CITY OF WILSON: DOUGLAS STREET GEOTHERMAL PERMEABLE PAVEMENT SYSTEM

INDEX

PROJECT CONTACTS

WILSON GEOTHERMAL
PERMEABLE PAVEMENT SYSTEM
114 DOUGLAS ST S
WILSON, NC 27893

PLAN TYPE: COVER SHEET
SHEET NUMBER: 1 OF 10

NCSU BAE
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NORTH CAROLINA LAND & WATER FUND

WILSON NORTH CAROLINA

PROJECT NAME: WILSON DOUGLAS ST
SCALE: AS NOTED
DATE: 02-05-2025

DRAWN:
DESIGN:
CHECK:
APPROVED:

PROJECT # 536589
PHASE # 02925

Existing Layout Plan

0 20 40 Feet

WILSON GEOTHERMAL
PERMEABLE PAVEMENT SYSTEM
114 DOUGLAS ST S
WILSON, NC 27893

PLAN TYPE: EXISTING LAYOUT

SHEET NUMBER: 2 OF 10

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SCALE: AS NOTED
DATE: 02-05-2025

DRAWN:
DESIGN:
CHECK:
APPROVED:

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PHASE # 02925

Proposed Layout Plan

0 20 40 Feet

WILSON GEOTHERMAL
PERMEABLE PAVEMENT SYSTEM
114 DOUGLAS ST S
WILSON, NC 27893

PLAN TYPE: PROPOSED LAYOUT

SHEET NUMBER: 3 OF 10

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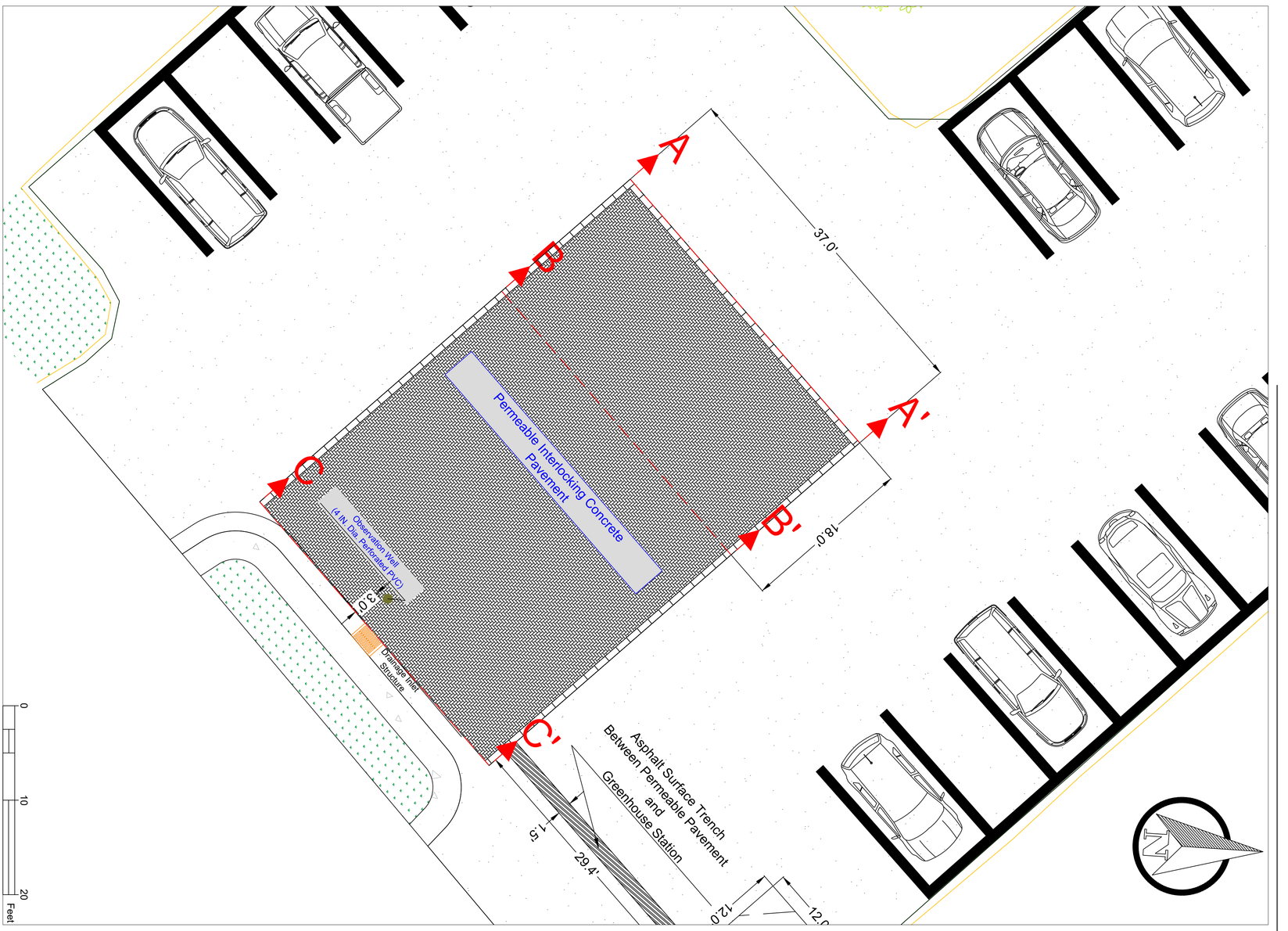
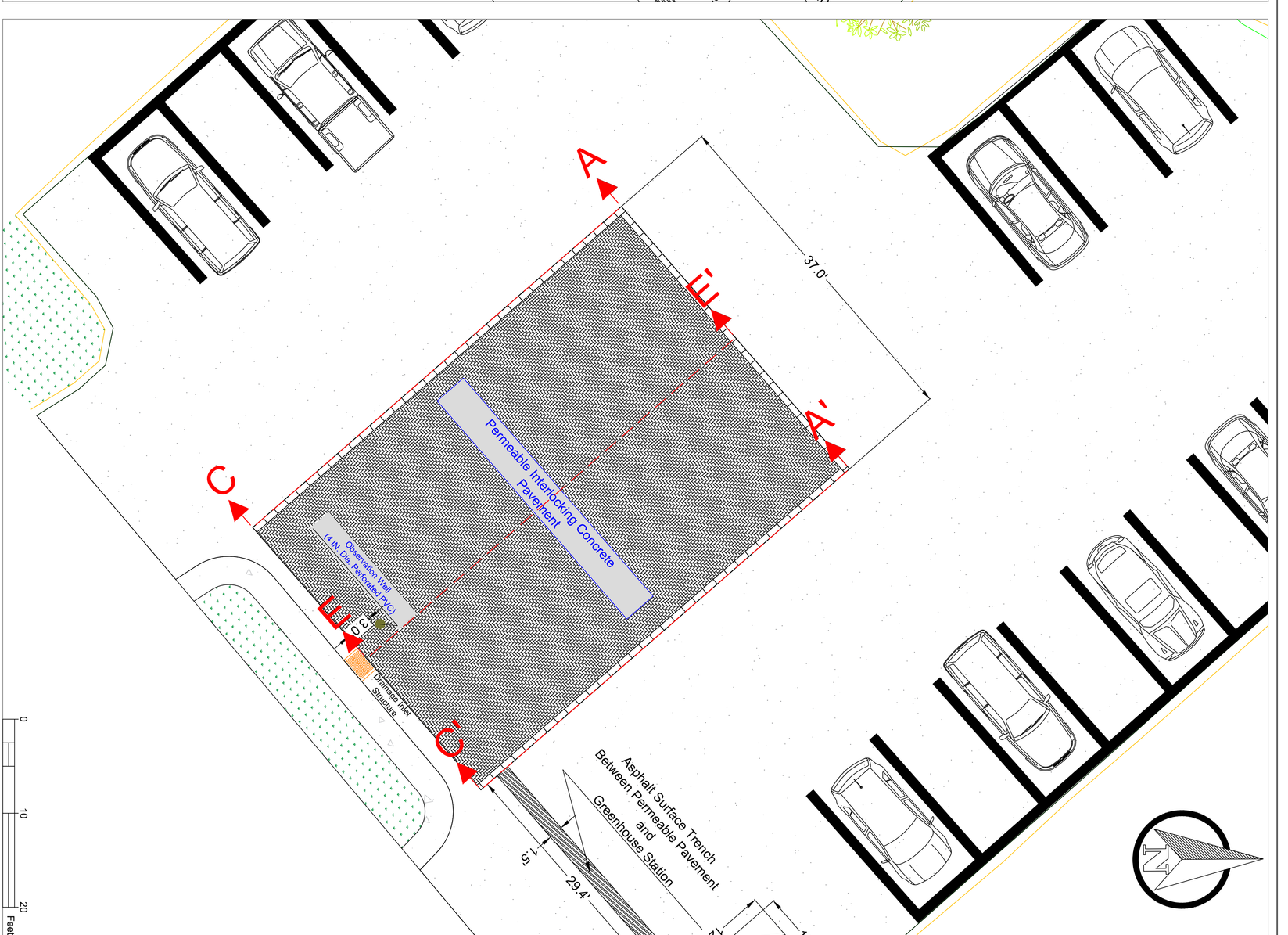
WILSON NORTH CAROLINA

