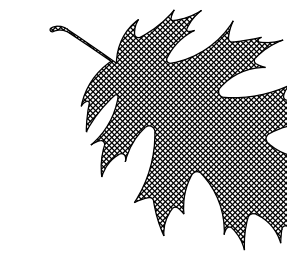
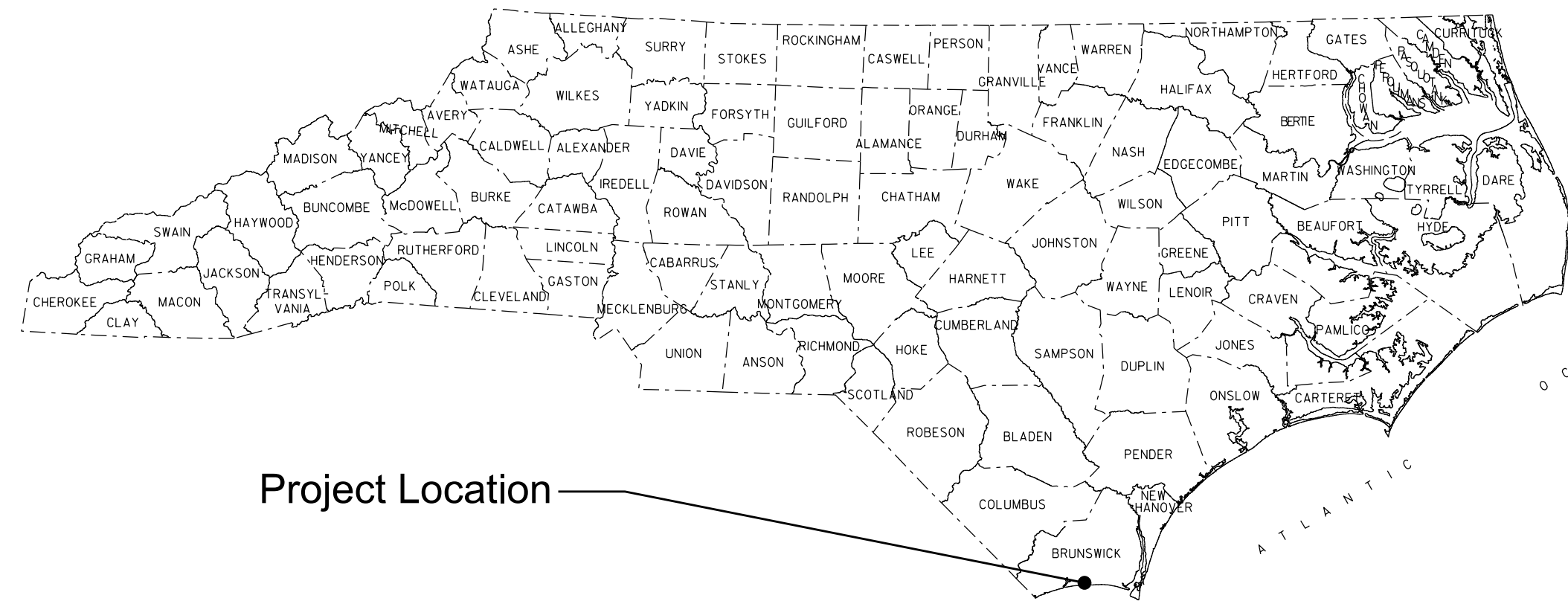
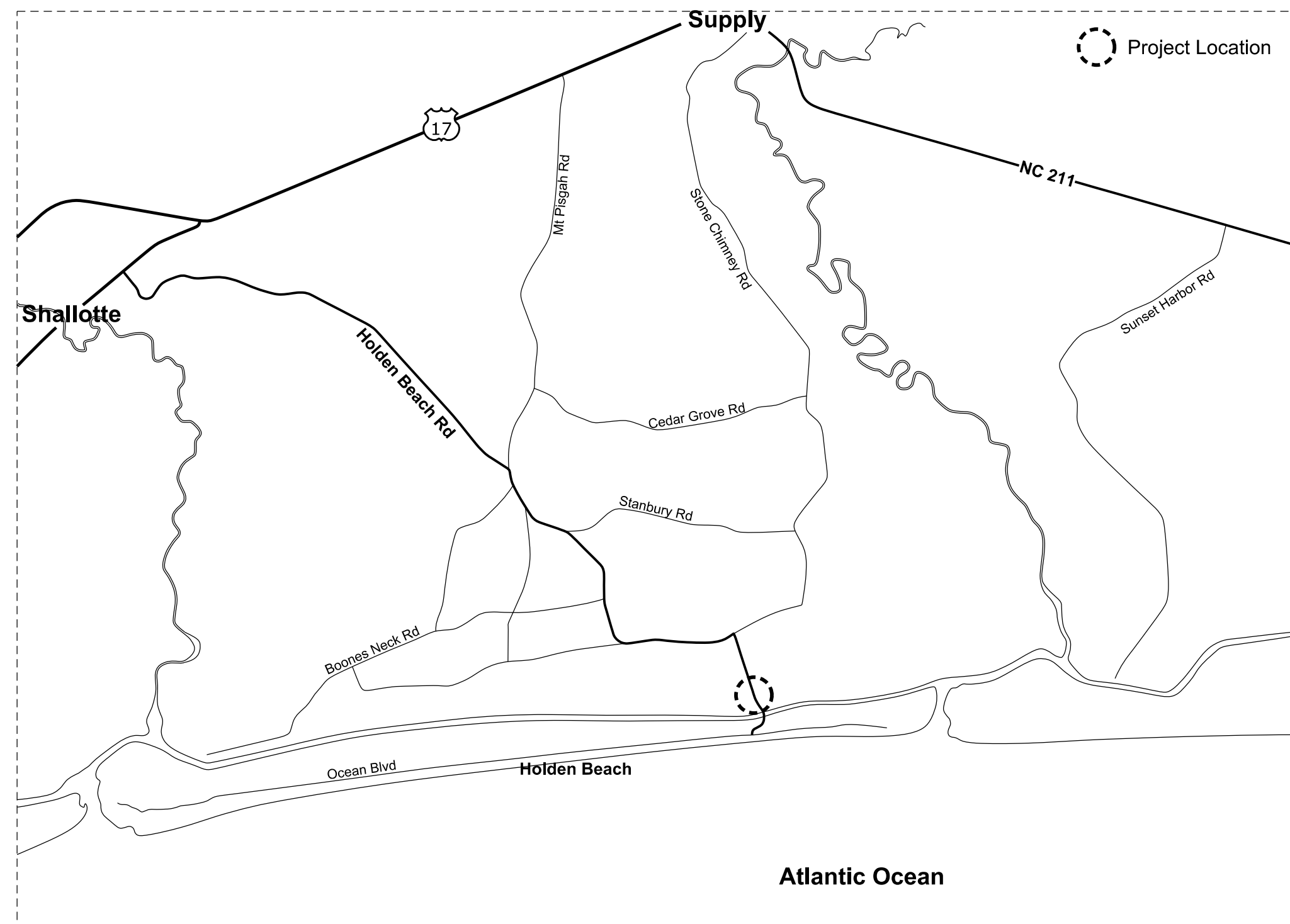


HIGHWAY LANDSCAPE DEVELOPMENT PROJECT



T.I.P. #	STATE PROJECT W.B.S. #	SHEET #	SHEET # TOTAL
-	3703.3.44	L1	8
FED. PROJ. #	DESCRIPTION		DIVISION
-	Enhancement		3



Project Location

Summary of Quantities 1 year establishment

DES	SEC	QTY	UNIT	KEY	BOTANICAL NAME	COMMON NAME	SIZE	CALIPER	FURNISH	A.S.N.S.	REMARKS
Trees											
L	1670	3	ea	BC	<i>Butia capitata</i>	Pindo Palm	5-6'		B&B		As Shown
L	1670	6	ea	SP	<i>Sabal palmetto</i>	Cabbage Palmetto	14"+		B&B		As Shown
Shrubs											
L	1670	14	ea	CT	<i>Chaenomeles speciosa 'Texas Scarlet'</i>	Red Flowering Quince	18-24"		#3 Cont.	2.2.4	6 canes, 2.5' O.C.
L	1670	60	ea	IH	<i>Hypericum 'Hidcote'</i>	Hidcote St. John's Wort	18-24"		#3 Cont.		2.5' O.C.
L	1670	12	ea	IH	<i>Ilex crenata 'Heller'</i>	Heller's Japanese Holly	18-24"		#3 Cont.	4.2.2	As Shown
L	1670	6	ea	IS	<i>Ilex crenata 'Soft Touch'</i>	Soft Touch Compact Holly	18-24"		#3 Cont.	4.2.2	As Shown
Grasses/Groundcovers											
L	1670	3338	ea	AG	<i>Andropogon gerardii 'Red October' PPAF</i>	Red Big Bluestem			32/flat	12.4	1' O.C.
L	1670	636	ea	CA	<i>Calamagrostis x acutiflora 'Earl Foerster'</i>	Feather Reed Grass			32/flat	22.4	1.5' O.C.
L	1670	184	ea	MC	<i>Muhlenbergia capillaris</i>	Pink Muhly Grass	18-24"		#3 Cont.	22.4	3' O.C.
L	1670	461	ea	PV	<i>Panicum virgatum 'Heavy Metal'</i>	Heavy Metal Switchgrass			18/flat	22.4	2.5' O.C.
L	1670	2112	ea	SS	<i>Schizachyrium scaparium</i>	Little Bluestem			32/flat	22.4	1.5' O.C.
L	1670	712	ea	SN	<i>Sorghastrum nutans</i>	Indian Grass			32/flat	22.4	2' O.C.
L	1670	4784	ea	SH	<i>Sporobolus heterolepis 'Tara'</i>	Dwarf Prairie Dropseed			32/flat	22.3	1.5' O.C.
L	1670	1089	sqyd	ZO	<i>Zoysia sp. (+10%)</i>	Zoysia			n/a	22.4	As shown
Perennials/Bulbs											
L	1670	311	ea	DC	<i>Dianthus 'Coral Reef'</i>	Scent First Dianthus			#1 Cont.		1' O.C.
L	1670	250	ea	HB	<i>Heimerocallis 'Buttered Popcorn'</i>	Buttered Popcorn Daylily			#1 Cont.	12.2.3	2' O.C.
L	1670	284	ea	HS	<i>Heimerocallis 'Stella de oro'</i>	Stella de Oro Daylily			#1 Cont.	12.2.3	2' O.C.
L	1670	11	box	IR	<i>Iris reticulata</i>	Dwarf Dutch Iris			100/box		4/sqft
L	1670	126	box	ND	<i>Narcissus 'Dutch Master'</i>	Dutch Master Trumpet Daffodil			50/box		4/sqft
Other											
L	1670	406	cuyd		Mulch for New Plant Beds and Trees (+10%)						Depth of 4"
L	1670	51	m/p		Water for Planting						
L	1670	4336	sqyd		Pre emergence Herbicidal Treatment						
L	1670	4336	sqyd		Post emergence Herbicidal Treatment						
L	1670		Lump Sum		Irrigation System						

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 - Demolition Plan
- L 4.0 - Planting Plan
- L 5.0 - Enlarged Plant Groupings
- L 6.0 - Irrigation Plan
- L 7.0 - Irrigation Specifications
- L 8.0 - Irrigation Details

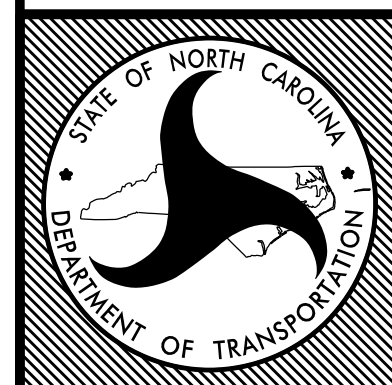
PREPARED BY: KC DATE: 05/27/2015

REVISIONS

DATE	DESCRIPTION

2004 American Standard for Nursery Stock
 2012 NCDOT STANDARD SPECIFICATIONS
 PREPARED IN THE OFFICE OF:
 NCDOT- ROADSIDE ENVIRONMENTAL UNIT
 LANDSCAPE DESIGN & DEVELOPMENT SECTION
 1557 MAIL SERVICE CENTER
 RALEIGH NC 27699 919-707-2920

