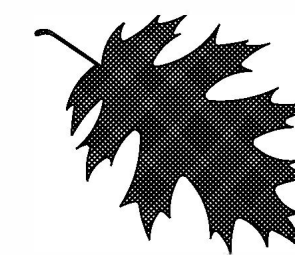
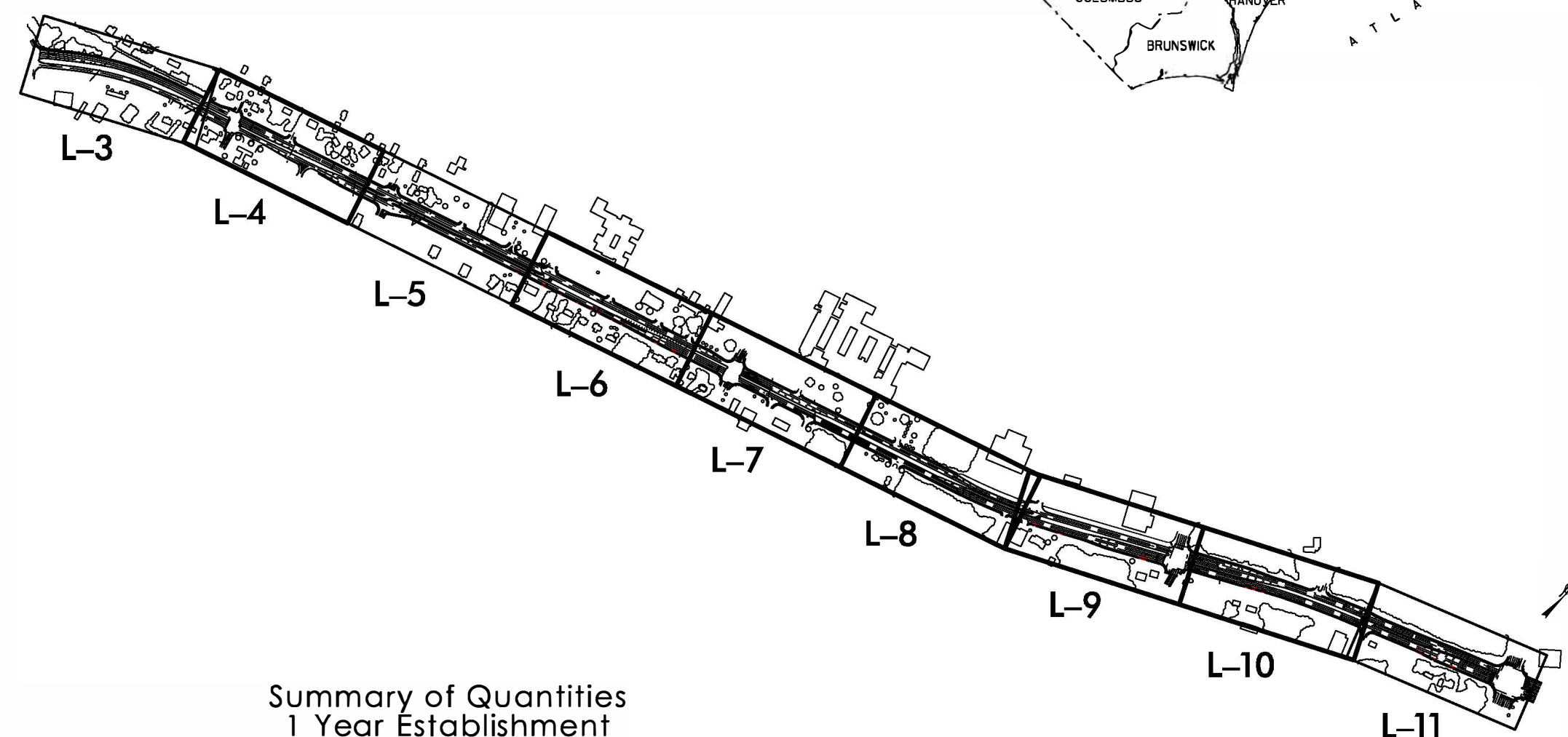
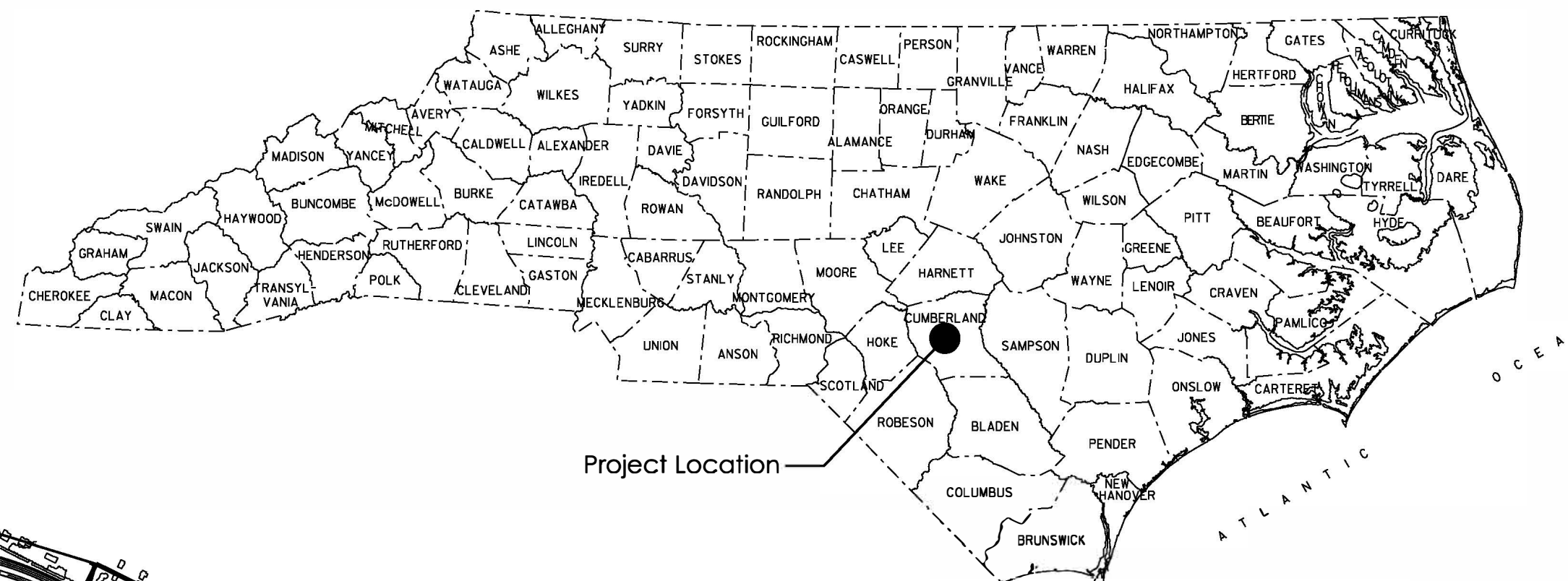
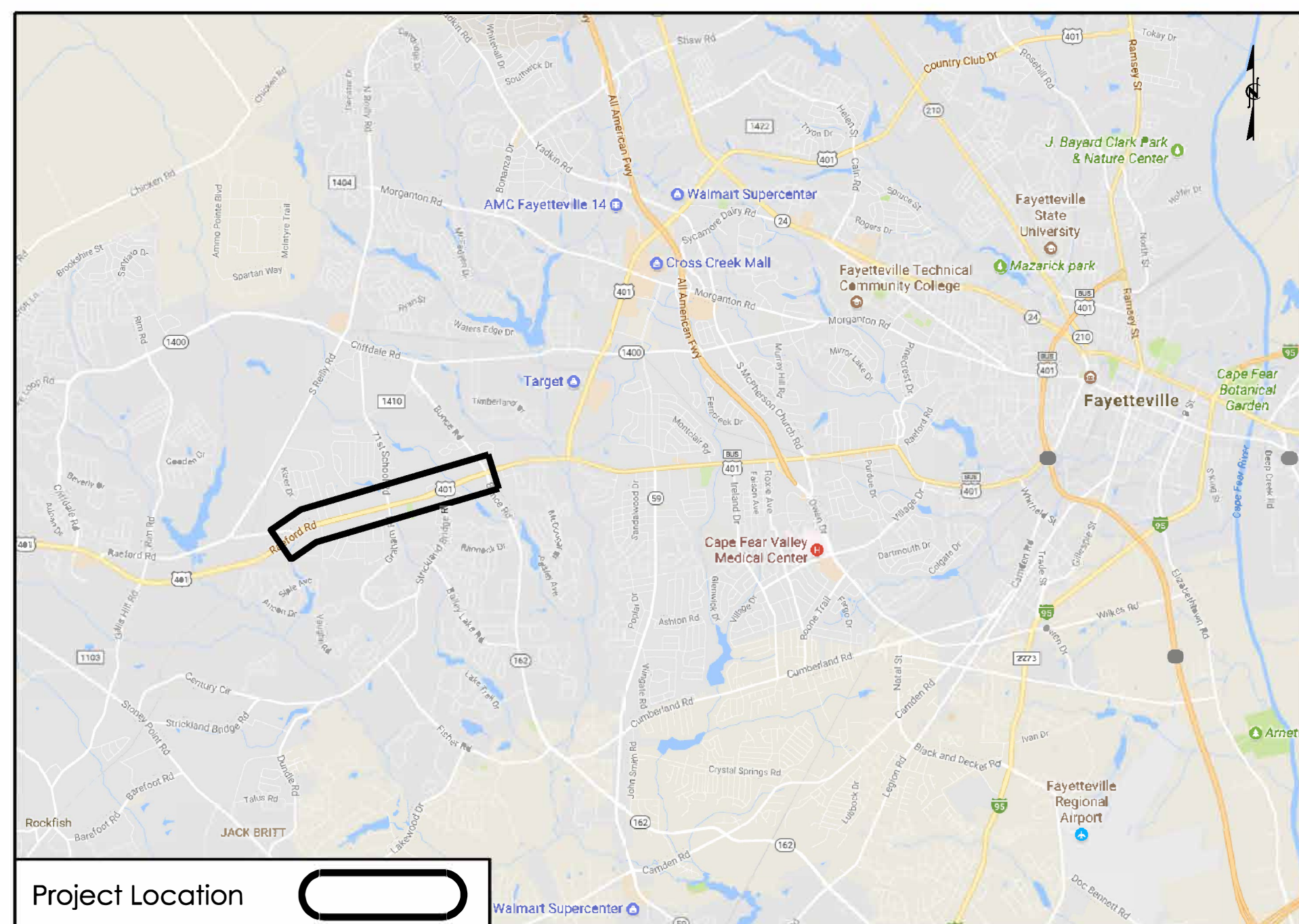


# HIGHWAY LANDSCAPE DEVELOPMENT PROJECT



U-4405A RAEFORD RD (US-401 BUS.) IN FAYETTEVILLE

T.I.P. #	STATE PROJECT W.B.S. #	SHEET #	SHEET # TOTAL
U-4405A(L)	39049.3.5	L1	11
FED. PROJ. #	DESCRIPTION	DIVISION	
STPDA-0401(230)	TIP	6	



Summary of Quantities  
1 Year Establishment

DES	SEC	QTY	UNIT	KEY	BOTANICAL NAME	COMMON NAME	SIZE	CALIPER	FURNISH	A.S.N.S.	REMARKS
<b>Trees</b>											
L	1670	38	ea	LN	<i>Lagerstroemia indica</i> 'Natchez', Standard	Natchez Crape Myrtle	6-7'		STD.; B&B	2.5	20" O.C.
L	1670	54	ea	LS	<i>Lagerstroemia indica</i> 'Sioux', Standard	Sioux Crape Myrtle	6-7'		STD.; B&B	2.5	20" O.C.
<b>Grasses/Perennials</b>											
L	SP	13995	sy	TC	<i>Eremochloa ophiuroides</i> (Munro) Hack (+10%)	TifBlair Centipede Sod	n/a		Sod	n/a	Tight Seams
<b>Other</b>											
L	1670	28	cy		Mulch for Planting						4" Depth
L	1670	78	m/g		Water for Planting						
L	1670	18249	sy		Pre Emergence Herbicidal Treatment						
L	1670	18249	sy		Post Emergence Herbicidal Treatment						
L	1670	12	ea		Monthly Maintenance						
L	SP	1	LS		Irrigation						
L	1089	1	LS		Traffic Control						

\* TifBlair Centipede Sod quantity includes 10% extra for waste cuts.

### NOTES:

- Existing conditions shown on the plans are based on survey information and roadway plans. actual site conditions may vary.
- Prior to any demolition or work taking place, the contractor shall locate and verify all utility lines and structures within the construction areas (water, sewer, gas, electrical, etc.)
- The contractor shall take the necessary precautions to prevent damage of adjacent plant material, facilities, and structures to remain. The contractor shall restore disturbed areas to their original condition and to the satisfaction of the Division Roadside Environmental Engineer.
- The utilities shown on the plans are approximate locations. The contractor shall locate and protect in place all existing utilities before digging occurs and major construction begins.
- Demolition, removal, and disposal of items from the site must be completely in accordance with the law. The contractor is responsible for making a site visit to determine and verify all demolition requirements prior to bidding.
- The contractor shall verify all conditions and dimensions at the job site prior to construction, and if discrepancies are found, notify the Division Roadside Environmental Engineer for clarification.

### CONVENTIONAL SYMBOLS

County Line.....	-----
City or Town Line.....	-----
Exist. Right of Way Line Marker.....	-----▲-----
Prop. Right of Way Line Marker (By Others).....	-----▲-----
Prop Right of Way Line Marker (By Contract).....	-----▲-----
Exist. Control of Access Line.....	-----○-----
Prop. Control of Access Line.....	-----○-----
Property Line.....	-----
Easement Line.....	-----
Slope Stake Line.....	-----
Exist. Fence.....	-----
Prop. Woven Wire Fence.....	-----
Prop. Chain Link Fence.....	-----
Exist. Road.....	-----
Prop. Road.....	-----
Guardrail.....	-----
Survey Line.....	-----
Denotes Line Equality.....	-----
Bridge.....	-----
Culvert.....	-----
Railroad.....	-----
Woods.....	-----
Exist. Telephone Pole.....	-----
Prop. Telephone Pole.....	-----
Tower Pole and Line.....	-----
Exist. Power Pole.....	-----
Prop. Power Pole.....	-----
Sanitary Sewer Line.....	-----
Water Line.....	-----
Gas Line.....	-----
Picnic Shelter.....	-----
Regeneration.....	-----
Reforestation.....	-----

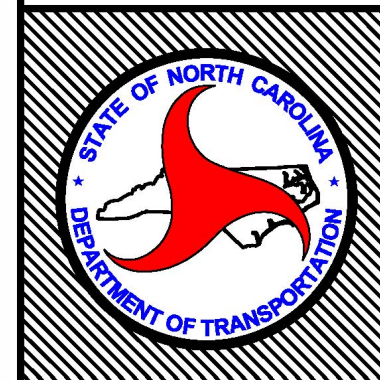
### INDEX OF L SHEETS:

- L 1.0 - Title Sheet
- L 2.0 - Planting Details
- L 3.0 - L 11.0 - Planting Plans

PREPARED BY: K. Cooper DATE: 08/2017

### REVISIONS

DATE	DESCRIPTION



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

LOCATION: Raeford Rd (US-401 Bus.) in Fayetteville

TYPE of WORK: TIP







COUNTY: Cumberland County

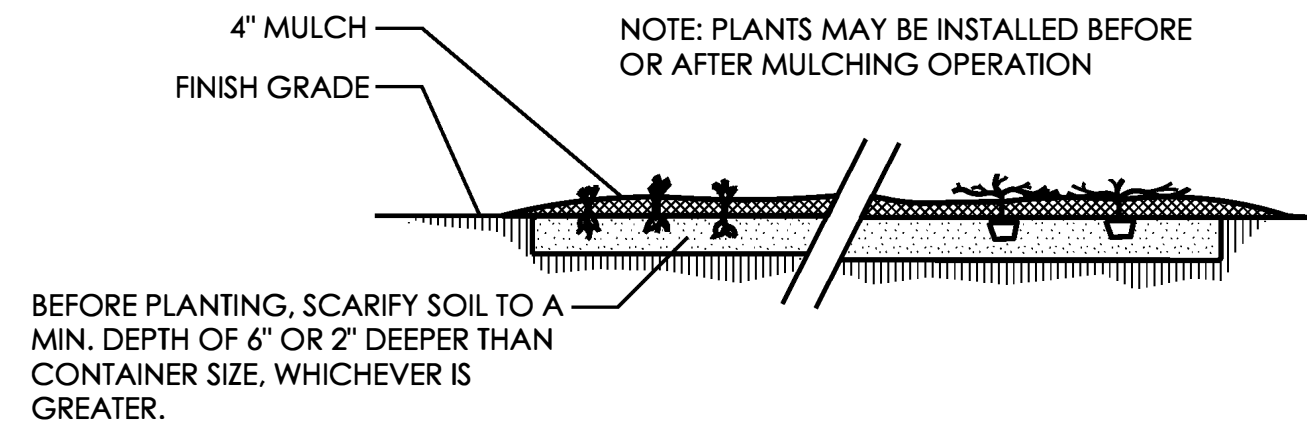
2014 American Standard for Nursery Stock

2018 NCDOT STANDARD SPECIFICATIONS

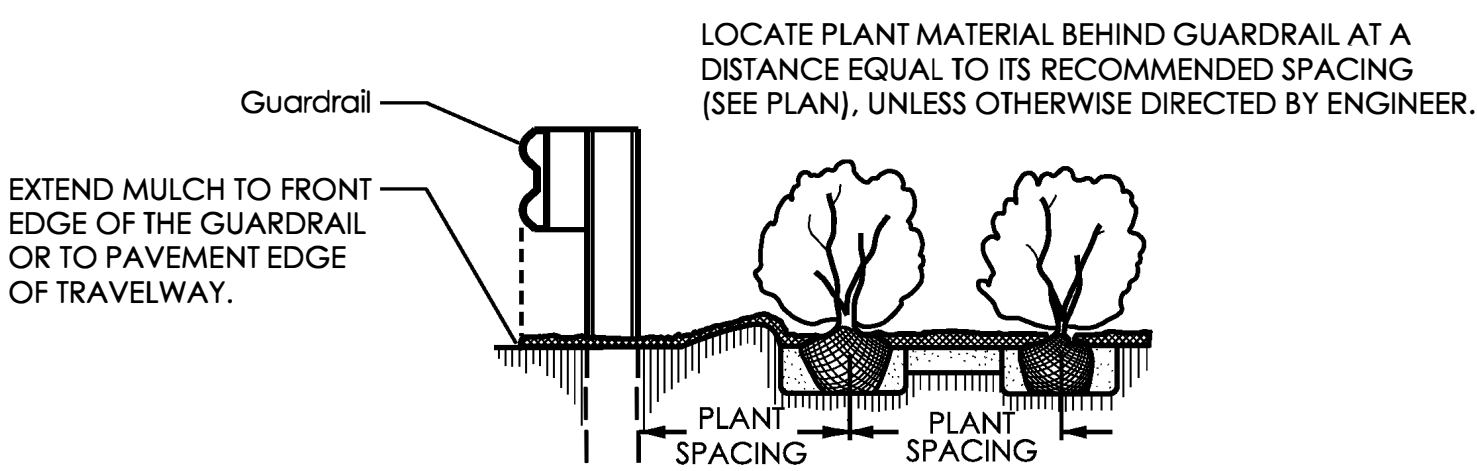
PREPARED IN THE OFFICE OF:  
NCDOT- ROADSIDE ENVIRONMENTAL UNIT  
AESTHETIC ENGINEERING SECTION  
1557 MAIL SERVICE CENTER  
RALEIGH, NC 27699 919-707-2920

