

April 29, 2024 - 5:25pm By: Chris.Margentis



# GAS DISTRIBUTION SYSTEM IMPROVEMENTS NC 11 NORTH NATURAL GAS MAIN EXTENSION

**GCP-10124  
RFB 24-14**



GRAPHIC SCALE IN FEET  
0 1000 2000 4000

**PROJECT LOCATION**

Sheet List Table		
INDEX	Sheet Number	Sheet Title
1	000-000	COVER SHEET
2	000-001	NOTES
3	000-002	OVERALL SITE EXHIBIT
4	600-001	PLAN AND PROFILE
5	600-002	PLAN AND PROFILE
6	600-003	PLAN AND PROFILE
7	600-004	PLAN AND PROFILE
8	600-005	PLAN AND PROFILE
9	600-006	PLAN AND PROFILE
10	600-007	PLAN AND PROFILE
11	600-008	PLAN AND PROFILE
12	600-009	PLAN AND PROFILE
13	600-010	PLAN AND PROFILE
14	600-011	PLAN AND PROFILE
15	600-012	PLAN AND PROFILE
16	800-001	DETAILS
17	800-002	E&SC DETAILS
18	800-003	NCG01 GROUND STABILIZATION AND MATERIALS
19	800-004	NCG01 SELF-INSPECTION, RECORDKEEPING, AND REPORTING
20	800-005	JACK AND BORE DETAILS
21	900-001	WORK ZONE ADVANCE WARNING
22	900-002	TEMPORARY LANE CLOSURE
23	900-003	TRAFFIC CONTROL DESIGN LENGTHS
24	900-004	TRAFFIC CONTROL BUFFER & SIGHT DISTANCES
25	900-005	TRAFFIC CONTROL BARRIER FLARE RATES
26	900-006	TRAFFIC CONTROL DESIGN SPACING
27	900-007	NCDOT NOTES AND DETAILS

### CONTACTS

**OWNER:** GREENVILLE UTILITIES COMMISSION  
401 SOUTH GREENE STREET  
GREENVILLE, NC 27834  
PHONE: (252) 551-1594  
CONTACT: DILLON WADE, P.E.

**CIVIL ENGINEER:** KIMLEY-HORN AND ASSOCIATES, INC.  
4525 MAIN STREET, SUITE 1000  
VIRGINIA BEACH, VA 23462  
PHONE: (757) 548-7353  
CONTACT: RYAN CLARK, P.E.

**24-HOUR CONTACT:** GUC EMERGENCY HOTLINE  
PHONE: (855) 767-2482

### SITE INFO

12,815' X 8" MDPE PIPE  
MAOP = 60 PSIG

### REVISIONS

NO.	DATE	BY

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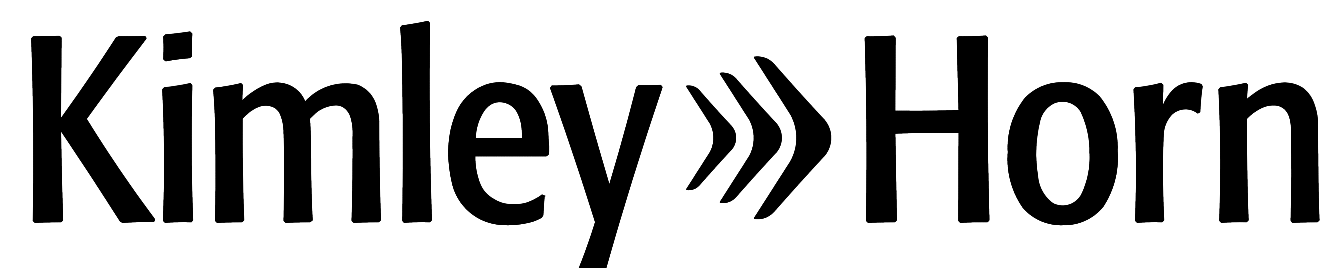
DRAWING:

**DATE:**  
**APRIL 29, 2024**

**JOB NUMBER:**  
**116780001**

**ISSUED FOR CONSTRUCTION  
BY \_\_\_\_\_  
DATE \_\_\_\_\_**

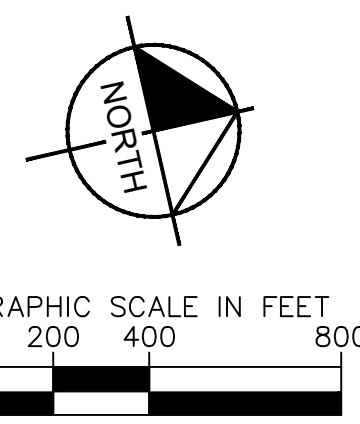
PREPARED IN THE OFFICE OF:



4525 MAIN STREET, SUITE 1000, VIRGINIA BEACH, VA 23462  
PHONE: (757) 213-8600

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REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
 4525 MAIN STREET  
 SUITE 1000  
 VIRGINIA BEACH, VA 23462  
 TEL: (757) 213-8600

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PROJECT NAME:  
**NC 11 N. NATURAL GAS MAIN EXTENSION**  
 PITT COUNTY, NORTH CAROLINA

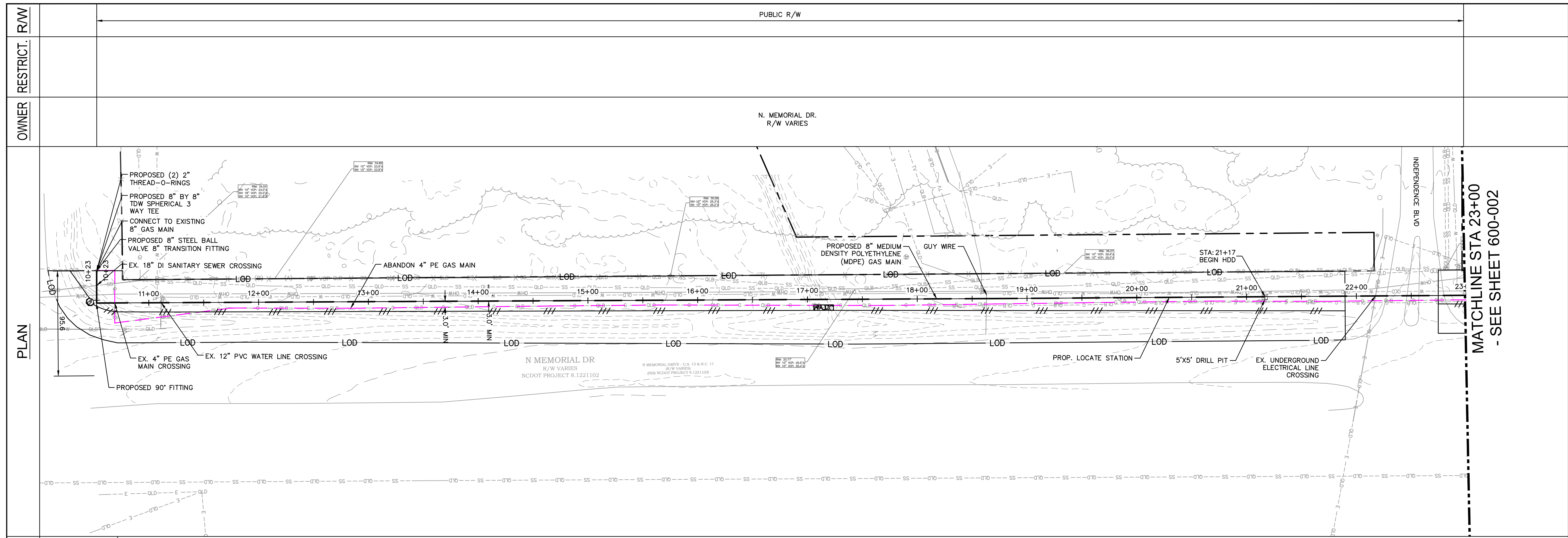
SHEET TITLE:  
**OVERALL SITE EXHIBIT**

DATE: 04/29/2024  
 SCALE (H,V): AS SHOWN  
 DRAWN BY: SMP  
 DESIGNED BY: RDC  
 CHECKED BY: RDC (PM)



KHA PROJECT NUMBER: 116780001  
 DRAWING NUMBER: 000-002  
 SHEET INDEX: 3 OF 27

April 29, 2024 - 5:25pm By: Chris.Margantis  
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### LEGEND

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- EDGE OF PAVEMENT
- DRIVEWAY EDGE
- BUILDING
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- FENCE LINE
- OVERHEAD POWER LINE
- SANITARY SEWER LINE
- TELECOMMUNICATIONS
- SUBSURFACE WATER
- SUBSURFACE GAS
- SUBSURFACE ELECTRIC
- PIPE STRINGOUT
- TREELINE
- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
- SILT FENCE
- LIMITS OF DISTURBANCE
- WETLAND
- STREAM
- TEMPORARY CONSTRUCTION EASEMENT
- POND
- DRILL/JAB PIT
- FILTER RING
- CURB INLET FILTER
- TEST HOLE LOCATION
- INLET PROTECTION
- SILT FENCE OUTLET

MATCHLINE STA 23+00  
- SEE SHEET 600-002

### PIPE BAR

DETAIL	QUANTITY
PIPE	1
COATING	N/A
LENGTH (LF)	1300'
FITTINGS	7, 8, 9 1
CAT. PROTECTION	N/A

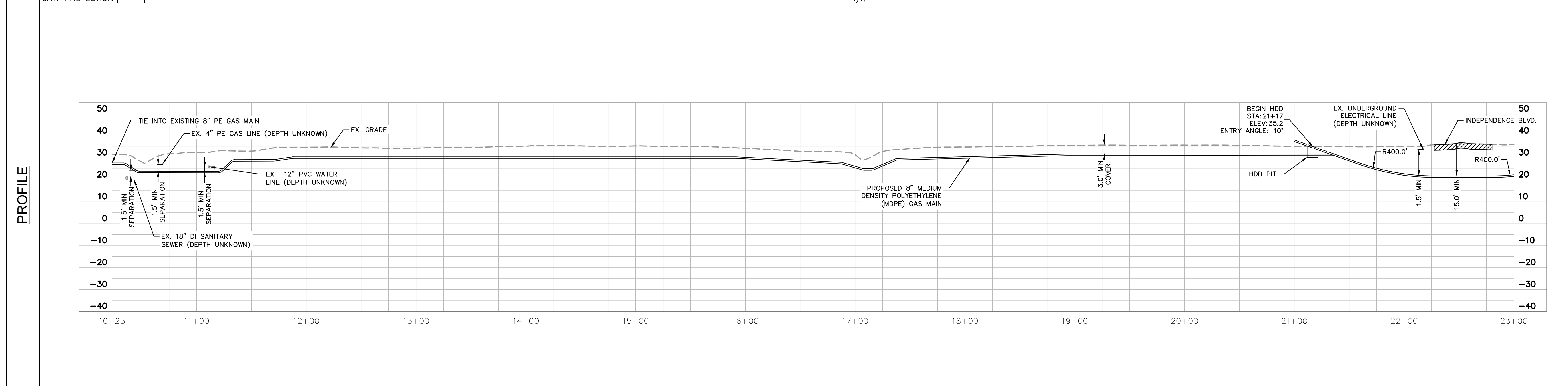
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HORIZONTAL SCALE: 1"=50'

### MATERIAL

**PIPE**  
1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513

**CARRIER PIPE**  
A = 12" GRADE B CARBON STEEL, SCH. STD, W.T. 0.375 IN, API-5L

**FITTINGS**  
1 = 90° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
2 = 45° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
3 = 8" PE END CAP  
4 = 8" PE VALVE  
5 = 8" PE TEE  
6 = 8" 5" PUP  
7 = 8" BY 8" TDW SPHERICAL 3 WAY TEE  
8 = 8" STEEL BALL VALVE  
9 = 8" TRANSITION FITTING  
10 = 4" PE VALVE  
11 = 8" BY 4" PE TEE  
12 = 2" PE VALVE



0 25 50 100  
HORIZONTAL SCALE: 1"=50'

0 2.5 5 10  
VERTICAL SCALE: 1"=5'

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
4525 MAIN STREET  
SUITE 1000  
VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

CLIENT: **Greenville Utilities**

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PROJECT NAME:  
**NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

SHEET TITLE:  
**PLAN & PROFILE**

DATE: 04/29/2024  
SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)

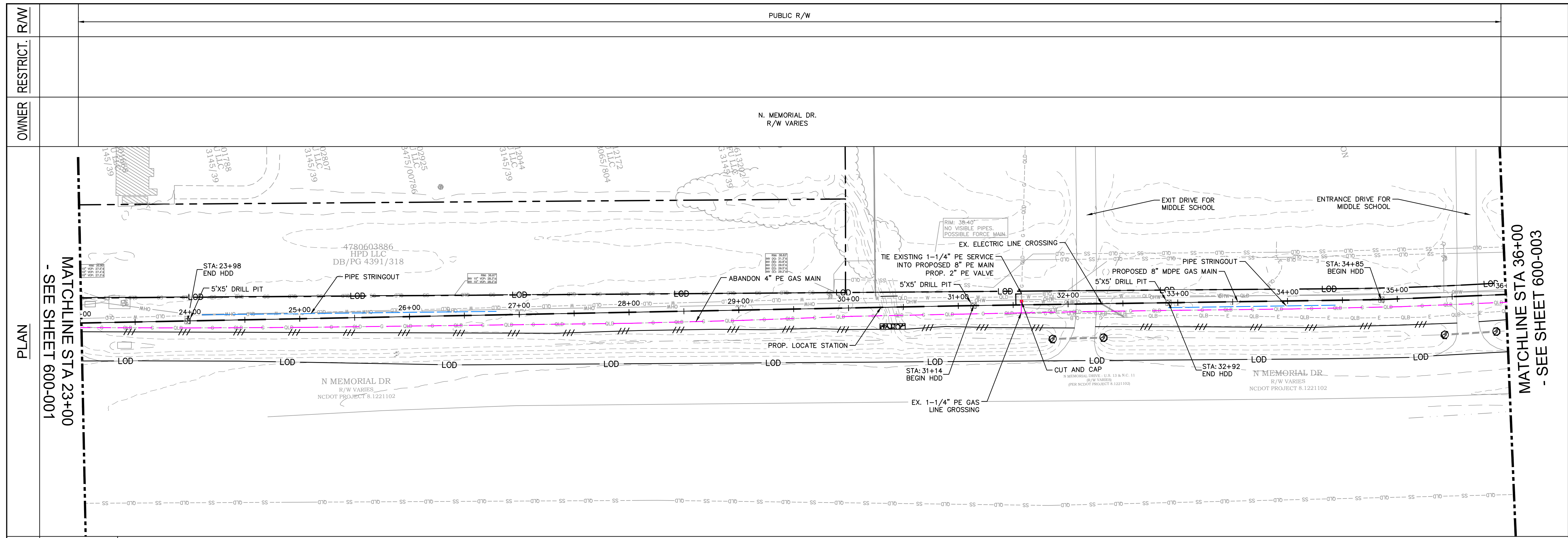
KHA PROJECT NUMBER:  
116780001

DRAWING NUMBER:  
600-001

SHEET INDEX:  
4 OF 27

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### LEGEND

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
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- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
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- OHW
- SS-OLD
- T-OLD
- W-OLD
- C-OLD
- E-OLD
- SANITARY SEWER LINE
- TELECOMMUNICATIONS
- SUBSURFACE WATER
- SUBSURFACE GAS
- SUBSURFACE ELECTRIC
- PIPE STRINGOUT
- TREELINE
- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
- SILT FENCE
- LIMITS OF DISTURBANCE
- WETLAND
- STREAM
- TEMPORARY CONSTRUCTION EASEMENT
- POND
- DRILL/JAB PIT
- FILTER RING
- TEST HOLE LOCATION
- CURB INLET FILTER
- INLET PROTECTION
- SILT FENCE OUTLET

DETAIL	
PIPE	1
COATING	N/A
LENGTH (LF)	1300'
FITTINGS	N/A
CAT. PROTECTION	N/A

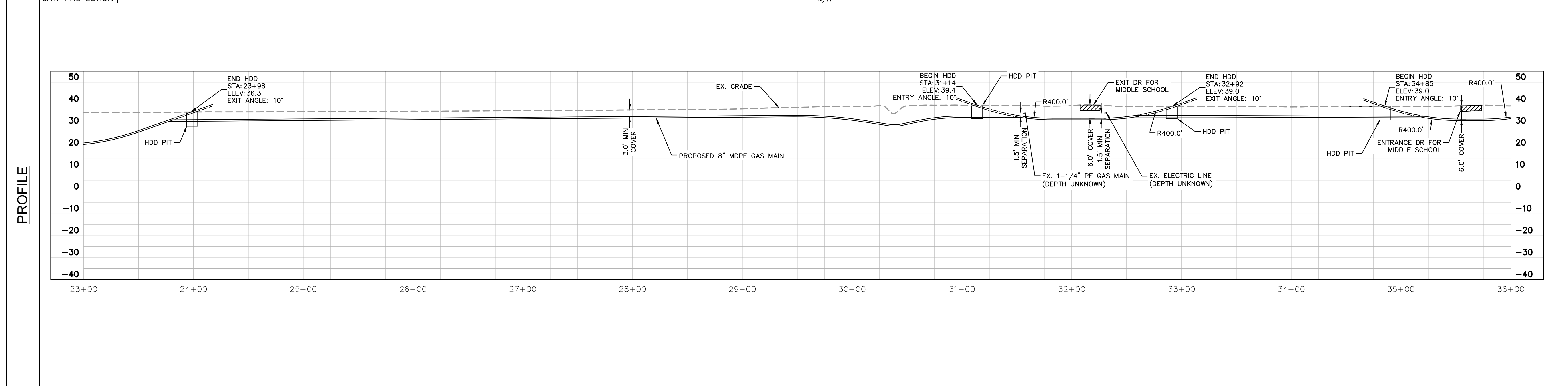
HORIZONTAL SCALE: 1"=50'

### MATERIAL

**PIPE**  
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**CARRIER PIPE**  
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8 = 8" STEEL BALL VALVE  
9 = 8" TRANSITION FITTING  
10 = 4" PE VALVE  
11 = 8" BY 4" PE TEE  
12 = 2" PE VALVE



HORIZONTAL SCALE: 1"=50'

VERTICAL SCALE: 1"=5'

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
4525 MAIN STREET  
SUITE 1000  
VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

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PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

SHEET TITLE: **PLAN & PROFILE**

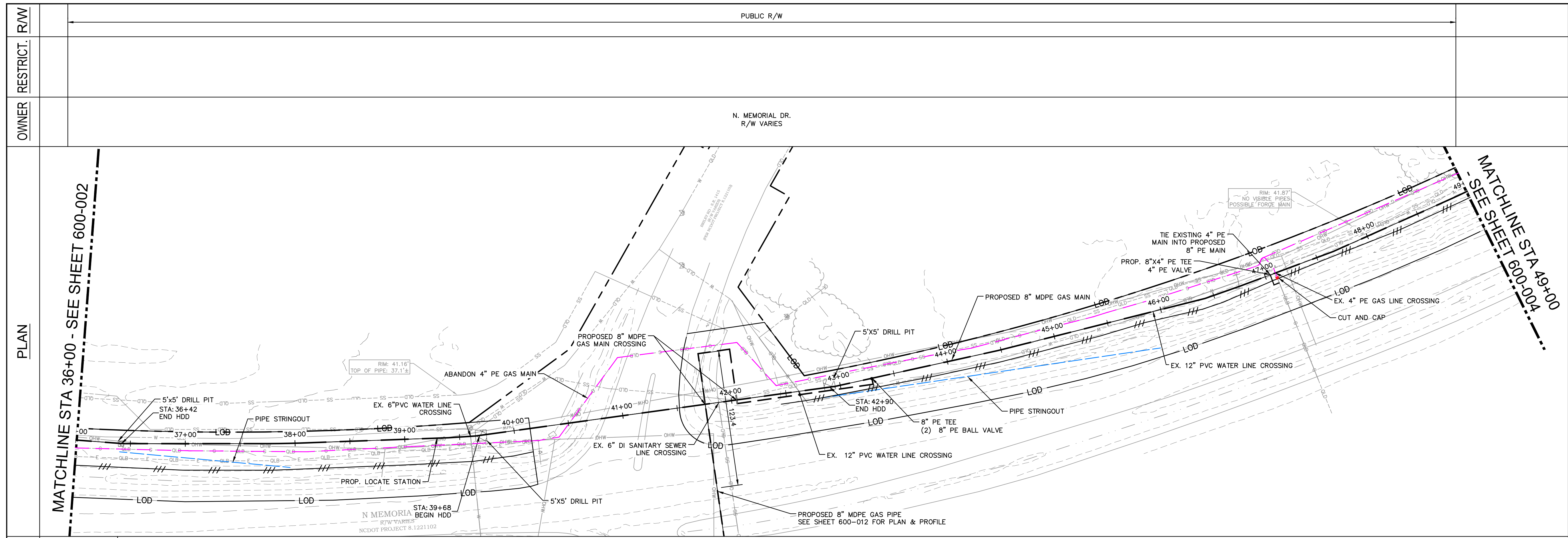
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SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)



KHA PROJECT NUMBER: 116780001  
DRAWING NUMBER: 600-002  
SHEET INDEX: 5 OF 27

April 29, 2024 6:26pm By: Chris.Margantis

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### LEGEND

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- EDGE OF PAVEMENT
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- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- FENCE LINE
- OHW
- SS-OLD
- T-OLD
- W-OLD
- G-OLD
- E-OLD
- SANITARY SEWER LINE
- SUBSURFACE TELECOMMUNICATIONS
- SUBSURFACE WATER
- SUBSURFACE GAS
- SUBSURFACE ELECTRIC
- PIPE STRINGOUT
- TRELINE
- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
- SILT FENCE
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- STREAM
- TEMPORARY CONSTRUCTION EASEMENT
- POND
- DRILL/JAB PIT
- CURB INLET FILTER
- INLET PROTECTION
- FILTER RING
- TEST HOLE LOCATION
- SILT FENCE OUTLET

### PIPE BAR

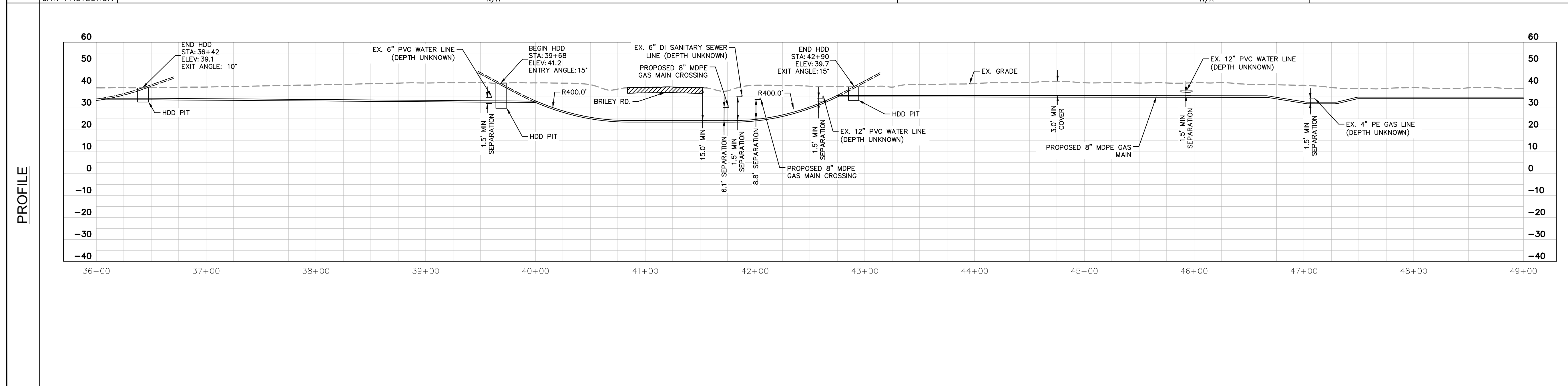
DETAIL	1	1
PIPE		
COATING	N/A	N/A
LENGTH (LF)	730'	570'
FITTINGS		5 4
CAT. PROTECTION	N/A	N/A

### MATERIAL

**PIPE**  
1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513

**CARRIER PIPE**  
A = 12" GRADE B CARBON STEEL, SCH. STD, W.T. 0.375 IN, API-5L

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10 = 4" PE VALVE  
11 = 8" BY 4" PE TEE  
12 = 2" PE VALVE



REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley-Horn**  
4525 MAIN STREET  
SUITE 1000  
VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

CLIENT: **Greenville Utilities**

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PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

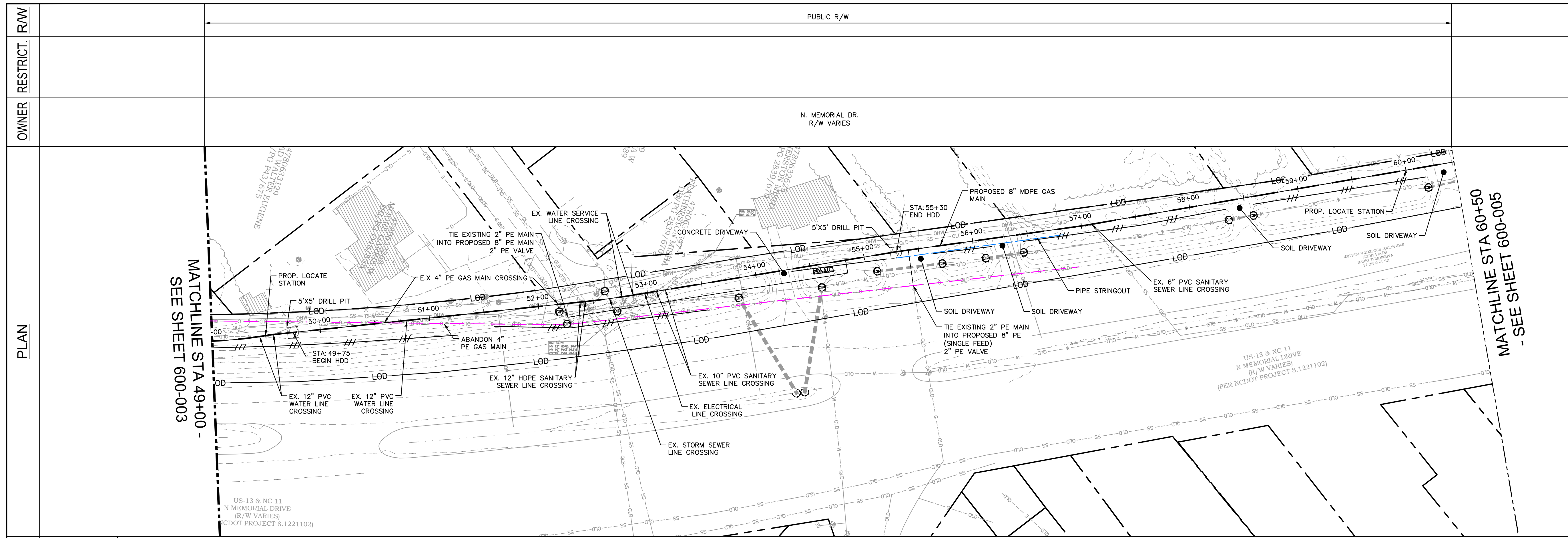
SHEET TITLE: **PLAN & PROFILE**

DATE: 04/29/2024  
SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)