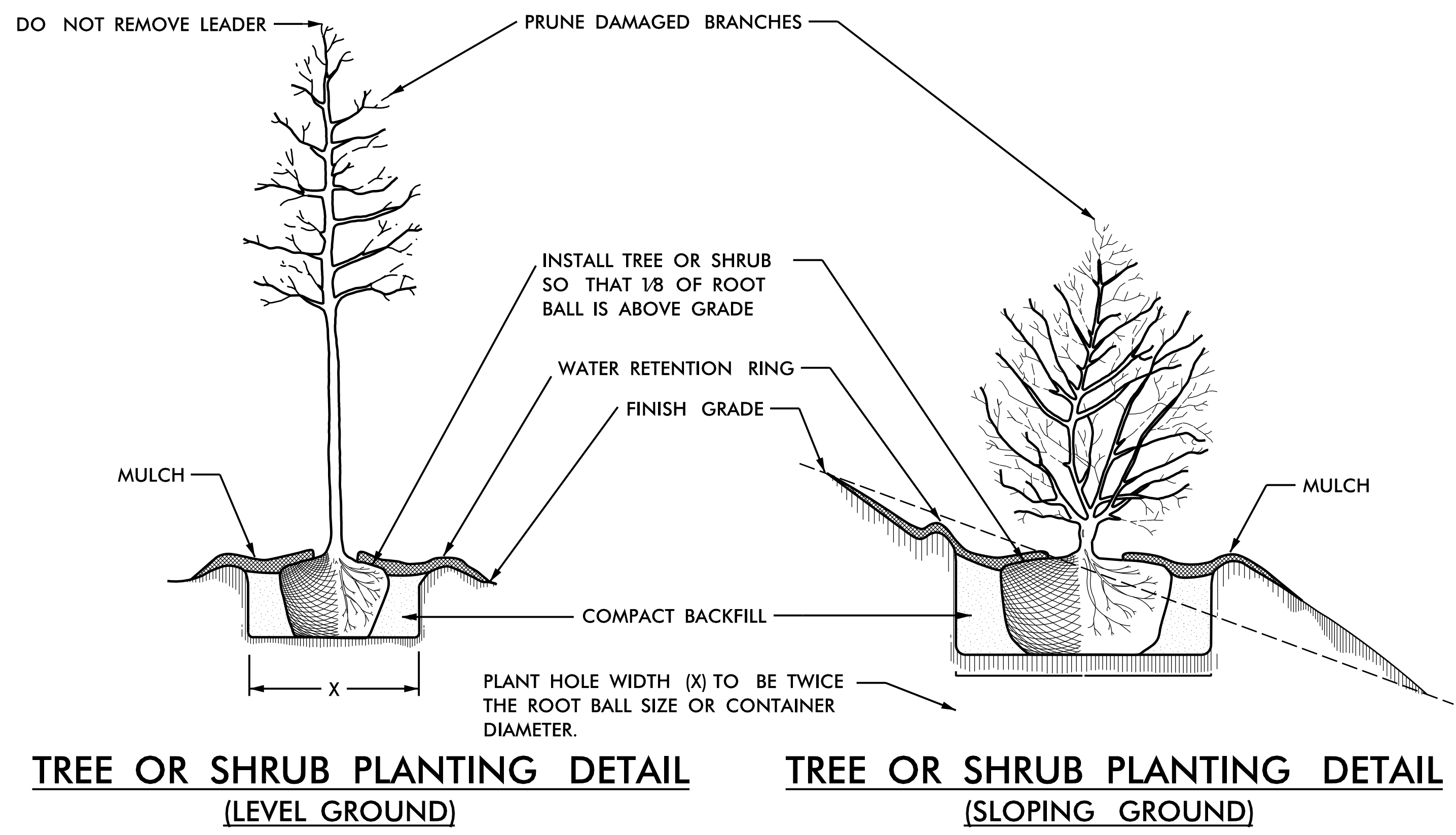
PROJECT: Holden Beach Bridge



STATE OF
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

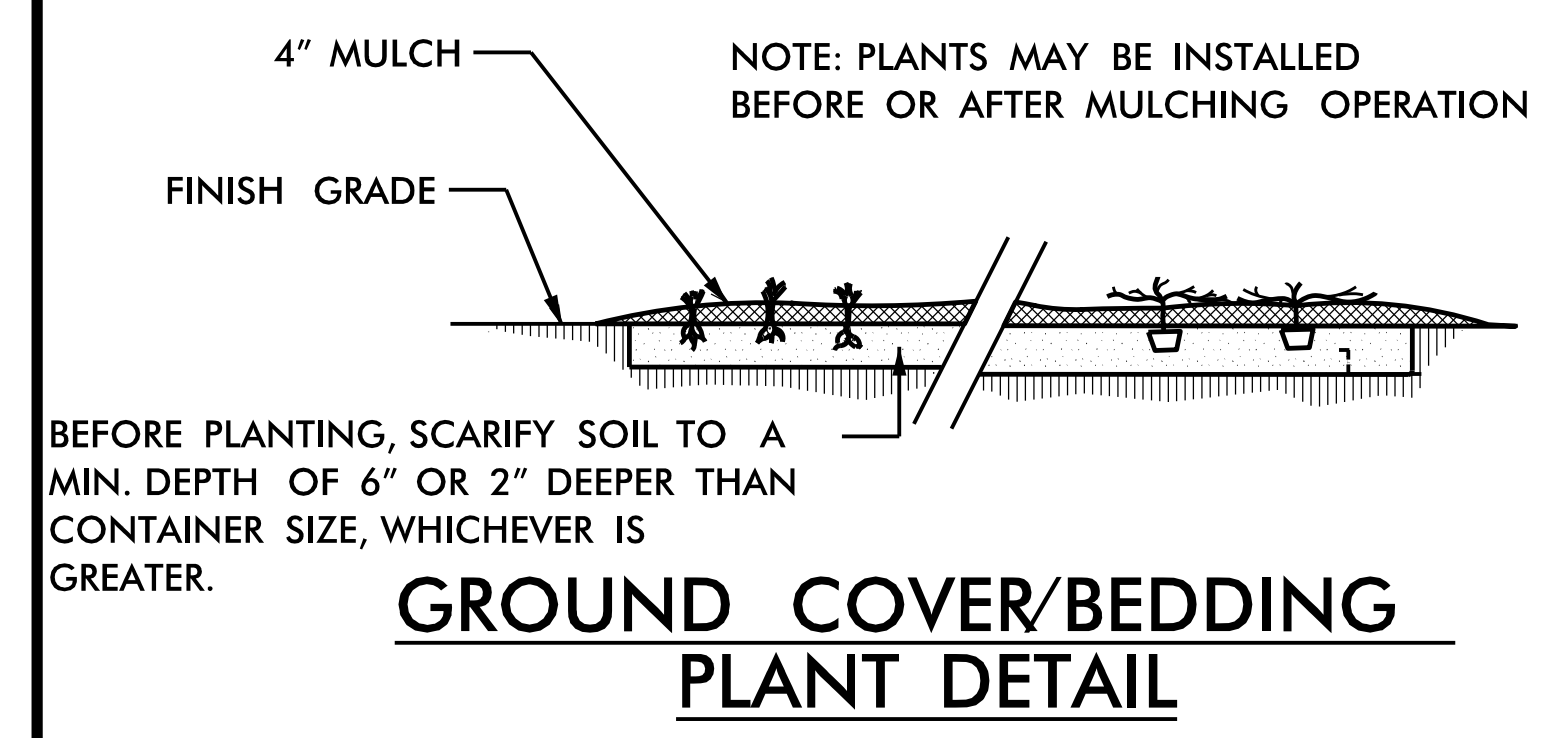
LOCATION: Holden Beach Bridge
 TYPE of WORK: Enhancement Plan
 COUNTY: Brunswick County

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$SERVNAME\$\$\$\$\$

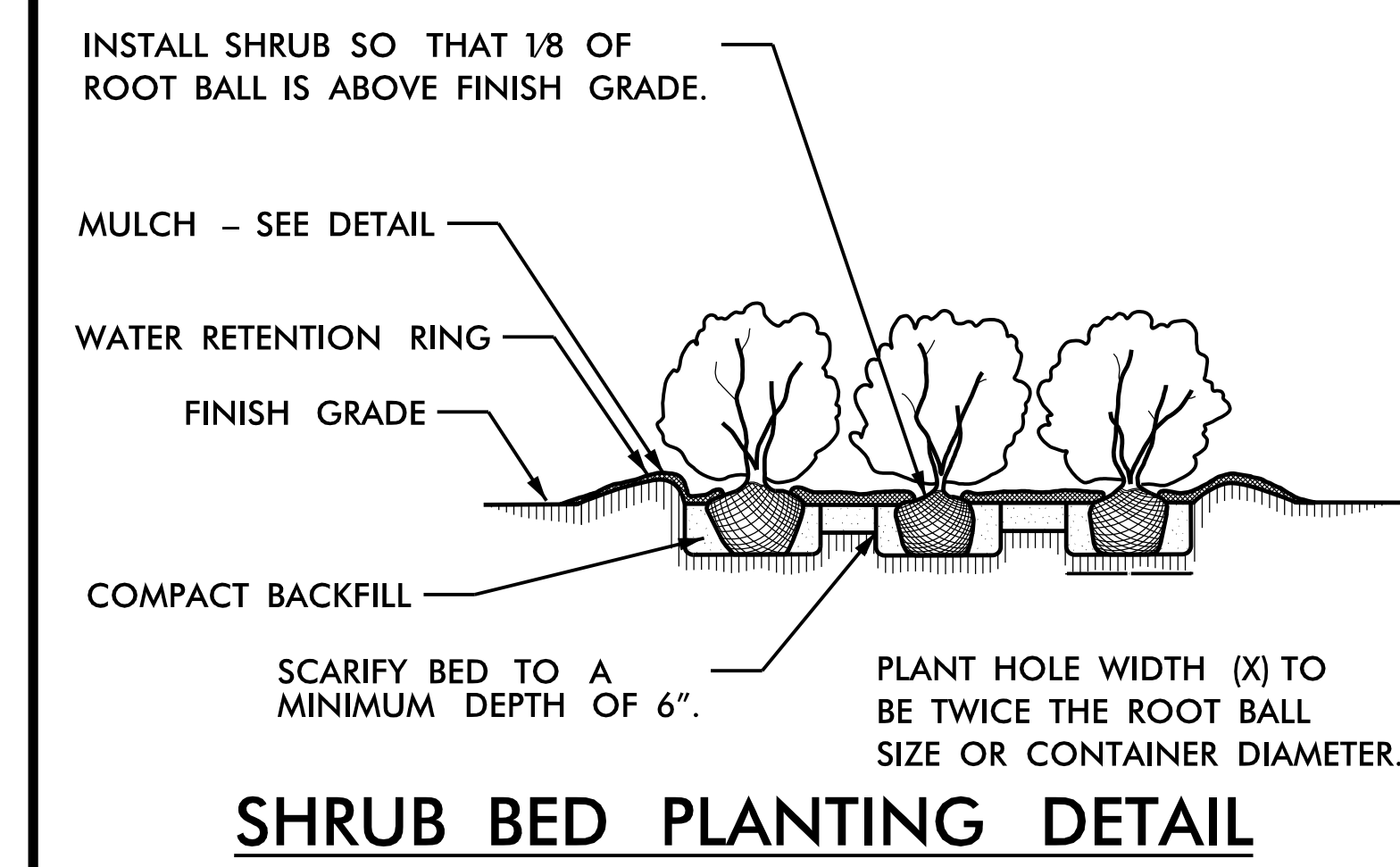


TREE OR SHRUB PLANTING DETAIL
(LEVEL GROUND)