**NOTES:**

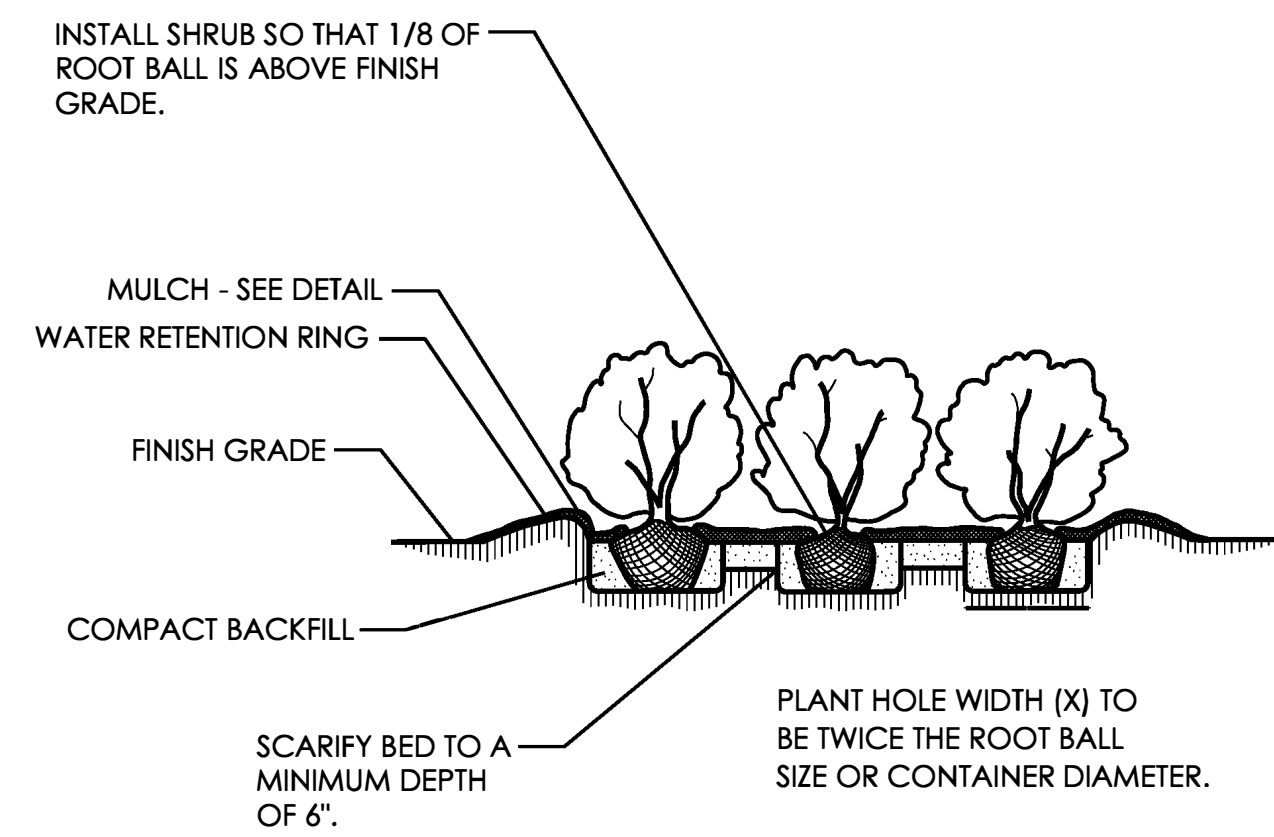
-  SCHEDULE FOR PLANT HOLE SIZE: PLANT HOLE WIDTH (X) TO BE TWICE THE ROOT BALL SIZE OR CONTAINER DIAMETER.
-  SEE STANDARD SPECIFICATIONS FOR PLANT BED FUMIGATION AND HERBICIDAL TREATMENT.
-  APPLY FERTILIZER AT PLANTING TIME IN THE FORM OF A SLOW RELEASE PELLET OR TABLET. APPLY AT RATE RECOMMENDED BY MANUFACTURER. BOTH RATE AND FORMULATION MUST BE APPROVED BY FIELD ENGINEER PRIOR TO APPLICATION.
-  REMOVE WIRE BASKET AND FOLD BURLAP BACK FROM TOP OF ROOT BALL BEFORE BACKFILLING IS COMPLETE.
-  ALL PRUNING TO FOLLOW STANDARD ARBORICULTURAL PRACTICES AS SPECIFIED BY INTERNATIONAL SOCIETY OF ARBORICULTURE.
-  DO NOT ATTEMPT TO STRAIGHTEN A TREE THAT HAS BEEN PLANTED AT AN ANGLE WITH THE USE OF STAKING OR GUYING. DIG TREE AND REPLANT TO UPRIGHT POSITION.



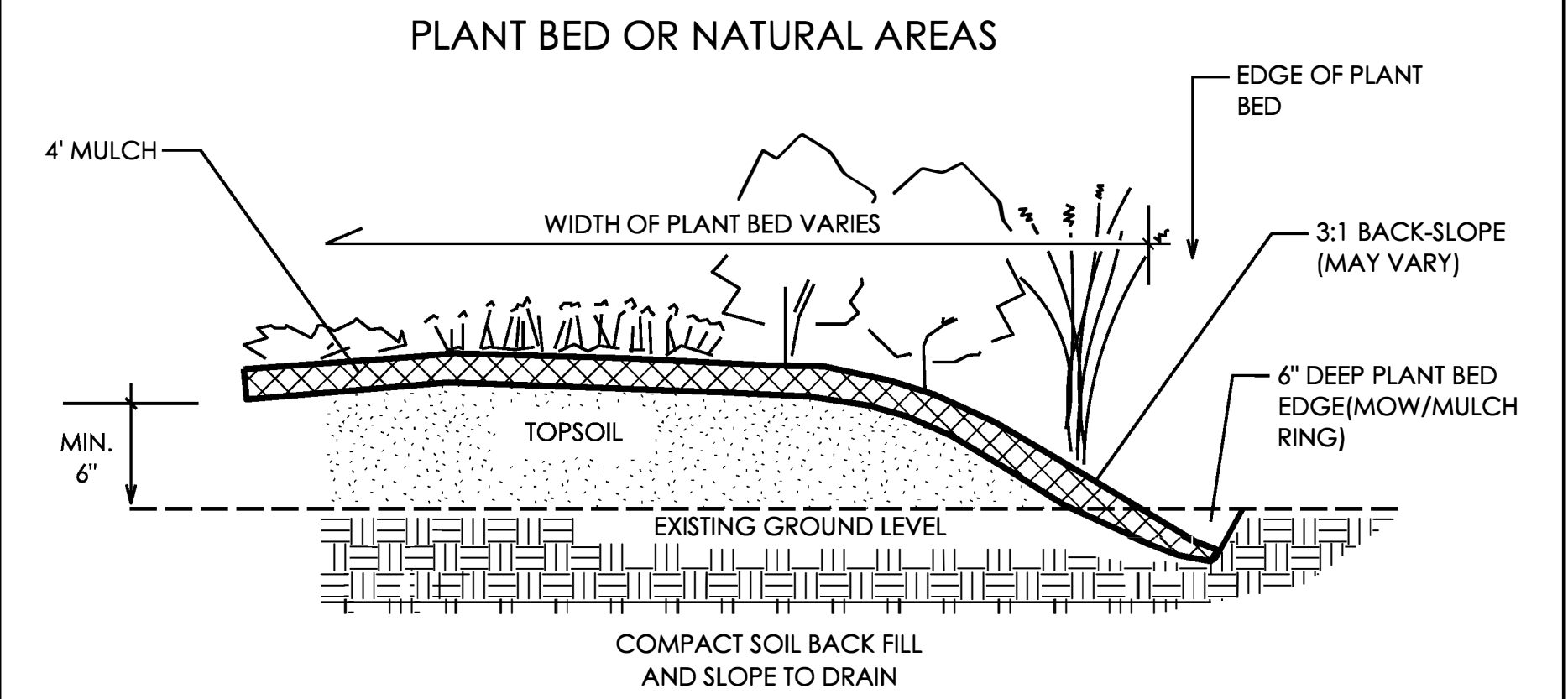
**GROUND COVER/ BEDDING  
PLANT DETAIL**  
NTS



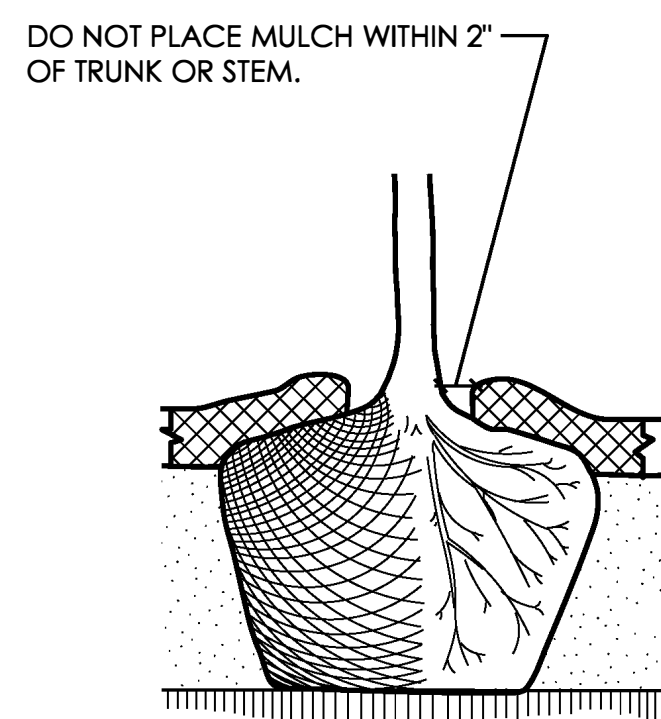
**Guardrail Mulching Detail**  
USE AS DIRECTED BY FIELD ENGINEER



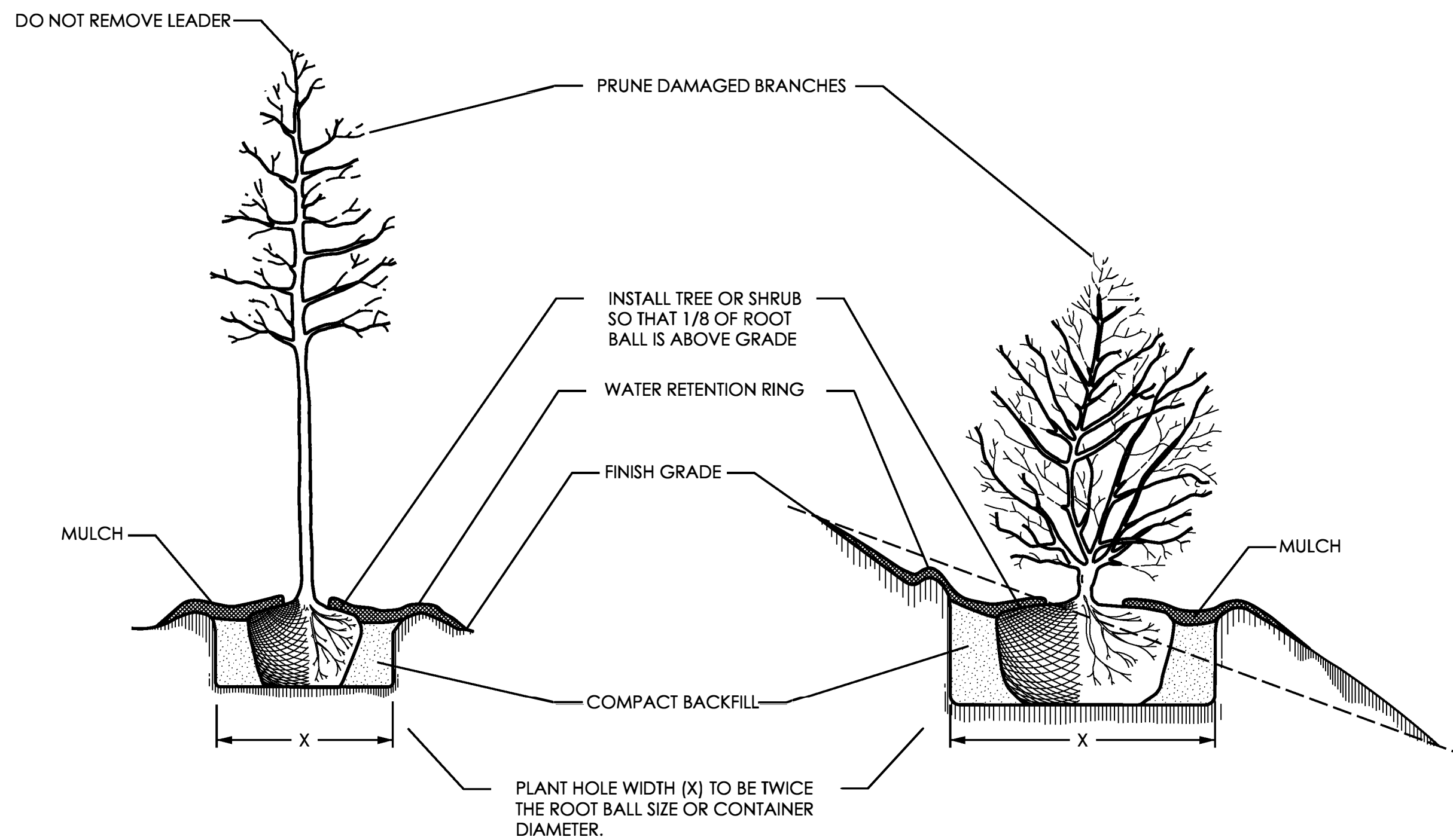
**SHRUB BED PLANTING DETAIL**  
NTS



**PLANT BED EDGE DETAIL**  
NTS

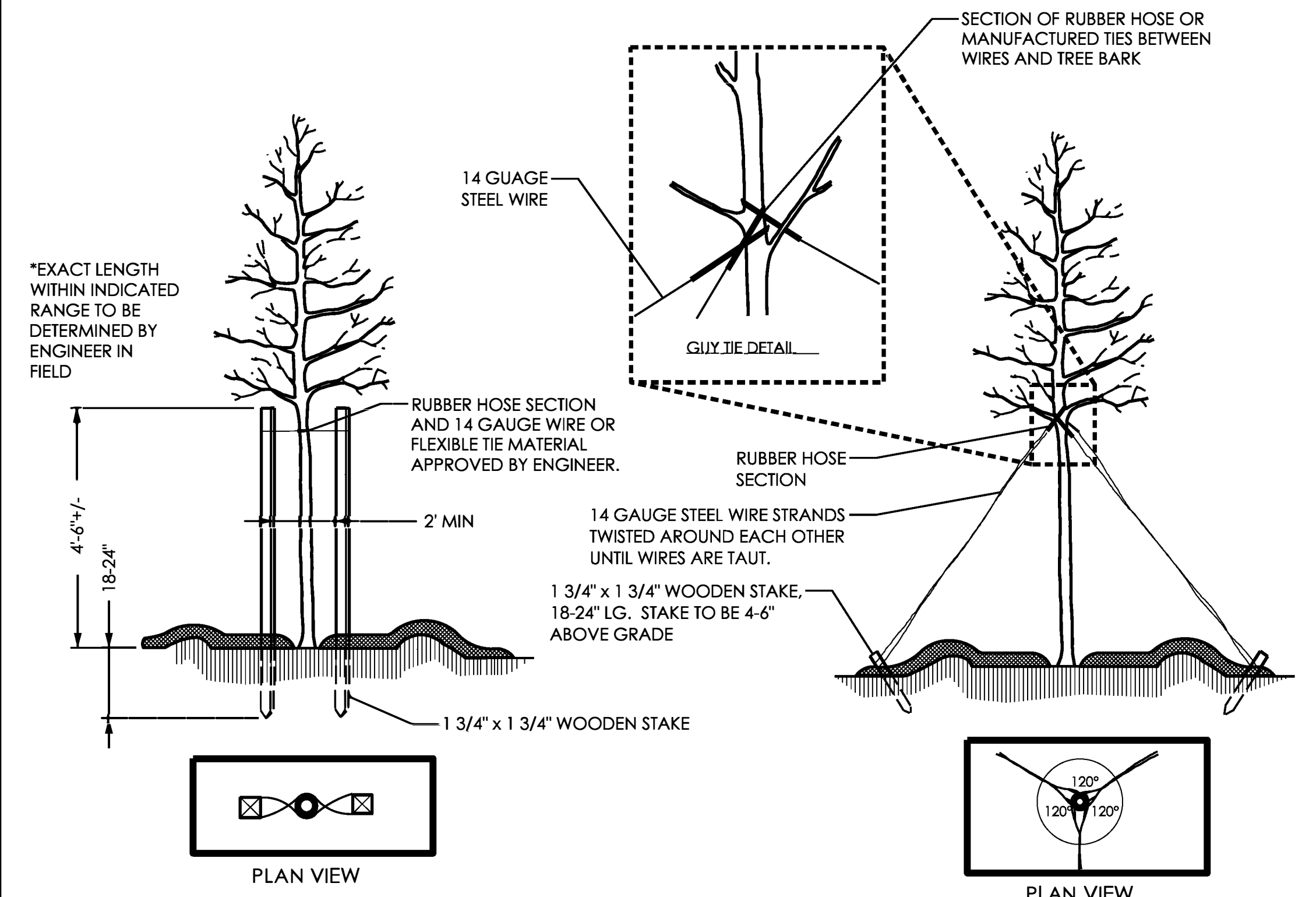


**MULCH DETAIL**  
NTS



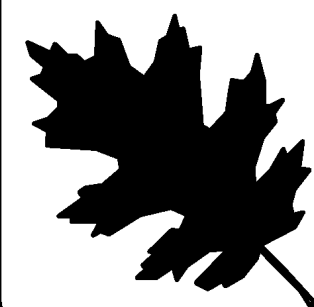
**TREE OR SHRUB PLANTING DETAIL  
(LEVEL GROUND)**  
NTS

**TREE OR SHRUB PLANTING DETAIL  
(SLOPING GROUND)**  
NTS



**STAKING DETAIL  
(TREES 6'-10')**  
USE AS DIRECTED BY FIELD ENGINEER  
NTS

**GUYING DETAIL  
(TREES 10' OR LARGER)**  
USE AS DIRECTED BY FIELD ENGINEER  
NTS



NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
AESTHETIC ENGINEERING SECTION  
1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557  
PH: 919-707-2935 FAX: 919-715-2554  
[http://www.ncdot.org/doh/operations/dp\\_chief\\_eng/roadside/](http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/)

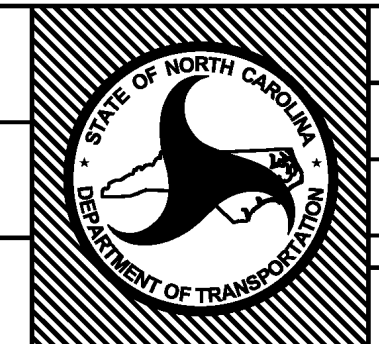
Raeform Rd (US-401 Bus.)  
Cumberland County  
TIP #: U-4405A

