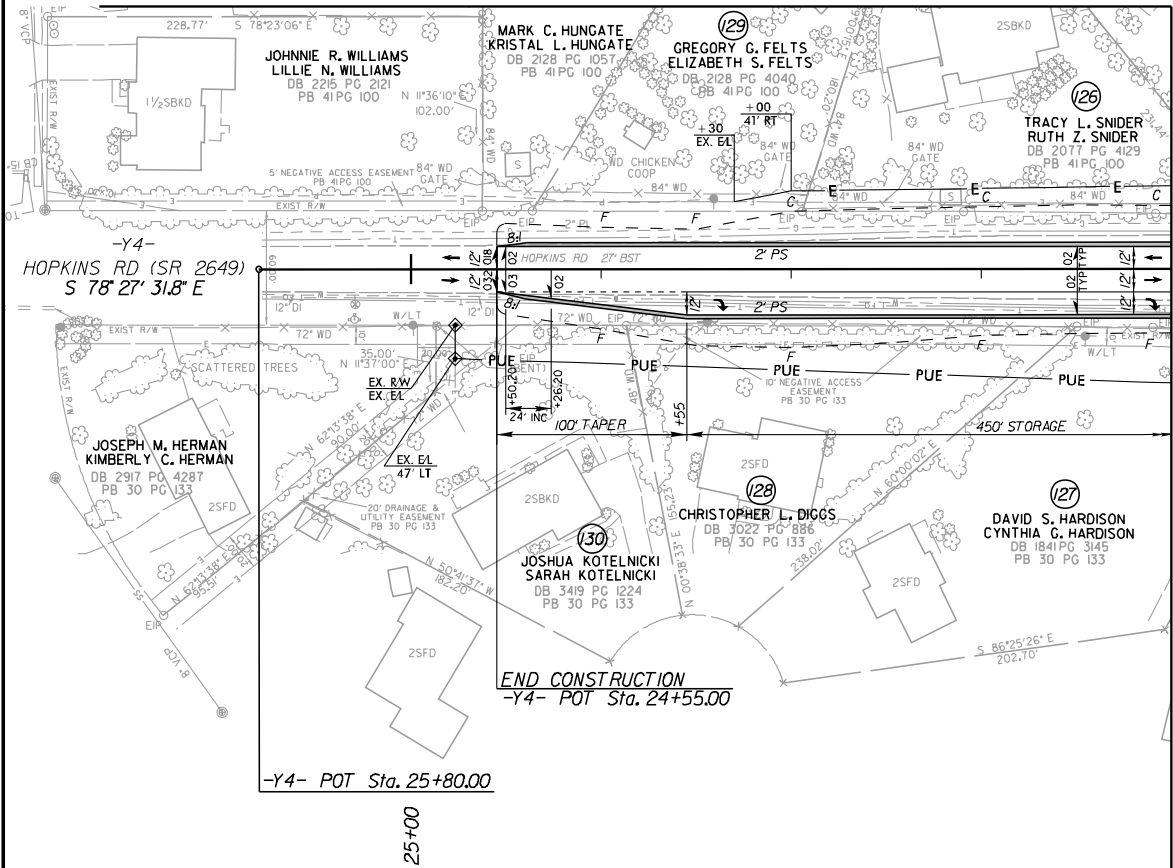


SEE SHEETS 21 THRU 23 FOR -YI- (LT) PROFILE
SEE SHEETS 23 AND 24 FOR -YI- (RT) PROFILE

5/14/99

REVISIONS

5/14/2020



NAD 83/NA 2011

MATCHLINE -Y4- STA 21+00 (SEE SHEET 8)

SEE SHEET 28 FOR -Y4- PROFILE

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

ROADWAY DESIGN
ENGINEER

CONST. REV.

PROJECT REFERENCE NO.