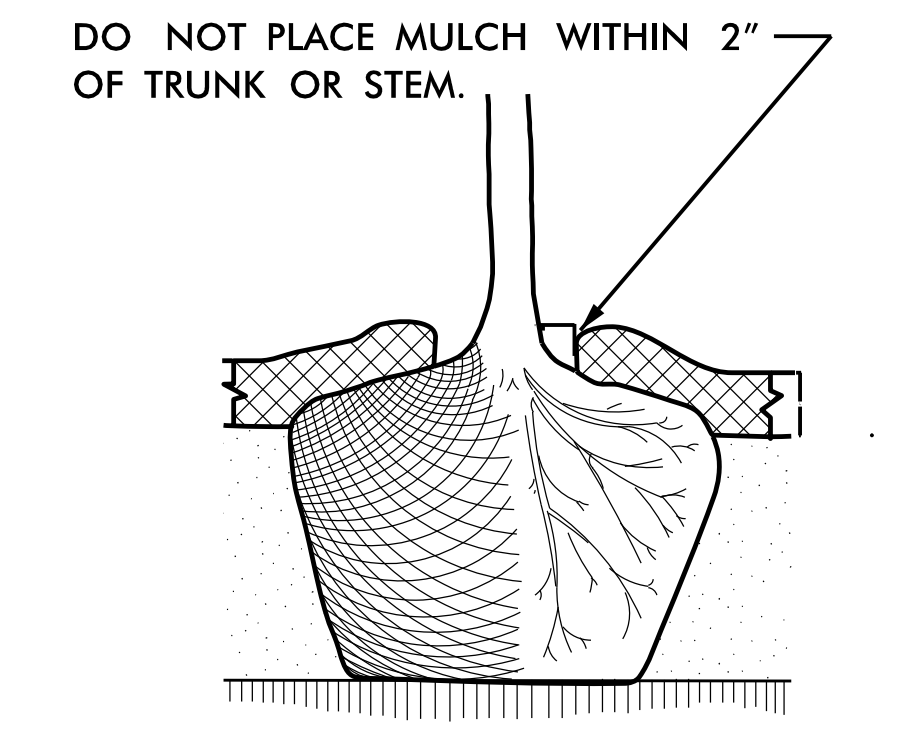
TREE OR SHRUB PLANTING DETAIL
(SLOPING GROUND)



GROUND COVER/BEDDING PLANT DETAIL

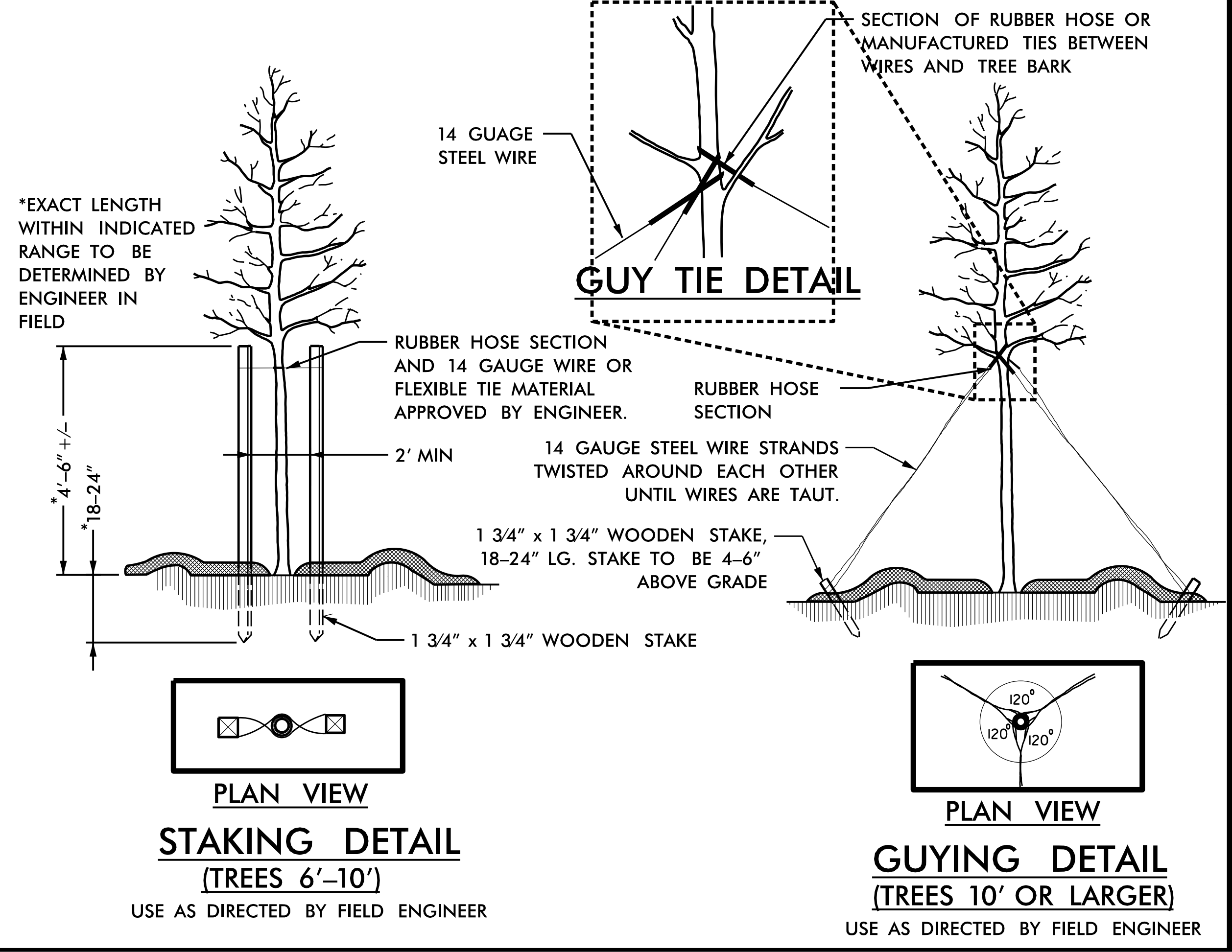


SHRUB BED PLANTING DETAIL



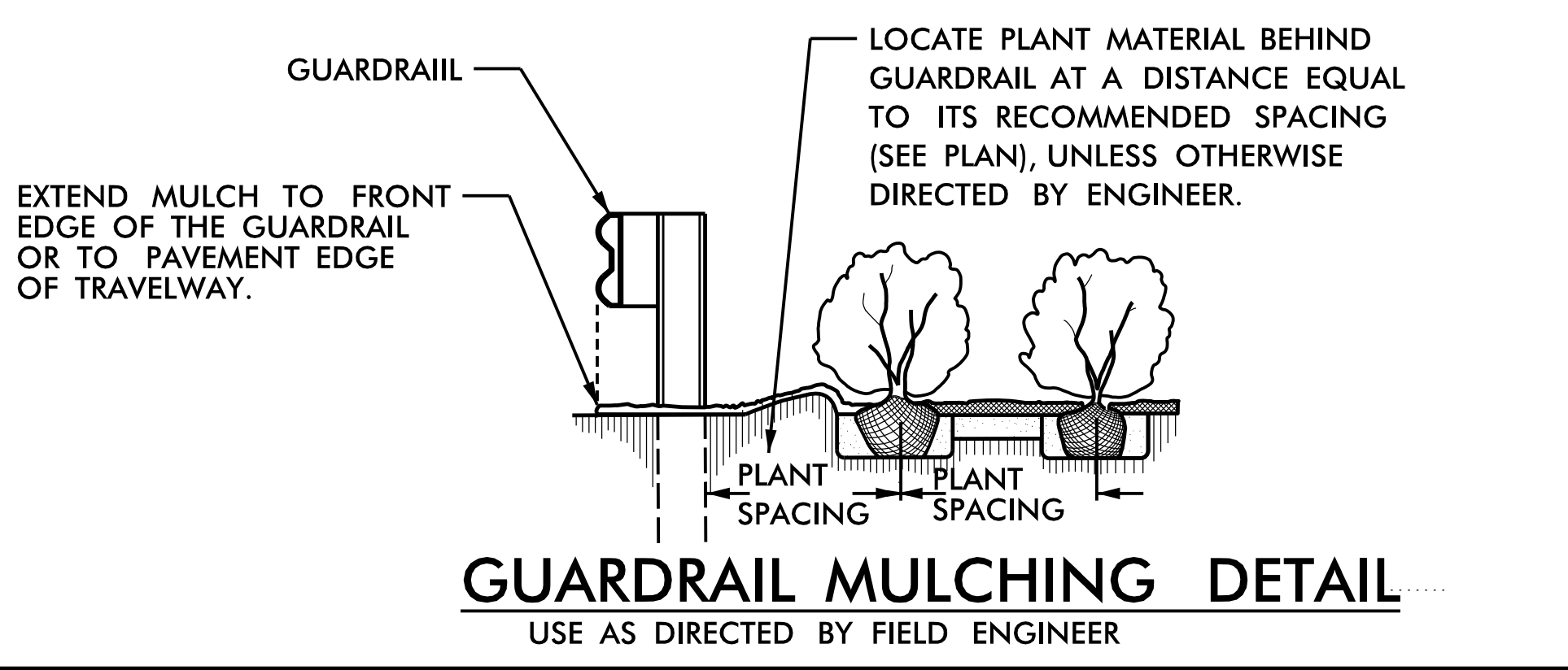
MULCH DETAIL

- 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.

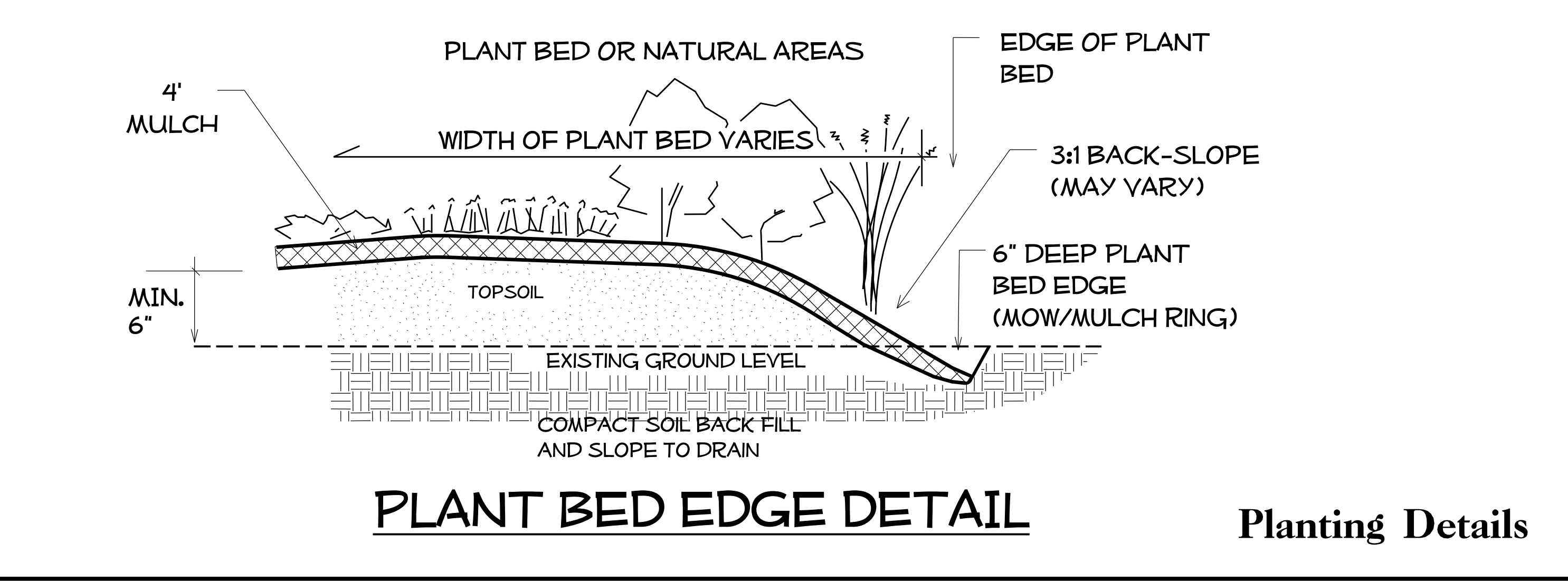


PLAN VIEW
STAKING DETAIL
(TREES 6'-10')
USE AS DIRECTED BY FIELD ENGINEER

PLAN VIEW
GUYING DETAIL
(TREES 10' OR LARGER)
USE AS DIRECTED BY FIELD ENGINEER



GUARDRAIL MULCHING DETAIL
USE AS DIRECTED BY FIELD ENGINEER



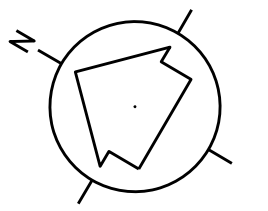
PLANT BED EDGE DETAIL

Planting Details

North Carolina Department of Transportation
 Roadside Environmental Unit
 Landscape Design & Development Section

PROJECT TITLE:
Holden Beach Bridge
Brunswick County

Plans Drawn By:
Kyle Cooper
 Scale:
AS NOTED
 Date:
05 / 27 / 15
 Sheet Description:
 T.I.P. #
 Sheet #
1-2



CLEAN OUT FROM AROUND CATCH BASIN, AND REGRADE TO PREVENT SEDIMENTATION BUILD-UP AND IMPROVE ACCESS FOR RUNOFF.

