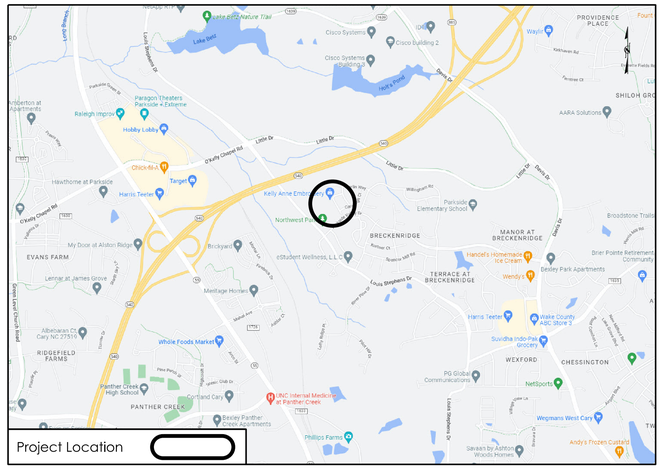
HIGHWAY LANDSCAPE DEVELOPMENT PROJECT

T.I.P. #	STATE PROJECT W.B.S. #	SHEET #	SHEET # TOTAL
U-5827	44400.3.2	L1	5
FED. PROJ. #	DESCRIPTION		DIVISION
- - - - -	TIP		5

Louis Stephens Dr. Median Landscape Enhancement in Morrisville



Summary of Quantities
1 Year Establishment

DES	SEC	QTY	UNIT	KEY	BOTANICAL NAME	COMMON NAME	FURNISH	NOTES	A.S.N.S.
					Trees				
L	1670	10	*ea*	PO	*Prunus x incam 'Okame'*	Okame Flowering Cherry	6-7'; #15	40' O.C.	2.3
					Grasses/Groundcovers/Perennials				
L	*1670*	336	*ea*	LB	*Liriope muscari 'Big Blue'*	Big Blue Lilyturf	6-12"; #1 Cont.	15" O.C.	13.5
L	1670	232	*ea*	RG	*Rudbeckia fulgida var. sullivantii 'Goldsturm'*	Goldsturm Black-Eyed Susan	6-12"; #1 Cont.	18" O.C.	13.3
					Other Vegetation Costs				
L	SP	1	*LS*		Administration				
L	1670	0.25	*acre*		Aerating and Overseeding (Tifway 419 Bermuda)				
L	1670	31	*cy*		Compost Top-dressing				
L	SP	1	*LS*		Irrigation				
L	1670	12	*ea*		Monthly Establishment				
L	1670	16	*cy*		Mulch for Planting			*Depth of 4"*	
L	1670	141	*sy*		Pre emergence Herbicidal Treatment				
L	1670	141	*sy*		Post emergence Herbicidal Treatment				
L	1670	11	*m/g*		Water for Planting				
L	1101	1	*LS*		Temporary Traffic Control				
					[ ] - Alternative Plant Option				
					m/g - 1,000 gallons				

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:

PREPARED BY: K Cooper **DATE:** 8/31/2022

REVISIONS

DATE	DESCRIPTION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

LOCATION: Louis Stephens Dr & Walnut Woods Dr in Morrisville

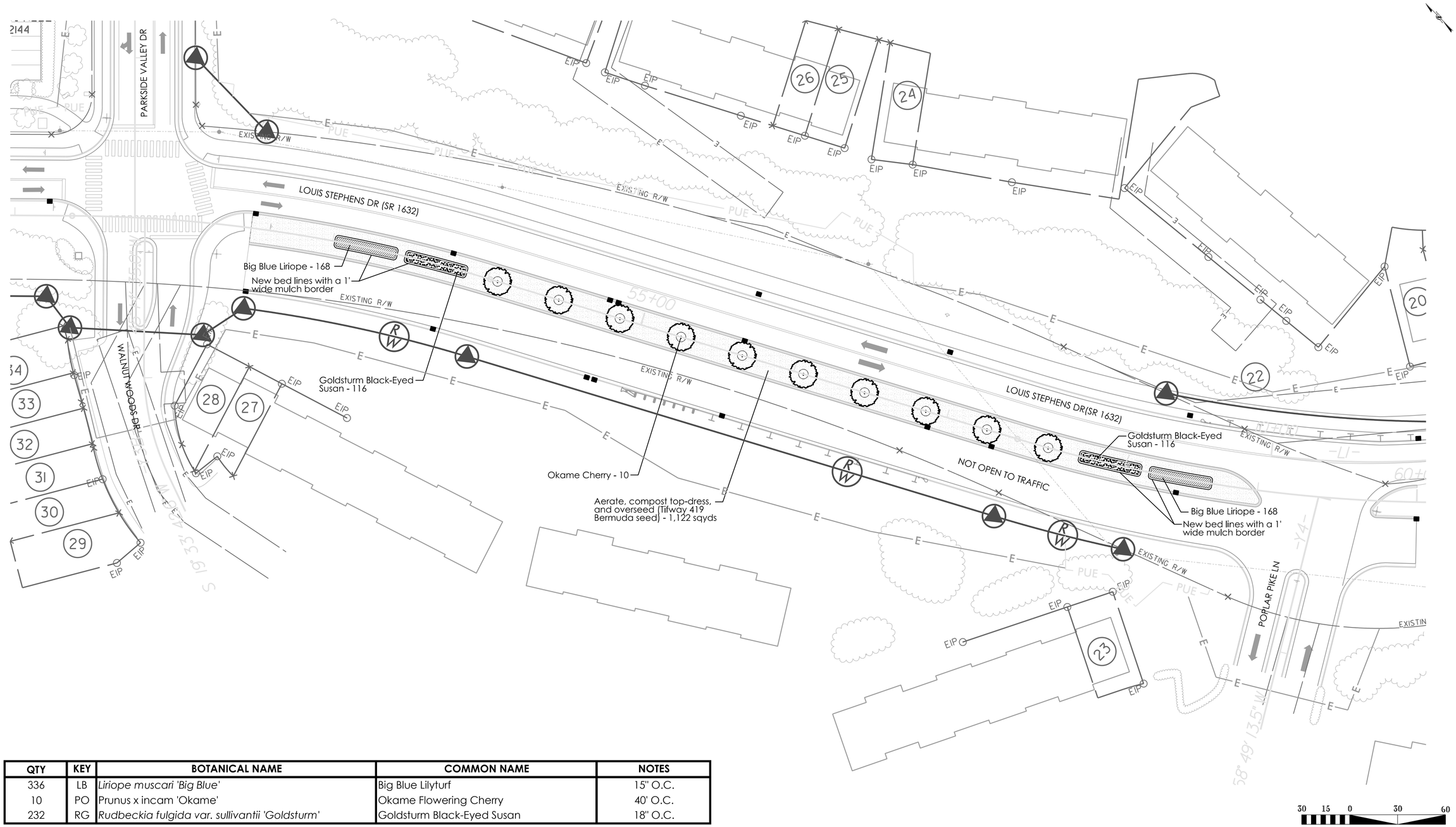
TYPE of WORK: TIP

COUNTY: Wake County

2014 American Standard for Nursery Stock

2024 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



QTY	KEY	BOTANICAL NAME	COMMON NAME	NOTES
336	LB	*Liriope muscari 'Big Blue'*	Big Blue Lilyturf	15" O.C.
10	PO	Prunus x incam 'Okame'	Okame Flowering Cherry	40' O.C.
232	RG	*Rudbeckia fulgida var. sullivantii 'Goldsturm'*	Goldsturm Black-Eyed Susan	18" O.C.