PROJECT NAME: WILSON DOUGLAS ST
SCALE: AS NOTED
DATE: 02-05-2025

DRAWN:
DESIGN:
CHECK:
APPROVED:

PROJECT # 536589
PHASE # 02925





DRAWN :		PROJECT	
DESIGN :		NAME :	WILSON DOUGLAS ST
CHECK :		SCALE :	AS NOTED
APPROVED :		DATE :	02-05-2025

PROJECT # 536589

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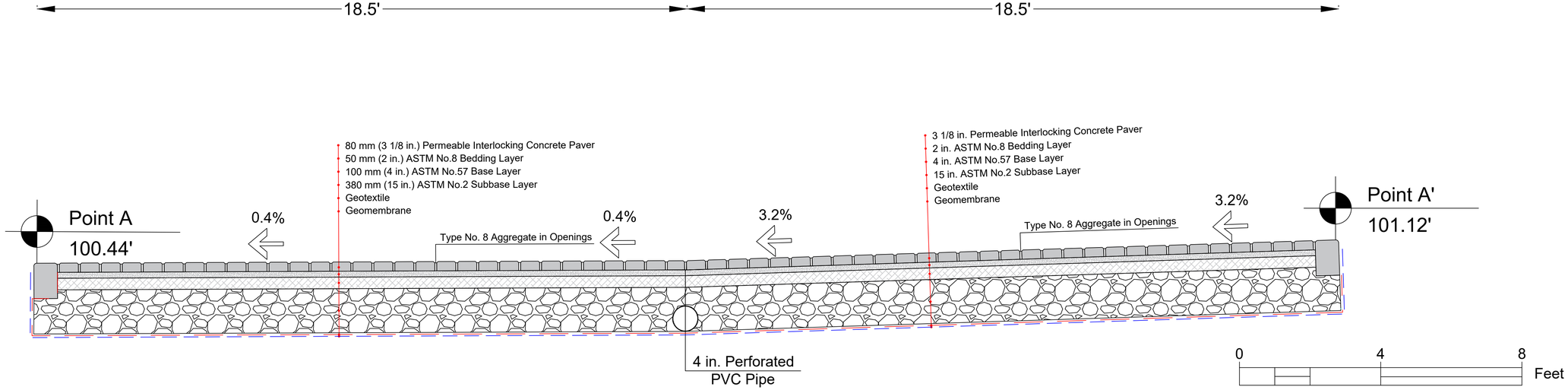
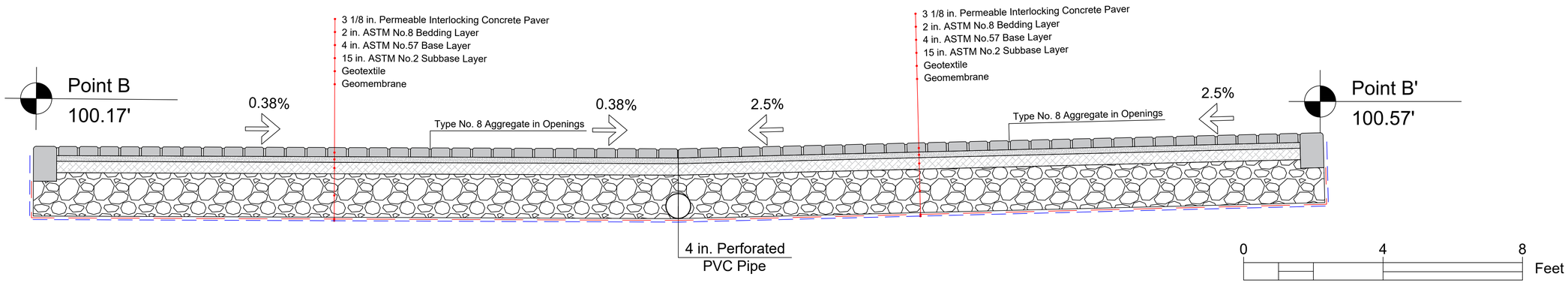
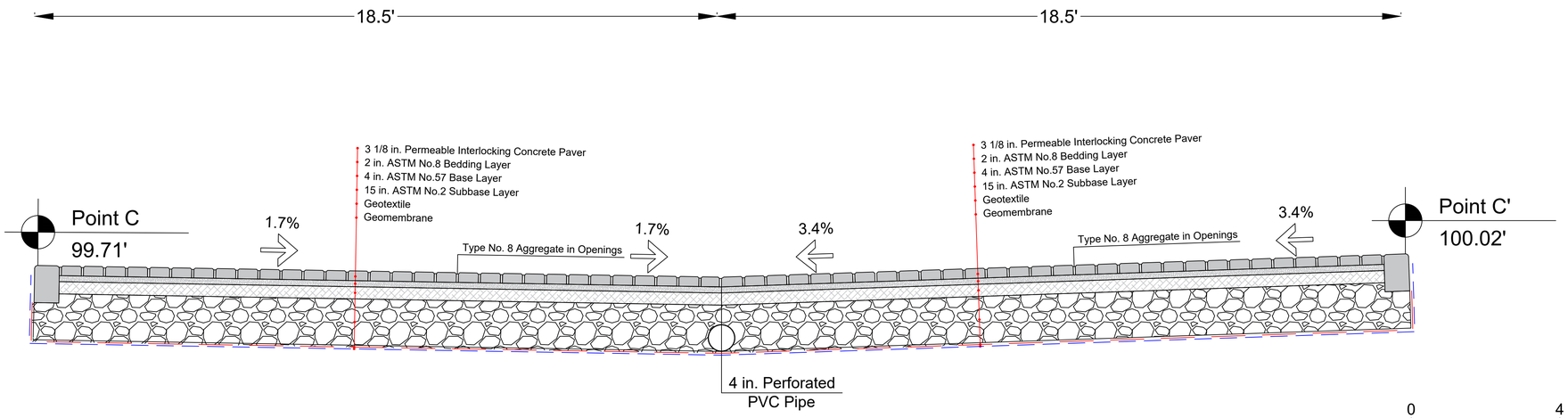
WILSON GEOTHERMAL
PERMEABLE PAVEMENT SYSTEM
114 DOUGLAS ST S
WILSON, NC 27893

PLAN TYPE	SHEET NUMBER
X-SECTION LAYOUTS	4 OF 10







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PERMEABLE PAVEMENT SYSTEM
114 DOUGLAS ST S
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SHEET NUMBER 5 OF 10

