

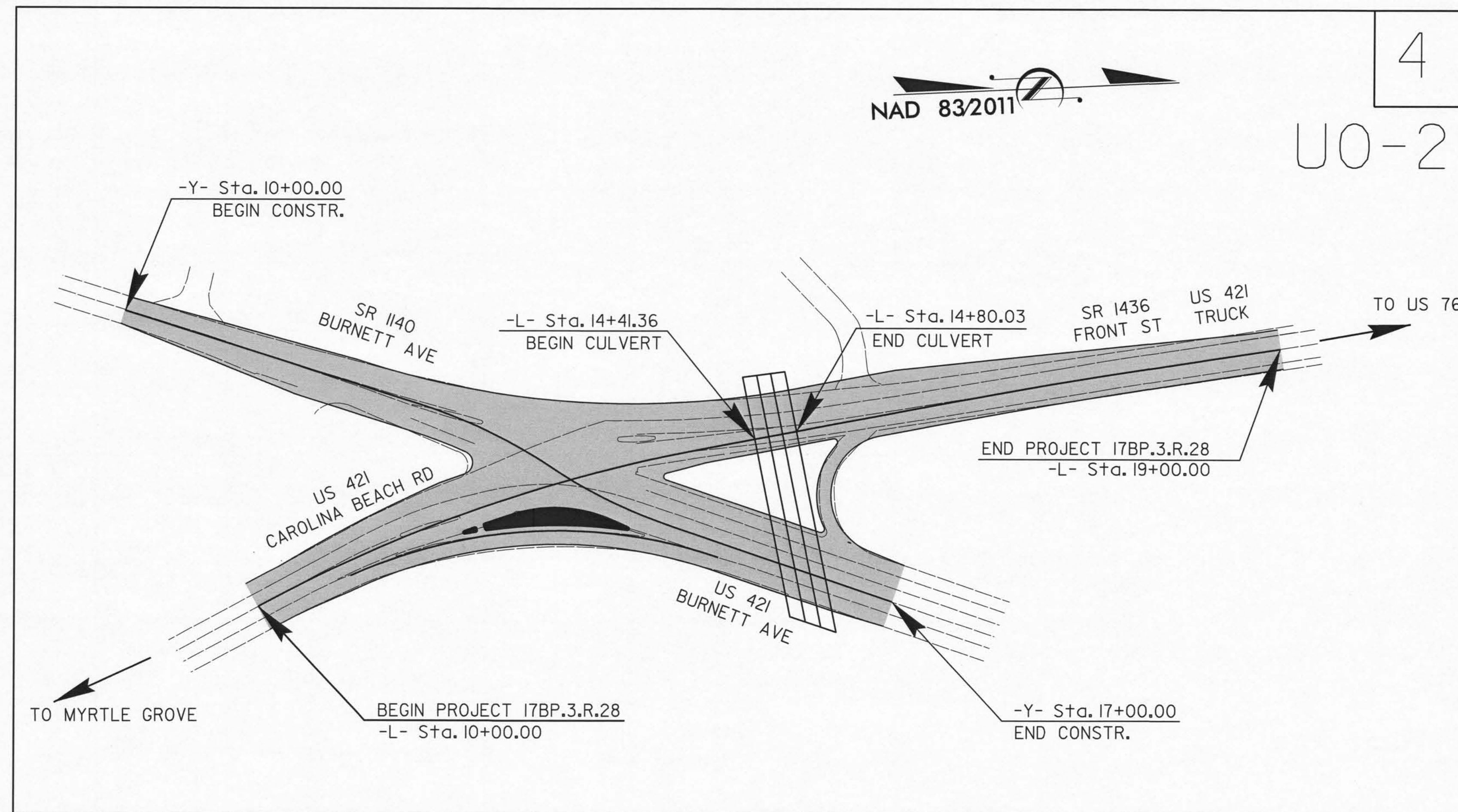
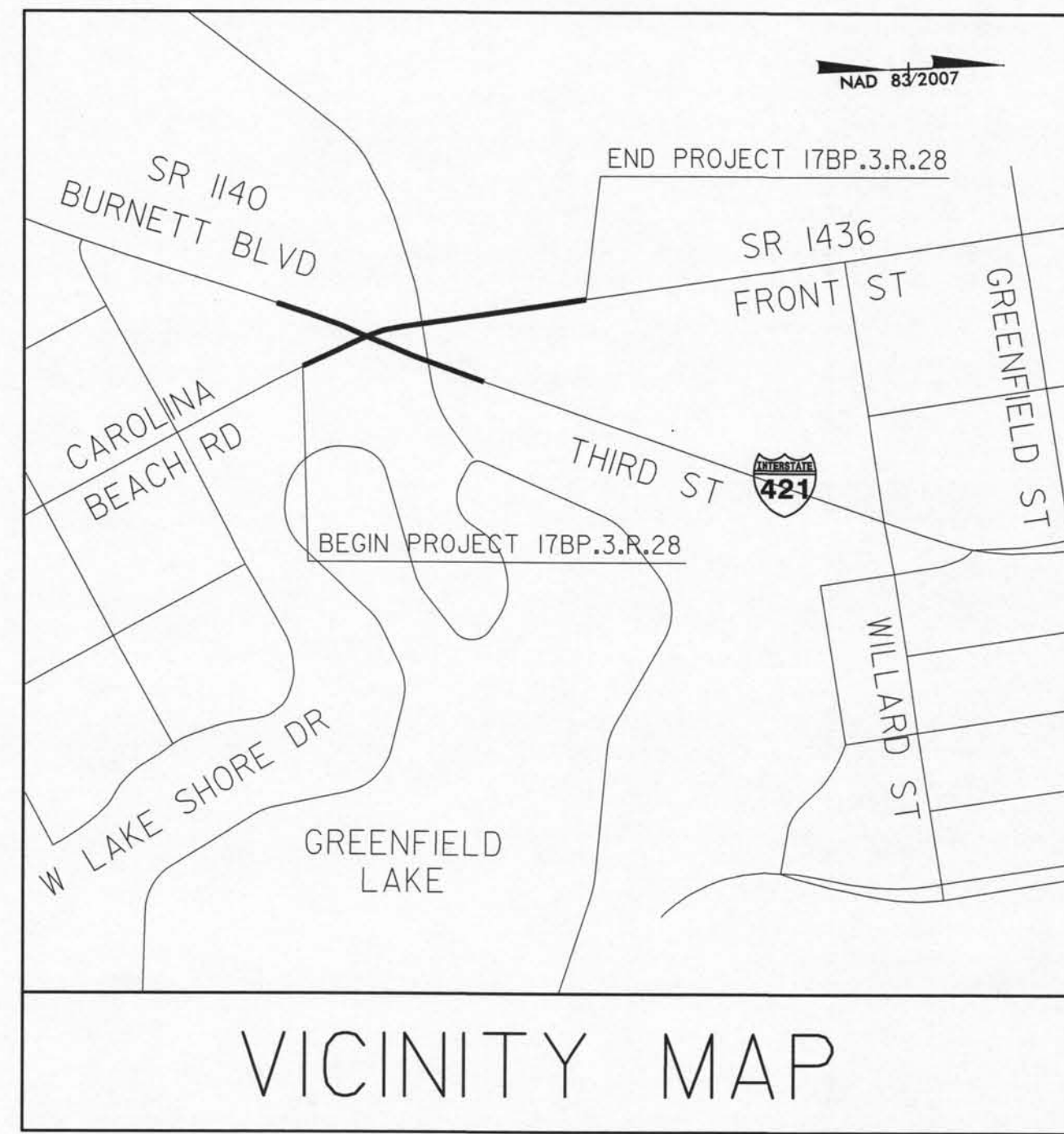
**TIP PROJECT: 17BP.3.R.28**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.R.28	UO-1	2

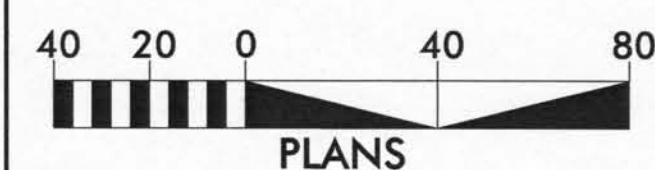
**UTILITIES BY OTHERS PLANS  
NEW HANOVER COUNTY**

**LOCATION: INTERSECTION OF SR 1436 /US 421 TRUCK  
(FRONT STREET) AND SR 1140 (BURNETT BOULEVARD)  
SOUTH OF WILLARD STREET**



4  
UO-2

**GRAPHIC SCALES**

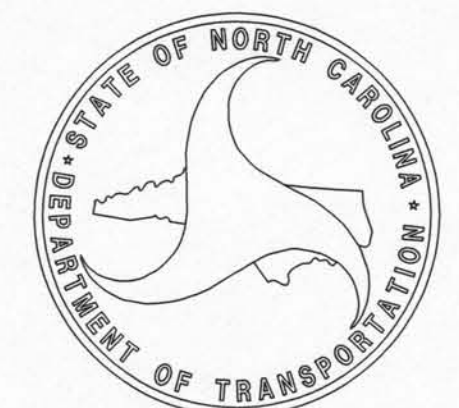


**INDEX OF UTILITY SHEETS**

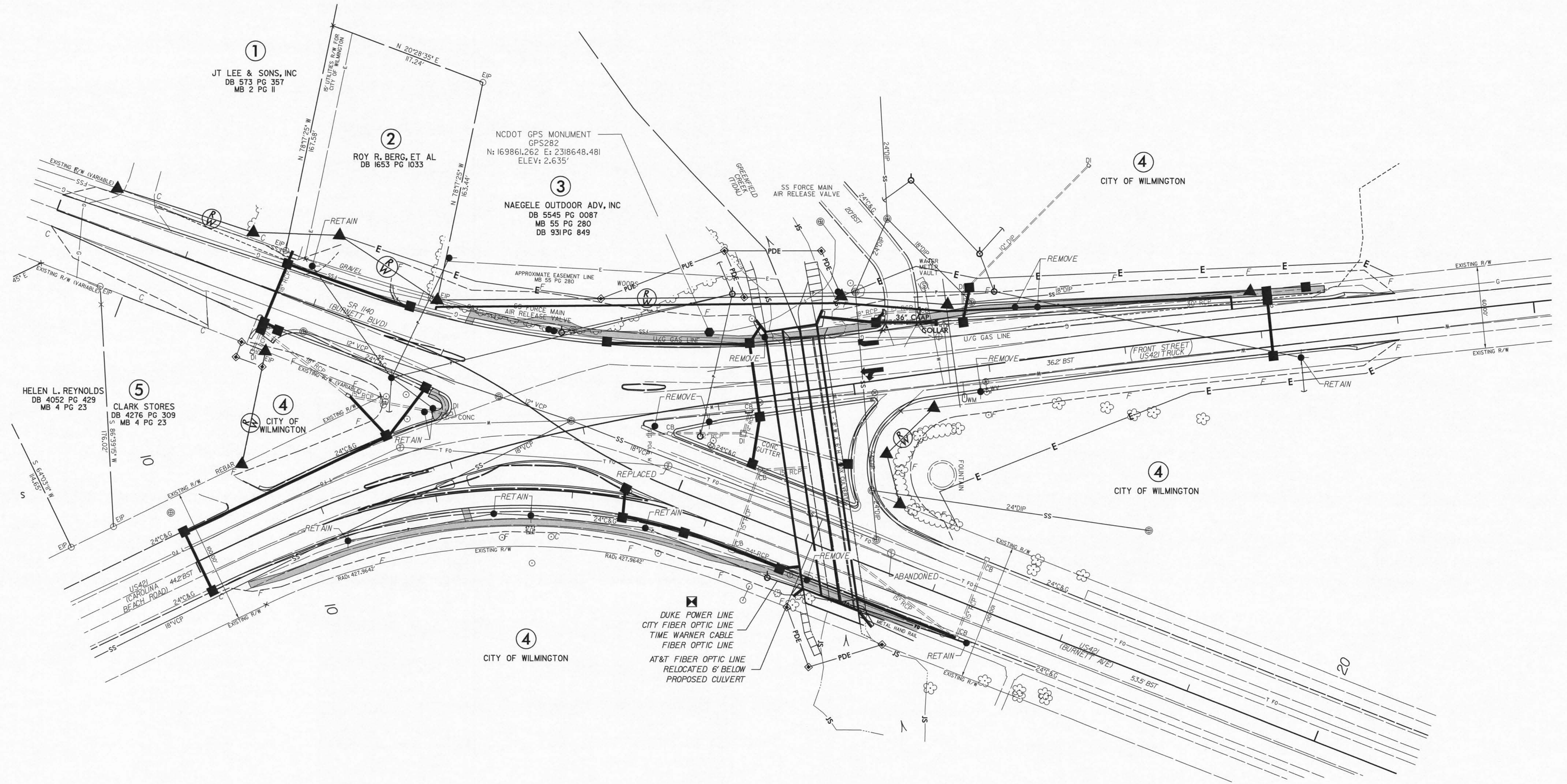
SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY PLAN SHEETS

**UTILITY OWNERS**

- POWER - DUKE ENERGY PROGRESS
- GAS - PIEDMONT NG
- FO - TIME WARNER CABLE
- FO - CITY OF WILMINGTON



5/14/99



20-JUN-2014 11:39  
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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.3.R.28	UC-1	7