Landscape Architect

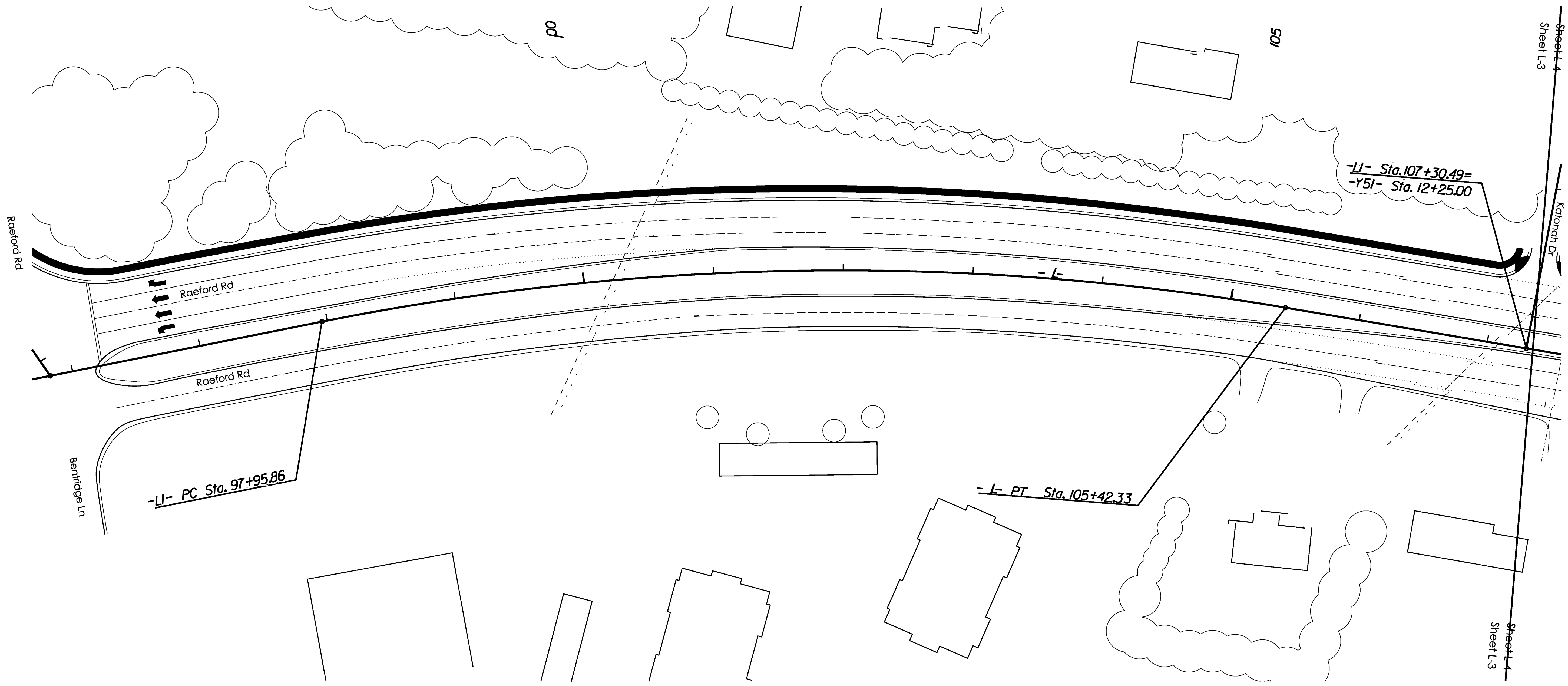
*Kyle Cooper*

SHEET DESCRIPTION:	PREL. DESIGN DATE:	Aug. 2017
	CHECKED BY & DATE:	-----
	FINAL DESIGN DATE:	-----

Planting Details
Landscape Plan Sheet



T.I.P. #	U-4405A(L)
WBS #	39049.3.5
FED I.D. #	STPDA-0401(230)
SHEET NO.:	L-2
TOTAL SHEET NO.:	L-11



\* NO DESIGN COMPLETED ON THIS SHEET \*



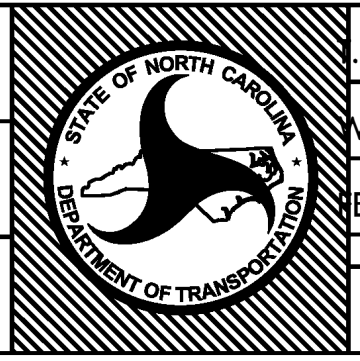

 NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
 AESTHETIC ENGINEERING SECTION  
 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557  
 PH: 919-707-2935 FAX: 919-715-2554  
[http://www.ncdot.org/doh/operations/ap\\_chief\\_eng/roadside/](http://www.ncdot.org/doh/operations/ap_chief_eng/roadside/)

Raeford Rd (US-401 Bus.)  
 Cumberland County  
 TIP #: U-4405A

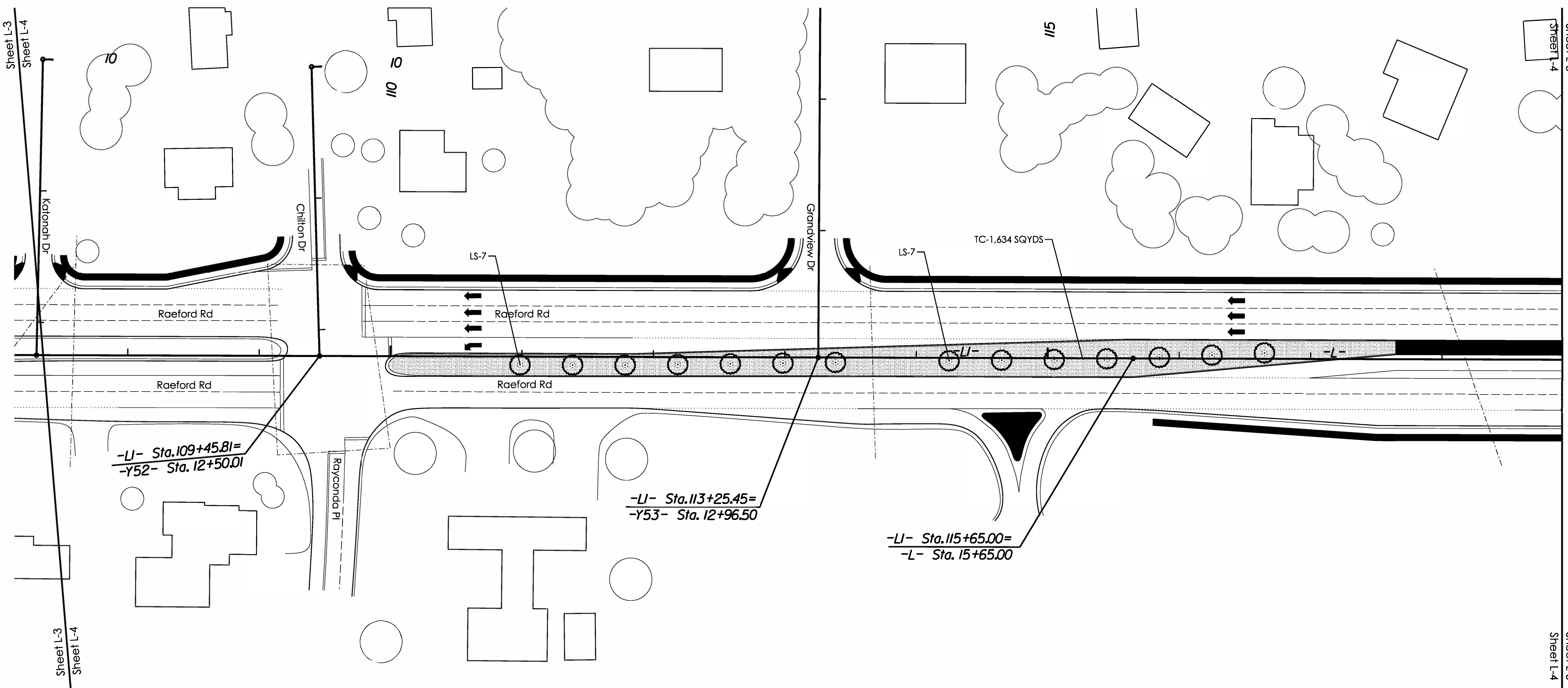
Landscape Architect  


REL. DESIGN DATE:	Aug. 2017
CHECKED BY & DATE:	-----
FINAL DESIGN DATE:	-----

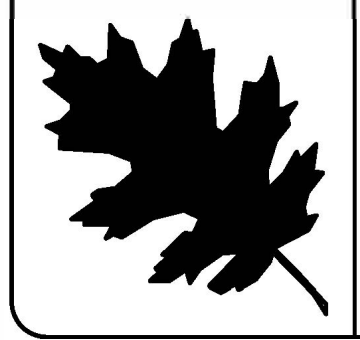
Planting Plan  
 Landscape Plan Sheet



I.P. #	U-4405A(L)
VBS #	39049.3.5
RED I.D. #	STPDA-0401 (230)
SHEET NO.:	L-3
TOTAL SHEET NO.:	L-11



QTY	KEY	BOTANICAL NAME	COMMON NAME	SPACING
14	LS	LAGERSTROEMIA INDICA 'SIOUX'	SIOUX CRAPE MYRTLE	40' O.C.
1634 SQYDS	TC	EREMOCHLOA OPHIUROIDES (MUNRO) HACK	TIFBLAIR CENTIPEDE SOD	TIGHT SEAMS



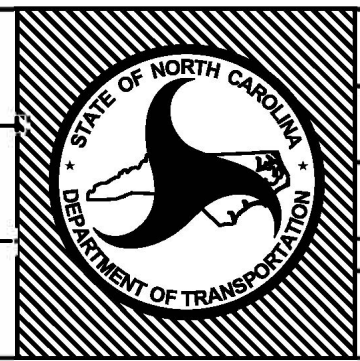
NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
 AESTHETIC ENGINEERING SECTION  
 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557  
 PH: 919-707-2935 FAX: 919-715-2554  
[http://www.ncdot.org/doh/operations/dp\\_chief\\_eng/roadside/](http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/)

Raeford Rd (US-401 Bus.)  
 Cumberland County  
 TIP #: U-4405A

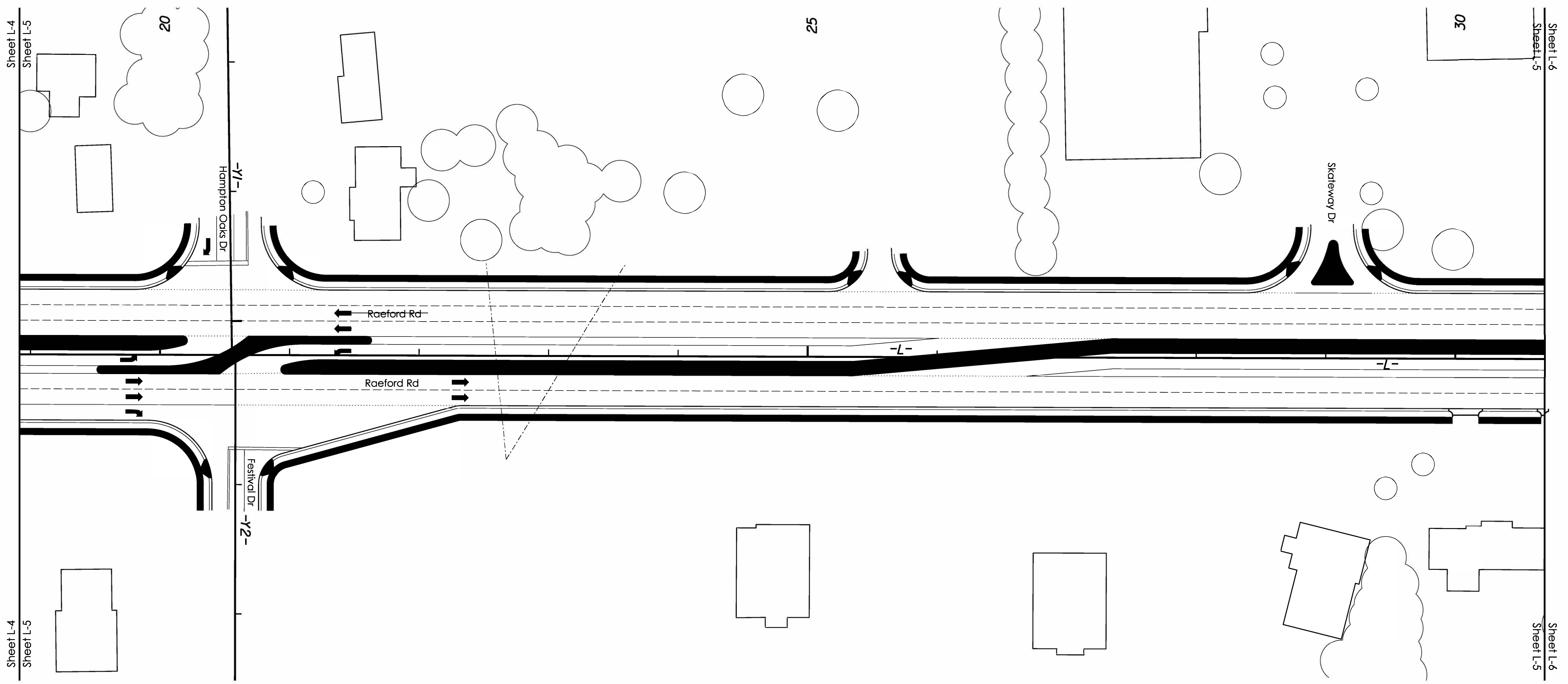
Landscape Architect  
*Kyle Cooney*

SHEET DESCRIPTION:	PREL. DESIGN DATE:	Aug. 2017
	CHECKED BY & DATE:	-----
	FINAL DESIGN DATE:	-----

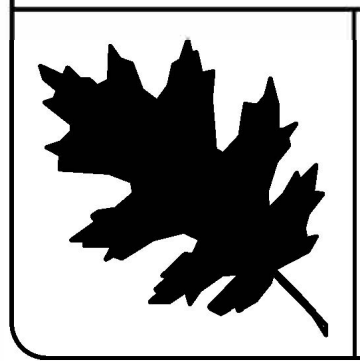
Planting Plan
Landscape Plan Sheet



T.I.P. #	U-4405A(L)
WBS #	39049.3.5
FED I.D. #	STPDA-0401 (230)
SHEET NO.:	L-4
TOTAL SHEET NO.:	L-11



\* NO DESIGN COMPLETED ON THIS SHEET \*



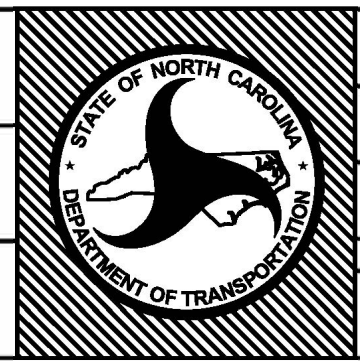
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 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557  
 PH: 919-707-2935 FAX: 919-715-2554  
[http://www.ncdot.org/doh/operations/dp\\_chief\\_eng/roadside/](http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/)

Raeford Rd (US-401 Bus.)  
 Cumberland County  
 TIP #: U-4405A

Landscape Architect  
*Kyle Cooney*

SHEET DESCRIPTION:	PREL. DESIGN DATE:	Aug. 2017
	CHECKED BY & DATE:	-----
	FINAL DESIGN DATE:	-----

Planting Plan
Landscape Plan Sheet



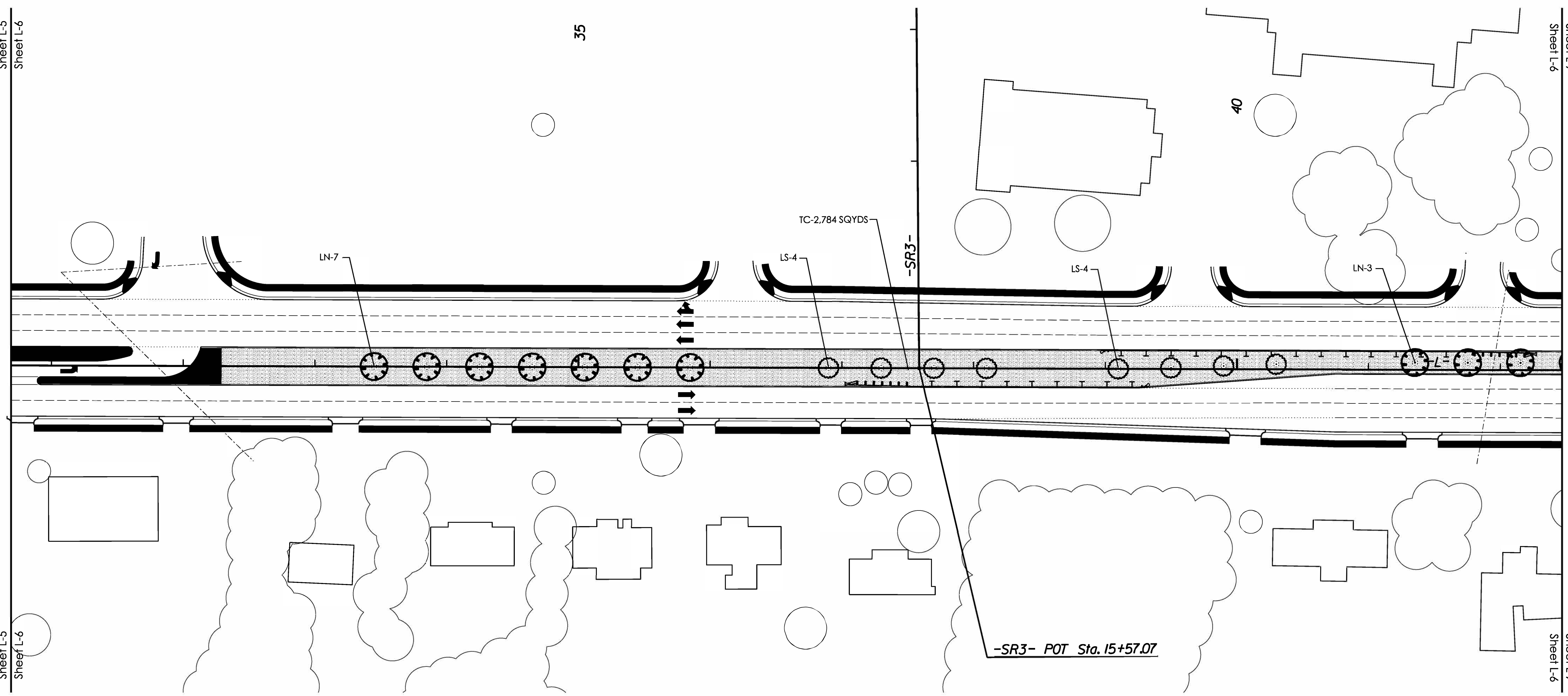
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WBS #	39049.3.5
FED I.D. #	STPDA-0401 (230)
SHEET NO.:	L-5
TOTAL SHEET NO.:	L-11

Sheet L-5  
Sheet L-6

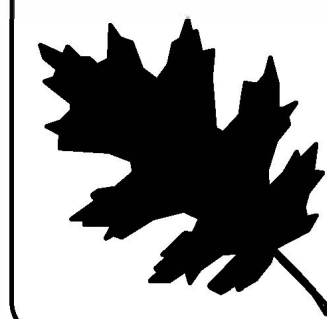
Sheet L-5  
Sheet L-6

Sheet L-7  
Sheet L-6

Sheet L-7  
Sheet L-6



QTY	KEY	BOTANICAL NAME	COMMON NAME	SPACING
10	LN	LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	40' O.C.
8	LS	LAGERSTROEMIA INDICA 'SIOUX'	SIOUX CRAPE MYRTLE	40' O.C.
2784 SQYDS	TC	EREMOCHLOA OPHIUROIDES(MUNRO) HACK	TIFBLAIR CENTIPEDE SOD	TIGHT SEAMS