PLAN TYPE CROSS-SECTIONS

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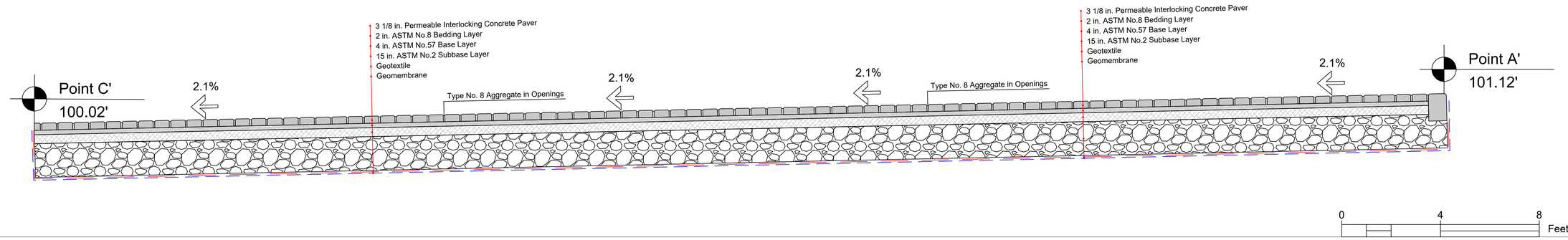
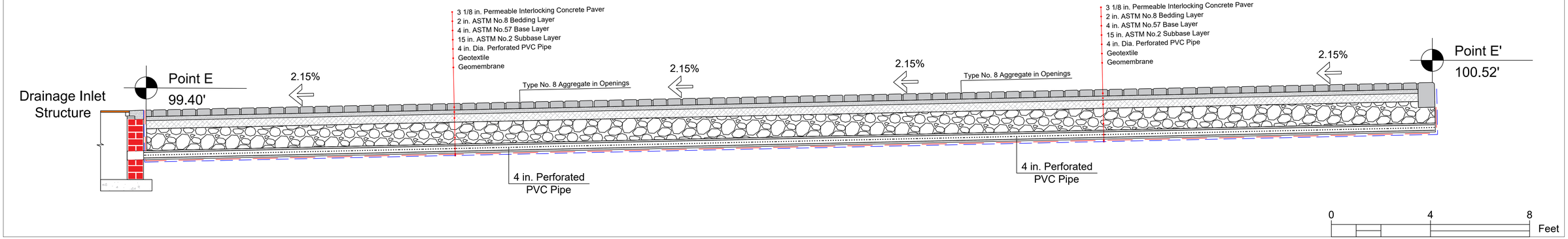
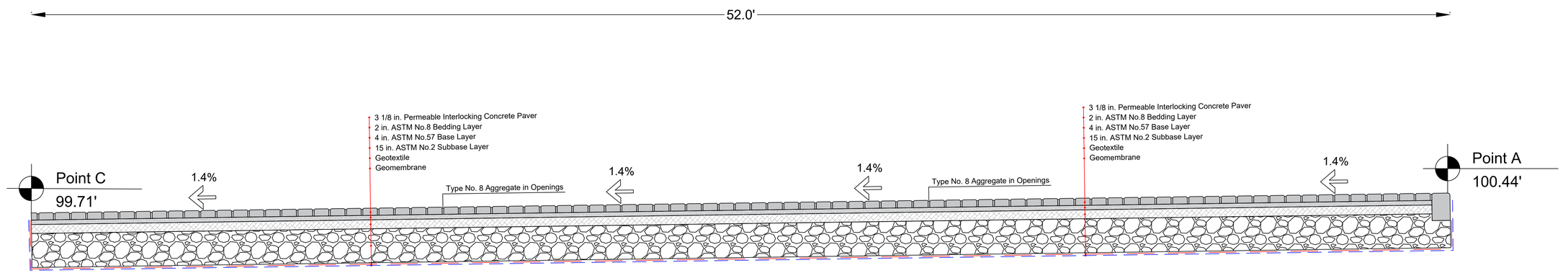
PHASE # 02925







WILSON GEOTHERMAL
PERMEABLE PAVEMENT SYSTEM
114 DOUGLAS ST S
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SHEET NUMBER
6 OF 10

PLAN TYPE
CROSS-SECTIONS

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PROJECT
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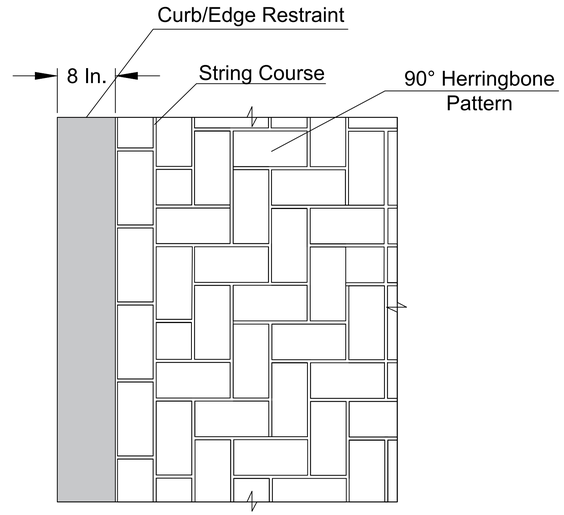
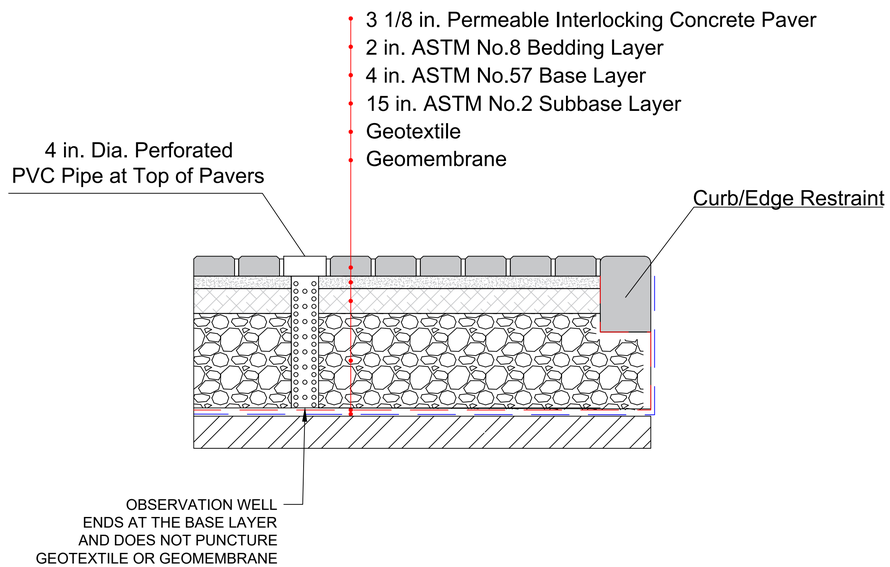
PHASE # 02925