KHA PROJECT NUMBER: 116780001  
DRAWING NUMBER: 600-003  
SHEET INDEX: 6 OF 27

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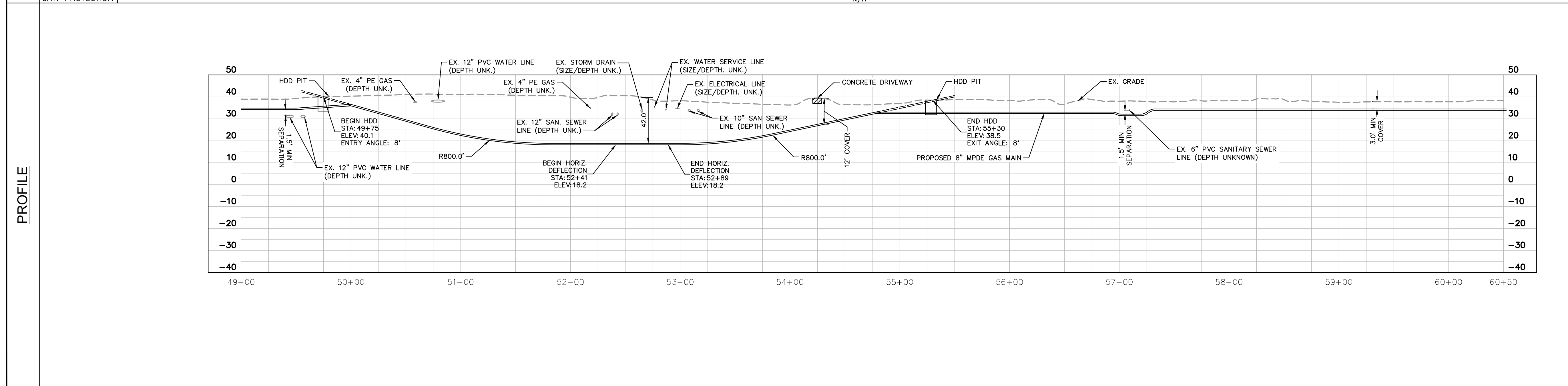


**LEGEND**

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- EDGE OF PAVEMENT
- DRIVEWAY EDGE
- BUILDING
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- FENCE LINE
- 15-
- 14-
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- 98
- 99
- 100

US-13 & NC 11  
N MEMORIAL DRIVE  
(R/W VARIES)  
(PER NCDOT PROJECT 8.1221102)

DETAIL	QUANTITY
PIPE	1
COATING	N/A
LENGTH (LF)	1150'
FITTINGS	
CAT. PROTECTION	N/A



**MATERIAL**

PIPE  
1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513

CARRIER PIPE  
A = 12" GRADE B CARBON STEEL, SCH. STD, W.T. 0.375 IN, API-5L

**FITTINGS**

- 1 = 90° 8" GRADE PE 2708 MDPE, SDR 11, W.T.
- 2 = 45° 8" GRADE PE 2708 MDPE, SDR 11, W.T.
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- 4 = 8" PE VALVE
- 5 = 8" PE TEE
- 6 = 8" 5" PUP
- 7 = 8" BY 8" TDW SPHERICAL 3 WAY TEE
- 8 = 8" STEEL BALL VALVE
- 9 = 8" TRANSITION FITTING
- 10 = 4" PE VALVE
- 11 = 8" BY 4" PE TEE
- 12 = 2" PE VALVE

HORIZONTAL SCALE: 1"=50'

VERTICAL SCALE: 1"=5'

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
4525 MAIN STREET  
SUITE 1000  
VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

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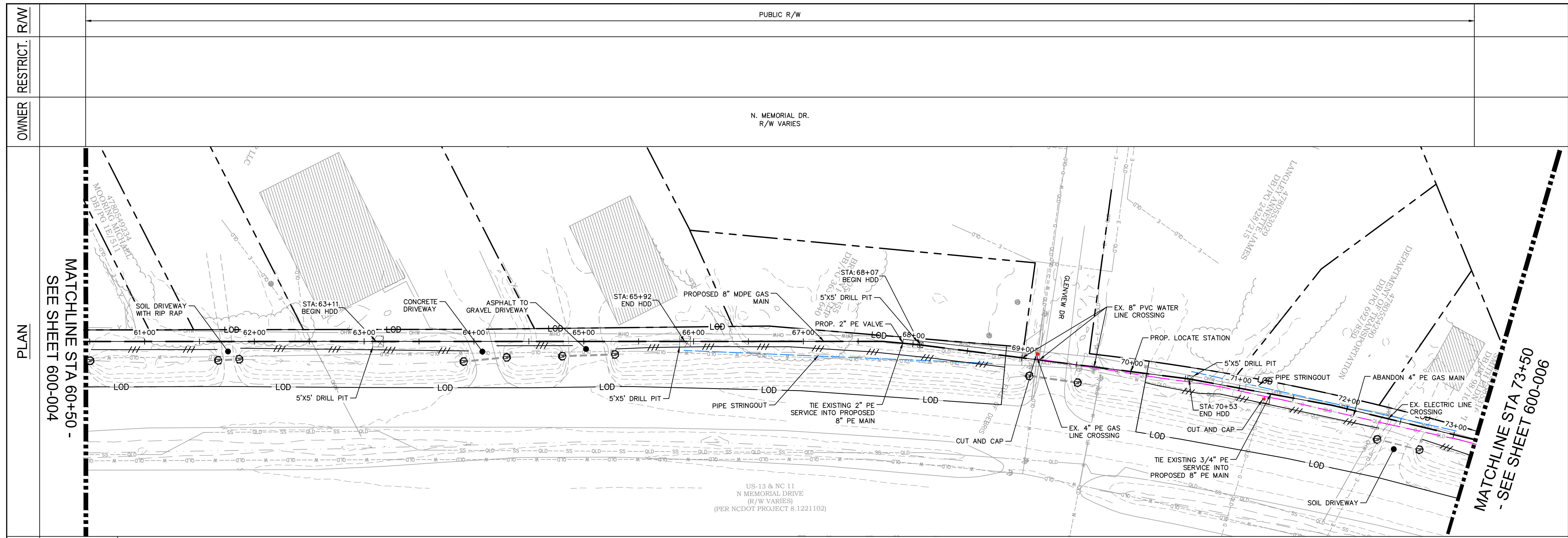
PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

SHEET TITLE: **PLAN & PROFILE**

DATE: 04/29/2024  
SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)

KHA PROJECT NUMBER: 116780001  
DRAWING NUMBER: 600-004  
SHEET INDEX: 7 OF 27

Professional Engineer Seal: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 44899 PLAND, CLARK



**LEGEND**

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- EDGE OF PAVEMENT
- DRIVEWAY EDGE
- BUILDING
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- FENCE LINE
- OVERHEAD POWER LINE
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- SS-OLD
- W-OLD
- T-OLD
- C-OLD
- E-OLD
- SANITARY SEWER LINE
- SUBSURFACE TELECOMMUNICATIONS
- SUBSURFACE WATER
- SUBSURFACE GAS
- SUBSURFACE ELECTRIC
- PIPE STRINGOUT
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- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
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- STREAM
- TEMPORARY CONSTRUCTION EASEMENT
- POND
- DRILL/JAB PIT
- FILTER RING
- CURB INLET FILTER
- TEST HOLE LOCATION
- INLET PROTECTION
- SILT FENCE OUTLET

US-13 & NC 11 N MEMORIAL DRIVE (R/W VARIES) (PER NCDOT PROJECT 8.1221102)

0 25 50 100  
HORIZONTAL SCALE: 1"=50'

**MATERIAL**

**PIPE**  
1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513

**CARRIER PIPE**  
A = 12" GRADE B CARBON STEEL, SCH. STD, W.T. 0.375 IN, API-5L

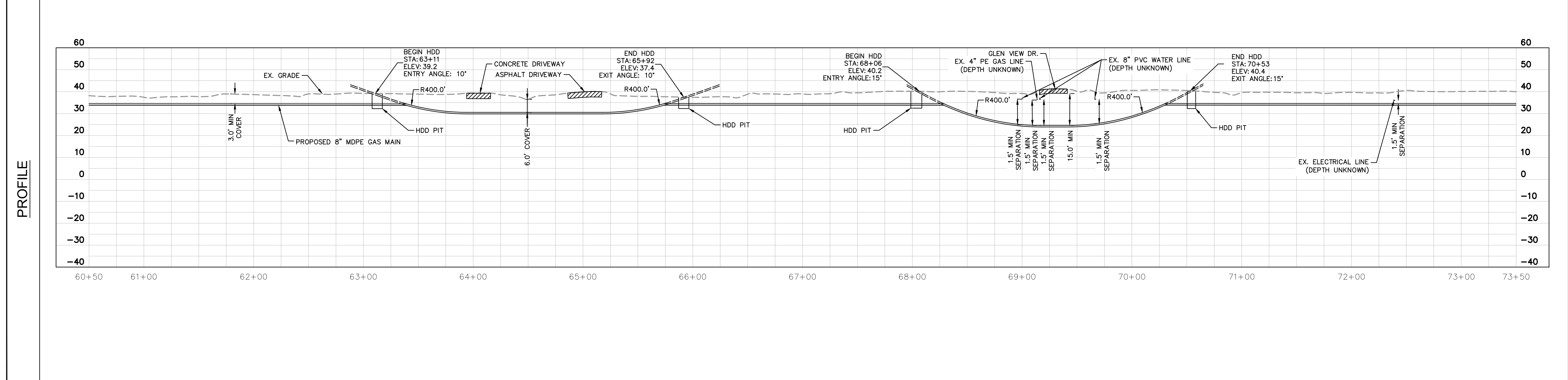
**FITTINGS**  
1 = 90° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
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9 = 8" TRANSITION FITTING  
10 = 4" PE VALVE  
11 = 8" BY 4" PE TEE  
12 = 2" PE VALVE

0 25 50 100  
HORIZONTAL SCALE: 1"=50'

0 2.5 5 10  
VERTICAL SCALE: 1"=5'

**PIPE BAR**

DETAIL	QUANTITY	UNIT
PIPE	1	
COATING	N/A	
LENGTH (LF)	1300'	
FITTINGS	N/A	12
CAT. PROTECTION	N/A	



REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

**ENGINEER: Kimley»Horn**  
4525 MAIN STREET  
SUITE 1000  
VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

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**CLIENT: Greenville Utilities**

**PROJECT NAME: NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

**SHEET TITLE: PLAN & PROFILE**

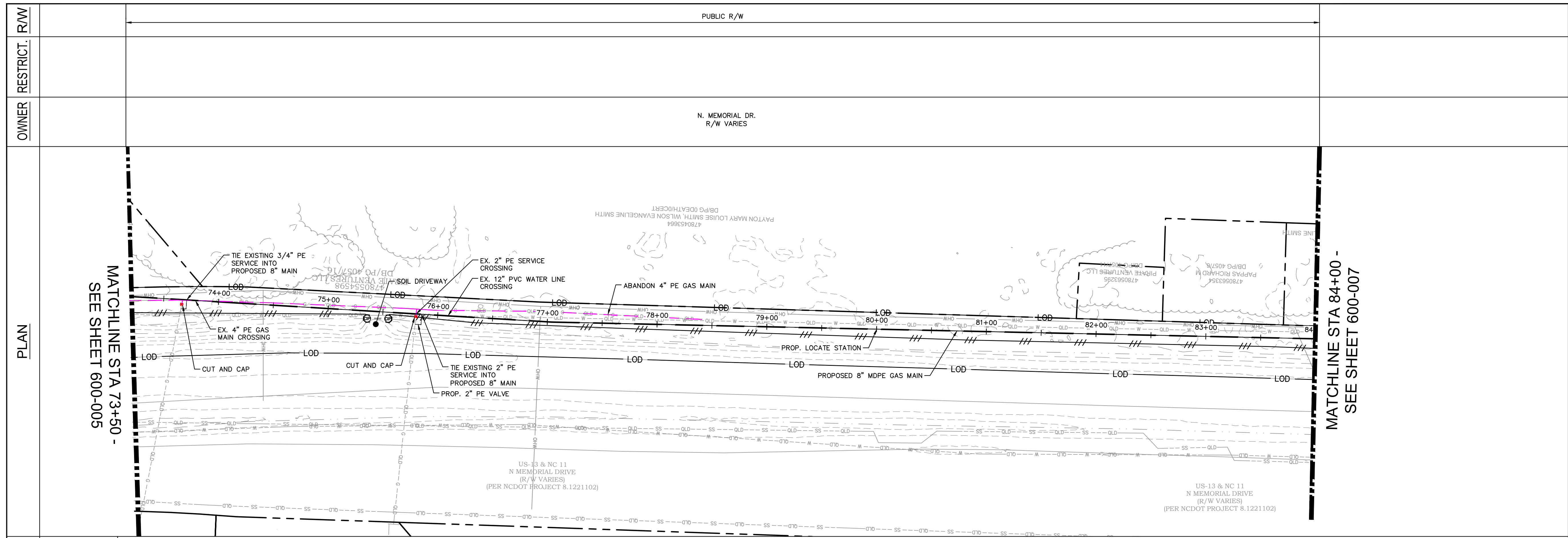
**DATE:** 04/29/2024  
**SCALE (H,V):** AS SHOWN  
**DRAWN BY:** SMP  
**DESIGNED BY:** RDC  
**CHECKED BY:** RDC (PM)

**KHA PROJECT NUMBER:** 116780001  
**DRAWING NUMBER:** 600-005  
**SHEET INDEX:** 8 OF 27

APRIL 29, 2024 6:27 PM BY: CHRIS.MARGENTIS

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### LEGEND

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- EDGE OF PAVEMENT
- DRIVEWAY EDGE
- BUILDING
- EXISTING MAJOR CONTOURS
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- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
- SILT FENCE
- LIMITS OF DISTURBANCE
- WETLAND
- STREAM
- TEMPORARY CONSTRUCTION EASEMENT
- POND
- DRILL/JAB PIT
- FILTER RING
- CURB INLET FILTER
- TEST HOLE LOCATION
- INLET PROTECTION
- SILT FENCE OUTLET

### PIPE BAR

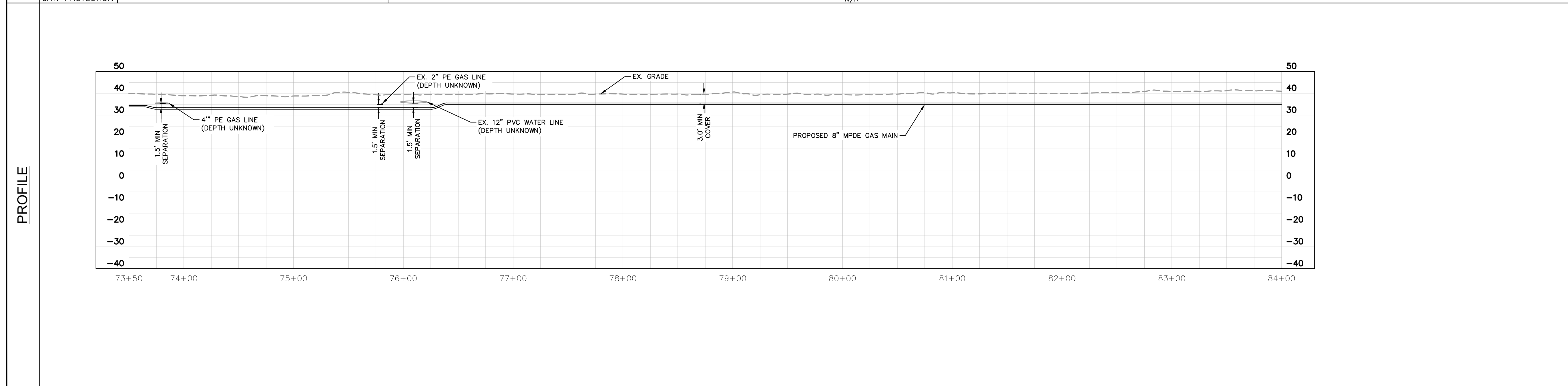
DETAIL		
PIPE		1
COATING		N/A
LENGTH (LF)		1150'
FITTINGS	12	N/A
CAT. PROTECTION		N/A

### MATERIAL

**PIPE**  
1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513

**CARRIER PIPE**  
A = 12" GRADE B CARBON STEEL, SCH. STD, W.T. 0.375 IN, API-5L

**FITTINGS**  
1 = 90° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
2 = 45° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
3 = 8" PE END CAP  
4 = 8" PE VALVE  
5 = 8" PE TEE  
6 = 8" 5" PUP  
7 = 8" BY 8" TDW SPHERICAL 3 WAY TEE  
8 = 8" STEEL BALL VALVE  
9 = 8" TRANSITION FITTING  
10 = 4" PE VALVE  
11 = 8" BY 4" PE TEE  
12 = 2" PE VALVE



REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley-Horn**  
4525 MAIN STREET  
SUITE 1000  
VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

CLIENT: **Greenville Utilities**

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PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

SHEET TITLE: **PLAN & PROFILE**

DATE: 04/29/2024  
SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)

KHA PROJECT NUMBER: 116780001  
DRAWING NUMBER: 600-006  
SHEET INDEX: 9 OF 27

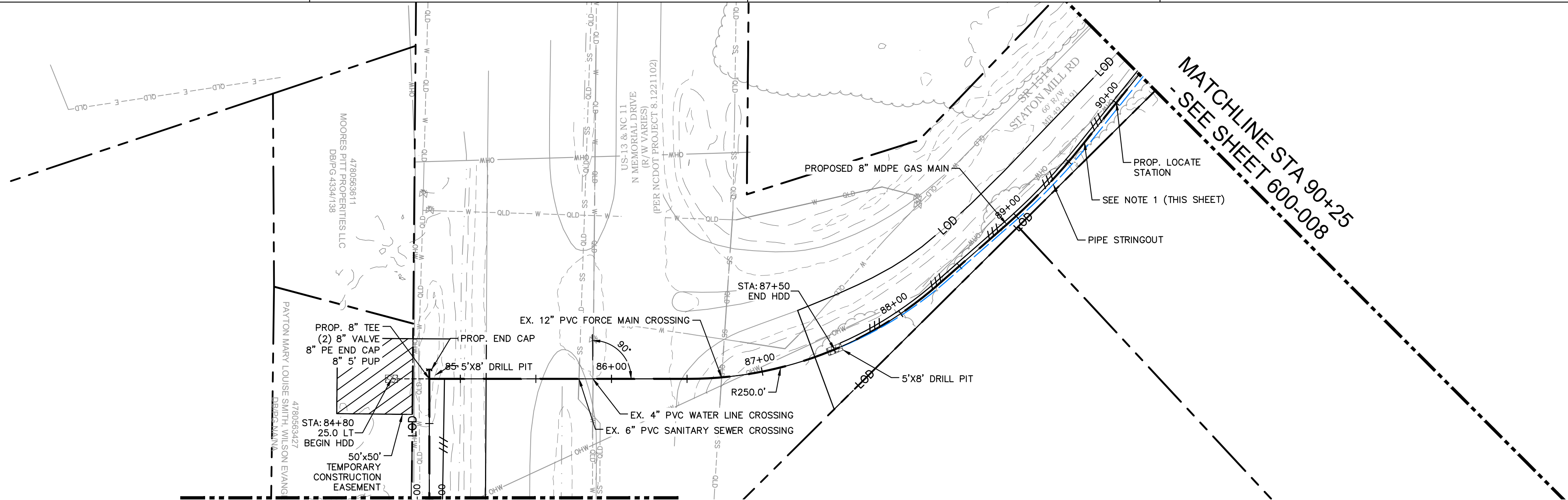
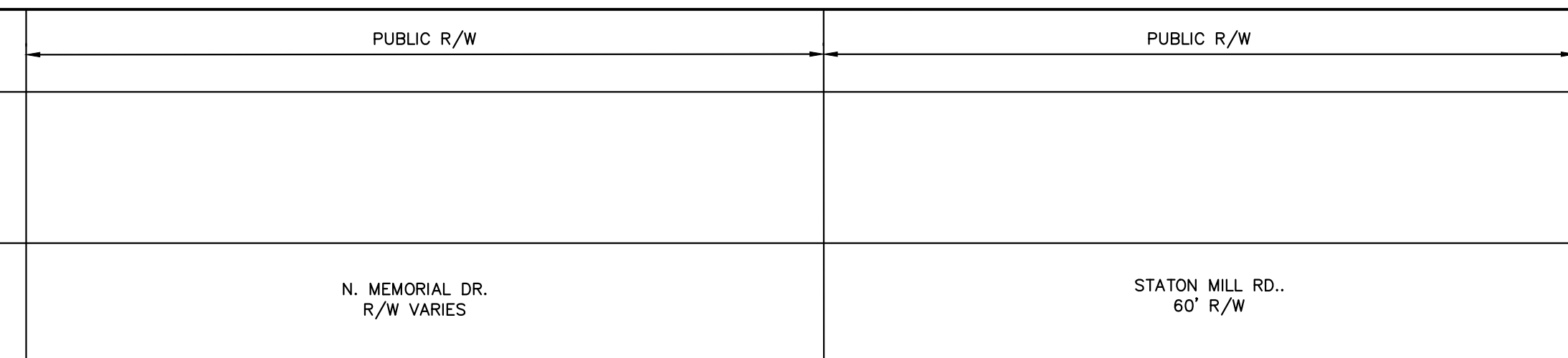
April 29, 2024 8:27pm By: Chris.Margantis

OWNER  
RESTRICT.  
R/W

PLAN

PIPE BAR

PROFILE

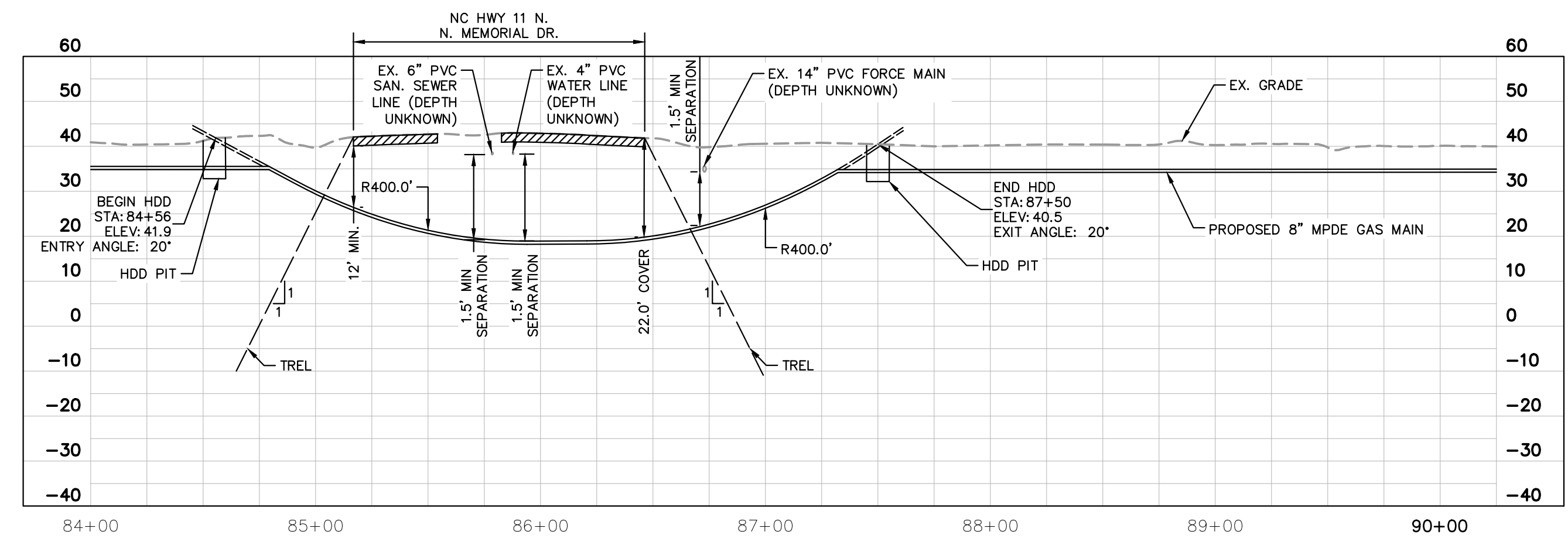


MATCHLINE STA 84+00 - SEE SHEET 600-006

MATCHLINE STA 90+25  
- SEE SHEET 600-008

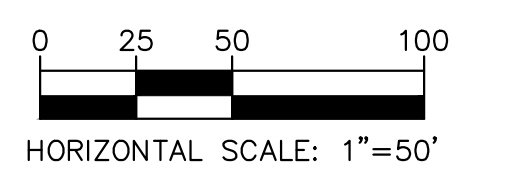
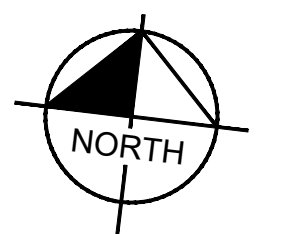
NOTE 1:  
PROPOSED GAS MAIN SHALL BE INSTALLED  
5' FROM EDGE OF RIGHT-OF-WAY UNLESS  
OTHERWISE STATED.