U-5760

ROADWAY DESIGN
ENGINEER

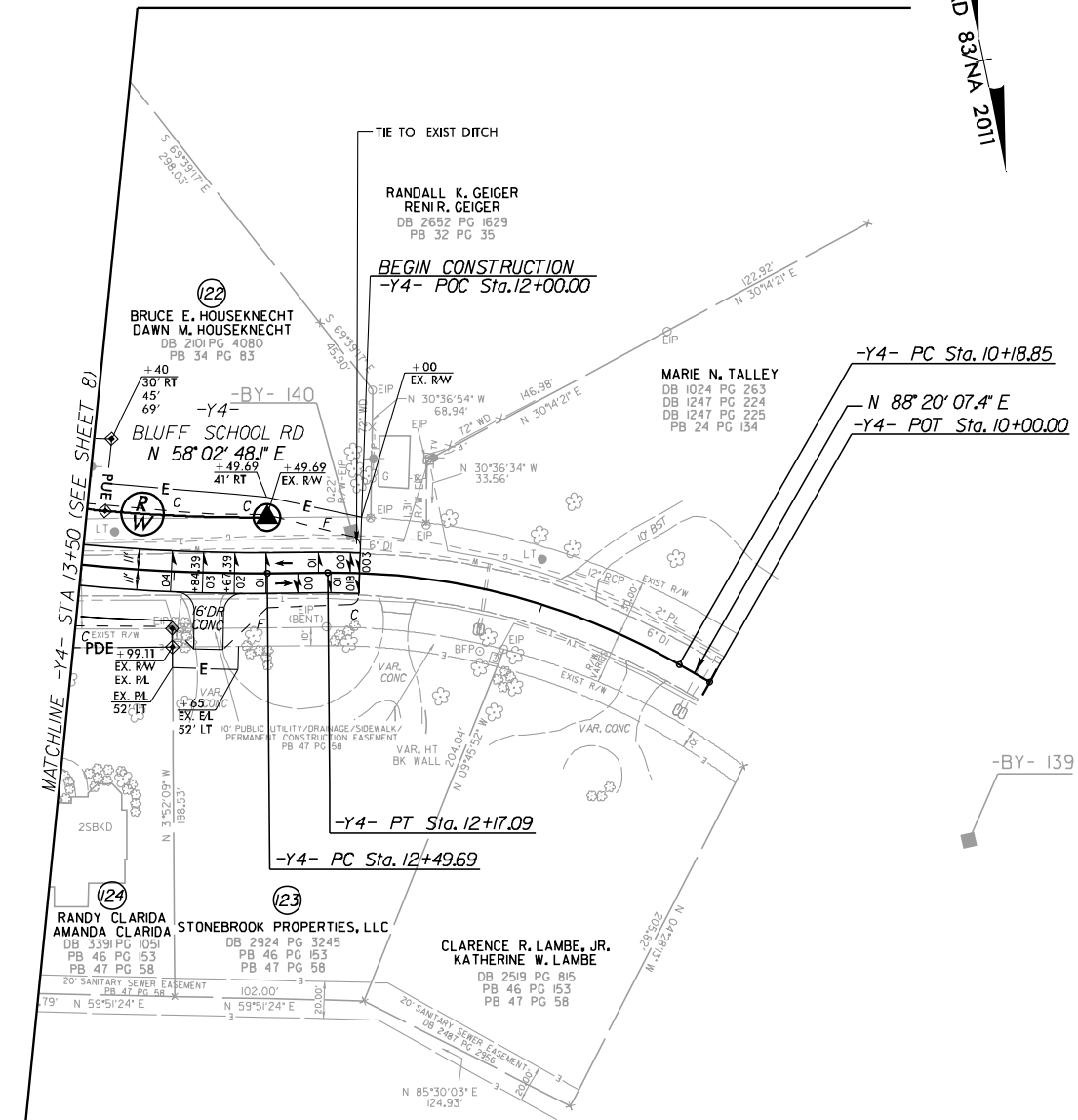
SHEET NO.

16

HYDRAULICS
ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NAD 83/NA 2011

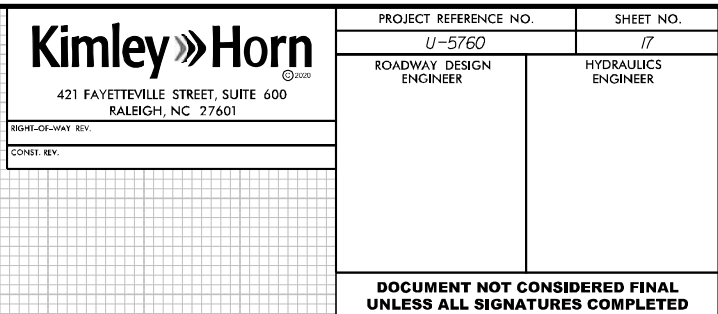


-BY- 139

-Y4-

PI Sta 11+20.34
 $\Delta = 30^\circ 17' 19.3''$ (LT)
 $D = 15^\circ 16' 43.9''$
 $L = 198.24'$
 $T = 101.49'$
 $R = 375.00'$
 $SE = 0.04$
 $RO = 68'$

SEE SHEET 28 FOR -Y4- PROFILE



5/28/99

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.

