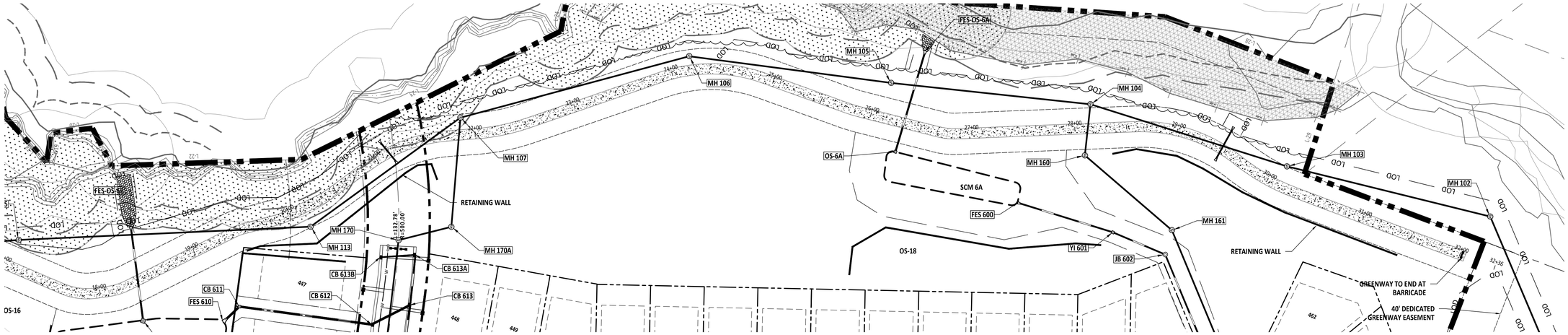
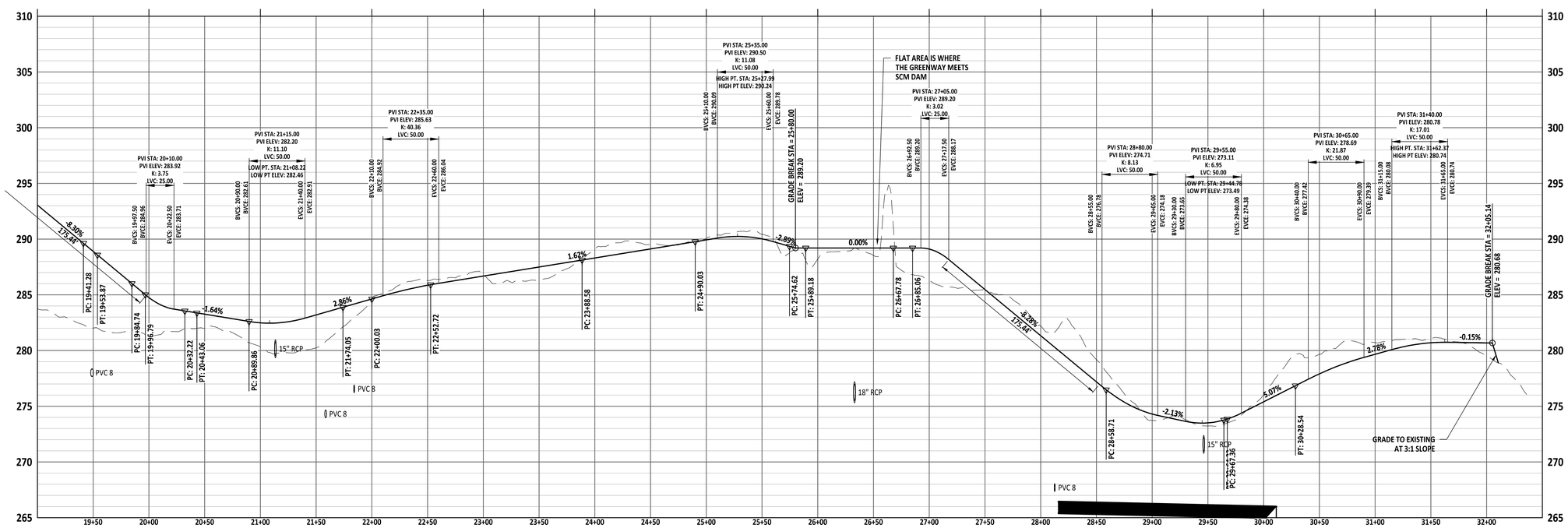


GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft



Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION

NORTH CAROLINA 36528 JACOB P. KLEM ENGINEER

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON. AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

MERRITT RESERVE
GREENWAY PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

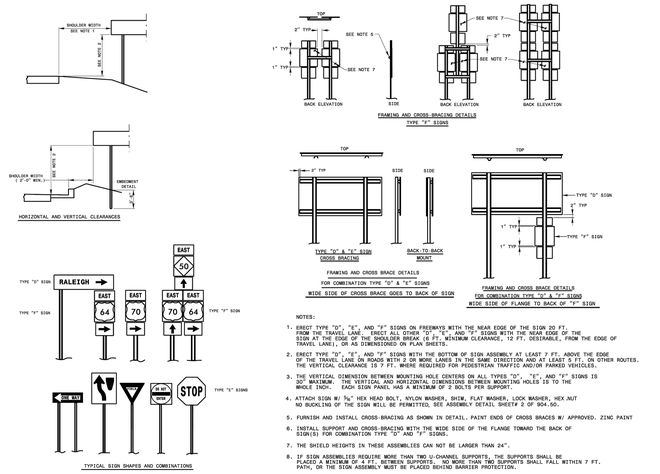
JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:
GREENWAY PLAN & PROFILE

SHEET NO.: **CS-301**

Z:\Jobs\23-0004 Merrit Property BRD\dwg_Working Dwgs\Sheets\Construction Set\14L- CS-300 GREENWAY PLAN & PROFILE.dwg

2025-07-02



NOTES:

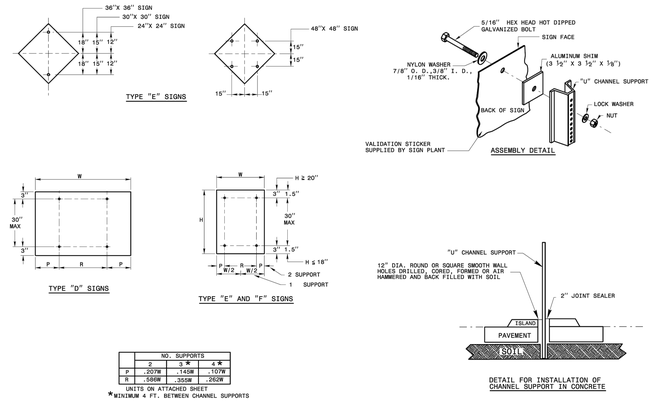
1. ERECT TYPE "D", "E", AND "F" SIGNS ON FREEWAYS WITH THE NEAR EDGE OF THE SIGN 20 FT. FROM THE TRAVEL LANE. ERECT ALL OTHER "D", "E", AND "F" SIGNS WITH THE NEAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER BREAK (6 FT. MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE), OR AS DIMENSIONED ON PLAN SHEETS.
2. ERECT TYPE "D", "E", AND "F" SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 7 FT. ABOVE THE EDGE OF THE TRAVEL LANE ON ROADS WITH 2 OR MORE LANES IN THE SAME DIRECTION AND AT LEAST 5 FT. ON OTHER ROUTES. THE VERTICAL CLEARANCE IS 7 FT. WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.
3. THE VERTICAL DIMENSION BETWEEN MOUNTING HOLE CENTERS ON ALL TYPES "D", "E", AND "F" SIGNS IS 30" MAXIMUM. THE VERTICAL AND HORIZONTAL DIMENSIONS BETWEEN MOUNTING HOLES ID TO THE WHOLE INCH. EACH SIGN PANEL HAS A MINIMUM OF 2 BOLTS PER SUPPORT.
4. ATTACH SIGN W/ ⅜" HEX HEAD BOLT, NYLON WASHER, SHIM, FLAT WASHER, LOCK WASHER, HEX NUT NO BUCKLING OF THE SIGN WILL BE PERMITTED. SEE ASSEMBLY DETAIL SHEETS 2 OF 904.50.
5. FURNISH AND INSTALL CROSS-BRACING AS SHOWN IN DETAIL. PAINT ENDS OF CROSS BRACES W/ APPROVED, ZINC PAINT
6. INSTALL SUPPORT AND CROSS-BRACING WITH THE WIDE SIDE OF THE FLANGE TOWARD THE BACK OF SIGN(S) FOR COMBINATION TYPE "D" AND "F" SIGNS.
7. THE SHIELD HEIGHTS IN THESE ASSEMBLIES CAN NOT BE LARGER THAN 24".
8. IF SIGN ASSEMBLIES REQUIRE MORE THAN TWO U-CHANNEL SUPPORTS, THE SUPPORTS SHALL BE PLACED A MINIMUM OF 4 FT. BETWEEN SUPPORTS. NO MORE THAN TWO SUPPORTS SHALL FALL WITHIN 7 FT. PATH, OR THE SIGN ASSEMBLY MUST BE PLACED BEHIND BARRIER PROTECTION.

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

1-24

ROADWAY STANDARD DRAWING FOR
MOUNTING OF TYPE 'D','E' AND 'F' SIGNS ON 'U' CHANNEL SUPPORTS

SHEET 1 OF 2
904.50



	NO. SUPPORTS		
	2	3 *	4 *
P	.207W	.145W	.107W
R	.586W	.355W	.262W

UNITS ON ATTACHED SHEET
*MINIMUM 4 FT. BETWEEN CHANNEL SUPPORTS

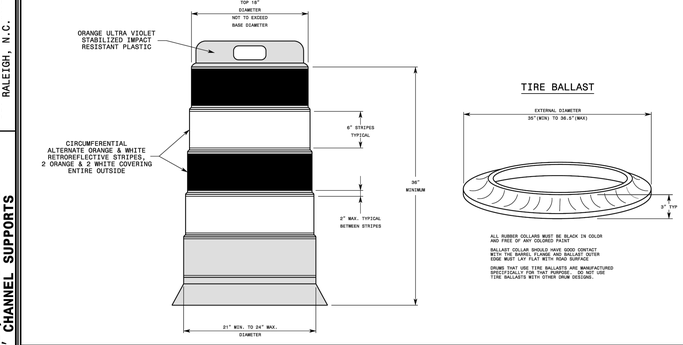
HOLE PUNCHING DETAIL

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

1-24

ROADWAY STANDARD DRAWING FOR
MOUNTING OF TYPE 'D','E' AND 'F' SIGNS ON 'U' CHANNEL SUPPORTS

SHEET 2 OF 2
904.50



GENERAL NOTES

1- BALLASTING SHALL BE ACHIEVED BY THE SAND BAG, TIRE-SIDEWALL, OR PREFORMED WEIGHTED BASE METHODS. USE THE TIRE BALLAST AS SPECIFIED BY THE MANUFACTURER. DO NOT PLACE BALLAST ON TOP OF THE DRUM.

2- IF NECESSARY PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE DRUM SURFACES. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 2" IN HEIGHT.

3- ALL DRUMS MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCT LIST.

4- REFER TO THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES FOR ADDITIONAL INFORMATION.

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

1-24

ROADWAY STANDARD DRAWING FOR
DRUMS

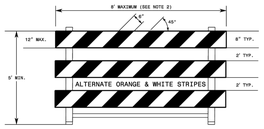
SHEET 1 OF 1
1130.01

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

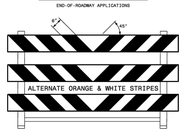
NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NORTH CAROLINA PROFESSIONAL SEAL 36528 ENGINEER TAYLOR P. KLEE
PRELIMINARY
DO NOT USE FOR CONSTRUCTION
FOR INFORMATION, ONLY

TYPE III BARRICADE



TYPE III BARRICADE



GENERAL NOTES

1- HORIZONTAL RAILS FOR BARRICADES MAY BE CONSTRUCTED OF APPROVED COMPOSITE, HOLLOW/ CORRUGATED EXTRUDED RIGID POLYOLEFIN, HIGH DENSITY POLYETHYLENE, OR OTHER NCDOT APPROVED MATERIAL.

2- BARRICADE SHALL BE LIMITED TO A MAXIMUM LENGTH OF 8 FT UNLESS NCDOT APPROVED.

3- ONLY NCDOT APPROVED COMPOSITE AND ROLL-UP SIGNS MAY BE MOUNTED ON THE BARRICADE RAILS. MOUNT SIGNS TO BARRICADE RAILS TO ENSURE SIGN WILL NOT BECOME DETACHED UNDER NORMAL WIND AND TRAFFIC CONDITIONS.

4- SIGNS SHALL BE MOUNTED A MINIMUM OF 1 FOOT FROM THE GROUND TO THE BOTTOM OF THE SIGN UNLESS SIGN R11-3 IS REQUIRED BY THE PLANS OR DIRECTED BY THE ENGINEER.

5- ASSEMBLY OF THE GENERIC BARRICADES MUST BE SELF CERTIFIED BY THE ASSEMBLER.

6- BARRICADES USED TO CLOSE A ROADWAY SHALL EXTEND ACROSS THE ENTIRE ROADWAY. WHERE LOCAL TRAFFIC MUST BE MAINTAINED, THEY MAY BE PLACED IN A STAGGERED PATTERN.

7- STRIPES ON WORK ZONE BARRICADE RAILS SHALL BE ALTERNATE ORANGE AND WHITE RETROREFLECTIVE STRIPES, SLOPED DOWNWARD TOWARDS THE SIDE WHICH TRAFFIC IS TO PASS OR TURN IN DETOURING. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.

8- USE RED AND WHITE STRIPES FOR PERMANENT BARRICADES.

9- ALL BARRICADES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.

10- PLACE SANDBAGS OR OTHER APPROVED BALLASTING METHODS ON THE FEET OF THE FRAME. DO NOT PLACE SANDBAGS ON TOP OF A STRIPED RAIL OR STABILIZER BAR. DO NOT BALLAST BARRICADES BY HEAVY OBJECTS SUCH AS ROCKS, CHUNKS OF CONCRETE OR OTHER ITEMS THAT WOULD CAUSE DAMAGE IF THE BARRICADE IS STRUCK BY A VEHICLE.

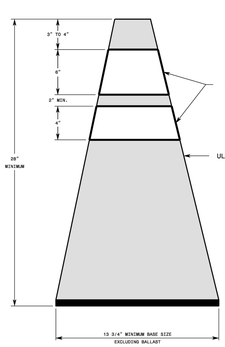
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-24

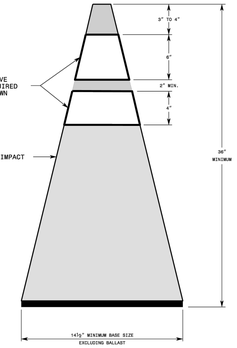
ROADWAY STANDARD DRAWING FOR
BARRICADES TYPE-III

SHEET 1 OF 1
1145.01

28 INCH CONE
(MINIMUM SIZE CONE FOR ALL CLASSES OF ROADS EXCEPT FREEWAYS AND INTERSTATES)



36 INCH CONE
(REQUIRED FOR FREEWAYS AND INTERSTATES)



WHITE RETROREFLECTIVE ADHESIVE SHEETING REQUIRED BETWEEN DUSK AND DAWN

ORANGE ULTRA-VIOLET STABILIZED IMPACT RESISTANT PLASTIC

GENERAL NOTES

1- ACHIEVE BALLASTING BY USING SPECIAL WEIGHTED BASES SUCH AS SAND BAG RINGS, DOUBLING CONES, OR BASES THAT CAN BE FILLED WITH BALLAST. SEVENTY PERCENT OF THE WEIGHT OF THE CONE MUST BE IN THE BASE. USE BALLAST'S THAT DO NOT PRESENT A HAZARD WHEN STRUCK.

2- ALL CONES MUST BE LISTED ON THE DEPARTMENT'S APPROVED PRODUCTS LIST.

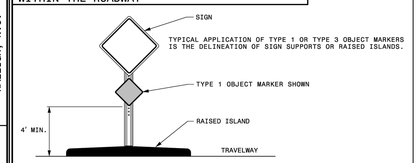
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-24

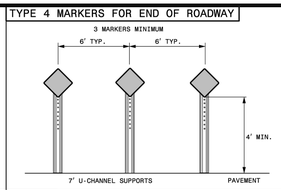
ROADWAY STANDARD DRAWING FOR
CONES

SHEET 1 OF 1
1135.01

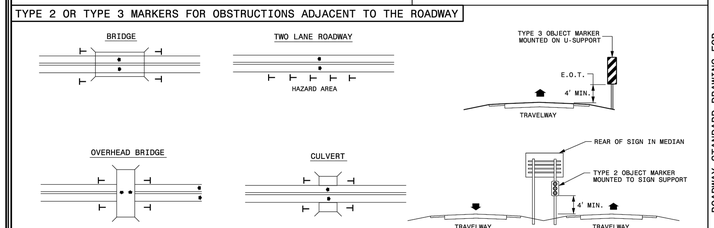
TYPE 1 OR TYPE 3 MARKERS FOR OBSTRUCTIONS WITHIN THE ROADWAY



TYPE 4 MARKERS FOR END OF ROADWAY



TYPE 2 OR TYPE 3 MARKERS FOR OBSTRUCTIONS ADJACENT TO THE ROADWAY



TYPICAL APPLICATIONS OF TYPE 2 OR TYPE 3 OBJECT MARKERS INCLUDES DELINEATION OF BRIDGE PIERS, ABUTMENTS, HANDRAILS, CULVERT HEADWALLS, NARROW SHOULDERS, DROP-OFFS, OR OTHER UNDESIRABLE CONDITIONS WHEN GUARDRAIL OR OTHER ROADSIDE PROTECTION IS NOT IN PLACE.