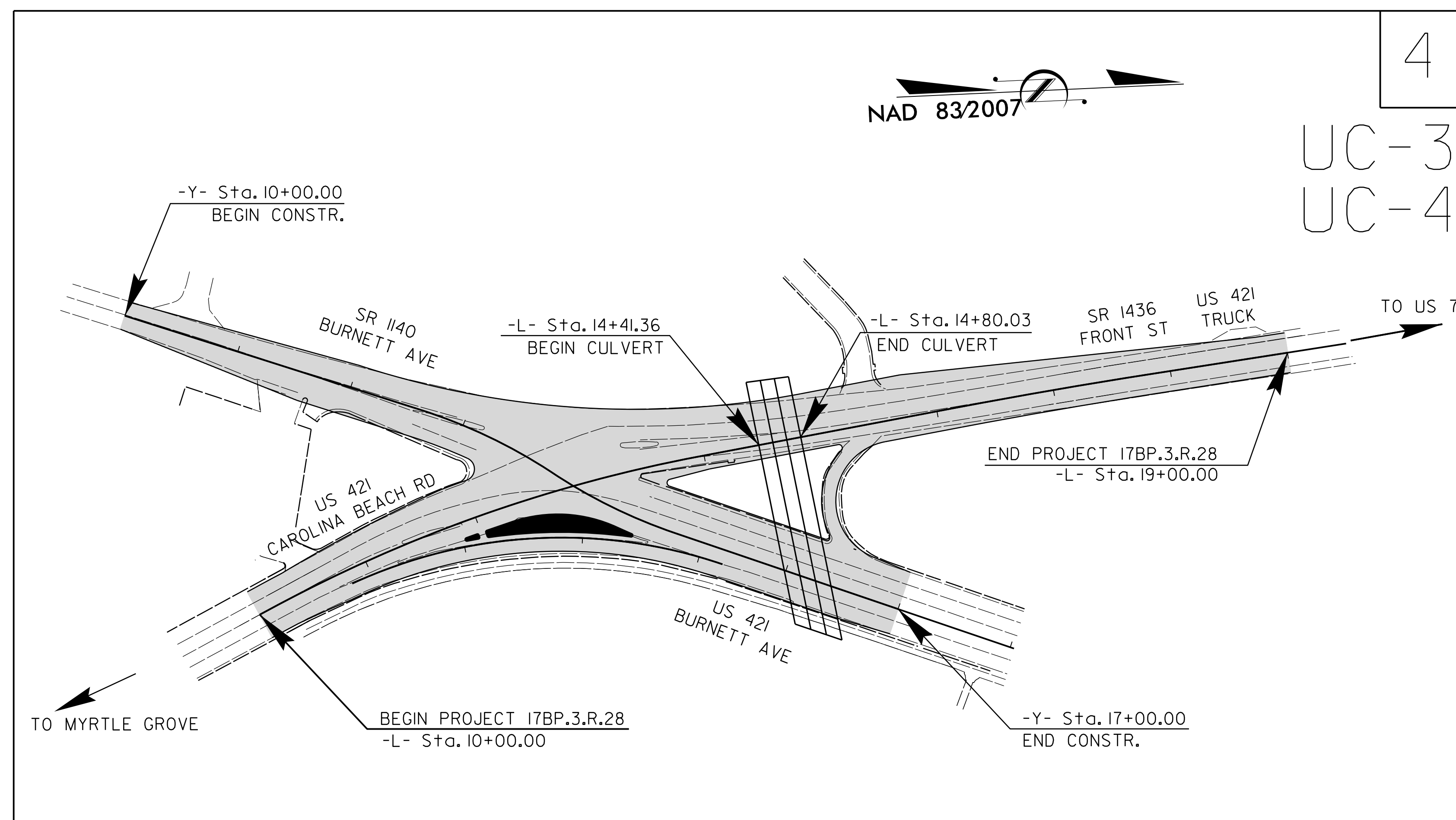
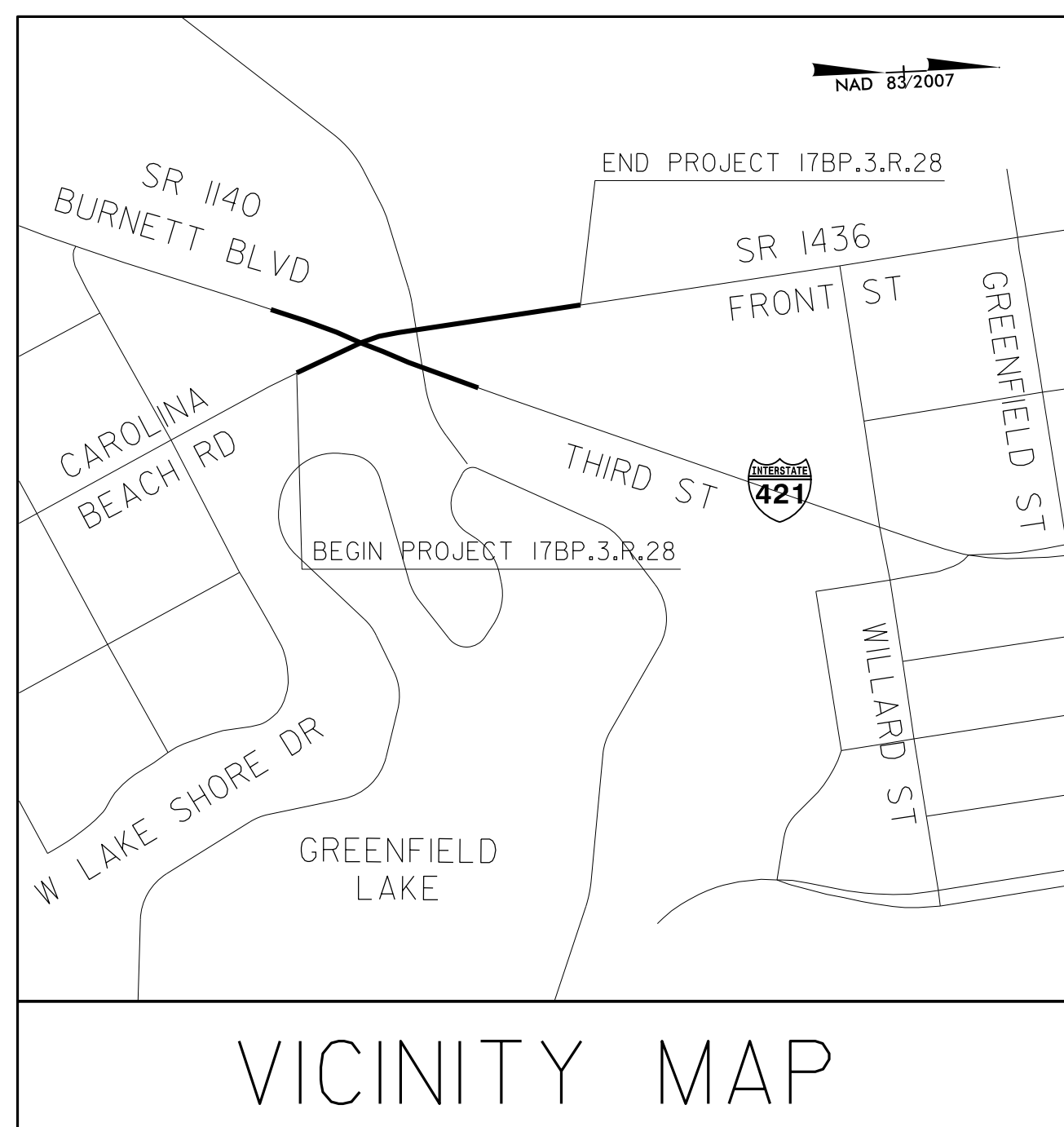
**TIP PROJECT: 17BP.3.R.28**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITY CONSTRUCTION PLANS**

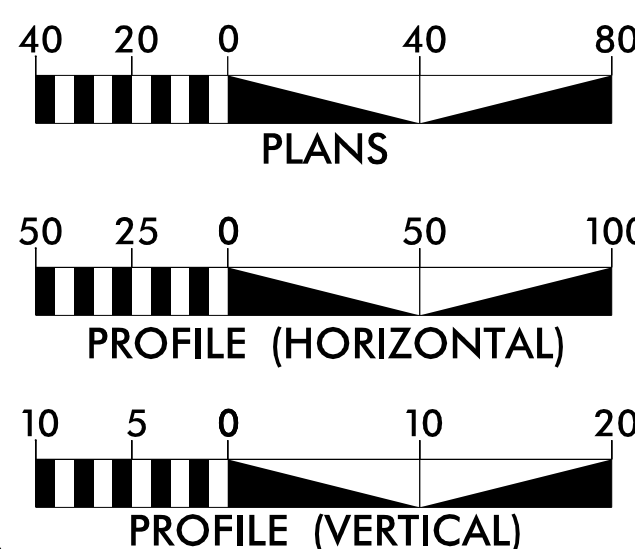
**NEW HANOVER COUNTY**

LOCATION: INTERSECTION OF SR 1436 /US 421 TRUCK  
(FRONT STREET) AND SR 1140 (BURNETT BOULEVARD)  
SOUTH OF WILLARD STREET



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF WILMINGTON

**GRAPHIC SCALES**



**UTILITY OWNERS ON PROJECT**

CAPE FEAR PUBLIC UTILITY AUTHORITY

CONTACT:  
DAVID DAILEY  
PROJECT ENGINEER  
235 GOVERNMENT CENTER DR  
WILMINGTON, NC 28403  
910-332-6626

**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-1A	UTILITY SYMBOLOGY
UC-2	NOTES
UC-2A	DETAILS
UC-3 THRU UC-4	UTILITY CONSTRUCTION SHEETS
UC-5	UTILITY PROFILE SHEETS

Prepared in the Office of:

**ATKINS** 1616 EAST MILLBROOK ROAD, SUITE 310  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

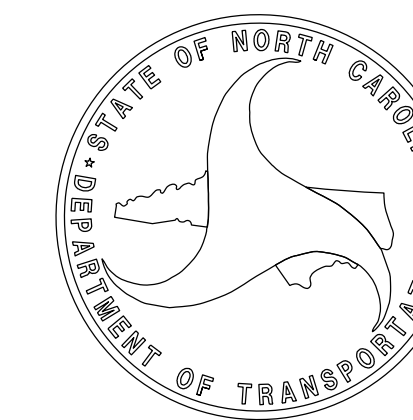
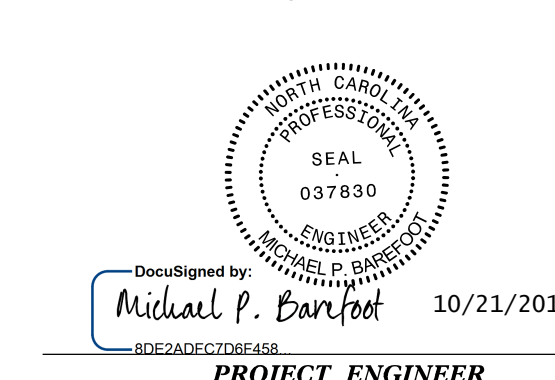
2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DECEMBER, 2013

MICHAEL BAREFOOT, PE  
PROJECT ENGINEER

NATHAN CHAPMAN, EI  
PROJECT DESIGN ENGINEER

**SEAL**



# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## UTILITIES PLAN SHEET SYMBOLS

### PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

### PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

### PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

NOTE  
PAY ITEM

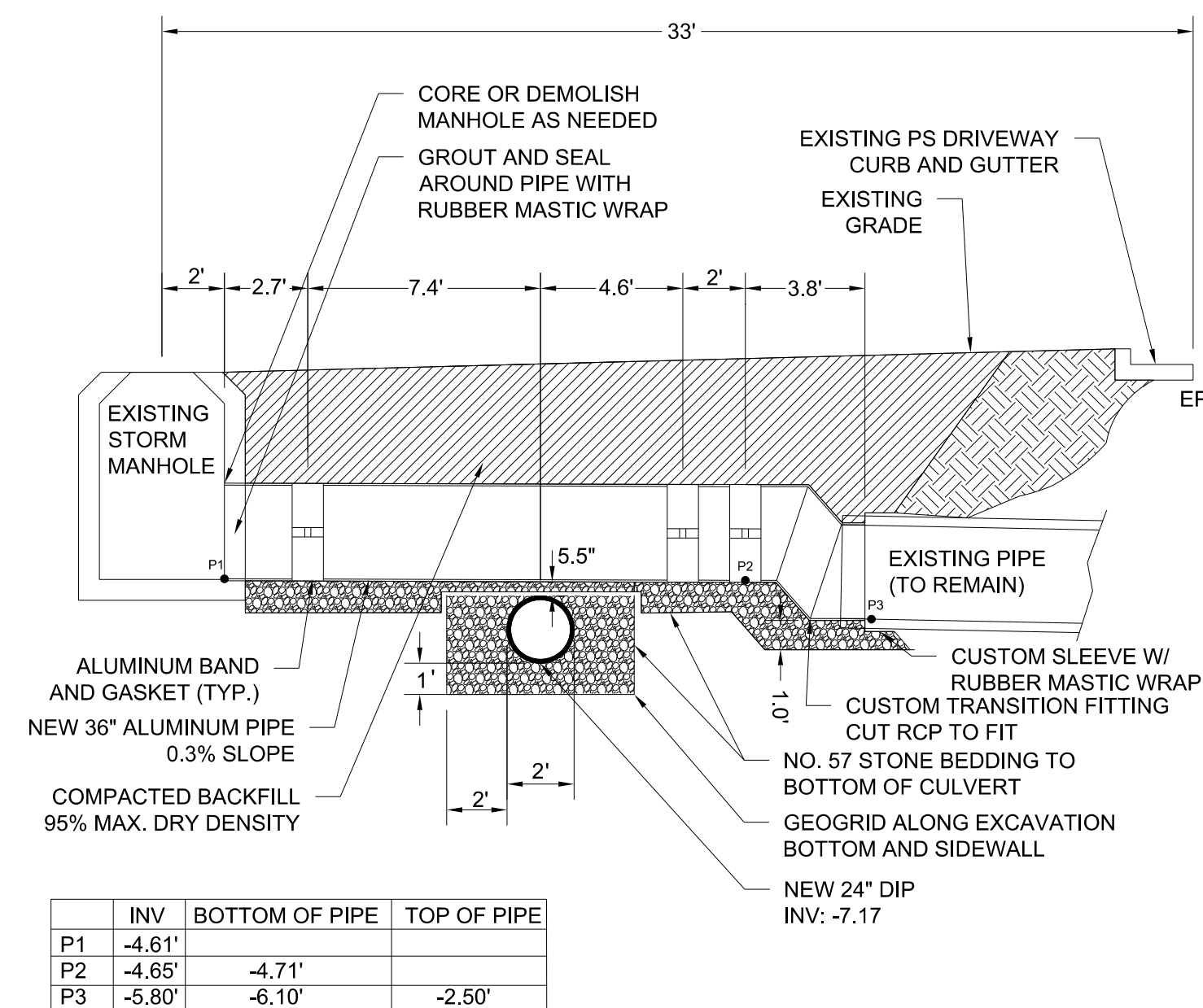
### EXISTING UTILITIES SYMBOLS

Power Pole		*Underground Power Line	
Telephone Pole		*Underground Telephone Cable	
Joint Use Pole		*Underground Telephone Conduit	
Utility Pole		*Underground Fiber Optics Telephone Cable	
Utility Pole with Base		*Underground TV Cable	
H-Frame Pole		*Underground Fiber Optics TV Cable	
Power Transmission Line Tower		*Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		*Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		*Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		*Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
CATV Pedestal		SUE Test Hole	
Gas Valve		Water Meter	
Gas Meter		Water Valve	
Located Miscellaneous Utility Object		Fire Hydrant	
Abandoned According to Utility Records		Sanitary Sewer Cleanout	
End of Information			

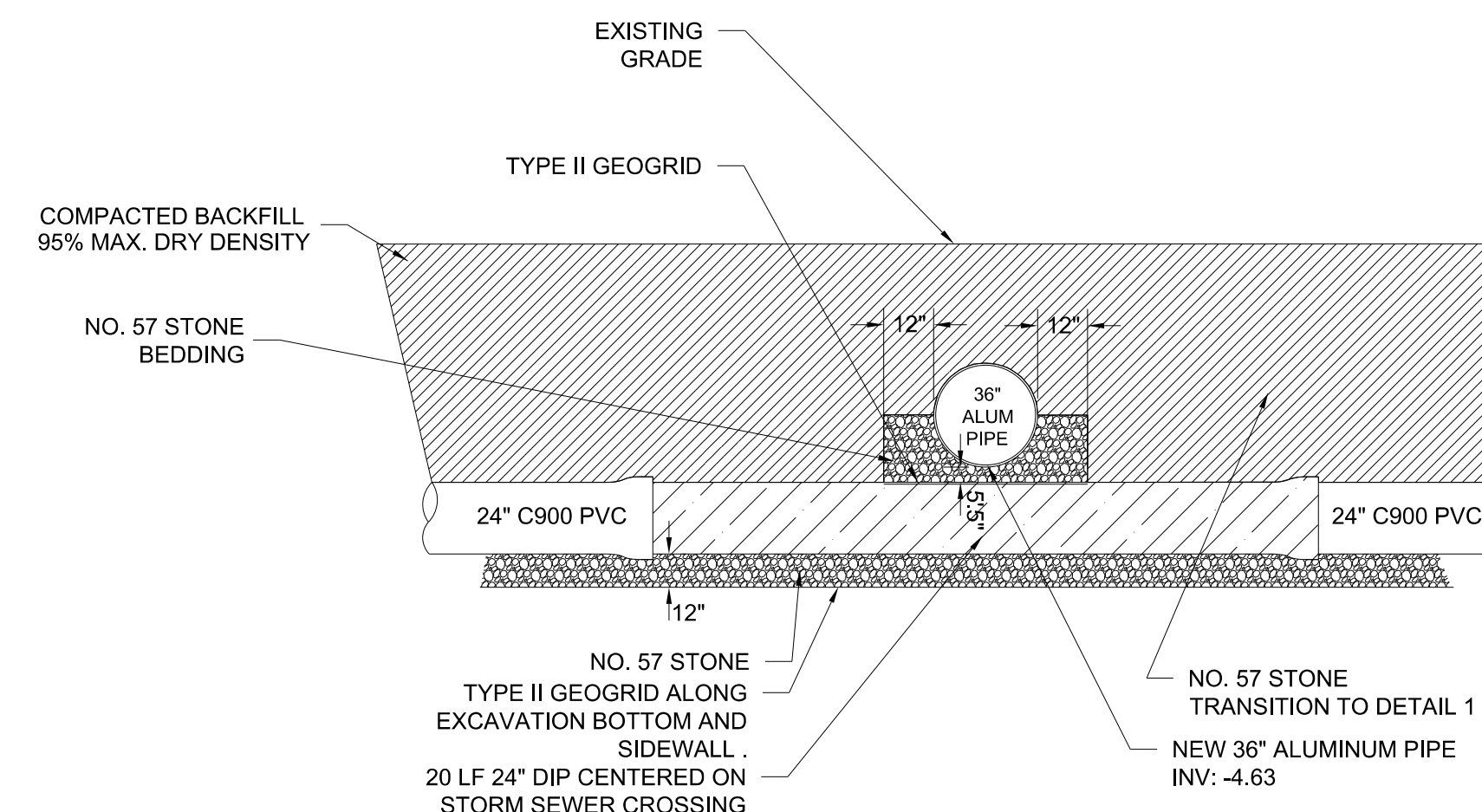
\*For Existing Utilities  
Utility Line Drawn from Record (Type as Shown)  
Designated Utility Line (Type as Shown)