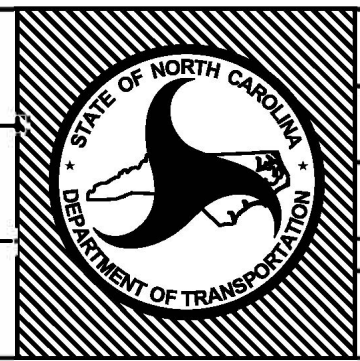
NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
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 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557  
 PH: 919-707-2935 FAX: 919-715-2554  
[http://www.ncdot.org/doh/operations/dp\\_chief\\_eng/roadside/](http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/)

Raeform Rd (US-401 Bus.)  
 Cumberland County  
 TIP #: U-4405A

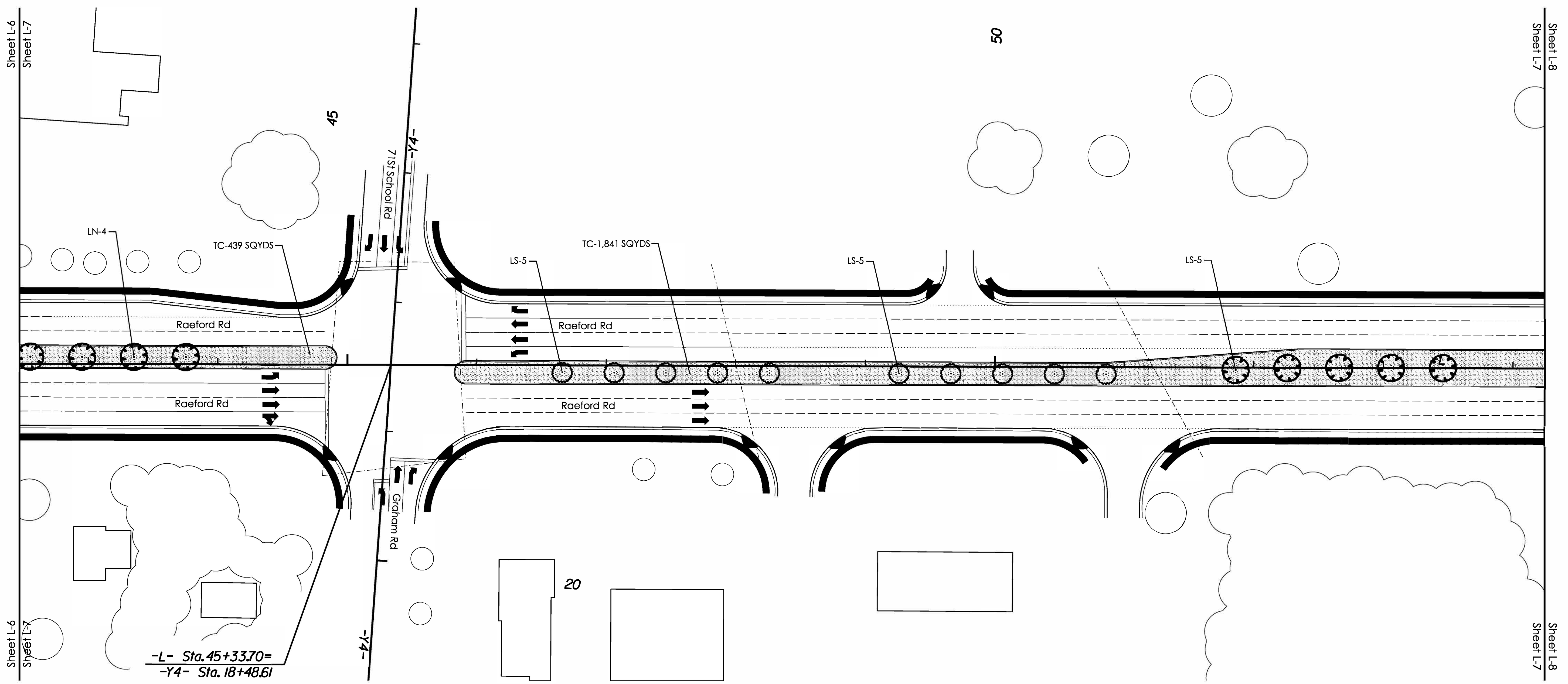
Landscape Architect  
*Kyle Cooney*

SHEET DESCRIPTION:  
 PREL. DESIGN DATE: Aug. 2017  
 CHECKED BY & DATE: -----  
 FINAL DESIGN DATE: -----

Planting Plan  
 Landscape Plan Sheet



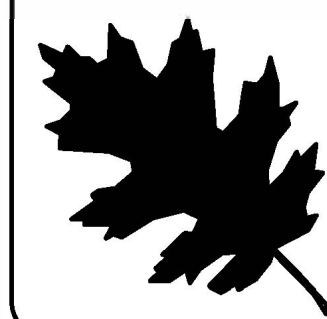
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 WBS # 39049.3.5  
 FED I.D. # STPDA-0401 (230)  
 SHEET NO.: L-6 TOTAL SHEET NO.: L-11



-L- Sta. 45+33.70=  
-Y4- Sta. 18+48.61



QTY	KEY	BOTANICAL NAME	COMMON NAME	SPACING
9	LN	LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	40' O.C.
10	LS	LAGERSTROEMIA INDICA 'SIOUX'	SIOUX CRAPE MYRTLE	40' O.C.
2280 SQYDS	TC	EREMOCHLOA OPHIUROIDES (MUNRO) HACK	TIFBLAIR CENTPEDE SOD	TIGHT SEAMS



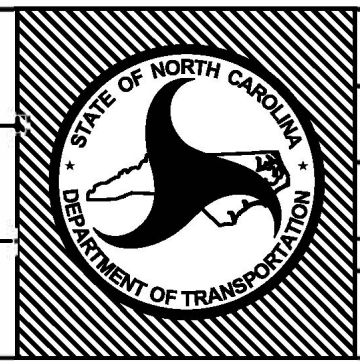
NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
AESTHETIC ENGINEERING SECTION  
1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557  
PH: 919-707-2935 FAX: 919-715-2554  
[http://www.ncdot.org/doh/operations/dp\\_chief\\_eng/roadside/](http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/)

Raeford Rd (US-401 Bus.)  
Cumberland County  
TIP #: U-4405A

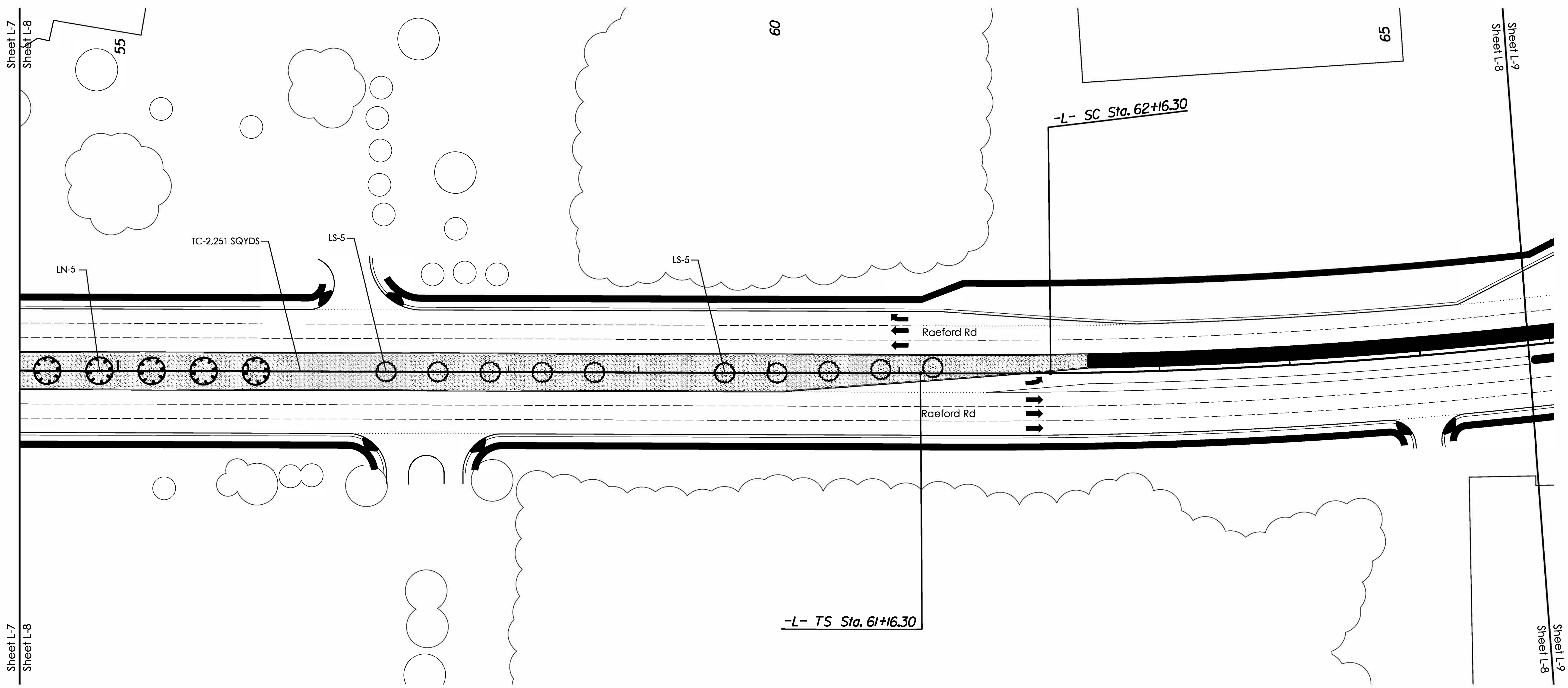
Landscape Architect  
*Kyle Cooney*

PREL. DESIGN DATE:	Aug. 2017
CHECKED BY & DATE:	-----
FINAL DESIGN DATE:	-----

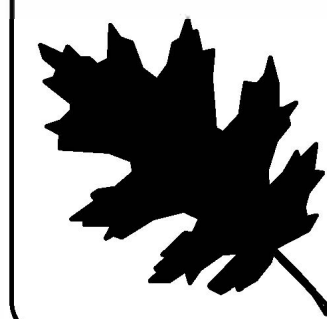
Planting Plan  
Landscape Plan Sheet



T.I.P. #	U-4405A(L)
WBS #	39049.3.5
FED I.D. #	STPDA-0401 (230)
SHEET NO.:	L-7
TOTAL SHEET NO.:	L-11



QTY	KEY	BOTANICAL NAME	COMMON NAME	SPACING
5	LN	LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	40' O.C.
10	LS	LAGERSTROEMIA INDICA 'SIOUX'	SIOUX CRAPE MYRTLE	40' O.C.
2251 SQYDS	TC	EREMOCHLOA OPHIUROIDES (MUNRO) HACK	TIFBLAIR CENTIPEDE SOD	TIGHT SEAMS



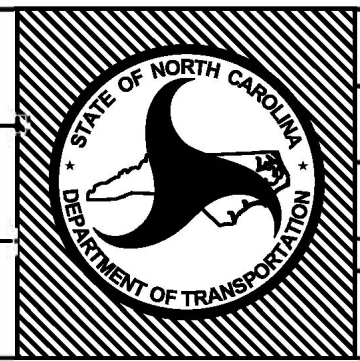
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 PH: 919-707-2935 FAX: 919-715-2554  
[http://www.ncdot.org/doh/operations/dp\\_chief\\_eng/roadside/](http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/)

Raeford Rd (US-401 Bus.)  
 Cumberland County  
 TIP #: U-4405A

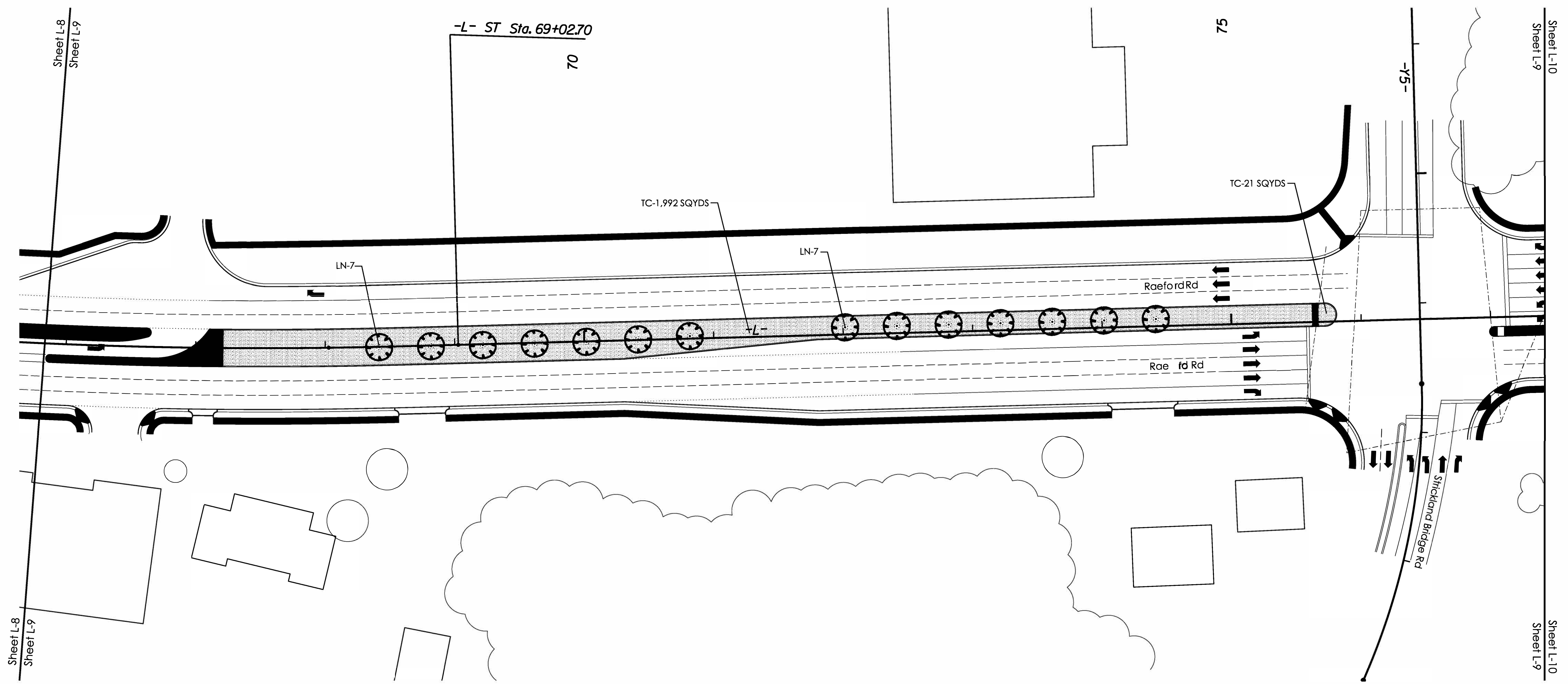
Landscape Architect  
 Kyle Cooney

PREL. DESIGN DATE:	Aug. 2017
CHECKED BY & DATE:	-----
FINAL DESIGN DATE:	-----

Planting Plan  
 Landscape Plan Sheet



T.I.P. #	U-4405A(L)
WBS #	39049.3.5
FED I.D. #	STPDA-0401 (230)
SHEET NO.:	L-8
TOTAL SHEET NO.:	L-11



QTY	KEY	BOTANICAL NAME	COMMON NAME	SPACING
14	LN	LAGERSTROEMIA INDICA 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	40' O.C.
2013 SQYDS	TC	EREMOCHLOA OPHIUROIDES(MUNRO) HACK	TIFBLAIR CENTIPEDE SOD	TIGHT SEAMS



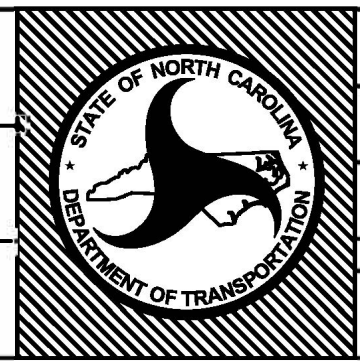
NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
 AESTHETIC ENGINEERING SECTION  
 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557  
 PH: 919-707-2935 FAX: 919-715-2554  
[http://www.ncdot.org/doh/operations/dp\\_chief\\_eng/roadside/](http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/)

Raeford Rd (US-401 Bus.)  
 Cumberland County  
 TIP #: U-4405A

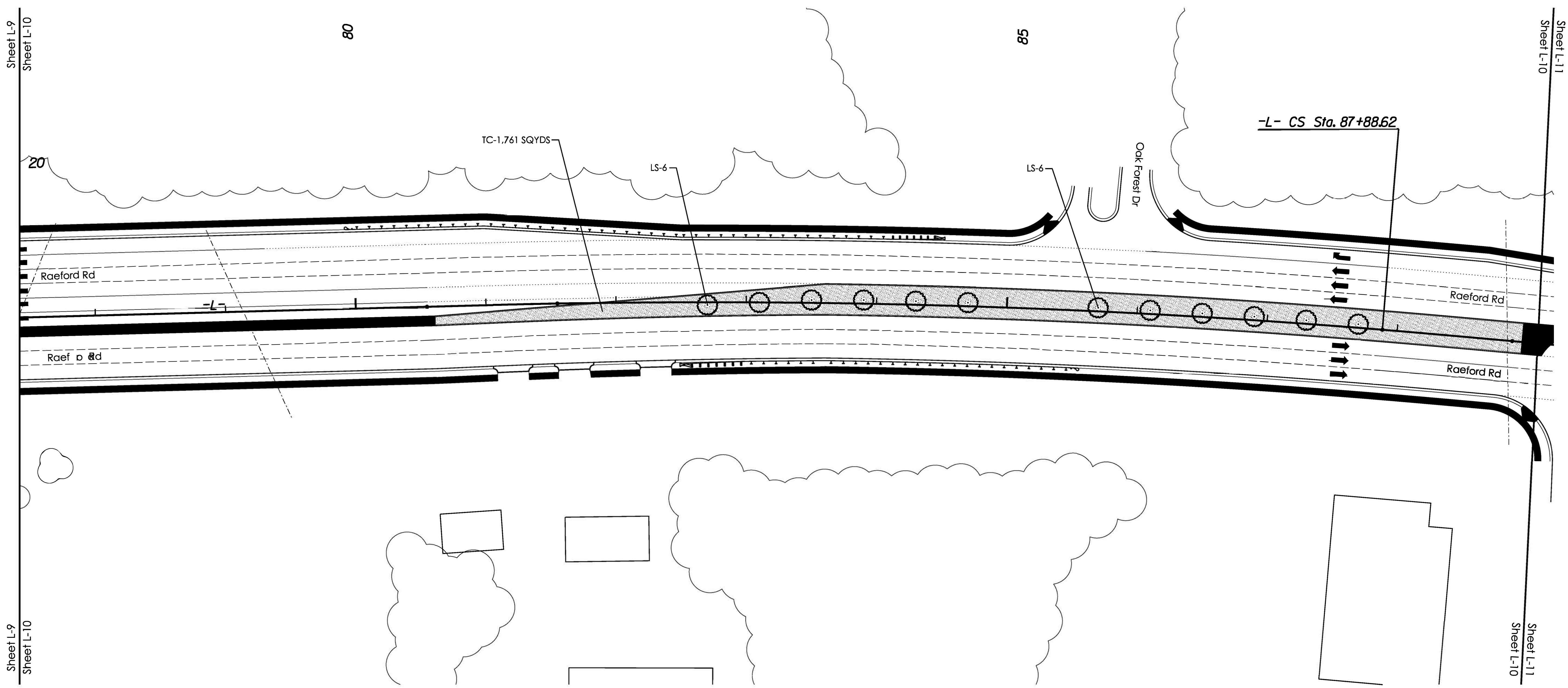
Landscape Architect  
 Kyle Cooper

PREL. DESIGN DATE:	Aug. 2017
CHECKED BY & DATE:	-----
FINAL DESIGN DATE:	-----

Planting Plan  
 Landscape Plan Sheet



T.I.P. #	U-4405A(L)
WBS #	39049.3.5
FED I.D. #	STPDA-0401 (230)
SHEET NO.:	L-9
TOTAL SHEET NO.:	L-11



QTY	KEY	BOTANICAL NAME	COMMON NAME	SPACING
12	LS	LAGERSTROEMIA INDICA 'SIOUX'	SIOUX CRAPE MYRTLE	40' O.C.
1761 SQYDS	TC	EREMOCHLOA OPHIUROIDES(MUNRO) HACK	TIFBLAIR CENTIPEDE SOD	TIGHT SEAMS