DETAIL	1	1
PIPE	N/A	N/A
COATING	79'	546'
LENGTH (LF)	1, 3, 4, 5, 6	N/A
FITTINGS	N/A	N/A
CAT. PROTECTION	N/A	N/A



**LEGEND**

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- EDGE OF PAVEMENT
- DRIVEWAY EDGE
- BUILDING
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- FENCE LINE
- OHW
- SS-OLD
- T-OLD
- W-OLD
- G-OLD
- E-OLD
- PIPE STRINGOUT
- TREELINE
- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
- SILT FENCE
- LIMITS OF DISTURBANCE
- WETLAND
- STREAM
- TEMPORARY CONSTRUCTION EASEMENT
- POND
- DRILL/JAB PIT
- FILTER RING
- TEST HOLE LOCATION
- INLET PROTECTION
- SILT FENCE OUTLET

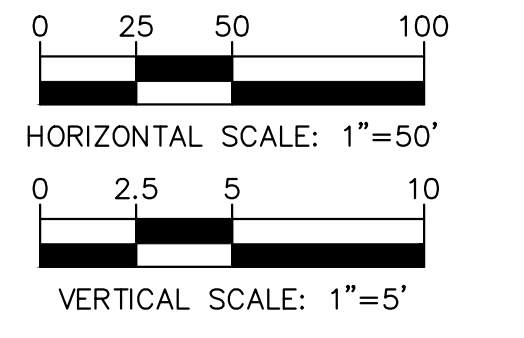


**MATERIAL**

PIPE:  
1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513

CARRIER PIPE  
A = 12" GRADE B CARBON STEEL, SCH. STD, W.T. 0.375 IN, API-5L

- FITTINGS**
- 1 = 90° 8" GRADE PE 2708 MDPE, SDR 11, W.T.
  - 2 = 45° 8" GRADE PE 2708 MDPE, SDR 11, W.T.
  - 3 = 8" PE END CAP
  - 4 = 8" PE VALVE
  - 5 = 8" PE TEE
  - 6 = 8" 5' PUP
  - 7 = 8" BY 8" TDW SPHERICAL 3 WAY TEE
  - 8 = 8" STEEL BALL VALVE
  - 9 = 8" TRANSITION FITTING
  - 10 = 4" PE VALVE
  - 11 = 8" BY 4" PE TEE
  - 12 = 2" PE VALVE



REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
4525 MAIN STREET  
SUITE 1000  
VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

CLIENT: **Greenville Utilities**

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PROJECT NAME:  
**NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

SHEET TITLE:  
**PLAN & PROFILE**

DATE: 04/29/2024  
SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)

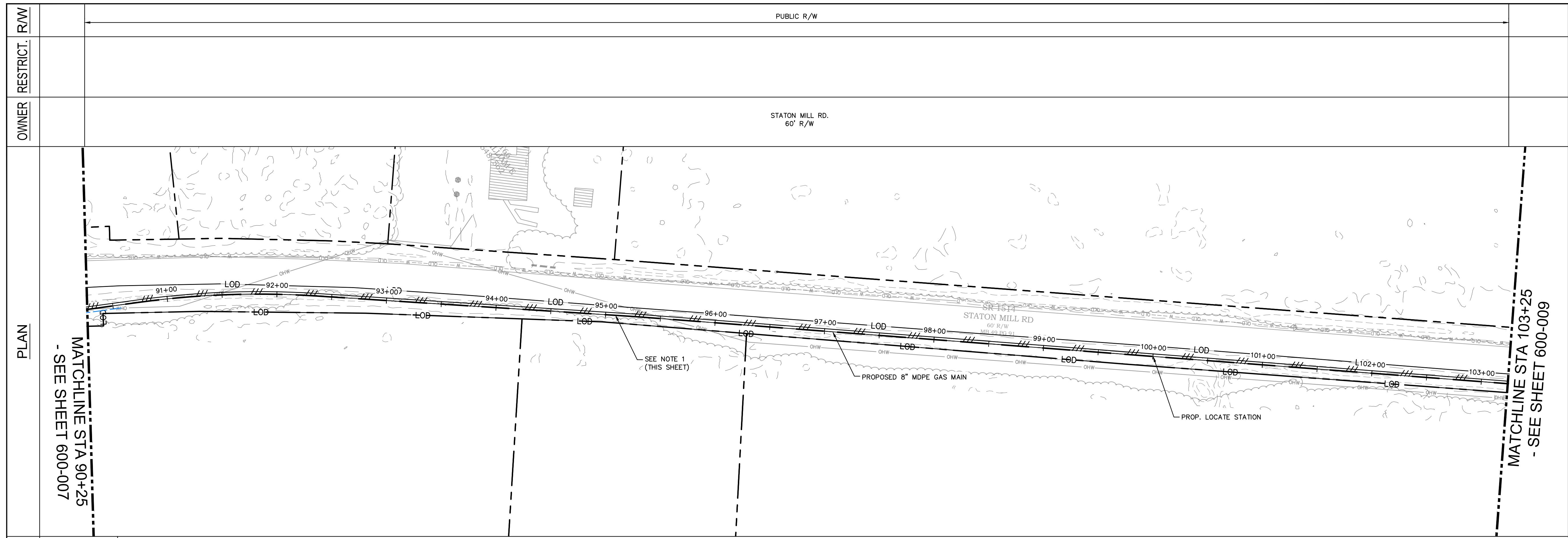
KHA PROJECT NUMBER:  
116780001

DRAWING NUMBER:  
600-007

SHEET INDEX:  
10 OF 27

April 29, 2024 8:27pm By: Chris.Margittis

K:\Veg\_GVA\116780001 - GUC - RE 11 Extension\CAD\PlanSheet\600-000 Plan & Profile.dwg



### LEGEND

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- EDGE OF PAVEMENT
- DRIVEWAY EDGE
- BUILDING
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- FENCE LINE
- OHW
- SS-OLD
- T-OLD
- W-OLD
- C-OLD
- E-OLD
- SANITARY SEWER LINE
- TELECOMMUNICATIONS
- SUBSURFACE WATER
- SUBSURFACE GAS
- SUBSURFACE ELECTRIC
- PIPE STRINGOUT
- TREE LINE
- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
- SILT FENCE
- LIMITS OF DISTURBANCE
- WETLAND
- STREAM
- TEMPORARY CONSTRUCTION EASEMENT
- POND
- DRILL/JAB PIT
- CURB INLET FILTER
- INLET PROTECTION
- FILTER RING
- TEST HOLE LOCATION
- SILT FENCE OUTLET

NORTH

0 25 50 100  
HORIZONTAL SCALE: 1"=50'

DETAIL	
PIPE	1
COATING	N/A
LENGTH (LF)	1300'
FITTINGS	N/A
CAT. PROTECTION	N/A

NOTE 1:  
PROPOSED GAS MAIN SHALL BE INSTALLED 5' FROM EDGE OF RIGHT-OF-WAY UNLESS OTHERWISE STATED.

### MATERIAL

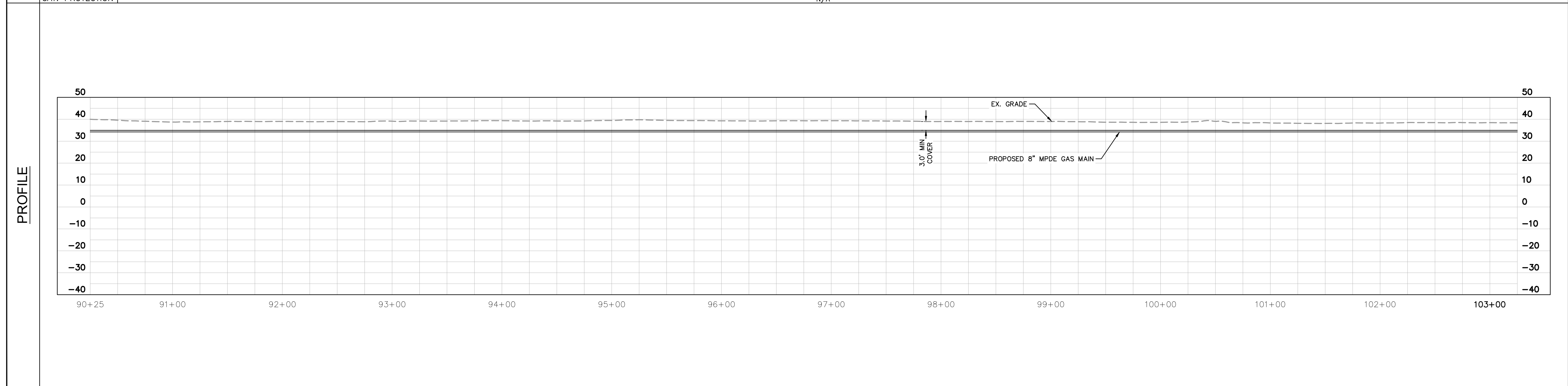
**PIPE**  
1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513

**CARRIER PIPE**  
A = 12" GRADE B CARBON STEEL, SCH. STD, W.T. 0.375 IN, API-5L

**FITTINGS**  
1 = 90° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
2 = 45° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
3 = 8" PE END CAP  
4 = 8" PE VALVE  
5 = 8" PE TEE  
6 = 8" 5" PUP  
7 = 8" BY 8" TDW SPHERICAL 3 WAY TEE  
8 = 8" STEEL BALL VALVE  
9 = 8" TRANSITION FITTING  
10 = 4" PE VALVE  
11 = 8" BY 4" PE TEE  
12 = 2" PE VALVE

0 25 50 100  
HORIZONTAL SCALE: 1"=50'

0 2.5 5 10  
VERTICAL SCALE: 1"=5'



REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley-Horn**  
4525 MAIN STREET  
SUITE 1000  
VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

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PROJECT NAME:  
**NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

SHEET TITLE:  
**PLAN & PROFILE**

DATE: 04/29/2024  
SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)

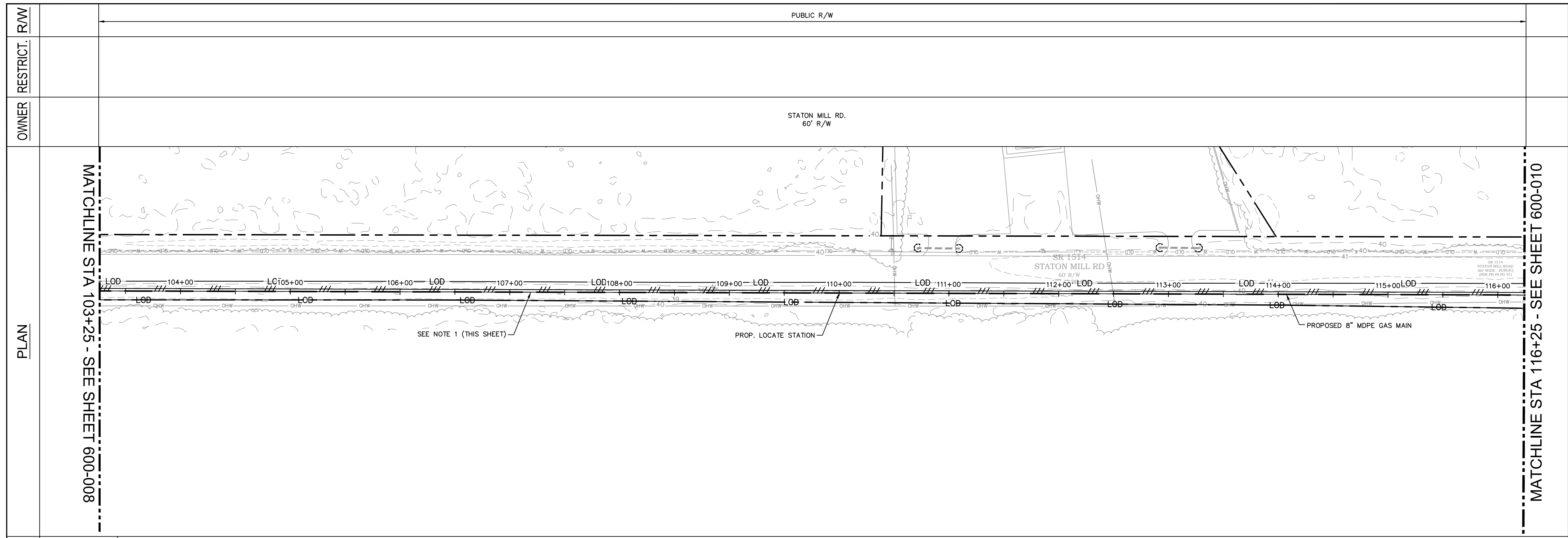
KHA PROJECT NUMBER:  
116780001

DRAWING NUMBER:  
600-008

SHEET INDEX:  
11 OF 27

April 29, 2024 6:28pm By: Chris.Margantis

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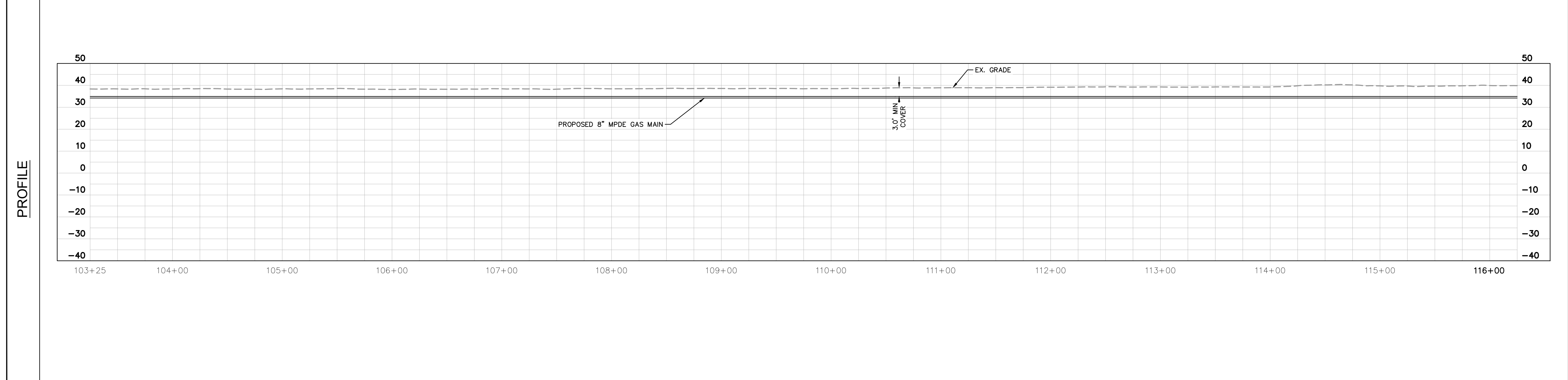
### LEGEND

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- DRIVEWAY EDGE
- BUILDING
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- FENCE LINE
- OVERHEAD POWER LINE
- SANITARY SEWER LINE
- TELECOMMUNICATIONS
- SUBSURFACE WATER
- SUBSURFACE GAS
- SUBSURFACE ELECTRIC
- PIPE STRINGOUT
- TREE LINE
- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
- SILT FENCE
- LIMITS OF DISTURBANCE
- WETLAND
- STREAM
- TEMPORARY CONSTRUCTION EASEMENT
- POND
- DRILL/JAB PIT
- CURB INLET FILTER
- INLET PROTECTION
- FILTER RING
- TEST HOLE LOCATION
- SILT FENCE OUTLET

HORIZONTAL SCALE: 1"=50'

DETAIL	
PIPE	1
COATING	N/A
LENGTH (LF)	1,300'
FITTINGS	N/A
CAT. PROTECTION	N/A

NOTE 1:  
 PROPOSED GAS MAIN SHALL BE INSTALLED 5' FROM EDGE OF RIGHT-OF-WAY UNLESS OTHERWISE STATED.



### MATERIAL

**PIPE**  
 1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513

**CARRIER PIPE**  
 A = 12" GRADE B CARBON STEEL, SCH.STD, W.T. 0.375 IN, API-5L

**FITTINGS**  
 1 = 90° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
 2 = 45° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
 3 = 8" PE END CAP  
 4 = 8" PE VALVE  
 5 = 8" PE TEE  
 6 = 8" 5" PUP  
 7 = 8" BY 8" TDW SPHERICAL 3 WAY TEE  
 8 = 8" STEEL BALL VALVE  
 9 = 8" TRANSITION FITTING  
 10 = 4" PE VALVE  
 11 = 8" BY 4" PE TEE  
 12 = 2" PE VALVE

HORIZONTAL SCALE: 1"=50'

VERTICAL SCALE: 1"=5'

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
 4525 MAIN STREET  
 SUITE 1000  
 VIRGINIA BEACH, VA 23462  
 TEL: (757) 213-8600

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PROJECT NAME:  
**NC 11 N. NATURAL GAS MAIN EXTENSION**  
 PITT COUNTY, NORTH CAROLINA

SHEET TITLE:  
**PLAN & PROFILE**

DATE: 04/29/2024  
 SCALE (H,V): AS SHOWN  
 DRAWN BY: SMP  
 DESIGNED BY: RDC  
 CHECKED BY: RDC (PM)

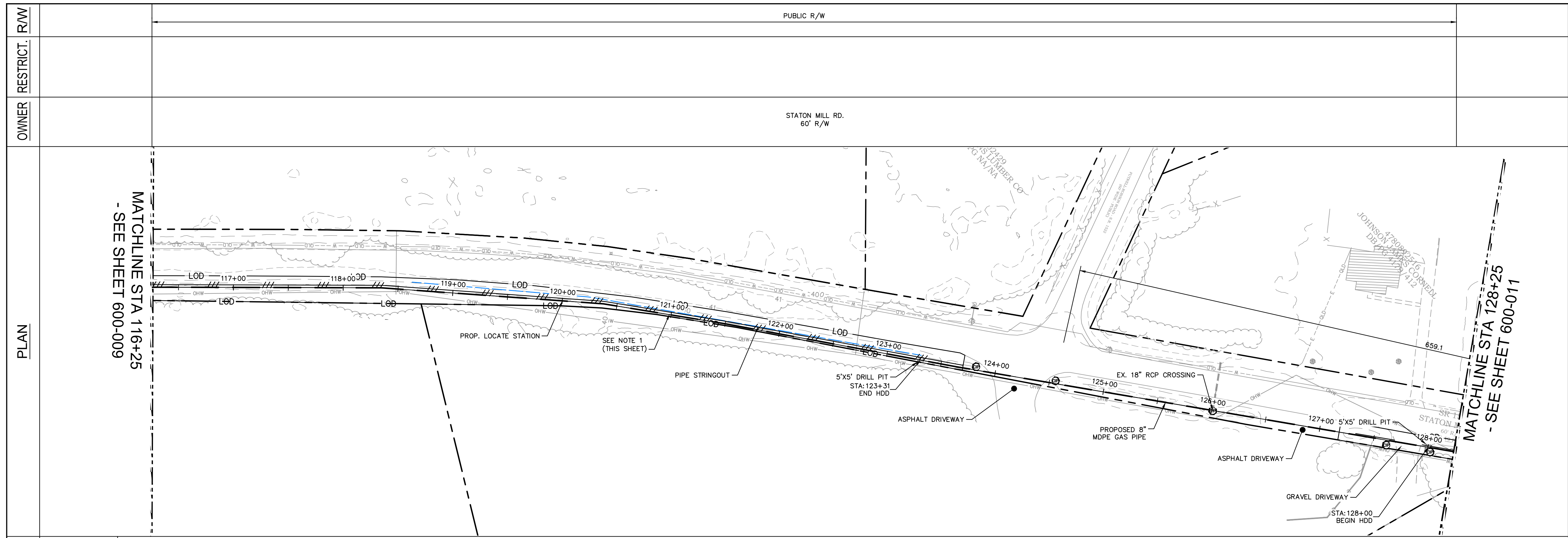


KHA PROJECT NUMBER:  
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DRAWING NUMBER:  
 600-009

SHEET INDEX:  
 12 OF 27

April 29, 2024 6:28pm By: Chris.Margentis  
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### LEGEND

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- EDGE OF PAVEMENT
- DRIVEWAY EDGE
- BUILDING
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- FENCE LINE
- OVERHEAD POWER LINE
- SANITARY SEWER LINE
- SUBSURFACE TELECOMMUNICATIONS
- SUBSURFACE WATER
- SUBSURFACE GAS
- SUBSURFACE ELECTRIC
- PIPE STRINGOUT
- TREELINE
- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
- SILT FENCE
- LIMITS OF DISTURBANCE
- WETLAND
- STREAM
- TEMPORARY CONSTRUCTION EASEMENT
- POND
- DRILL/JAB PIT
- FILTER RING
- CURB INLET FILTER
- TEST HOLE LOCATION
- INLET PROTECTION
- SILT FENCE OUTLET

0 25 50 100  
HORIZONTAL SCALE: 1"=50'

**MATERIAL**

PIPE:  
1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513

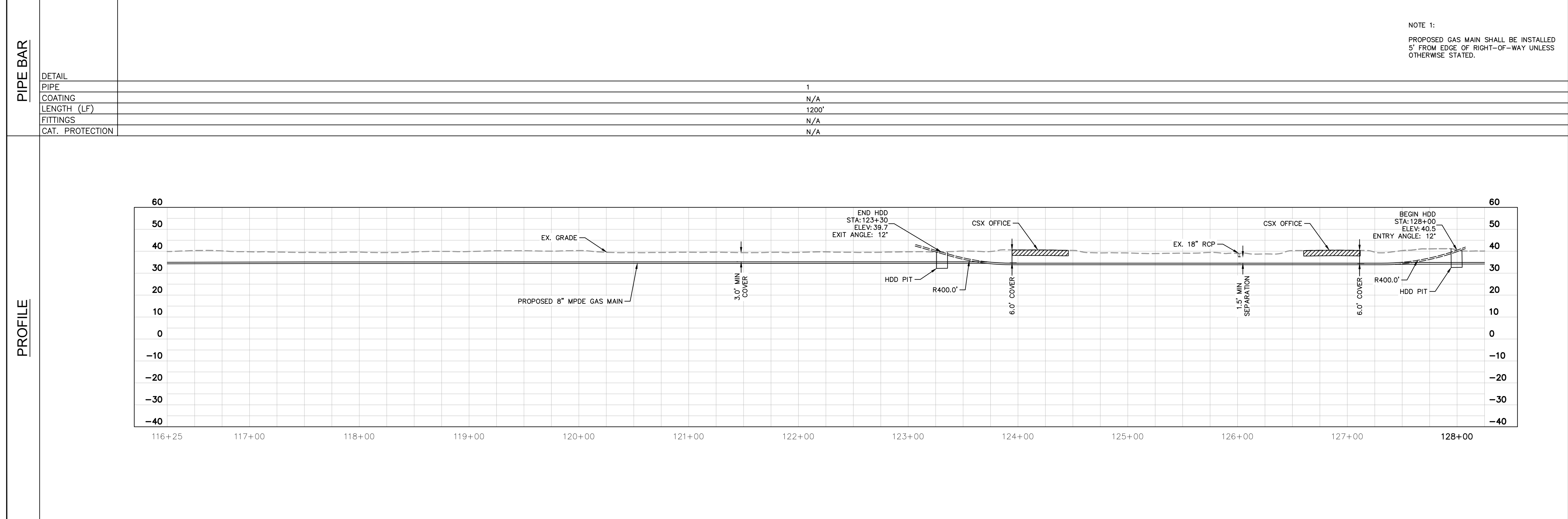
CARRIER PIPE:  
A = 12" GRADE B CARBON STEEL, SCH. STD, W.T. 0.375 IN, API-5L

**FITTINGS**

- 1 = 90° 8" GRADE PE 2708 MDPE, SDR 11, W.T.
- 2 = 45° 8" GRADE PE 2708 MDPE, SDR 11, W.T.
- 3 = 8" PE END CAP
- 4 = 8" PE VALVE
- 5 = 8" PE TEE
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- 7 = 8" BY 8" TDW SPHERICAL 3 WAY TEE
- 8 = 8" STEEL BALL VALVE
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- 10 = 4" PE VALVE
- 11 = 8" BY 4" PE TEE
- 12 = 2" PE VALVE

0 25 50 100  
HORIZONTAL SCALE: 1"=50'

0 2.5 5 10  
VERTICAL SCALE: 1"=5'



REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley-Horn**  
 4525 MAIN STREET  
 SUITE 1000  
 VIRGINIA BEACH, VA 23462  
 TEL: (757) 213-8600

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CLIENT: **Greenville Utilities**

PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION**  
 PITT COUNTY, NORTH CAROLINA

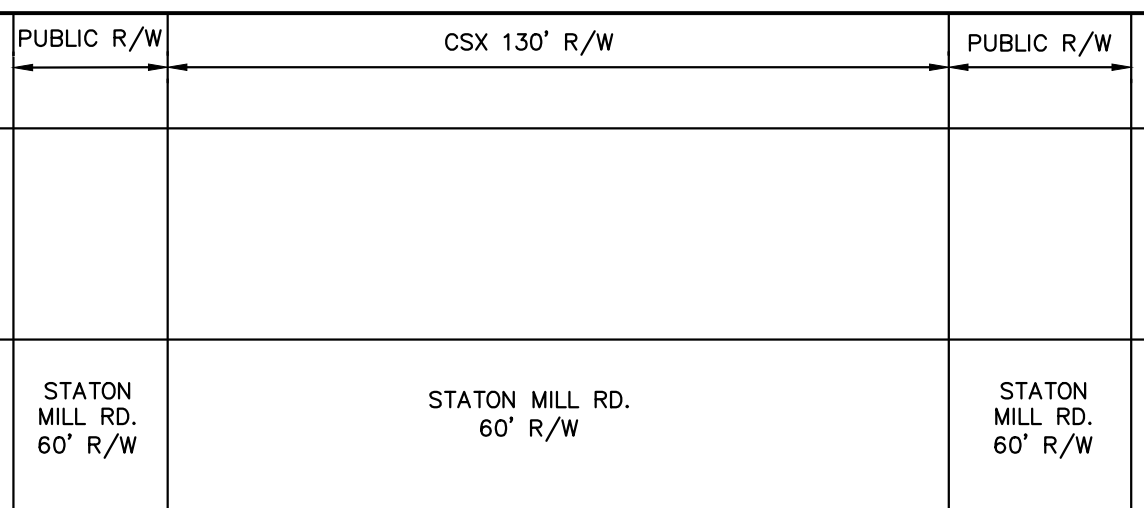
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 DRAWN BY: SMP  
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 CHECKED BY: RDC (PM)