DETAIL A: GEOTHERMAL COIL PLACEMENT

DETAIL B: PAVER PATTERN



DETAIL C: OBSERVATION WELL



WILSON GEOTHERMAL
PERMEABLE PAVEMENT SYSTEM
114 DOUGLAS ST S
WILSON, NC 27893

PLAN TYPE: DETAILS
SHEET NUMBER: 7 OF 10

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NORTH CAROLINA LAND & WATER FUND

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PROJECT NAME: WILSON DOUGLAS ST
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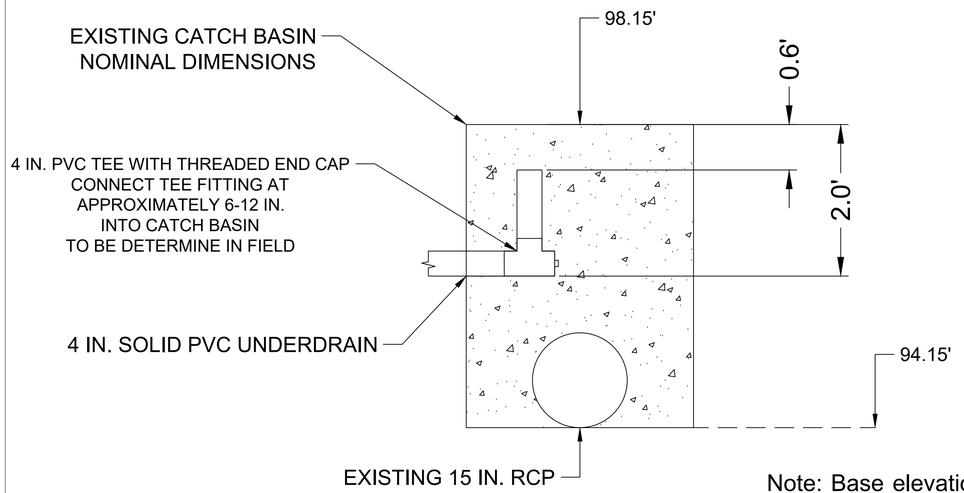
PHASE # 02925

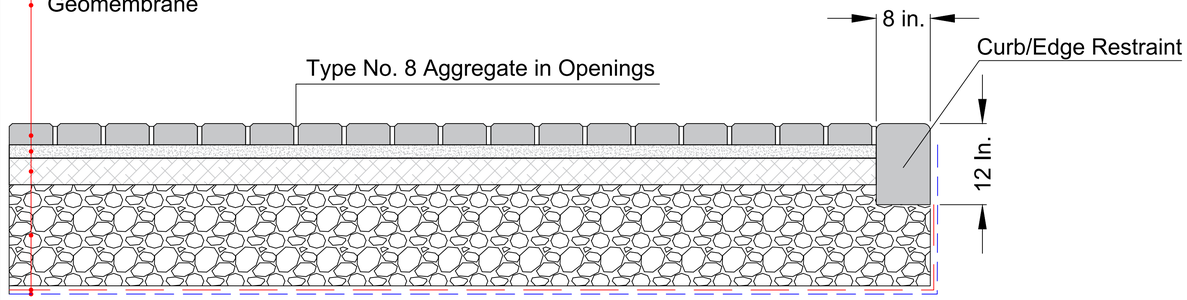
DETAIL D: UNDERDRAIN CONNECTION TO EXISTING CATCH BASIN



Note: Base elevation of the catch basin (94.15 ft) is approximate. Basin is approximately 4 ft deep.

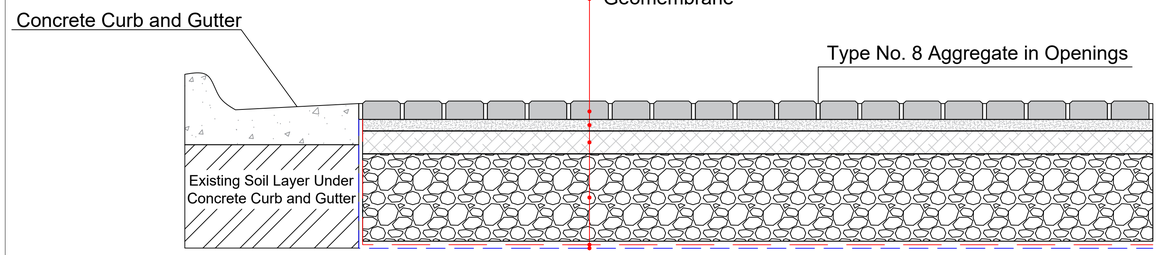
DETAIL E: CURB/EDGE RESTRAINT

- 3 1/8 in. Permeable Interlocking Concrete Paver
- 2 in. ASTM No.8 Bedding Layer
- 4 in. ASTM No.57 Base Layer
- 15 in. ASTM No.2 Subbase Layer
- Geotextile
- Geomembrane



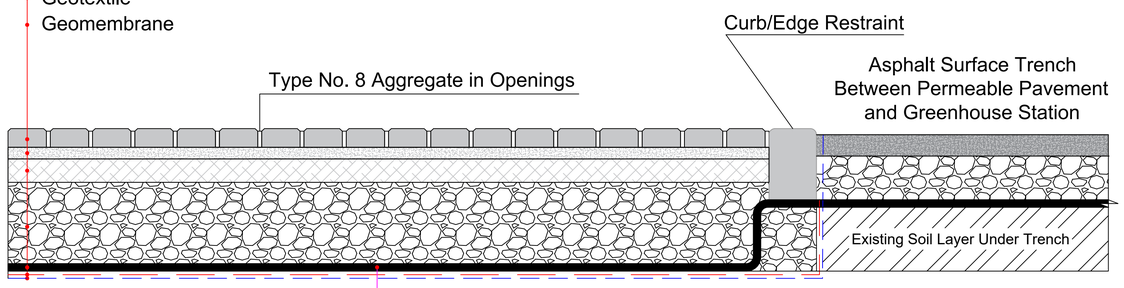
DETAIL F: EXISTING CONCRETE CURB AND GUTTER CONNECTION WITH PERMEABLE PAVEMENT

- 3 1/8 in. Permeable Interlocking Concrete Paver
- 2 in. ASTM No.8 Bedding Layer
- 4 in. ASTM No.57 Base Layer
- 15 in. ASTM No.2 Subbase Layer
- Geotextile
- Geomembrane