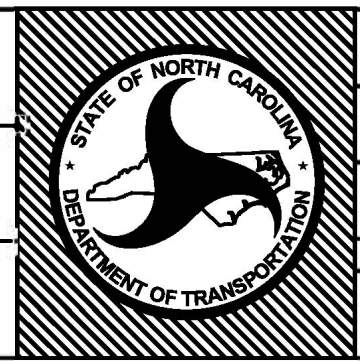
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[http://www.ncdot.org/doh/operations/dp\\_chief\\_eng/roadside/](http://www.ncdot.org/doh/operations/dp_chief_eng/roadside/)

Raeford Rd (US-401 Bus.)  
 Cumberland County  
 TIP #: U-4405A

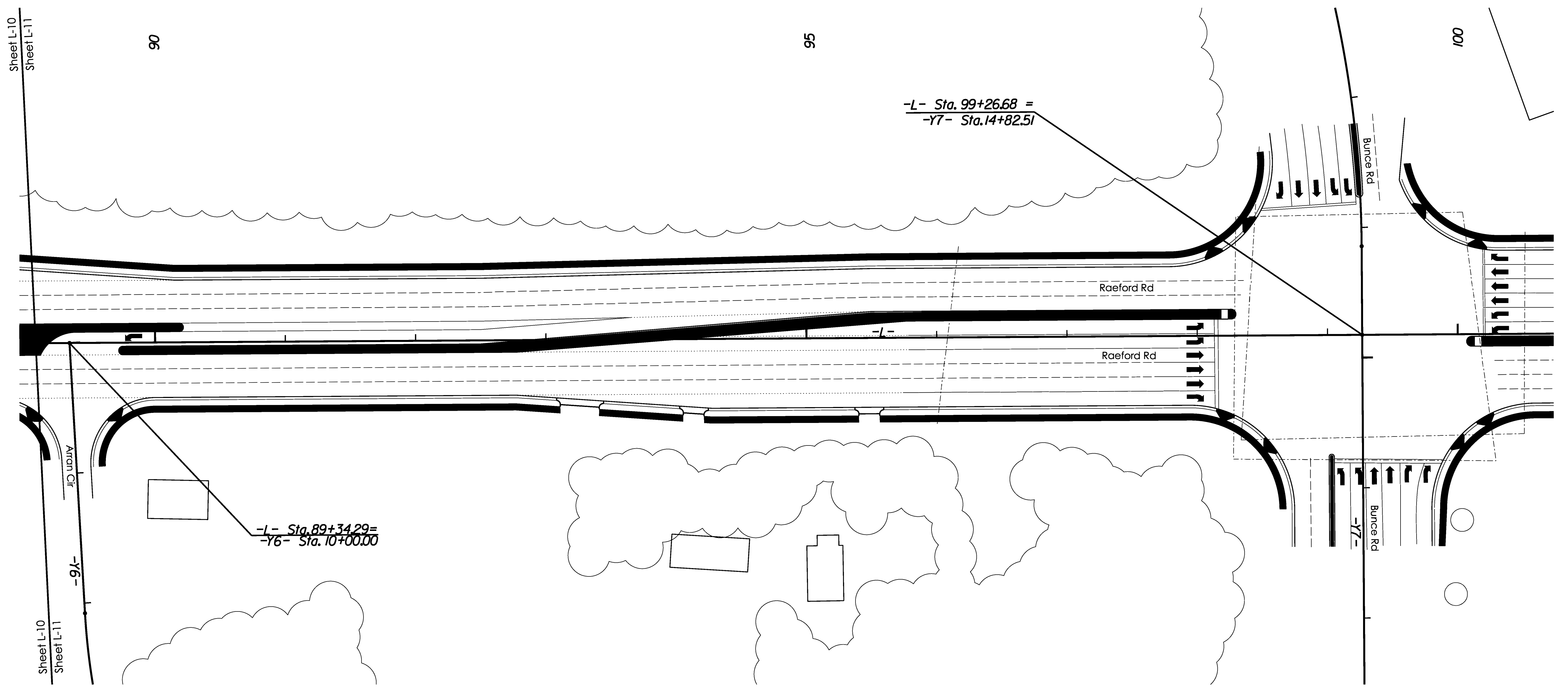
Landscape Architect  
*Kyle Cooper*

SHEET DESCRIPTION:	PREL. DESIGN DATE:	Aug. 2017
	CHECKED BY & DATE:	-----
	FINAL DESIGN DATE:	-----

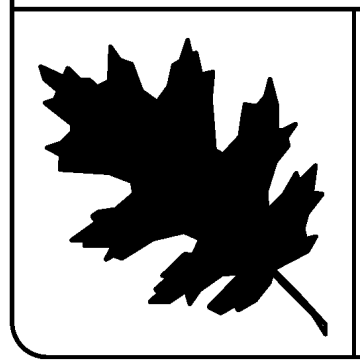
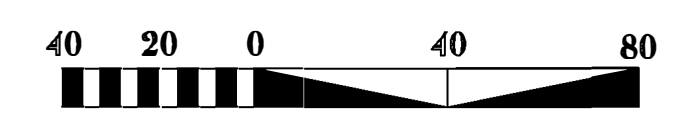
Planting Plan  
 Landscape Plan Sheet



T.I.P. #	U-4405A(L)
WBS #	39049.3.5
FED I.D. #	STPDA-0401 (230)
SHEET NO.:	L-10
TOTAL SHEET NO.:	L-11



\* NO DESIGN COMPLETED ON THIS SHEET \*



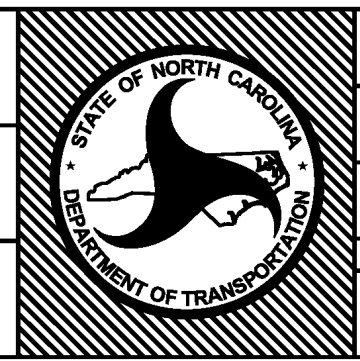
NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
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Raeford Rd (US-401 Bus.)  
 Cumberland County  
 TIP #: U-4405A

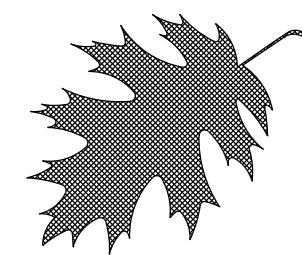
Landscape Architect  
*Kyle Cooney*

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	FINAL DESIGN DATE:	-----

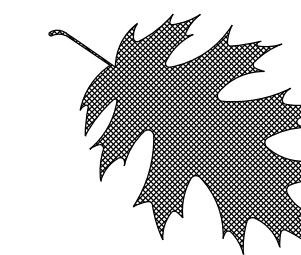
Planting Plan
Landscape Plan Sheet



T.I.P. #	U-4405A(L)
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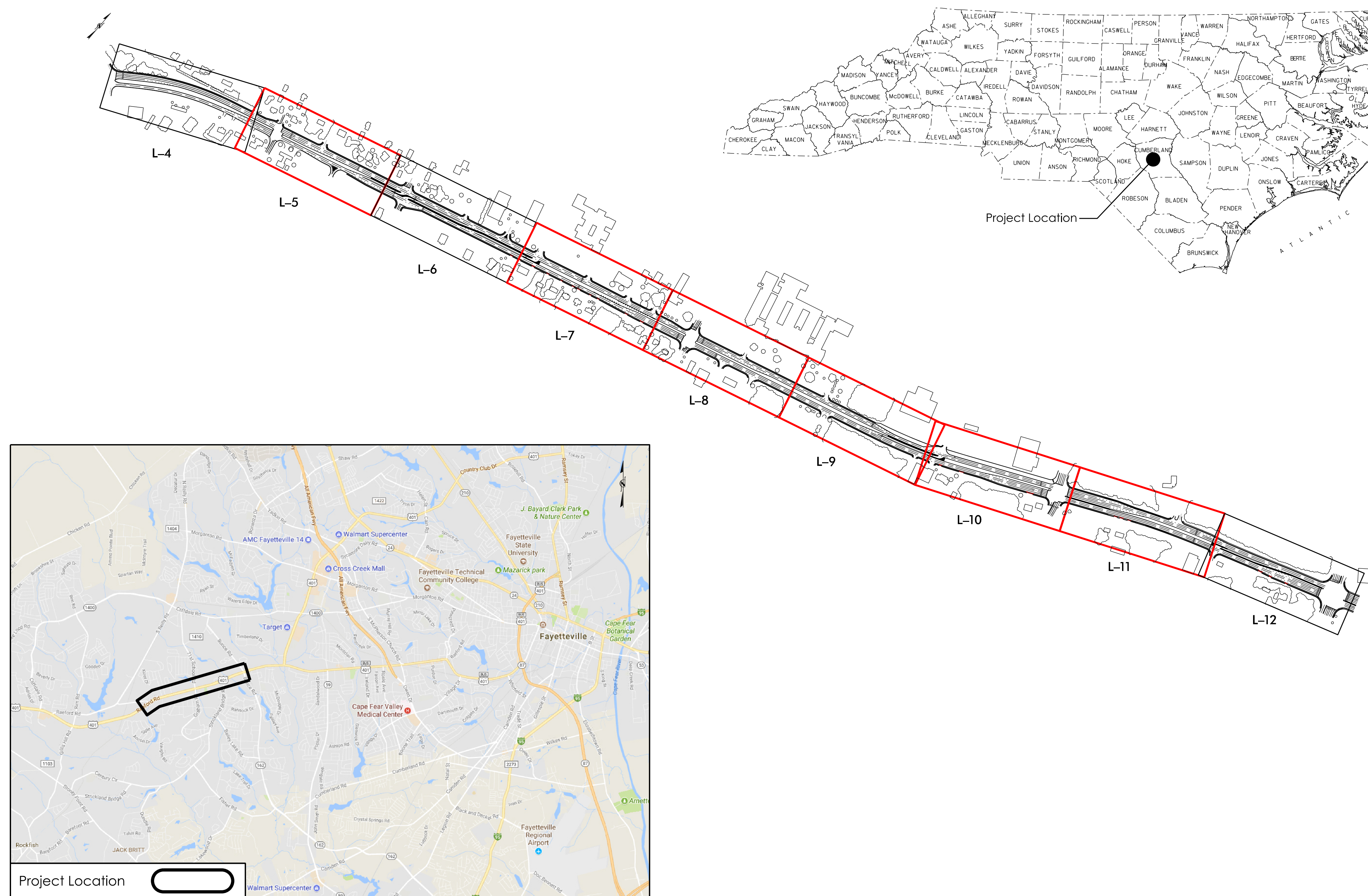


# HIGHWAY LANDSCAPE DEVELOPMENT PROJECT



T.I.P. #	STATE PROJECT W.B.S. #	SHEET #	SHEET # TOTAL
U-4405A	39049.1.1	L1	12
FED. PROJ. #	DESCRIPTION		DIVISION
STPDA-0401 (230)	TIP		6

U-4405A RAEFORD RD (US-401 BUS.) IRRIGATION



### CONVENTIONAL SYMBOLS

County Line	-----
City or Town Line	-----
Exist. Right of Way Line Marker	-----▲-----
Prop. Right of Way Line Marker (By Others)	-----▲-----
Prop Right of Way Line Marker (By Contract)	-----▲-----
Exist. Control of Access Line	-----○-----
Prop. Control of Access Line	-----○-----
Property Line	-----
Easement Line	-----
Slope Stake Line	-----
Exist. Fence	-----
Prop. Woven Wire Fence	-----
Prop. Chain Link Fence	-----
Exist. Road	=====
Prop. Road	=====
Guardrail	-----
Survey Line	-----
Denotes Line Equality	-----
Bridge	-----
Culvert	-----
Railroad	-----
Woods	+ + + + OR -----
Exist. Telephone Pole	-----●-----
Prop. Telephone Pole	-----○-----
Tower Pole and Line	-----
Exist. Power Pole	-----●-----
Prop. Power Pole	-----○-----
Sanitary Sewer Line	-----SS-----
Water Line	-----
Gas Line	-----GAS-----
Picnic Shelter	-----
Regeneration	-----
Reforestation	-----

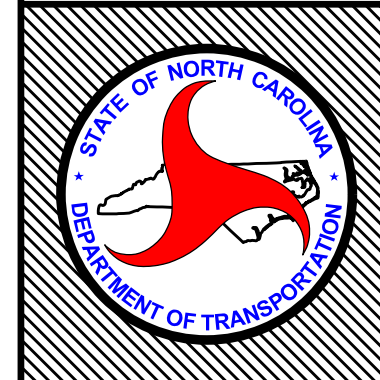
### INDEX OF L SHEETS:

- L 1.0 - Title Sheet
- L 2.0 - Irrigation Specs
- L 3.0 - Irrigation Details
- L 4.0 - L 12.0 - Irrigation Plans

PREPARED BY: K. Cooper DATE: 08/2017

### REVISIONS

DATE	DESCRIPTION



STATE OF  
NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

<b>LOCATION:</b> Raeford Rd (US-401 Bus.) in Fayetteville
<b>TYPE of WORK:</b> TIP
<b>COUNTY:</b> Cumberland County

2014 American Standard for Nursery Stock  
2018 NCDOT STANDARD SPECIFICATIONS  
PREPARED IN THE OFFICE OF:  
NCDOT- ROADSIDE ENVIRONMENTAL UNIT  
AESTHETIC ENGINEERING SECTION  
1557 MAIL SERVICE CENTER  
RALEIGH, NC 27699 919-707-2920

# IRRIGATION NOTES & LEGEND

\*Irrigation contractor must be licensed by the NCICLB under chapter (2008-177, S.1; 2013-383, S.3).

\*All materials may be of comparable manufacture and performance to the brand listed.

### General Notes

- The irrigation design provided in the plans is schematic in nature, and the irrigation contractor may be required to make minor adjustments in the field as necessary. These adjustments shall be made at no additional cost to the owner and shall be made only after notification is made to the owner (NCDOT).

- The contractor(s) shall familiarize themselves with the site so that they are aware of any special conditions that may exist that could affect their bid proposal and shall hereafter be responsible for all cost incurred by themselves in relation to the installation.

- Place valves & boxes in plant beds where-ever possible.

- The contractor is to minimize disturbance in sod areas (cut and replace sod when necessary).


- Place pressure reducing valves in discreet locations.

- All irrigation products are to be Hunter, Toro, or Rainbird (as approved by the Division Roadside Environmental Engineer).

- If there is an existing system in place, be sure to use irrigation heads that are consistent with the existing system.

- The contractor is responsible for providing 'as built' plans to the owner (NCDOT) at the time of project approval. The plans shall be clear, concise, and show all elements of the irrigation system, the location of all equipment, irrigation lines, numbered zones, controller(s), heads and valves.

### Backflow Prevention

 - The reduced pressure backflow preventer assembly shall be the responsibility of the irrigation contractor. The backflow shall be 1.5" in size. The backflow assembly shall be installed downstream of the irrigation meter. The unit must be installed in accordance with all local and state code requirements and shall have an approved cover.

### Controller W/ Battery Powered Timer

 - Controller may be of comparable manufacture and performance to the brand named.

-The controller shall be a Hunter, Toro, or Rainbird Modular unit. The controller shall incorporate a 24 VAC with the approximate location shown on the plans. Location must be approved by the NCDOT Environmental Roadside Engineer.

- The battery operated controller is to be placed in Carson valve boxes model #910-1 with #910-2 covers.

- All 120 VAC wiring shall be installed in accordance with all applicable electrical code requirements.

- The contractor shall install a wired Hunter, Toro, or Rainbird rain sensor that is compatible with the make and model of the controller. The rain sensor mount is to be painted a dark hunter green in order to blend into the landscape.

### Heads

 - Hunter, Toro, or Rainbird pop-up spray head fitted with adjustable nozzles on PRS30 spray bodies with the following radii: 6'.

-Hunter, Toro, or Rainbird rotator/rotary head nozzles with an adjustable arc and radius on PRS40 spray bodies. Heads with nozzle require a longer system run time because of a lower precipitation rate (see the Hunter product specifications). Pop-up rotator /rotary head fitted with adjustable nozzles with the following radii: 8-15', 16-21', and 22-30'.

- All heads with a 6"-12" pop-up stroke, if installed with less than 1/3 of the sprinkler body exposed above grade, they shall be installed on polyethylene flex swing joint poly pipe fitted with elbows (3/8" insert by 1/2" M.P.T. and/or 3/8" insert by 3/4" M.P.T.)

-If greater than 1/3 of the sprinkler body is exposed, then the 6"-12" pop-up head shall be mounted on a schedule 40 PVC pipe riser as described below in relation to mounting shrub head models. In mounting 6"-12" pop-up heads on shrub type risers, care shall be taken to install the head in such a manner that the surrounding plant material (planned or existing) will hide the body of the sprinkler.

- All pop-up irrigation heads designed adjacent to curbs or pavement shall be installed with a clearance of 1 1/2" from the edges of all paved areas to provide for edging and maintenance operations. Heads installed on shrub risers or with the top of the head more than 1 1/2" above the grade shall be installed with a minimum 6" clearance from paved areas.

- All threaded pipe connections shall be assembled using Teflon thread sealing tape.

### Pipe

 - PR 200 PVC Lateral Piping

-Minimum depth of cover over lateral piping to be 12". Lateral pipe sizing schedule and summation of gallonage demand on a particular branch of pipe within a control section shall be determined by using the gpm for a nozzle based on a 50 psi base of head pressure and full radius at the pressure as reported in the product's catalog. Pipe sizes for the lateral lines shall be as follows:

- For 0 to 15 gpm accumulated flow use 3/4" PR 200 PVC pipe.  
- For 15 up to 35 gpm use 1" PVC pipe.  
- Allow for friction loss.


 - PR 200 Main Line Piping.

- Size of pipe to be a minimum of 1 1/2"  
- Depth of cover of mainline piping to be 18"

- Piping shall be PR 200 solvent weld PVC pipe with schedule 40 PVC solvent weld fittings unless otherwise noted.

- The contractor shall take all precautions necessary to avoid damaging existing plantings and their roots during the installation of the irrigation system and shall coordinate their efforts with the landscape contractor to optimize the efficiency and the aesthetic quality of the installation.

### Sleeves

 - Sleeves shall be 4" PVC. The irrigation contractor shall coordinate with the landscape contractor to insure proper installation of the irrigation system with the landscape and hardscape.