U-5760

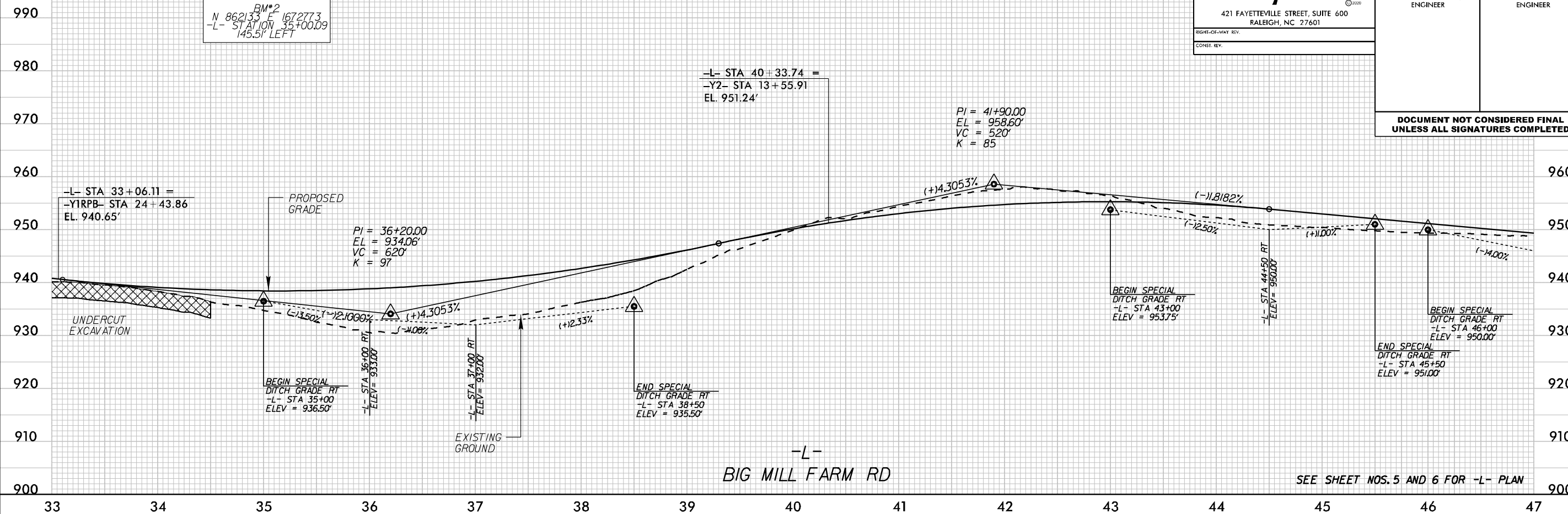
ROADWAY DESIGN
ENGINEER

SHEET NO.