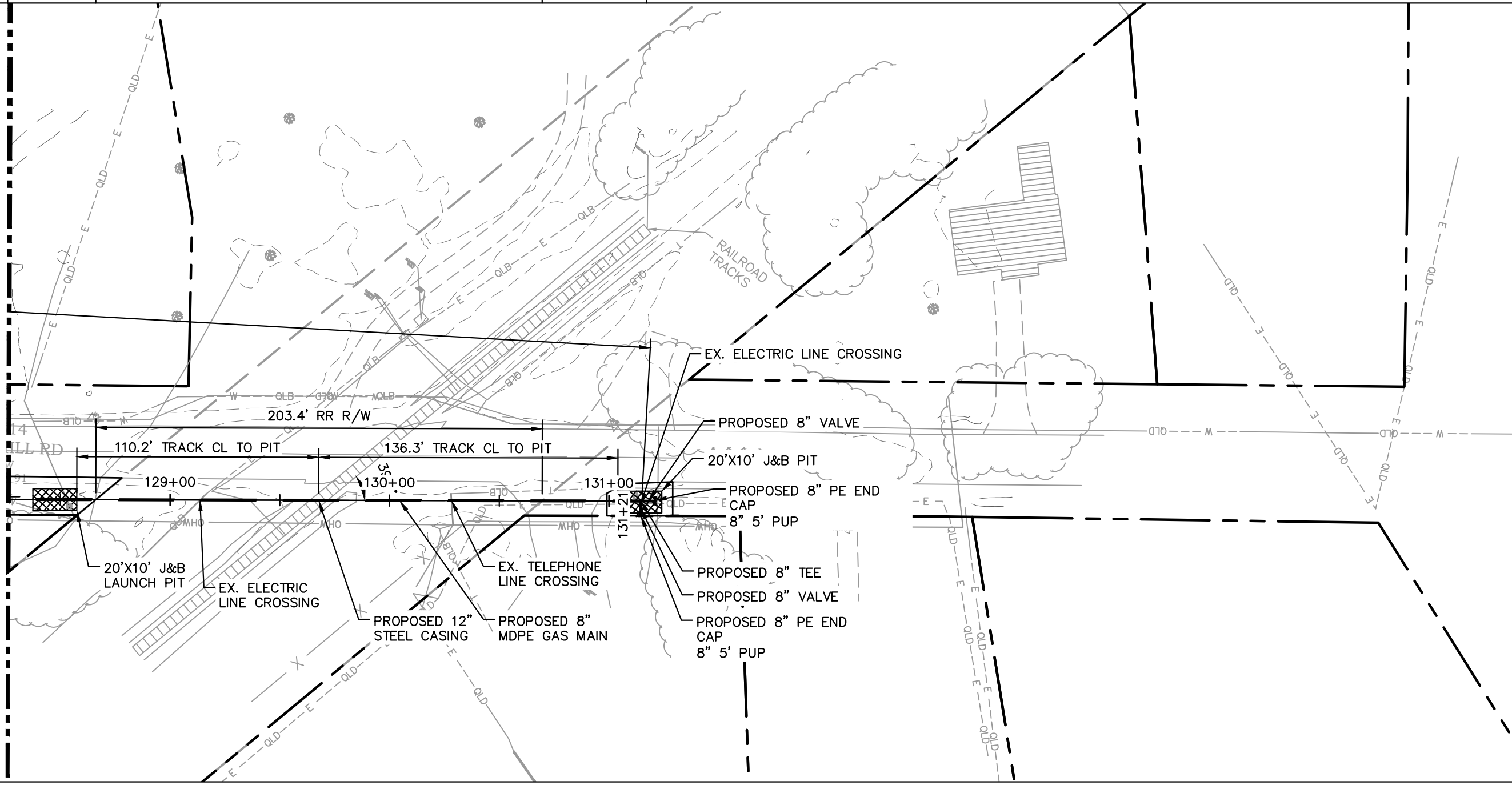
**Professional Engineer Seal**  
 NORTH CAROLINA  
 SEAL  
 44899  
 P. AND CLARK

KHA PROJECT NUMBER: 116780001  
 DRAWING NUMBER: 600-010  
 SHEET INDEX: 13 OF 27

R/W  
RESTRICT.  
OWNER  
PLAN  
PIPE BAR  
PROFILE

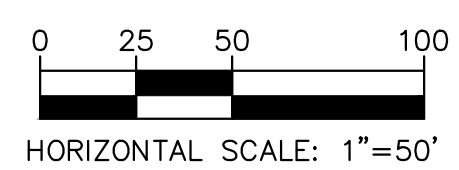
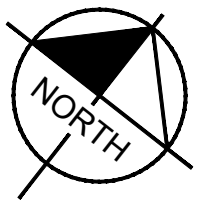


MATCHLINE STA 127+75 -  
SEE SHEET 600-010



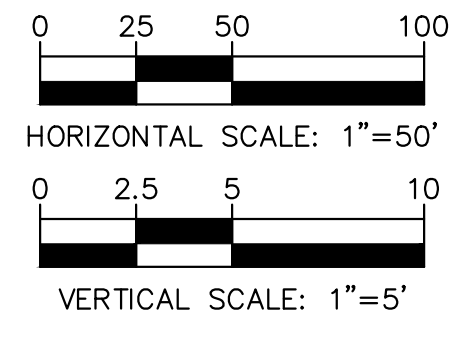
**LEGEND**

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- DRIVEWAY EDGE
- BUILDING
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- FENCE LINE
- OHW
- SS-OLD
- T-OLD
- W-OLD
- C-OLD
- E-OLD
- SANITARY SEWER LINE
- TELECOMMUNICATIONS
- SUBSURFACE WATER
- SUBSURFACE GAS
- SUBSURFACE ELECTRIC
- PIPE STRINGOUT
- TREELINE
- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
- SILT FENCE
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- POND
- DRILL/J&B PIT
- CURB INLET FILTER
- INLET PROTECTION
- FILTER RING
- TEST HOLE LOCATION
- SILT FENCE OUTLET

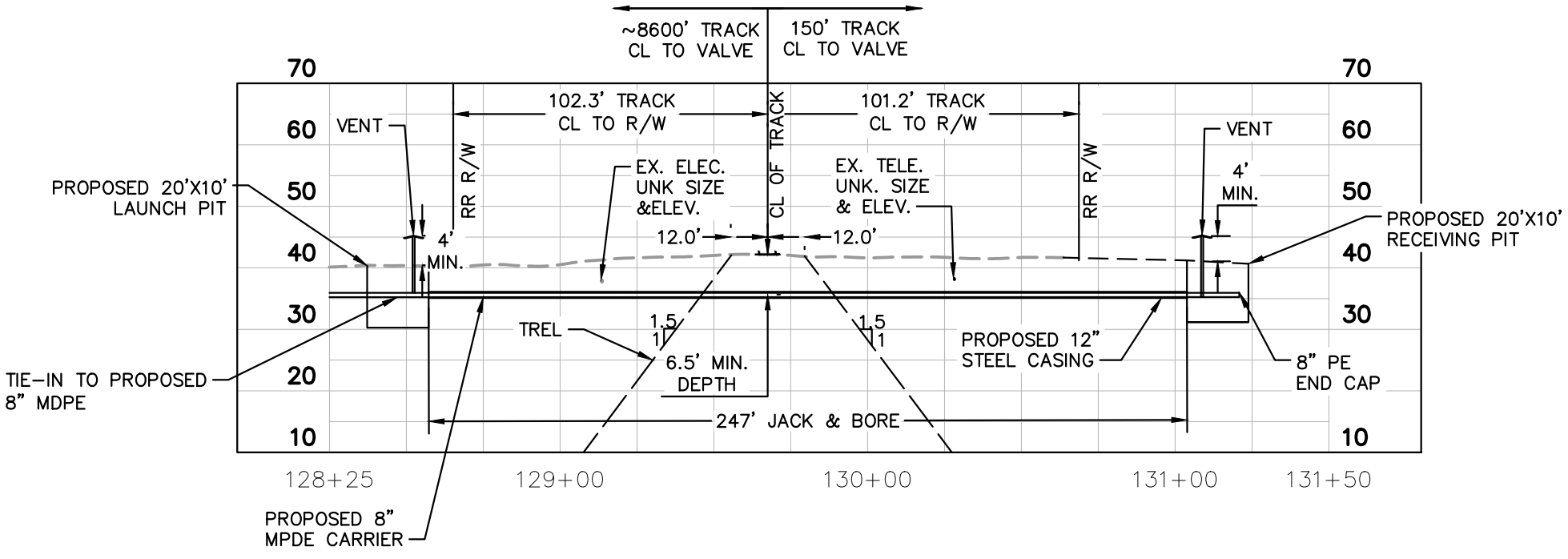


**MATERIAL**

- PIPE**  
1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513
- CARRIER PIPE**  
A = 12" GRADE B CARBON STEEL, SCH.STD, W.T. 0.375 IN, API-5L
- FITTINGS**  
1 = 90° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
2 = 45° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
3 = 8" PE END CAP  
4 = 8" PE VALVE  
5 = 8" PE TEE  
6 = 8" 5" PUP  
7 = 8" BY 8" TDW SPHERICAL 3 WAY TEE  
8 = 8" STEEL BALL VALVE  
9 = 8" TRANSITION FITTING  
10 = 4" PE VALVE  
11 = 8" BY 4" PE TEE  
12 = 2" PE VALVE



DETAIL	1	A	1
PIPE			
COATING	N/A	N/A	N/A
LENGTH (LF)	32'	247'	17'
FITTINGS			5, 4, 3, 6
CAT. PROTECTION	N/A	N/A	N/A



REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
4525 MAIN STREET  
SUITE 1000  
VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

CLIENT: **Greenville Utilities**

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PROJECT NAME:  
**NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

SHEET TITLE:  
**PLAN & PROFILE**

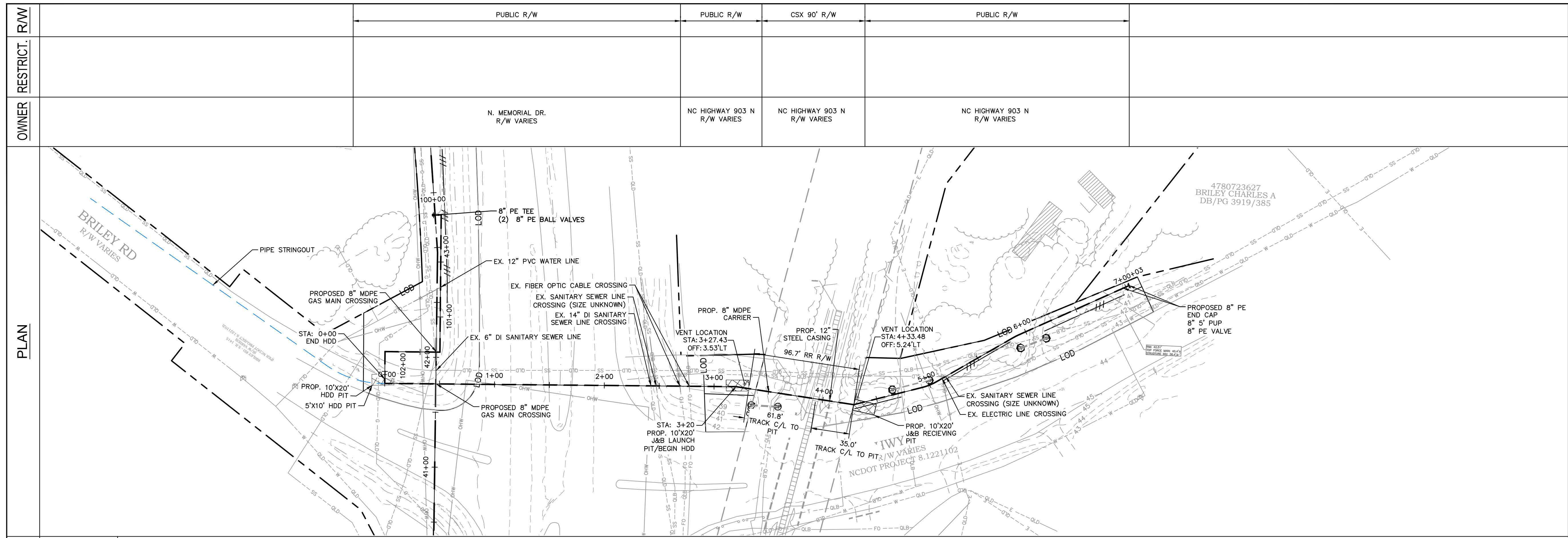
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SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)

KHA PROJECT NUMBER:  
116780001

DRAWING NUMBER:  
600-011

SHEET INDEX:  
14 OF 27

April 29, 2024 6:28pm By: Chris.Margittis



**LEGEND**

- EASEMENT BOUNDARY
- RIGHT-OF-WAY
- PROPERTY LINE
- EDGE OF PAVEMENT
- DRIVEWAY EDGE
- BUILDING
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- FENCE LINE
- OVERHEAD POWER LINE
- SS--OLD
- SS--QLD
- TELECOMMUNICATIONS
- SUBSURFACE WATER
- SUBSURFACE GAS
- SUBSURFACE ELECTRIC
- PIPE STRINGOUT
- TREELINE
- STREAM BUFFER
- PROPOSED GAS LINE
- ABANDONMENT
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- POND
- DRILL/J&B PIT
- FILTER RING
- CURB INLET FILTER
- TEST HOLE LOCATION
- INLET PROTECTION
- SILT FENCE OUTLET

**Scale:**  
 0 25 50 100  
 HORIZONTAL SCALE: 1"=50'

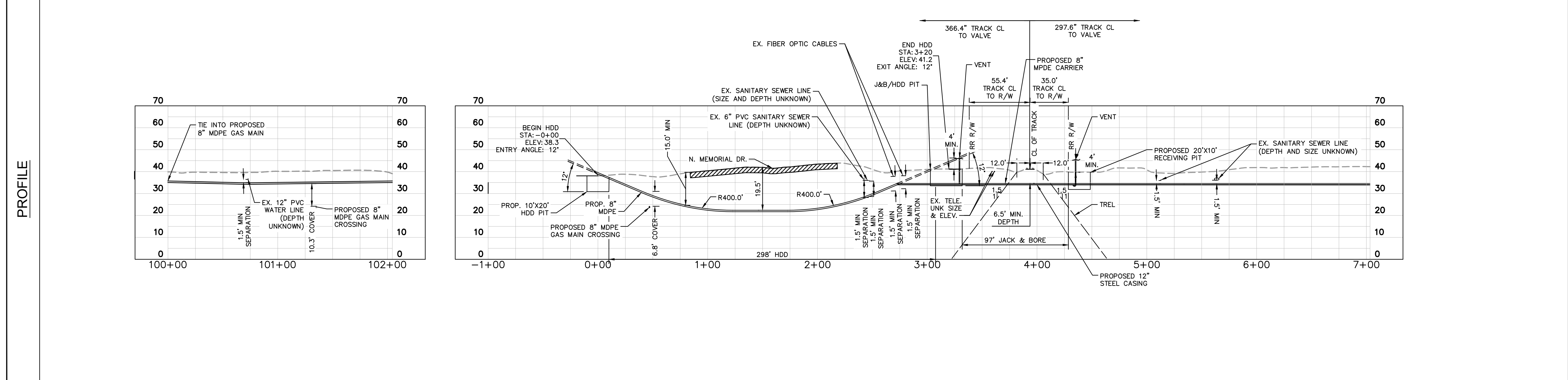
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 VERTICAL SCALE: 1"=5'

**Scale:**  
 0 25 50 100  
 HORIZONTAL SCALE: 1"=50'

**Scale:**  
 0 2.5 5 10  
 VERTICAL SCALE: 1"=5'

**PIPE BAR**

DETAIL	1	1	1	1	1	1, A	1
PIPE							
COATING	N/A	N/A	N/A	N/A			
LENGTH (LF)	132'	50'	22'				
FITTINGS	4, 5, 1	1	1				3, 4, 6
CAT. PROTECTION	N/A	N/A	N/A				N/A



- MATERIAL**
- PIPE**  
 1 = 8" GRADE PE 2708 MDPE, SDR 11, W.T. 0.784 IN, ASTM D2513
- CARRIER PIPE**  
 A = 12" GRADE B CARBON STEEL, SCH. STD, W.T. 0.375 IN, API-5L
- FITTINGS**  
 1 = 90° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
 2 = 45° 8" GRADE PE 2708 MDPE, SDR 11, W.T.  
 3 = 8" PE END CAP  
 4 = 8" PE VALVE  
 5 = 8" PE TEE  
 6 = 8" 5" PUP  
 7 = 8" BY 8" TDW SPHERICAL 3 WAY TEE  
 8 = 8" STEEL BALL VALVE  
 9 = 8" TRANSITION FITTING  
 10 = 4" PE VALVE  
 11 = 8" BY 4" PE TEE  
 12 = 2" PE VALVE

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

**ENGINEER:**  
**Kimley»Horn**  
 4525 MAIN STREET  
 SUITE 1000  
 VIRGINIA BEACH, VA 23462  
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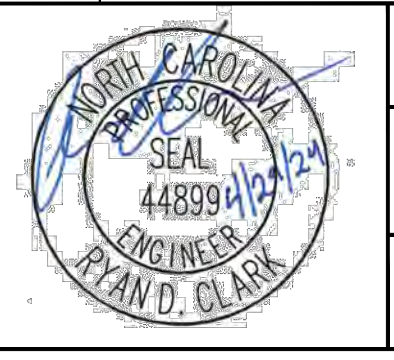
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**CLIENT:**  
**Greenville Utilities**

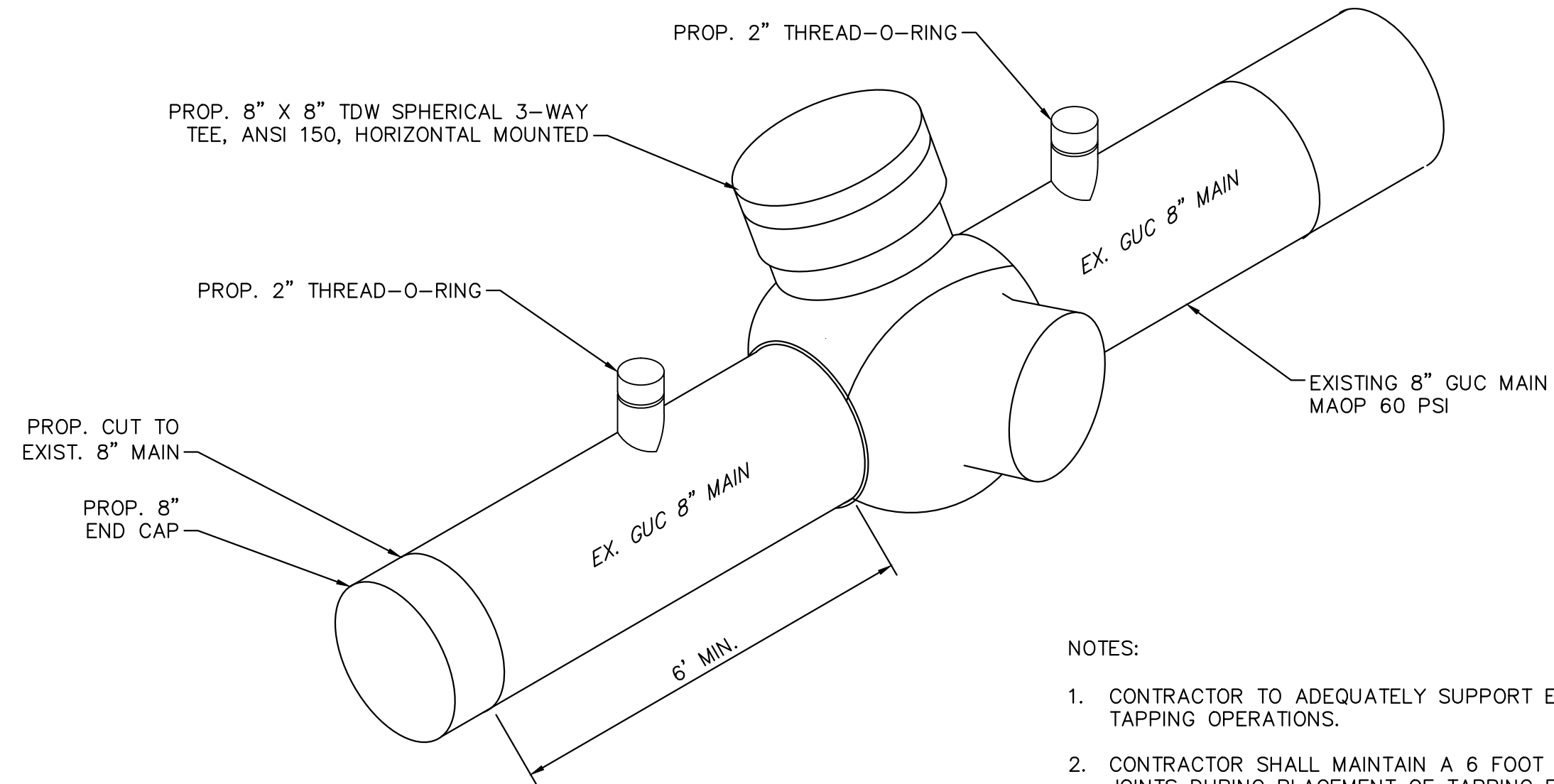
**PROJECT NAME:**  
**NC 11 N. NATURAL GAS MAIN EXTENSION**  
 PITT COUNTY, NORTH CAROLINA

**SHEET TITLE:**  
**PLAN & PROFILE**

**DATE:** 04/29/2024  
**SCALE (H,V):** AS SHOWN  
**DRAWN BY:** SMP  
**DESIGNED BY:** RDC  
**CHECKED BY:** RDC (PM)

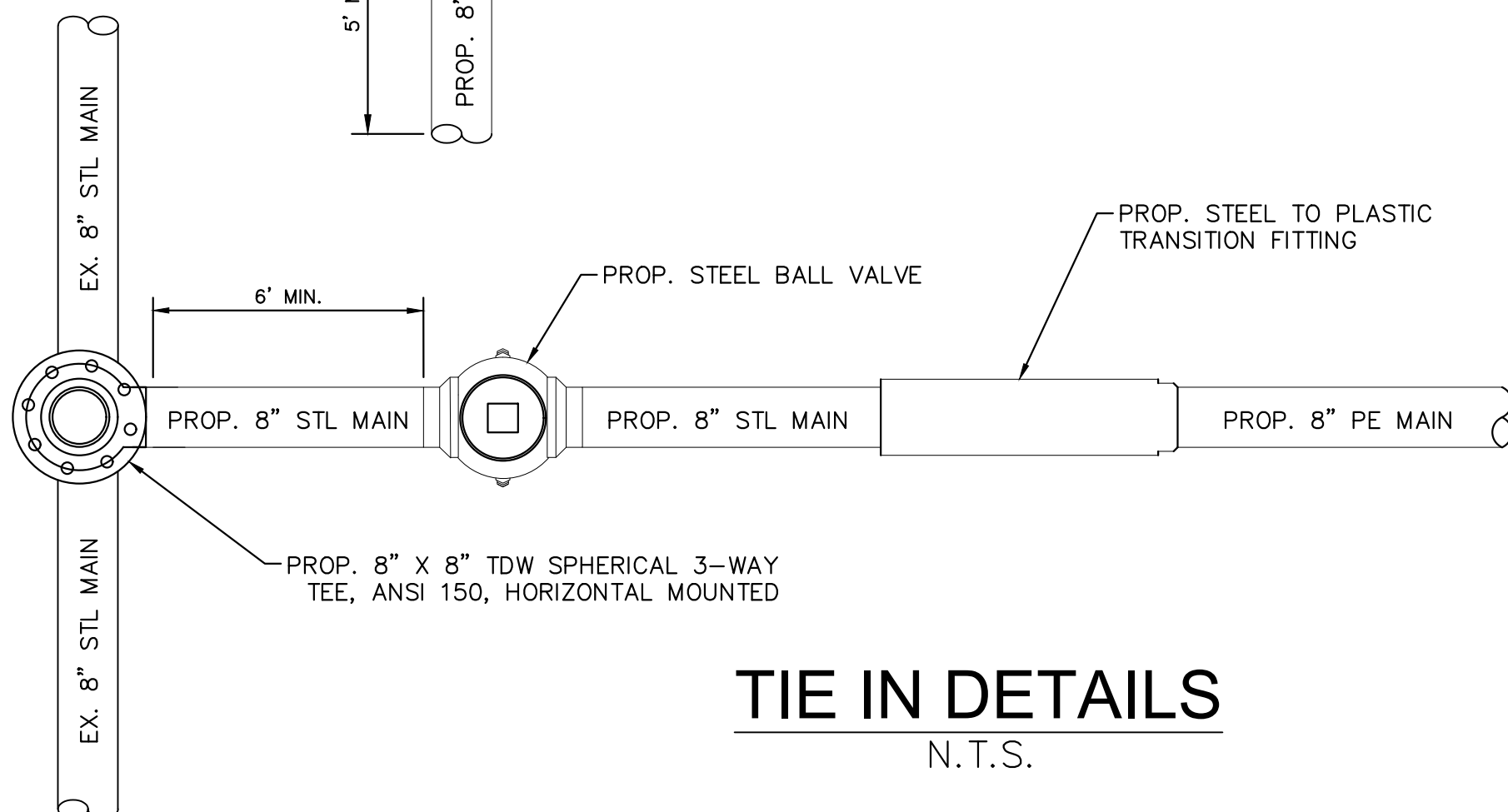
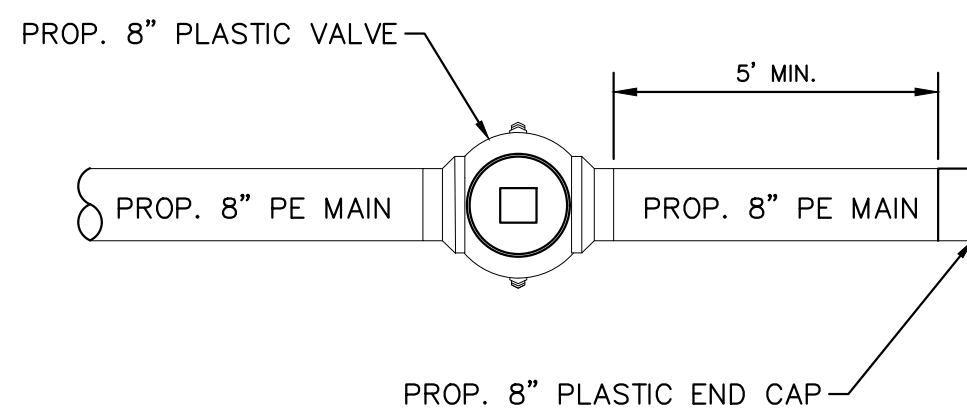
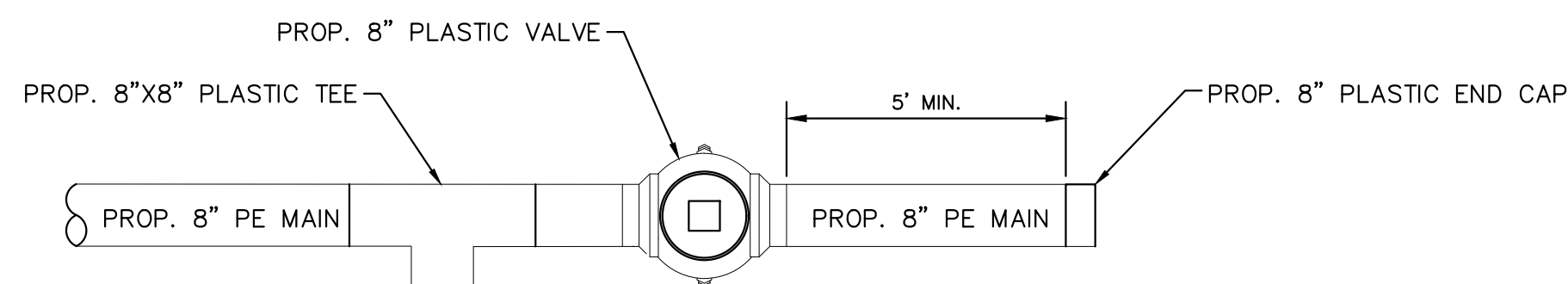