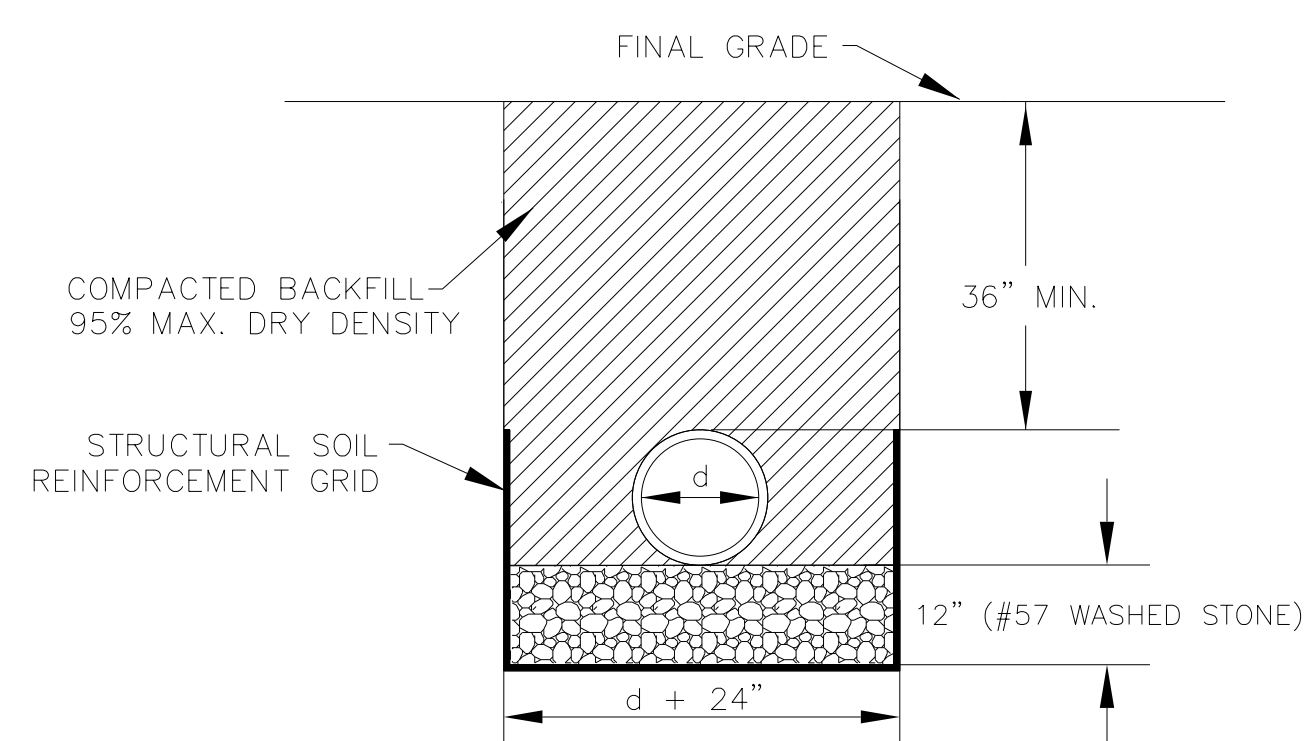
# SANITARY SEWER CONSTRUCTION DETAILS



**STORM DRAIN CROSSING  
DETAIL - PLAN VIEW**  
NOT TO SCALE

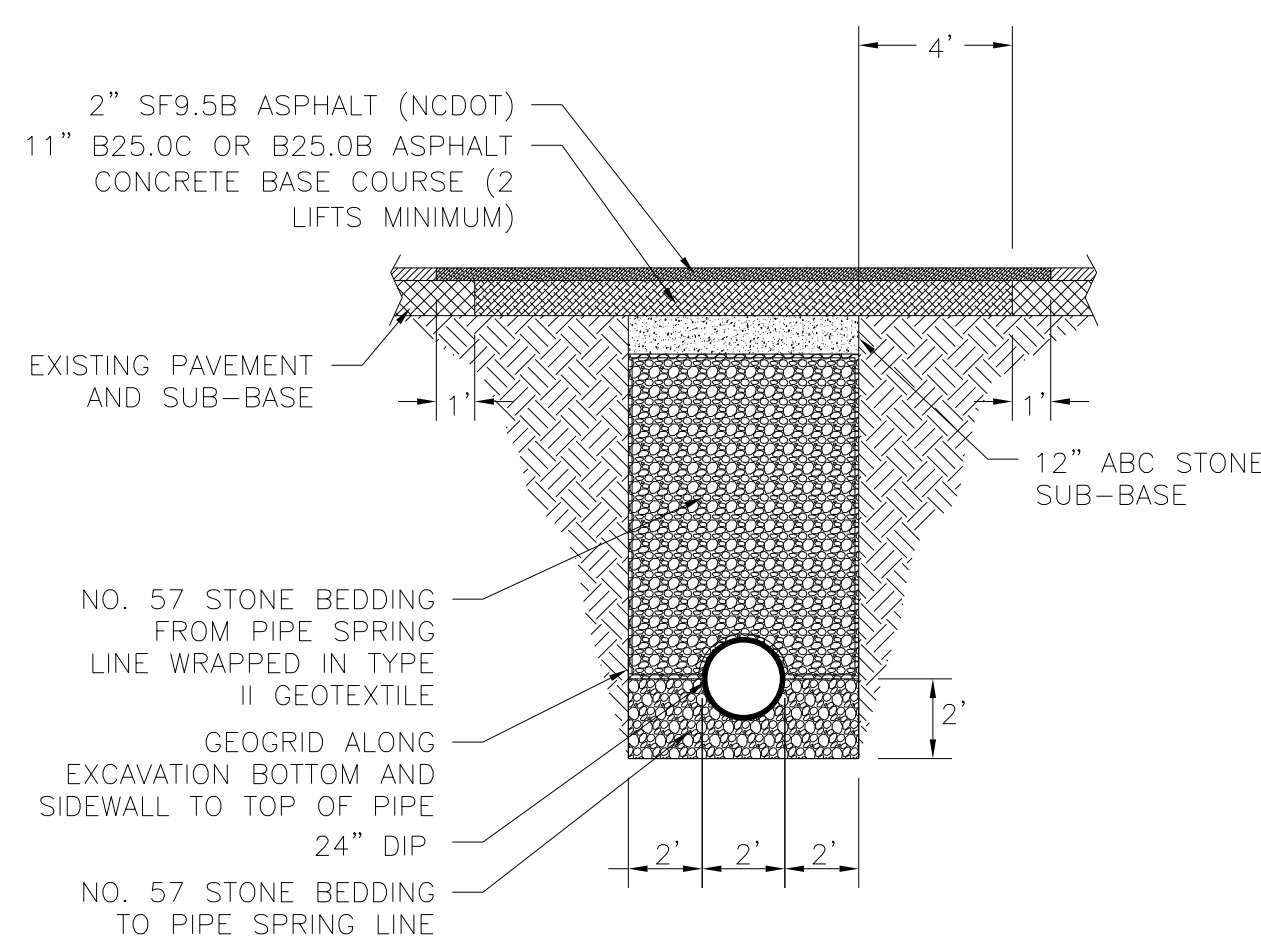


**STORM DRAIN CROSSING  
DETAIL - PROFILE VIEW**  
NOT TO SCALE



- NOTE:
1. STONE DEPTH TO BE A MINIMUM OF 12 INCHES OR AS DIRECTED BY ENGINEER. ENGINEER TO BE CONTACTED PRIOR TO PLACEMENT OF ANY STONE.
  2. REINFORCEMENT GRID TO BE PLACED ALONG SIDE WALL TO THE HEIGHT OF THE TOP OF PIPE.