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Louis Stephens Dr Landscape Enhancement
Wake County

TIP #: U-5827B

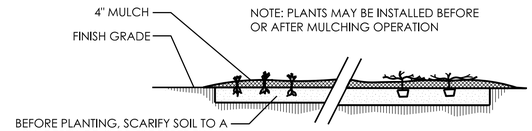
SHEET DESCRIPTION:

PREL. DESIGN DATE : 6/20/2022	Planting Plan
CHECKED BY & DATE : - - - - -	Landscape Plan Sheet
FINAL DESIGN DATE : 8/31/2022	PROJECT LANDSCAPE ARCHITECT: Kyle Cooper, PLA

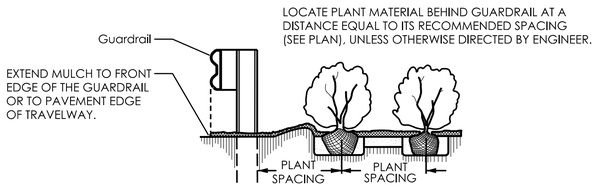
T.I.P. #	U-5827B
WBS #	44400.3.2
FED I.D. #	- - - - -
SHEET NO :	TOTAL SHEET NO :
L-2	L-5

NOTES:

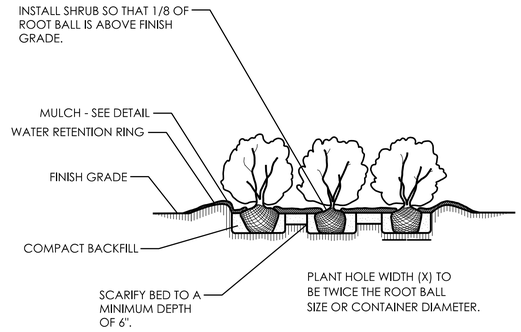
- SCHEDULE FOR PLANT HOLE SIZE: PLANT HOLE WIDTH (X) TO BE TWICE THE ROOT BALL SIZE OR CONTAINER DIAMETER.
- SEE STANDARD SPECIFICATIONS FOR PLANT BED FUMIGATION AND HERBICIDAL TREATMENT.
- APPLY FERTILIZER AT PLANTING TIME IN THE FORM OF A SLOW RELEASE PELLET OR TABLET. APPLY AT RATE RECOMMENDED BY 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.



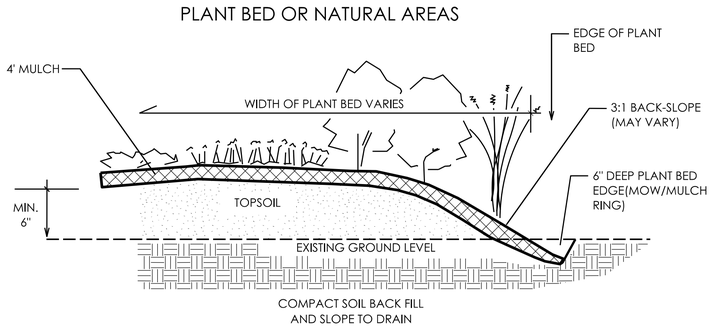
1 / L-3 GROUND COVER/ BEDDING PLANT DETAIL
NTS