**KHA PROJECT NUMBER:** 116780001  
**DRAWING NUMBER:** 600-012  
**SHEET INDEX:** 15 OF 27

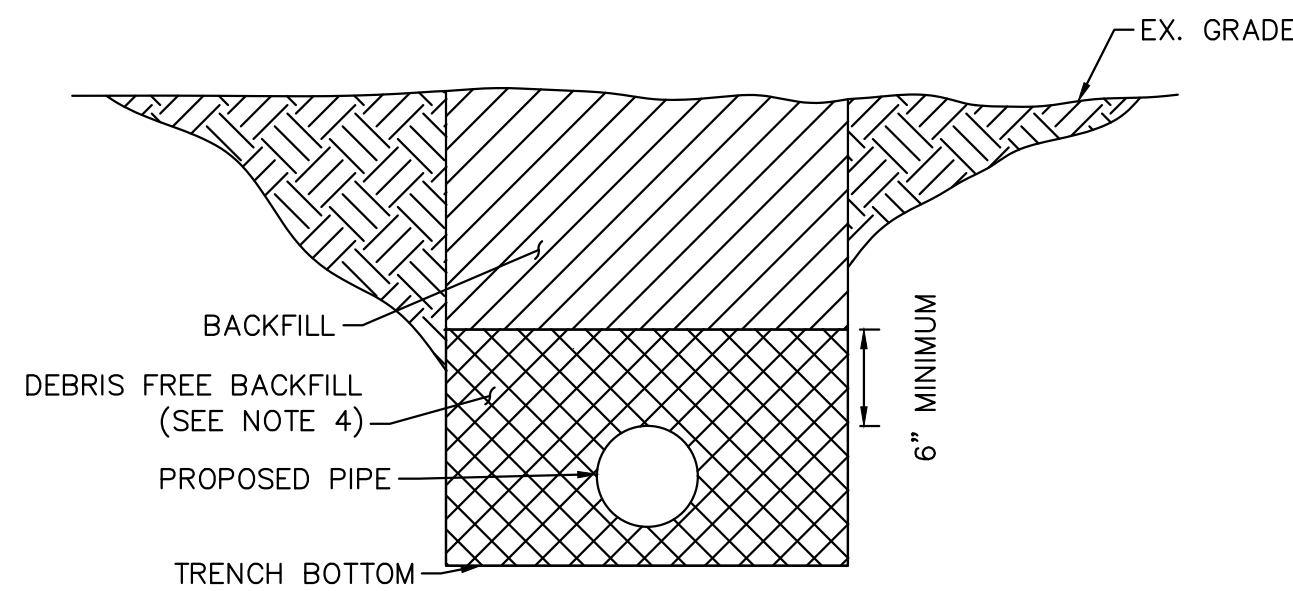


- NOTES:
1. CONTRACTOR TO ADEQUATELY SUPPORT EXISTING 8" MAIN DURING TAPPING OPERATIONS.
  2. CONTRACTOR SHALL MAINTAIN A 6 FOOT SEPARATION FROM EXISTING JOINTS DURING PLACEMENT OF TAPPING FITTING.

**8" HOT TAP DETAIL**  
N.T.S.

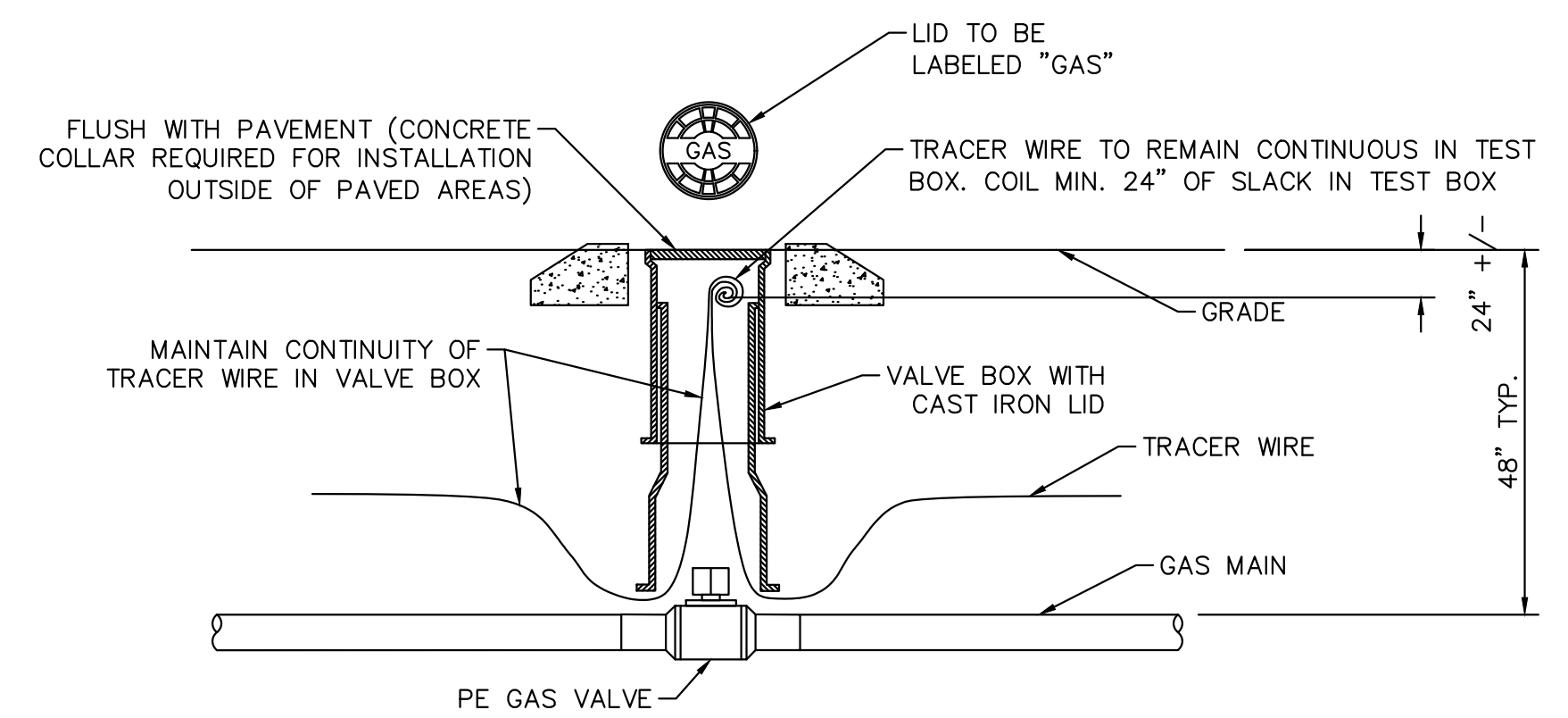


**TIE IN DETAILS**  
N.T.S.

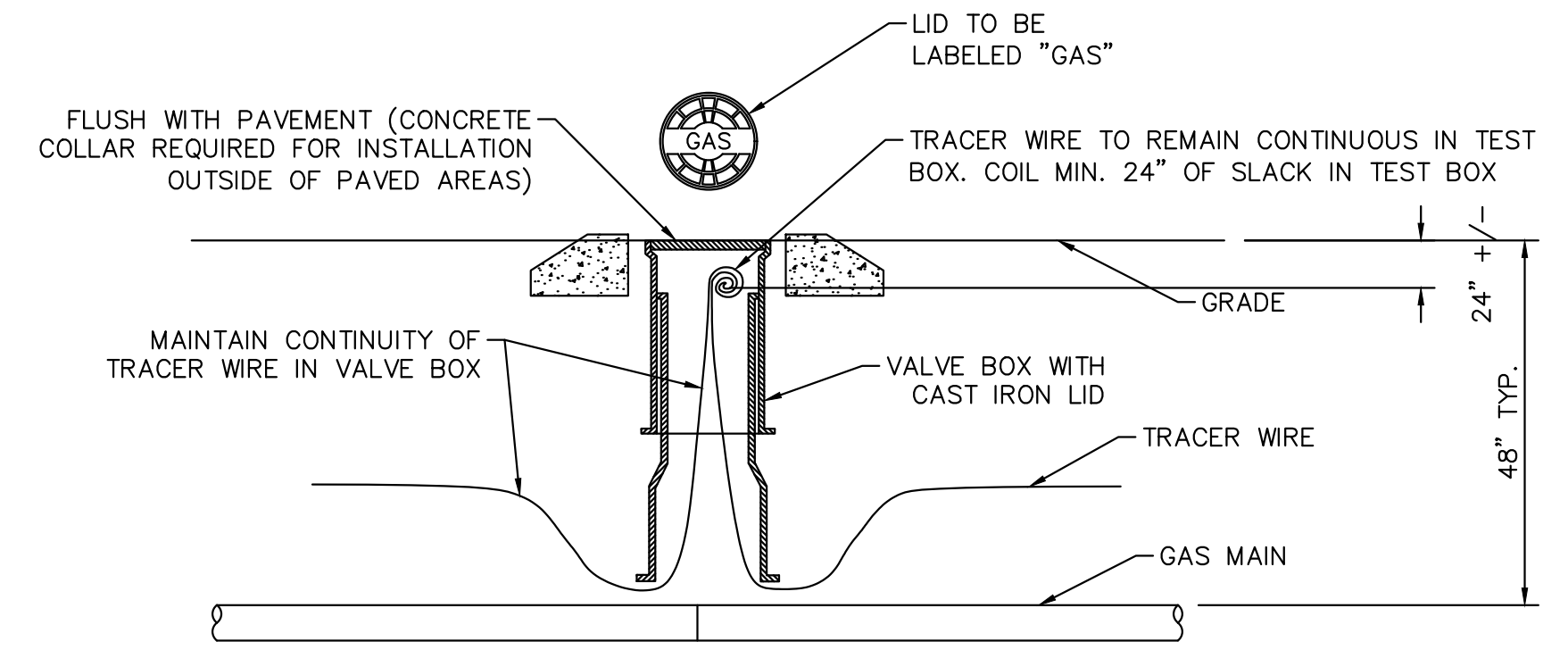


- NOTES:
1. ENSURE TRENCH IS FREE OF ROCKS AND OTHER OBJECTS THAT COULD DAMAGE THE PIPE
  2. ENSURE TRENCH IS AT THE PROPER DEPTH TO ALLOW 3 FEET OF COVER FROM TOP OF PIPE TO FINISHED SURFACE.
  3. PIPE SHALL BE ADEQUATELY SUPPORTED DURING LOWERING INTO DITCH. LIFT PIPE USING NYLON SLING OR OTHER APPROPRIATE DEVICES.
  4. FIRST 6" OF BACKFILL SHOULD BE FREE OF ROCK AND OTHER MATERIALS THAT COULD DAMAGE THE PIPE OR PIPE COATING.
  5. DO NOT USE EXCESSIVE FORCE TO TAMPER DIRECTLY OVER THE PIPE ON THE FIRST 6" OF BACKFILL.
  6. ENSURE FINAL DITCH COVER IS FLUSH WITH SURROUNDING GROUND.

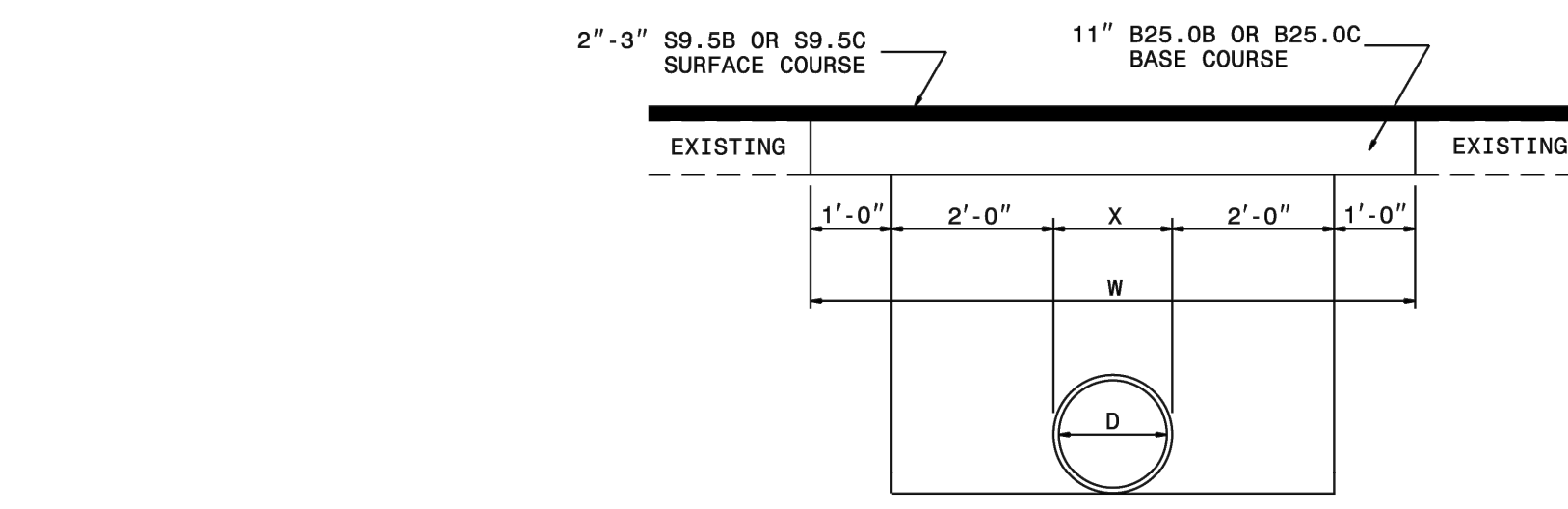
**TRENCH DETAIL**  
N.T.S.



**PLASTIC VALVE INSTALLATION DETAIL**  
N.T.S.

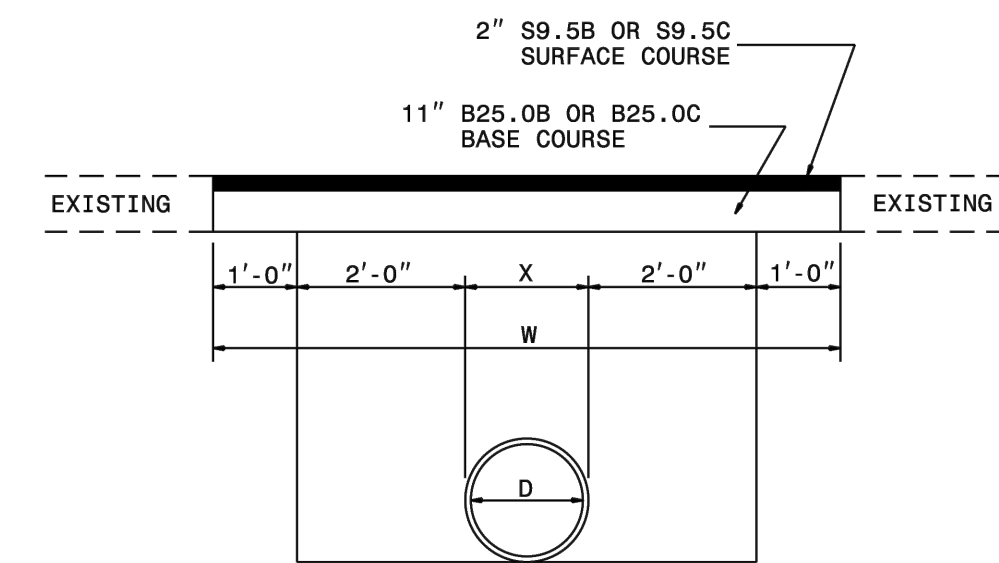


**LOCATION BOX DETAIL**  
N.T.S.



**PAVEMENT REPAIRS ON ROADS TO BE RESURFACED**  
(PIPE IS PLACED UNDER EXISTING PAVEMENT)

D	X	W
12"	1'-4"	7'-4"
15"	1'-7"	7'-7"
18"	1'-10"	7'-10"
24"	2'-6"	8'-6"
30"	3'-1"	9'-1"
36"	3'-8"	9'-8"
42"	4'-5"	10'-5"
48"	5'-0"	11'-0"



**PAVEMENT REPAIRS ON ROADS NOT TO BE RESURFACED**  
(PIPE IS TO BE PLACED UNDER EXISTING PAVEMENT)

**PAVEMENT REPAIR DETAIL**  
N.T.S.

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**PAVEMENT REPAIRS**  
FOR SUPERPAVE MIX TYPES

SHEET 1 OF 1  
**654.01**

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley-Horn**  
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CLIENT: **Greenville Utilities**

PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

SHEET TITLE: **DETAILS**

DATE: 04/29/2024  
SCALE (H.V.): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)

**PROFESSIONAL SEAL**  
44899  
PLAND. CLARK

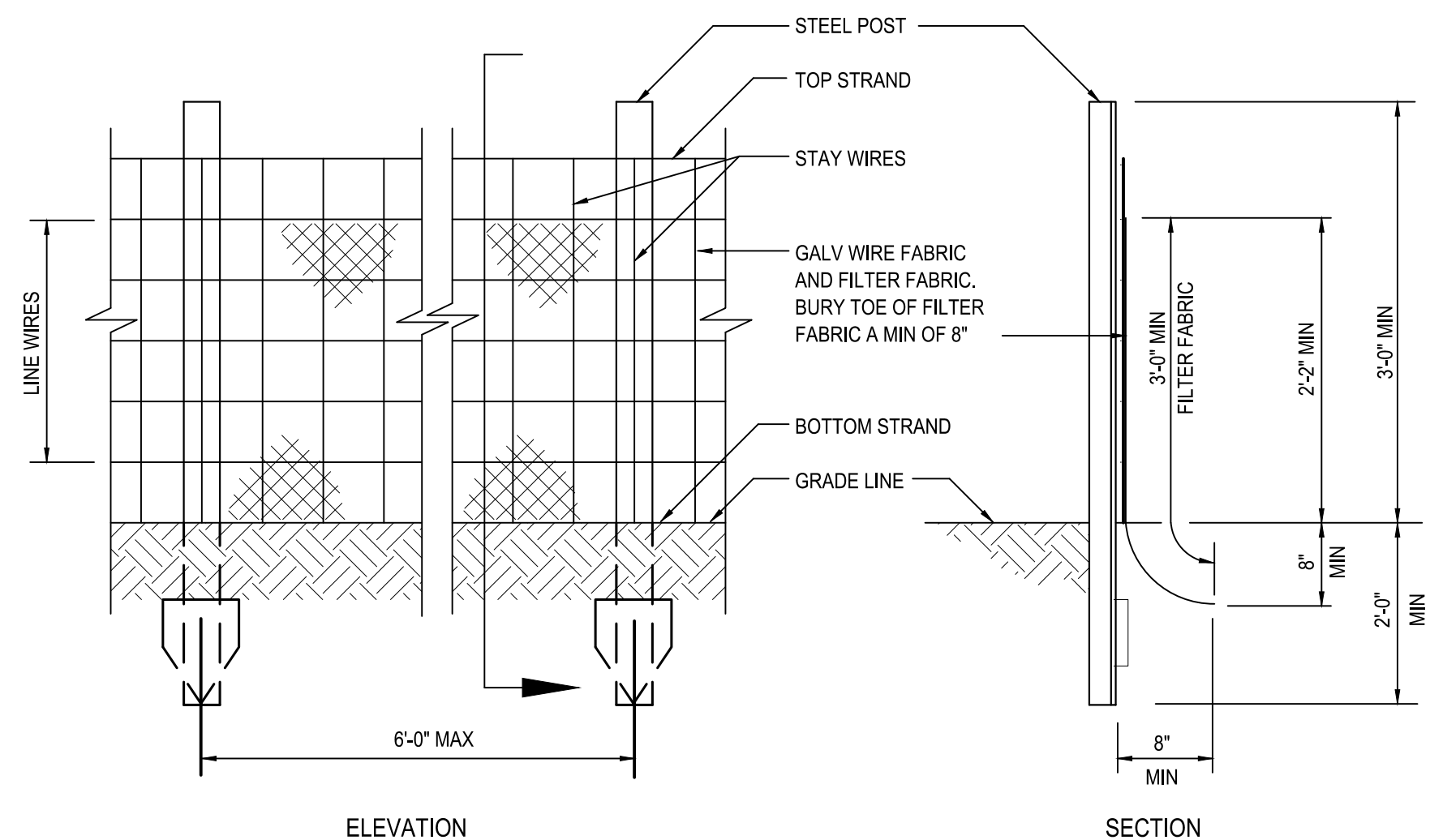
KHA PROJECT NUMBER: 116780001  
DRAWING NUMBER: 800-001  
SHEET INDEX: 16 OF 27

April 29, 2024 - 5:29pm By: ChrisMargittis

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- NOTES:
1. EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE INSTALLED ACCORDING TO THE CONTRACT DOCUMENTS AND AS DIRECTED BY THE ENGINEER. ALL DEVICES SHALL BE MAINTAINED SUCH THAT THEY FUNCTION AS INTENDED.
  2. STOCKPILE LOCATIONS AND LAY DOWN AREAS SHALL BE LOCATED WITHIN THE EXISTING CONSTRUCTION LIMITS AS SHOWN ON THE PLANS. CONSTRUCTION ENTRANCES SHALL BE PLACED AS NEEDED BY THE CONTRACTOR ACCORDING TO THE STANDARD DETAILS IN THE DRAWINGS.
  3. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH TEMPORARY SEEDING.
  4. SEEDING SHALL BE AS SPECIFIED FOR DISTURBED AREAS. AFTER SEEDING, THE AREA SHALL BE ROLLED AND MULCHED WITH FINE GRAIN STRAW AT THE APPLICATION RATE SPECIFIED (SEE CONTRACT DOCUMENTS). AN ASPHALTIC COAT, OR APPROVED EQUAL TREATMENT AT RATE OF 25-35 GAL. / 1,000 SQ.FT..
  5. PROVIDE FOR GROUNDCOVER ON EXPOSED SLOPES WITHIN 21 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING; PERMANENT GROUNDCOVER FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER), FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

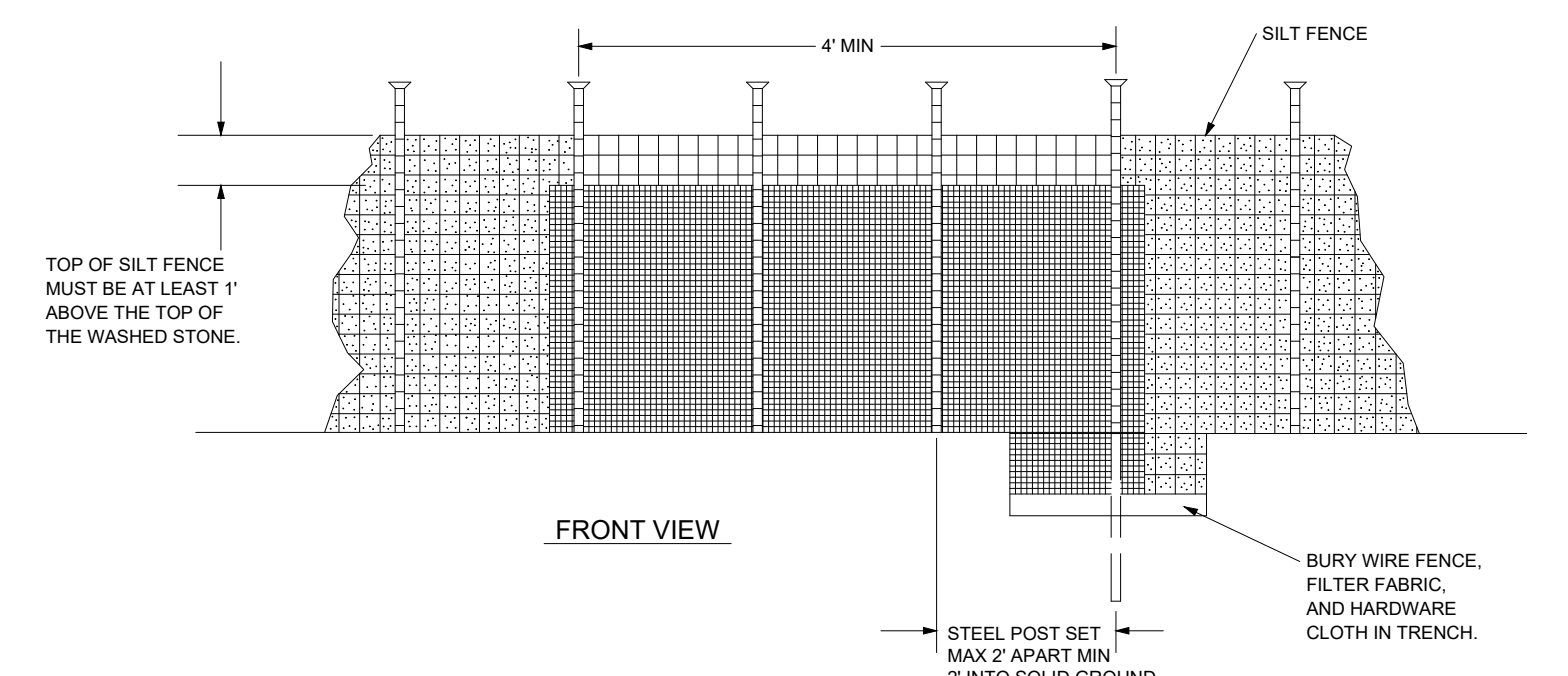


ELEVATION SECTION

NOTE:

1. EXTRA STRENGTH FILTER FABRIC (AS APPROVED BY ENGINEER) WITH 6'-0" POST SPACING DOES NOT REQUIRE MESH SUPPORT FENCE.
2. FILTER FABRIC SHALL BE WIRED DIRECTLY TO POST.