**UNSTABLE SUBGRADE PIPE TRENCH DETAIL**  
NOT TO SCALE

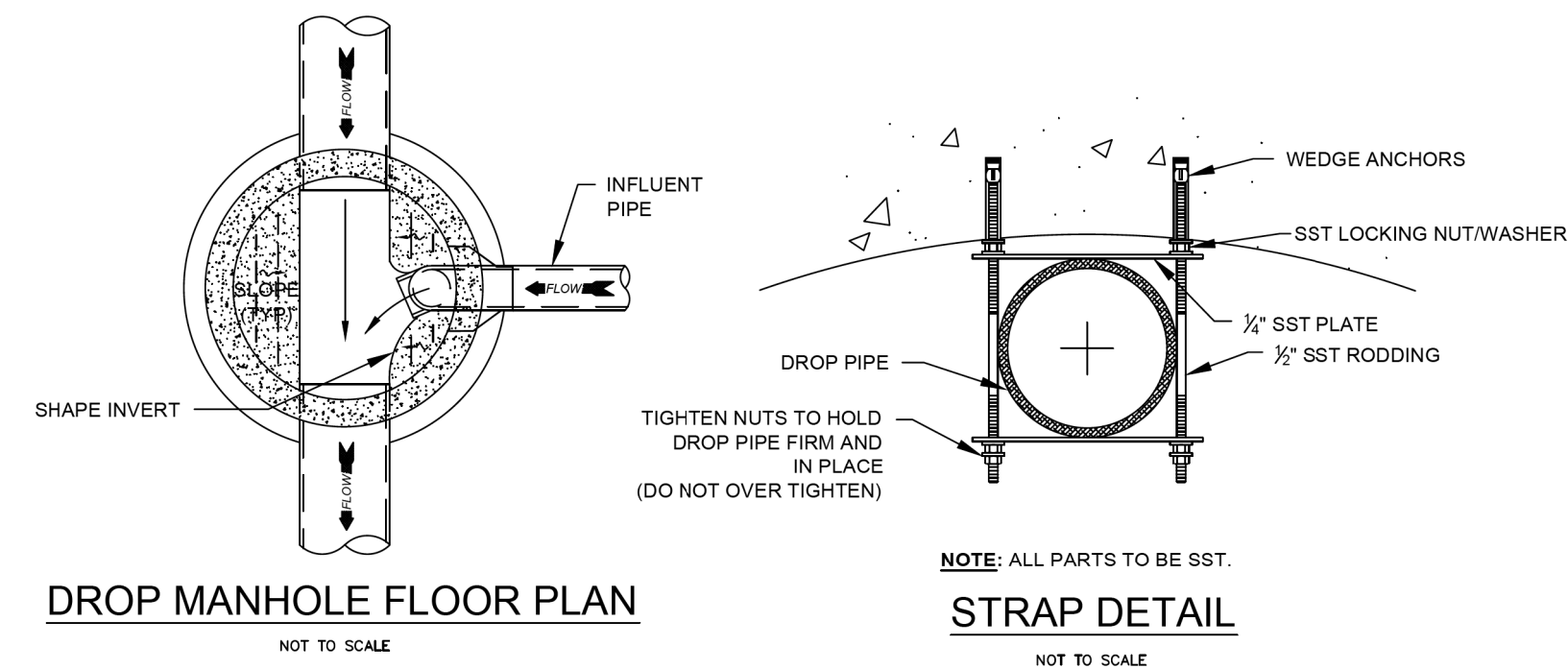
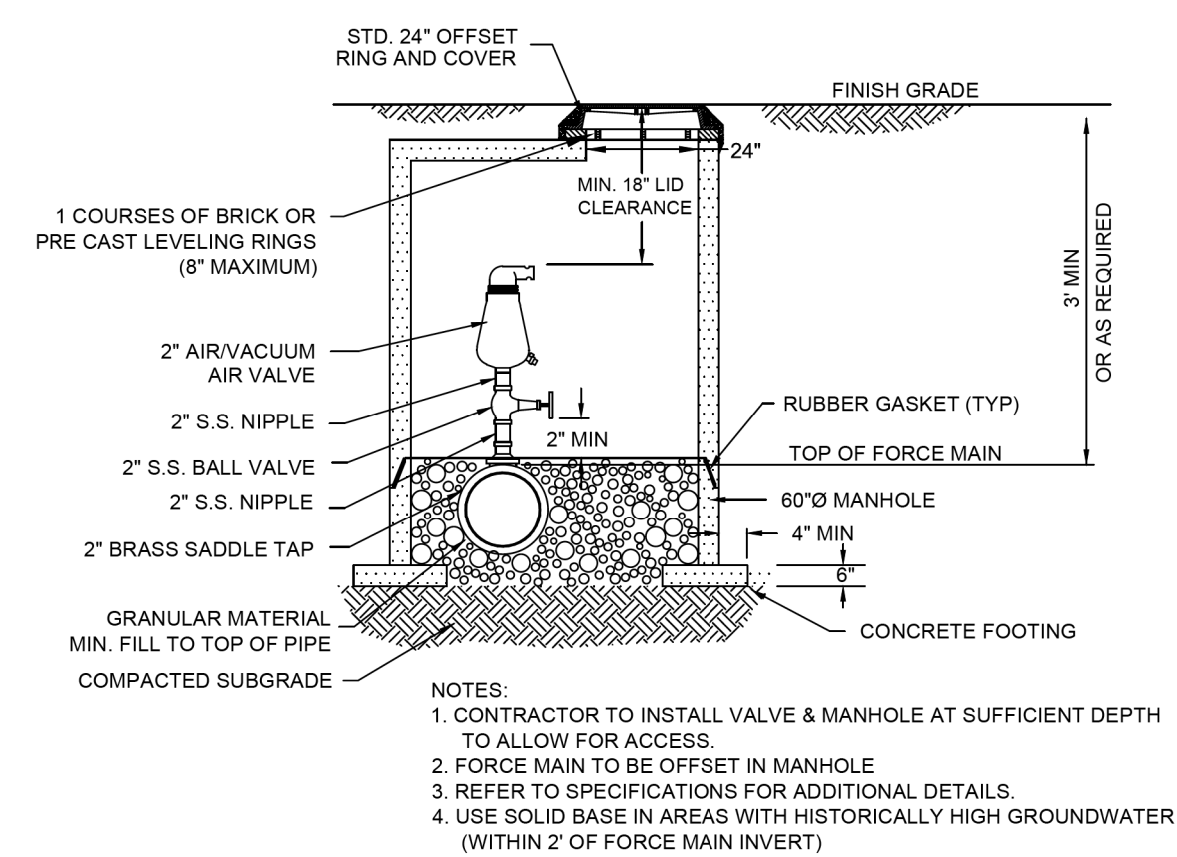
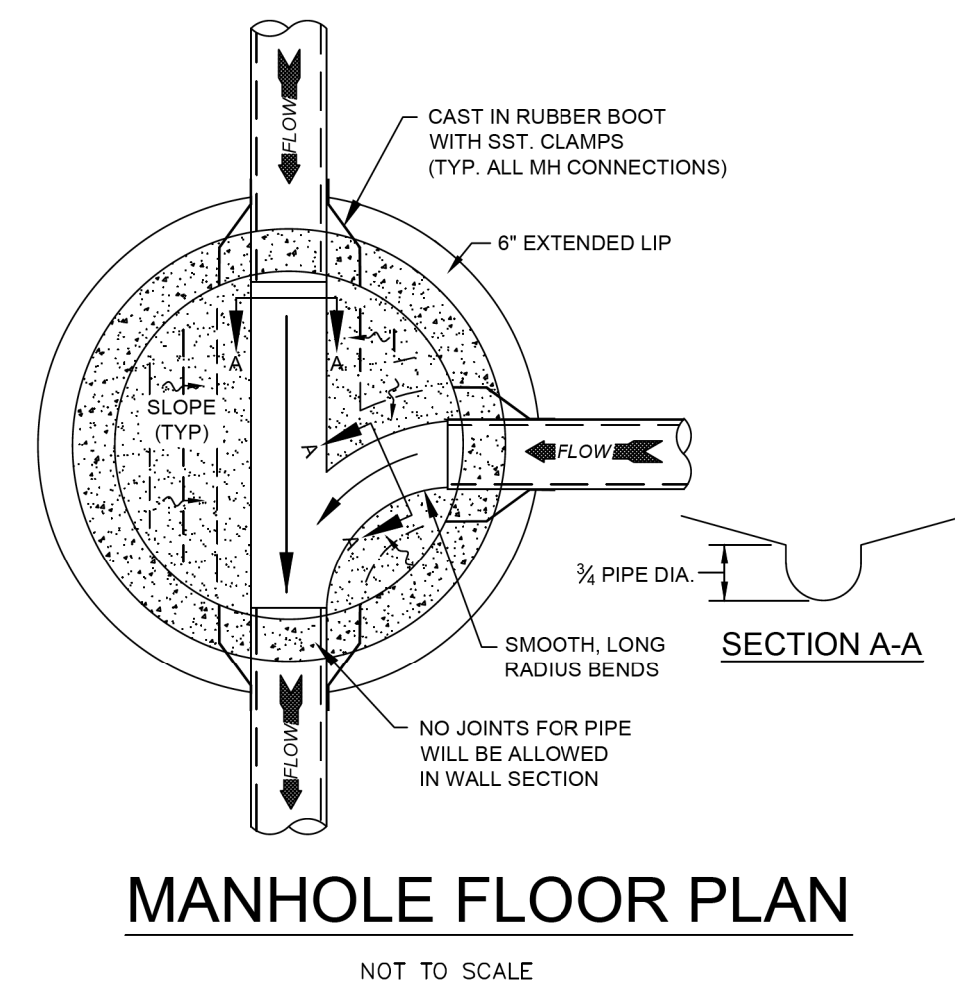
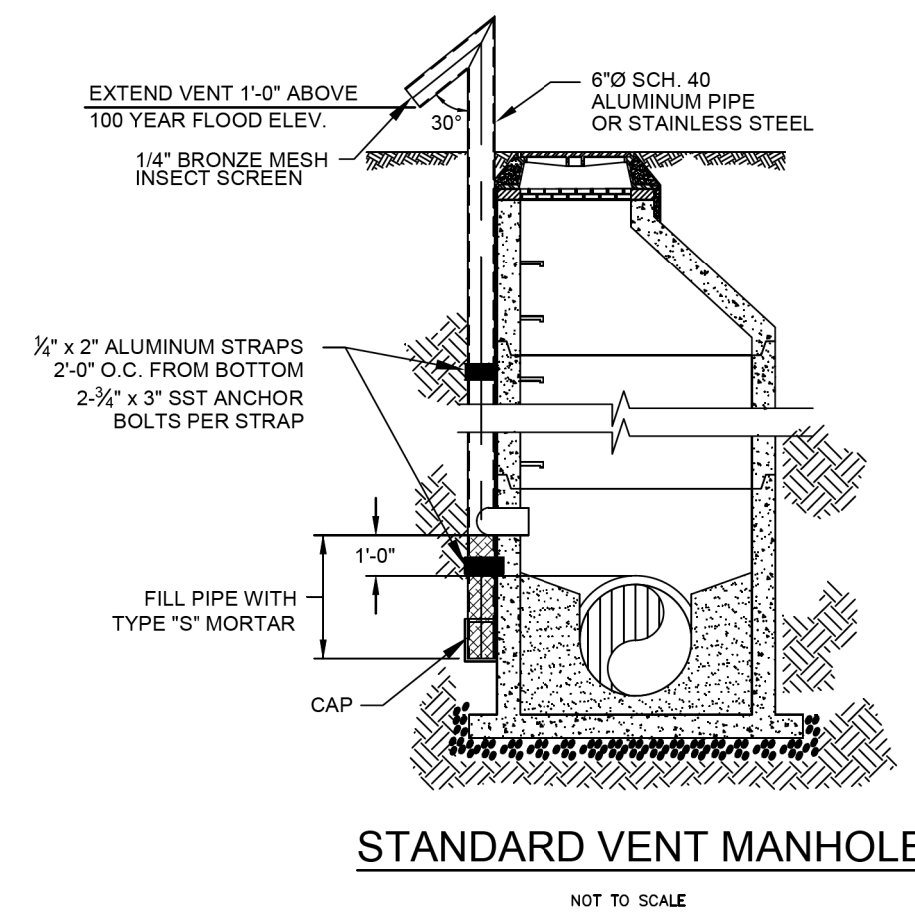
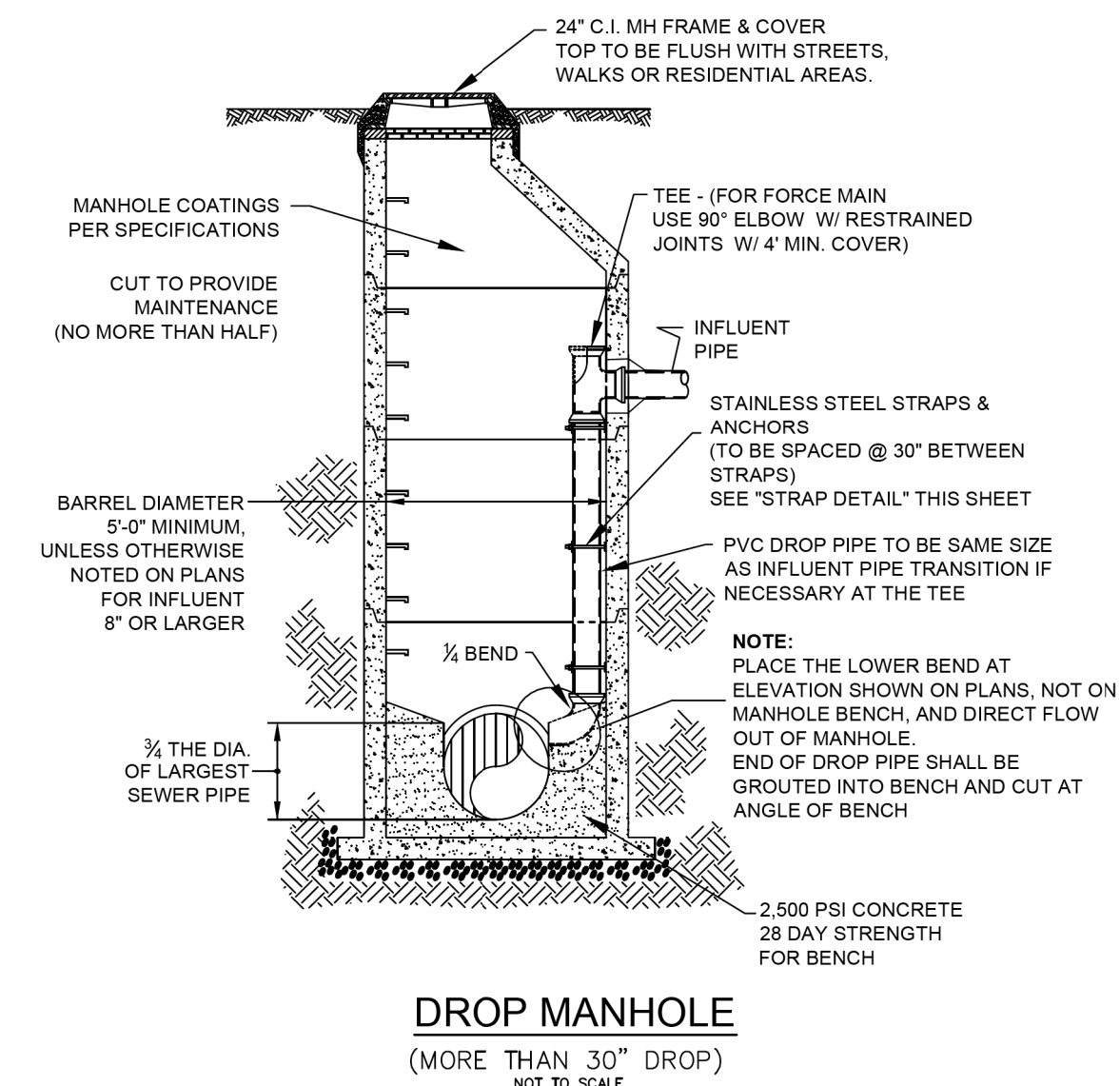
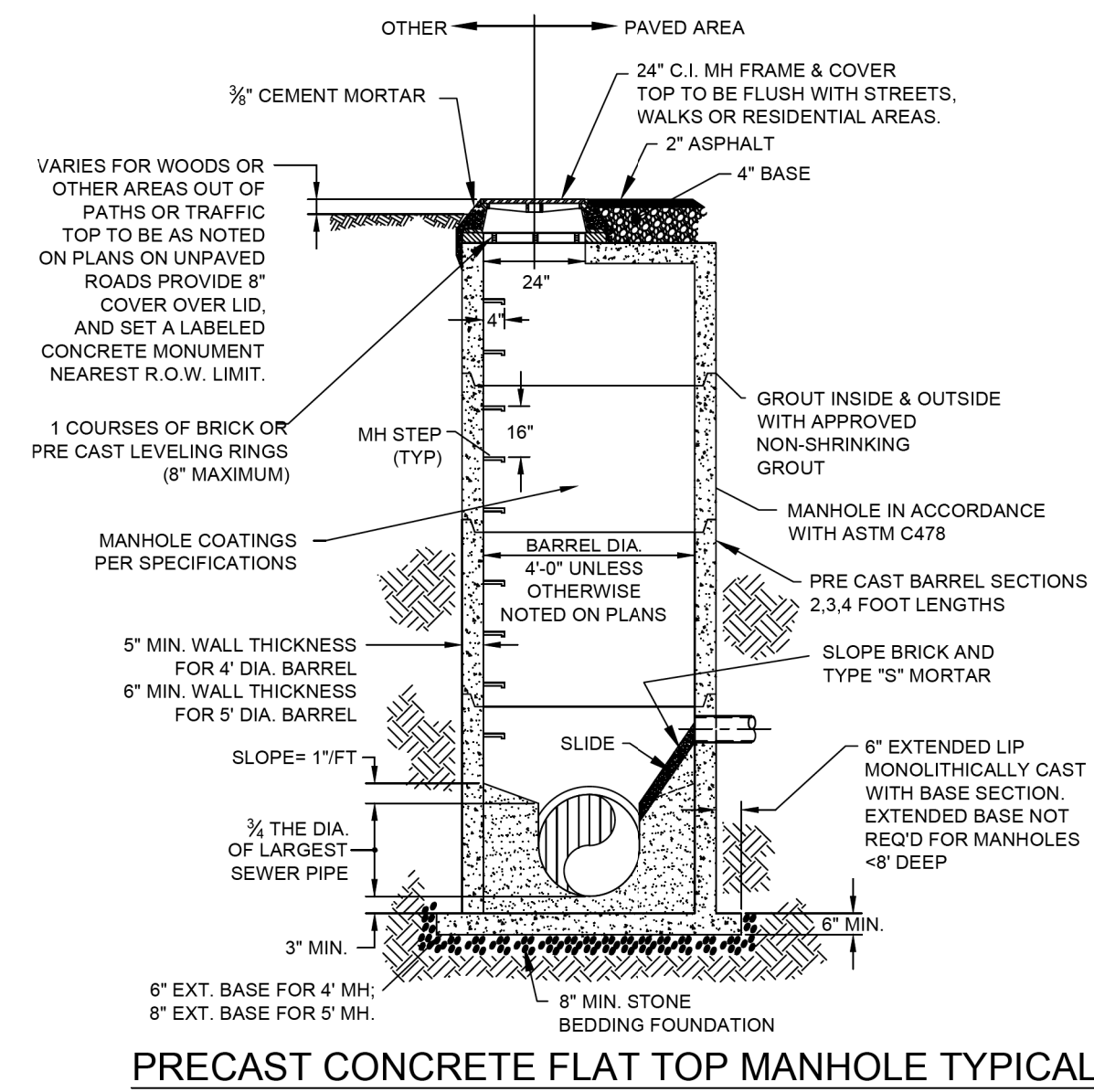
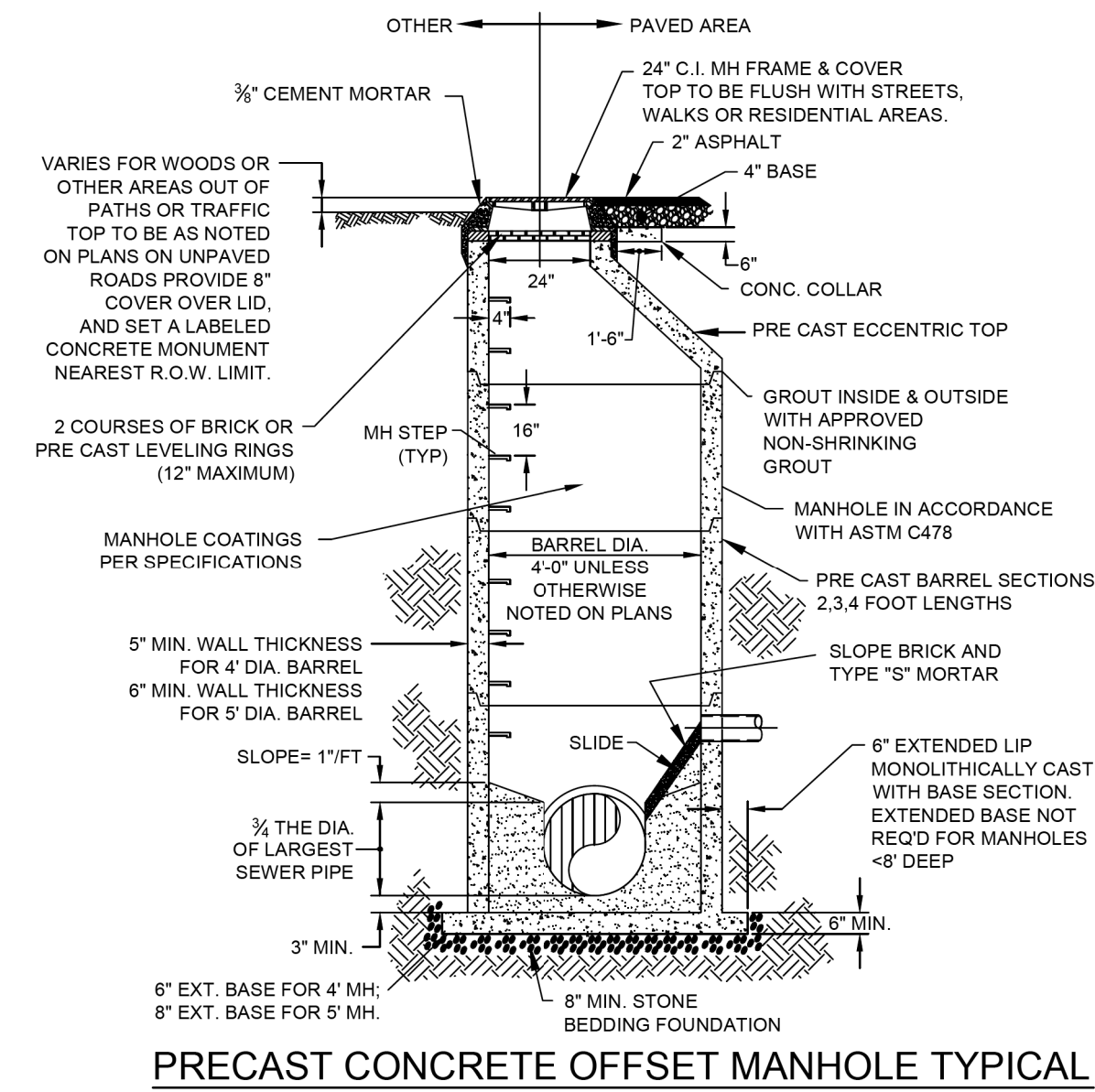


- PAVEMENT NOTE:
1. PAVEMENT SHALL BE CUT FULL DEPTH AND REMOVED.
  2. BACKFILL AND COMPACT WITHIN 30' SECTION WITH ABC STONE.
  3. AFTER TRENCH WORK IS COMPLETE, THE EDGES OF THE EXISTING PAVEMENT ALONG THE TRENCH SHOULD BE RECUT A MINIMUM OF 1' WIDER ON EACH SIDE OF THE TRENCH; OR IF THE PAVEMENT IS UNDERMINED, TO 1' BEYOND THE UNDERMINED PORTION AND REMOVE THE PAVEMENT.
  4. THE PAVEMENT DESIGN SECTION FOR PAVEMENT REPAIR SHALL BE:  
11.0" B25.0C OR B25.0B ASPHALT CONCRETE BASE COURSE (ACCOMPLISHED IN 2 LIFTS MINIMUM)

**OPEN CUT PAVEMENT REPAIR  
DETAIL - FRONT STREET**  
NOT TO SCALE

NOTE: ASPHALT PAVEMENT OVERLAY MATERIALS AND CONSTRUCTION ARE TO BE PROVIDED IN ACCORDANCE WITH THE NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES DATED JANUARY 2012.