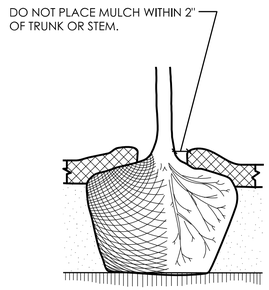
2 / L-3 Guardrail Mulching Detail
NTS



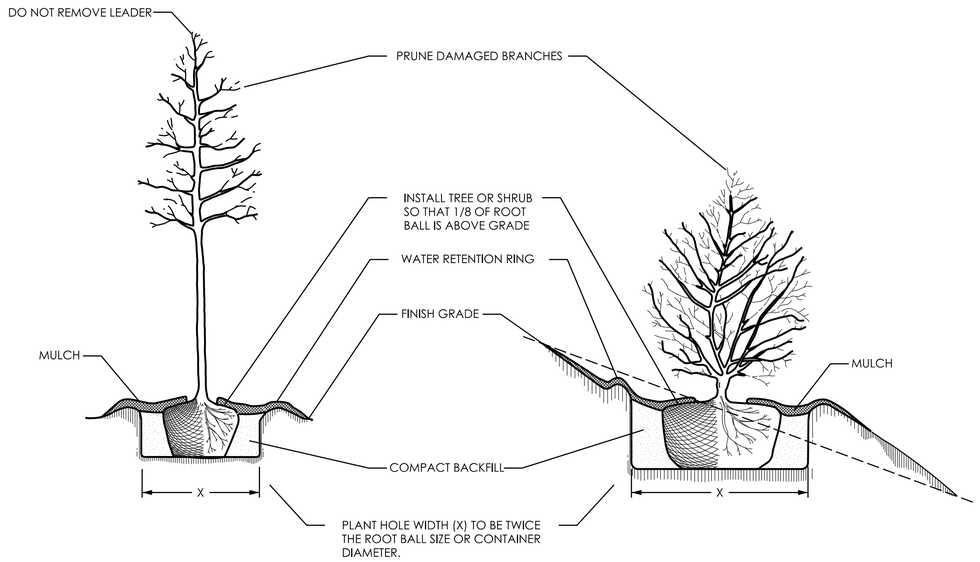
3 / L-3 SHRUB BED PLANTING DETAIL
NTS



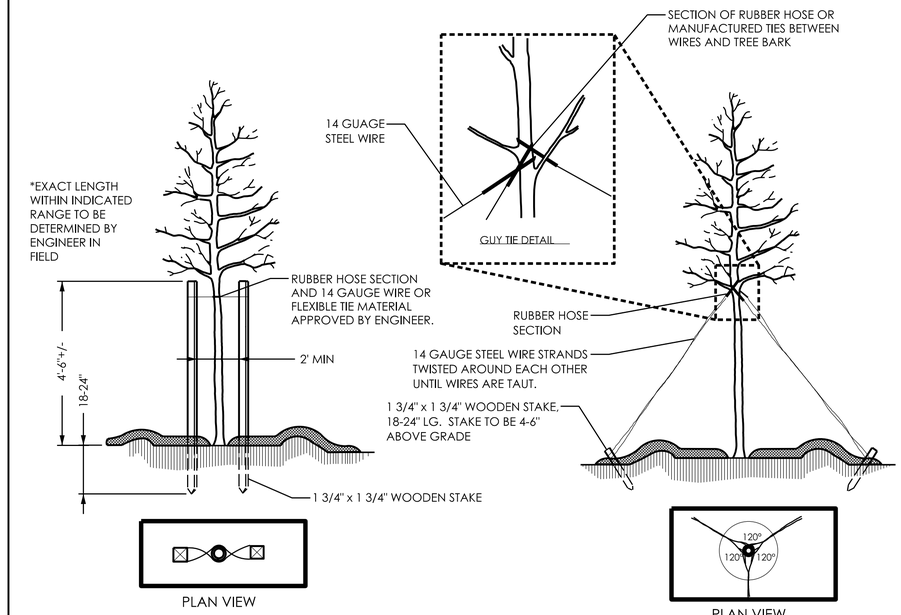
4 / L-3 PLANT BED EDGE DETAIL
NTS



5 / L-3 MULCH DETAIL
NTS



6 / L-3 TREE OR SHRUB PLANTING DETAIL
NTS



FOR TREES 6'-10'. USE AS DIRECTED BY FIELD ENGINEER.

7 / L-3 TREE STAKING DETAIL
NTS

FOR TREES 10' OR LARGER. USE AS DIRECTED BY FIELD ENGINEER.