DETAIL G: COILS CONNECTION TO ASPHALT SURFACE TRENCH

- 3 1/8 in. Permeable Interlocking Concrete Paver
- 2 in. ASTM No.8 Bedding Layer
- 4 in. ASTM No.57 Base Layer
- 15 in. ASTM No.2 Subbase Layer
- 1 1/4 in. Dia. Coil
- Geotextile
- Geomembrane



1-1/4" IPS SDR11 PE4710
Black HDPE Pipe Coil
(HDPE PE4710 that meets
ASTM D3350 cell classification
PE445574C)

Note: Coil will sit on a small layer of gravel when going through the trench. When the coil goes through the trench, it will go through a 2" diameter HDPE pipe, starting at the beginning of the edge restraint.

WILSON GEOTHERMAL
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SHEET NUMBER 8 OF 10
PLAN TYPE DETAILS

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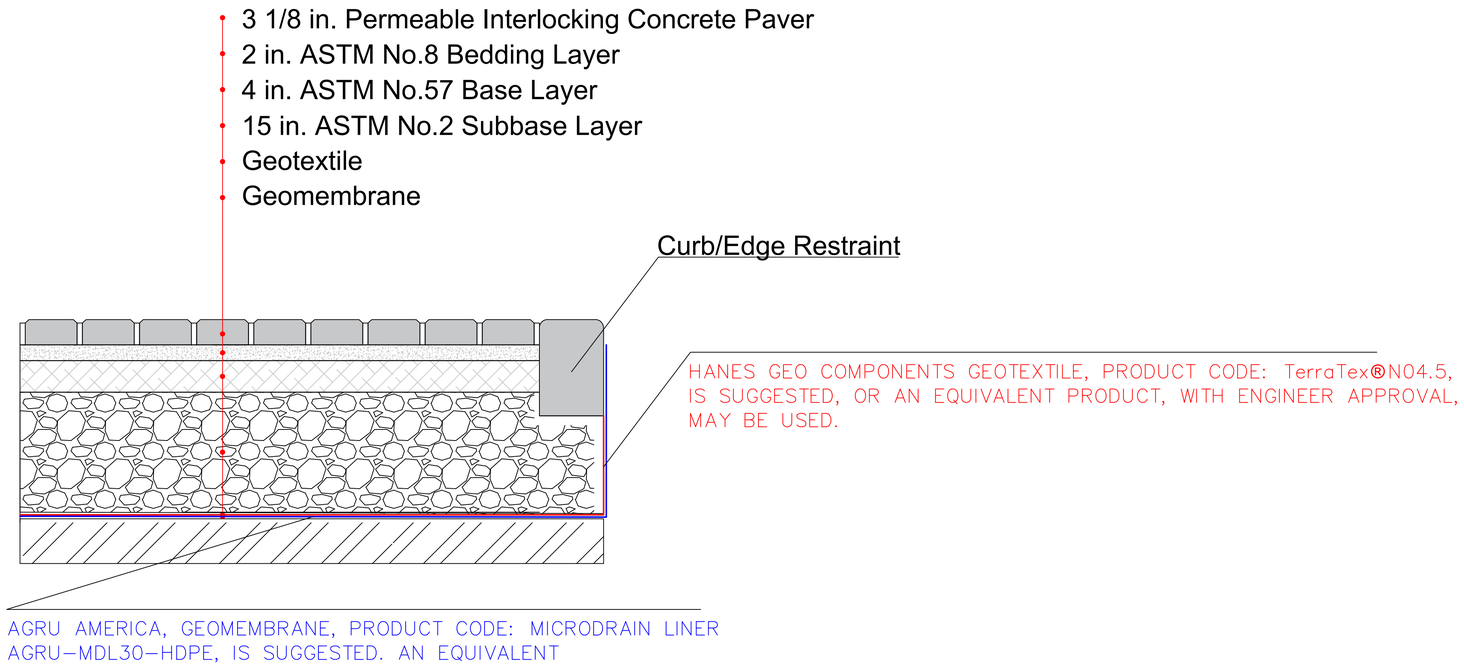
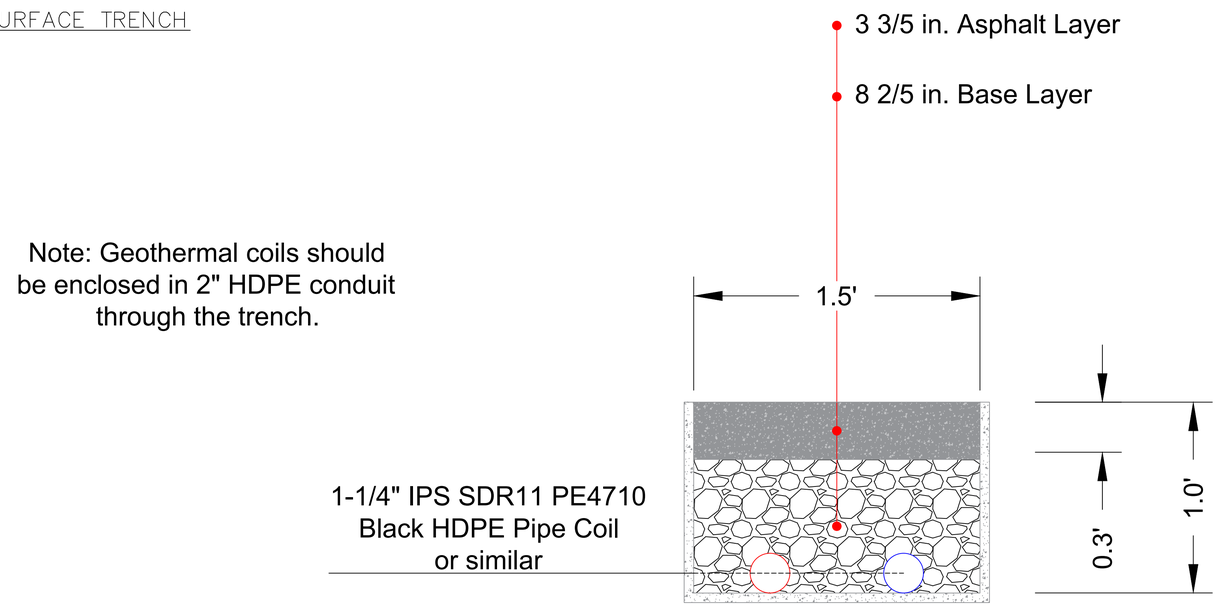
PHASE # 02925