### Electric Control Valve

- Valves may be of comparable manufacture and performance to the brand named. (Hunter PGV-ASV valve or comparable)

- Location of electric 24 VAC remote control valve with flow control feature

- All remote control valves shall be installed in Carson valve boxes with lids mounted at grade level. Single valves may be installed in a Carson model #910-1 valve box with cover, while multiple valves (up to, 2 - 1" valves or 1 - 1 1/2") shall be installed in Carson model #1419-1 box with #1419-2 cover.

### Water Supply/Meter

- The meter shall be the owner's/town's responsibility.

- The meter is 1.5" in size. Since the water supply for the system will be potable water, the contractor will be required to install a backflow prevention device which will be located downstream of the irrigation meter.

- This irrigation system shall be capable of delivering 33 gpm minimum with one control station operating at a time at 60 psi at the base of the head for optimum performance of the irrigation system.

### 24 Vac Controller Wiring

- All 24 VAC control wiring shall be single strand copper wire with Polyethylene PE direct burial insulation rated for 300 VAC valve "common" wires shall have white insulation while valve "hot" wires shall have red insulation. Both the "common" and "hot" wires shall be #14 AWG. Valve wiring shall follow mainline piping where feasible and shall be laid in the bottom of the trench line with the mainline piping. Wiring shall be "bundled" and taped at intervals of approximately ten feet. All wiring shall be installed in accordance with local code requirements.

- Wire splices shall be kept to an absolute minimum. Where major concentrations of splices are necessary, they shall be placed in a approved valve box, with #910-2 cover installed at grade level. Splices at valve locations shall be made inside of the valve box. All splice locations shall be noted on the as built plan.

- Wire runs shall be installed with enough slack and/or expansion loops to prevent excessive strain due to thermal contraction.

- All wire splices shall be made using UL approved direct burial connectors and waterproof materials. All electrical work shall be installed according to code.

### Estimated Irrigation Quantities

Meter Locations - 6  
Backflow Preventers - 6  
Battery Powered Controllers - 6  
Zones/ Valves - 19  
Main Line Pipe - 1,113 LF  
Lateral Pipe - 10,688 LF  
Sleeves - 343 LF  
Wiring - 2,645 LF


Spray heads  
6' r - 23  
MP Rotator Heads  
8-15' r - 48  
16-21' r - 253  
22-30' r - 219

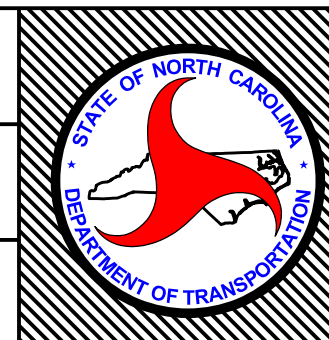
Quantities are estimated based on design drawings. refer to plans for any discrepancies. plans take priority over these estimated quantities. Estimated quantities do not cover all materials necessary for installation. Quantities may be adjusted slightly due to site conditions, specific irrigation equipment, and implementation, or as directed by the NCDOT Engineer.



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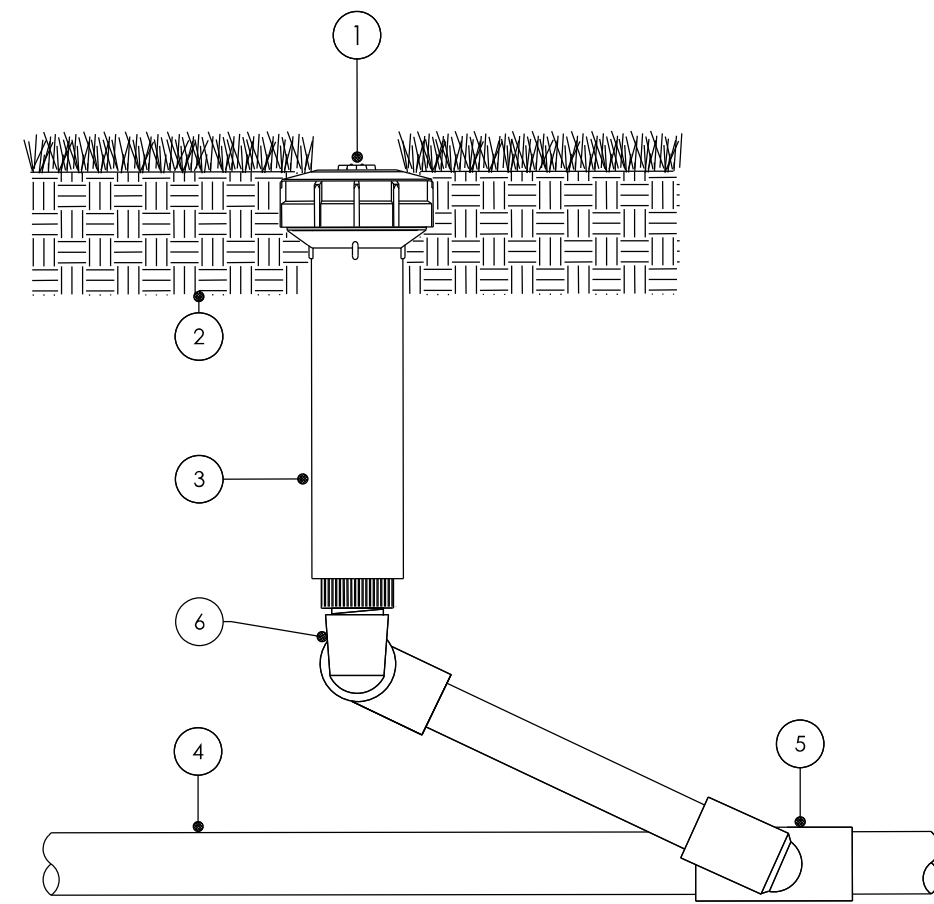
Raeform Rd (US-401 Bus.)  
Cumberland County  
TIP #: U-4405A

Landscape Architect  


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	CHECKED BY & DATE: - - - - -	Landscape Plan Sheet		WBS # 39049.1.1	
	FINAL DESIGN DATE: - - - - -			FED I.D. # STPDA-0401(230)	
				SHEET NO.: L-2	TOTAL SHEET NO.: L-12

**LEGEND**

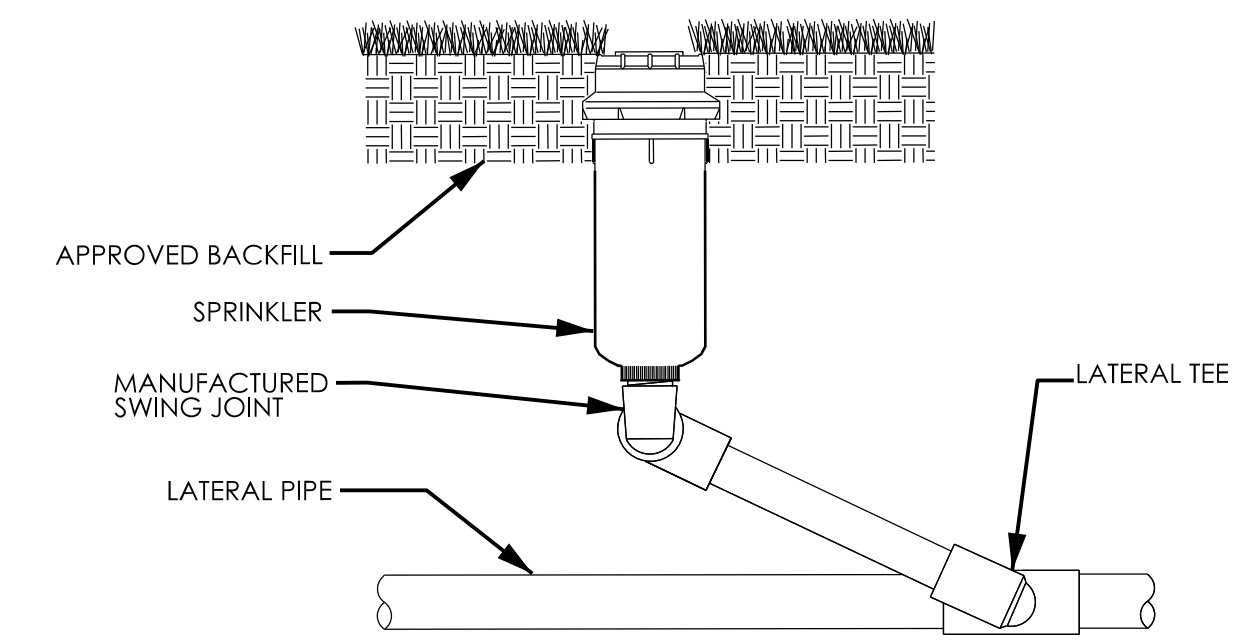
- 1. MPR PLUS NOZZLE (SIZE PER PLAN)
- 2. APPROVED BACKFILL
- 3. SPRINKLER
- 4. LATERAL PIPE
- 5. LATERAL TEE
- 6. MANUFACTURED SWING JOINT



**NOTES:**

- 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
- 2. DO NOT SCALE DRAWINGS.
- 3. INSTALL SPRINKLERHEAD AT FINISHED GRADE

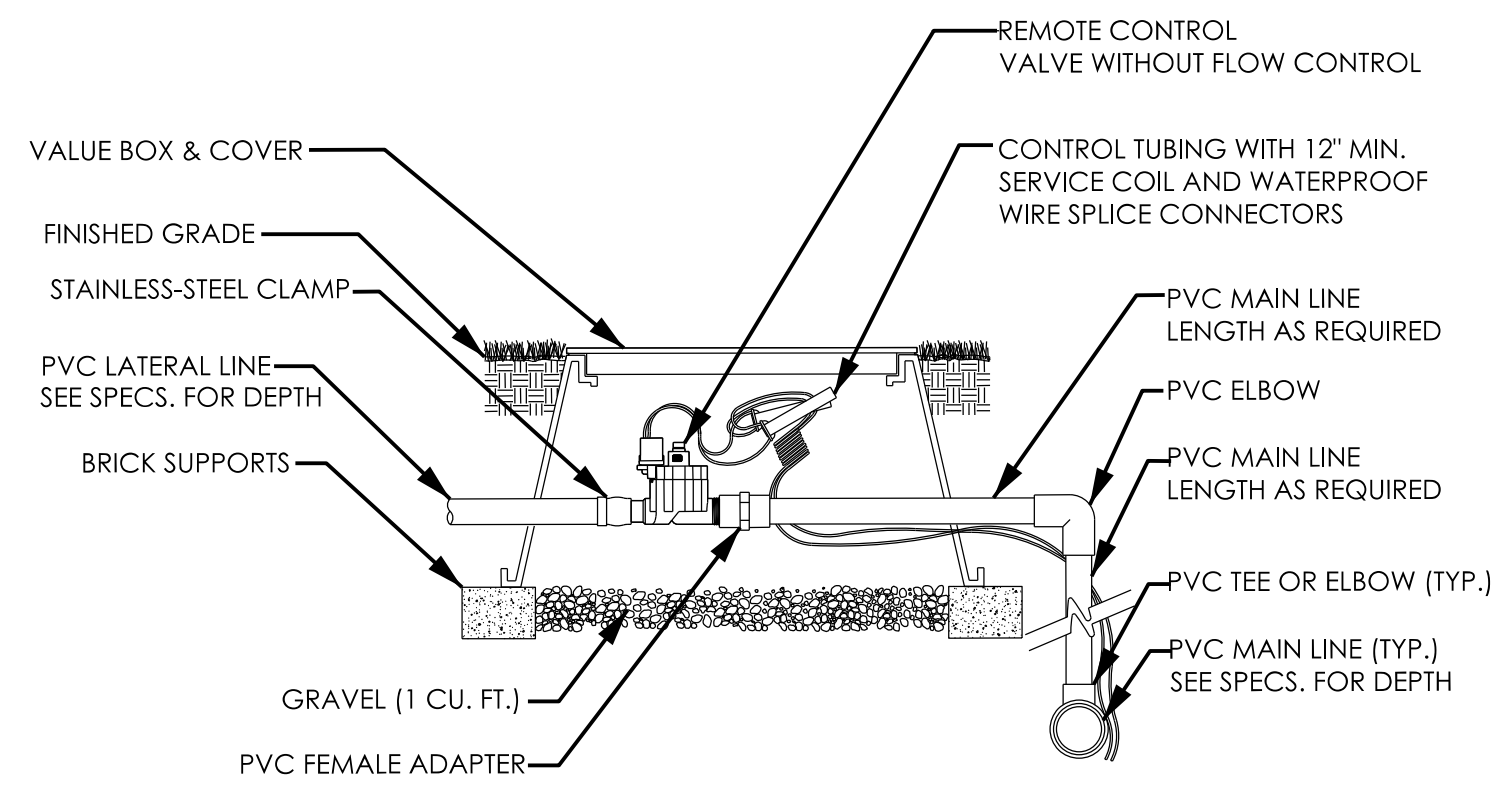
**ROTOR SPRINKLER**  
4 INCH POP-UP (SWING JOINT) (NOT TO SCALE)



**NOTES:**

- 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
- 2. DO NOT SCALE DRAWINGS.
- 3. INSTALL SPRINKLER AT FINISHED GRADE.

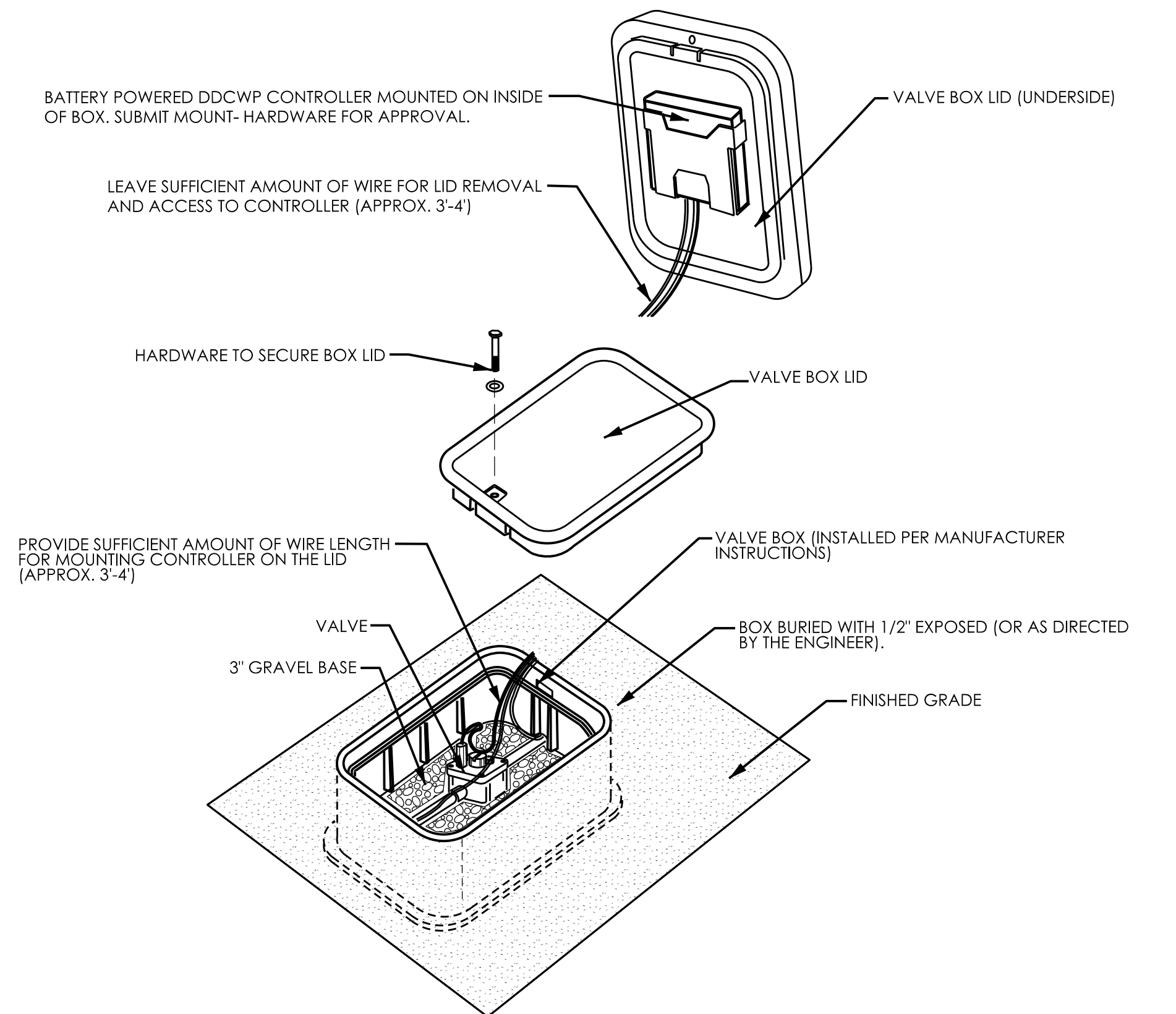
**POP-UP SPRAY HEADS**  
SINGLE-STREAM SPRINKLER, SWING JOINT (NOT TO SCALE)



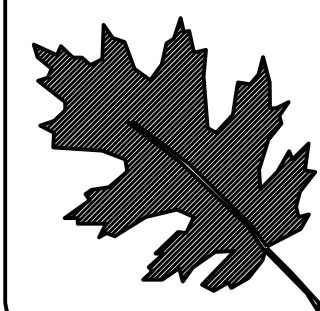
**NOTES:**

- 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
- 2. DO NOT SCALE DRAWINGS.