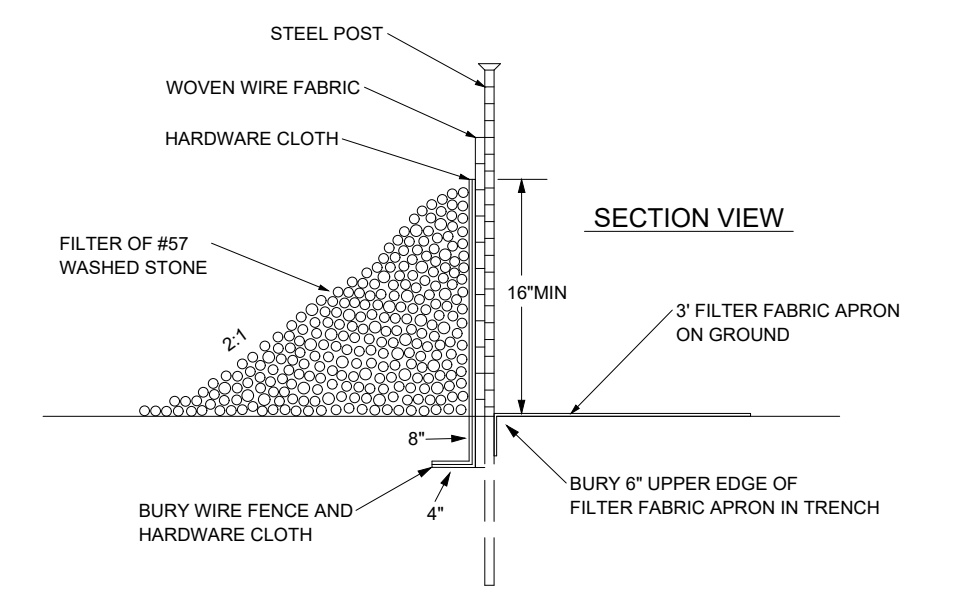
Ⓢ SILT FENCE



FRONT VIEW

NOTES:

1. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.
2. REPLACE STONE AS NEEDED TO ENSURE DEWATERING.



SECTION VIEW

Ⓢ SILT FENCE OUTLET

Practice Standards and Specifications

6.54 ROCK DOUGHNUT INLET PROTECTION (Temporary)

**Definition** A doughnut shaped rock dam that prevents sediment from getting into a drop inlet. The rock dam has a built-in sediment storage area around the outside perimeter of the structure.

**Purpose** To prevent sediment from entering a storm drain.

**Conditions Where Practice Applies** To be used at drop inlets with large drainage areas or at drop inlets that receive high velocity water flows, possibly from many directions. Sediment is captured in an excavated depression surrounding the inlet. When drainage area exceeds 1 acre, additional measures are necessary. This practice must not divert water away from the storm drain.

**Design Criteria** Place measure at least 30 feet away from vehicular traffic. This inlet protection can be modified to protect one side of the inlet if only one side receives flow.

**Stone**—A minimum 1-foot wide level area set 4 inches below the drop inlet crest will add protection against the entrance of material. Structural stone should be Class B riprap with 2:1 side slope, and a minimum crest width of 18 inches. The height of the stone should be from 2 to 3.5 feet. The outside face of the riprap should be covered in a 12-inch thick layer of #5 or #57 washed stone. Wire mesh with 2-inch openings may be placed over the drain grating but must be inspected frequently to avoid blockage by trash.

**The top elevation of the stone structure must be at least 12 inches lower than the ground elevation downslope from the inlet. It is important that all stormwater flow over the structure into the storm drain, and not past the structure.** Temporary diking below the structure may be necessary to prevent bypass flow. Material may be excavated from inside the sediment pool for this purpose (Practice 6.52, Block and Gravel Inlet Protection).

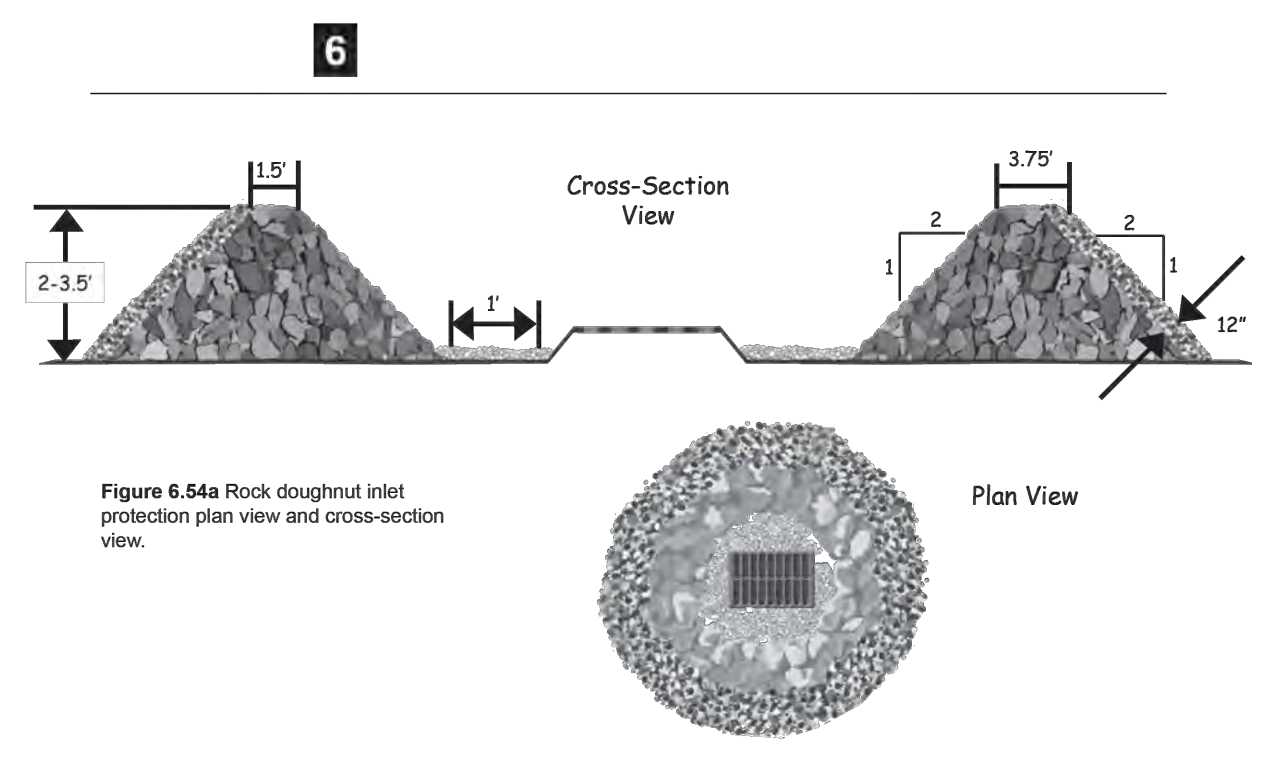


Figure 6.54a Rock doughnut inlet protection plan view and cross-section view.

**Maintenance** Inspect rock doughnut inlet protection at least weekly and after each significant (1/2 inch or greater) rainfall event and repair immediately.

To provide satisfactory inlet protection efficiency, remove sediment from the sediment pool area when the volume is decreased by half. This will help provide adequate storage volume for the next rain. Stabilize excavated material appropriately.

Take care not to damage or undercut the structure during sediment removal. Remove debris from the inlet and replace stone as needed. If the inlet was covered with wire mesh the mesh should be cleaned of debris.

When the contributing drainage area has been adequately stabilized, remove all materials and dispose of sediment properly. Bring the disturbed area to the grade of the drop inlet. Smooth and compact it as needed.

Appropriately stabilize all bare areas around the inlet with ground cover.

**References** Inlet protection 6.52, Block and Gravel Inlet Protection (Temporary)  
North Carolina Department of Transportation Erosion & Sedimentation Guidelines for Division Maintenance Operation, 1993.

Rev. 6/06 6.54.1 6.54.2

Practice Standards and Specifications

6.55 ROCK PIPE INLET PROTECTION

**Definition** A horseshoe shaped rock dam structure at a pipe inlet with a sediment storage area around the outside perimeter of the structure.

**Purpose** To prevent sediment from entering, accumulating in and being transferred by a culvert or storm drainage system prior to stabilization of the disturbed drainage area. This practice allows early use of the storm drainage system.

**Conditions Where Practice Applies** Rock pipe inlet protection may be used at pipes with a maximum diameter of 36 inches. This inlet protection may be used to supplement additional sediment traps or basins at the pipe outlet, or used in combination with an excavated sediment storage area to serve as a temporary sediment trap. Pipe inlet protection should be provided to protect the storm drainage system and downstream areas from sedimentation until permanent stabilization of the disturbed drainage area.

**Do not install this measure in an intermittent or perennial stream.**

**Planning Considerations** When construction on a project reaches a stage where culverts and other storm drainage structures are installed and many areas are brought to the desired grade, there is a need to protect the points where runoff can leave the site through culverts or storm drains. Similar to drop and curb inlets, culverts receiving runoff from disturbed areas can convey large amounts of sediment to lakes or streams. Even if the pipe discharges into a sediment trap or basin, the pipe or pipe system itself may clog with sediment.

**Design Criteria** When used in combination with an excavated sediment storage area to serve as a temporary sediment trap, the design criteria for temporary sediment traps must be satisfied. The maximum drainage area should be 5 acres, and 3600 cubic feet of sediment storage per acre of disturbed drainage area should be provided.

The minimum stone height should be 2 feet, with side slopes no steeper than 2:1. The stone "horseshoe" around the pipe inlet should be constructed of Class B or Class I riprap, with a minimum crest width of 3 feet. The outside face of the riprap should be covered with a 12-inch thick layer of #5 or #57 washed stone.

In preparing plans for rock pipe inlet protection, it is important to protect the embankment over the pipe from overtopping. The top of the stone should be a minimum of 1 foot below the top of the fill over the pipe. The stone should tie into the fill on both sides of the pipe. The inside toe of the stone should be no closer than 2 feet from the culvert opening to allow passage of high flows.

The sediment storage area should be excavated upstream of the rock pipe inlet protection, with a minimum depth of 18 inches below grade.

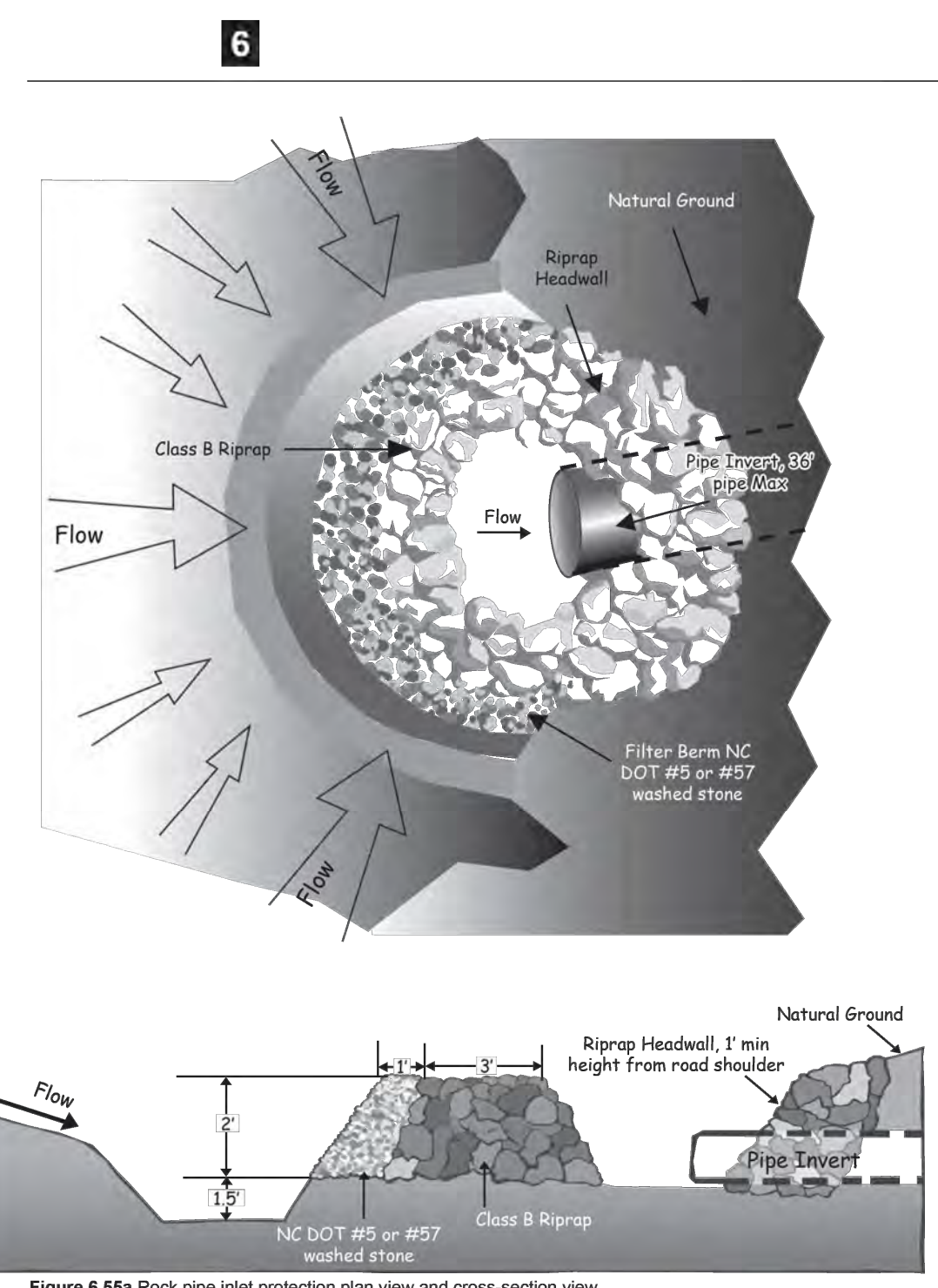


Figure 6.55a Rock pipe inlet protection plan view and cross-section view

Rev. 6/06 6.55.1 6.55.2

Practice Standards and Specifications

Construction Specifications

1. Clear the area of all debris that might hinder excavation and disposal of spoil.
2. Install the Class B or Class I riprap in a semi-circle around the pipe inlet. The stone should be built up higher on each end where it ties into the embankment. The minimum crest width of the riprap should be 3 feet, with a minimum bottom width of 11 feet. The minimum height should be 2 feet, but also 1 foot lower than the shoulder of the embankment or diversions.
3. A 1 foot thick layer of NC DOT #5 or #57 stone should be placed on the outside slope of the riprap.
4. The sediment storage area should be excavated around the outside of the stone horseshoe 18 inches below natural grade.
5. When the contributing drainage area has been stabilized, fill depression and establish final grading elevations, compact area properly, and stabilize with ground cover.

**Maintenance** Inspect rock pipe inlet protection at least weekly and after each significant (1/2 inch or greater) rainfall event and repair immediately. Remove sediment and restore the sediment storage area to its original dimensions when the sediment has accumulated to one-half the design depth of the trap. Place the sediment that is removed in the designated disposal area and replace the contaminated part of the gravel facing.

Check the structure for damage. Any riprap displaced from the stone horseshoe must be replaced immediately.

After all the sediment-producing areas have been permanently stabilized, remove the structure and all the unstable sediment. Smooth the area to blend with the adjoining areas and provide permanent ground cover (Surface Stabilization).

**References** Inlet protection 6.52, Block and Gravel Inlet Protection (Temporary)  
Sediment Trap and Barriers 6.60, Temporary Sediment Trap  
Surface Stabilization 6.15, Riprap  
North Carolina Department of Transportation Erosion & Sedimentation Guidelines for Division Maintenance Operation, 1993.  
Virginia Erosion and Sediment Control Handbook. 1992. STD & SPEC 3.08, Culvert Inlet Protection, pages III-46 - III-51 (Culvert Inlets Sediment Trap).

Rev. 6/06 6.55.3

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
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CLIENT: **Greenville Utilities**

PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA

SHEET TITLE: **E&SC DETAILS**

DATE: 04/29/2024  
SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)

KHA PROJECT NUMBER: 116780001  
DRAWING NUMBER: 800-002  
SHEET INDEX: 17 OF 27

Professional Engineer Seal: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 44899 PLAND, CLARK

Date:

**GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT**

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

**SECTION E: GROUND STABILIZATION**

**Required Ground Stabilization Timeframes**

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10 feet or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

**Note:** After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

**GROUND STABILIZATION SPECIFICATION**

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> <li>Temporary grass seed covered with straw or other mulches and tackifiers.</li> <li>Hydroseeding</li> <li>Rolled erosion control products with or without temporary grass seed</li> <li>Appropriately applied straw or other mulch</li> <li>Plastic sheeting</li> </ul>	<ul style="list-style-type: none"> <li>Permanent grass seed covered with straw or other mulches and tackifiers</li> <li>Geotextile fabrics such as permanent soil reinforcement matting</li> <li>Hydroseeding</li> <li>Shrubs or other permanent plantings covered with mulch</li> <li>Uniform and evenly distributed ground cover sufficient to restrain erosion</li> <li>Structural methods such as concrete, asphalt or retaining walls</li> <li>Rolled erosion control products with grass seed</li> </ul>

**POLYACRYLAMIDES (PAMS) AND FLOCCULANTS**

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated Stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

**EQUIPMENT AND VEHICLE MAINTENANCE**

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

**LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE**

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

**PAINT AND OTHER LIQUID WASTE**

- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

**PORTABLE TOILETS**

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

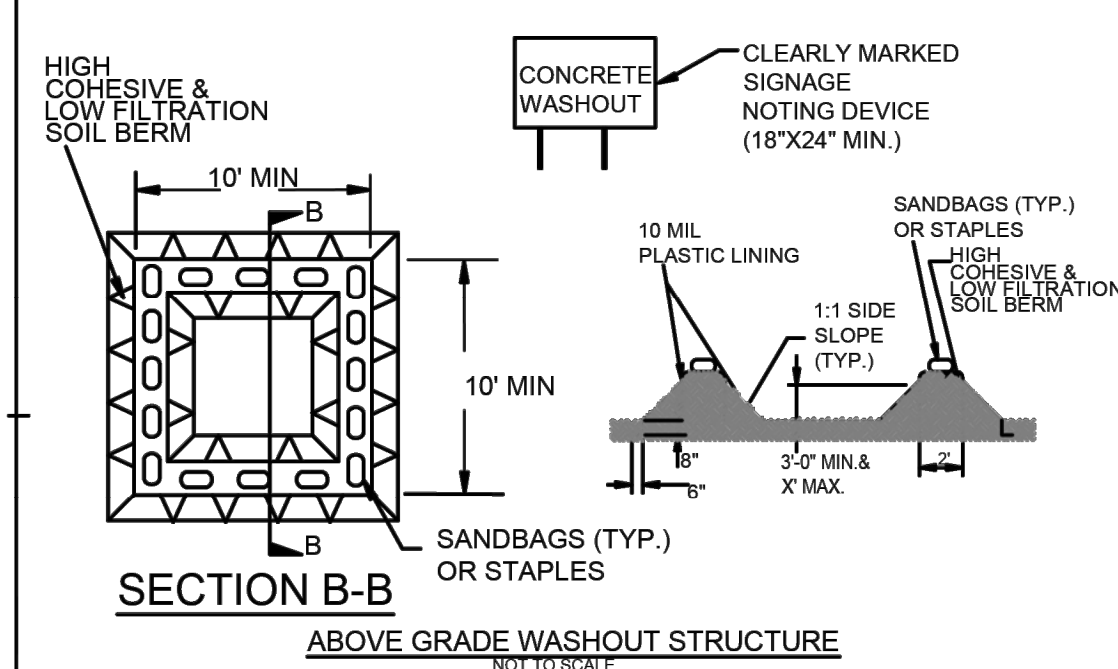
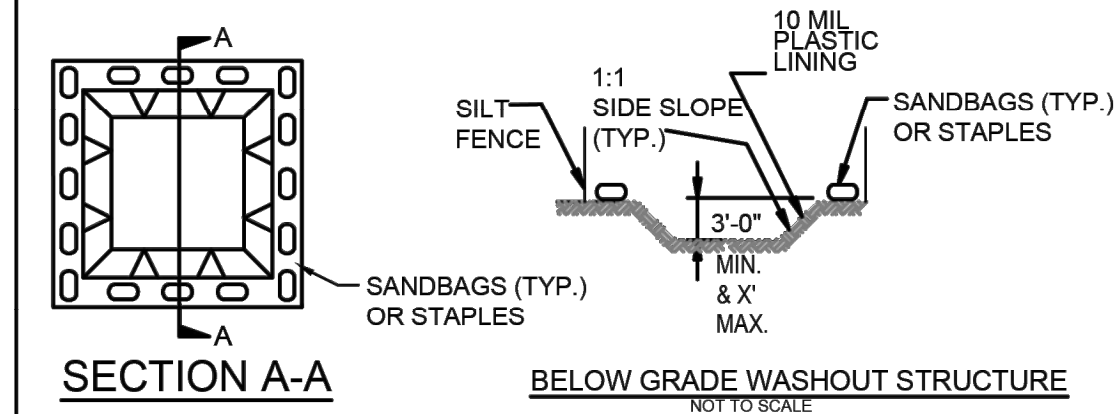
**EARTHEN STOCKPILE MANAGEMENT**

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

**HAZARDOUS AND TOXIC WASTE**

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

**ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER**



- NOTES:**
- ACTUAL LOCATION DETERMINED IN FIELD
  - THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.
  - CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

- NOTES:**
- ACTUAL LOCATION DETERMINED IN FIELD
  - THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
  - CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

**CONCRETE WASHOUTS**

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

**HERBICIDES, PESTICIDES AND RODENTICIDES**

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

Page:

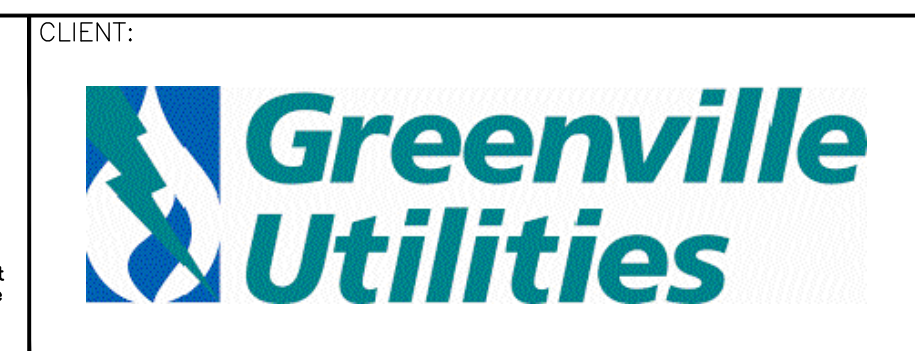


**NCG-01 GROUND COVER & MATERIALS HANDLING**

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley-Horn**  
 4525 MAIN STREET  
 SUITE 1000  
 VIRGINIA BEACH, VA 23462  
 TEL: (757) 213-8600

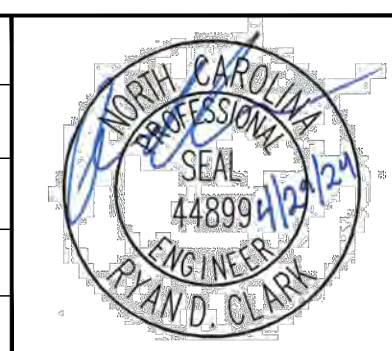
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PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION**  
 PITT COUNTY, NORTH CAROLINA

SHEET TITLE: **NCG01 GROUND STABILIZATION AND MATERIALS HANDLING**

DATE: 04/29/2024  
 SCALE (H,V): AS SHOWN  
 DRAWN BY: SMP  
 DESIGNED BY: RDC  
 CHECKED BY: RDC (PM)



KHA PROJECT NUMBER: 116780001  
 DRAWING NUMBER: 800-003  
 SHEET INDEX: 18 OF 27

April 29, 2024 11:52:29pm By: Chris Margentis

Date:

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:
(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur.
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit.
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin.
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above.
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

Table with 3 columns: Inspect, Frequency, Inspection records must include. Rows include Rain gauge, E&SC Measures, Stormwater discharge outfalls, Perimeter of Site, Streams or wetlands, and Ground Stabilization Measures.

Table with 2 columns: Item to Document, Document Requirements. Rows include E&SC Plan Documentation (a-e), Additional Documentation to be Kept on Site (a-b), and Documentation to be Retained for Three Years.