8 / L-3 TREE GUYING DETAIL
NTS

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Louis Stephens Dr Landscape Enhancement
Wake County

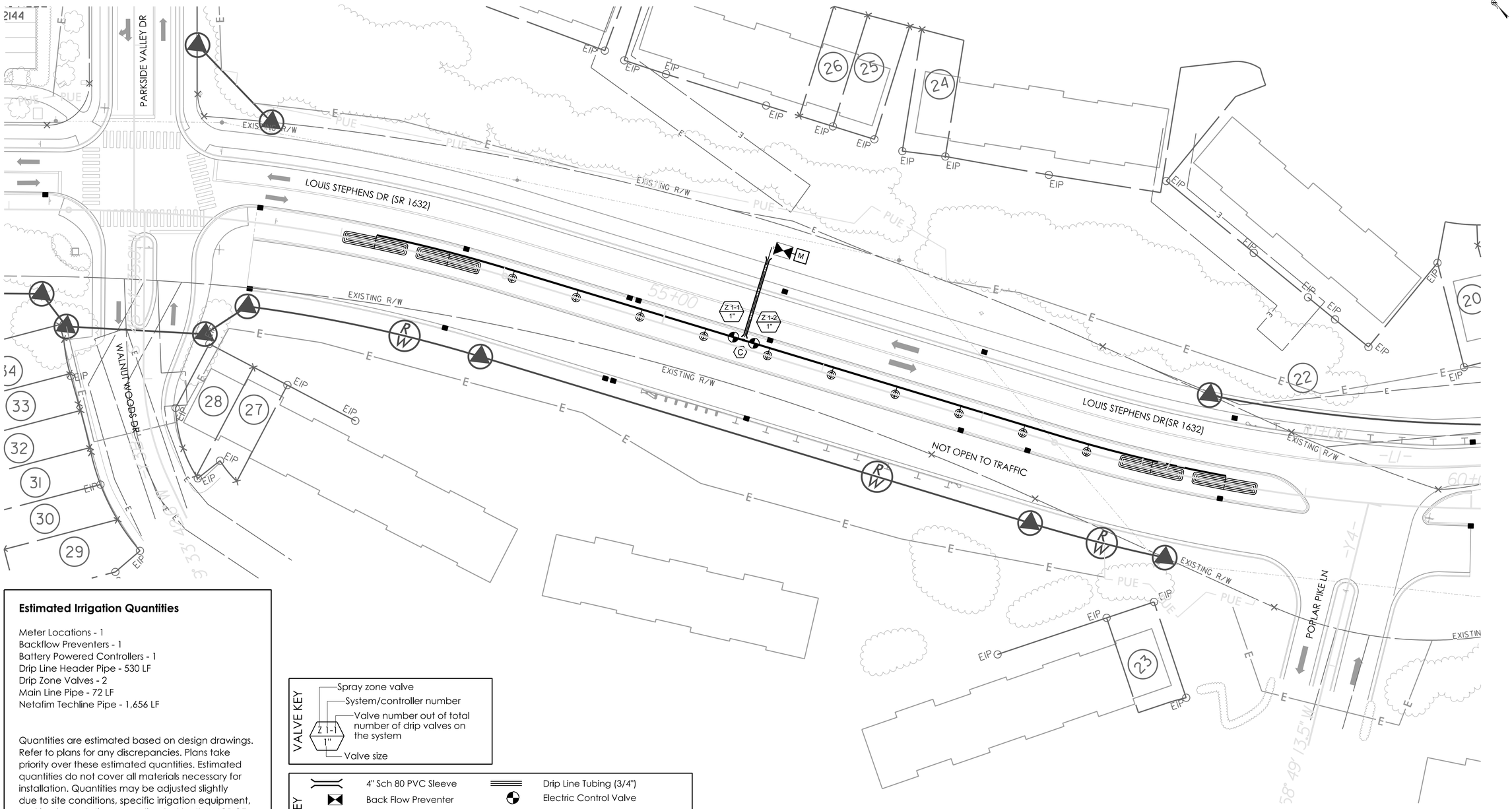
TIP #: U-5827B

SHEET DESCRIPTION:

PREL. DESIGN DATE : 6/20/2022	Planting Details
CHECKED BY & DATE : - - - - -	Landscape Plan Sheet
FINAL DESIGN DATE : 8/31/2022	PROJECT LANDSCAPE ARCHITECT: Kyle Cooper, PLA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

T.I.P. #	U-5827B
WBS #	44400.3.2
FED I.D. #	- - - - -
SHEET NO :	TOTAL SHEET NO :
L-3	L-5



Estimated Irrigation Quantities

Meter Locations - 1
Backflow Preventers - 1
Battery Powered Controllers - 1
Drip Line Header Pipe - 530 LF
Drip Zone Valves - 2
Main Line Pipe - 72 LF
Netafim Techline Pipe - 1,656 LF

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.