LEGEND
- OBJECT MARKER
- DIRECTION OF TRAFFIC FLOW

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

1-24

ROADWAY STANDARD DRAWING FOR
OBJECT MARKERS INSTALLATION

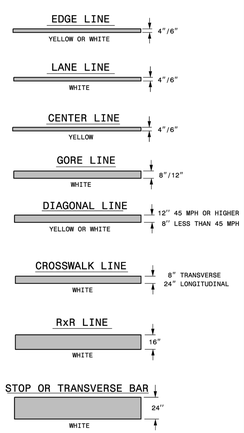
SHEET 1 OF 1
1264.02

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

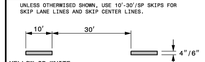
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON. AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

CONTINUOUS LINES



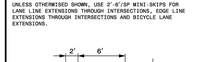
10'-30'/SP SKIP LINE

UNLESS OTHERWISED SHOWN, USE 10'-30'/SP SKIPS FOR SKIP LANE LINES AND SKIP CENTER LINES.



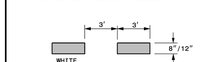
2'-6'/SP MINI-SKIP LINE

UNLESS OTHERWISED SHOWN, USE 2'-6'/SP MINI-SKIPS FOR LANE LINE EXTENSIONS THROUGH INTERSECTIONS, EDGE LINE EXTENSIONS THROUGH INTERSECTIONS AND BICYCLE LANE EXTENSIONS.



3'-3'/SP MINI-SKIP LINE

UNLESS OTHERWISED SHOWN, USE 3'-3'/SP MINI-SKIPS FOR THE WHITE EDGE LINE EXTENSIONS AT ROUNDABOUTS.



3'-9'/SP MINI-SKIP LINE

UNLESS OTHERWISED SHOWN, USE 3'-9'/SP MINI-SKIPS FOR MINI-SKIP LANE LINES, LINE EXTENSIONS THROUGH TAPERS, AND MINI-SKIPS USED FOR BICYCLE LANE LINES.

GENERAL NOTES:

1- USE 6" LANE, EDGE, AND CENTER LINES ON ALL FULL CONTROL OF ACCESS FACILITIES AND OTHER ROUTES AS DIRECTED BY THE ENGINEER.

2- LANE LINES INDICATED AS "WIDE" ON THE ROADWAY STANDARD DRAWINGS SHALL BE AT LEAST TWICE THE WIDTH OF THE NORMAL LINE.

3- GORE LINES SHALL BE TWICE THE WIDTH OF THE NORMAL LINE.

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

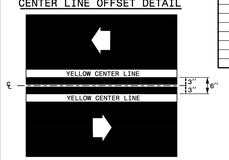
1-24

ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS LINE TYPES AND OFFSETS

SHEET 1 OF 2
1205.01

EDGE LINE OFFSET DETAIL

CENTER LINE OFFSET DETAIL



LANE LINE OFFSET DETAIL

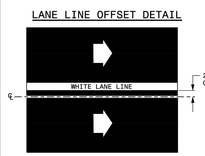


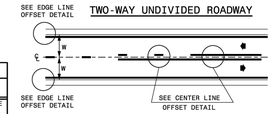
TABLE 1

EDGE LINE OFFSETS FOR 2-LANE, 2-WAY ROADWAYS WITH UN-PAVED SHOULDERS

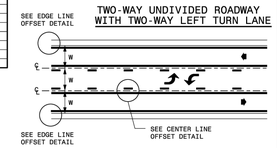
WIDTH (W) OF TRAVEL PAVEMENT	MAX. EDGE LINE OFFSET FROM E.O.T.	MINIMUM LANE WIDTH (W)
16' - 18'	2"	8' - 9'
19'	4"	9'
20'	6"	9.5'
21'	8"	10'
22'	10"	10'
23'	10"	10.5'
24'	1'	11'
26'	2'	11'
28'	2'	12'
30'	3'	12'
32'	4'	12'

LEGEND
- W = WIDTH OF TRAVEL LANE
- E.O.T.= EDGE OF TRAVEL
- DIRECTION OF TRAFFIC FLOW

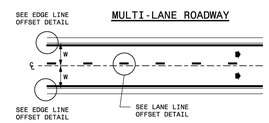
TWO-WAY UNDIVIDED ROADWAY



TWO-WAY UNDIVIDED ROADWAY WITH TWO-WAY LEFT TURN LANE



MULTI-LANE ROADWAY



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

1-24

ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS LINE TYPES AND OFFSETS

SHEET 2 OF 2
1205.01

MERRITT RESERVE
NCDOT DETAILS
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:
NCDOT DETAILS

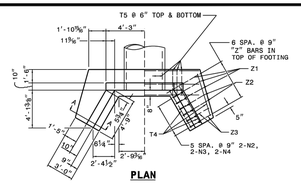
SHEET NO.:
CS-500

North Carolina 811 Call Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

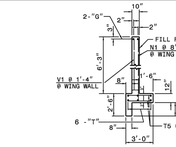
PROJECT NUMBER = CID-25-02

Z:\Jobs\23-0004 Merritt Property BR\Dwg_Working Dwgs\Sheets\Construction Set\CS- CS-500-502 CIVIL DETAILS.dwg

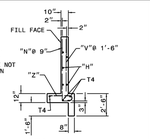
2025-07-02



PLAN

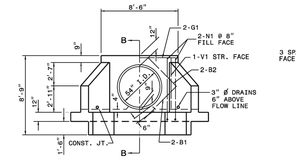


SECTION - BB

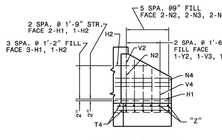


SECTION - AA

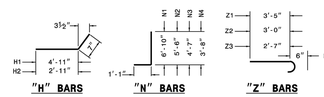
SEE STD. DWG. 838.45 FOR GENERAL NOTES.



ELEVATION



WING ELEVATION



"H", "N", & "Z" BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ENDWALL				
REINF. STEEL			1 PIPE	
BAR	SIZE	LENGTH	NO.	W/BF
B1	#4	5'-6"	4	15
B2	#4	4'-6"	4	12
G1	#7	8'-2"	2	33
H1	#4	5'-6"	10	37
H2	#4	3'-6"	4	9
N1	#4	7'-11"	4	21
N2	#4	6'-7"	4	18
N3	#4	5'-8"	4	15
N4	#4	4'-9"	4	13
T1	#4	11'-10"	6	47
T4	#4	5'-3"	6	21
T5	#4	2'-6"	34	57
V1	#4	5'-9"	2	8
V2	#4	4'-10"	2	6
V3	#4	3'-11"	2	5
V4	#4	3'-1"	2	4
Z1	#4	3'-11"	6	16
Z2	#4	3'-6"	4	9
Z3	#4	3'-1"	4	8
REINF. STEEL LBS.				354
CON./R.C. CU. YDS				5.0

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

1-24

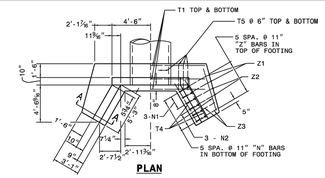
ROADWAY STANDARD DRAWING FOR

REINFORCED CONCRETE ENDWALL

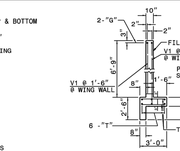
FOR SINGLE 54" PIPE - 90° SKEW

SHEET 1 OF 2

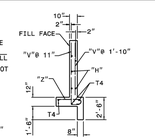
838.21



PLAN

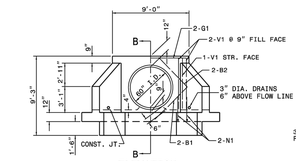


SECTION - BB

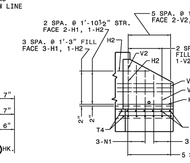


SECTION - AA

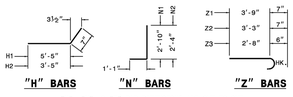
SEE STD. # 838.45 FOR GENERAL NOTES.



ELEVATION



WING ELEVATION



"H", "N", & "Z" BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ENDWALL				
REINF. STEEL			1 PIPE	
BAR	SIZE	LENGTH	NO.	W/BF
B1	#4	5'-6"	4	15
B2	#4	4'-6"	4	12
G1	#7	8'-8"	2	35
H1	#4	6'-0"	10	40
H2	#4	4'-0"	4	11
N1	#5	3'-11"	10	41
N2	#4	3'-5"	6	14
T1	#4	12'-8"	6	51
T4	#4	5'-6"	6	22
T5	#4	2'-6"	36	60
V1	#4	6'-3"	6	25
V2	#4	5'-1"	6	20
V3	#4	3'-11"	6	16
V4	#4	2'-9"	6	11
Z1	#5	4'-4"	4	18
Z2	#4	3'-10"	4	10
Z3	#4	3'-2"	4	8
REINF. STEEL LBS.				409
CON./R.C. CU. YDS				5.6

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

1-24

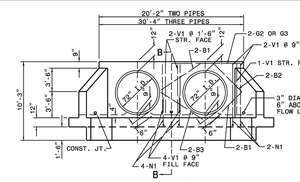
ROADWAY STANDARD DRAWING FOR

REINFORCED CONCRETE ENDWALL

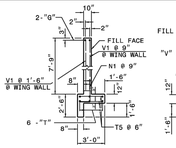
FOR SINGLE 60" PIPE - 90° SKEW

SHEET 1 OF 2

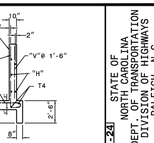
838.27



ELEVATION

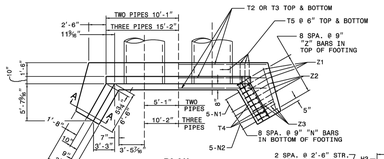


SECTION - BB

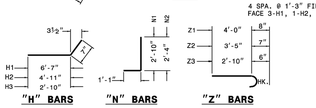


SECTION - AA

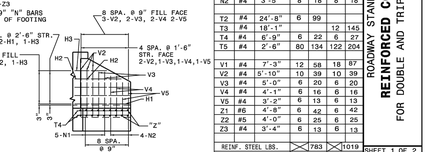
SEE STD. # 838.45 FOR GENERAL NOTES.



PLAN



"H", "N", & "Z" BAR DIMENSIONS ARE OUT TO OUT.



WING ELEVATION

BILL OF MATERIAL FOR ENDWALL						
REINF. STEEL			2 PIPES		3 PIPES	
BAR	SIZE	LENGTH	NO.	W/BF	NO.	W/BF
B1	#4	5'-6"	8	29	12	44
B2	#4	4'-6"	4	12	4	12
B3	#4	7'-0"	4	19	8	37
G2	#7	19'-10"	2	81	-	-
G3	#7	30'-0"	-	-	2	123
H1	#4	7'-2"	10	48	10	48
H2	#4	5'-6"	2	7	2	7
H3	#4	3'-5"	4	9	4	9
N1	#5	3'-11"	18	74	22	90
N2	#4	3'-5"	8	18	8	18
T2	#4	24'-8"	6	99		
T3	#4	18'-1"			12	145
T4	#4	6'-9"	6	22	6	27
T5	#4	2'-6"	80	134	122	204
V1	#4	7'-3"	12	58	18	87
V2	#4	5'-10"	10	39	10	39
V3	#4	5'-0"	6	20	6	20
V4	#4	4'-1"	6	16	6	16
V5	#4	3'-2"	6	13	6	13
Z1	#6	4'-8"	6	42	6	42
Z2	#5	4'-0"	6	25	6	25
Z3	#4	3'-4"	6	13	6	13
REINF. STEEL LBS.				783		1016
CON./R.C. CU. YDS				9.8		12.5

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

1-24

ROADWAY STANDARD DRAWING FOR

REINFORCED CONCRETE ENDWALL

FOR DOUBLE AND TRIPLE 72" PIPE - 90° SKEW

SHEET 1 OF 2

838.40

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3861 CERTIFICATE OF AUTHORIZATION

PRELIMINARY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEE

PRELIMINARY DO NOT USE FOR CONSTRUCTION

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

MERRITT RESERVE

NCDOT DETAILS

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

NCDOT DETAILS

SHEET NO.:

CS-501

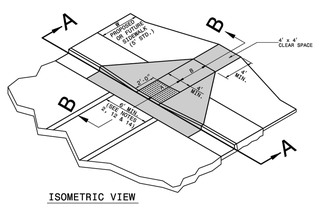
PROJECT NUMBER = CID-25-02

North Carolina 811 Call Before You Dig!

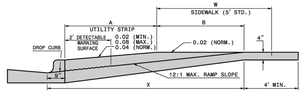
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merrit Property BRP\dwg_Working Dwgs\Sheets\Construction Set\45- CS-500-502 CIVIL DETAILS.dwg

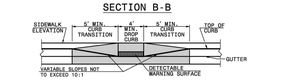
2025-07-02



ISOMETRIC VIEW



SECTION B-B

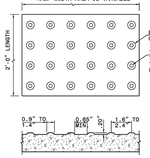


SECTION A-A

PAY LIMITS FOR CURB RAMP

NOTES:
DETECTABLE WARNING SURFACE SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.

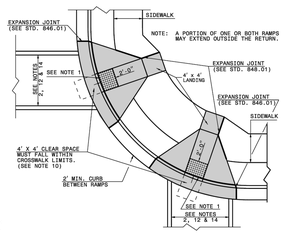
DETECTABLE WARNING SURFACE SHALL CONTRAST VISIBLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



DETECTABLE WARNING SURFACE

W	A	W+A+9"	X	B
5'	0.0'	5.9'	5.8'	5.0**
6'	0.0'	6.9'	6.8'	6.0**
7'	0.0'	7.9'	7.3'	6.5**
8'	0.0'	8.9'	7.3'	6.5**
9'	2.0'	7.9'	7.8'	5.0'
9'	2.5'	8.3'	8.1'	4.8'
9'	3.0'	8.6'	8.3'	4.4'
9'	3.5'	9.3'	8.4'	4.1'
9'	4.0'	9.6'	8.6'	3.8'
9'	4.5'	10.3'	8.7'	3.4'
9'	5.0'	10.6'	8.9'	3.1'

B = X-(A+9')
B = DISTANCE FROM FRONT EDGE OF SIDEWALK TO BACK POINT OF 12:1 (8.33%) SLOPE.
* BACK OF SIDEWALK DROP REQUIRED FOR ALL SIDEWALK SLOPES.
** BACK OF SIDEWALK DROP REQUIRED FOR SIDEWALK SLOPES 0.04.



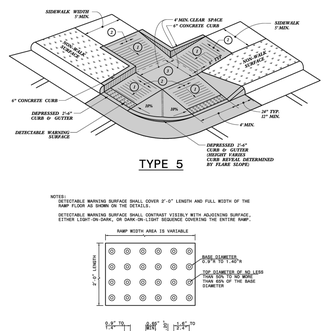
PLAN VIEW
DUAL RAMPS
ANY RADII
(4' MIN. FLOOR WIDTH)

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

1-24

ROADWAY STANDARD DRAWING FOR
CURB RAMP
PROPOSED CURB AND GUTTER

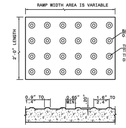
SHEET 1 OF 13
848.06



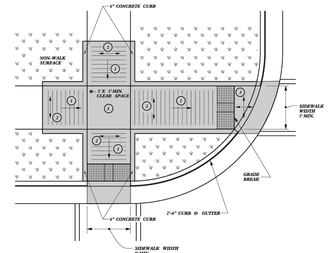
TYPE 5

NOTES:
DETECTABLE WARNING SURFACE SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.

DETECTABLE WARNING SURFACE SHALL CONTRAST VISIBLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



DETECTABLE WARNING SURFACE



★ - WHERE CLEAR SPACE IS CONSTRAINED ON TWO OR MORE SIDES, THE CLEAR SPACE SHALL BE 4' MINIMUM X 5' DIAGONAL WITH 5' PROVIDED IN THE DIRECTION OF THE PEDESTRIAN CURBED CROSSING.

TYPE 5A

1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00%.

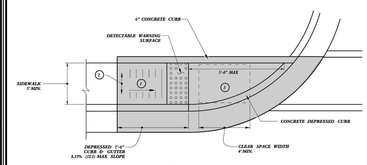
PAY LIMITS FOR 1 OR 2 CURB RAMPS (CALCULATE BASED ON NUMBER OF SETS OF DETECTABLE WARNING SURFACES)

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

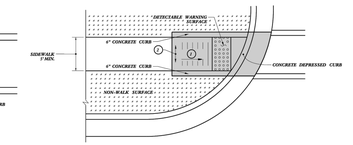
1-24

ROADWAY STANDARD DRAWING FOR
CURB RAMP
SHARED LANDING

SHEET 11 OF 13
848.06



TYPE 1

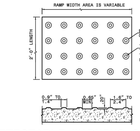


TYPE 1 MODIFIED

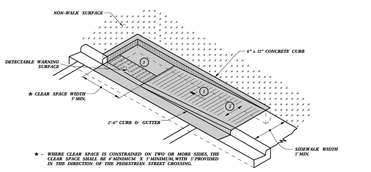
1. 8.33% (12:1) MAX RAMP SLOPE
2. CROSS SLOPE: 2.00%
3. MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00%.

NOTES:
DETECTABLE WARNING SURFACE SHALL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.

DETECTABLE WARNING SURFACE SHALL CONTRAST VISIBLY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



DETECTABLE WARNING SURFACE



★ - WHERE CLEAR SPACE IS CONSTRAINED ON TWO OR MORE SIDES, THE CLEAR SPACE SHALL BE 4' MINIMUM X 5' DIAGONAL WITH 5' PROVIDED IN THE DIRECTION OF THE PEDESTRIAN CURBED CROSSING.

TYPE 1A

PAY LIMITS FOR 1 CURB RAMP

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

1-24

ROADWAY STANDARD DRAWING FOR
CURB RAMP
DIRECTIONAL RAMP

SHEET 6 OF 13
848.06

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3861 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 MAXOR P. KLEE
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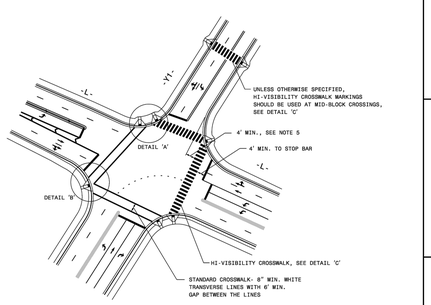
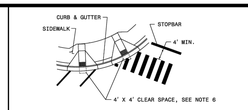
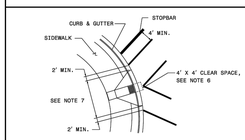
CROSSWALK PLACEMENT GUIDANCE

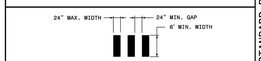




DETAIL 'A'- DUAL CURB RAMPS



DETAIL 'B'- SINGLE DIAGONAL CURB RAMP



DETAIL 'C'- HI-VISIBILITY CROSSWALK

GENERAL NOTES:
1- USE THE DETAILS ABOVE AND THE FOLLOWING NOTES FOR GUIDANCE IN PLACING CROSSWALK MARKINGS. REFER TO NCDOT ROADWAY STANDARD DRAWINGS, MUTCD AND ADA STANDARDS FOR ADDITIONAL GUIDANCE.