18

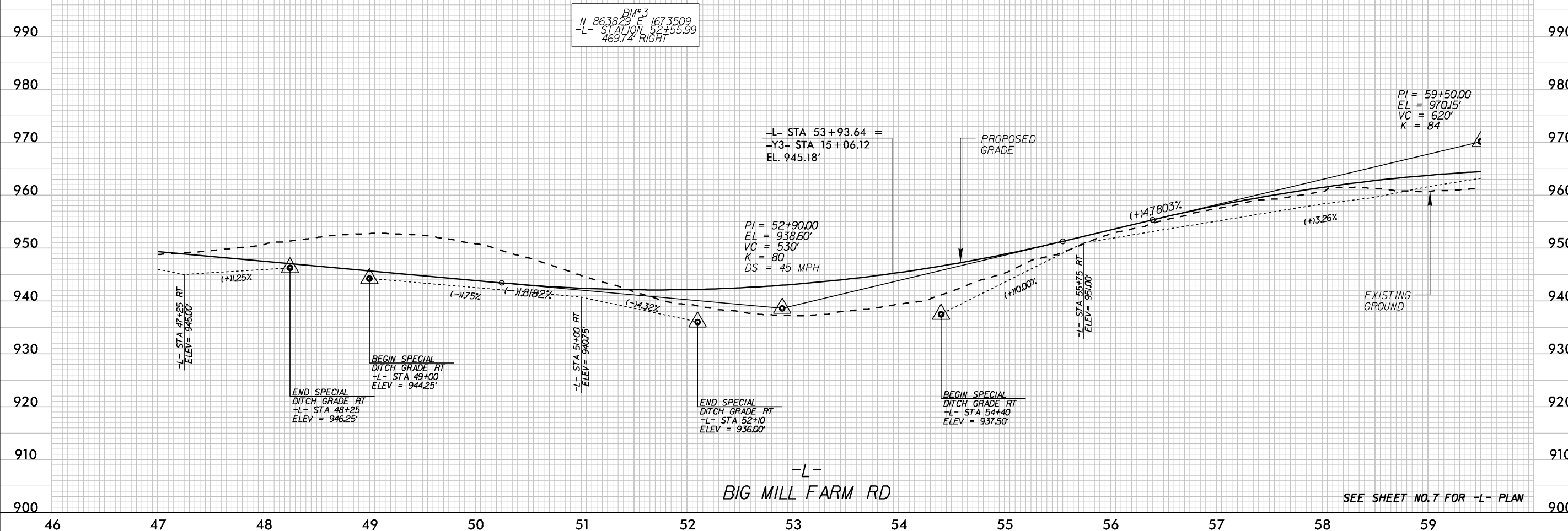
HYDRAULICS
ENGINEER

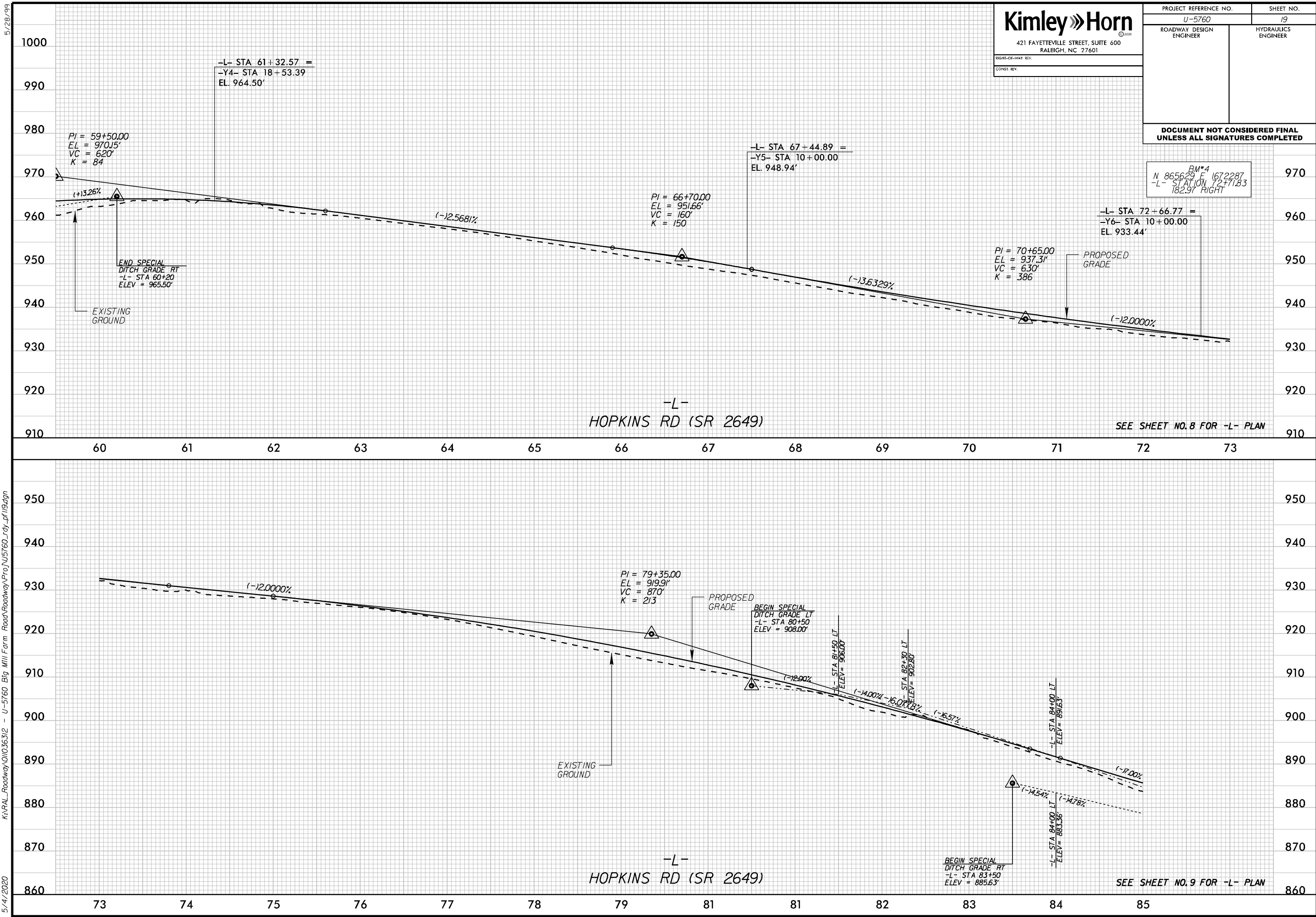
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