VALVE KEY

Z 1-1
1"

- Spray zone valve
- System/controller number
- Valve number out of total number of drip valves on the system
- Valve size

KEY

- 4" Sch 80 PVC Sleeve
- Back Flow Preventer
- Battery Controller
- Drip Line Header Pipe (1")
- Drip Line Tubing (3/4")
- Electric Control Valve
- Main Line Pipe
- Water Meter Provided By Town

30 15 0 30 60

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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TOTAL SHEET NO :	L-5

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 they are aware of any special conditions that may exist that could affect their bid proposal and shall hereafter be responsible for all costs incurred in relation to the installation.

- Place valves and boxes in plant beds wherever 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, Rainbird, Toro, or an equivalent brand.

- If there is an existing system in place, be sure to use irrigation components 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.

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 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 an approved high-density polyethylene (HDPE) valve box with 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.

BACKFLOW PREVENTION

- The reduced pressure backflow preventer assembly shall be the responsibility of the irrigation contractor. The backflow shall be 1" 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

- The controller shall be a Hunter, Rainbird, Toro or equivalent 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 high-density polyethylene (HDPE) valve boxes with covers.

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

- The contractor shall install a wired 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.

DRIP IRRIGATION

- Drip irrigation is to be 3/4" Netafim , Rainbird, or Orbit tubing with emitters spaced at 9" intervals for smaller plants & 12" intervals for larger plants at 1 gpm. An approved inline emitter drip line is to be installed under mulch in landscape areas as shown on the irrigation plan. Install all drip line before mulch is installed.

- Drip Valve Assembly, which includes a Hunter, Rainbird, or Toro remote control valve with flow control feature, a mesh filter , and a pressure regulator.

- All remote control valves shall be installed in high-density polyethylene (HDPE) valve boxes with lids mounted at grade level. Single valves may be installed in smaller valve boxes with covers, while multiple valves (up to, 2 - 1" valves or 1 - 1 1/2") shall be installed in larger boxes with covers.

- Each system shall have a class 200, 1 1/2" supply header and a flush/exhaust header to maintain even flow throughout the system. Larger systems may require center feed supply headers.

- There should be a minimum of 2 emitters installed per shrub and 3 emitters installed per tree.

- All drip zones should have a drip system operation indicator head installed within them, so technicians can observe whether systems are functioning properly. If possible, place the indicator head towards the end of the drip line system in a visible area or as directed by the engineer.

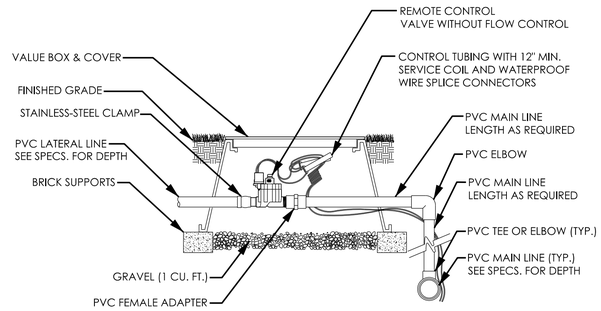
SLEEVES

- Sleeve pipe shall be 4" Sch 80 PVC. The irrigation contractor shall coordinate their construction with the landscape contractor to insure proper installation of the irrigation system around the landscape plantings.