2- THE LOCATION AND TYPE OF CROSSWALK MARKINGS SHOWN ON THE ABOVE DETAILS ARE FOR REFERENCE ONLY. LOCATE CROSSWALK MARKINGS AS SHOWN ON THE PROJECT DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER. THE CROSSWALK MARKING TYPE, STANDARD OR HI-VISIBILITY, SHALL BE INSTALLED AS SPECIFIED ON THE PROJECT DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER.

3- THE STANDARD CROSSWALK IS TWO WHITE 8" MIN. TRANSVERSE LINES WITH A 6' MIN. GAP BETWEEN THE LINES. THE HI-VISIBILITY CROSSWALK IS WHITE 24" MAX. WIDE LONGITUDINAL LINES WITH 24" MIN. GAPS BETWEEN LINES, SEE DETAIL 'C'. HI-VISIBILITY CROSSWALKS SHOULD BE A MINIMUM OF 6' WIDE. CURB RAMPS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARES.

4- STOP BARS SHOULD BE PLACED A 4' MIN. IN ADVANCE OF NEAREST CROSSWALK LINE.

5- SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL IS 4' MIN.

6- BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE OF 4' X 4' MIN. SHALL BE PROVIDED WITHIN THE MARKINGS.

7- SINGLE DIAGONAL CURB RAMPS WITH FLARED SIDES SHALL HAVE A SEGMENT OF CURB 2' MIN. LONG LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING, SEE DETAIL 'B'.

8- CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE TO THE LATEST NCDOT ROADWAY STANDARD DRAWINGS. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS, WILL BE HANDLED BY SPECIAL DETAILS. CONTACT THE CONTRACT STANDARDS AND DEVELOPMENT UNIT FOR DETAILS OR A SPECIAL DESIGN.

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

1-24

ROADWAY STANDARD DRAWING FOR
PAVEMENT MARKINGS
PEDESTRIAN CROSSWALKS

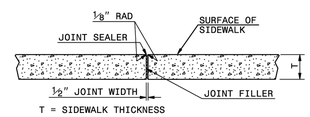
SHEET 1 OF 2
1205.07

NOTES:

CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

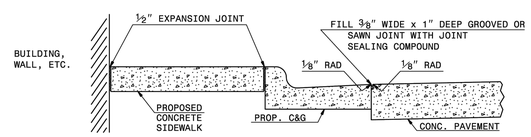
PLACE A GROOVE JOINT 1" DEEP WITH 1/8" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.

SEE STD. DWG. 848.05 FOR CURB RAMP LOCATION REQUIREMENTS AND CONSTRUCTION GUIDELINES.



T = SIDEWALK THICKNESS

TRANSVERSE EXPANSION JOINT IN SIDEWALK



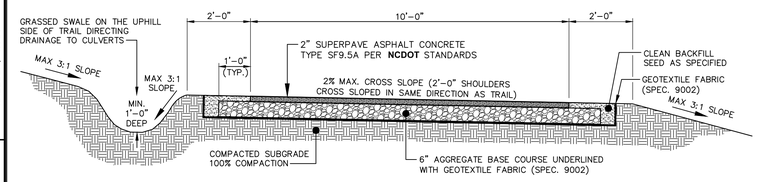
DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK

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

1-24

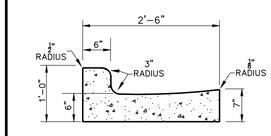
ROADWAY STANDARD DRAWING FOR
CONCRETE SIDEWALK

SHEET 1 OF 1
848.01

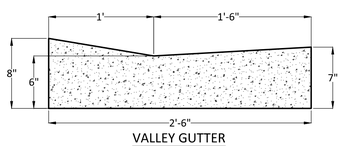


NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ALL SLOPES DISTURBED BY CONSTRUCTION.
2. NO ABOVE GROUND UTILITIES OR UTILITY SURFACE COVERS/PLATES/MANHOLES SHALL BE LOCATED WITHIN TRAIL AND SHALL BE MINIMUM 2 FEET FROM THE EDGE OF TRAIL. RAISED MANHOLES SHALL BE MINIMUM 4 FEET FROM TRAIL EDGE.
3. ALL TRAILS SHALL BE LOCATED MINIMUM 5 FEET FROM THE BACK OF CURB.
4. SIDE SLOPES SHALL NOT EXCEED 3:1. CUT & FILL SLOPES SHALL TIE INTO EXISTING SLOPES TO CREATE AN EVEN TRANSITION.
5. CROSS SLOPE TYPICALLY TO LOW SIDE BUT CROSS SLOPE TO INSIDE OF DOWNHILL CURVES, WITH GRADUAL TRANSITIONS BETWEEN ANY CROSS SLOPE DIRECTION CHANGES.

STANDARD 10-FT GREENWAY TRAIL



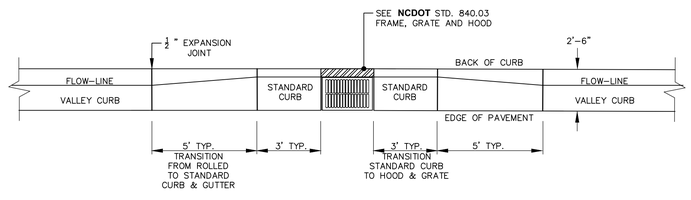
30" STANDARD CURB & GUTTER



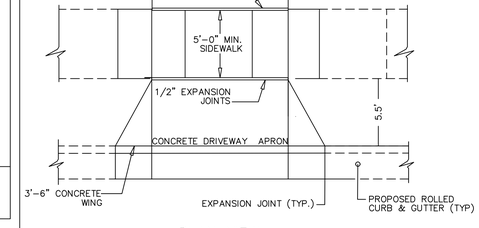
VALLEY GUTTER

NOTES:
1. CONCRETE SHALL BE 3000 PSI.
2. CONTRACTION JOINTS SHALL BE SPACED AT 10' INTERVALS OR 15' INTERVALS WHEN A MACHINE IS USED.
3. EXPANSION JOINTS SHALL BE SPACED AT 50' INTERVALS.
4. FINISH ALL CONCRETE WITH CURING COMPOUND.
5. FOLLOW ALL APPLICABLE ACI REQUIRMENTS.
6. ROLLED CURB SHALL ONLY BE USED FOR APPROVED APPLICATIONS.

CURB & GUTTER

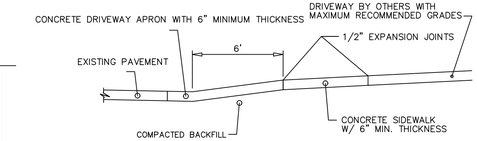


CONCRETE CURB AND GUTTER TRANSITION
(VALLEY CURB TO STANDARD CURB)



PLAN VIEW

NOTES:
1. CURB SHALL BE TAPERED TO FINISH FLUSH WITH SIDEWALK.
2. SIDEWALK SECTION SHALL BE REQUIRED ALONG ALL STREETS.
3. THE TOWN IS NOT RESPONSIBLE FOR VEHICLES THAT DRAG DUE TO GRADE OF DRIVEWAY. THE DRIVEWAY IS PRIVATELY MAINTAINED.
4. ALL CONCRETE SHALL BE 3,000 PSI.



TYPICAL SECTION

DRIVEWAY APRON

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON. AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

MERRITT RESERVE
NCDOT DETAILS
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

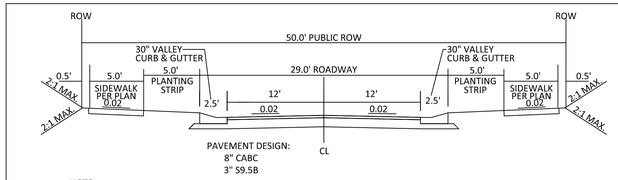
SHEET TITLE:
NCDOT DETAILS

SHEET NO.:
CS-502

North Carolina 811 one call center
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

PROJECT NUMBER = CID-25-02

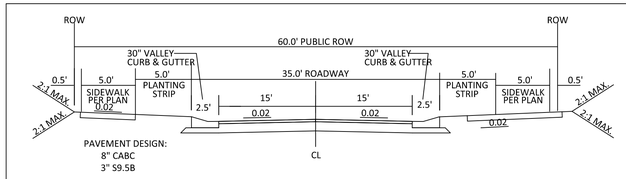
Z:\Jobs\23-0004 Merrit Property BRD\dwg_Working Dwgs\Sheets\Construction Set\CS- CS-500-502 CIVIL DETAILS.dwg
2025-07-02



NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

29' B-B ON A 50' R/W

TYPICAL SECTION

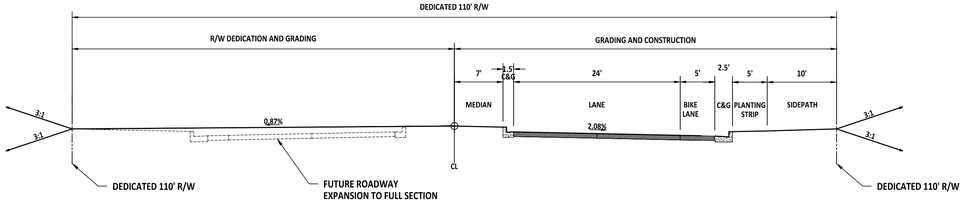


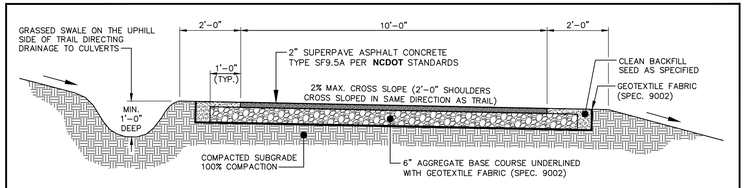
NOTE:
1. NORMAL CROWN OF 0.02 UNLESS OTHERWISE DIRECTED BY TOWN ENGINEER.
2. ASPHALT WILL BE INSTALLED AT A MIN. 1.5" LIFTS.

35' B-B ON A 60' R/W

TYPICAL SECTION

FOWLER ROAD 33' B-B ON A 110' R/W
FULL SECTION GRADING, HALF SECTION CONSTRUCTION
14' MEDIAN
NOT TO SCALE
DEDICATED 110' R/W





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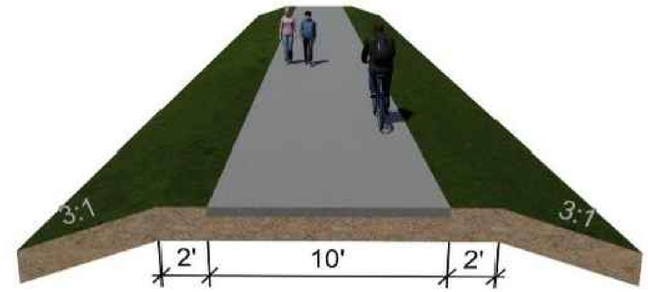
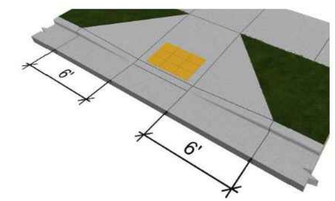
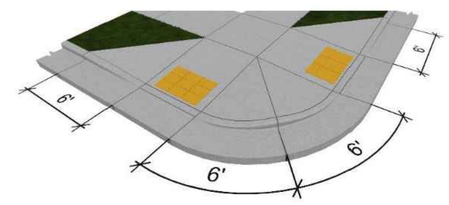
STANDARD 10-FT/STREET-SIDE TRAIL ASPHALT GREENWAY TRAIL



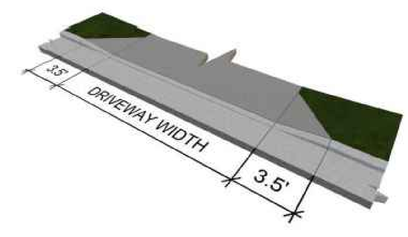
TYPICAL GREENWAY TRAIL DETAIL
NTS





HANDICAP RAMP DETAIL
NTS

Driveway cuts will be required on residential collector streets. The curb transition shall occur throughout the concrete wing, over 3.5 feet.



If driveway spacing results in less than 8 feet of standard curb between driveways, an exception to use 30-inch valley curb may be granted by the Town Engineer on a case-by-case basis.

DRIVEWAY CUT DETAIL
NTS

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036528 JACOB P. KLEM

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

MERRITT RESERVE
SITE DETAILS
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

SITE DETAILS

SHEET NO.: **CS-503**

North Carolina 811 Call before you dig.
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merrit Property BRD\Dwg_Working Dwgs\Sheets\Construction Set\CS_CS-500-503 CIVIL DETAILS.dwg

2025-07-02

STANDARD UTILITY NOTES:

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH CITY OF RALEIGH DESIGN STANDARDS, DETAILS & SPECIFICATIONS (REFERENCE: CORPUD HANDBOOK, CURRENT EDITION)
2. UTILITY SEPARATION REQUIREMENTS:
   a. A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL.
   b. WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER.
   c. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS.
   d. 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
   e. MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS; MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORMDRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE (PER CORPUD DETAILS W-41 & S-49).
   f. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED.
3. ANY NECESSARY FIELD REVISIONS ARE SUBJECT TO REVIEW & APPROVAL OF AN AMENDED PLAN &/OR PROFILE BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT PRIOR TO CONSTRUCTION.
4. DEVELOPER SHALL PROVIDE 30 DAYS ADVANCE WRITTEN NOTICE TO OWNER FOR ANY WORK REQUIRED WITHIN AN EXISTING CITY OF RALEIGH UTILITY EASEMENT TRAVERSING PRIVATE PROPERTY.
5. CONTRACTOR SHALL MAINTAIN CONTINUOUS WATER & SEWER SERVICE TO EXISTING RESIDENCES & BUSINESSES THROUGHOUT CONSTRUCTION OF PROJECT. ANY NECESSARY SERVICE INTERRUPTIONS SHALL BE PRECEDED BY A 24-HOUR ADVANCE NOTICE TO THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT.
6. SEWER BYPASS PUMPING - A BYPASS PLAN SEALED BY AN NC PROFESSIONAL ENGINEER SHALL BE PROVIDED TO RALEIGH WATER PRIOR TO PUMPING OPERATIONS FOR APPROVAL. THE OPERATIONS AND EQUIPMENT SHALL COMPLY WITH THE PUBLIC UTILITIES HANDBOOK.
7. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCE MAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS.
8. IT IS THE DEVELOPER'S RESPONSIBILITY TO ABANDON OR REMOVE EXISTING WATER & SEWER SERVICES NOT BEING USED IN REDEVELOPMENT OF A SITE UNLESS OTHERWISE DIRECTED BY THE CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT. THIS INCLUDES ABANDONING TAP AT MAIN & REMOVAL OF SERVICE FROM ROW OR EASEMENT PER CORPUD HANDBOOK PROCEDURE.
9. INSTALL WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE.
10. INSPECTIONS OF 4" AND LARGER WATER MAINS OF THE PRIVATE DISTRIBUTION SYSTEM WILL BE INSPECTED AS PART OF THE INFRASTRUCTURE PERMIT.
11. PRIVATE SEWER MAINS AS PART OF A COLLECTION SYSTEM ARE PERMITTED AND INSPECTED UNDER THE PRIVATE INFRASTRUCTURE PERMIT FOR SEWER.
12. ANY WATER OR SEWER SERVICES ON PRIVATE PROPERTY THAT WILL BE INSTALLED UNDER CONSTRUCTION DRAWINGS MAY REQUIRE A PLUMBING UTILITY PERMIT IN THE CITY OF RALEIGH. CONSULT WITH THE ENGINEERING INSPECTION COORDINATOR DURING THE PRE-CONSTRUCTION MEETING ON THE NECESSARY PERMITS.
13. INSTALL SEWER SERVICES WITH CLEANOUTS LOCATED AT ROW OR EASEMENT LINE & SPACED PER THE CURRENT NC PLUMBING CODE.
14. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAMMANHOLE.
15. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION.
16. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION.
17. GREASE INTERCEPTOR / OIL WATER SEPARATOR SIZING CALCULATIONS & INSTALLATION SPECIFICATIONS SHALL BE APPROVED BY THE RW FOG PROGRAM COORDINATOR PRIOR TO ISSUANCE OF A UC AND/OR BUILDING PERMIT. CONTACT (919) 996-4516 OR FOG@RALEIGHNC.GOV FOR MORE INFORMATION.
18. CROSS-CONNECTION CONTROL PROTECTION DEVICES ARE REQUIRED BASED ON THE DEGREE OF HEALTH HAZARD INVOLOVED AS LISTED IN APPENDIX B OF THE RULES GOVERNING PUBLIC WATER SYSTEMS IN NORTH CAROLINA.
19. THE DEVICES SHALL MEET THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE) STANDARDS AND BE ON THE UNIVERSITY OF SOUTHERN CALIFORNIA APPROVAL LIST.
20. THE DEVICE AND INSTALLATION SHALL MEET THE GUIDELINES OF APPENDIX A - GUIDELINES AND REQUIREMENTS FOR THE CROSS CONNECTION PROGRAM IN RALEIGH'S SERVICE AREA.
21. THE DEVICES SHALL BE INSTALLED AND TESTED (BOTH, INITIAL AND PERIODIC TESTING THEREAFTER) IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR THE LOCAL CROSS CONNECTION CONTROL PROGRAM, WHICHEVER IS MORE STRINGENT. CONTACT CROSS.CONNECTION@RALEIGHNC.GOV FOR MORE INFORMATION.
22. NOTICE FOR PROJECTS THAT INVOLVE AN OVERSIZED MAIN OR URBAN MAIN REPLACEMENT. ANY CITY REIMBURSEMENT GREATER THAN $250,000.00 MUST UNDERGO THE PUBLIC BIDDING PROCESS.
23. PRIVATE SUB-METERING - NO RESALE OF WATER SHALL OCCUR WITHOUT APPROVAL OF THE NORTH CAROLINA UTILITY COMMISSION. SUB-METERING SHALL BE IN ACCORDANCE WITH SECTION 1400 OF THE "SAFE DRINKING WATER ACT".