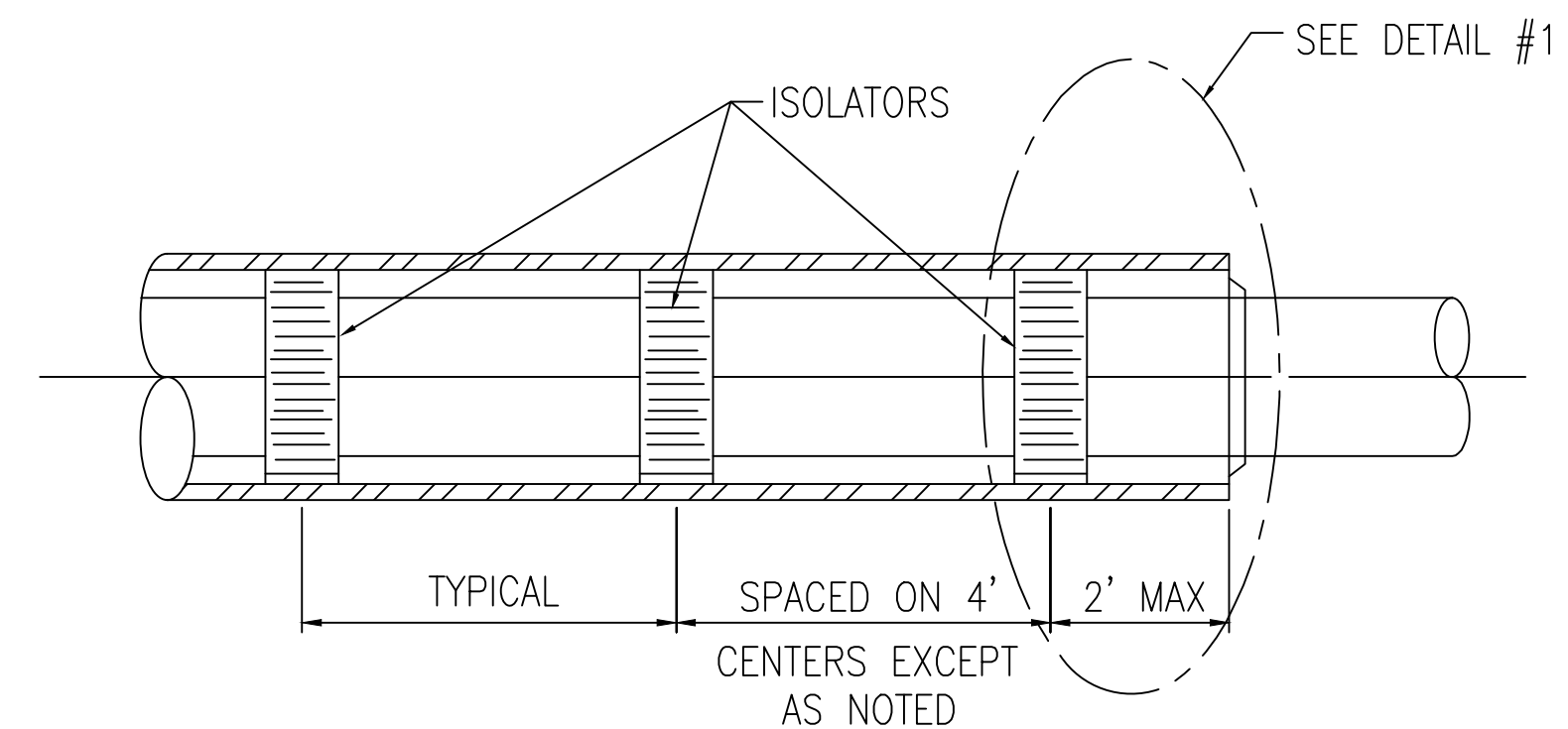
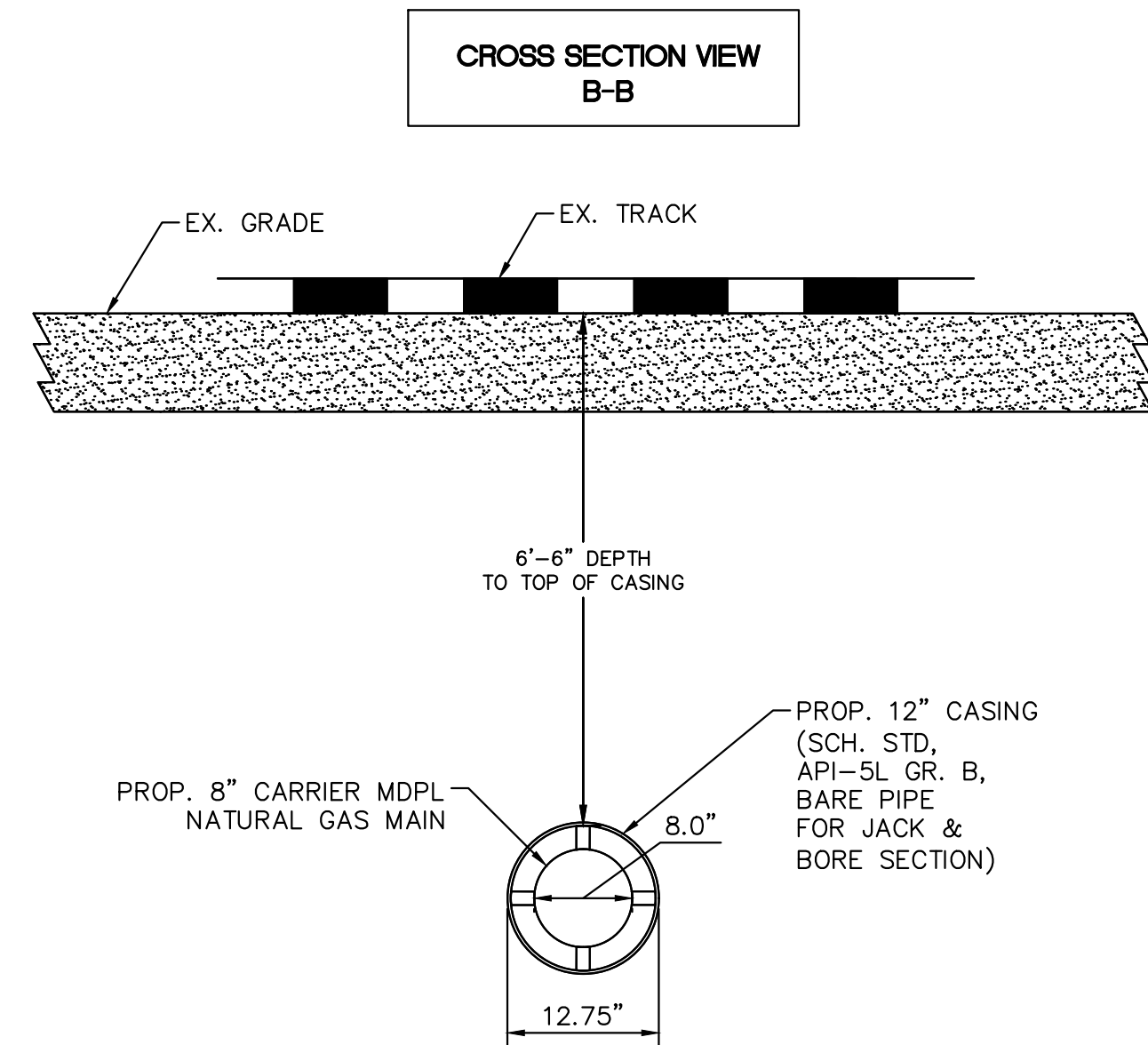
Table with 2 columns: Occurrence, Reporting Timeframe (After Discovery) and Other Requirements. Rows include Visible sediment, Oil spills, Anticipated bypasses, Unanticipated bypasses, and Noncompliance.



NCG-01 SELF INSPECTION

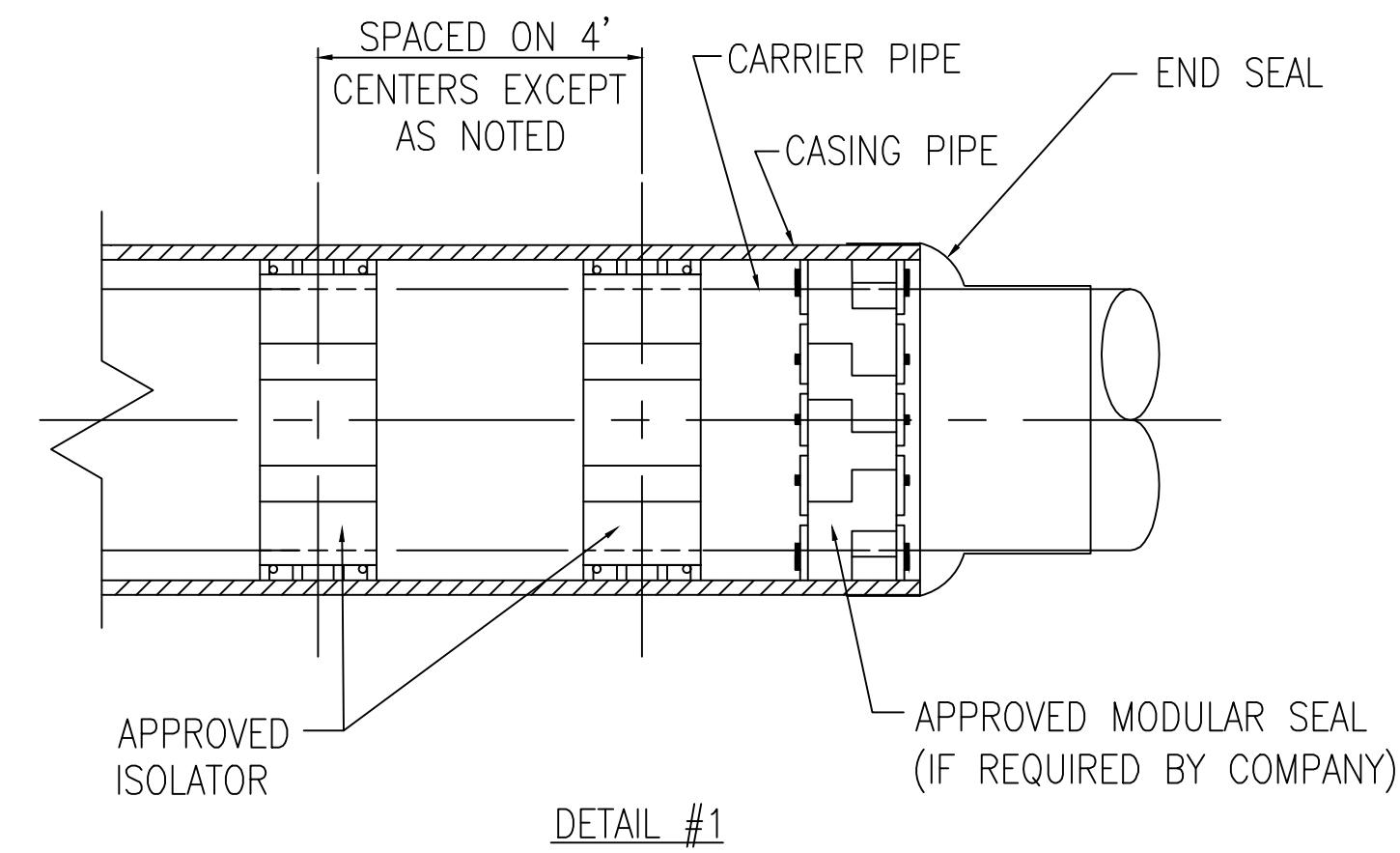
Form containing project details: ENGINEER: Kimley-Horn, CLIENT: Greenville Utilities, PROJECT NAME: NC 11 N. NATURAL GAS MAIN EXTENSION, SHEET TITLE: NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING, DATE: 04/29/2024, SCALE: AS SHOWN, DRAWN BY: SMP, DESIGNED BY: RDC, CHECKED BY: RDC (PM), KHA PROJECT NUMBER: 116780001, DRAWING NUMBER: 800-004, SHEET INDEX: 19 OF 27.

April 29, 2024 - 5:29pm By: Chris Margittis



NOTE:  
FOR 24" AND SMALLER CARRIER PIPE  
USE 6' CENTERS.

DETAIL #1A  
INTERMEDIATE ISOLATORS



- NOTES:
- CASING ISOLATORS SHALL BE COATED STEEL OR STAINLESS STEEL WITH PVC LINER AND 2" WIDE GLASS REINFORCED POLYMER RUNNER AS MANUFACTURED BY PIPELINE SEAL INSULATOR, ADVANCED PRODUCTS AND SYSTEMS, OR APPROVED EQUAL.
  - END SEAL SHALL BE WRAP-AROUND TYPE, 1/8" THICK SYNTHETIC RUBBER.

TYPICAL CASING  
ISOLATOR AND SEAL  
INSTALLATION

**PIPELINE CONTENT DETAILS**

Commodity Description:	Natural Gas (Methane, CH4)
Maximum Operating Pressure:	60 psig
Is Commodity Flammable:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**CARRIER/CASING PIPE DETAILS**

	Carrier Pipe	Casing Pipe
Pipe Material:	MDPE	Carbon Steel
Material Specifications & Grade:	ASTM D2513 Grade PE2708	API-5L Grade B
Specified Minimum Yield Strength:	2,000 psig	35,000 psig
Nominal Size Outside Diameter (Inches):	8.625	12.750
Wall Thickness (Inches):	0.784(SDR 11)	0.375(Sch. STD)
Type of Seam:	Seamless	Seamless or ERW
Type of Joints:	Butt-Fusion	Butt-Welded
Tunnel Liner Plates Required:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Cathodic Protection:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Type: N/A
Protective Coating:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Type: N/A
Temp. Track Support or Rip-Rap Req.:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Must Describe & Show on Dwg.

NOTE:  
CONTRACTOR SHALL CONFIRM THE DEPTHS OF ALL EXISTING UTILITIES. CONTACT ENGINEER IN THE CASE OF A CONFLICT.

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
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VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

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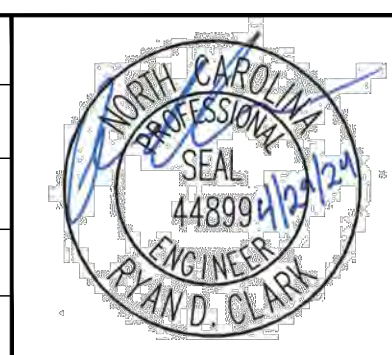
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CLIENT: **Greenville Utilities**

PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION  
PITT COUNTY, NORTH CAROLINA**

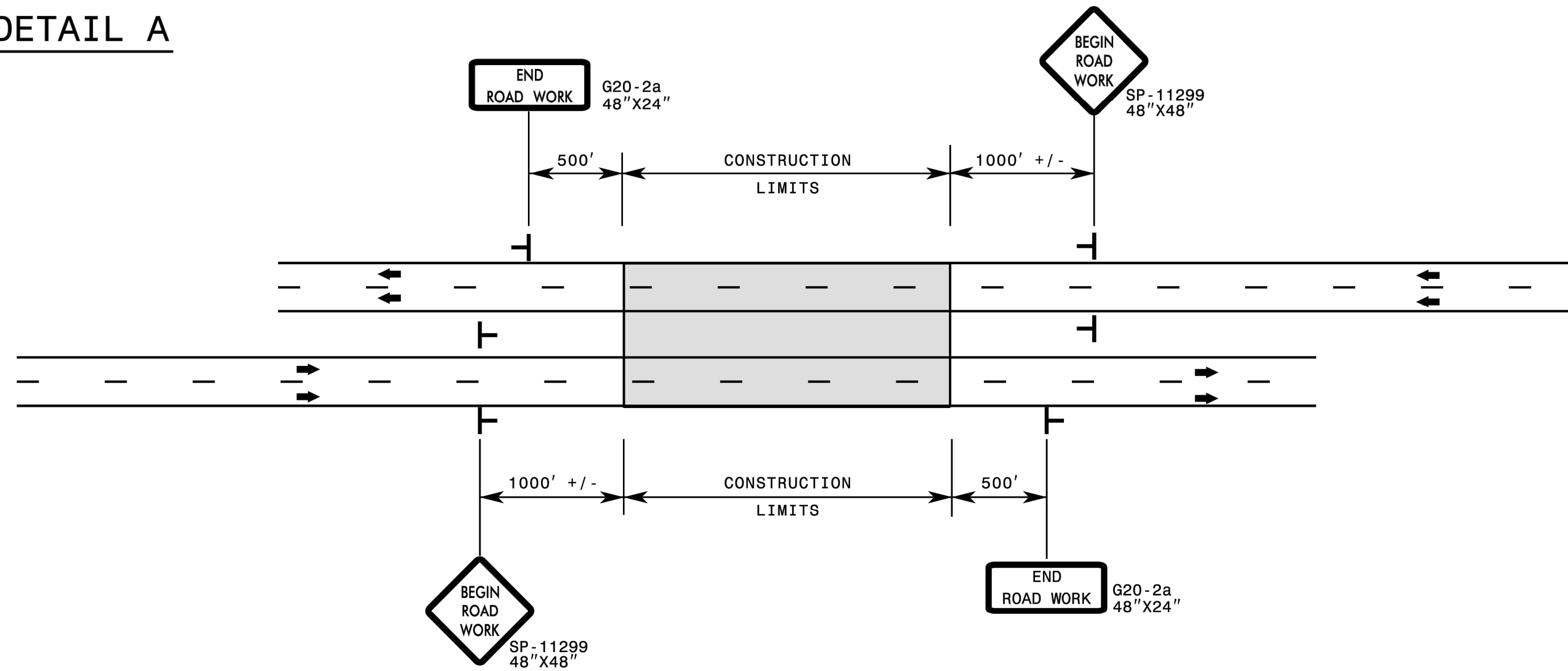
SHEET TITLE: **JACK & BORE DETAILS**

DATE: 04/29/2024  
SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)



KHA PROJECT NUMBER: 116780001  
DRAWING NUMBER: 800-005  
SHEET INDEX: 20 OF 27

**DETAIL A**



**GENERAL NOTES**

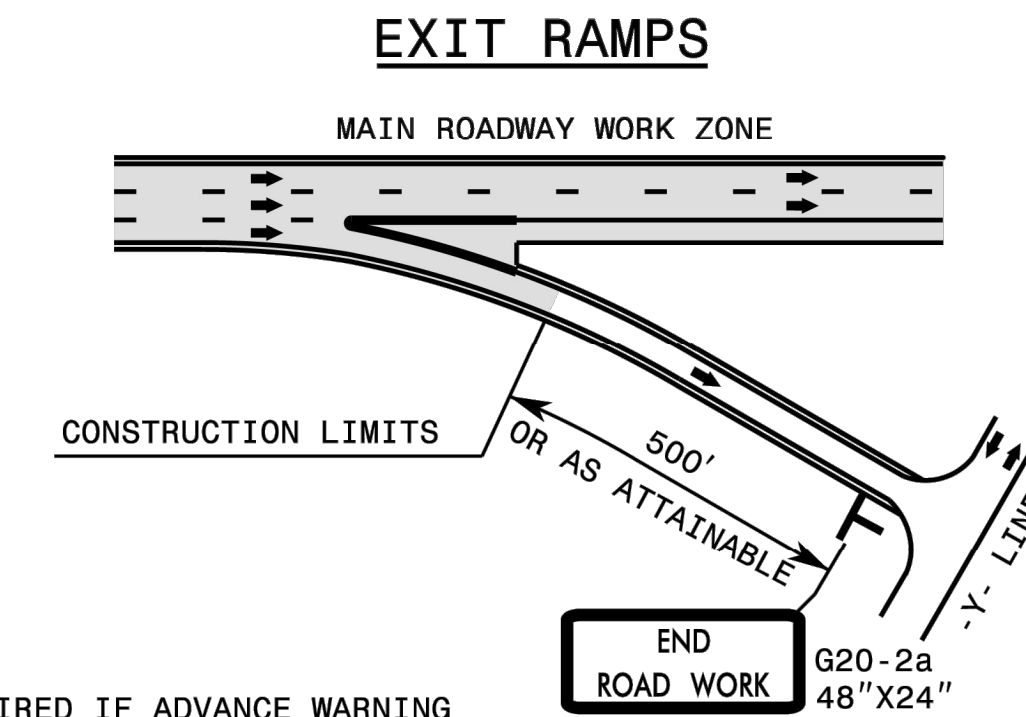
- 1- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK UNLESS COVERED.
- 2- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT LONGER THAN 3 CONSECUTIVE DAYS.
- 3- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- 4- ERECT SIGNS PER RSD. 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATIONS FOR WORK ZONE SIGNS.
- 5- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH RSD. 1110.01.
- 6- DO NOT BACK BRACE SIGN SUPPORTS.
- 7- TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

**LEGEND**

└ STATIONARY SIGN

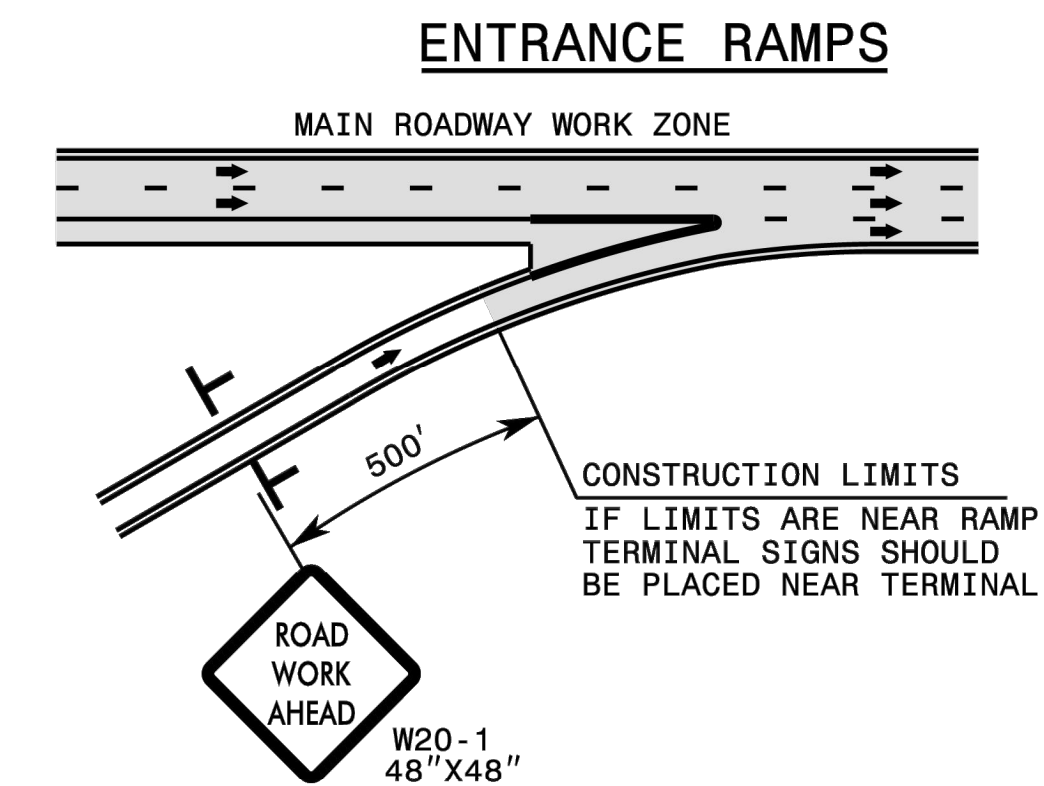
← DIRECTION OF TRAFFIC FLOW

**DETAIL B**

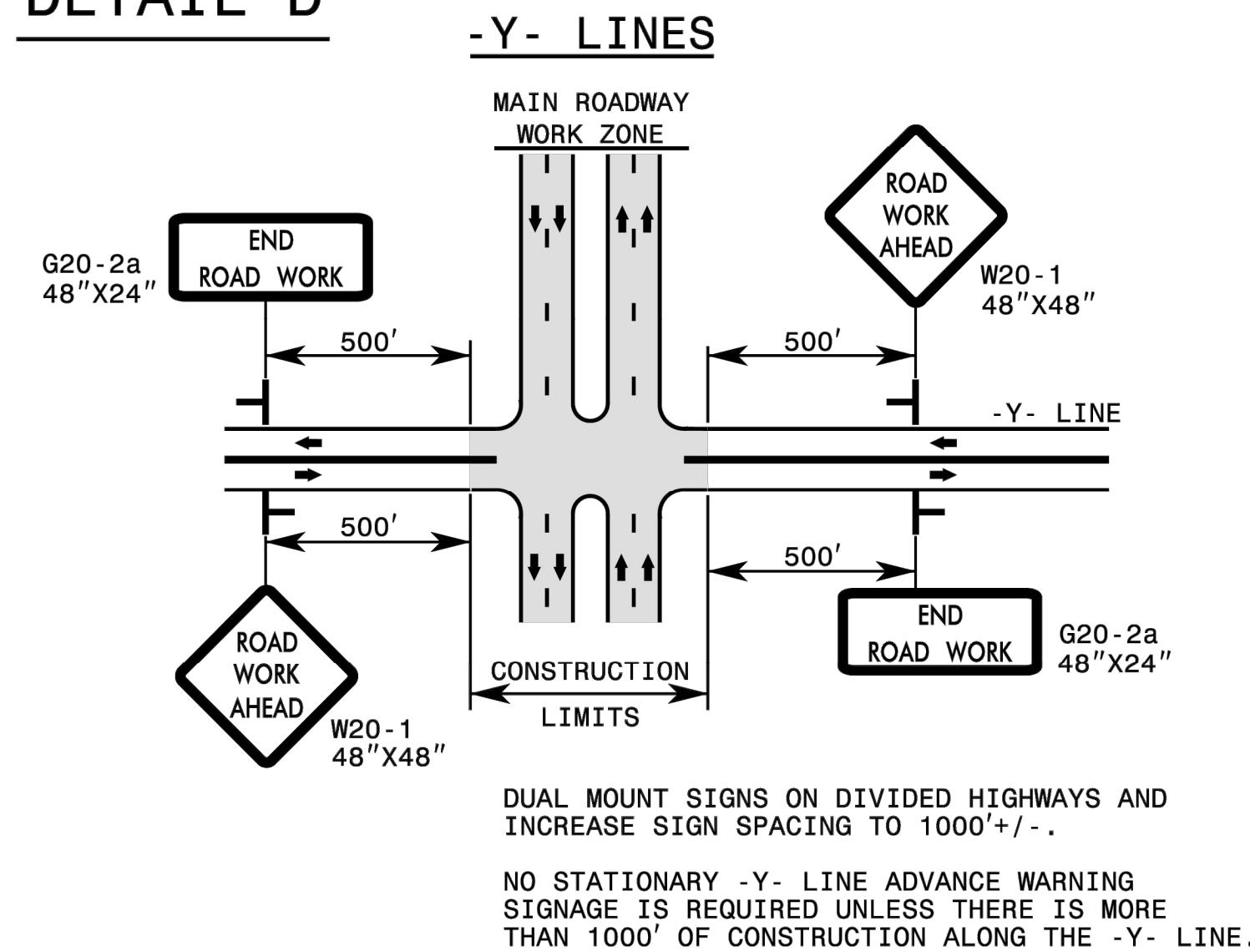


NOTE: SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

**DETAIL C**



**DETAIL D**



STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**WORK ZONE ADVANCE WARNING SIGNS FOR FACILITIES ≤ 55 MPH**

SHEET 2 OF 3  
**1101.01**

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
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SUITE 1000  
VIRGINIA BEACH, VA 23462  
TEL: (757) 213-8600

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PROJECT NAME:  
**NC 11 N. NATURAL GAS MAIN EXTENSION  
PITT COUNTY, NORTH CAROLINA**

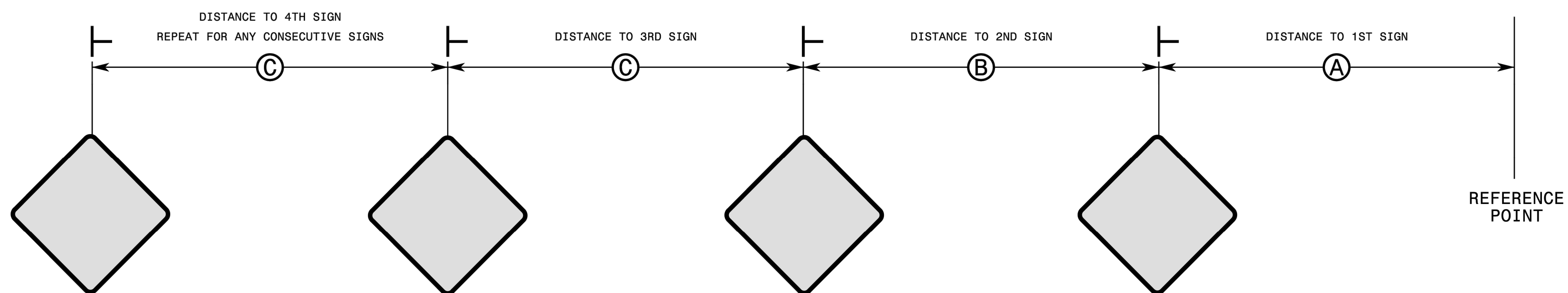
SHEET TITLE:  
**WORK ZONE ADVANCE WARNING**

DATE: 04/29/2024  
SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)

KHA PROJECT NUMBER: 116780001  
DRAWING NUMBER: 900-001  
SHEET INDEX: 21 OF 27

ADVANCE WARNING SIGN SPACING CHART			
POSTED SPEED LIMIT (MPH)	RECOMMENDED DISTANCE BETWEEN SIGNS (FEET) ±		
	(A)	(B)	(C)
≤ 35	200	200	200
40-50	350	350	350
55	500	500	500
CONTROLLED ACCESS ROADS (≥ 55)	1000	1500	2700

**STATIONARY OR PORTABLE SIGNS**



**GENERAL NOTES**

- 1- REFER TO 2009 MUTCD OR THE LATEST EDITION.
- 2- USE THIS STANDARD DRAWING IN CONJUNCTION WITH OTHER TRAFFIC CONTROL ROADWAY STANDARD DRAWINGS WHERE SIGN SPACING DISTANCES A, B, C, ARE SPECIFIED.
- 3- APPLY THE ADVANCE WARNING SIGN SPACING CHART WHERE A SERIES OF 2 OR MORE SIGNS ARE USED. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS VARIOUS CONDITIONS OCCUR, SUCH AS LIMITED SIGHT DISTANCE, OBSTRUCTION INTERFERENCE, ETC.