REMOVE THE GRASS AND SEDIMENT BUILD-UP TO EXPOSE THE EXISTING CURB AND GUTTER.

FIBER OPTICS BOX

REMOVE EXISTING PALM

VENT PIPE
OLD TELEPHONE CABLE BOX

EXISTING BILLBOARD

RESHAPE THE BED LINE ALONG THE ACCESS RD. TO CREATE A MORE DEFINITIVE EDGE.

REMOVE ALL EXISTING HOLLIES AND ROOTS.

REMOVE EXISTING PLANT MATERIAL AND ROOTS , AND SPRAY POST-EMERGENT HERBICIDE TO PREPARE FOR NEW PLANT INSTALLATION.

REMOVE ALL EXISTING HOLLIES AND ROOTS

ACCESS RD SW

HOLDEN BEACH RD

VENT PIPE

CEDAR LANDING RD

FIX THE EXISTING RUTS CREATED FROM THE WATER RUNOFF BY REGRADING THE AREA AND PREPARE FOR NEW PLANT BED.

REMOVE EXISTING PLANT MATERIAL AND ROOTS AND SPRAY POST-EMERGENT HERBICIDE TO PREPARE FOR NEW PLANT INSTALLATION.

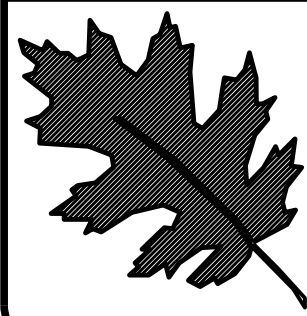
REPAIR THE AREA THAT SUFFERED A SOIL SLIDE BY GRADING THE SOIL BACK TO ITS PROPER LOCATION AND COMPACTING IT. THE AREA MAY REQUIRE EROSION CONTROL NETTING AND STAKING BEFORE NEW PLANT MATERIAL IS INSTALLED.

KEY	
	AREA OF INTEREST
	CATCH BASIN
	EX. PLANT MATERIAL
	SEWER CAP
	SEWER LINE
	UTILITY LINE
	UTILITY POLE
	UTILITY BOX
	WATER LINE

NOTE: PLEASE FOLLOW DIRECTIONS OF ROADSIDE DIVISION ENGINEER
*ALL PLANT BED LAYOUTS AND/OR CHANGES MUST BE APPROVED BY THE ROADSIDE ENGINEER BEFORE PLANTING.



*****SYSTEMS*****
*****SUBSERIALS*****
*****GNS*****



NCDOT - ROADSIDE ENVIRONMENTAL UNIT
LANDSCAPE DESIGN & DEVELOPMENT
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/)

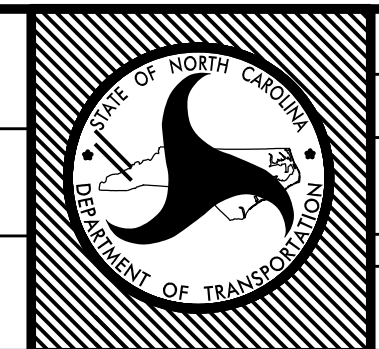
HOLDEN BEACH BRIDGE
BRUNSWICK COUNTY
CONTRACT #: 3703.3.44

REV. DESIGNER

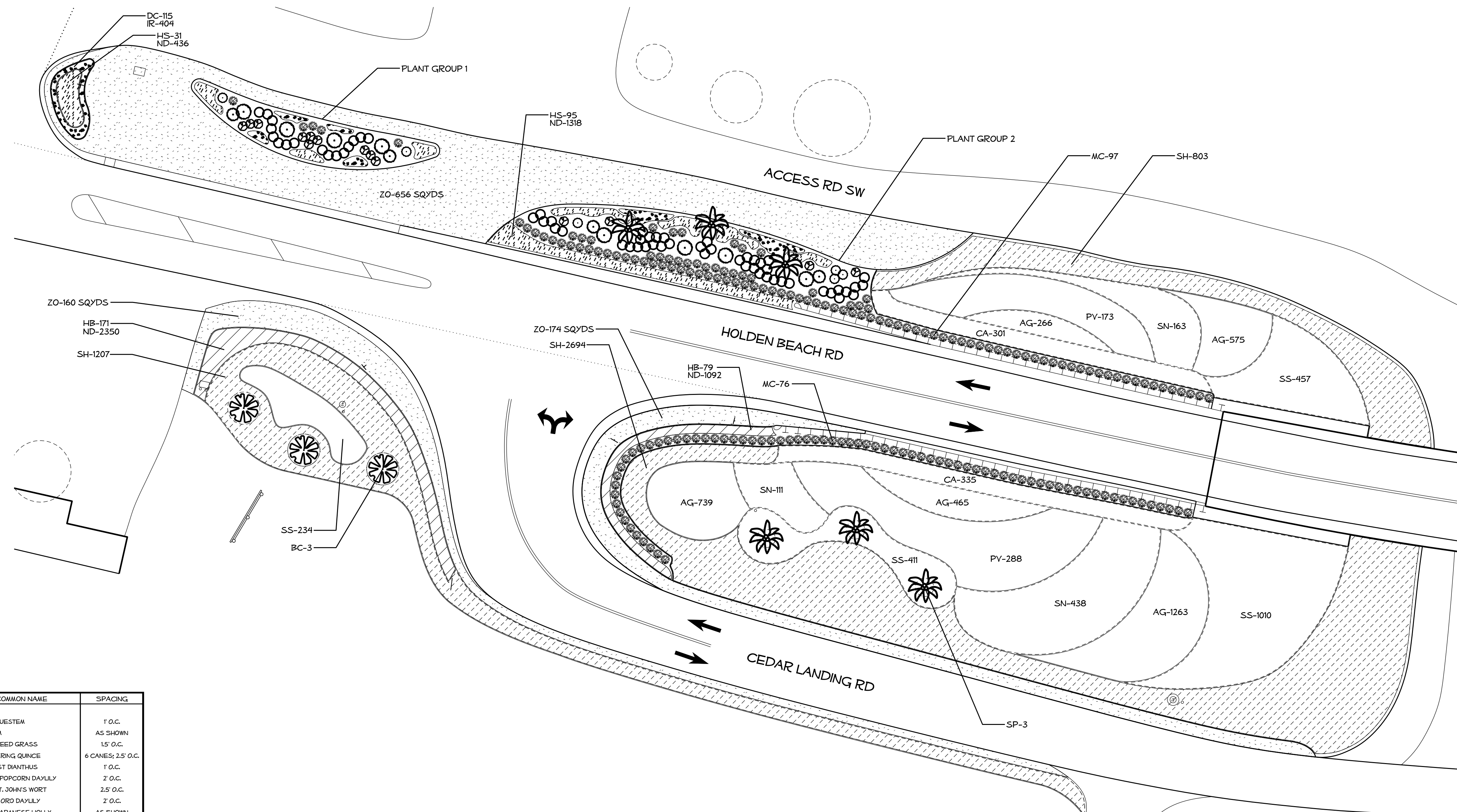
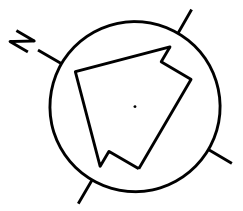
Kyle Cooper

PREL. DESIGN DATE:	MARCH 2015
CHECKED BY & DATE:	B. MINTER
FINAL DESIGN DATE:	MAY 27, 2015

DEMOLITION PLAN
LANDSCAPE PLAN SHEET



T.I.P. #	
WBS #	3703.3.44
FED I.D. #	
SHEET NO. / TOTAL SHEET NO.	L-3 / 8

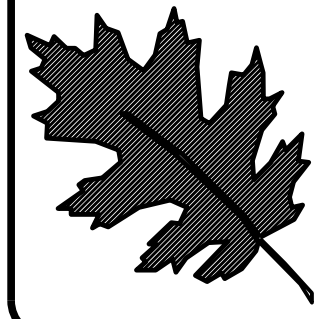


KEY	BOTANICAL NAME	COMMON NAME	SPACING
AG	ANDROPOGON GERARDII 'RED OCTOBER' PPAF	RED RIG BLUESTEM	1' O.C.
BC	RUTA CAPITATA	PINDO PALM	AS SHOWN
CA	CALAMAGROSTIS X ACUTIFLORA KARL FOERSTER	FEATHER REED GRASS	1.5' O.C.
CT	CHAENOMELES SPECIOSA 'TEXAS SCARLET'	RED FLOWERING QUINCE	6 CANES; 2.5' O.C.
DC	DIANTHUS 'CORAL REEF'	SCENT FIRST DIANTHUS	1' O.C.
HB	HEMEROCALLIS 'BUTTERED POPCORN'	BUTTERED POPCORN DAFFILY	2' O.C.
HH	HYPERICUM X 'HIDCOTE'	HIDCOTE ST. JOHN'S WORT	2.5' O.C.
HS	HEMEROCALLIS 'STELLA DE ORO'	STELLA DE ORO DAFFILY	2' O.C.
IH	ILEX CRENATA 'HELLER'	HELLER'S JAPANESE HOLLY	AS SHOWN
IR	IRIS RETICULATA	DWARF DUTCH IRIS	4/SQFT
IS	ILEX CRENATA 'SOFT TOUCH'	SOFT TOUCH COMPACT HOLLY	AS SHOWN
MC	MUHLENBERGIA CAPILLARIS	PINK MUHLY GRASS	3' O.C.
ND	NARCISSUS 'DUTCH MASTER'	DUTCH MASTER TRUMPET DAFFODIL	4/SQFT
PV	PANICUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCHGRASS	2.5' O.C.
SH	SPOROBOLUS HETEROLEPIS 'TARA'	DWARF PRAIRIE DROPSEED	1.5' O.C.
SN	SORGHASTRUM NUTANS	INDIAN GRASS	2' O.C.
SP	SABAL PALMETTO	CABBAGE PALMETTO	AS SHOWN
SS	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1.5' O.C.
ZO	ZOYSIA SP. (100)	ZOYSIA	AS SHOWN

NOTE: PLEASE FOLLOW DIRECTIONS OF ROADSIDE DIVISION ENGINEER
 *ALL PLANT BED LAYOUTS AND/OR CHANGES MUST BE APPROVED BY THE ROADSIDE ENGINEER BEFORE PLANTING.