# SANITARY SEWER CONSTRUCTION DETAILS



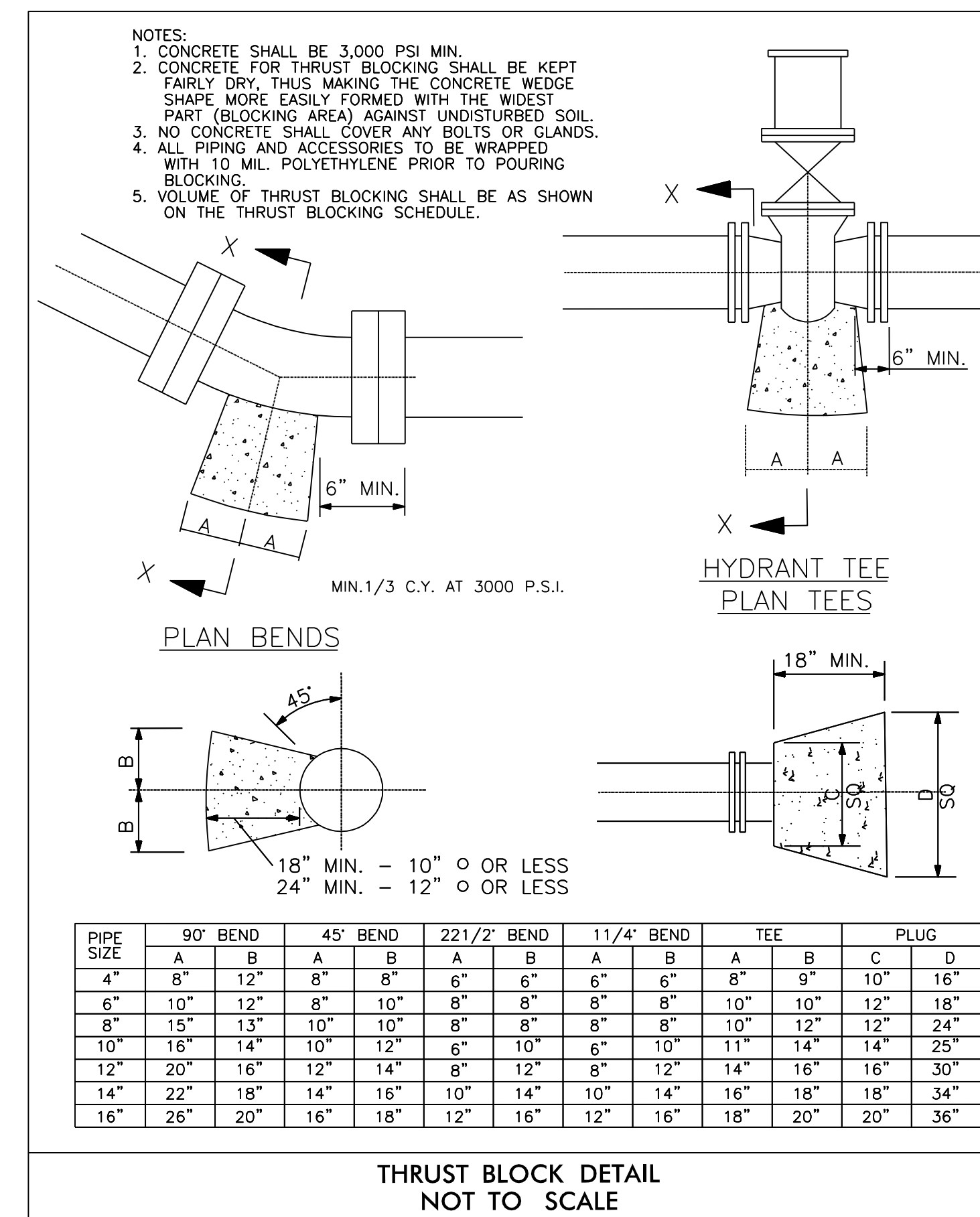
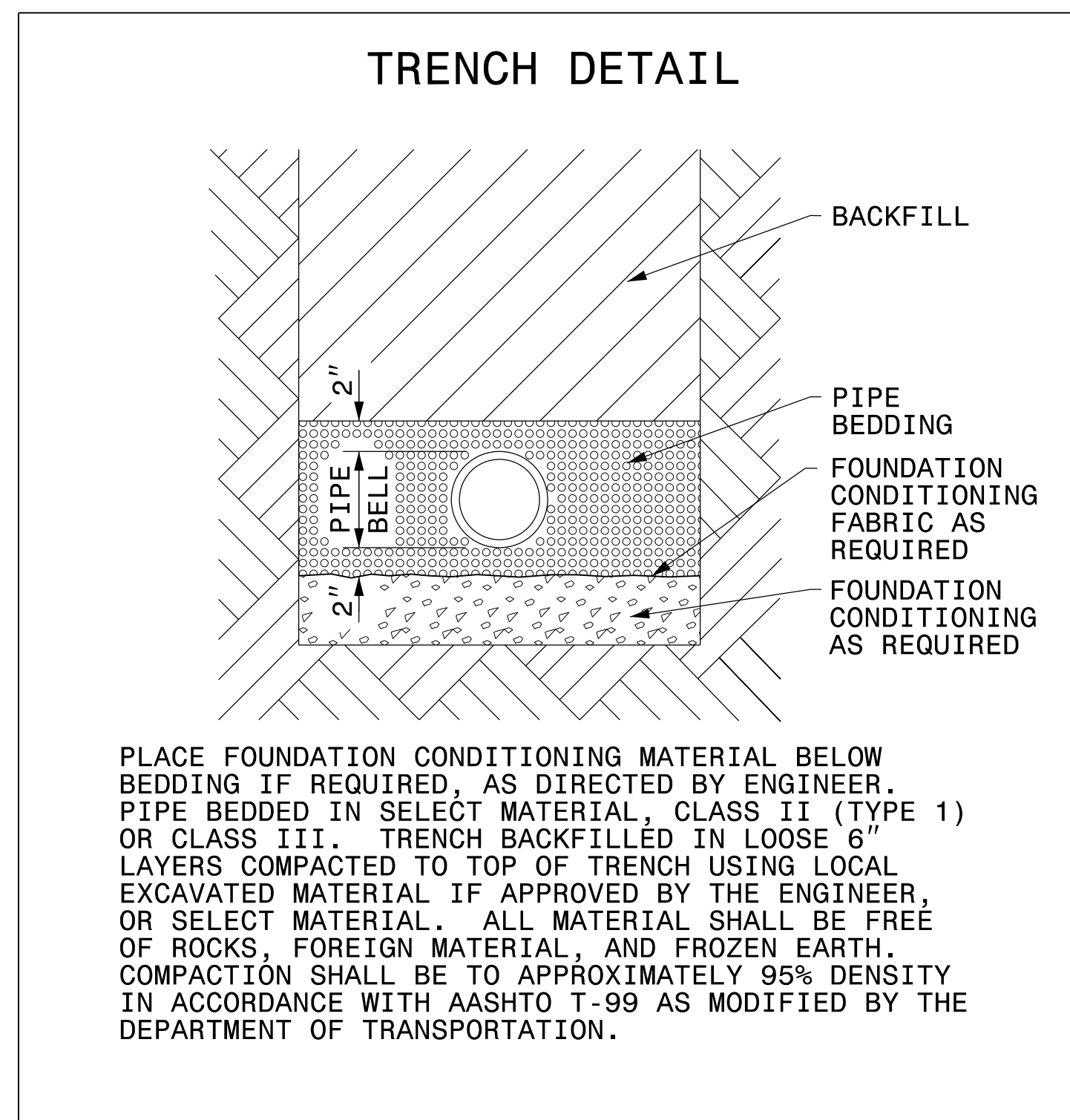
- STANDARD SEWER NOTES**  
(REQUIRED ON ALL SEWER PLAN AND PROFILE SHEETS)
- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
  - SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT R/W LINE. SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
  - ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
  - MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
  - NO FLEXIBLE COUPLINGS SHALL BE USED.
  - ALL STAINLESS STEEL FITTINGS SHALL BE 3/16".

- GENERAL NOTES:**
- NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
  - THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
  - THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
  - THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
  - THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN & STOCKPILE AREAS (TO ARRANGE AND INSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

**THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04**

**NOTE:** PILE FOUNDATION SYSTEM REQUIRED FOR PROPOSED PROJECT MANHOLES CONTRACTOR IS RESPONSIBLE FOR PROVIDING PILE-CAP DETAIL FOR MAN HOLE INSTALLATION. SEE GENERAL NOTE 11 ON SHEET 2.

# WATER LINE CONSTRUCTION DETAILS

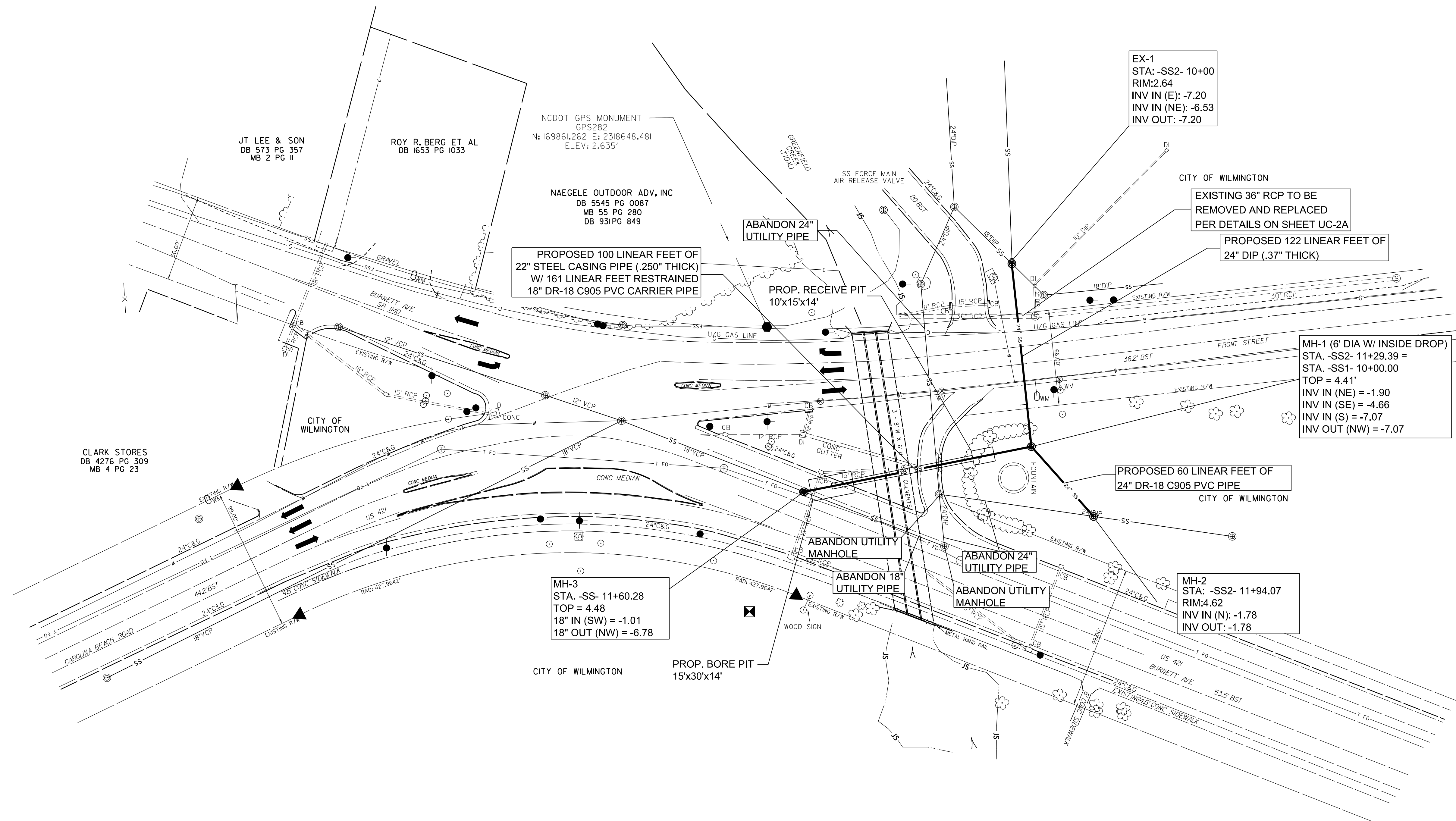


\*NOTE: THRUST BLOCKING IS REQUIRED AT ALL BENDS.



NAD 83/NSRS 2007

# PROPOSED SANITARY SEWER LINE



PROJECT REFERENCE NO. 17BP.3.R.28	SHEET NO. UC-3
RW SHEET NO.	
UTILITY ENGINEER	
10/21/2014	
<b>ATKINS</b>	
1616 EAST WILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326	
THIS ENGINEER IS RESPONSIBLE FOR THE DESIGN OF THE SANITARY SEWER LINE FOR CHAIN -SS- FROM STA. 10+00 TO STA 11+60.28 INCLUDING MANHOLE MH-3.	
UTILITY ENGINEER	
10/21/2014	
<b>WK DICKSON</b>	
community infrastructure consultants 909 MARKET STREET WILMINGTON, NC 28401 (910) 762-4200 NC LICENSE NO. F-0374	
THIS ENGINEER IS RESPONSIBLE FOR THE DESIGN OF THE SANITARY SEWER LINE FOR CHAIN -SS2- FROM STA. 10+00 TO STA 11+94.07 INCLUDING MANHOLES MH-1 AND MH-2.	

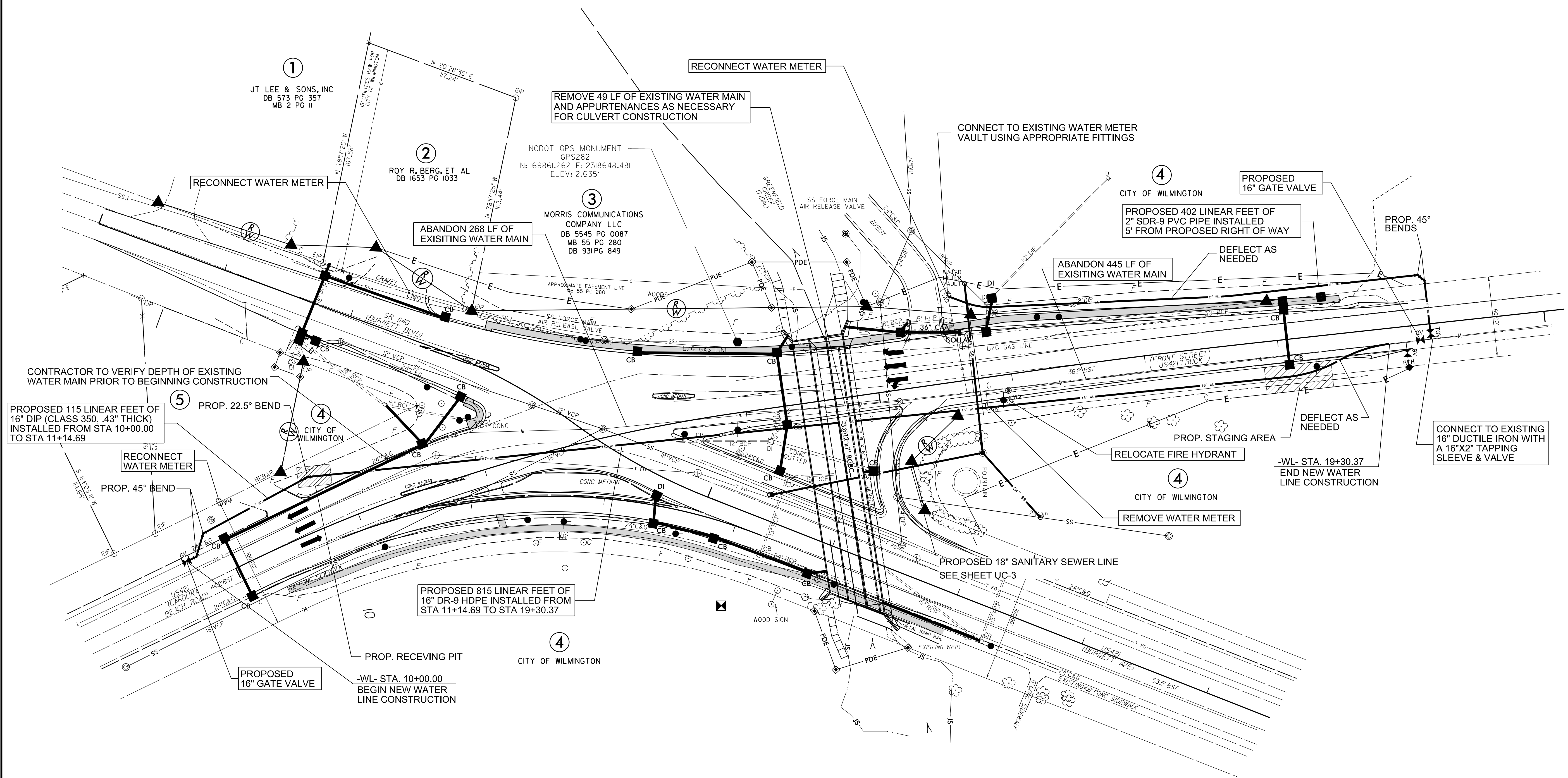
NOTE: PROPOSED SANITARY SEWER LINE CONSTRUCTION TO BE COMPLETED BEFORE CULVERT CONSTRUCTION BEGINS. SEE TMP SHEETS FOR CONSTRUCTION PHASING DETAILS.