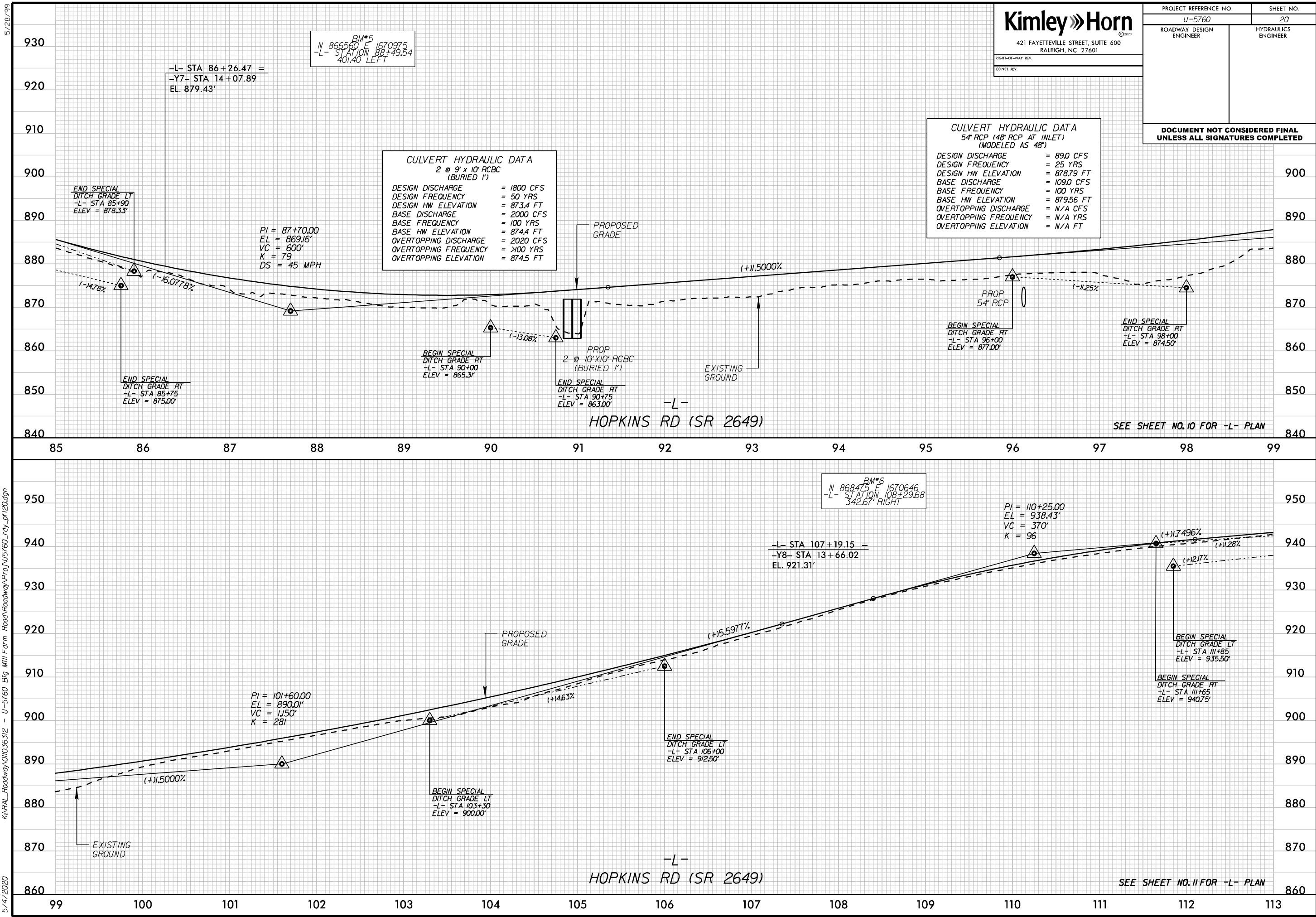


K:\RAL_Roadway\01036312 - U-5760 Big Mill Farm Road\Roadway\Proj\U5760_rdy.plt\18.dgn

5/4/2020







5/28/99

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421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.

U-5760

ROADWAY DESIGN
ENGINEER

SHEET NO.

21

HYDRAULICS
ENGINEER

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UNLESS ALL SIGNATURES COMPLETED

BM*7
N 869999 E 1669558
-L- STATION 125+05.00
97.46' RIGHT

970

960

950

940

930

920

910

END GRADE
-L- STA 120+71.00
EL. 960.50'
MILL NOTCH TO KEY-IN
TIE TO EXIST PAVEMENT

PI = 118+90.00
EL = 959.50'
VC = 210'
K = 62
DS = 45 MPH

PI = 116+20.00
EL = 948.84'
VC = 330'
K = 150

PROPOSED
GRADE

EXISTING
GROUND

END SPECIAL
DITCH GRADE LT
-L- STA 116+50
ELEV = 945.75'

END SPECIAL
DITCH GRADE RT
-L- STA 114+00
ELEV = 943.75'

-L-
HOPKINS RD (SR 2649)

SEE SHEET NO. 12 FOR -L- PLAN

113 114 115 116 117 118 119 120 121 122

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5/4/2020

950

940

930

920

910

900

890

880

870

860

PROPOSED U-2579BA
GRADE (BY OTHERS)

-L- STA 27+64.26 =
-Y1- STA 55+70.00 (27' LT)
EL. = 943.59'

BEGIN GRADE
-Y1- STA 53+35.00 (27' LT) =
-Y4WB- STA 26+65.00 (U-2579BA) (BY OTHERS)
EL. = 912.72'
TIE TO EXIST PAVEMENT

PI = 57+10.00
EL = 919.86'
VC = 600'
K = 1058

PROPOSED
GRADE

EXISTING GROUND FROM
-Y1- STA 53+35 TO 56+50
PER U-2579BA (BY OTHERS)

MATCH EXISTING CROWN POINT
AS CONSTRUCTED BY U-2579BA (BY OTHERS)
FROM -Y1- STA 41+50.00 TO 53+35.00

END SPECIAL
DITCH GRADE LT
-Y1- STA 58+80
ELEV = 874.81'

BEGIN SPECIAL
DITCH GRADE LT
-Y1- STA 58+90
ELEV = 878.00'

BEGIN SPECIAL
DITCH GRADE LT
-Y1- STA 58+30
ELEV = 883.43'

END SPECIAL
DITCH GRADE LT
-Y1- STA 59+50
ELEV = 886.00'

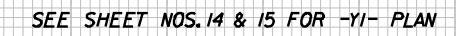
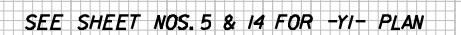
EXISTING
6' X 7' RCBC
(BURIED 'P')