*****GINS*****



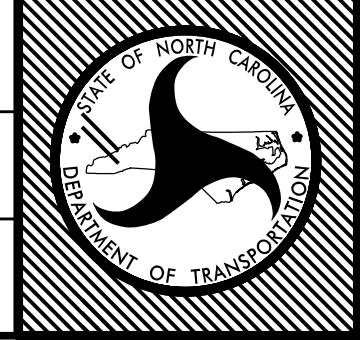
NCDOT - ROADSIDE ENVIRONMENTAL UNIT
 LANDSCAPE DESIGN & DEVELOPMENT
 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557
 PH: 919-707-2935 FAX: 919-715-2554
[HTTP://WWW.NCDOT.ORG/DOH/OPERATIONS/DP_CHIEF_ENG/ROADSIDE/](http://www.ncdot.org/DOH/OPERATIONS/DP_CHIEF_ENG/ROADSIDE/)

HOLDEN BEACH BRIDGE
 BRUNSWICK COUNTY
 CONTRACT #: 3703.3.44

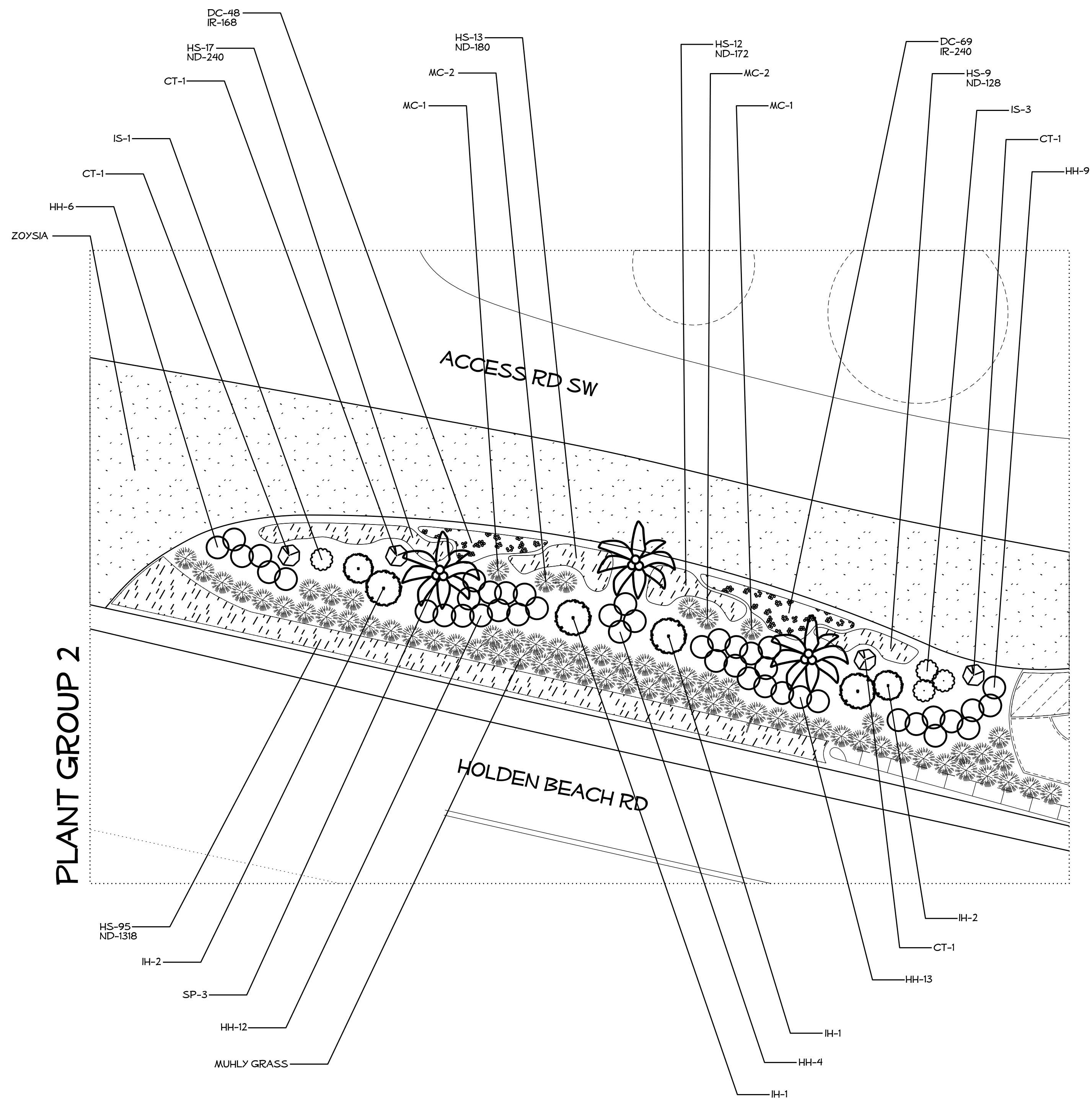
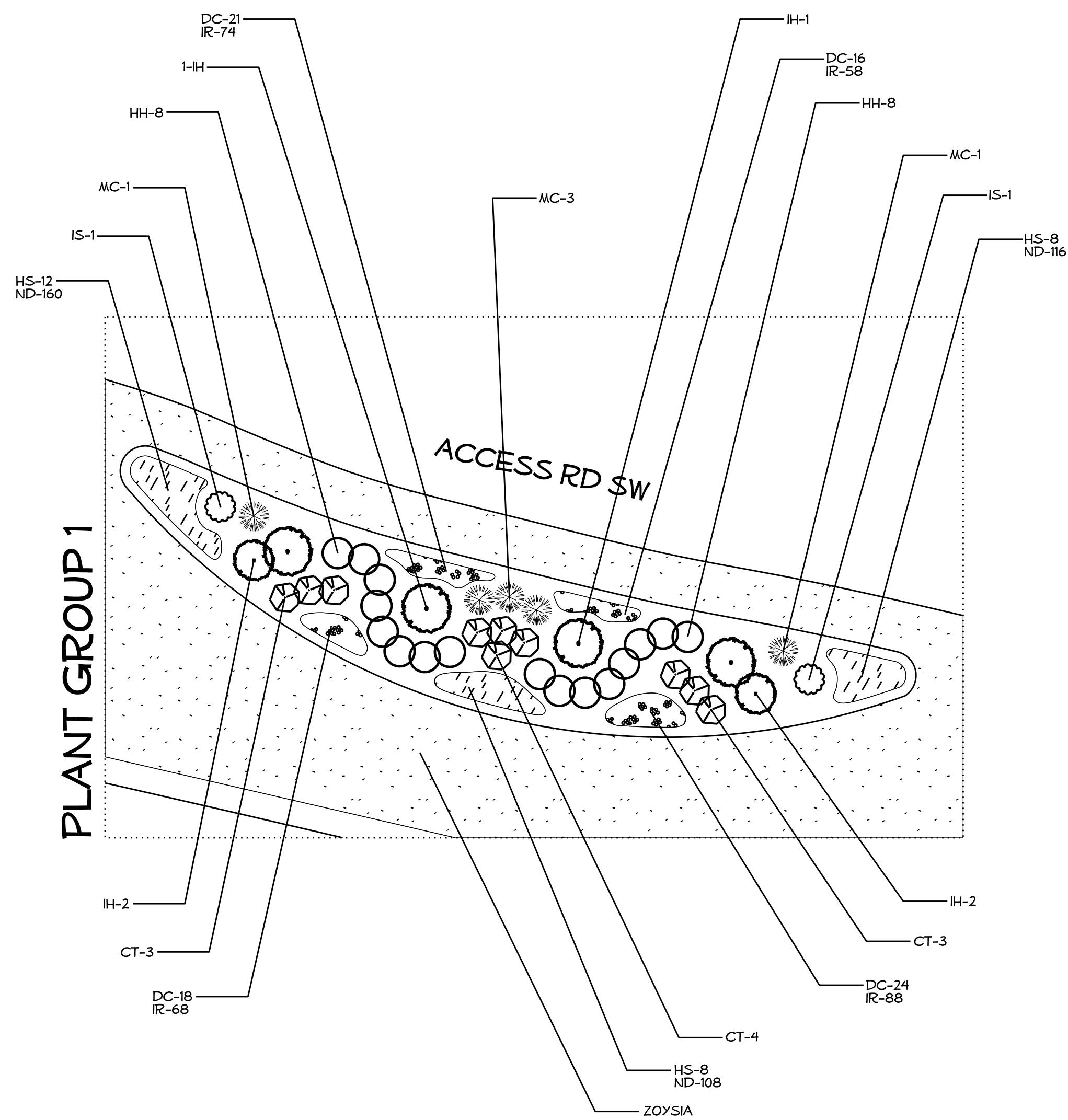
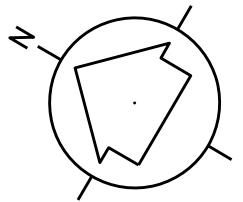
REV. DESIGNER
Kyle Cooper

SHEET DESCRIPTION:
 PREL. DESIGN DATE: MARCH 2015
 CHECKED BY & DATE: B. MINTER
 FINAL DESIGN DATE: MAY 27, 2015

PLANTING PLAN
 LANDSCAPE PLAN SHEET



T.I.P. #
 WBS # 3703.3.44
 FED I.D. #
 SHEET NO: L-4 TOTAL SHEET NO: 8



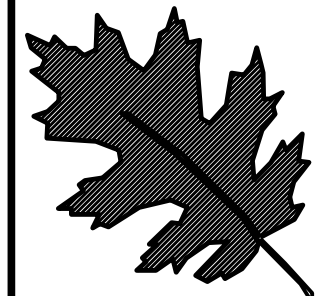
KEY	BOTANICAL NAME	COMMON NAME	SPACING
AG	ANDROPOGON GERARDII 'RED OCTOBER' PPAF	RED BIG BLUESTEM	1' O.C.
BC	BUTIA CAPITATA	PINDO PALM	AS SHOWN
CA	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	FEATHER REED GRASS	1.5' O.C.
CT	CHAENOMELES SPECIOSA 'TEXAS SCARLET'	RED FLOWERING QUINCE	6 CANES; 2.5' O.C.
DC	DIANTHUS 'CORAL REEF'	SCENT FIRST DIANTHUS	1' O.C.
HB	HEMEROCALLIS 'BUTTERED POPCORN'	BUTTERED POPCORN DAYLILY	2' O.C.
HH	HYPERICUM X 'HIDCOTE'	HIDCOTE ST. JOHN'S WORT	2.5' O.C.
HS	HEMEROCALLIS 'STELLA DE ORO'	STELLA DE ORO DAYLILY	2' O.C.
IH	ILEX CRENATA 'HELLER'	HELLER'S JAPANESE HOLLY	AS SHOWN
IR	IRIS RETICULATA	DWARF DUTCH IRIS	4/SQFT
IS	ILEX CRENATA 'SOFT TOUCH'	SOFT TOUCH COMPACT HOLLY	AS SHOWN
MC	MUHLENBERGIA CAPILLARIS	PINK MUHLY GRASS	3' O.C.
ND	NARCISSUS 'DUTCH MASTER'	DUTCH MASTER TRUMPET DAFFODIL	4/SQFT
PV	PANICUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCHGRASS	2.5' O.C.
SH	SPOROBOLUS HETEROLEPIS 'TARA'	DWARF PRAIRIE DROPSEED	1.5' O.C.
SN	SORGHASTRUM NUTANS	INDIAN GRASS	2' O.C.
SP	SABAL PALMETTO	CABBAGE PALMETTO	AS SHOWN
SS	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	1.5' O.C.
ZO	ZOYSIA SP. (+10%)	ZOYSIA	AS SHOWN



NOTE: PLEASE FOLLOW DIRECTIONS OF
ROADSIDE DIVISION ENGINEER

*ALL PLANT BED LAYOUTS AND/OR CHANGES MUST BE
APPROVED BY THE ROADSIDE ENGINEER BEFORE
PLANTING.