SEE SHEET UC-5 FOR -SS- & -SS2- PROFILES  
SEE SHEET UC-2A & UC-2B FOR SEWER CONSTRUCTION DETAILS

NAD 83 NSRS 2007

# PROPOSED WATER LINE

ATKINS 1616 EAST HILLBROOK ROAD, SUITE 310  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326



CONTRACTOR TO VERIFY DEPTH OF EXISTING WATER MAIN PRIOR TO BEGINNING CONSTRUCTION

PROPOSED 115 LINEAR FEET OF 16" DIP (CLASS 350, 43" THICK) INSTALLED FROM STA 10+00.00 TO STA 11+14.69

PROPOSED 815 LINEAR FEET OF 16" DR-9 HDPE INSTALLED FROM STA 11+14.69 TO STA 19+30.37

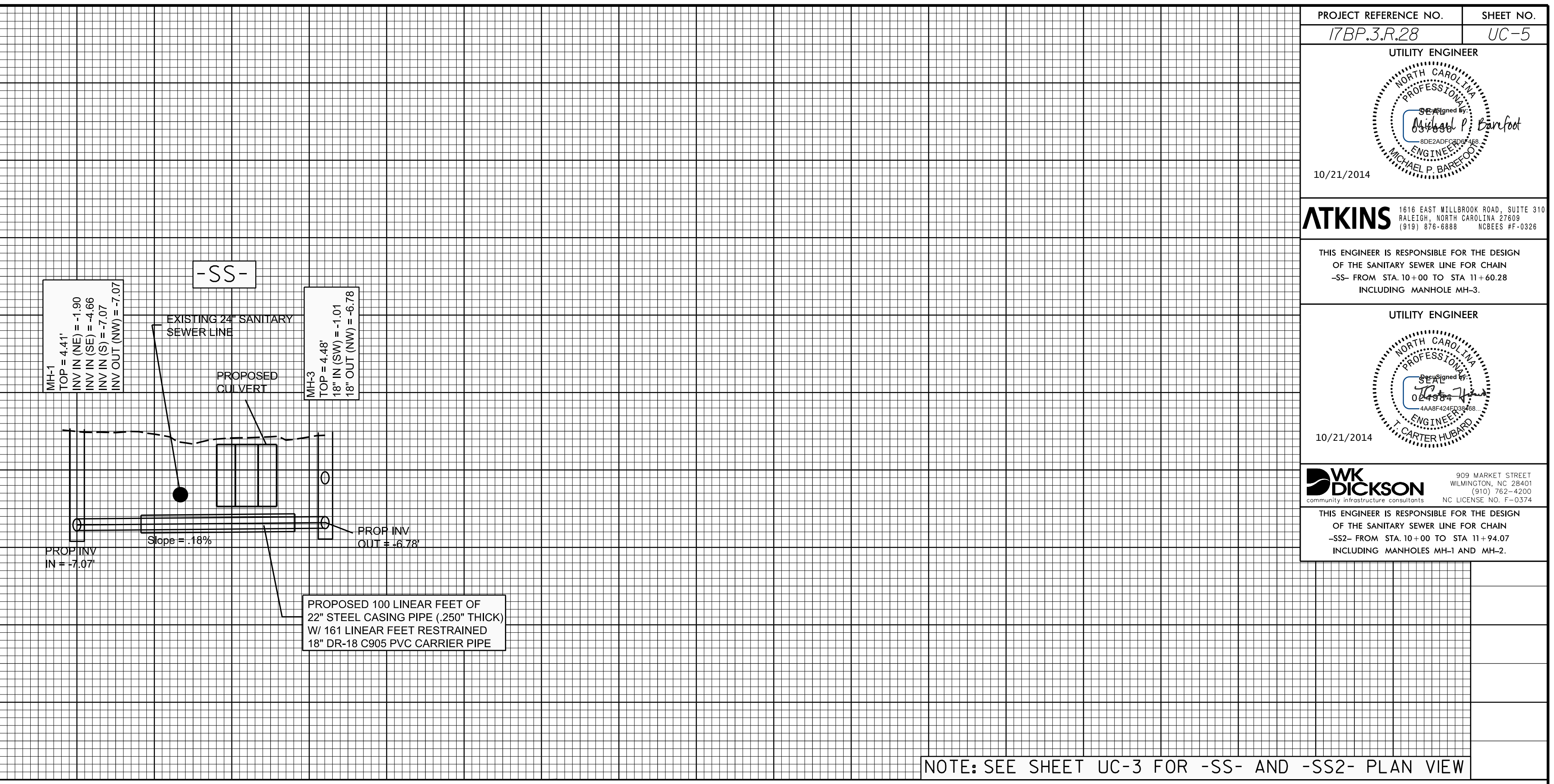
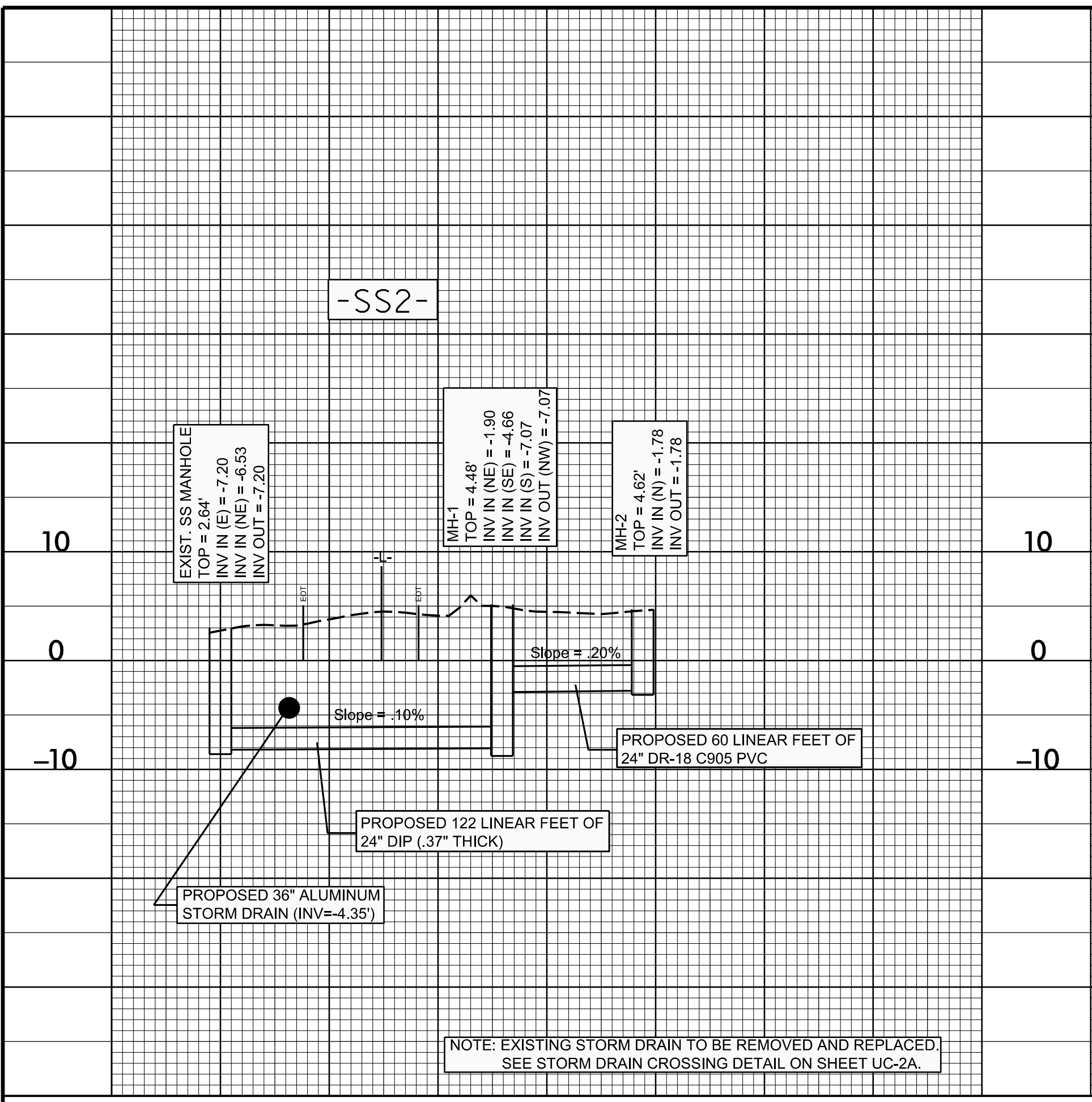
PROPOSED 402 LINEAR FEET OF 2" SDR-9 PVC PIPE INSTALLED 5' FROM PROPOSED RIGHT OF WAY

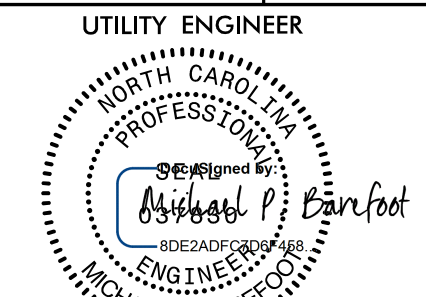
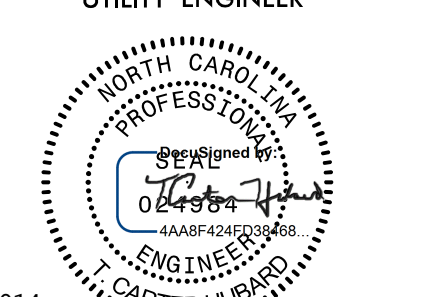
-WL- STA. 19+30.37 END NEW WATER LINE CONSTRUCTION

NOTE: MAINTAIN WATER SUPPLY TO PUMP STATION AT ALL TIMES

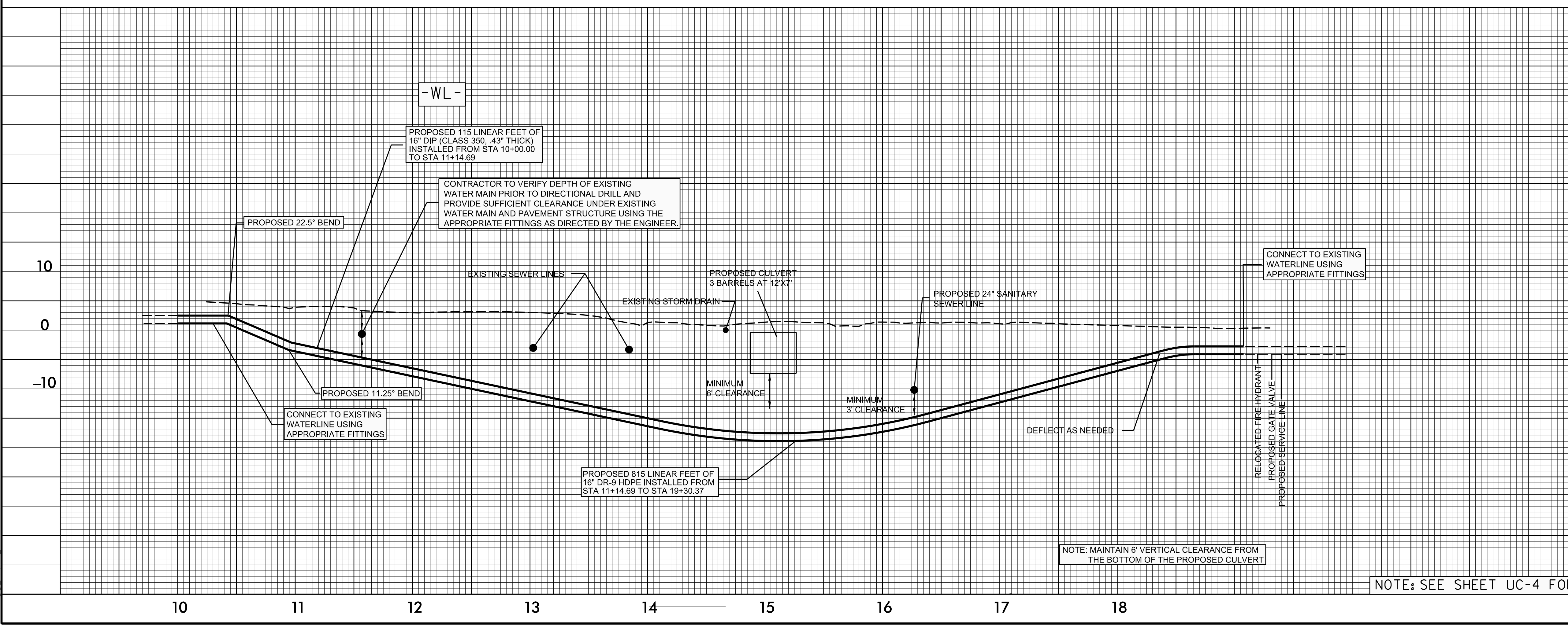
SEE SHEET UC-5 FOR -WL- PROFILE

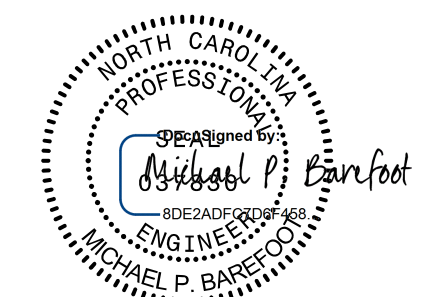
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PROJECT REFERENCE NO. <b>17BP.3.R.28</b>	SHEET NO. <b>UC-5</b>
UTILITY ENGINEER	
	
10/21/2014	
<b>ATKINS</b>	
1616 EAST HILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBES #F-0326	
THIS ENGINEER IS RESPONSIBLE FOR THE DESIGN OF THE SANITARY SEWER LINE FOR CHAIN -SS- FROM STA. 10+00 TO STA. 11+60.28 INCLUDING MANHOLE MH-3.	
UTILITY ENGINEER	
	
10/21/2014	
<b>WK DICKSON</b>	
909 MARKET STREET WILMINGTON, NC 28401 (910) 762-4200 COMMUNITY INFRASTRUCTURE CONSULTANTS NC LICENSE NO. F-0374	
THIS ENGINEER IS RESPONSIBLE FOR THE DESIGN OF THE SANITARY SEWER LINE FOR CHAIN -SS2- FROM STA. 10+00 TO STA. 11+94.07 INCLUDING MANHOLES MH-1 AND MH-2.	

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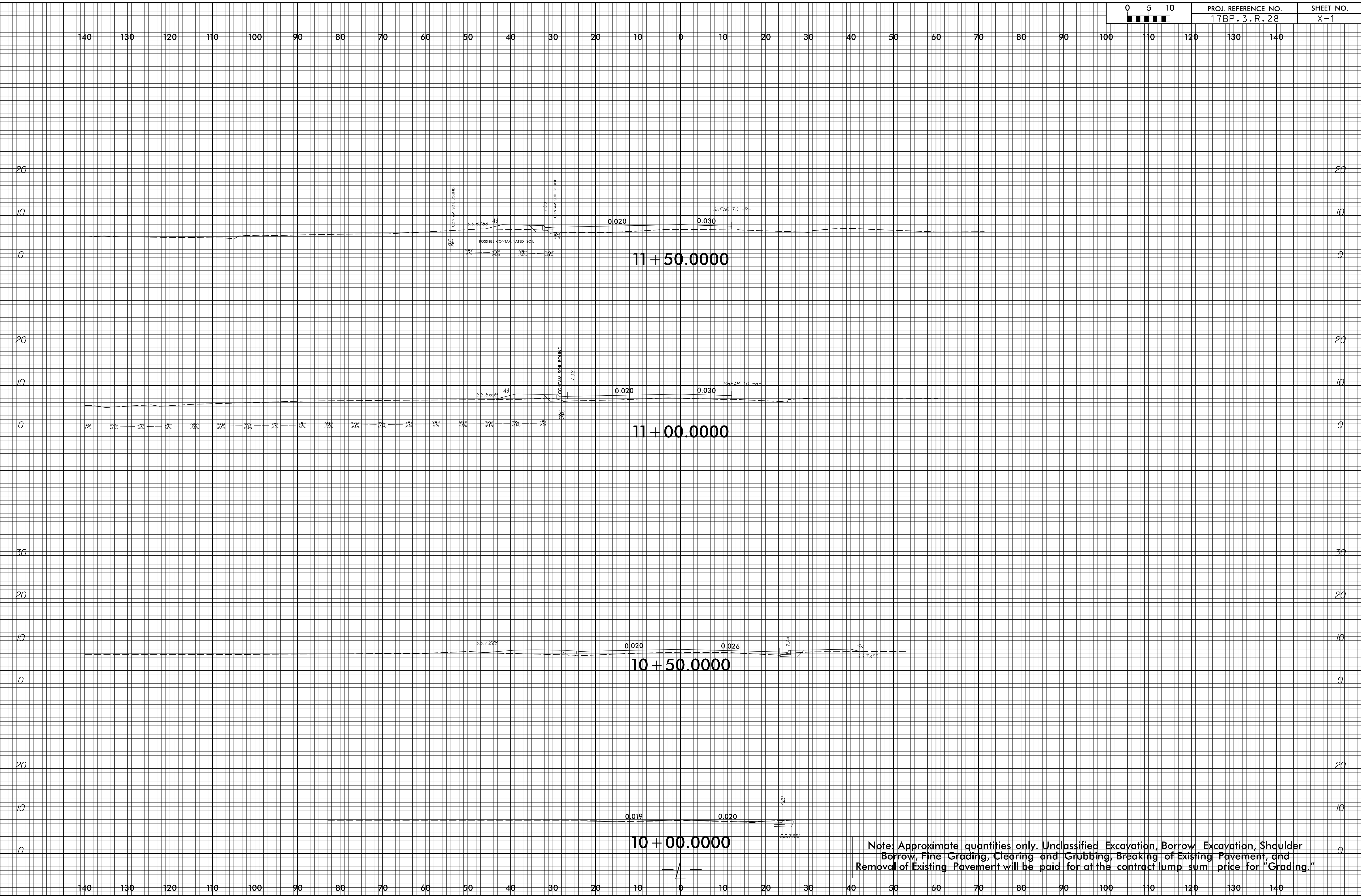