DETAIL H: GEOTEXTILE and GEOMEMBRANE PLACEMENT



DETAIL I: ASPHALT SURFACE TRENCH



WILSON GEOTHERMAL
PERMEABLE PAVEMENT SYSTEM
114 DOUGLAS ST S
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SHEET NUMBER 9 OF 10

PLAN TYPE DETAILS

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PROJECT # 536589
PHASE # 02925

GENERAL CONTRACTOR NOTES:

1. PRIOR TO DIGGING, CALL NC 811 FOR UTILITY LOCATION AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION, PRIOR TO STARTING ANY WORK SHOWN IN THESE PLANS.
2. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH AND OBTAINING ALL REQUIRED CONSTRUCTION PERMITS AND MUST ARRANGE FOR ANY NECESSARY PRE, DURING, AND POST CONSTRUCTION MEETINGS AS REQUIRED BY PERMITS, REGULATIONS, LANDOWNERS, AND/OR IN ACCORDANCE WITH LOCAL CODES, ORDINANCES, OR AS CLEARLY AGREED TO BY NCSU AND THE CITY OF WILSON IN WRITING PRIOR TO START OF PROJECT CONSTRUCTION.
3. THE FOLLOWING NOTE APPLIES TO ALL NCSU DRAFTED/ORIGINATED DOCUMENTS:
   - 3.1. ALL ELEVATIONS/MATERIAL QUANTITIES AS SHOWN ON UDC PLANS OR DETAILS ARE INTENDED FOR CONCEPTUAL USE ONLY.
   - 3.2. PROPOSED PROJECT PLANS, ELEVATIONS, QUANTITIES, AND/OR DETAILS ARE ONLY INTENDED TO COMMUNICATE NCSU'S INTENDED PROJECT VISION TO GUIDE THE PROJECT TO FINAL OUTCOME AND TO DELIVER NCSU'S DESIGN VISION AND EXPECTED LEVEL OF WORKMANSHIP.
   - 3.3. ALL ELEVATIONS AND MATERIAL QUANTITIES MUST BE CONFIRMED AND FIELD VERIFIED AS NECESSARY BY CONTRACTOR TO DELIVER IN ACCORDANCE WITH NCSU'S INTENDED DESIGN AND PER SIGNED CONTRACT AGREEMENT TO CONSTRUCT.
   - 3.4. NCSU IS NOT RESPONSIBLE FOR CONTRACTOR MATERIAL QUANTITY SHORTFALLS OR SURPLUSES RESULTING IN THE CONSTRUCTION OF THE PROJECT.
4. ALL PROJECT DRAWINGS DRAFTED, SEALED, AND APPROVED BY CONSULTANTS/ENGINEERS AS HIRED BY NCSU ARE TO BE FOLLOWED IN ACCORDANCE TO PROFESSIONAL, LICENSED ENGINEER/ARCHITECT INSTRUCTIONS/DETAILS AS RELAYED AND/OR AS PERMITTED PER APPROVED AND/OR PROVIDED PLANS. DEVIATION FROM PLANS MUST BE APPROVED BY AN NCSU REPRESENTATIVE WITH CONSENT AND/OR WRITTEN NOTIFICATION WITH EXPLANATION TO LICENSED ENGINEER/ARCHITECT SEALING PLANS.
5. ANY TEMPORARY TRAFFIC CONTROL AND PERMANENT TRAFFIC SIGNS SHALL CONFORM TO THE LATEST EDITION OF THE FEDERAL HIGHWAY ADMINISTRATION'S MANUAL OR UNIFORM TRAFFIC CONTROL DEVICES.
6. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE AND PROPERLY DISPOSE OF UNSUITABLE MATERIAL AND TO REPLACE IT WITH SUITABLE MATERIAL AS NECESSARY TO PERFORM CONTRACTED SERVICES AND/OR PROPERLY CONSTRUCT.
7. POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE AREA COVERED BY THIS PROJECT'S LIMIT OF DISTURBANCE WITHOUT ADVERSE EFFECT TO ADJACENT PROPERTY FRONTAGES.
8. ALL LOOSE SOILS/MATERIALS LEFT DURING CONSTRUCTION ARE TO BE COVERED WHEN NO CONSTRUCTION ACTIVITY IS TAKING PLACE.
9. CONTRACTOR SHALL REPAIR (LEFT RESTORED AND CLEANED TO PRE-CONSTRUCTION CONDITIONS) OR REPLACE EXISTING GROUND, PATHS, WALKWAYS, ETC. DISTURBED OR DAMAGED DURING CONSTRUCTION UNLESS OTHERWISE SPECIFIED.
10. AT PROJECT'S END AND UPON FINAL PAYMENT, A PROOF STATEMENT THAT ALL FINANCIAL MATTERS HAVE BEEN SETTLED WITH RELEASE OF ANY RIGHT TO LIEN ON NCSU FOR ANY UNPAID SUBCONTRACTORS, SUPPLIERS, AND/OR PROJECT COSTS.
11. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE EXACT LOCATION AND ELEVATION OF THE MAINS BY DIGGING TEST PITS BY HAND OR VACUUM AT UTILITY CROSSING WELLS IN ADVANCE OF TRENCHING OR CONNECTION TO LINES. IF CLEARANCES TO WATER AND SEWER LINES ARE NOT SHOWN IN PLAN AND/OR SHOWN ON THIS PLAN LESS THAN TWELVE (12) INCHES, CONTACT THE DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION OR APPLICABLE AGENCY BEFORE PROCEEDING WITH CONSTRUCTION. CLEARANCE LESS THAN NOTED MAY REQUIRE A REVISION PLAN AND MUST BE APPROVED BY NCSU PRIOR TO REVISIONS.
12. LOCATION OF PRIVATE UTILITIES AND SITE DRAINAGE SYSTEMS ARE APPROXIMATE AND ARE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE PRIOR TO ANY CONNECTIONS OR ALTERATIONS TO THE SYSTEM.
13. THE GEOTHERMAL COILS EVENTUALLY WILL BE CONNECTED TO THE HEAT PUMP BUT UNTIL THEN, THEY SHOULD BE CAPPED AND STORED IN A UTILITY BOX LOCATED DIRECTLY ABOVE WHERE THE COILS EXIT THE GROUND FROM THE PVC CONDUIT WITH AT LEAST 5 FEET OF EXTRA COIL LENGTH IN THE UTILITY BOX.
14. THE COILS NEED TO BE LAID IN LOOPS WITH A DIAMETER OF 3 FT WITH AROUND A 4 FT DISTANCE BETWEEN THE CENTER OF ONE COIL TO THE NEXT IN LINE. FROM ONE ROW OF COILS TO THE NEXT ROW, THERE SHOULD BE A 5 FT DISTANCE BETWEEN CENTERLINES. WHEN LAYING THE COILS, PLEASE ENSURE THEY LAY AS FLAT AS POSSIBLE AND ARE NOT DAMAGED, BENT, OR HAVE LEAKS.