*****SYSTEMS*****
*****GENERAL ACCESS*****



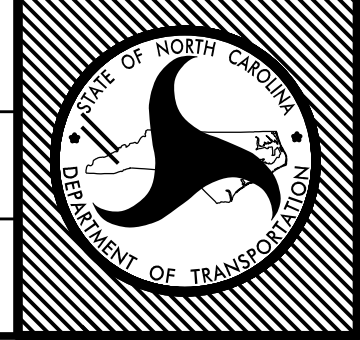
NCDOT - ROADSIDE ENVIRONMENTAL UNIT
LANDSCAPE DESIGN & DEVELOPMENT
1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557
PH: 919-707-2935 FAX: 919-715-2554
HTTP://WWW.NCDOT.ORG/DOH/OPERATIONS/DP_CHIEF_ENG/ROADSIDE/

HOLDEN BEACH BRIDGE
BRUNSWICK COUNTY
CONTRACT #: **3703.3.44**

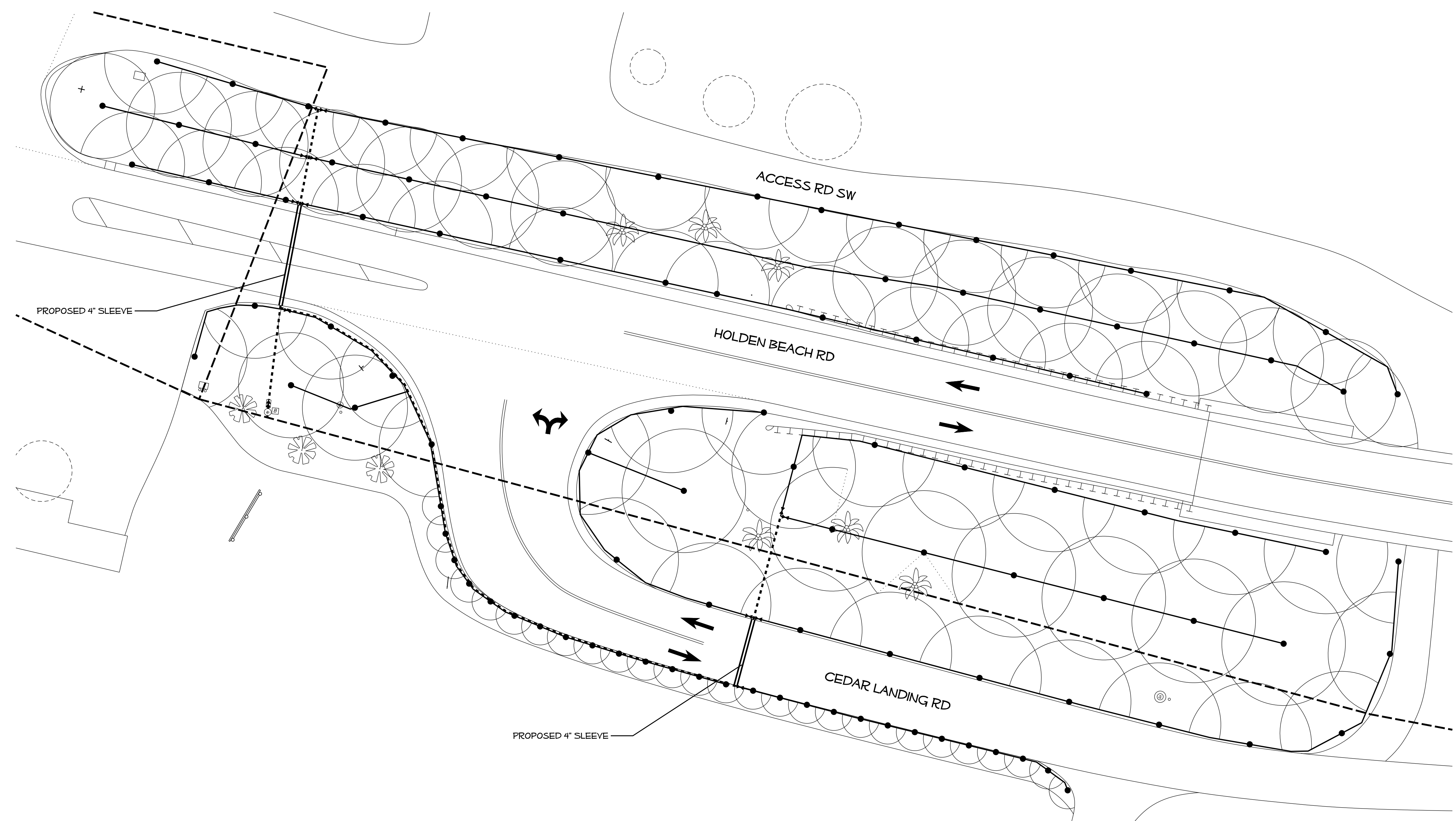
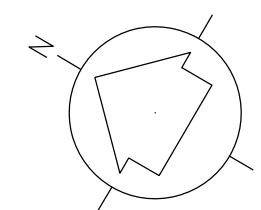
REV. DESIGNER
Kyle Cooper

SHEET DESCRIPTION:
PREL. DESIGN DATE: **MARCH 2015**
CHECKED BY & DATE: **B. MINTER**
FINAL DESIGN DATE: **MAY 27, 2015**

PLANT GROUPINGS
LANDSCAPE PLAN SHEET



T.I.P. #
WBS # **3703.3.44**
FED I.D. #
SHEET NO: **L-5** TOTAL SHEET NO: **8**



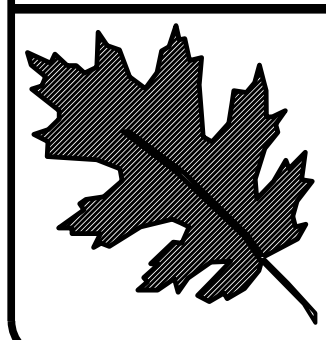
KEY

	SPRAYER HEAD LOCATION
	SPRAYER HEAD LOCATION
	EXISTING 6" MAIN LINE
	PROPOSED 2" LINE
	PROPOSED 1" LATERAL LINE
	SLEEVE LOCATIONS

***NOTE:**
 - IRRIGATION PLAN IS JUST A GUIDE. FIELD ADJUSTMENTS MAY BE REQUIRED.
 - PLEASE FOLLOW DIRECTIONS OF THE ROADSIDE ENGINEER.
 - DO NOT ALLOW FOR HEADS TO DIRECTLY SPRAY AROUND PALM TREES.



\$\$\$\$\$TIMES\$\$\$\$\$
 \$\$\$SERVING\$\$\$



NCDOT - ROADSIDE ENVIRONMENTAL UNIT
 LANDSCAPE DESIGN & DEVELOPMENT
 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/)

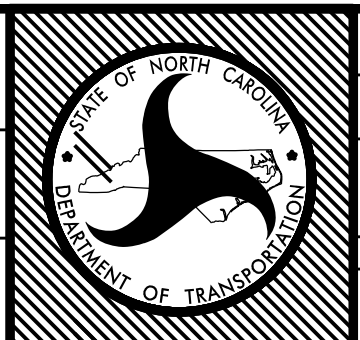
HOLDEN BEACH BRIDGE
BRUNSWICK COUNTY
 CONTRACT #: **3703.3.44**

REV. DESIGNER
Kyle Cooper

SHEET DESCRIPTION:

PREL. DESIGN DATE:	MARCH 2015
CHECKED BY & DATE:	B. MINTER
FINAL DESIGN DATE:	MAY 27, 2015

IRRIGATION PLAN
 LANDSCAPE PLAN SHEET



T.I.P. #	
WBS #	3703.3.44
FED.ID. #	
SHEET NO:	L-6
TOTAL SHEET NO:	8

IRRIGATION NOTES & LEGEND

*IRRIGATION CONTRACTOR MUST BE LICENSED BY THE BOARD UNDER CHAPTER (2008-177, S.1; 2013-383, S.3)

*ALL MATERIALS MAY BE OF COMPARABLE MANUFACTURE AND PERFORMANCE TO BRAND NAMED

PIPE

MINIMUM DEPTH OF COVER OVER LATERAL PIPING TO BE 12" LATERAL PIPING SIZING SCHEDULE SUMMATION OF GALLONAGE DEMAND ON THE PARTICULAR BRANCHES 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 THAT PRESSURE AS REPORTED IN THE TORO 2010 IRRIGATION PRODUCTS CATALOG. PIPE SIZES FOR THE LATERALS SHALL BE AS FOLLOWS:
 - ZERO TO FIFTEEN GPM ACCUMULATED FLOW USE 1" PR 200 PVC PIPE
 - GREATER THAN FIFTEEN UP TO THIRTY-FIVE GPM USE 1-1/2" PR 200 PVC PIPE
 - FRICTION LOSS ALLOWANCES FOR THIS PROJECT HAVE BEEN DETERMINED USING THE ABOVE FLOW RANGES AND DEMANDS.

- PR 200 MAIN LINE PIPING.
 - SIZE OF PIPE TO BE 1-1/2" IN MINIMUM
 - DEPTH OF COVER MAINLINE PIPING TO BE 18"
 - PIPING SHALL BE PR 200 SOLVENT WELD PVC PIPE WITH SCHEDULE 40 PVC SOLVENT WELD FITTING UNLESS OTHERWISE NOTED.
 - ALL PIPING RUNS SHALL BE "SNAKED" IN THE TRENCH DURING INSTALLATION TO PREVENT EXCESSIVE STRAIN DUE TO THERMAL EXPANSION OR CONTRACTION.
 - THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID DAMAGING PLANTINGS (INCLUDING ROOTS) DURING INSTALLATION OF THE IRRIGATION SYSTEM AND SHALL COORDINATE HIS EFFORTS WITH THE LANDSCAPE CONTRACTOR SO AS TO OPTIMIZE THE EFFICIENCY AND THE AESTHETIC QUALITY OF THE INSTALLATION.

DRIP IRRIGATION

- DRIP IRRIGATION IS TO BE TORO NETAFIM TECHLINE "P.E. TUBING (OR COMPARABLE MANUFACTURE AND PERFORMANCE) , 18" EMITTER SPACING INTERVALS AT 1 GPM EMITTERS INLINE. APPROVED INLINE EMITTER DRIPLINE /TECHLINE TO BE INSTALLED UNDER MULCH IN LANDSCAPE AREAS AS SHOWN ON THE IRRIGATION PLAN.
 - LOCATION OF DRIP VALVE ASSEMBLY WHICH INCLUDES 250 SERIES REMOTE CONTROL VALVE WITH FLOW CONTROL FEATURE, INLINE EMITTER DRIPLINE /TECHLINE 200 MESH FILTER #DF150-140, AND INLINE EMITTER DRIPLINE /TECHLINE PRESSURE REGULATOR #PVR15045. FLOW CONTROL VALVES SHALL BE AS NOTED ON BOXES WITH LIDS MOUNTED AT GRADE LEVEL.
 - MIN. 2 EMITTERS PER SHRUB AND 3 EMITTERS PER TREE.

VALVES:

- MAY BE OF COMPARABLE MANUFACTURE AND PERFORMANCE TO BRAND NAMED

LOCATION OF ELECTRIC 24 V.A.C. REMOTE CONTROL VALVE WITH FLOW CONTROL FEATURE (MODEL #TPVF100DC SOLENOIDS.)
 - ALL IN-LINE 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, TWO 1" VALVES OR ONE, 1-1/2" SHALL BE INSTALLED IN CARSON MODEL #1419-1 BOX WITH #1419-2 COVER.

BACKFLOW PREVENTION -

- REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY WHICH 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.

WATER SUPPLY/METER

- THE METER SHALL BE THE OWNER'S RESPONSIBILITY.
 - THE METER IS 1" IN SIZE. SINCE THE WATER SUPPLY FOR THE SYSTEM SHALL BE POTABLE WATER, THE CONTRACTOR WILL BE REQUIRED TO INSTALL 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 75 PSI AT THE BASE OF THE HEAD FOR OPTIMUM PERFORMANCE OF THE IRRIGATION SYSTEM.