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 ft

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

PROJECT NUMBER = CID-25-02

North Carolina 811 Call before you dig.
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3861 CERTIFICATE OF AUTHORIZATION

PRELIMINARY

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEE

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

MERRITT RESERVE

UTILITY PLAN OVERALL

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

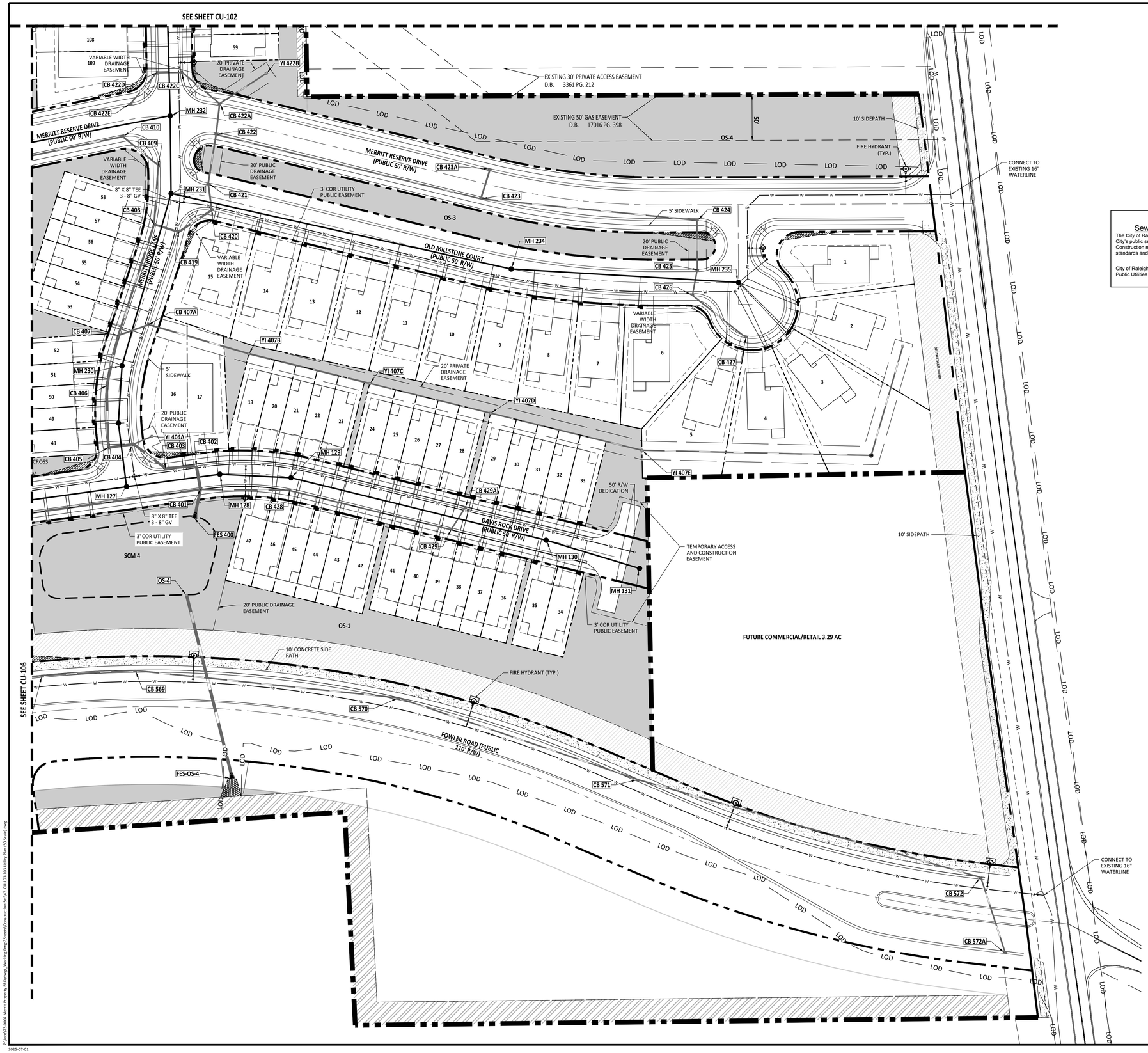
UTILITY PLAN OVERALL

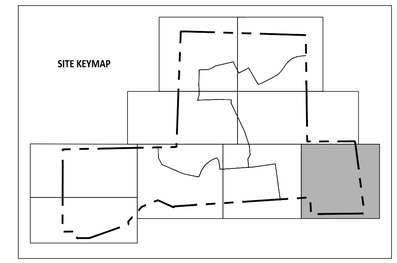
SHEET NO.:

CU-100

Z:\Jobs\23-0004 Merrit Property BRD\dwg_Working Dwgs\Sheets\Construction Set\46. CU-100 Utility Plan.dwg

2025-07-01





Public Sewer Collection / Extension System	Public Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. City of Raleigh Public Utilities Department Permit # _____	The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. City of Raleigh Public Utilities Department Permit # _____

UTILITY PLAN LEGEND	
WATER VALVE	
SEWER METER	
WATER METER	
FH	
MANHOLE	
WATER LINE	
SCM LOCATIONS	
SEWER LINE	
30' STREETSCAPE BUFFER	
PERIMETER BUFFER	
NEUSE RIVER BUFFER	

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

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PRELIMINARY
NOT FOR CONSTRUCTION
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAYSON P. KLEIN

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

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MERRITT RESERVE
UTILITY PLAN
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025
SHEET TITLE:	UTILITY PLAN
SHEET NO.:	CU-101

Z:\Jobs\23-0004 Merrit Property BRP\dwg_Working Dwgs\Sheets\Construction Set\07_CU-101-103 Utility Plan (50 Scale).dwg

2025-07-01

UTILITY PLAN LEGEND	
WATER VALVE	
SEWER METER	
WATER METER	
FH	
MANHOLE	
WATER LINE	
SCM LOCATIONS	
SEWER LINE	
30' STREETSCAPE BUFFER	
PERIMETER BUFFER	
NEUSE RIVER BUFFER	

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION
FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

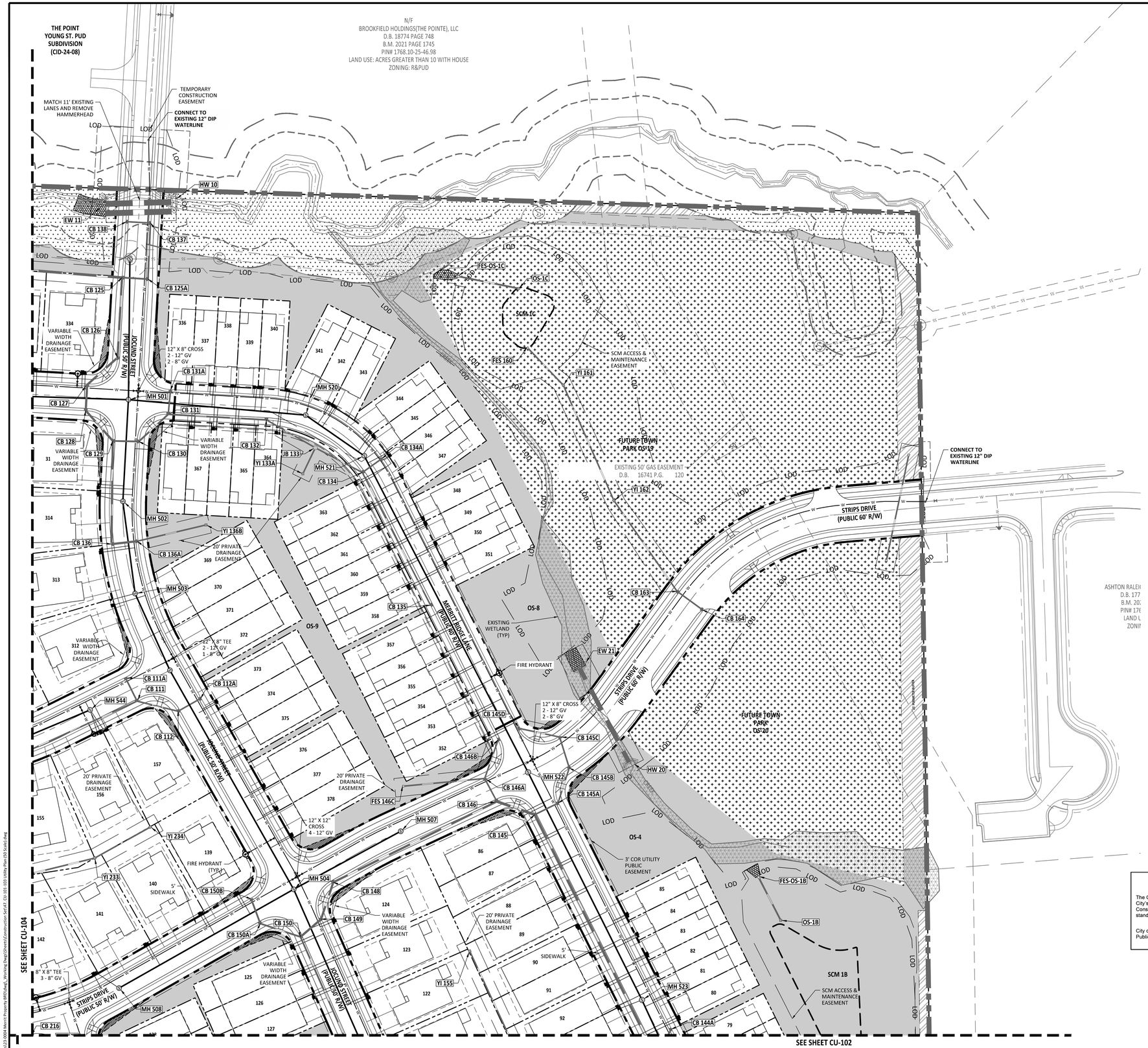
THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

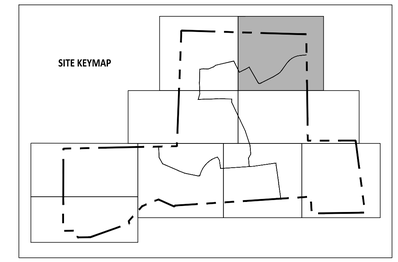
MERRITT RESERVE
UTILITY PLAN
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025
SHEET TITLE:	UTILITY PLAN
SHEET NO.:	CU-102

Z:\Jobs\23-0004 Merrit Property BBD\dwg_Working Dwgs\Sheets\Construction Set\47 - CU-101-103 Utility Plan (50 Scale).dwg

2025-07-01





UTILITY PLAN LEGEND	
WATER VALVE	
SEWER METER	
WATER METER	
FH	
MANHOLE	
WATER LINE	W W
SCM LOCATIONS	
SEWER LINE	S S
30' STREETSCAPE BUFFER	
PERIMETER BUFFER	
NEUSE RIVER BUFFER	

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEE
DO NOT USE FOR CONSTRUCTION
FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON. AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

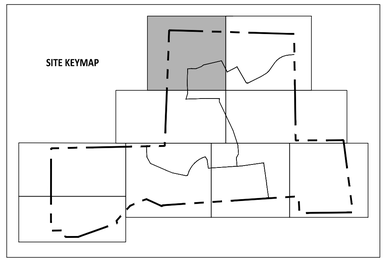
MERRITT RESERVE
UTILITY PLAN
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:
UTILITY PLAN

SHEET NO.:
CU-103

Z:\Jobs\23-0004 Merritt Property BRP\dwgs_Working Dwgs\Sheets\Construction Set\07- CU-101-103 Utility Plan (50 Scale).dwg
2025-07-01



UTILITY PLAN LEGEND	
WATER VALVE	
SEWER METER	
WATER METER	
FH	
MANHOLE	
WATER LINE	W W
SCM LOCATIONS	
SEWER LINE	SS SS
30' STREETSCAPE BUFFER	
PERIMETER BUFFER	
NEUSE RIVER BUFFER	

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

Public
Sewer Collection / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

PROJECT NUMBER = CID-25-02

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION
DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEIN
FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

MERRITT RESERVE

UTILITY PLAN

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

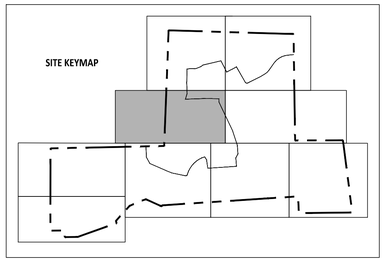
UTILITY PLAN

SHEET NO.:

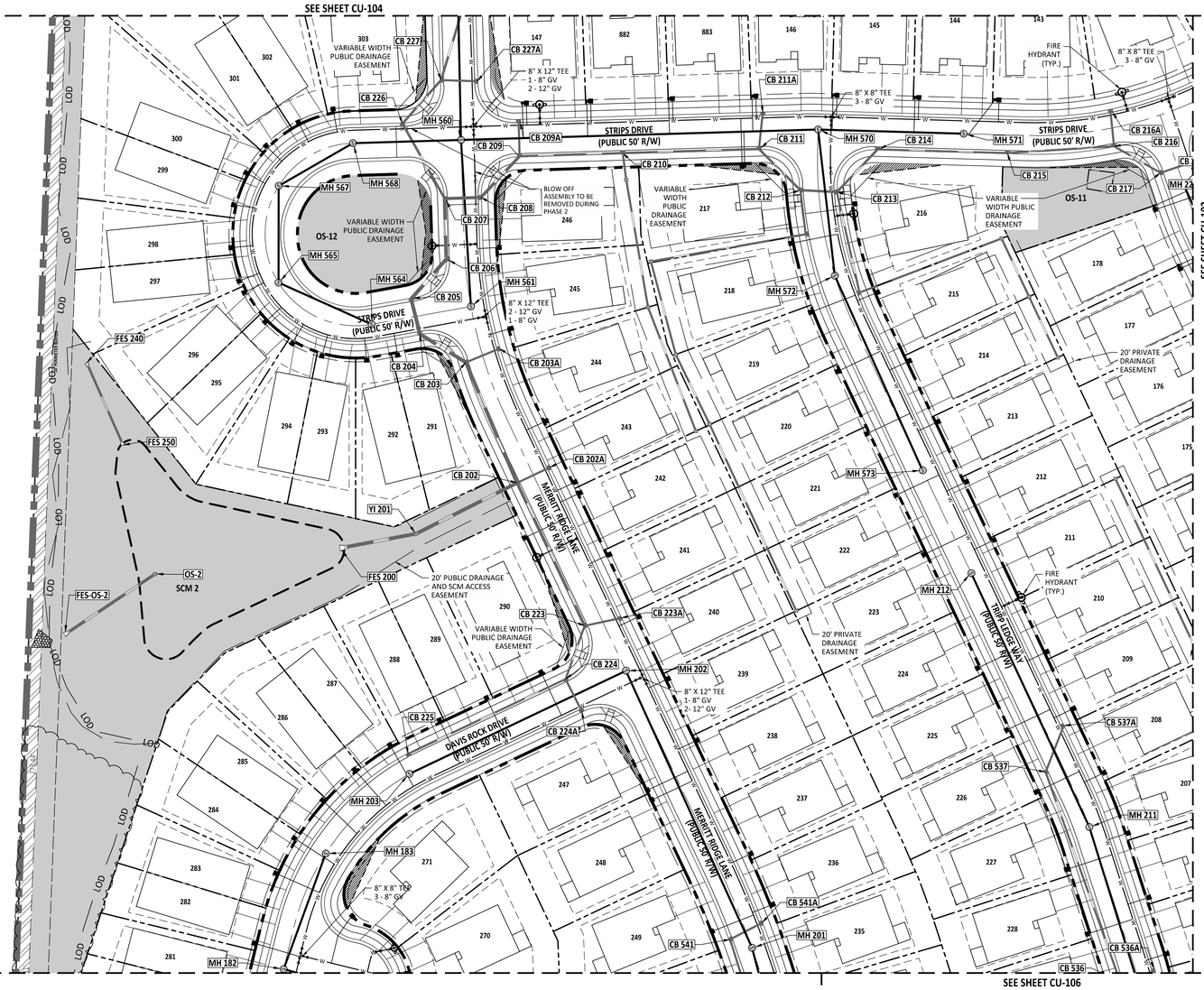
CU-104

Z:\Jobs-23-0004 Merritt Property (BRP)\Acad_Working Dwgs\Sheets\Construction Set\CU-101-106 Utility Plan (50 Scale).dwg

2025-07-01



N/F
ASHTON RALEIGH RESIDENTIAL, LLC
D.B. 17720 PAGE 1663
B.M. 2021 PAGE 1746
PIN# 1768.03-13-1851
LAND USE: VACANT
ZONING: R&PUD



UTILITY PLAN LEGEND	
WATER VALVE	
SEWER METER	
WATER METER	
FH	
MANHOLE	
WATER LINE	W W
SCM LOCATIONS	
SEWER LINE	SS SS
30' STREETSCAPE BUFFER	
PERIMETER BUFFER	
NEUSE RIVER BUFFER	