UTILITY ENGINEER

10/21/2014
<b>ATKINS</b>
1616 EAST HILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBES #F-0326





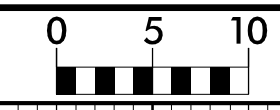
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Note: Approximate quantities only. Unclassified Excavation, Borrow, Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

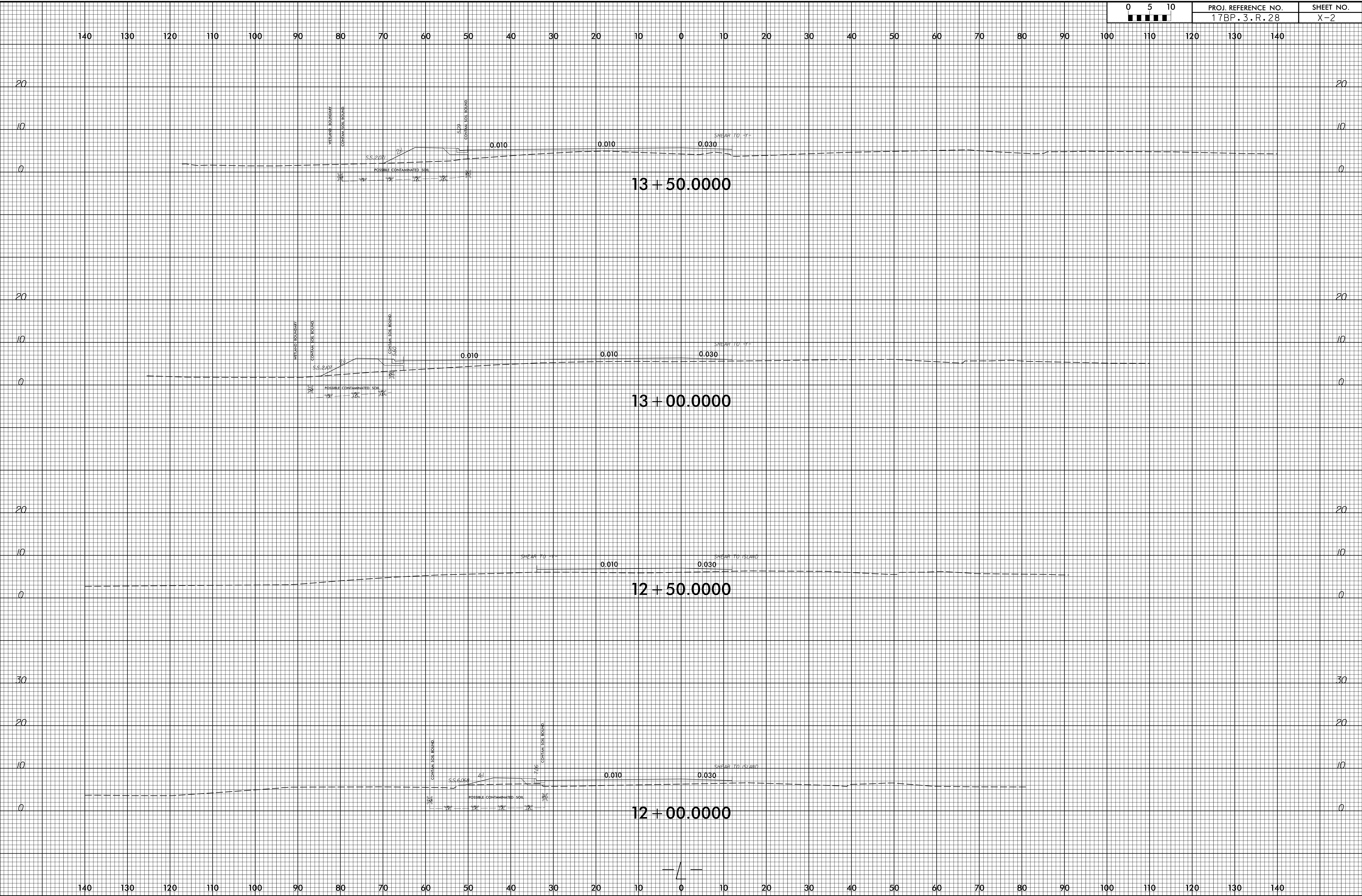
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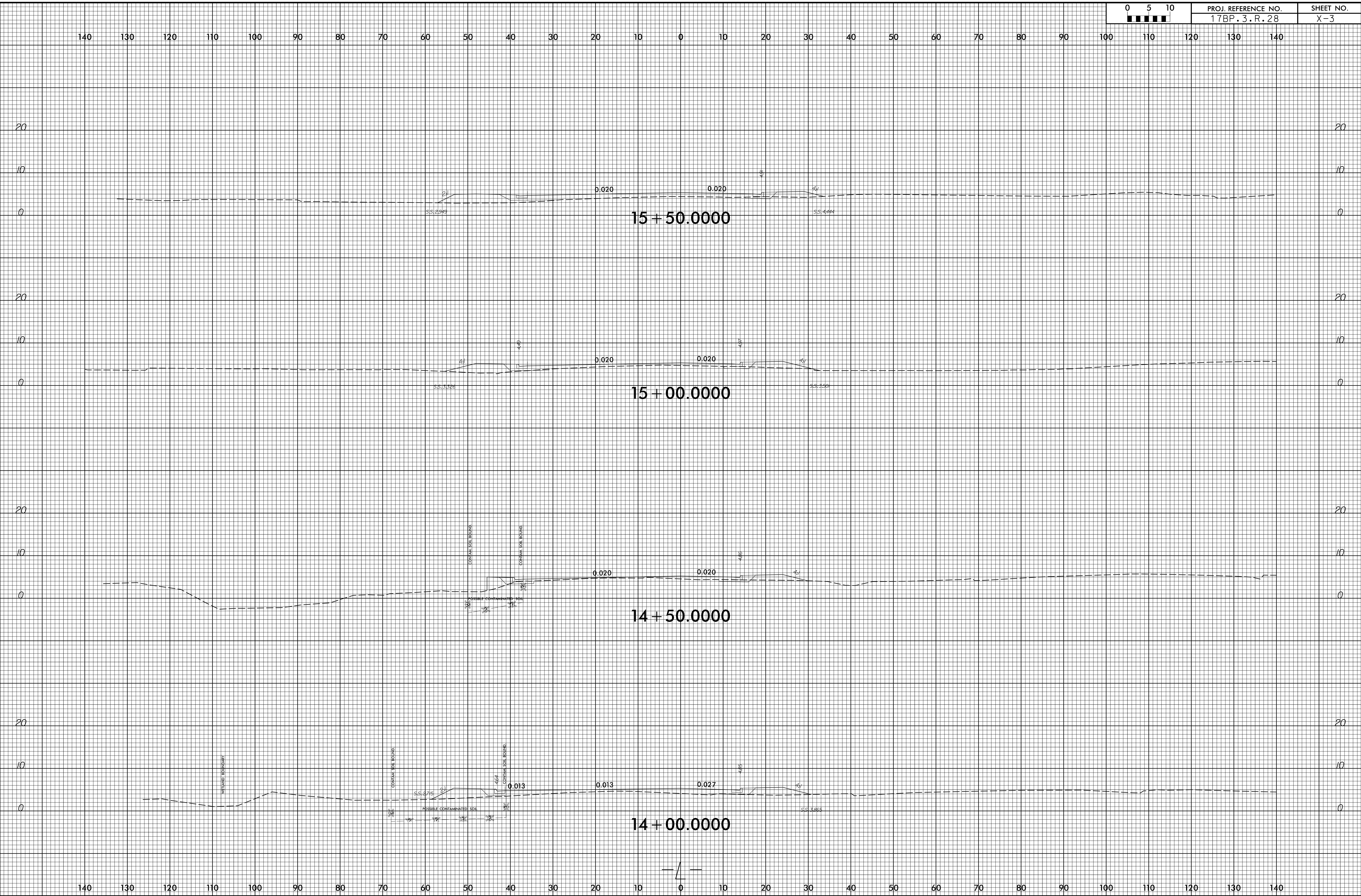
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SHEET NO.  
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8/23/99



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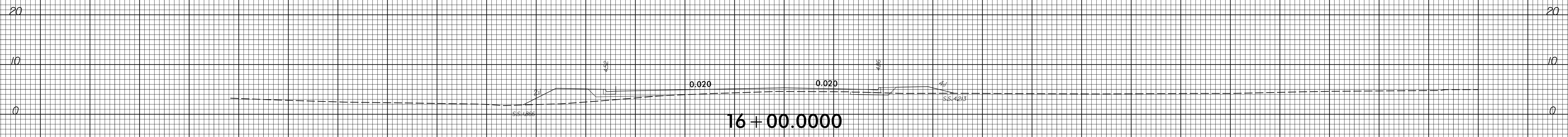
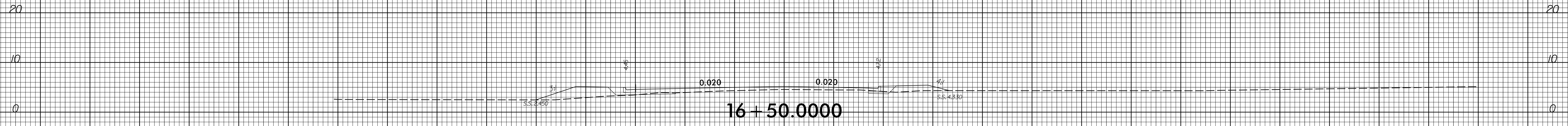
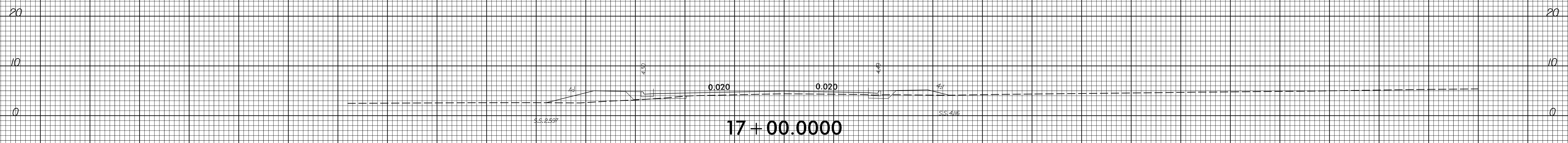
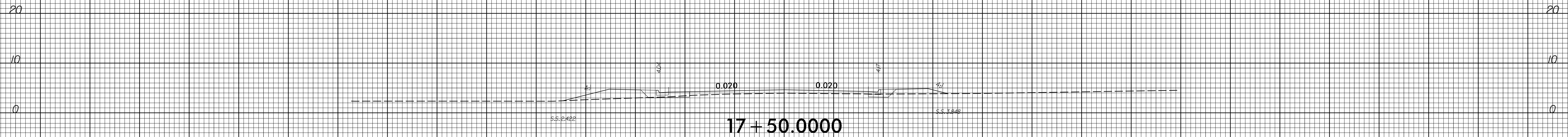
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PROJ. REFERENCE NO.  
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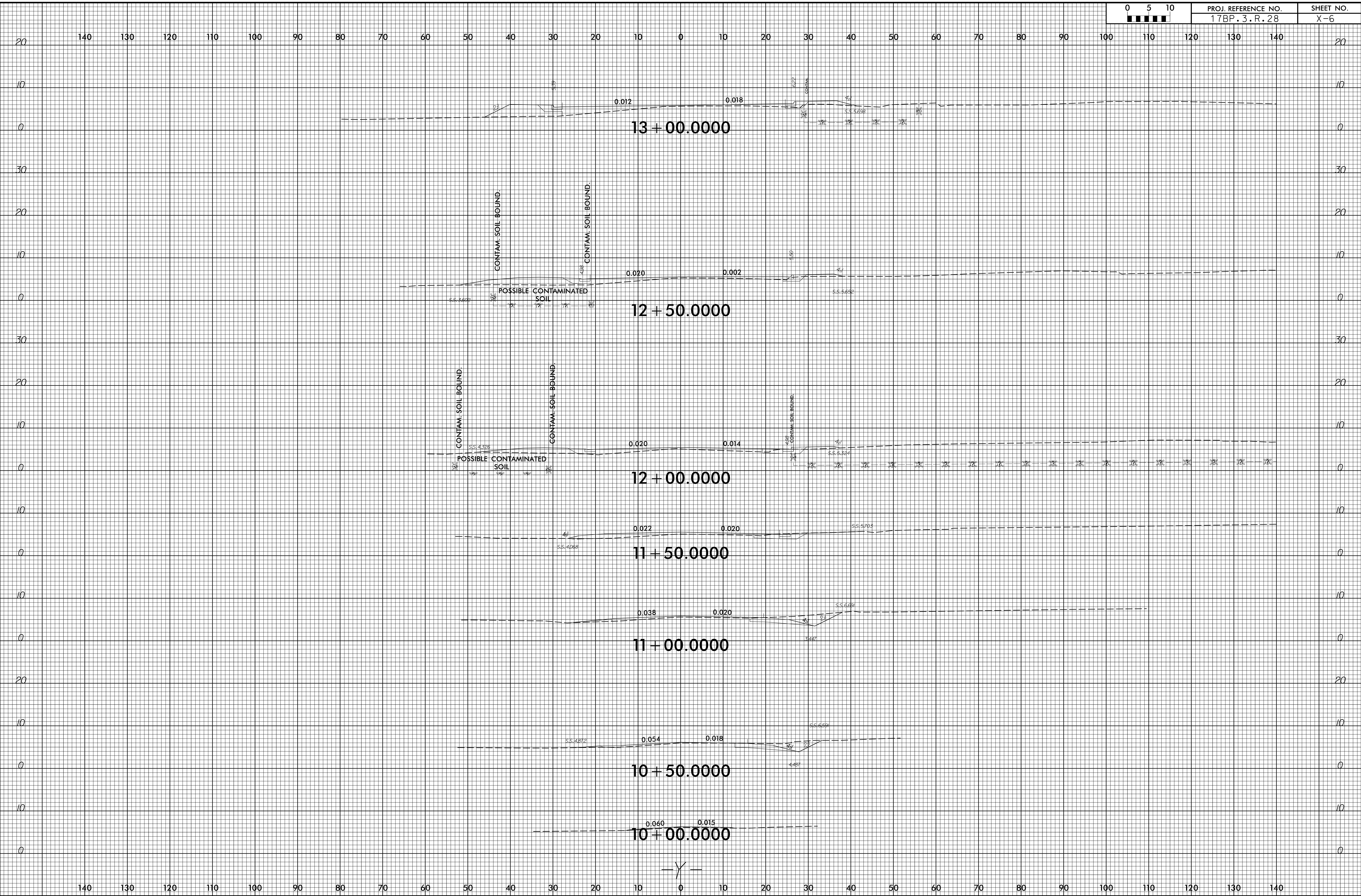