**VALVES & BOX**  
1" PLASTIC VALVE (NOT TO SCALE)



**DDCWP CONTROLLER BOX LID MOUNT**  
BATTERY POWERED CONTROLLER (NOT TO SCALE)



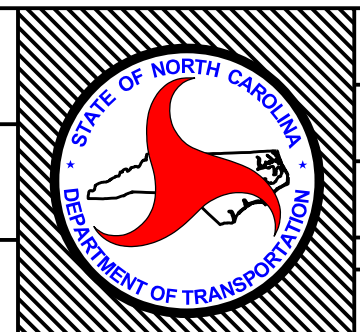
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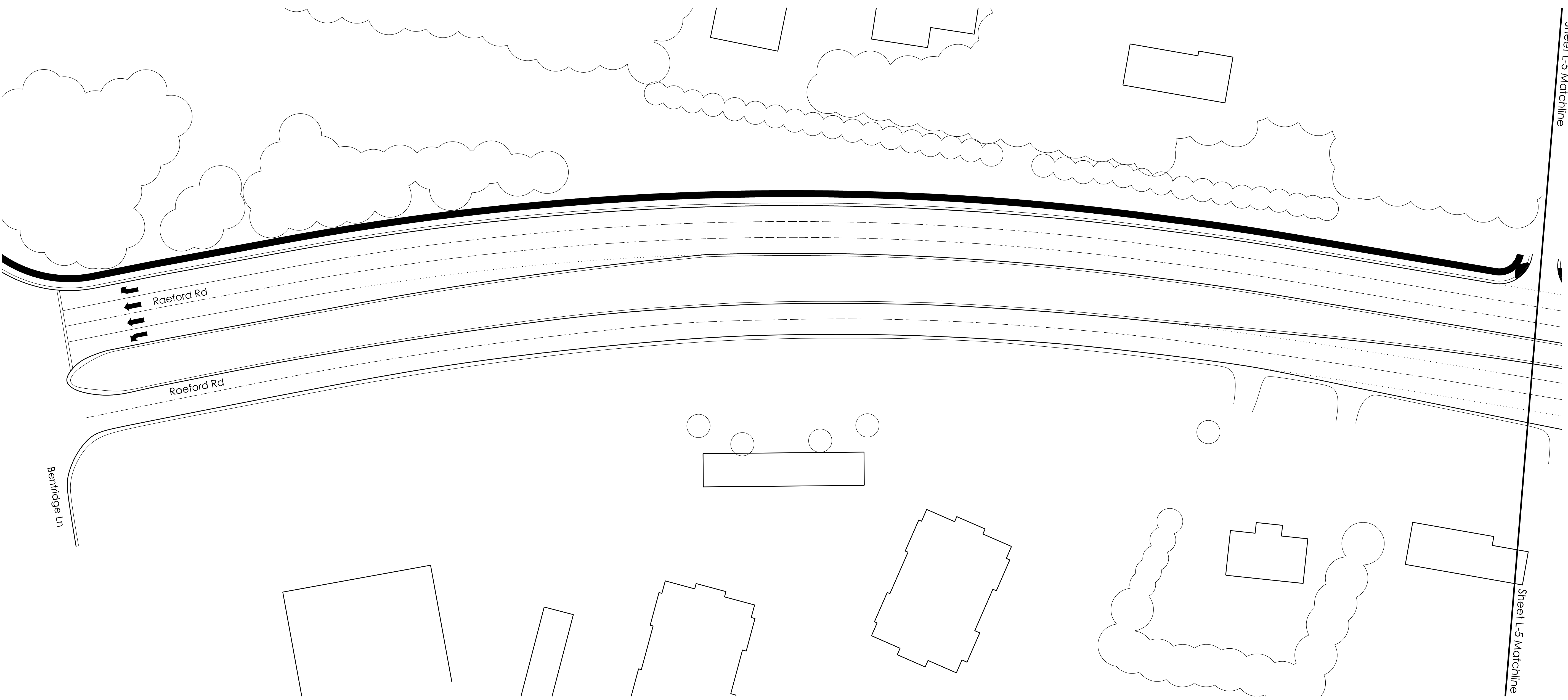
Landscape Architect  
*Kyle Cooper*

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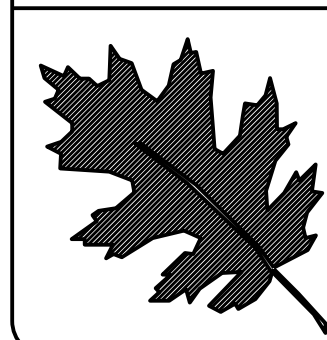
Irrigation Details
Landscape Plan Sheet



T.I.P. #	U-4405A
WBS #	39049.1.1
FED I.D. #	STPDA-0401(230)
SHEET NO.:	L-3
TOTAL SHEET NO.:	L-12



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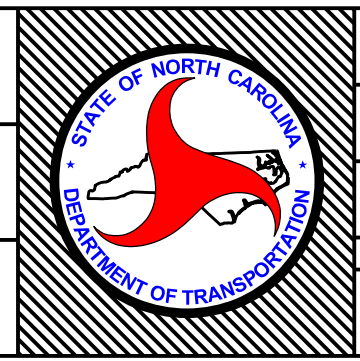
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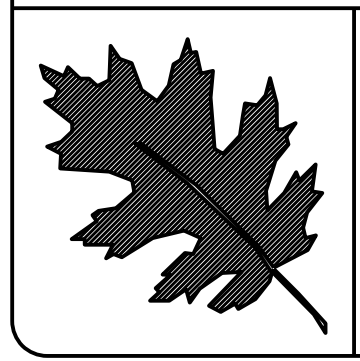
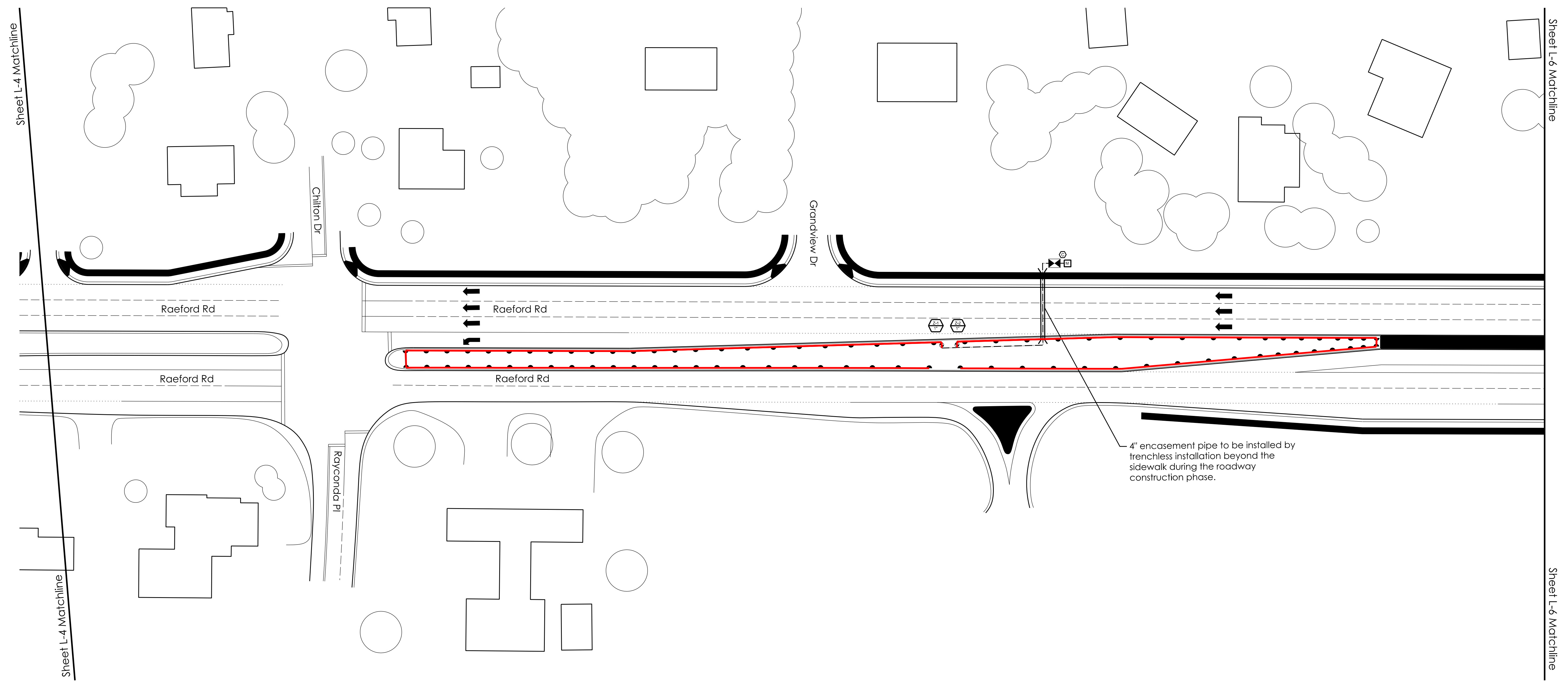
Landscape Architect  
*Kyle Coody*

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Irrigation Plan
Landscape Plan Sheet



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SHEET NO.:	L-4
TOTAL SHEET NO.:	L-12



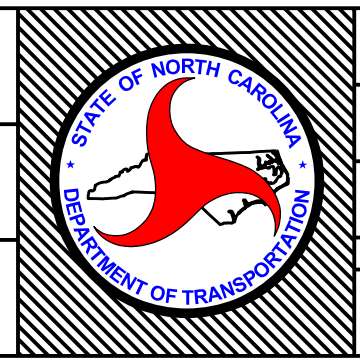
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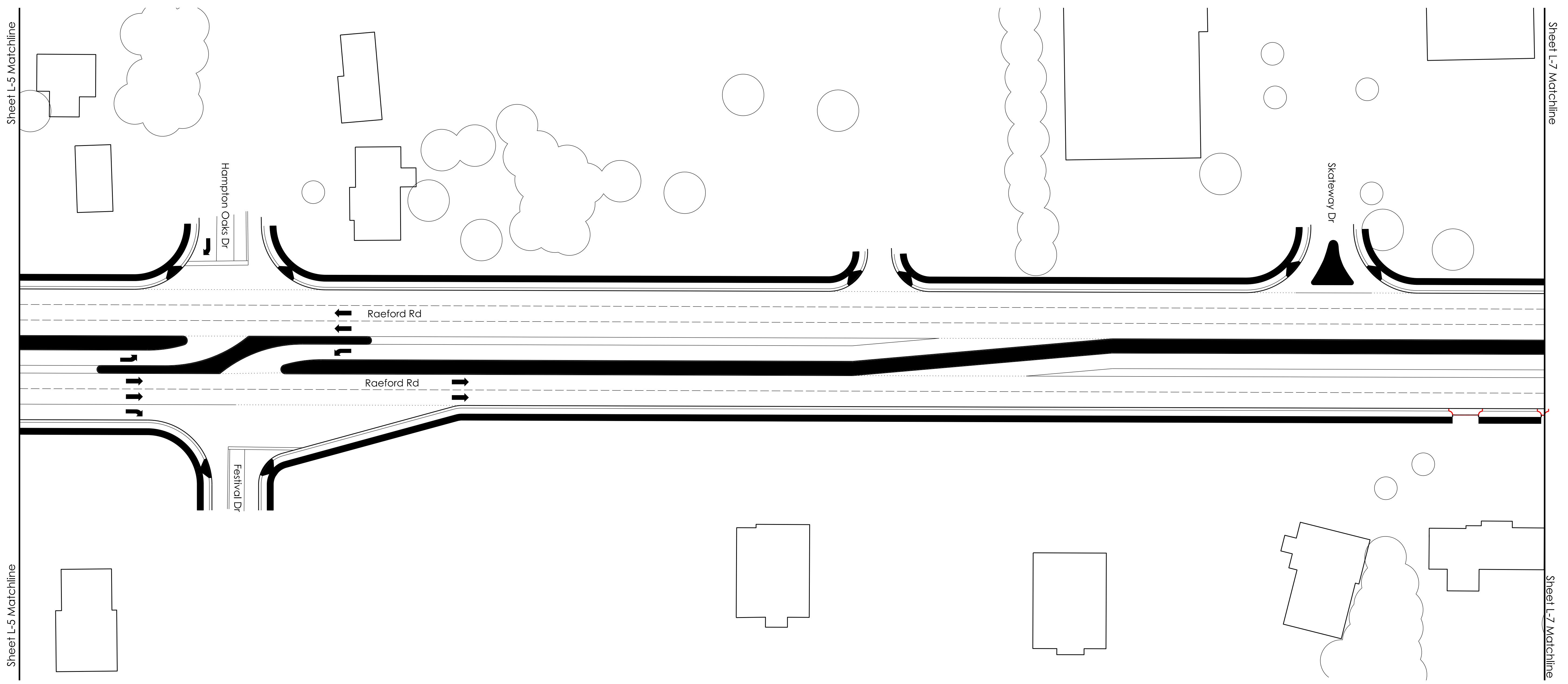
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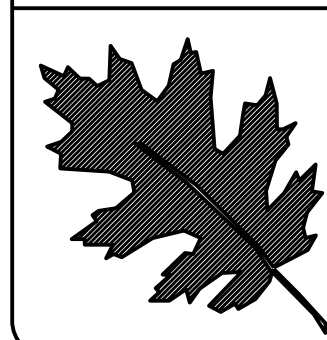
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Landscape Plan Sheet



T.I.P. #	U-4405A
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SHEET NO.:	L-5
TOTAL SHEET NO.:	L-12



\* NO DESIGN COMPLETED ON THIS SHEET \*



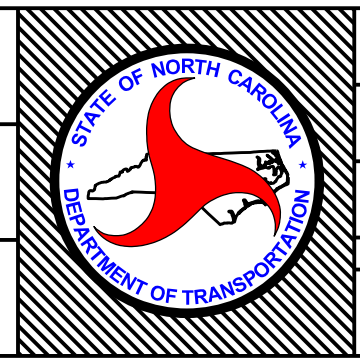
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Landscape Architect  
*Kyle Corder*

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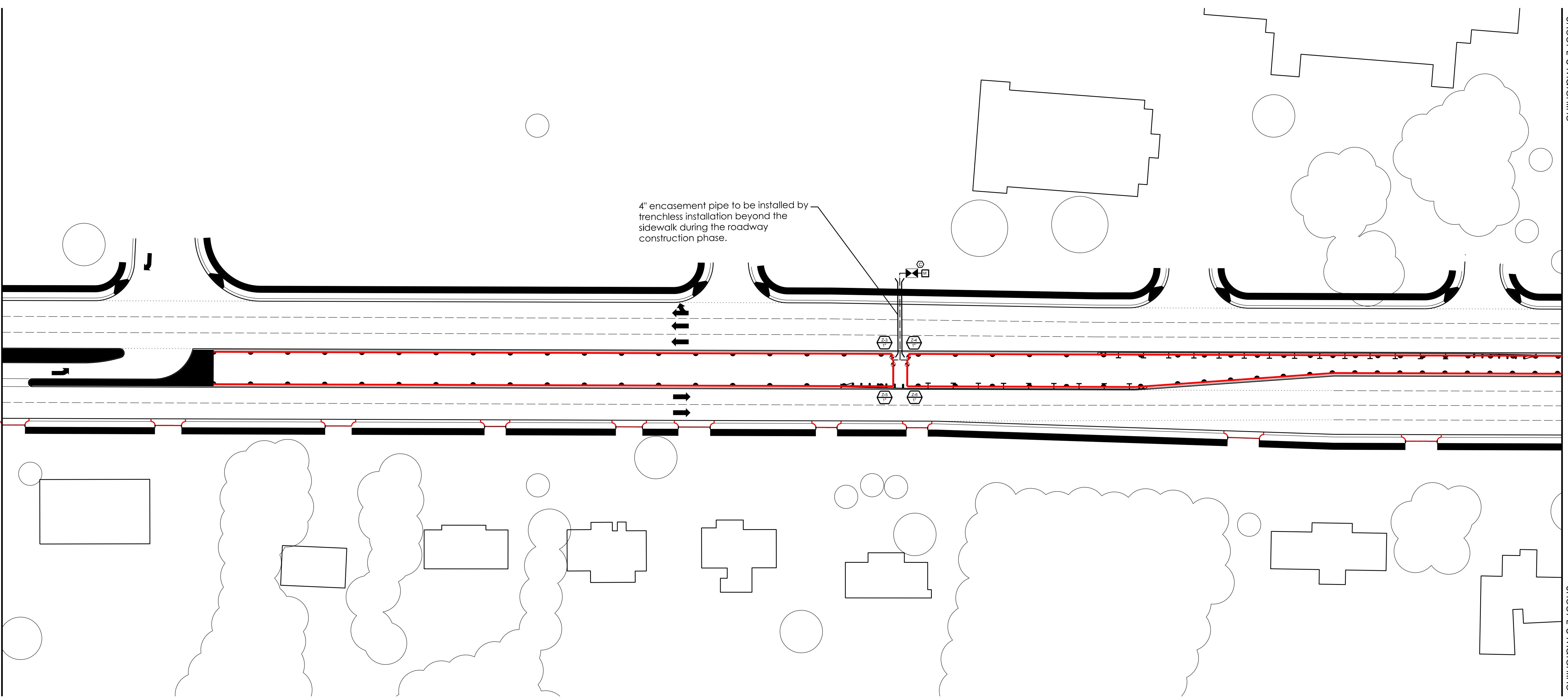
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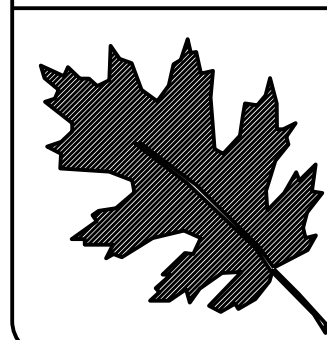
Sheet L-6 Matchline

Sheet L-6 Matchline



Sheet L-8 Matchline

Sheet L-8 Matchline



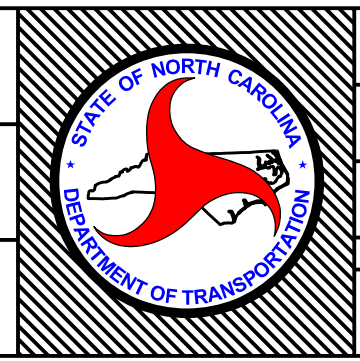
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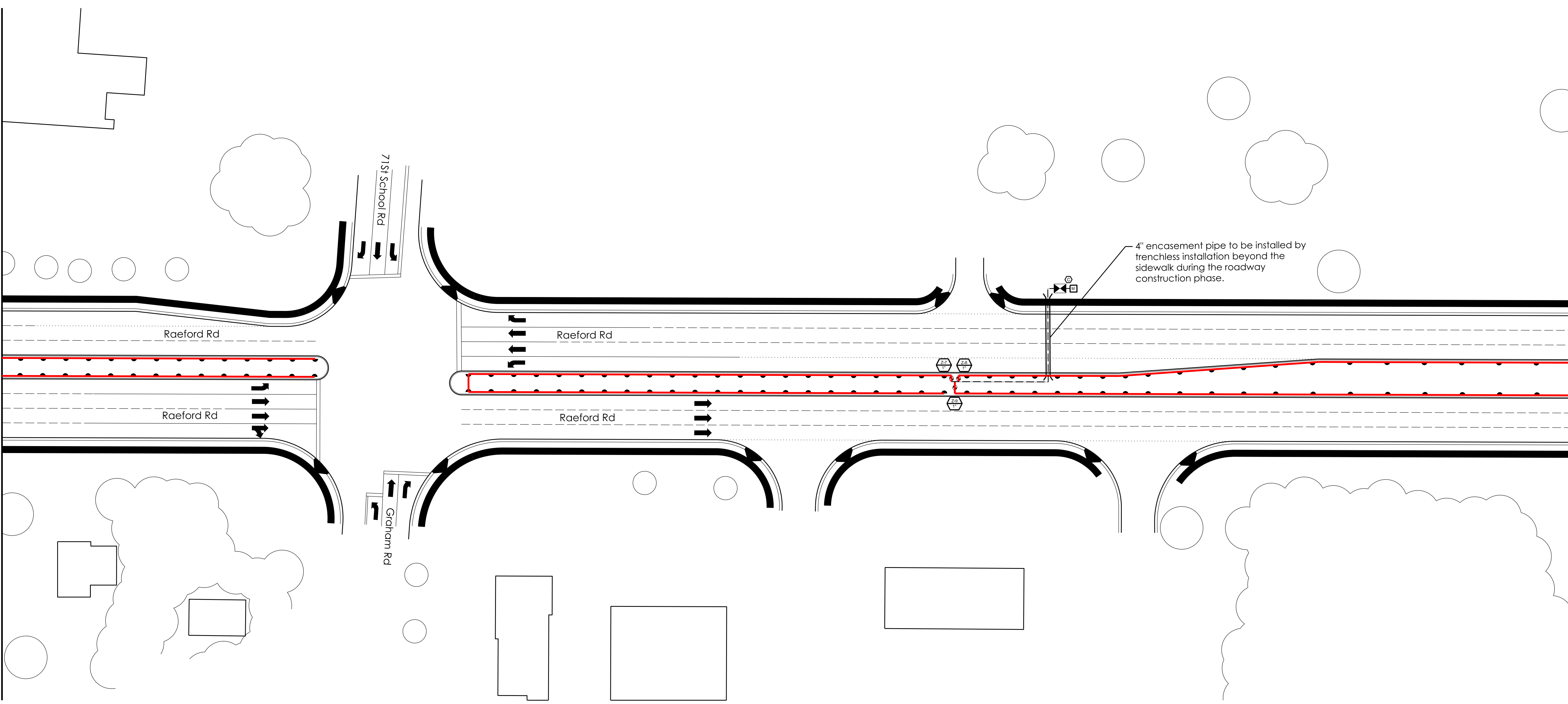
Irrigation Plan
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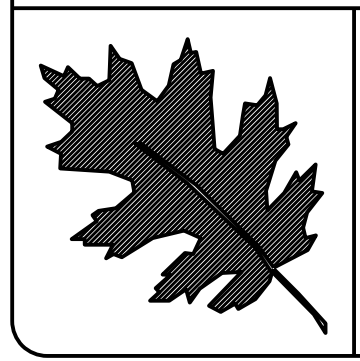
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Sheet L-7 Matchline