-Y1- (LT)
US 421/NC 150/I-40 BUS

CULVERT HYDRAULIC DATA
SEE STA. 12+05 -YIRPD- PROFILE
FOR HYDRAULIC DATA

52 53 54 55 56 57 58 59 60 61 62 63 64 65 66

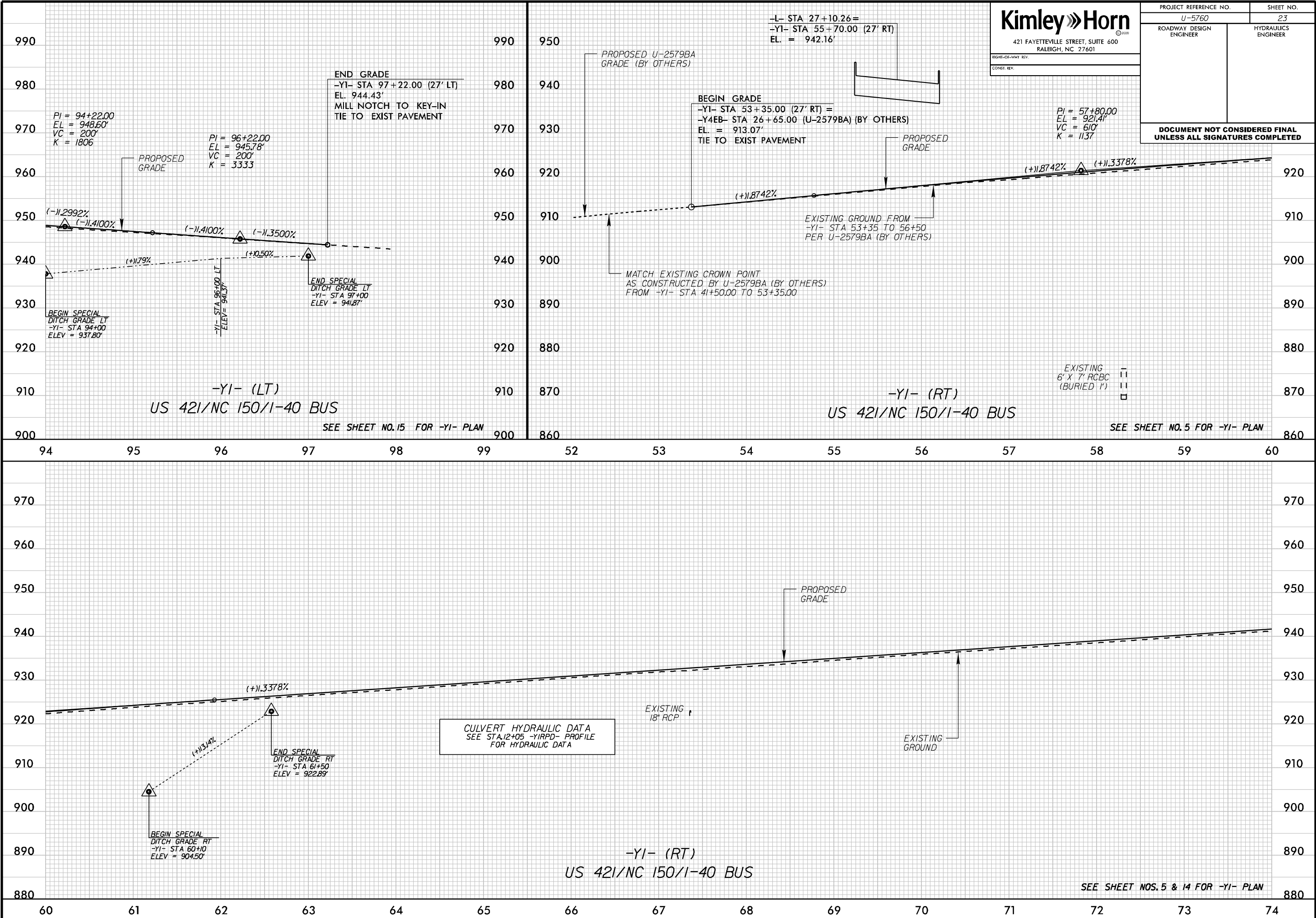
SEE SHEET NO. 5 FOR -Y1- PLAN

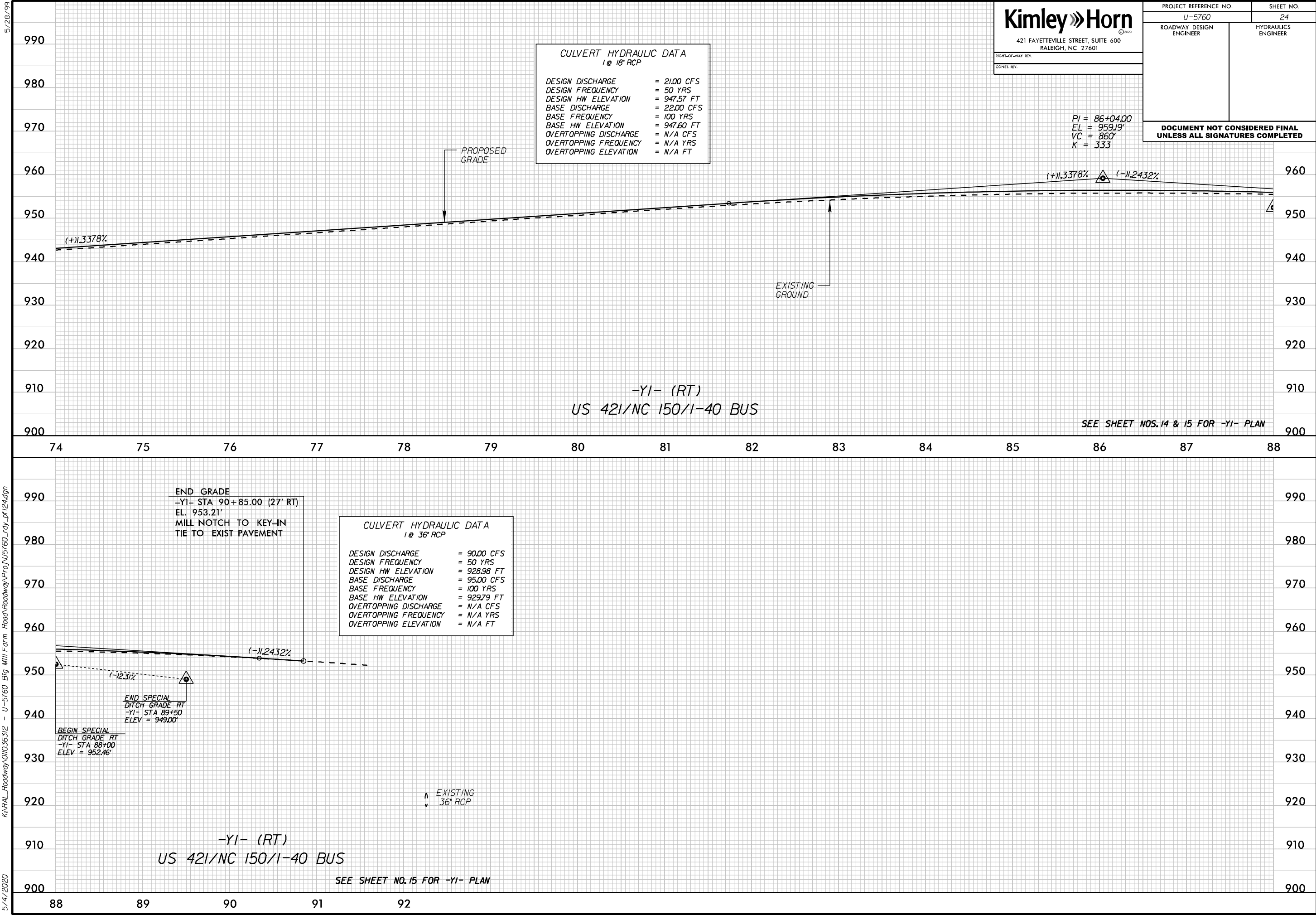