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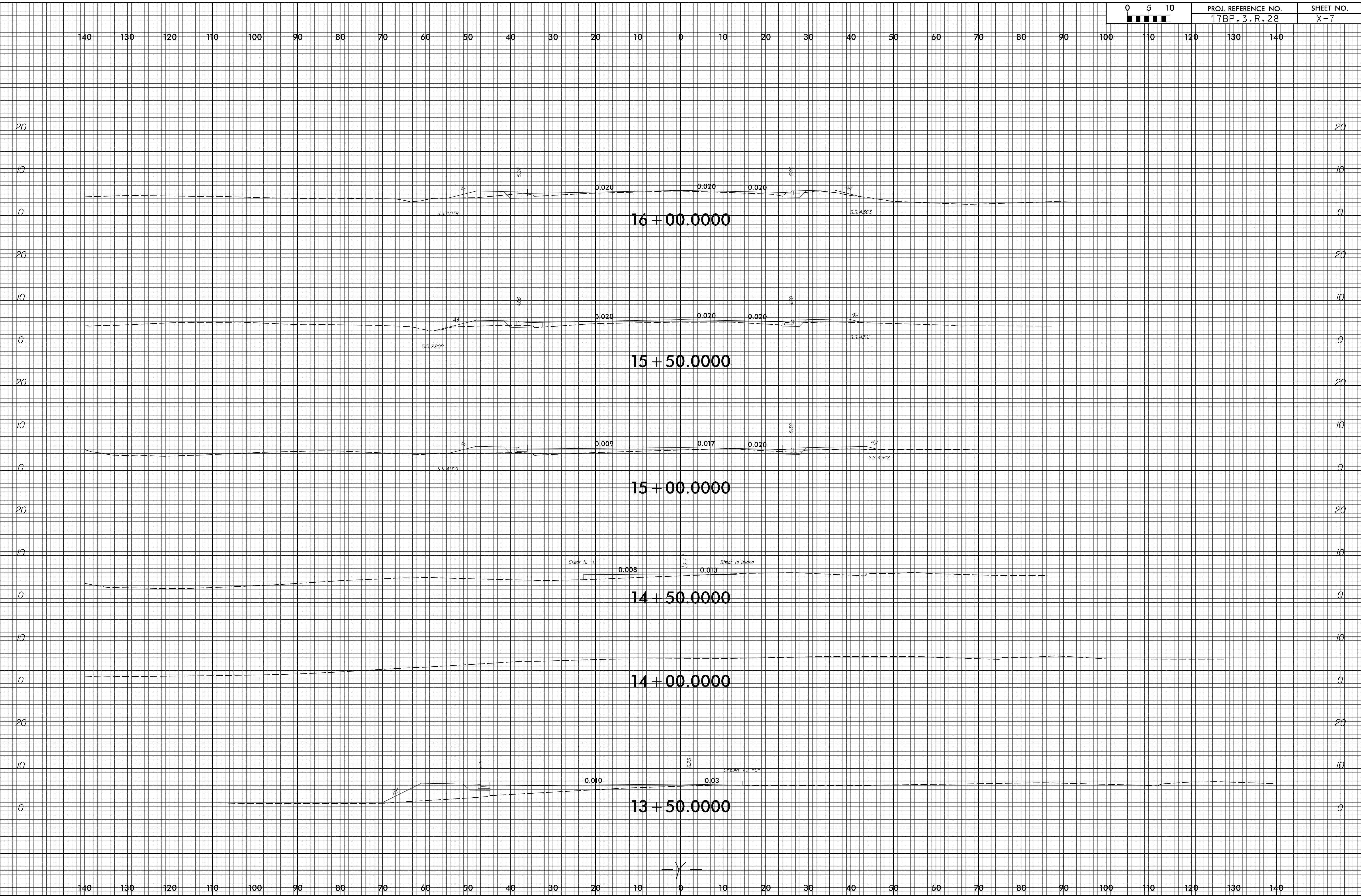


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8/23/99



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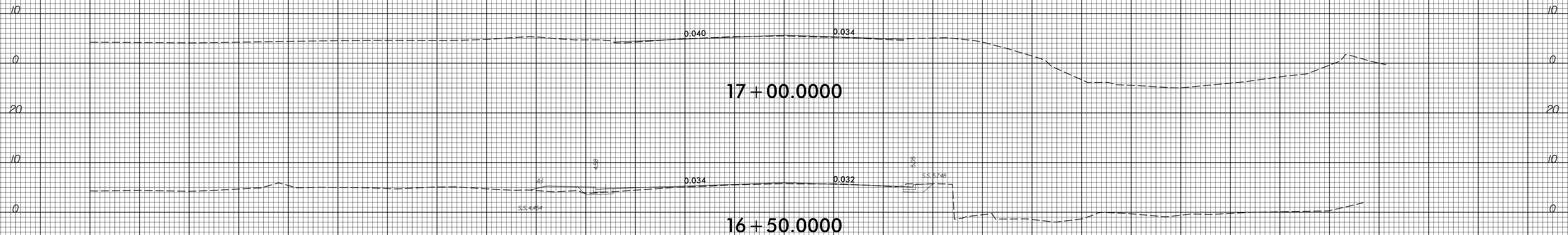
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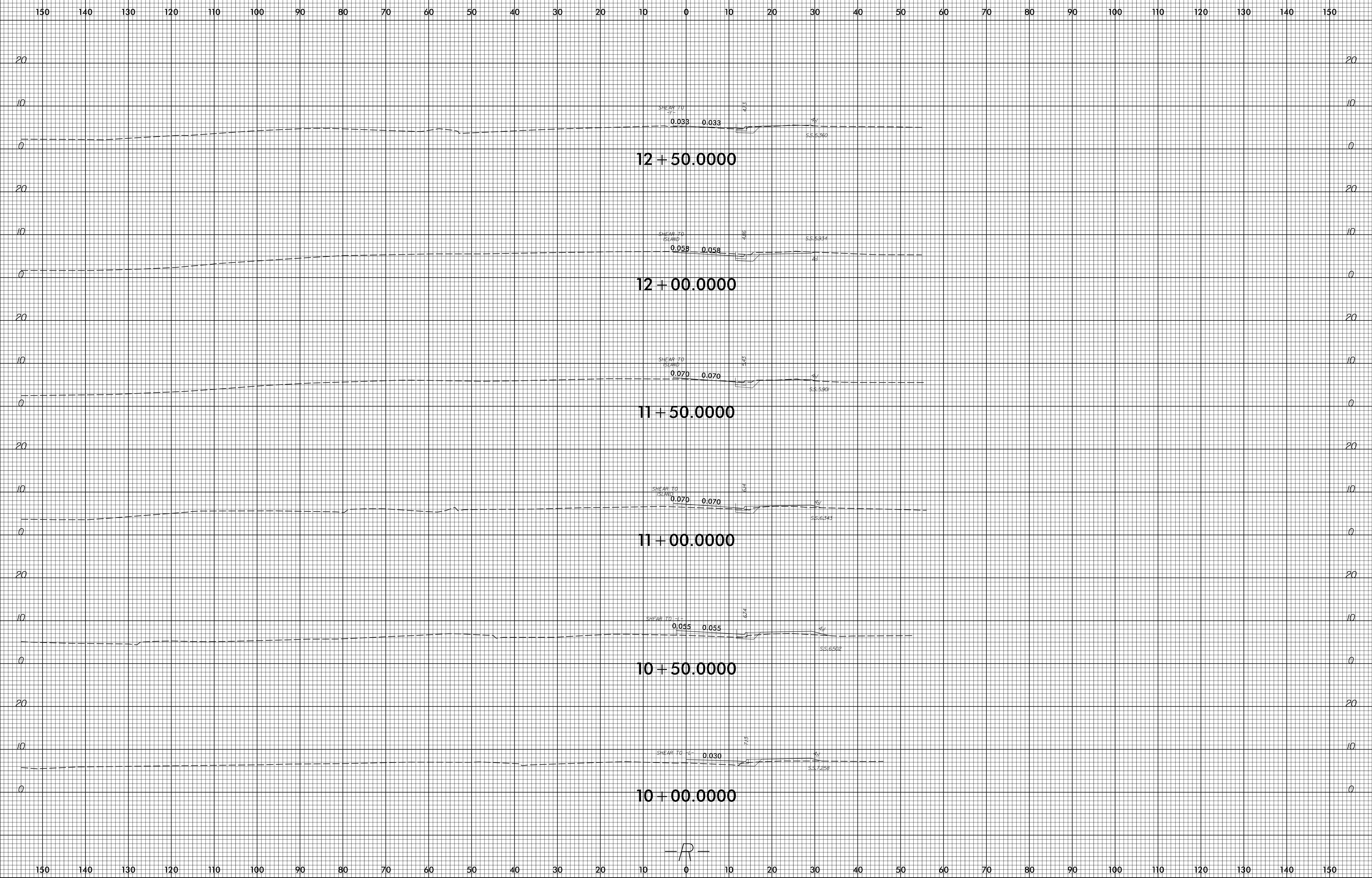


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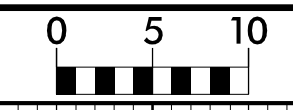
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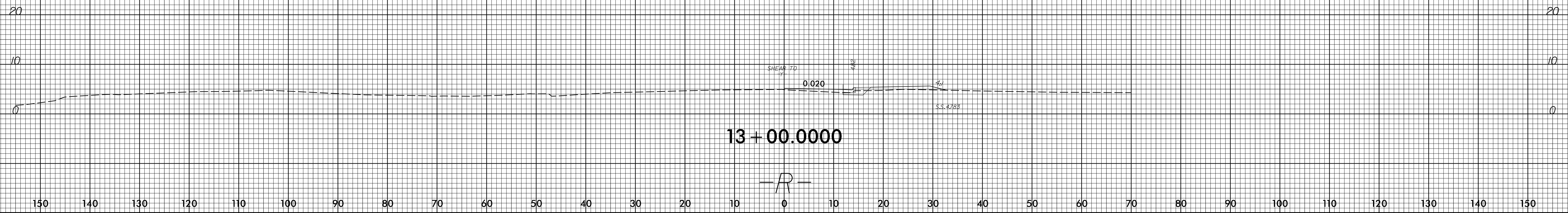
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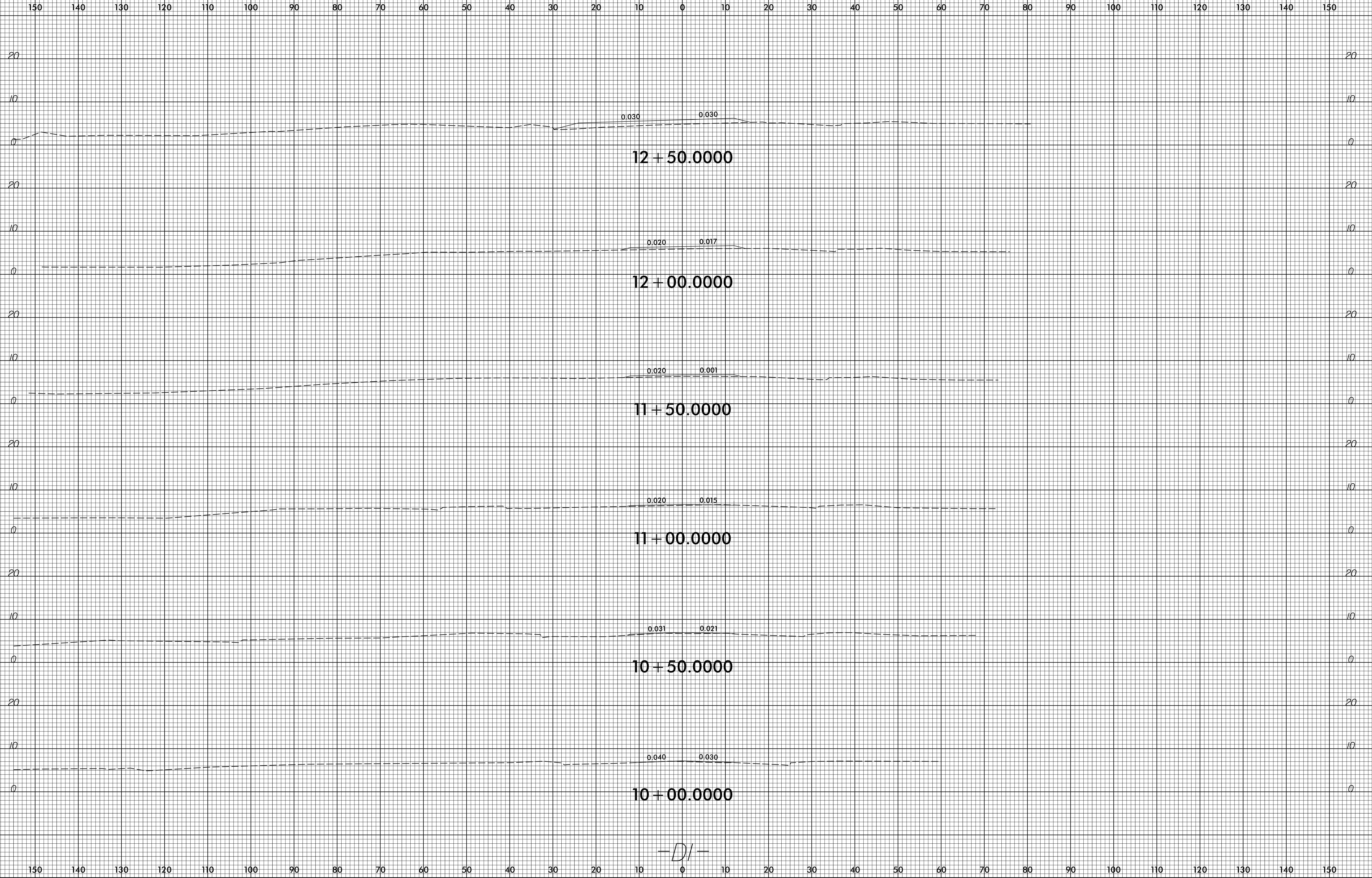
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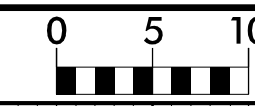
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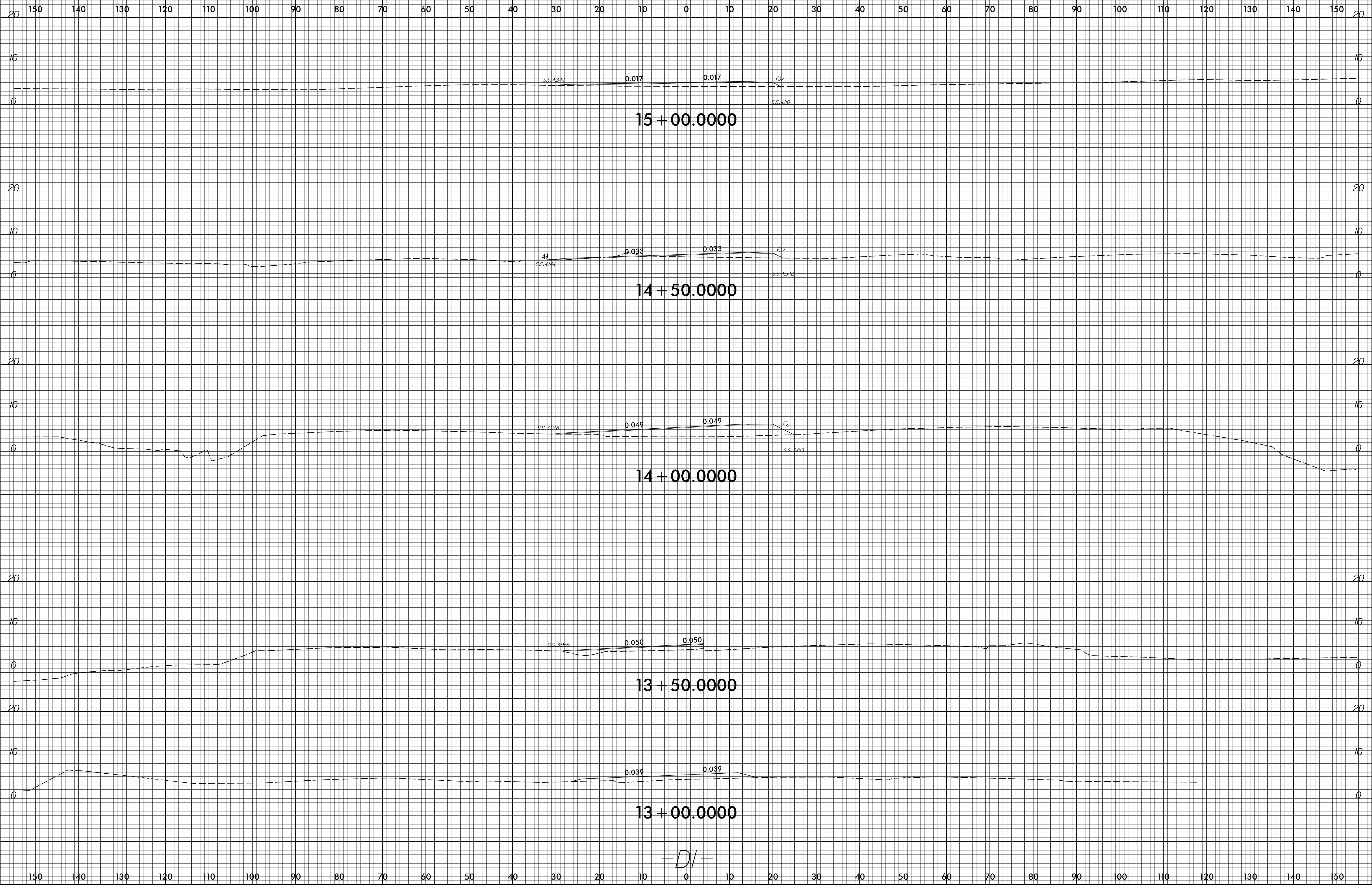


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