1-18  
 STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**TRAFFIC CONTROL DESIGN TABLES**  
 SPACING OF TEMPORARY SIGNS IN SERIES

SHEET 4 OF 4

**1101.11**

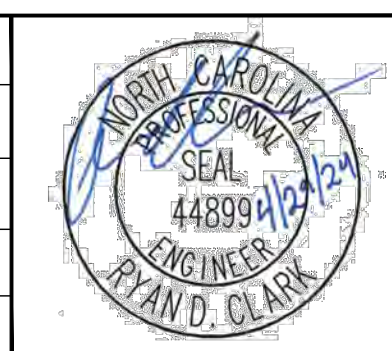
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ENGINEER: **Kimley»Horn**  
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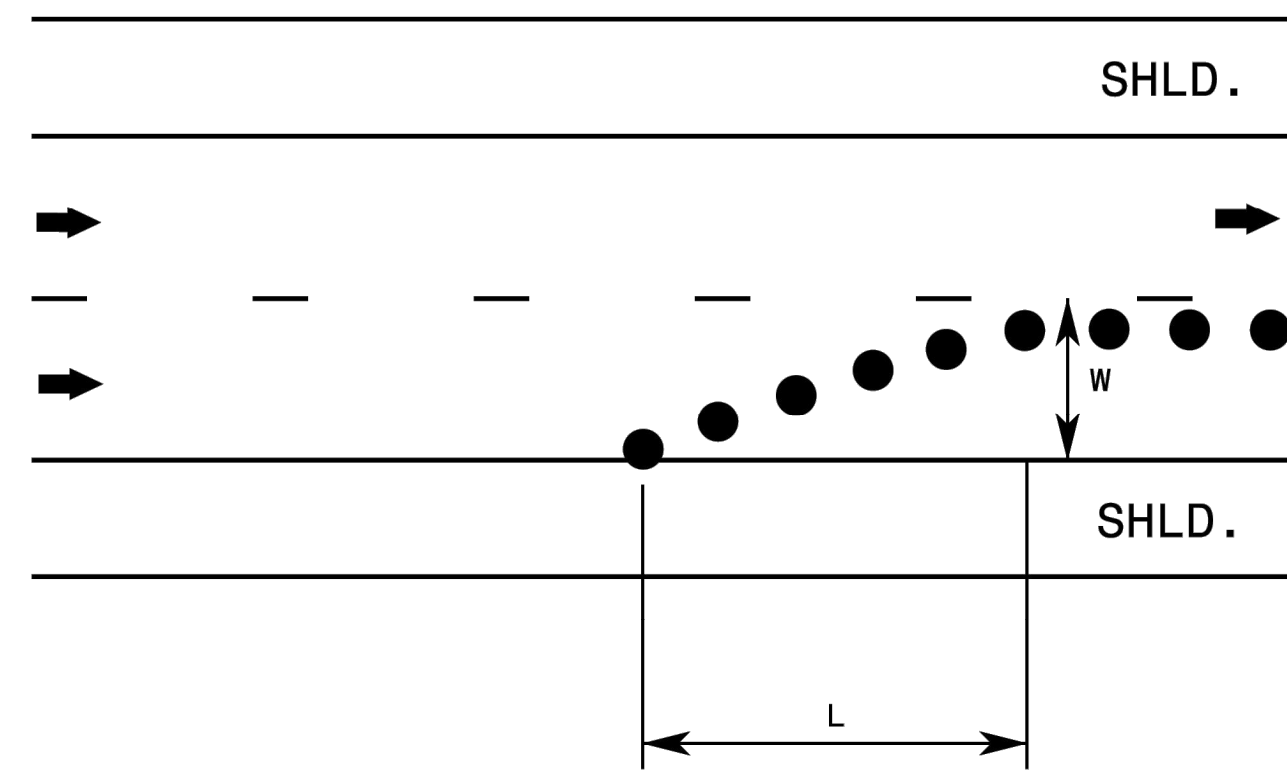
PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION  
 PITT COUNTY, NORTH CAROLINA**  
 SHEET TITLE: **TEMPORARY LANE CLOSURE**

DATE: 04/29/2024  
 SCALE (H.V.): AS SHOWN  
 DRAWN BY: SMP  
 DESIGNED BY: RDC  
 CHECKED BY: RDC (PM)



KHA PROJECT NUMBER: 116780001  
 DRAWING NUMBER: 900-002  
 SHEET INDEX: 22 OF 27

**EXAMPLE OF "L" & "W" DESIGNATIONS**



**TAPER LENGTH CRITERIA FOR CHANNELIZING DEVICES IN WORK ZONES**

**TYPES OF TAPERS**

**UPSTREAM TAPER**

- MERGING TAPER..... L MINIMUM
- SHIFTING TAPER..... 1/2 L MINIMUM
- SHOULDER TAPER..... 1/2 L MINIMUM
- TWO-WAY TRAFFIC TAPER..... .50 - 100 FEET MAXIMUM

**DOWNSTREAM TAPER**

.....100 FEET MAXIMUM

**TAPER LENGTH**

DO NOT INTRODUCE A MERGING OR SHIFTING TAPER WITHIN A CURVE OF THE ROADWAY

QUICK REFERENCE - "L" DISTANCE TABLE												
MINIMUM LONGITUDINAL DISTANCE "L" (FEET) (ROUNDED VALUES)												
POSTED SPEED "S" (MPH)	LATERAL WIDTH "W" (FEET)											
	1	2	3	4	5	6	7	8	9	10	11	12
20	10	15	20	30	35	40	50	55	60	70	75	80
25	15	25	35	45	55	65	75	85	95	105	115	125
30	15	30	45	60	75	90	105	120	135	150	165	180
35	25	45	65	85	105	125	145	165	185	205	225	245
40	30	55	80	110	135	160	190	215	240	270	295	320
45	45	90	135	180	225	270	315	360	405	450	495	540
50	50	100	150	200	250	300	350	400	450	500	550	600
55	55	110	165	220	275	330	385	440	495	550	605	660
60	60	120	180	240	300	360	420	480	540	600	660	720
65	65	130	195	260	325	390	455	520	585	650	715	780
70	70	140	210	280	350	420	490	560	630	700	770	840

**GENERAL NOTES**

1- TABLE FOR "L" DISTANCE IS BASED ON CHANNELIZATION TAPER FORMULA FROM THE MUTCD.  
WHERE:

<u>SPEED LIMIT</u>	<u>FORMULA</u>
40 MPH OR LESS	$L_{MIN} = \frac{W \times S^2}{60}$
45 MPH OR GREATER	$L_{MIN} = W \times S$

L = MINIMUM TAPER LENGTH IN FEET (LONGITUDINAL DISTANCE)  
W = WIDTH OF OFFSET IN FEET (LATERAL DISTANCE)  
S = POSTED SPEED LIMIT, OR OFF-PEAK 85 PERCENTILE SPEED IN MPH PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH

2- "L" DISTANCE IS FOR APPLICATION WITH CHANNELIZING DEVICE AND PAVEMENT MARKING TAPERS AND TRANSITIONS. CHANNELIZING DEVICES INCLUDE DRUMS, CONES, TUBULAR MARKERS, BARRICADES, RAISED ASPHALT ISLANDS, AND VERTICAL PANELS.

STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**TRAFFIC CONTROL DESIGN TABLES**  
 "L" DISTANCE AND CHANNELIZING  
 DEVICE TAPER CRITERIA

SHEET 1 OF 4  
**1101.11**

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
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CLIENT: **Greenville Utilities**

PROJECT NAME:  
**NC 11 N. NATURAL GAS MAIN EXTENSION  
PITT COUNTY, NORTH CAROLINA**

SHEET TITLE:  
**TRAFFIC CONTROL DESIGN LENGTHS**

DATE: 04/29/2024  
 SCALE (H.V): AS SHOWN  
 DRAWN BY: SMP  
 DESIGNED BY: RDC  
 CHECKED BY: RDC (PM)



KHA PROJECT NUMBER:  
116780001

DRAWING NUMBER:  
900-003

SHEET INDEX:  
23 OF 27

DESIGN SPEED (MPH)	MINIMUM SIGHT DISTANCE		MINIMUM LONGITUDINAL BUFFER SPACE (FEET)
	STOPPING SIGHT DISTANCE (FEET)	PASSING SIGHT DISTANCE (FEET)	
30	200	1090	85
35	250	1280	120
40	305	1470	155
45	360	1625	195
50	425	1835	240
55	495	1985	290
60	570	2135	345
65	645	2285	405
70	730	2480	470
75	820	2580	540
80	910	2680	615

**GENERAL NOTES**

- 1- TABLES ARE BASED ON THE AASHTO GREEN BOOK "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". MINIMUM SIGHT DISTANCE VALUES ARE FOR PASSENGER CAR VEHICLES ON WET AND LEVEL ROADWAYS. CONSULT THE AASHTO GREEN BOOK TO MAKE FINAL DETERMINATION OF STOPPING SIGHT DISTANCE REQUIREMENTS.
- 2- BUFFER SPACE TABLE IS BASED ON THE BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS.
- 3- USE OF STOPPING SIGHT DISTANCE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE FOR TRAFFIC APPROACHING A LANE CLOSURE. PROVIDE 2-LANE, 2-WAY ROADWAYS STOPPING SIGHT DISTANCE TO THE FLAGGER. FOR LANE CLOSURES ON MULTILANE ROADWAYS PROVIDE STOPPING SIGHT DISTANCE TO THE BEGINNING OF THE LANE CLOSURE MERGE TAPER, OR FLASHING ARROW BOARD. EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED.
- 4- USE OF MINIMUM PASSING SIGHT DISTANCE TABLE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE REQUIREMENTS FOR PLACEMENT OF PAVEMENT MARKING PASSING/NO-PASSING ZONES FOR 2-LANE, 2-WAY ROADWAYS.

1-18  
STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**TRAFFIC CONTROL DESIGN TABLES**  
BUFFER SPACE & SIGHT DISTANCE

SHEET 2 OF 4

**1101.11**

REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
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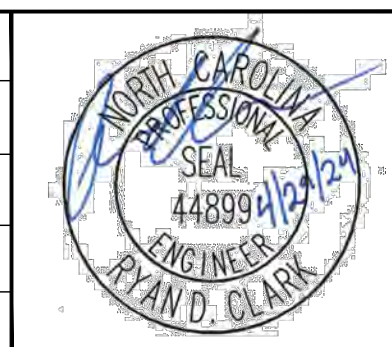
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PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION  
PITT COUNTY, NORTH CAROLINA**

SHEET TITLE: **TRAFFIC CONTROL BUFFER & SIGHT DISTANCE**

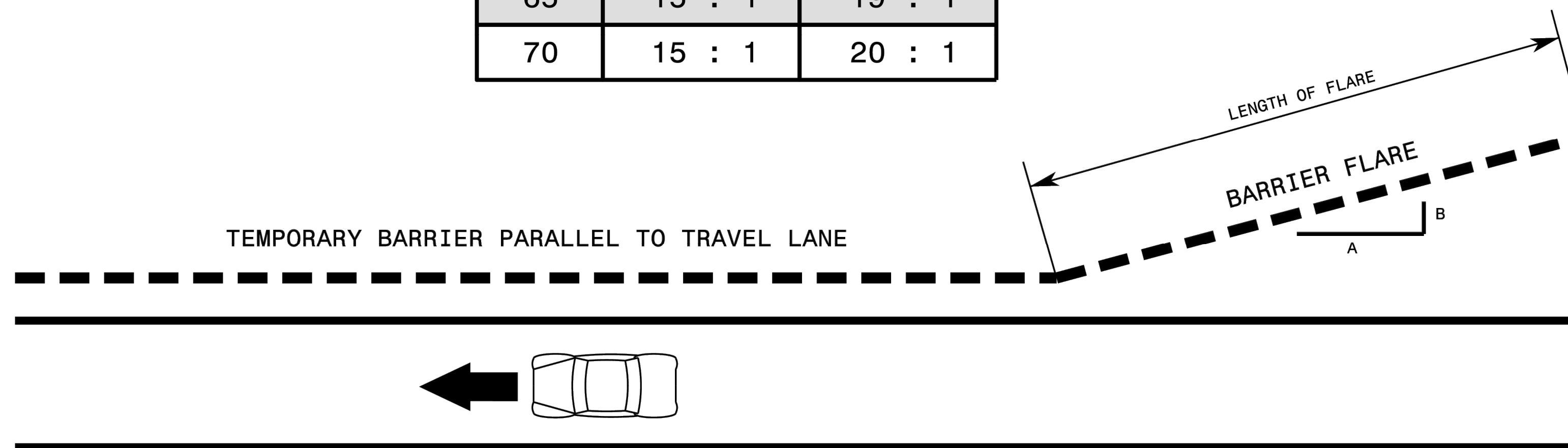
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KHA PROJECT NUMBER: 116780001  
DRAWING NUMBER: 900-004  
SHEET INDEX: 24 OF 27



TEMPORARY BARRIER FLARE RATES		
POSTED SPEED LIMIT (MPH)	UNANCHORED (A:B)	ANCHORED (A:B)
≤ 30	7 : 1	8 : 1
35	8 : 1	9 : 1
40	8 : 1	10 : 1
45	10 : 1	12 : 1
50	11 : 1	14 : 1
55	12 : 1	16 : 1
60	14 : 1	18 : 1
65	15 : 1	19 : 1
70	15 : 1	20 : 1



**GENERAL NOTES**

- 1- REFER TO THE 2011 ROADSIDE DESIGN GUIDE OR THE LATEST EDITION.
- 2- A BARRIER IS CONSIDERED FLARED WHEN IT IS NOT PARALLEL TO THE EDGE OF THE TRAVELWAY.

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR TRAFFIC CONTROL DESIGN TABLES TEMPORARY BARRIER FLARE RATES

SHEET 3 OF 4  
1101.11

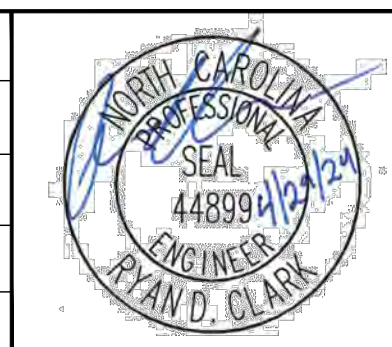
REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley-Horn**  
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PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION**  
PITT COUNTY, NORTH CAROLINA  
SHEET TITLE: **TRAFFIC CONTROL BARRIER FLARE RATES**

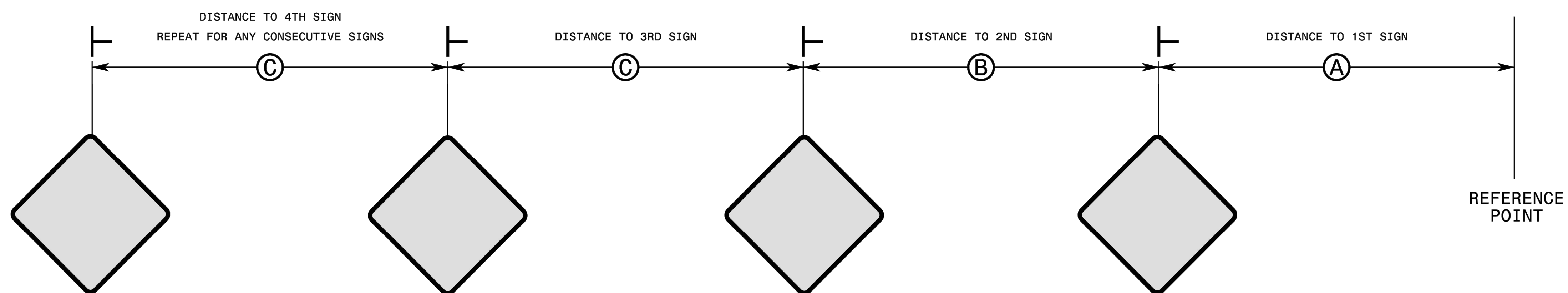
DATE: 04/29/2024  
SCALE (H,V): AS SHOWN  
DRAWN BY: SMP  
DESIGNED BY: RDC  
CHECKED BY: RDC (PM)



KHA PROJECT NUMBER: 116780001  
DRAWING NUMBER: 900-005  
SHEET INDEX: 25 OF 27

ADVANCE WARNING SIGN SPACING CHART			
POSTED SPEED LIMIT (MPH)	RECOMMENDED DISTANCE BETWEEN SIGNS (FEET) ±		
	(A)	(B)	(C)
≤ 35	200	200	200
40-50	350	350	350
55	500	500	500
CONTROLLED ACCESS ROADS (≥ 55)	1000	1500	2700

**STATIONARY OR PORTABLE SIGNS**



**GENERAL NOTES**

- 1- REFER TO 2009 MUTCD OR THE LATEST EDITION.
- 2- USE THIS STANDARD DRAWING IN CONJUNCTION WITH OTHER TRAFFIC CONTROL ROADWAY STANDARD DRAWINGS WHERE SIGN SPACING DISTANCES A, B, C, ARE SPECIFIED.
- 3- APPLY THE ADVANCE WARNING SIGN SPACING CHART WHERE A SERIES OF 2 OR MORE SIGNS ARE USED. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS VARIOUS CONDITIONS OCCUR, SUCH AS LIMITED SIGHT DISTANCE, OBSTRUCTION INTERFERENCE, ETC.

1-18  
 STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR  
**TRAFFIC CONTROL DESIGN TABLES**  
 SPACING OF TEMPORARY SIGNS IN SERIES

SHEET 4 OF 4

**1101.11**

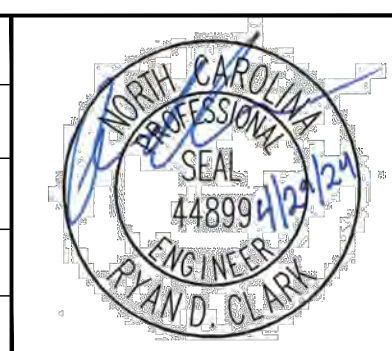
REV. #:	REVISION:	DATE:	DRAWN BY:	CHECKED BY:

ENGINEER: **Kimley»Horn**  
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CLIENT: **Greenville Utilities**

PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION  
 PITT COUNTY, NORTH CAROLINA**  
 SHEET TITLE: **TRAFFIC CONTROL SIGN SPACING**

DATE: 04/29/2024  
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 SHEET INDEX: 26 OF 27

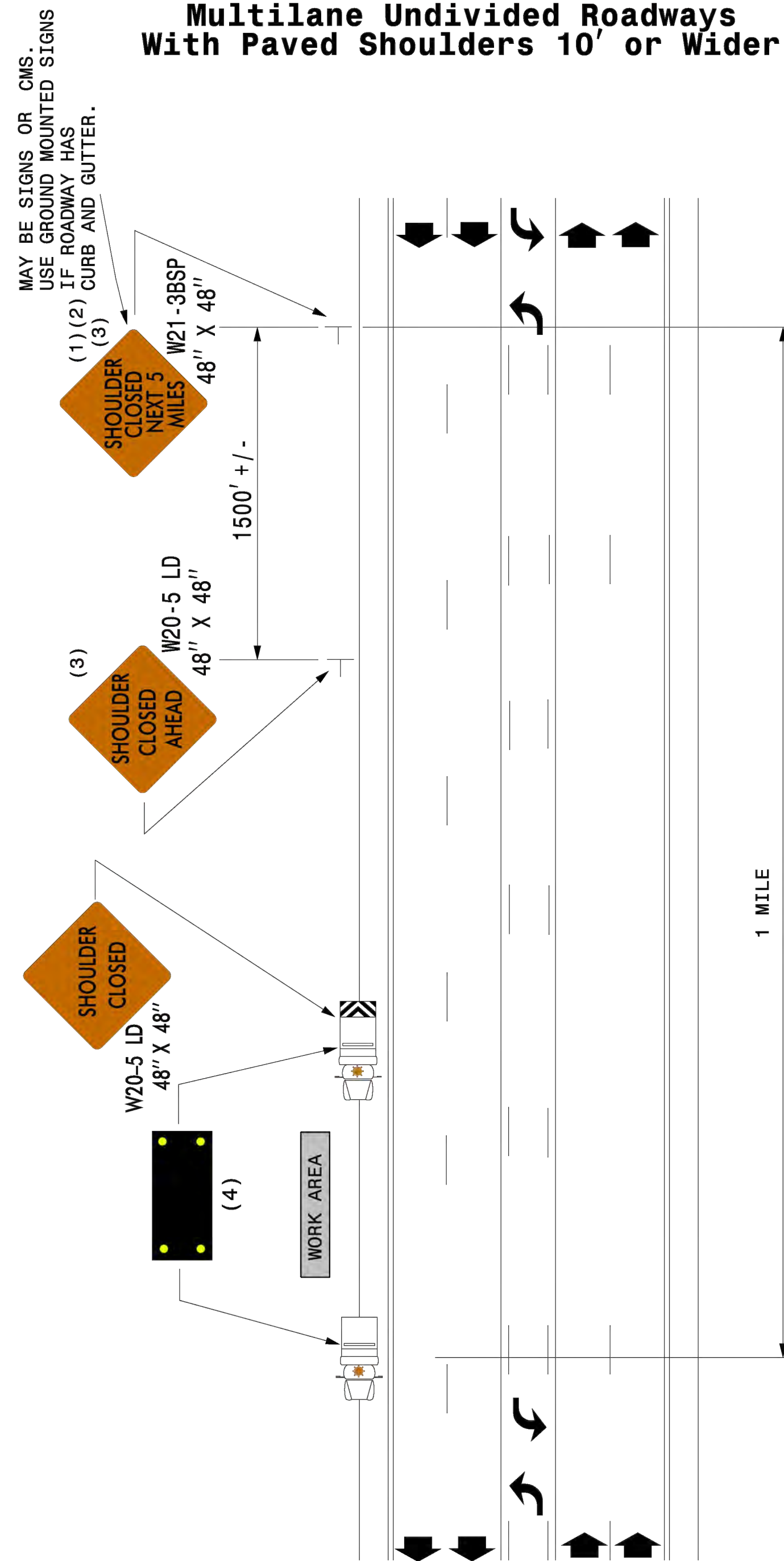
## Notes on Shoulder/Ditch Construction Operation on Multilane Undivided Roadways

- (1) The following options may be used as the first advance warning the motorists see:
  - a. Portable warning signs
  - b. Changeable message sign (CMS)
- (2) Signs on vehicles should be mounted a minimum of one foot from the ground and should not block the motorist's sight of the flashing arrow board and/or warning lights.
- (3) Sign W20-L should be placed on back of protection vehicle
- (4) Use a type "B" flashing arrow board.
 

Board Type	Min. Size
B	60" x 30"

## Shoulder/Ditch Construction Operation

### Multilane Undivided Roadways With Paved Shoulders 10' or Wider



LEGEND	
	DIRECTION OF TRAFFIC FLOW
	APPLICATION VEHICLE WITH WARNING LIGHTS
	PORTABLE SIGN
	PROTECTION VEHICLE WITH TRUCK MOUNTED ATTENUATOR (TMA) AND WARNING LIGHTS (SEE ROADWAY STANDARD NO. 1165.01)
	FLASHING ARROW BOARD, TYPE "B" "CAUTION MODE"

144

145

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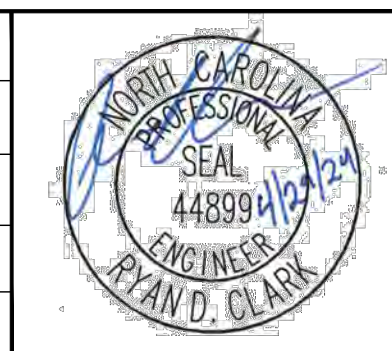
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CLIENT: **Greenville Utilities**

PROJECT NAME: **NC 11 N. NATURAL GAS MAIN EXTENSION**  
 PITT COUNTY, NORTH CAROLINA

SHEET TITLE: **NCDOT NOTES AND DETAILS**

DATE: 04/29/2024  
 SCALE (H.V): AS SHOWN  
 DRAWN BY: SMP  
 DESIGNED BY: RDC  
 CHECKED BY: RDC (PM)



KHA PROJECT NUMBER: 116780001  
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