WATER SUPPLY/METER

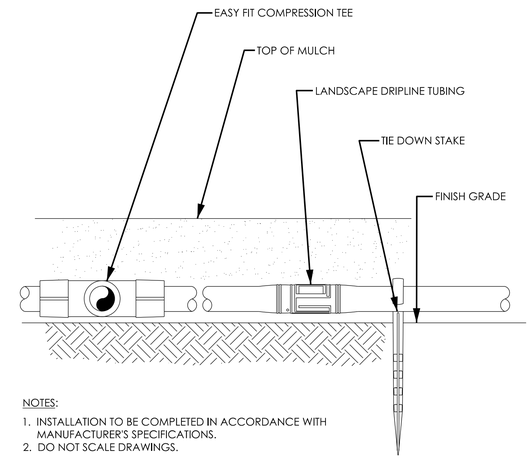
- The meter is 1" in size. Since the water supply for the system will be potable water, the contractor will be required to install a backflow prevention device which will be located downstream of the irrigation meter.

- 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.



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

1 / L-5 VALVES & BOX
NTS



NOTES:
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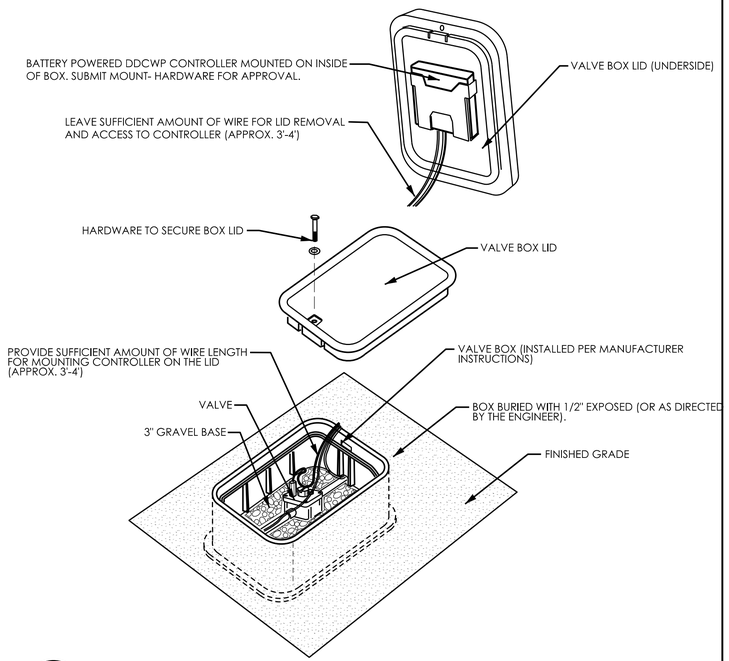
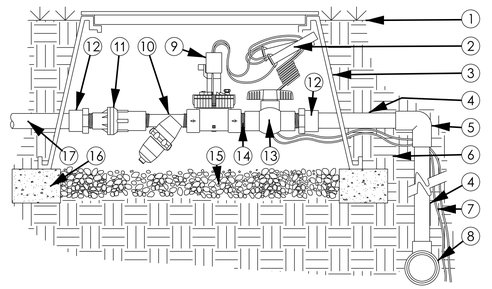
2 / L-5 LANDSCAPE DRIPLINE ON GRADE
NTS



3 / L-5 DDCWP CONTROLLER BOX LID MOUNT
NTS



LEGEND

1. FINISHED GRADE	10. MESH SCREEN FILTER WITH FLUSH CAP
2. WATERPROOF DRY SPLICE CONNECTORS	11. ADJUSTABLE PRESSURE REGULATOR
3. 12" VALVE BOX WITH COVER	12. PVC SCH 40 FEMALE ADAPTER
4. PVC LATERAL LINE	13. MANUAL VALVE
5. SCH 40 PVC 90° ELL JOINT	14. PVC SCH 40 TRANSITION NIPPLE
6. NATIVE SOIL PER SPECIFICATIONS	15. WASHED GRAVEL SUMP (MIN. 3")
7. CONTROL WIRES TO CONTROLLER	16. BRICK SUPPORTS
8. PVC MAINLINE FITTING	17. LATERAL LINE TO DRIP SYSTEM
9. REMOTE CONTROL VALVE	

NOTES:
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4 / L-5 DRIP ZONE ASSEMBLY
NTS

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