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEIN

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

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MERRITT RESERVE
UTILITY PLAN
ROLESVILLE RD
WAKE COUNTY NC 27312

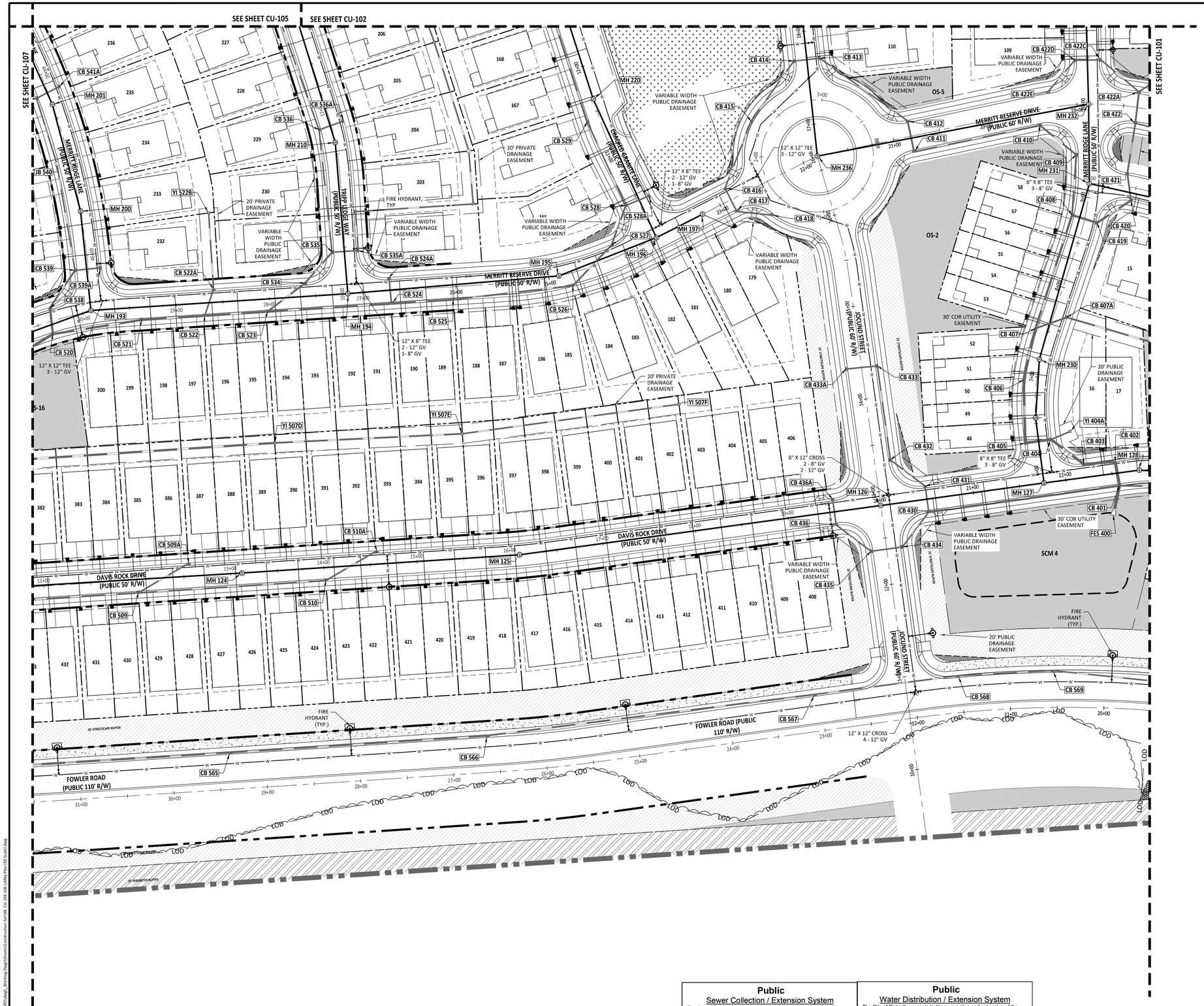
JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

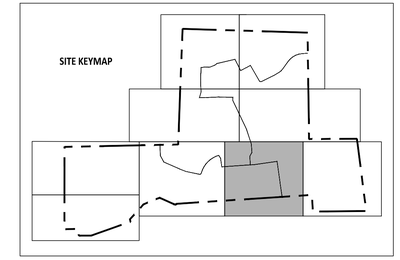
SHEET TITLE:

UTILITY PLAN

SHEET NO.:
CU-105

Z:\Jobs\23-0004 Merrit Property BBD\dwg_Working Dwgs\Sheets\Construction Set\48_CU-104-106 Utility Plan (50 Scale).dwg
2025-07-01





SITE PLAN LEGEND	
WATER VALVE	
SEWER METER	
WATER METER	
FH	
MANHOLE	
WATER LINE	W W
SCM LOCATIONS	
SEWER LINE	SS SS
PASSIVE OPEN SPACE PROVIDED: 28.07 ACRES TOTAL REQUIRED: 10.45 ACRES	
ACTIVE OPEN SPACE PROVIDED: 6.87 ACRES TOTAL REQUIRED: 10.45 ACRES	
30' STREETSCAPE BUFFER	
PERIMETER BUFFER	
NEUSE RIVER BUFFER	

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

Public
Sewer Collection / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3861 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAYSON P. KLEIN
PRELIMINARY
DO NOT USE FOR CONSTRUCTION
FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

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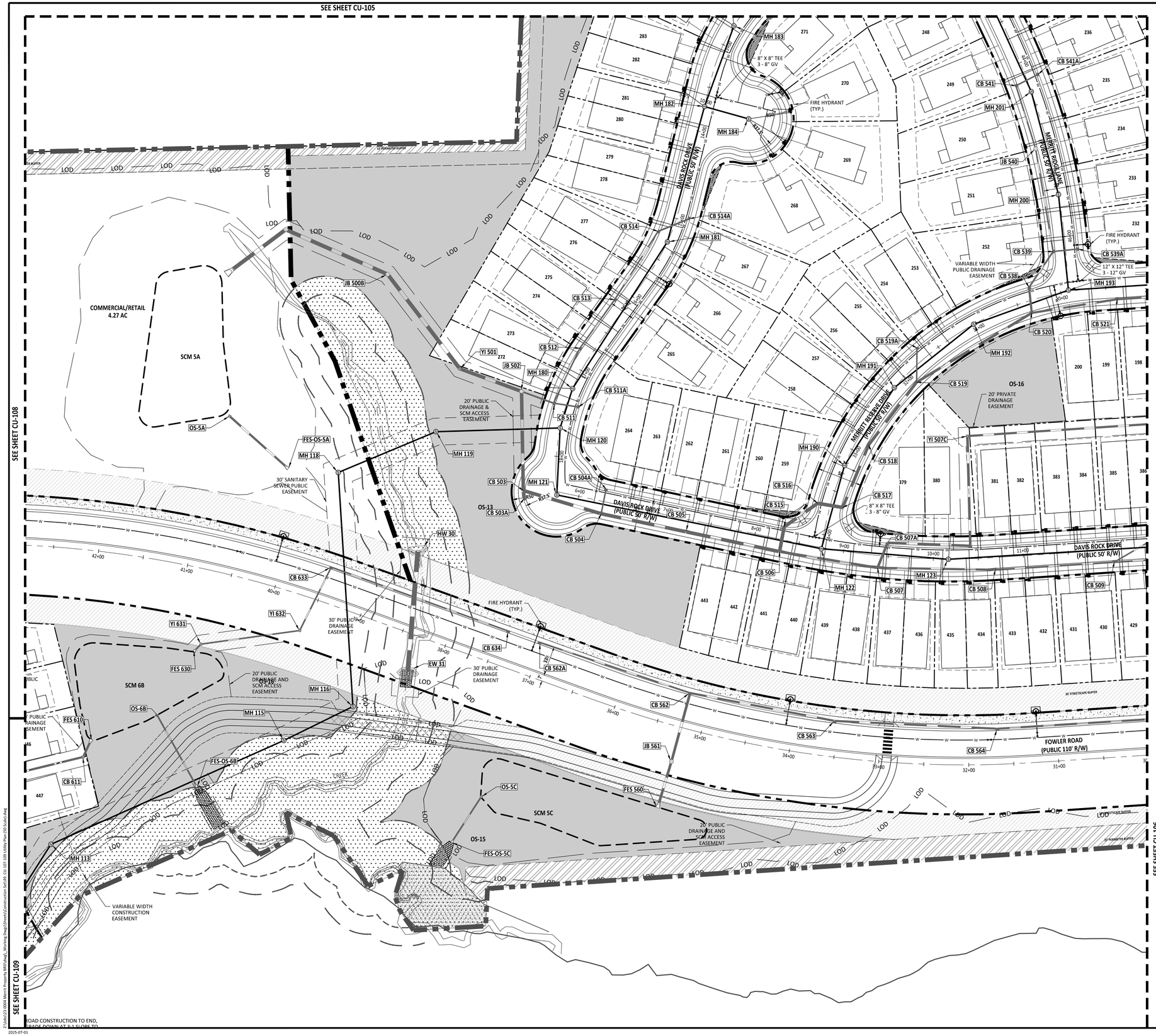
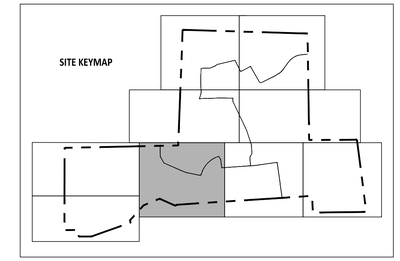
MERRITT RESERVE
UTILITY PLAN
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025
SHEET TITLE:	UTILITY PLAN
SHEET NO.:	CU-106

Z:\Jobs\23-0004 Merrit Property BRP\dwg_Working Dwgs\Sheets\Construction Set\08. CU-104-106 Utility Plan (50 Scale).dwg

2025-07-02





UTILITY PLAN LEGEND	
WATER VALVE	
SEWER METER	
WATER METER	
FH	
MANHOLE	
WATER LINE	W W
SCM LOCATIONS	
SEWER LINE	S S
30' STREETSCAPE BUFFER	
PERIMETER BUFFER	
NEUSE RIVER BUFFER	

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEIN
PRELIMINARY
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FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

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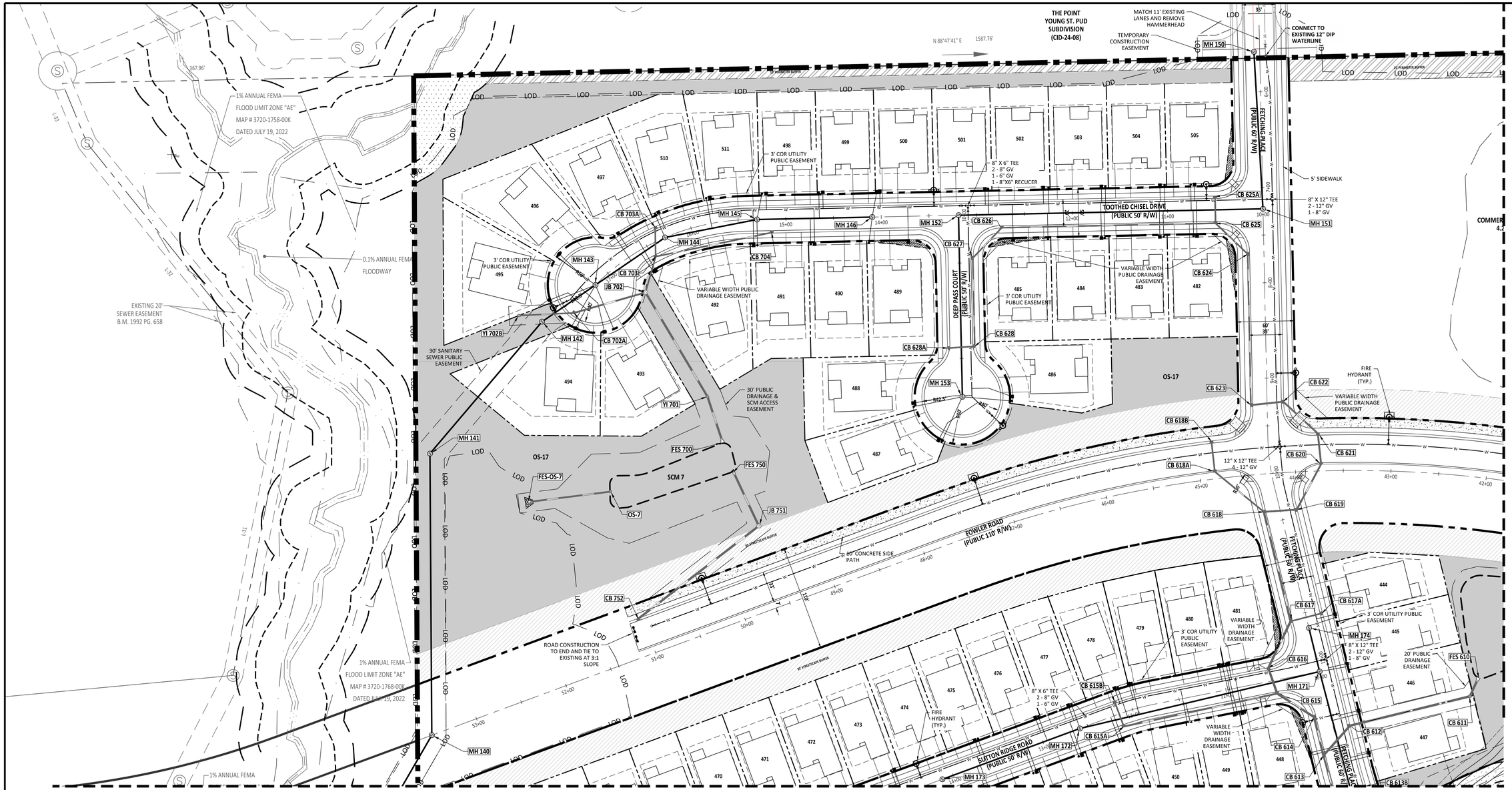
MERRITT RESERVE

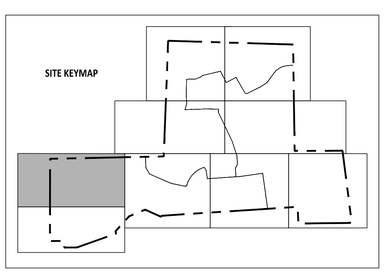
UTILITY PLAN

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025
SHEET TITLE:	UTILITY PLAN
SHEET NO.:	CU-107

Z:\Jobs\23-0004 Merrit Property (BRD)\Dwg_Working Dwgs\Sheets\Construction Set\49. CU-107-109 Utility Plan (3D Scale).dwg
2025-07-01





Public Sewer Collection / Extension System	Public Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. City of Raleigh Public Utilities Department Permit # _____	The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook. City of Raleigh Public Utilities Department Permit # _____

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

UTILITY PLAN LEGEND	
WATER VALVE	
SEWER METER	
WATER METER	
FH	
MANHOLE	
WATER LINE	
SCM LOCATIONS	
SEWER LINE	
30' STREETSCAPE BUFFER	
PERIMETER BUFFER	
NEUSE RIVER BUFFER	

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036528 JAKOB P. KLEMP
PRELIMINARY
DO NOT USE FOR CONSTRUCTION
FOR INFORMATION, ONLY

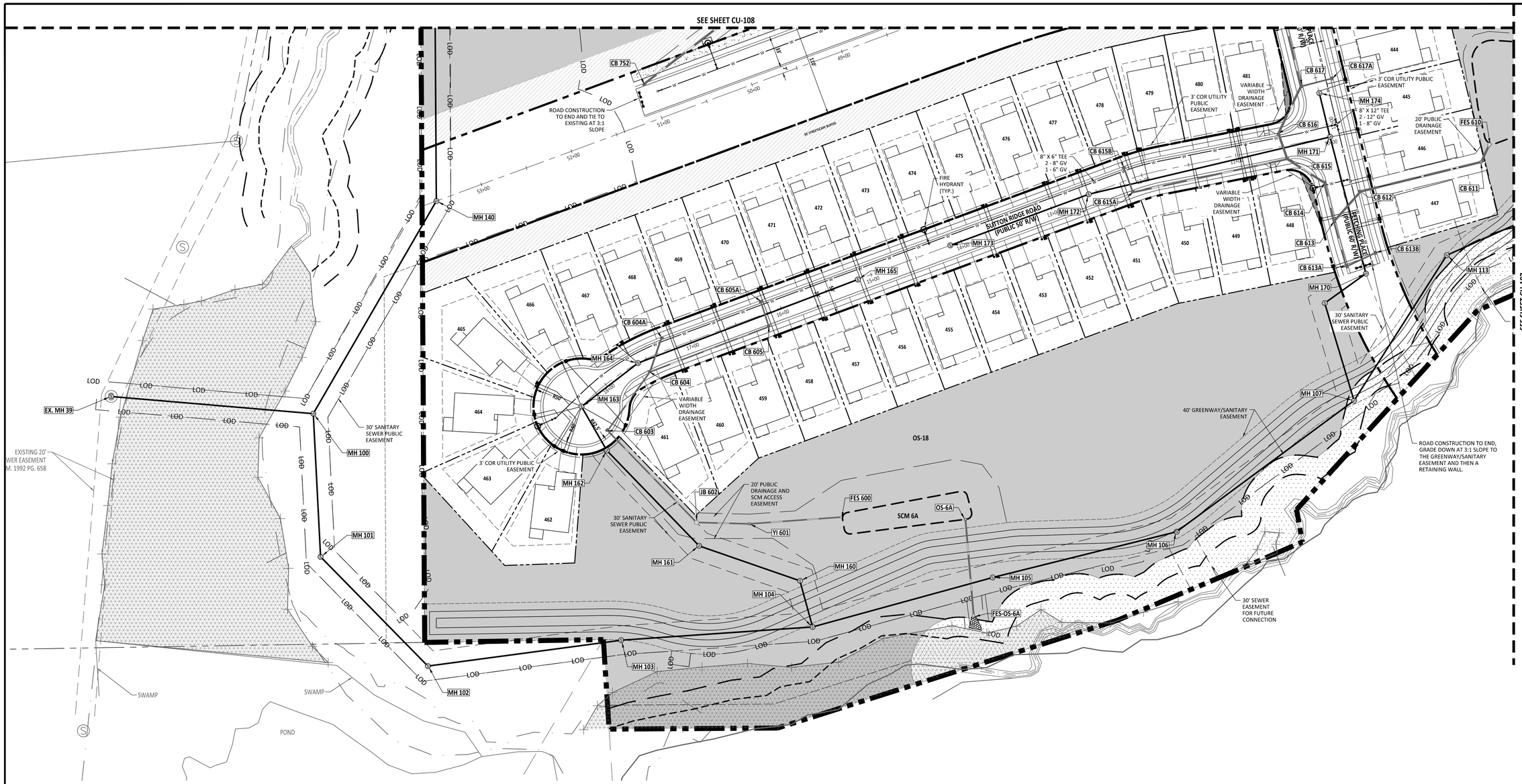
NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