MATERIAL NOTES:

1. HANES GEO COMPONENTS GEOTEXTILE, PRODUCT CODE: TerraTex®N04.5, IS SUGGESTED, OR AN EQUIVALENT PRODUCT MAY BE USED WITH ENGINEER APPROVAL.

2. AGRU AMERICA, GEOMEMBRANE, PRODUCT CODE: MICRODRAIN LINER AGRU-MDL30-HDPE, IS SUGGESTED, OR AN EQUIVALENT PRODUCT MAY BE USED WITH ENGINEER APPROVAL.
2. FOR THE 1-1/4" IPS SDR11 PE4710 BLOCK HDPE PIPE COILS TO BE USED IN THE PROJECT, HDPE SUPPLY, PRODUCT CODE:BLK 0125 DR11 83350, IS SUGGESTED, OR AN EQUIVALENT PRODUCT WITH SIMILAR TECHNICAL SPECIFICATIONS MAY BE USED.

CONSTRUCTION QUANTITIES

ITEM	QUANTITY	UNIT
PRIMARY EXCAVATION	3848	CF
SECONDARY EXCAVATION – TRENCH	88	CF
INTERLOCKING CONCRETE PAVER	1924	SF
ASTM NO. 8 BEDDING LAYER	315	CF
ASTM NO. 57 BASE LAYER	632	CF
ASTM NO. 2 SUBBASE LAYER	1704	CF
4 IN. DIA. PERFORATED PVC PIPE	52	LF
4 IN. DIA. SOLID PVC PIPE	3	LF
2 IN. DIA. HDPE PIPE	35	LF
4 IN. DIA. SOILD PVC TEE FITTING	1	EA
GEOTEXTILE FABRIC	2514	SF
GEOMEMBRANE LINER	2514	SF
GEOTHERMAL COILS	850	LF

SEQUENCE OF CONSTRUCTION

1. ON-SITE PRE-CONSTRUCTION MEETING
2. COORDINATE EQUIPMENT/ACCESS/SCHEDULE
3. COMPLETE SURVEY STAKEOUT
4. CONFIRM UTILITY MARKINGS
5. SETUP AND INSTALL INLET PROTECTION
6. EXCAVATE AREA INDICATED
7. INSTALL GEOMEMBRANE AND GEOTEXTILE LAYERS
8. INSTALL UNDERDRAIN AND COILS
9. INSTALL SUBBASE LAYER
10. INSTALL EDGE RESTRAINTS
11. INSTALL BASE LAYER AND BEDDING LAYER
12. INSTALL PAVING MATERIALS
13. REMOVE EROSION AND SEDIMENT CONTROLS AND RESIDUAL DEBRIS FROM SITE
14. DEMOBILIZE FROM SITE FOLLOWING ACCEPTANCE OF FINAL WORK BY COW AND NCSU PERSONNEL

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SHEET NUMBER 10 OF 10
PLAN TYPE QUANTITIES & NOTES

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