Sheet L-9 Matchline

Sheet L-9 Matchline



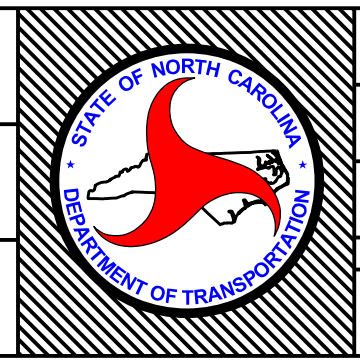
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Landscape Architect  
*Kyle Coody*

SHEET DESCRIPTION:	PREL. DESIGN DATE:	Aug. 2017
	CHECKED BY & DATE:	-----
	FINAL DESIGN DATE:	-----

Irrigation Plan
Landscape Plan Sheet



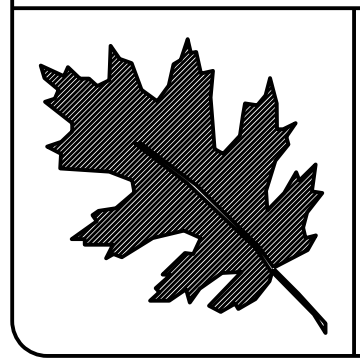
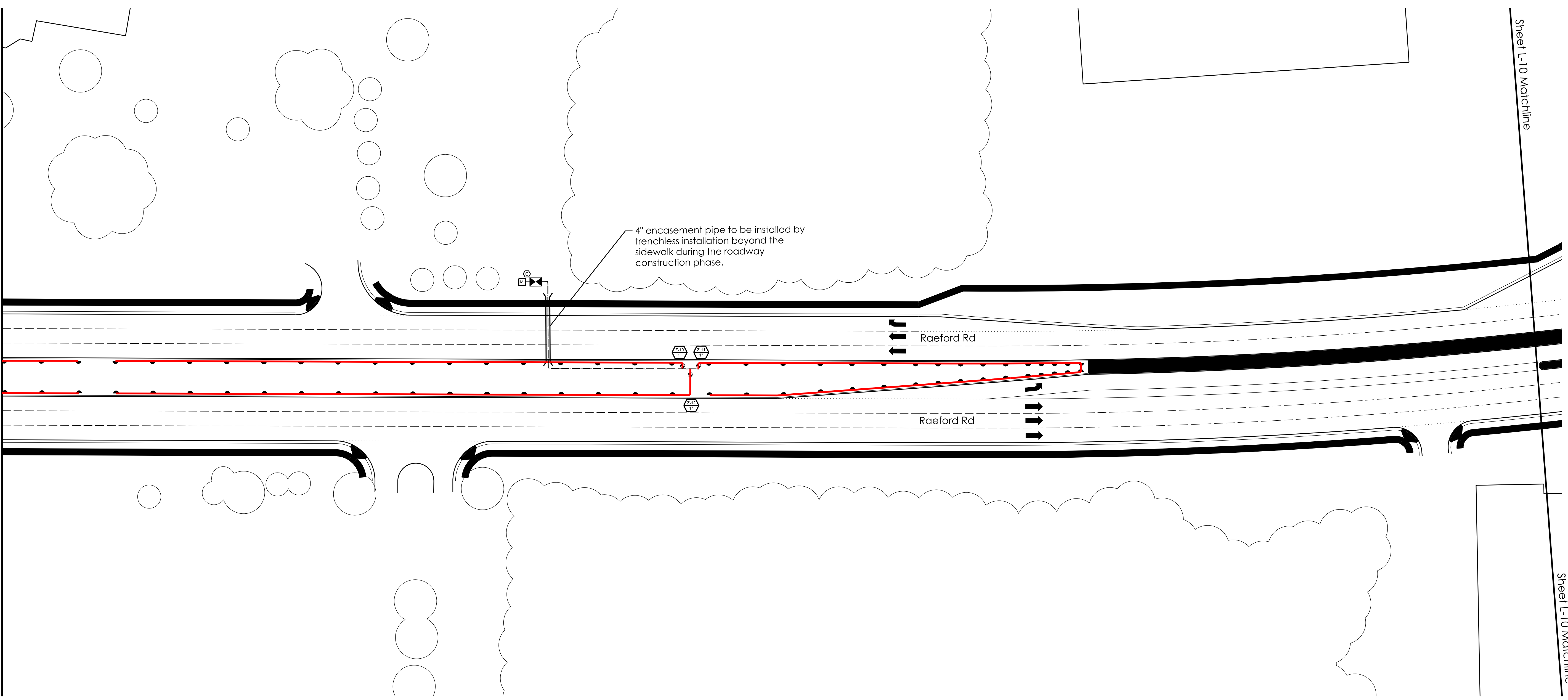
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WBS #	39049.1.1
FED I.D. #	STPDA-0401(230)
SHEET NO.:	L-8
TOTAL SHEET NO.:	L-12

Sheet L-8 Matchline

Sheet L-10 Matchline

Sheet L-8 Matchline

Sheet L-10 Matchline



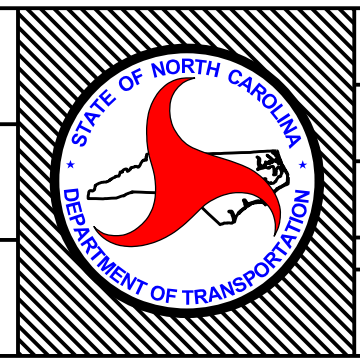
NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
 AESTHETIC ENGINEERING SECTION  
 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557  
 PH: 919-707-2935 FAX: 919-715-2554  
[http://www.ncdot.org/doh/operations/ap\\_chief\\_eng/roadside/](http://www.ncdot.org/doh/operations/ap_chief_eng/roadside/)

Raeford Rd (US-401 Bus.)  
 Cumberland County  
 TIP #: U-4405A

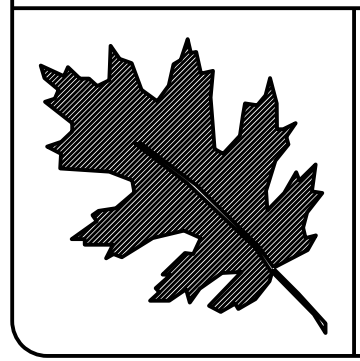
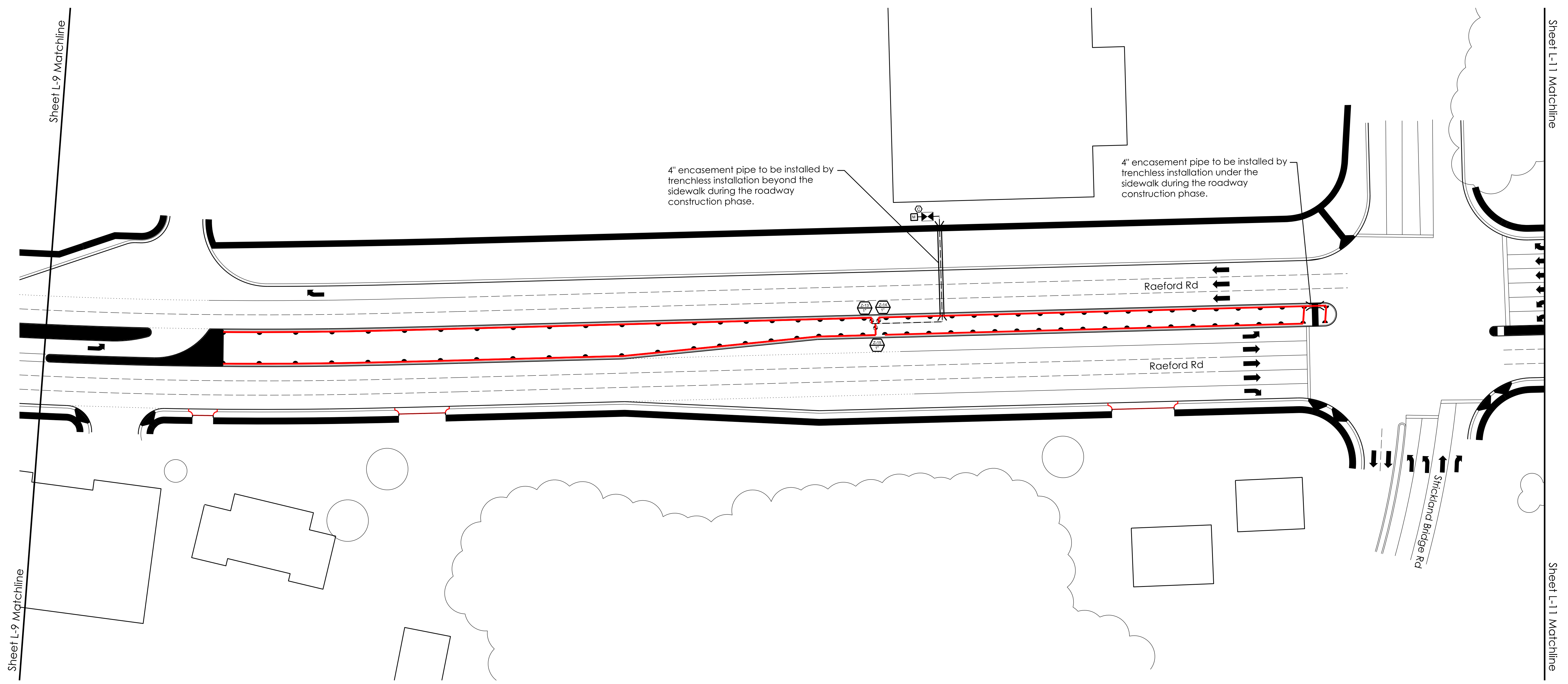
Landscape Architect  
*Kyle Coody*

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SHEET NO.:	L-9
TOTAL SHEET NO.:	L-12



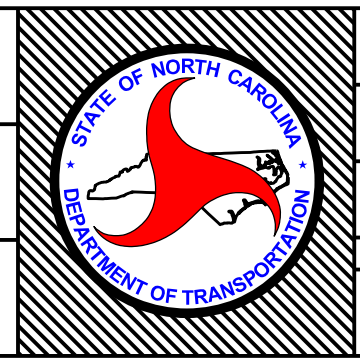
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Raeford Rd (US-401 Bus.)  
 Cumberland County  
 TIP #: U-4405A

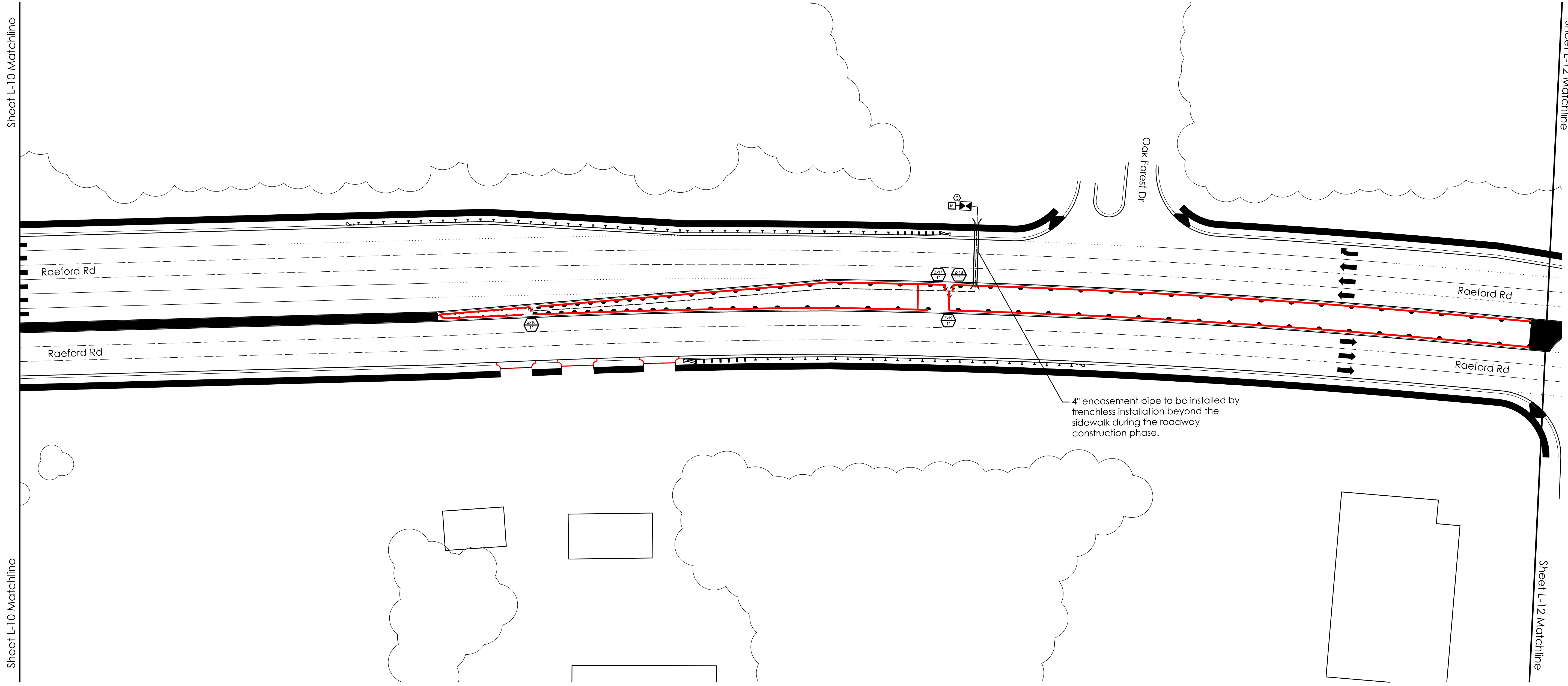
Landscape Architect  
*Kyle Cooney*

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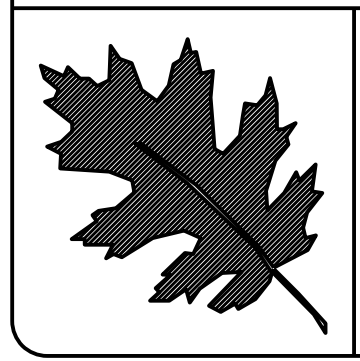
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TOTAL SHEET NO.:	L-12



4" encasement pipe to be installed by trenchless installation beyond the sidewalk during the roadway construction phase.



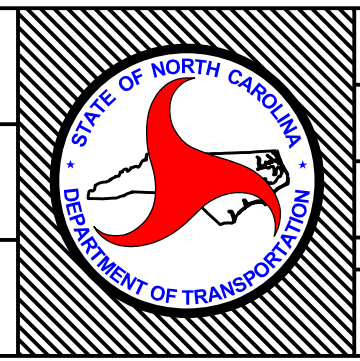
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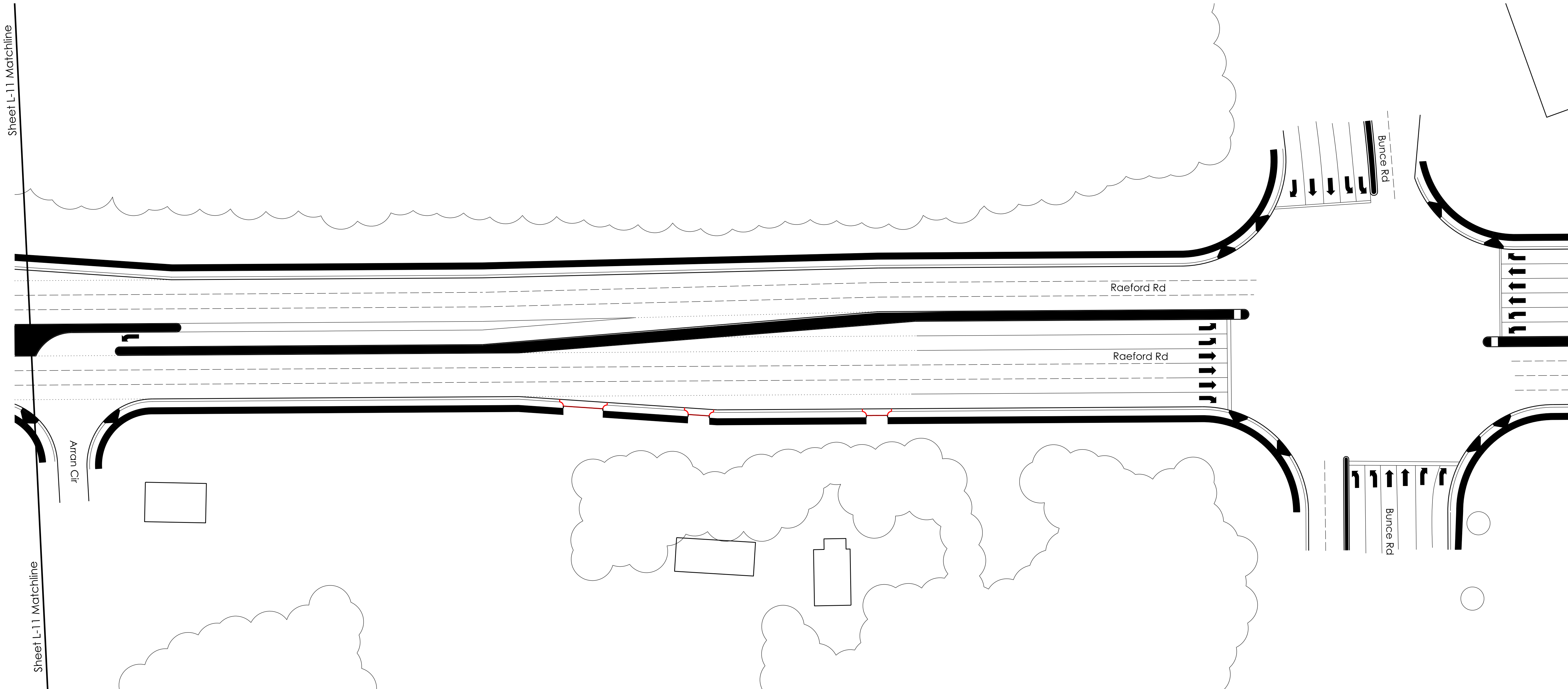
Landscape Architect  
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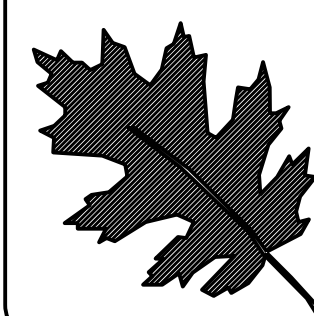
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SHEET NO.:	L-11
TOTAL SHEET NO.:	L-12



\* NO DESIGN COMPLETED ON THIS SHEET \*



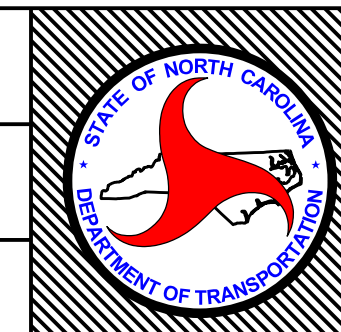
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