CONTROLLER:

- MAY BE OF COMPARABLE MANUFACTURE AND PERFORMANCE TO BRAND NAMED

THE CONTROLLER SHALL BE CUSTOM COMMAND (DDCWP-6-9V SERIES) SOLID STATE UNIT. THE CONTROLLER SHALL INCORPORATE 24 V.A.C. APPROXIMATE LOCATION APPROVED BY THE NCDOT ENGINEER.
 - BATTERY OPERATED CONTROLLER IS TO BE PLACED IN CARSON VALVE BOXES MODEL #910-1 VALVE WITH #910-2 COVER.
 - ALL 120 VAC WIRING SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE ELECTRICAL CODE REQUIREMENTS.
 - THE CONTRACTOR SHALL INSTALL A WIRED RAIN SENSOR (COMPATIBLE MAKE/MODEL AS THE CONTROLLER).

SLEEVING

SLEEVES SHALL BE 3" PVC FOR 24 VAC WIRING PER ELECTRICAL CODE. THE IRRIGATION CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE IRRIGATION SYSTEM WITH THE LANDSCAPE CONTRACTOR TO INSURE PROPER INSTALLATION OF BOTH THE IRRIGATION SYSTEM WITH THE LANDSCAPE AND HARDSCAPE.

24 VAC CONTROL WIRING

ALL 24 V.A.C. CONTROL WIRING SHALL BE SINGLE STRAND COPPER WIRE WITH POLYETHYLENE PE DIRECT BURIAL INSULATION RATED FOR 300 V.A.C. VALVE "COMMON" WIRES SHALL HAVE WHITE INSULATION WHILE VALVE "HOT" WIRES SHALL HAVE INSULATION RED IN COLOR. THE "COMMON" WIRES SHALL BE #14 AWG. "HOT" WIRES SHALL BE #14 AWG. VALVE WIRING SHALL FOLLOW MAINLINE PIPING WHERE FEASIBLE AND SHALL BE LAID IN A COMMON TRENCHLINE WITH THE MAINLINE PIPING AND IN THE BOTTOM OF THE TRENCH. 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 SAID SPLICES 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 OCCASIONAL EXPANSION LOOPS TO PREVENT EXCESSIVE STRAIN DUE TO THERMAL CONTRACTION.
 - ALL WIRE SPLICES SHALL BE MADE USING UL APPROVED DIRECT BURIAL CONNECTORS AND WATERPROOFING MATERIALS. ALL ELECTRICAL WORK SHALL BE INSTALLED ACCORDING TO CODE.

HEADS:

-MAY BE OF COMPARABLE MANUFACTURE AND PERFORMANCE TO BRAND NAME.

-HUNTER, TORO, OR RAINBIRD SERIES PRO-SPRAY POP-UPS WITH 12" POP-UP SPRINKLER HEAD FITTED WITH PRO ADJUSTABLE 6A, 17A, AND 20A SERIES SPRAY NOZZLE.
 - ALL HEADS WITH A 12" POP-UP STROKE, IF INSTALLED WITH LESS THAN 1/2 OF THE SPRINKLER BODY EXPOSED ABOVE GRADE, SHALL BE INSTALLED ON POLYETHYLENE FLEX SWING JOINTS POLY PIPE FITTED WITH 3/8" INSERT BY 1/2" M.P.T. AND/OR 3/8" INSERT BY 3/4" M.P.T.) ELBOWS. IF GREATER THAN 1/2 OF

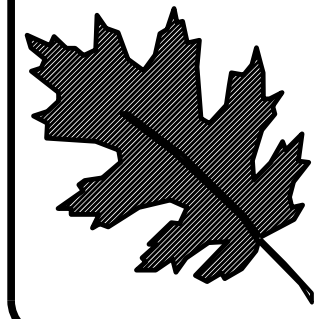
HEADS: CONT.

THE SPRINKLER BODY IS EXPOSED, THEN THE 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 12" POP-UP HEADS ON SHRUB TYPE RISERS, CARE SHALL BE TAKEN TO INSTALL THE HEAD IN SUCH A MANNER THAT 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 11#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#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.

GENERAL NOTES

- PLACES VALVES (BOXES) IN PLANT BEDS WHERE-EVER POSSIBLE.
 - CONTRACTOR IS TO MINIMIZE DISTURBANCE IN SOD AREA (CUT AND REPLACE SOD).
 - PLACE PRESSURE REDUCING VALVE IN DISCREET LOCATION.
 - THE IRRIGATION SYSTEM IS DISPLAYED SCHEMATIC IN NATURE. THE IRRIGATION CONTRACTOR MAY BE REQUIRED TO MAKE MINOR ADJUSTMENTS IN THE FIELD. THESE MINOR ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER BUT SHALL BE MADE ONLY AFTER NOTIFICATION IS MADE TO OWNER (NC DOT).
 - THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE SO THAT HE IS AWARE OF ANY SPECIAL CONDITIONS WHICH EXIST THAT MAY AFFECT HIS BID PROPOSAL AND SHALL HEREAFTER BE RESPONSIBLE FOR ALL COST INCURRED BY HIMSELF IN RELATION TO THE INSTALLATION.
 - ALL IRRIGATION PRODUCTS ARE TO BE TORO, HUNTER, RAINBIRD OR COMPARABLE BRAND (AS APPROVED BY THE ENGINEER).
 - 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.

SYSTEMS
DESIGN
ANALYSIS
CONSTRUCTION



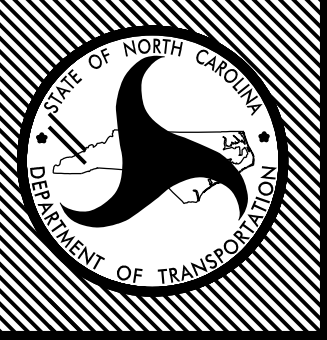
NCDOT - ROADSIDE ENVIRONMENTAL UNIT
 LANDSCAPE DESIGN & DEVELOPMENT
 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557
 PH: 919-707-2935 FAX: 919-715-2554
 HTTP://WWW.NCDOT.ORG/DOH/OPERATIONS/DP_CHIEF_ENG/ROADSIDE/

**HOLDEN BEACH BRIDGE
 BRUNSWICK COUNTY**
 CONTRACT #: **3703.3.44**

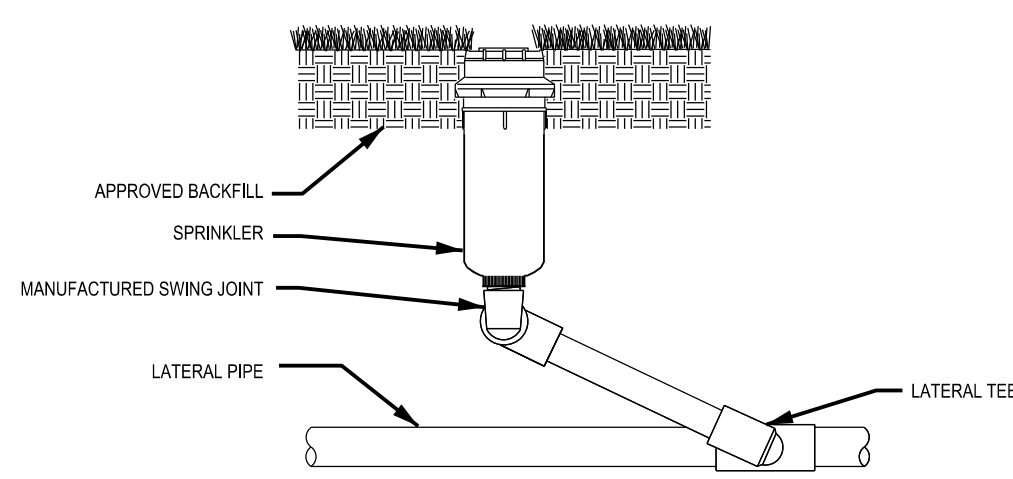
REV. DESIGNER

PREL. DESIGN DATE:	MARCH 2015
CHECKED BY & DATE:	B. MINTER
FINAL DESIGN DATE:	MAY 27, 2015

IRRIGATION SPECS
SPECS. SHEET



T.I.P. #	
WBS #	3703.3.44
FED ID. #	
SHEET NO :	TOTAL SHEET NO :
L-7	8

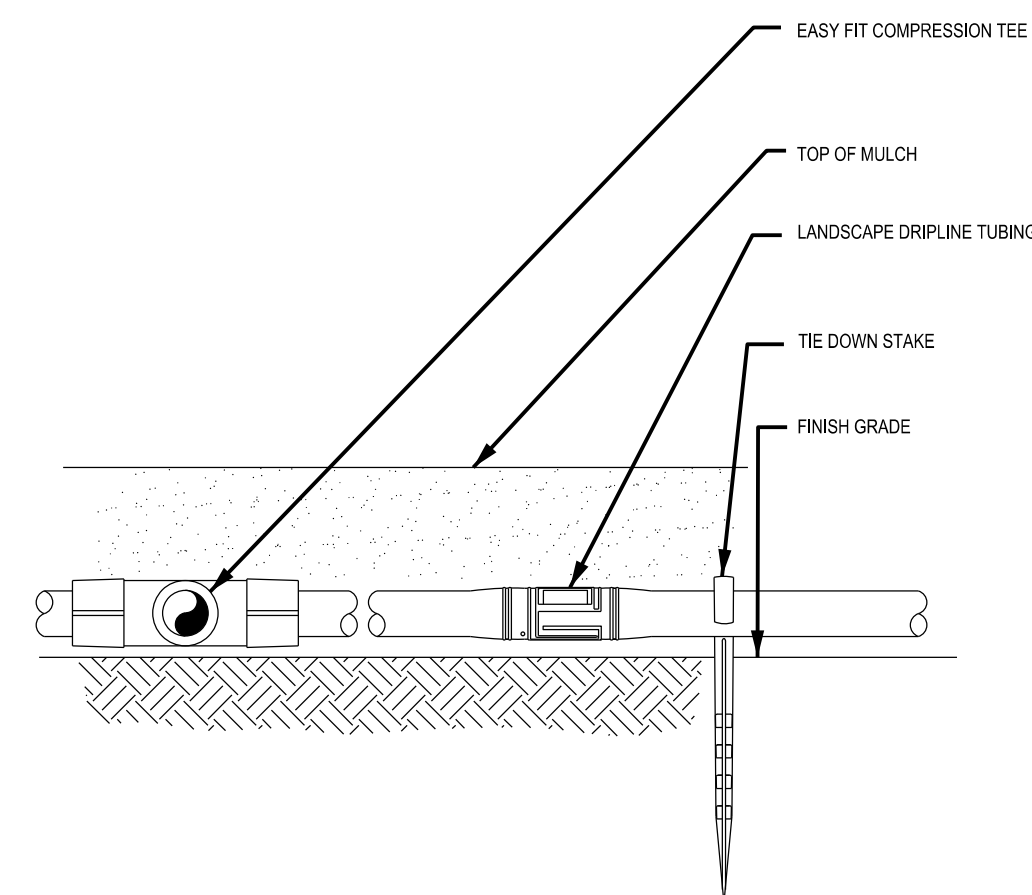


SECTION/ELEVATION
NOT TO SCALE

- SELECT DESIRED OPTION
- SUPER FUNNY PIPE
 - SWING JOINT (SHOWN)
 - RISER

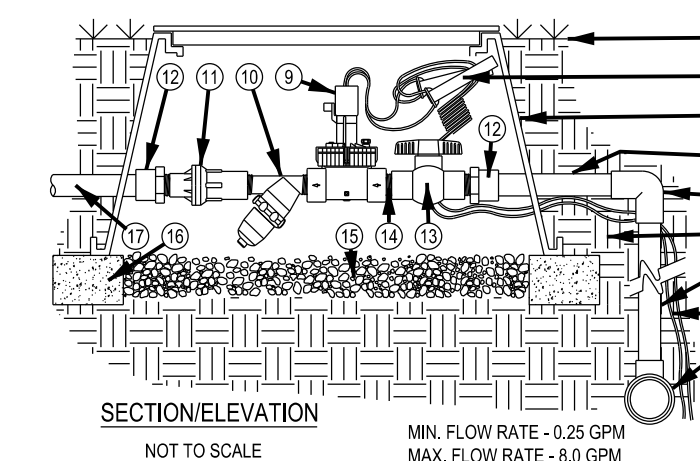
NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWINGS.
3. INSTALL SPRINKLER AT FINISHED GRADE.