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5/4/2020



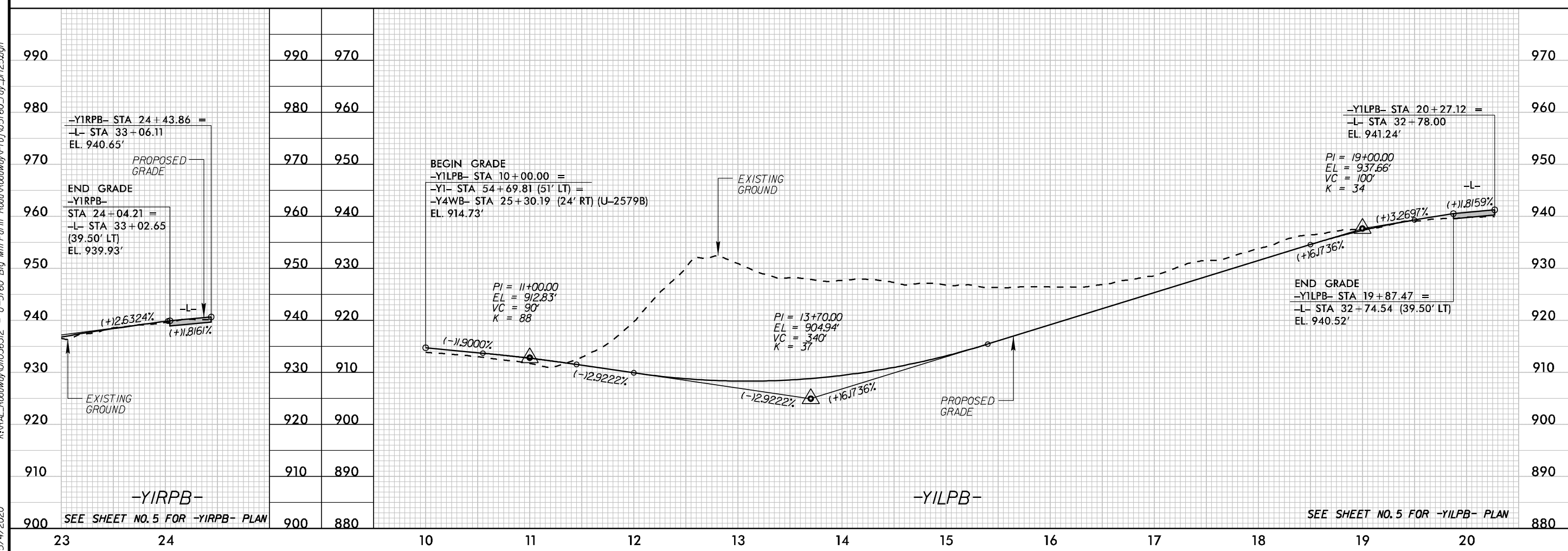
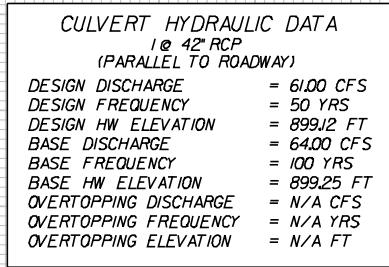


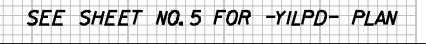
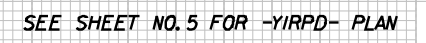
5/28/99

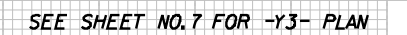
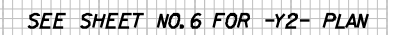
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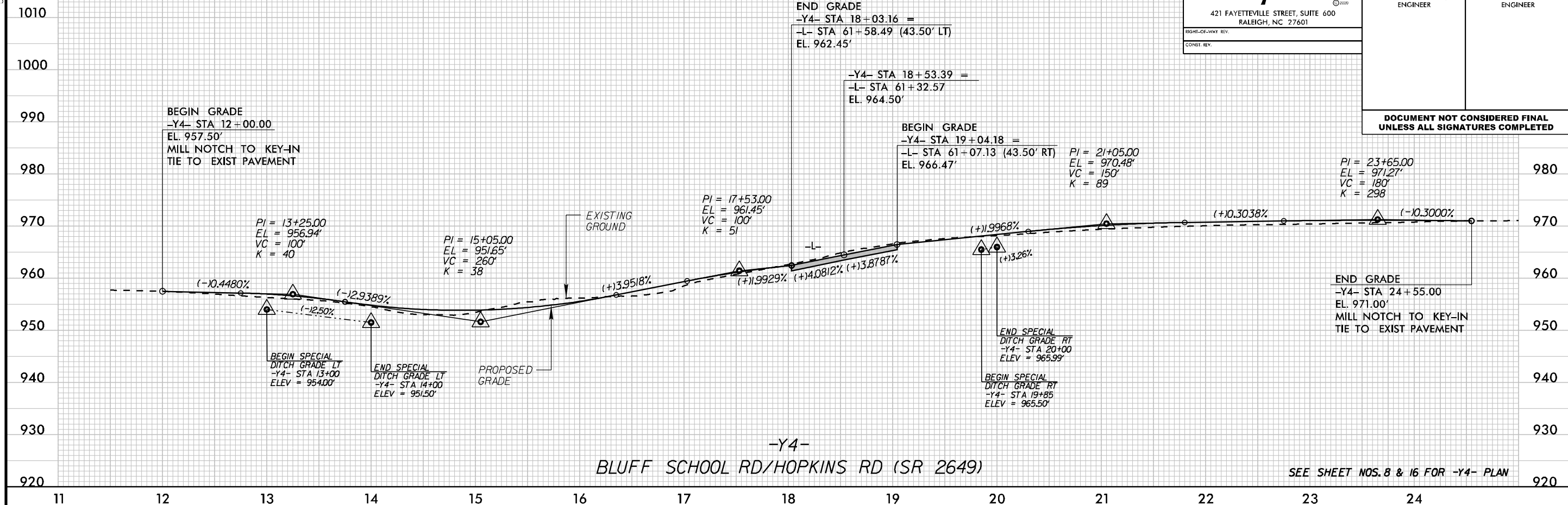
5/28/99

Kimley»Horn

421 FAYETTEVILLE STREET, SUITE 600
RALEIGH, NC 27601

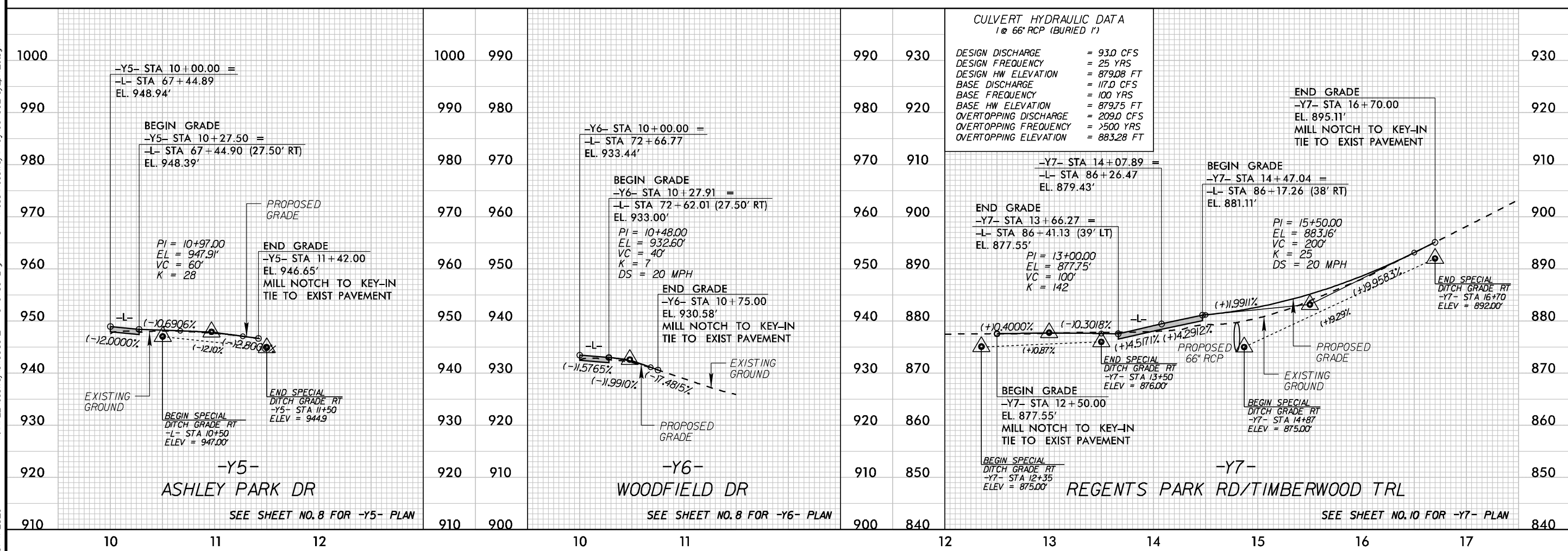
RIGHT-OF-WAY REV.
CONST. REV.

PROJECT REFERENCE NO.		SHEET NO.
U-5760		28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
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