LAWN SPRINKLERS: POP-UP (TYP)
SINGLE-STREAM SPRINKLER, SWING JOINT



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

LANDSCAPE DRIPLINE ON GRADE (TYP)
POTABLE SYSTEM (N.T.S.)



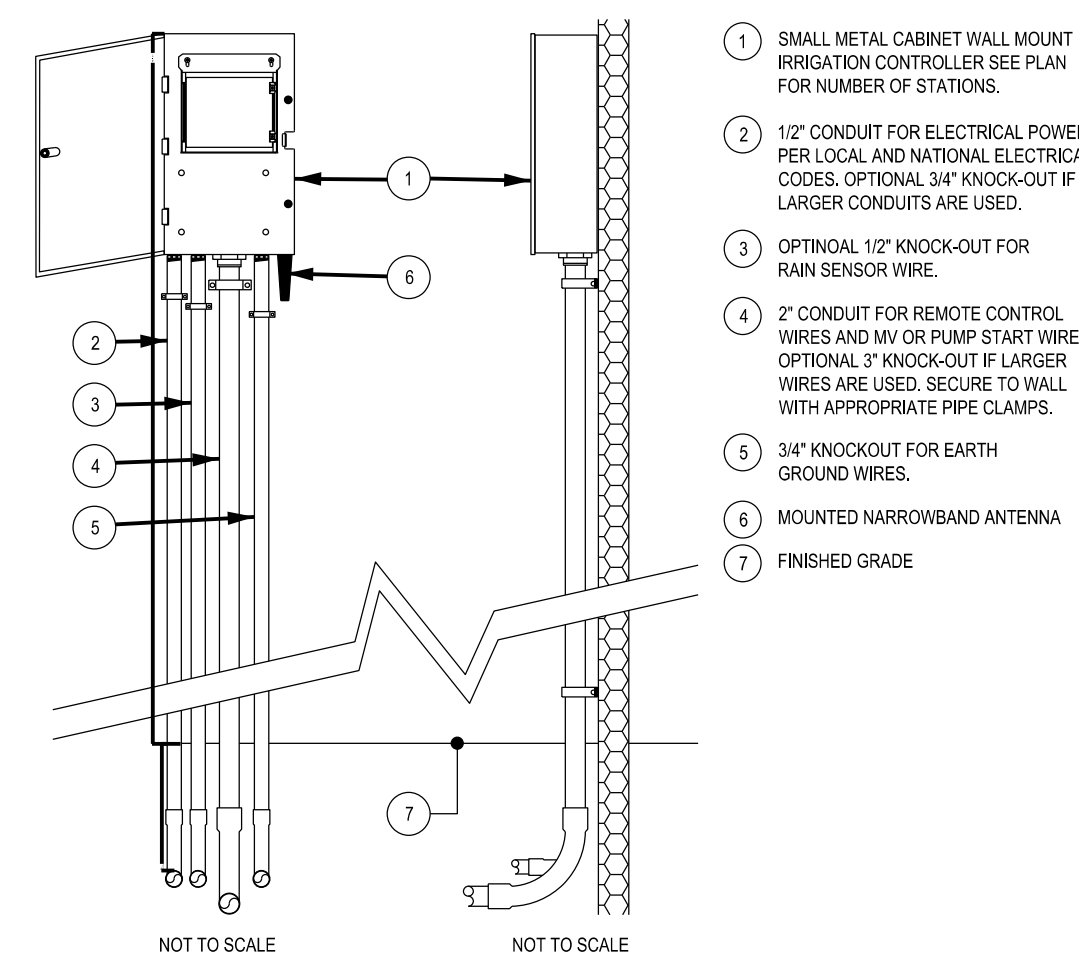
SECTION/ELEVATION
NOT TO SCALE

MIN. FLOW RATE - 0.25 GPM
MAX. FLOW RATE - 8.0 GPM

- LEGEND
- | | |
|------------------------------------|----------------------------------|
| 1. LENGTH AS REQUIRED. | 4. COMMON BRICKS REQUIRED. |
| 5. SCH 40 PVC ELL (SxS). | 17. LATERAL LINE TO DRIP SYSTEM. |
| 6. NATIVE SOIL PER SPECIFICATIONS. | (*) PARTS IN DRIP ZONE KIT. |
| 7. CONTROL WIRES TO CONTROLLER. | |
| 8. PVC MAINLINE FITTING. | |

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

DRIP ZONE KIT (TYP)



NOT TO SCALE

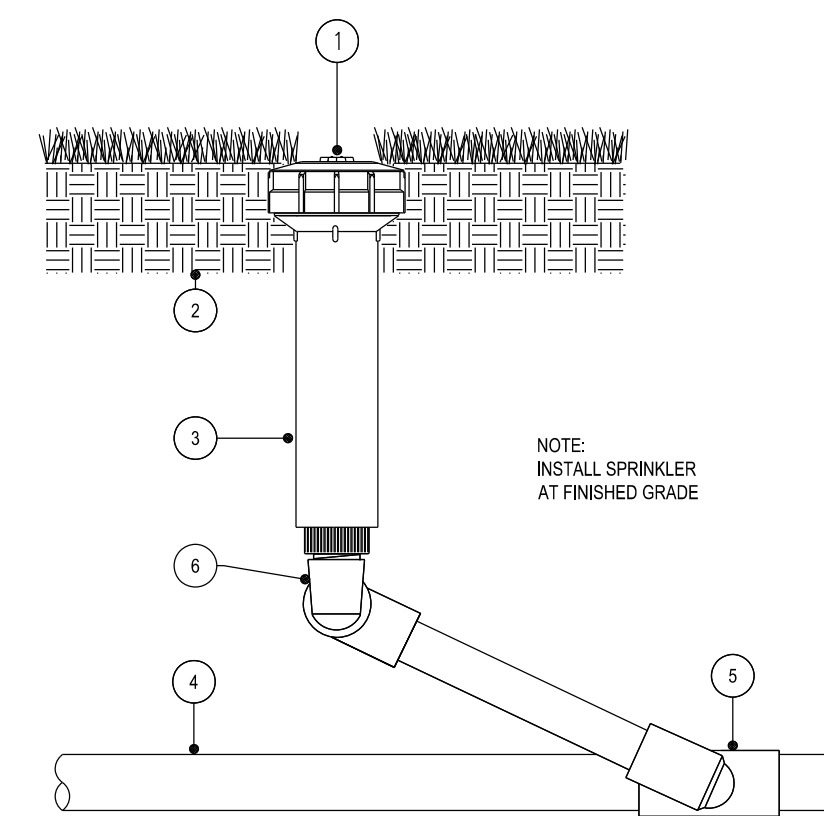
1. SMALL METAL CABINET WALL MOUNT IRRIGATION CONTROLLER SEE PLAN FOR NUMBER OF STATIONS.
2. 1/2" CONDUIT FOR ELECTRICAL POWER PER LOCAL AND NATIONAL ELECTRICAL CODES. OPTIONAL 3/4" KNOCK-OUT IF LARGER CONDUITS ARE USED.
3. OPTIONAL 1/2" KNOCK-OUT FOR RAIN SENSOR WIRE.
4. 2" CONDUIT FOR REMOTE CONTROL WIRES AND MW OR PUMP START WIRES. OPTIONAL 3" KNOCK-OUT IF LARGER WIRES ARE USED. SECURE TO WALL WITH APPROPRIATE PIPE CLAMPS.
5. 3/4" KNOCK-OUT FOR EARTH GROUND WIRES.
6. MOUNTED NARROWBAND ANTENNA
7. FINISHED GRADE

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

CONTROLLER WALL MOUNT (TYP)
WALL-MOUNT CONTROLLER, METAL

LEGEND

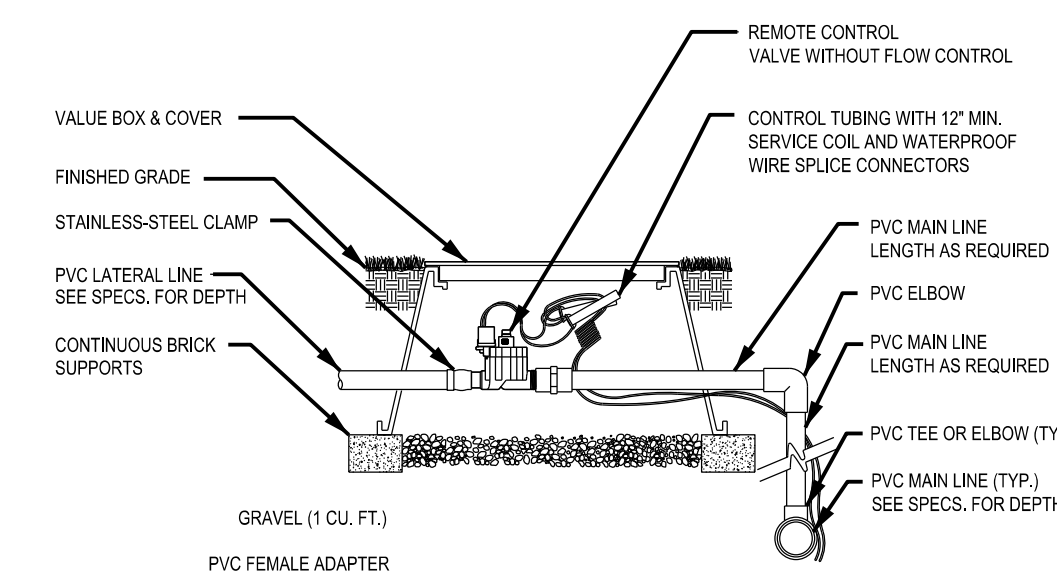
- | |
|------------------------------------|
| 1. MPR PLUS NOZZLE (SIZE PER PLAN) |
| 2. APPROVED BACKFILL |
| 3. SPRINKLER |
| 4. LATERAL PIPE |
| 5. LATERAL TEE |
| 6. MANUFACTURED SWING JOINT |



SECTION/ELEVATION
NOT TO SCALE

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

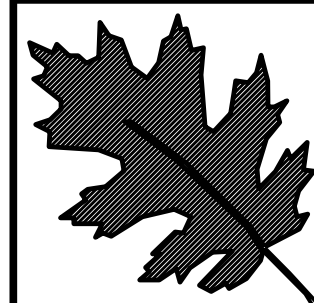
ROTOR SPRINKLER (TYP)
4 INCH POP-UP (SWING JOINT)



SECTION/ELEVATION
NOT TO SCALE

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

VALVES & BOX (TYP)
1" PLASTIC VALVE, MAB



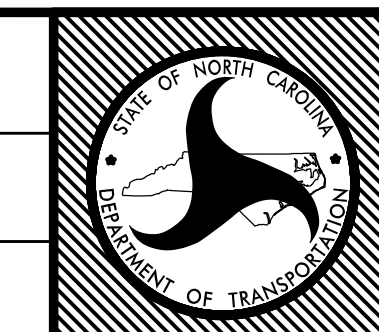
NCDOT - ROADSIDE ENVIRONMENTAL UNIT
LANDSCAPE DESIGN & DEVELOPMENT
1557 MAIL SERVICE CENTER, RALEIGH, NC 27699-1557
PH: 919-707-2920 FAX: 919-715-2554
HTTP://WWW.NCDOT.ORG/DOH/OPERATIONS/DP_CHIEF_ENG/ROADSIDE/

HOLDEN BEACH BRIDGE
BRUNSWICK COUNTY
CONTRACT #: 3703.3.44

REV. DESIGNER
KYLE COOPER

SHEET DESCRIPTION:
PREL. DESIGN DATE: MARCH 2015
CHECKED BY & DATE: B. MINTER
FINAL DESIGN DATE: MAY 27, 2015

IRRIGATION DETAILS
SPECS. SHEET



T.I.P. #
WBS # 3703.3.44
FED I.D. #
SHEET NO: L-8
TOTAL SHEET NO: 8