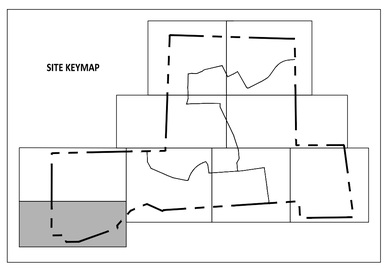
STIPULATION FOR REUSE

MERRITT RESERVE
UTILITY PLAN
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025
SHEET TITLE:	UTILITY PLAN
SHEET NO.:	CU-108

Z:\Jobs\23-0004 Merrit Property BED\dwg_Working Dwgs\Sheets\Construction Set\49_CU-107-109 Utility Plan (55-Scale).dwg
2025-07-01





Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft

UTILITY PLAN LEGEND	
WATER VALVE	
SEWER METER	
WATER METER	
FH	
MANHOLE	
WATER LINE	W W
SCM LOCATIONS	
SEWER LINE	S S
30' STREETSCAPE BUFFER	
PERIMETER BUFFER	
NEUSE RIVER BUFFER	

PROJECT NUMBER = CID-25-02

North Carolina 811 Call before you dig.
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3861 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION
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NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

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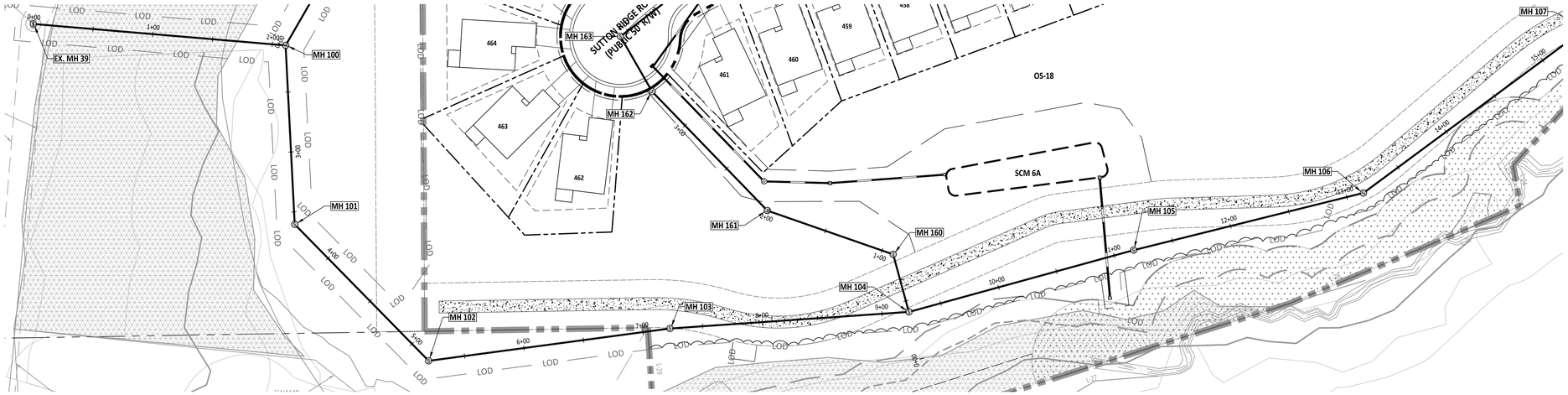
MERRITT RESERVE
UTILITY PLAN
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025
SHEET TITLE:	UTILITY PLAN
SHEET NO.:	CU-109

Z:\Jobs\23-0004 Merrit Property BRD\dwg_Working Dwgs\Sheets\Construction Set\49- CU-107-109 Utility Plan (IS) Scale1.dwg
2025-07-01

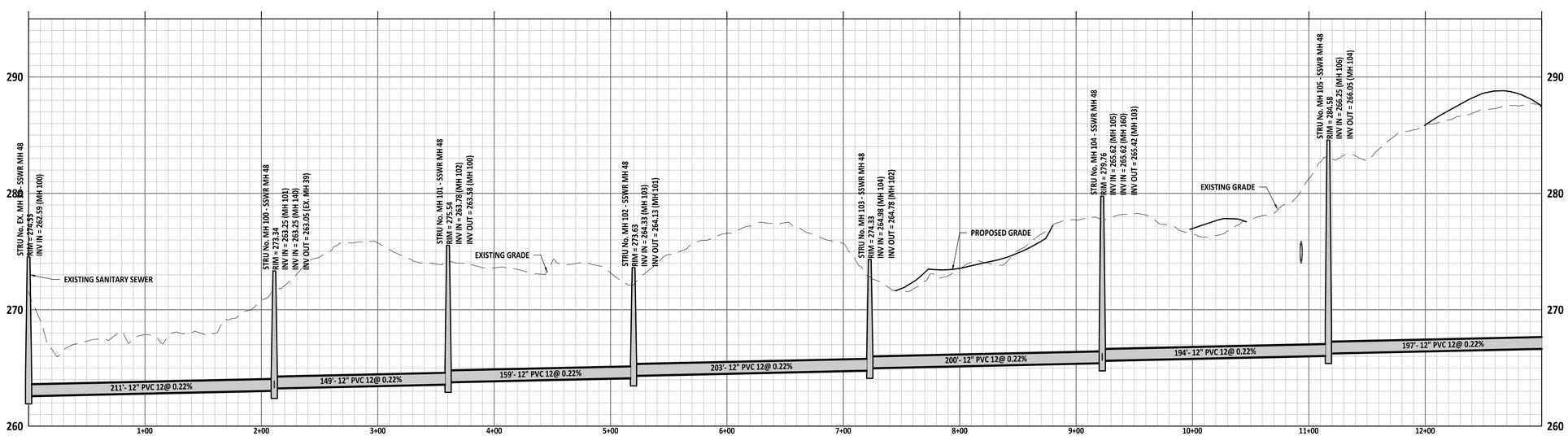


GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

EX. MH# 39 TO MH# 105



Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

PROJECT NUMBER = CID-25-02

North Carolina 811 Call 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEM

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

THIS DRAWING WAS PREPARED FOR USE ON THE SPECIFIC SITE, NAMED HEREON, CONTEMPORANEOUSLY WITH ITS ISSUE DATE AS LISTED, HEREON, AND IT IS NOT SUITABLE FOR USE ON A DIFFERENT PROJECT SITE OR AT A LATER TIME. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF PROPERLY LICENSED ARCHITECTS AND ENGINEERS. REPRODUCTION OF THIS DRAWING FOR REUSE ON ANOTHER PROJECT IS NOT AUTHORIZED AND MAY BE CONTRARY TO THE LAW.

MERRITT RESERVE

SANITARY SEWER PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

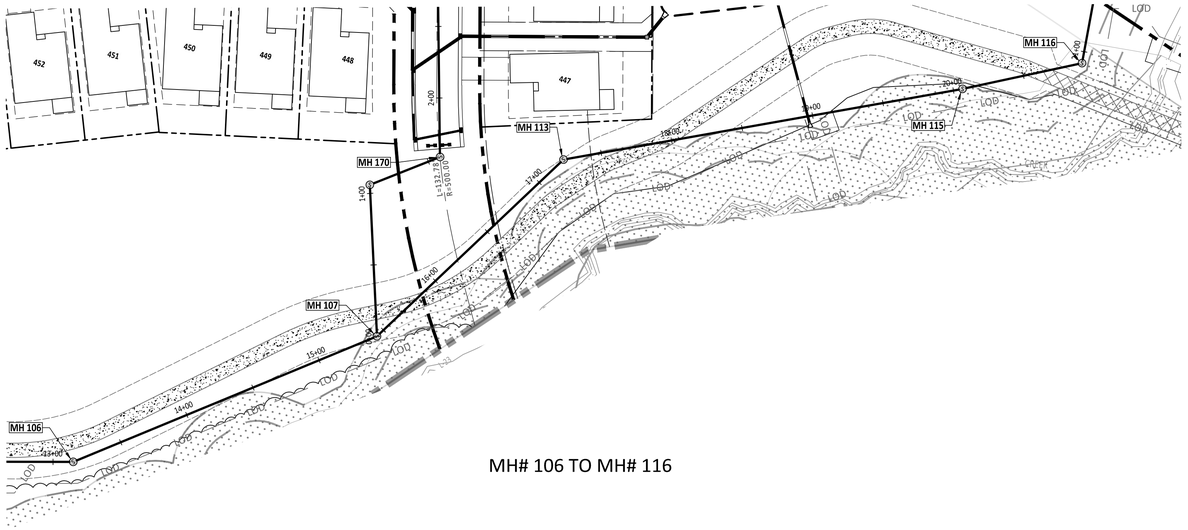
SANITARY SEWER PLAN & PROFILE

SHEET NO.:

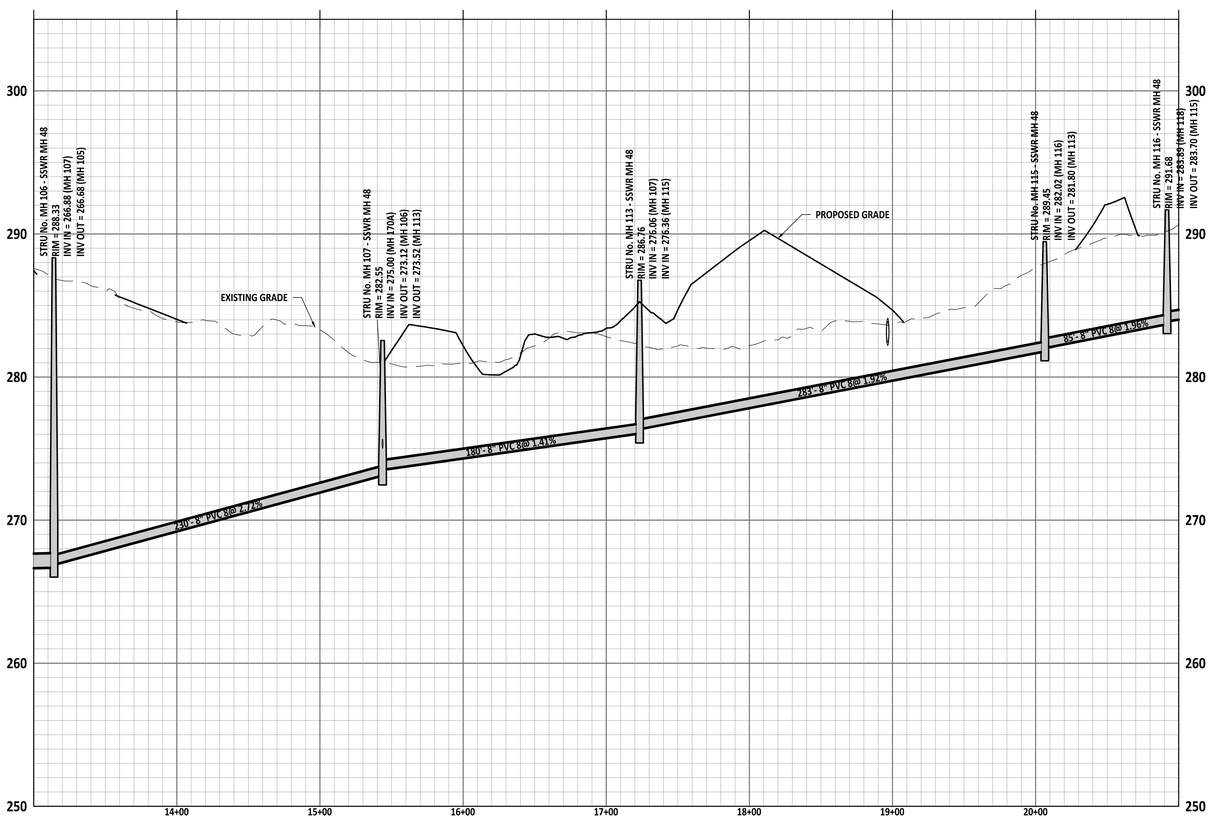
CU-200

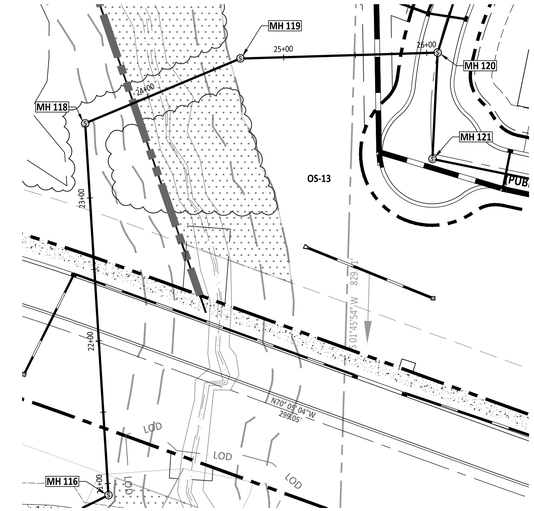
Z:\Jobs\23-0004 Merrit Property BRD\dwg_Working Dwgs\Sheets\Construction Set\CU-200-203 PLAN & PROFILE.dwg

2025-07-01



MH# 106 TO MH# 116

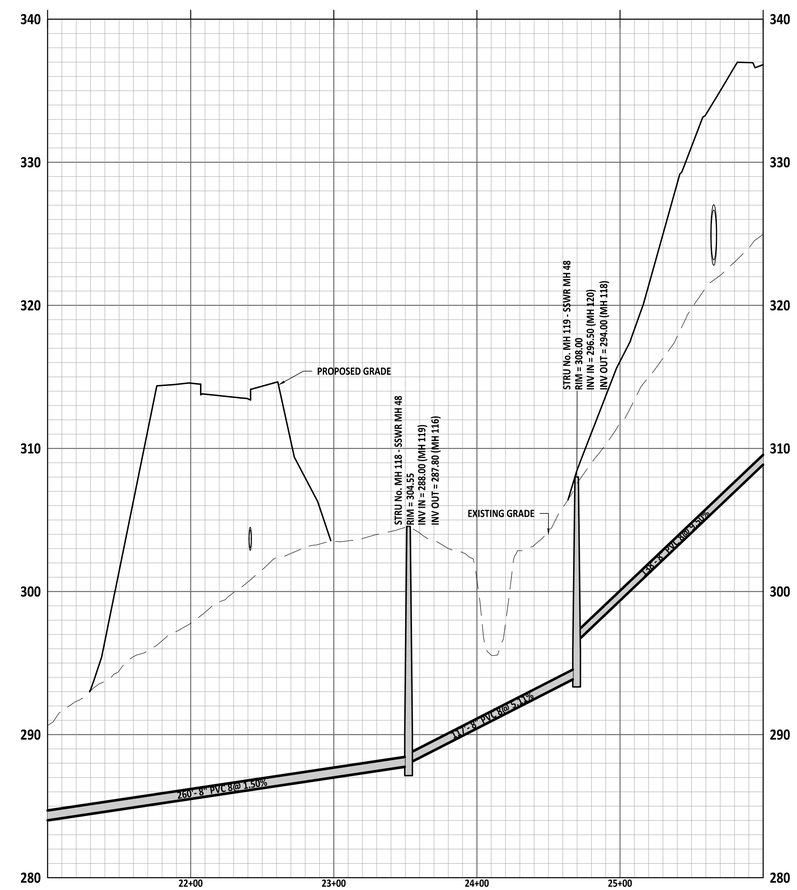




GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft

MH# 117 TO MH# 119



Public
Sewer Collection / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3861 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
PRELIMINARY
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA JACOB P. KLEMME 36528 ENGINEER

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

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MERRITT RESERVE

SANITARY SEWER PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

SANITARY SEWER PLAN & PROFILE

SHEET NO.:

CU-201

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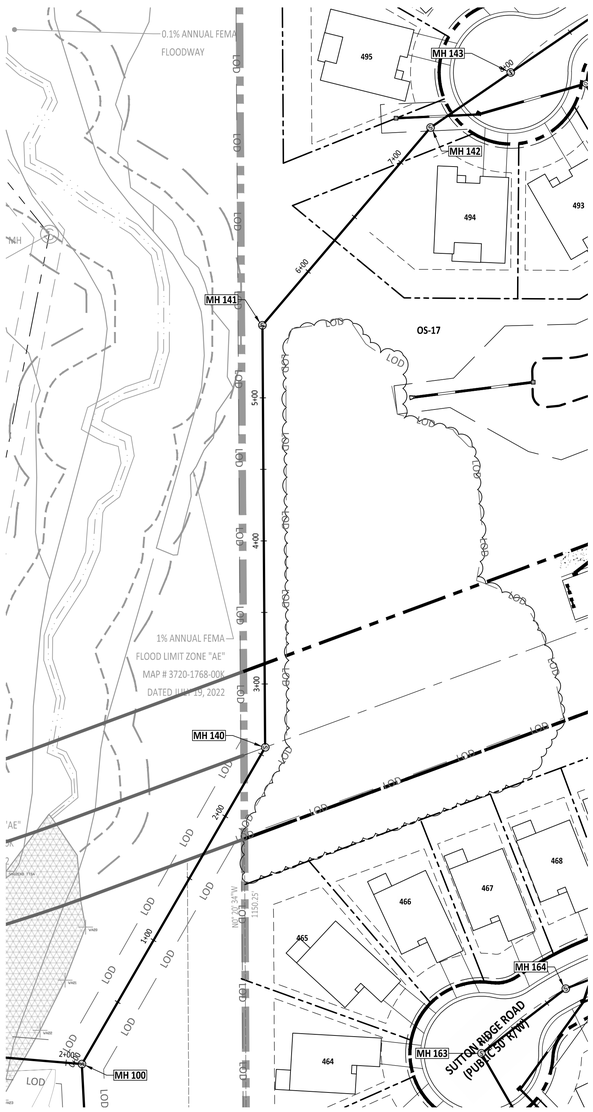
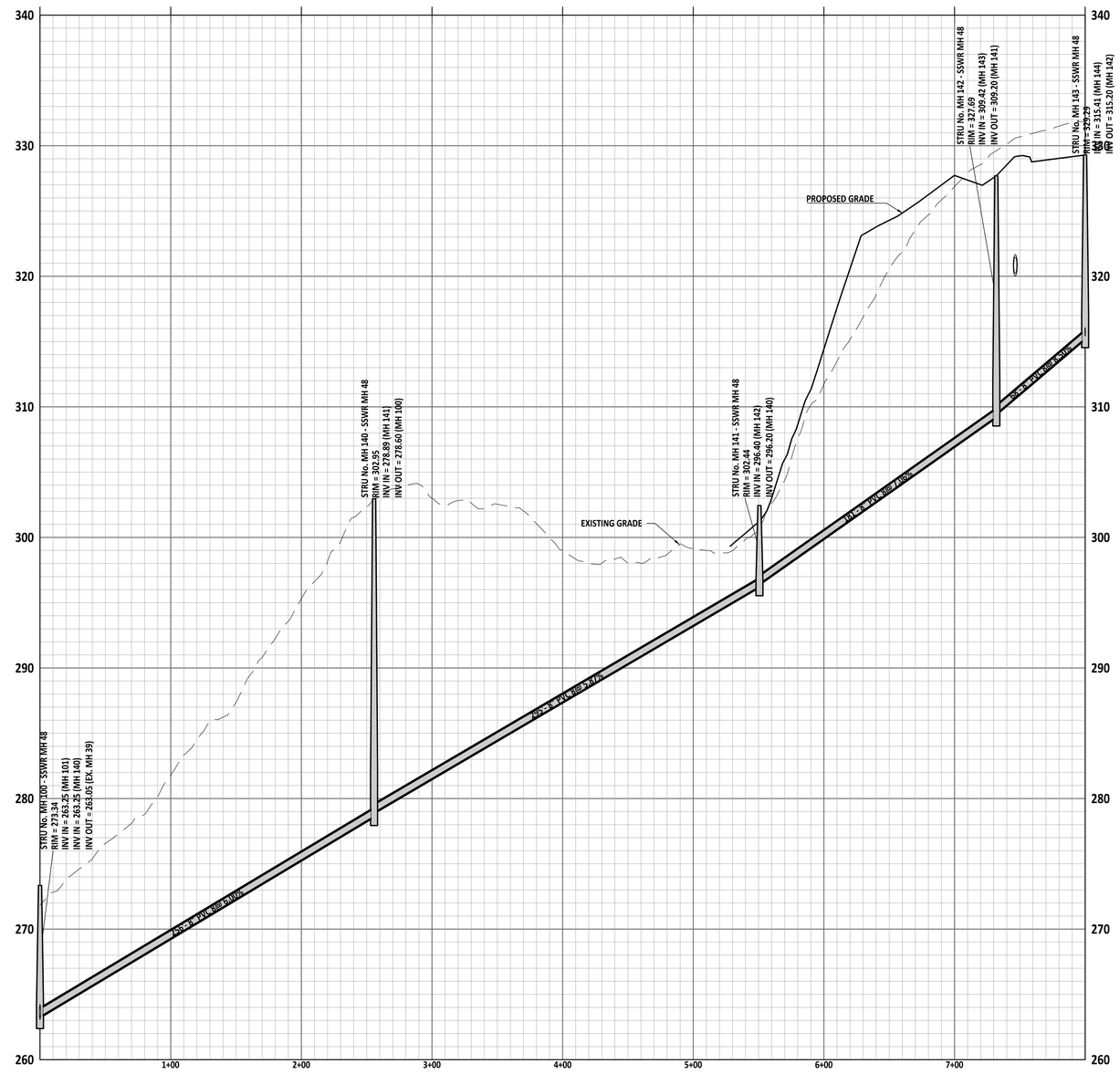
2025-07-01



MH# 100 TO MH# 143



GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
PRELIMINARY
DO NOT USE FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEIN

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

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MERRITT RESERVE

SANITARY SEWER PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

SANITARY SEWER PLAN & PROFILE

SHEET NO.:

CU-202

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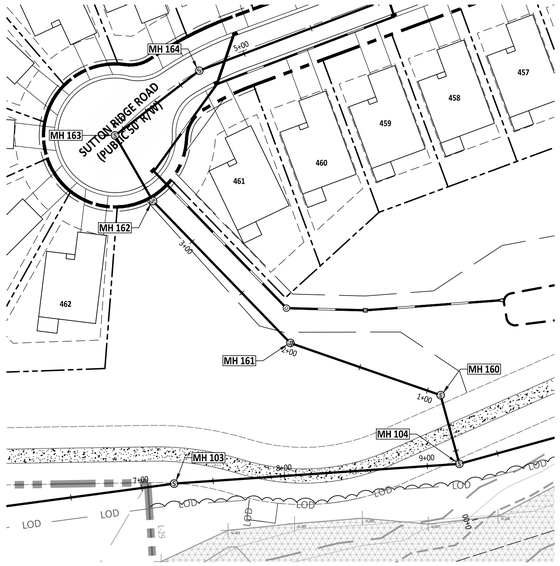
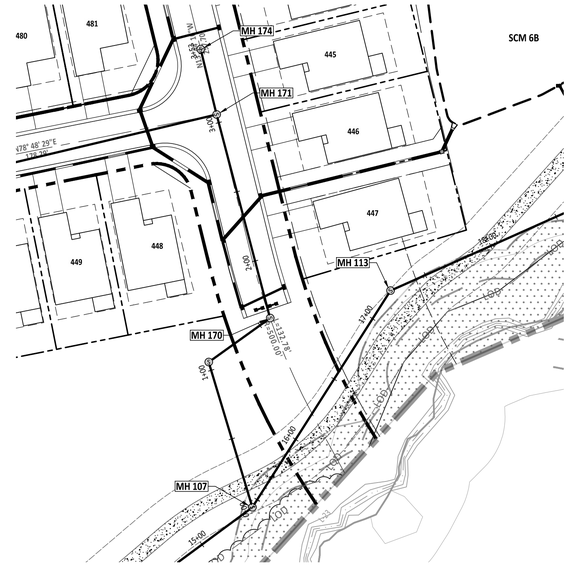
2025-07-01



MH# 104 TO MH# 163



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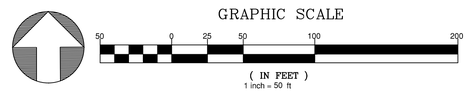

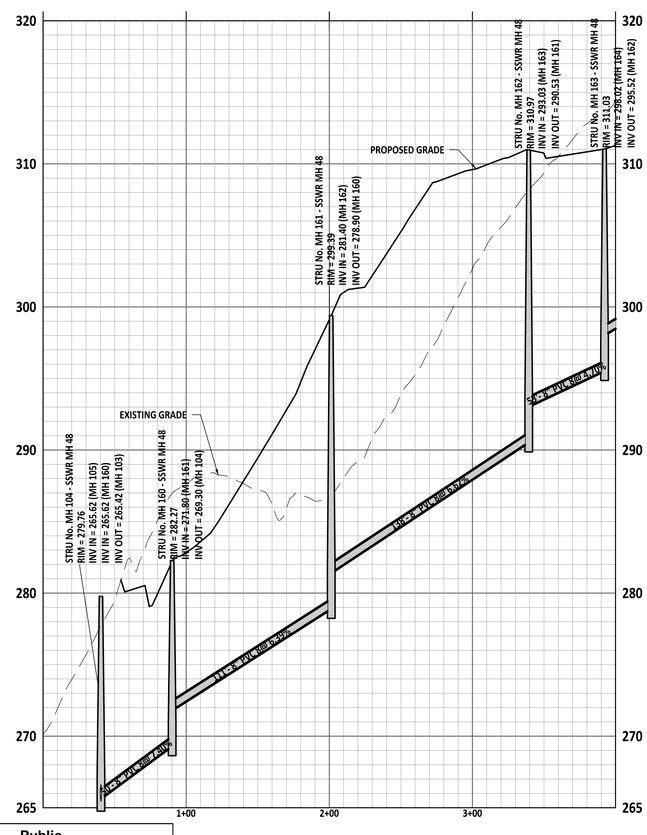

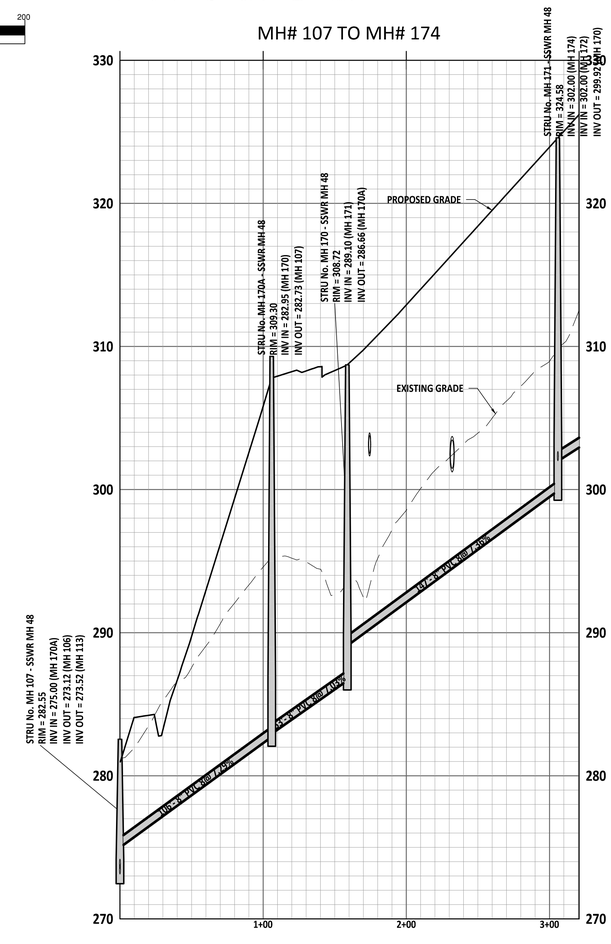

Public
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City of Raleigh
Public Utilities Department Permit # _____

Public
Water Distribution / Extension System
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City of Raleigh
Public Utilities Department Permit # _____

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEIN

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

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MERRITT RESERVE
SANITARY SEWER PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:
SANITARY SEWER PLAN & PROFILE

SHEET NO.:
CU-203

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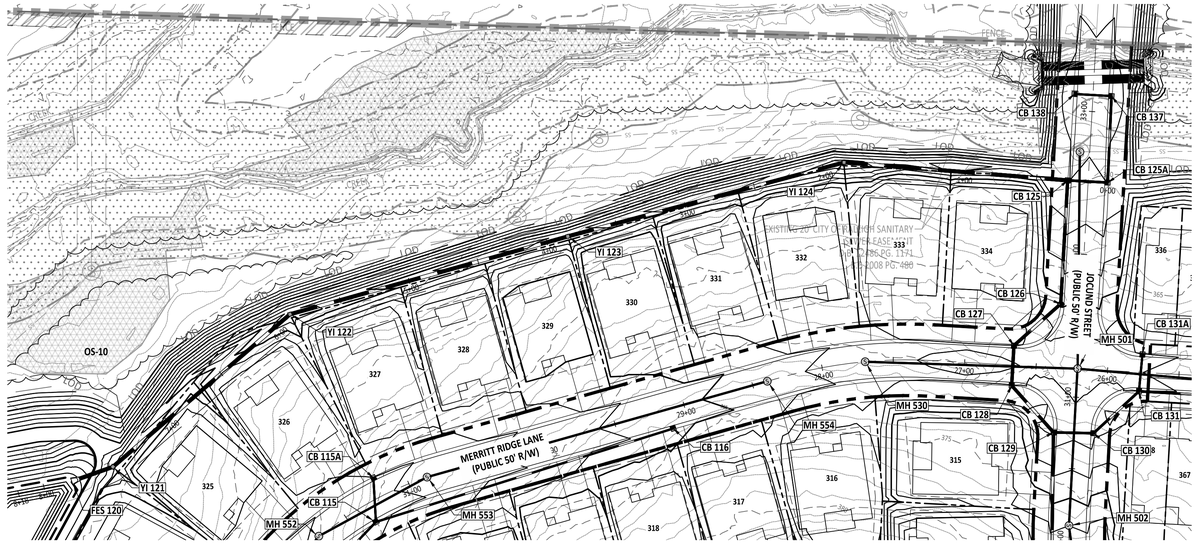
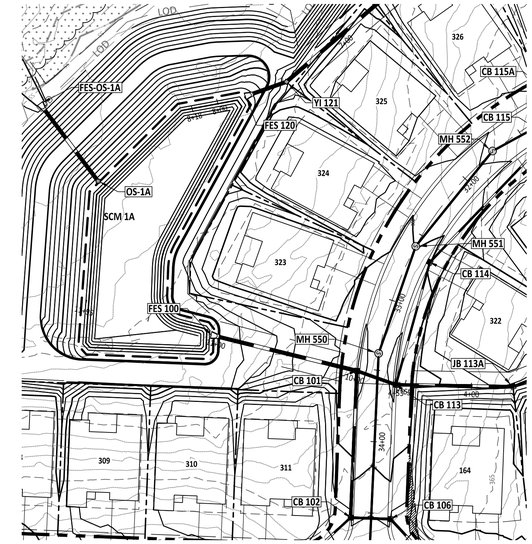
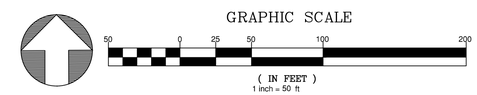
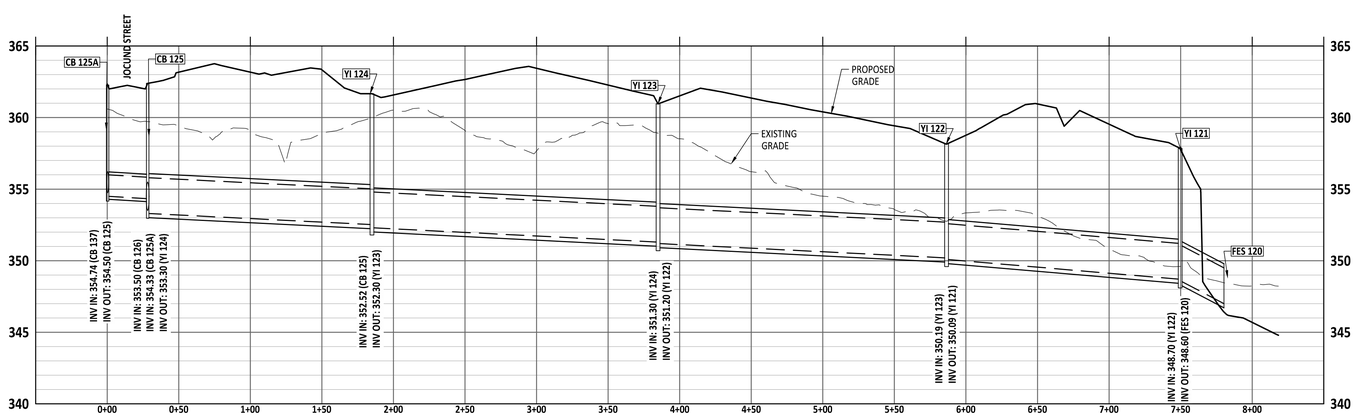
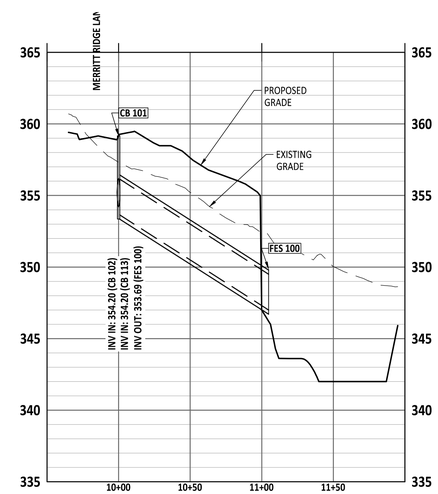
2025-07-01











AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY

NORTH CAROLINA PRELIMINARY 36528 DO NOT USE FOR CONSTRUCTION ENGINEER TAYLOR P. KLEIN

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

STORM OUFALL PLAN & PROFILE

SHEET NO.:

CU-300

PROJECT NUMBER = CID-25-02

North Carolina 811 Call Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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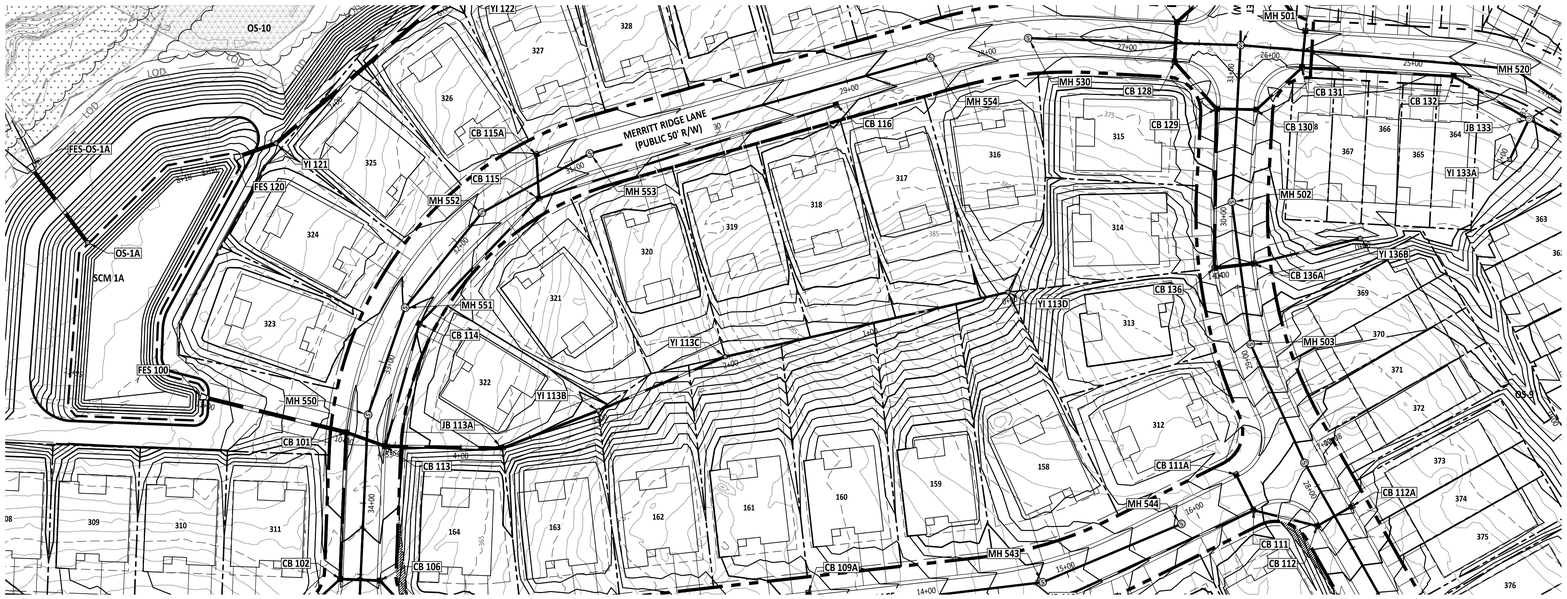
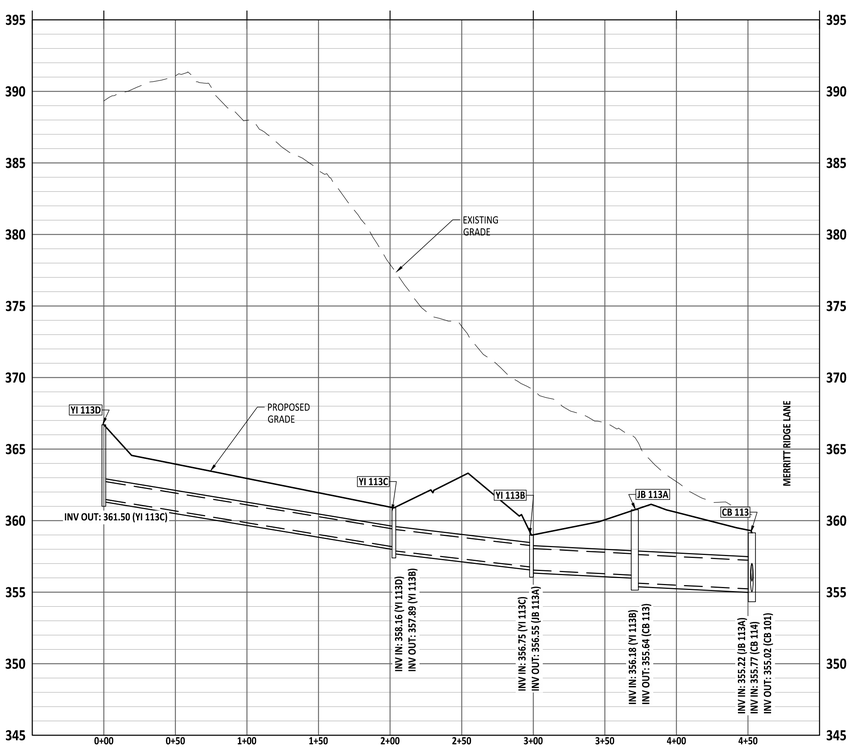
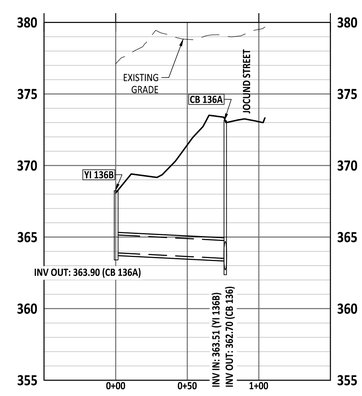
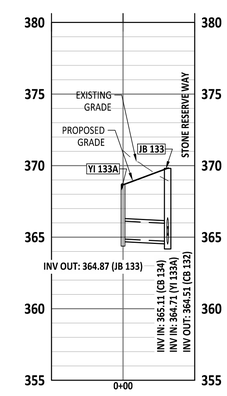
2025-07-02









GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft

PROJECT NUMBER = CID-25-02

North Carolina 811 Call Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 TAYLOR P. KLEIN

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

STORM OUFALL PLAN & PROFILE

SHEET NO.:

CU-301

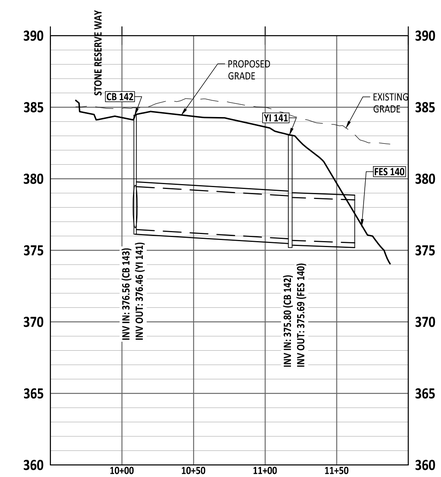
Z:\Jobs\23-0004 Merrit Property BRD\dwg_Working Dwgs\Sheets\Construction Set\CU-300 309 PLAN & PROFILE.dwg

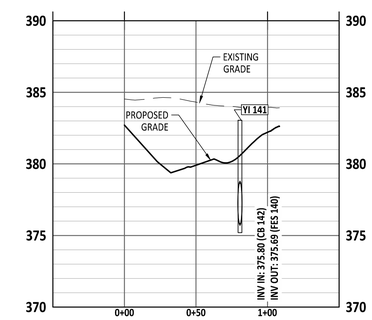
2025-07-02

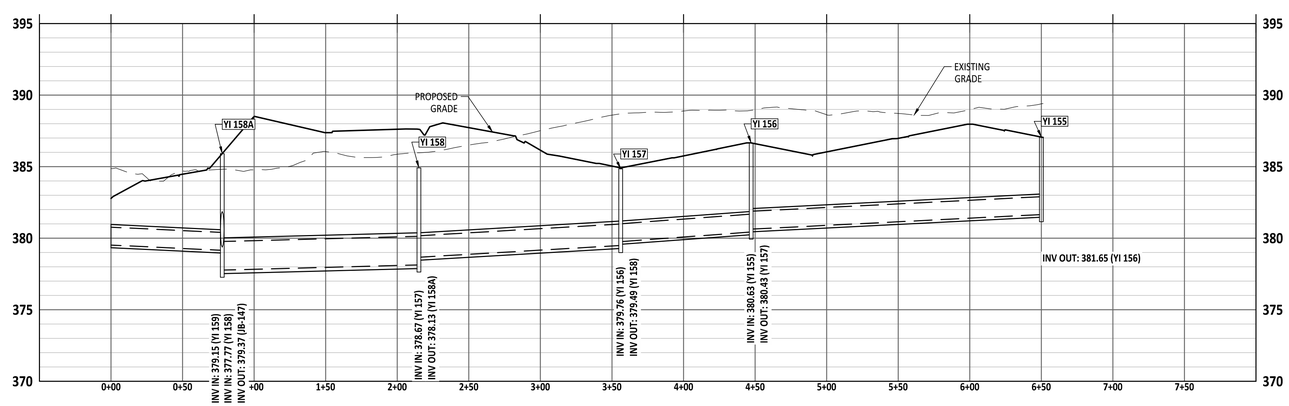
GRAPHIC SCALE

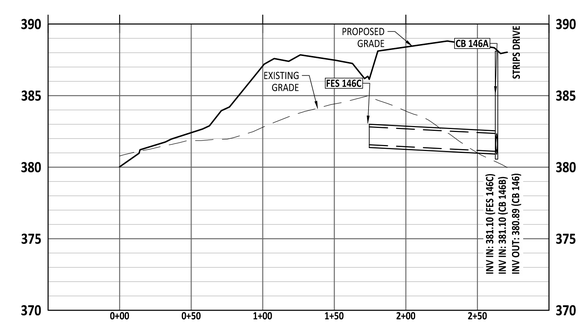
50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft









PROJECT NUMBER = CID-25-02

North 811 Carolina
Call 811 Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION
DO NOT USE FOR CONSTRUCTION
NORTH CAROLINA 36528 ENGINEER JAKOB P. KLEIN
FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

MERRITT RESERVE
STORM OUTFALL PLAN & PROFILE
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:
STORM OUFALL PLAN & PROFILE

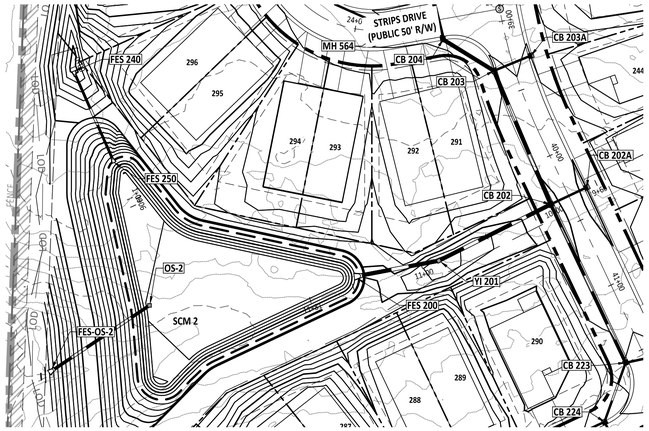
SHEET NO.:
CU-302

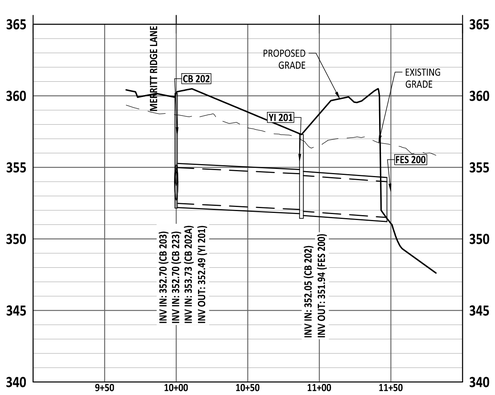
Z:\Jobs\23-0004 Merrit Property BRP\Dwg_Working Dwgs\Sheets\Construction Set\Cds_CU-300-309 PLAN & PROFILE.dwg
2025-07-02

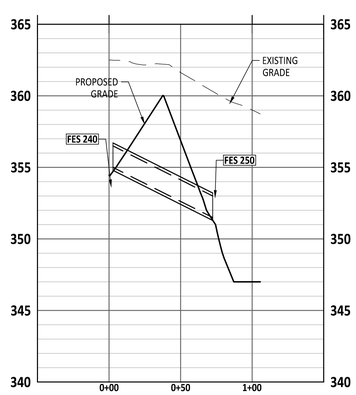
GRAPHIC SCALE

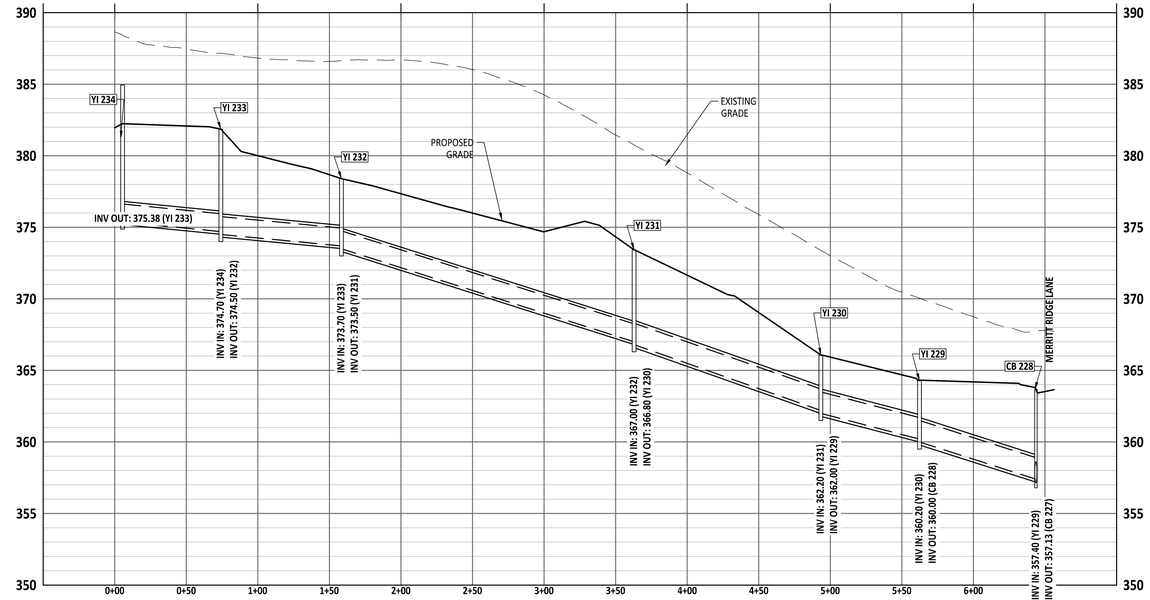
50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft









PROJECT NUMBER = CID-25-02

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4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA
AMERICAN ENGINEERING ASSOCIATES SOUTHEAST
C-3881
CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION

NORTH CAROLINA
PROFESSIONAL SEAL
036528
ENGINEER
JAKOB P. KLEIN

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

STORM OUFALL PLAN & PROFILE

SHEET NO.:

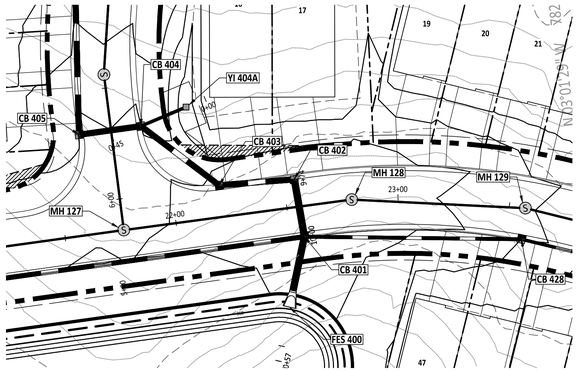
CU-303

North Carolina 811 Call Before You Dig!

*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merrit Property BRD\Dwg_Working Dwgs\Sheets\Construction Set\CU_CU-300-309 PLAN & PROFILE.dwg

2025-07-02



GRAPHIC SCALE

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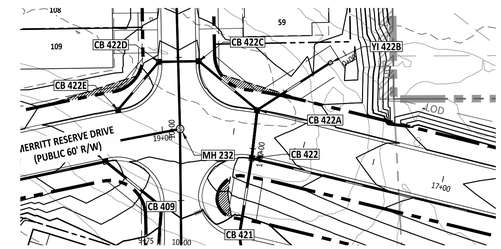
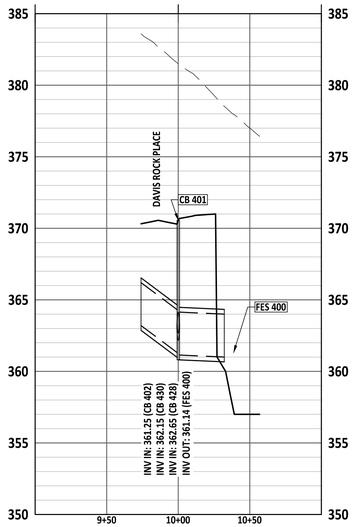
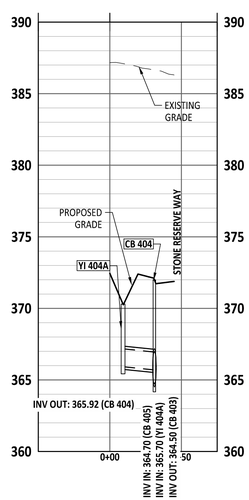
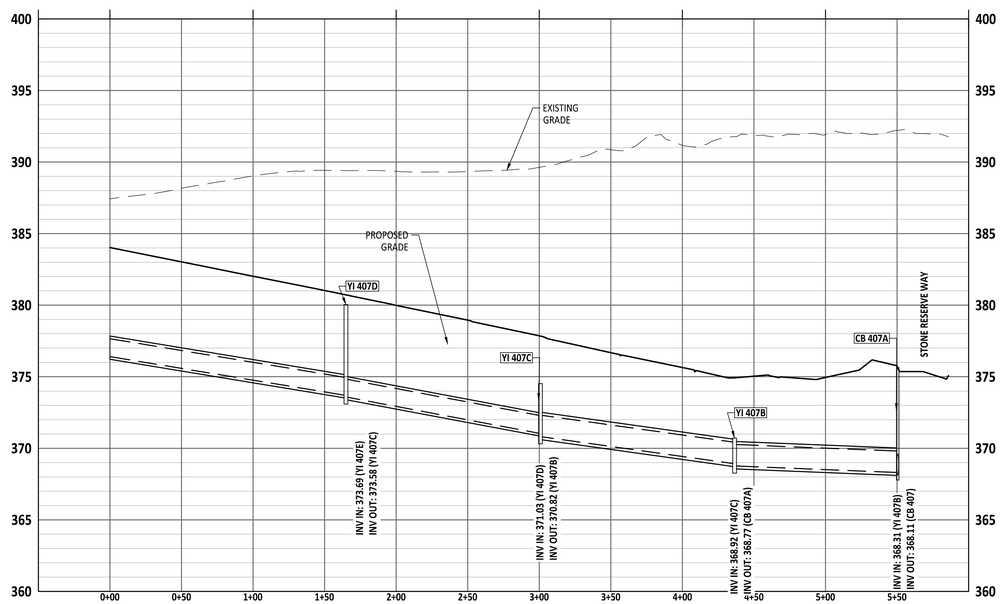
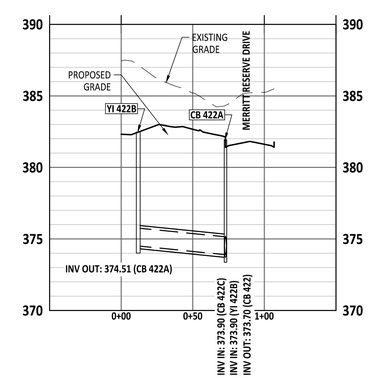
(IN FEET)
1 inch = 50 ft











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NORTH CAROLINA PROFESSIONAL SEAL 36528 ENGINEER JACOB P. KLEIN

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MERRITT RESERVE

STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

STORM OUFALL PLAN & PROFILE

SHEET NO.:

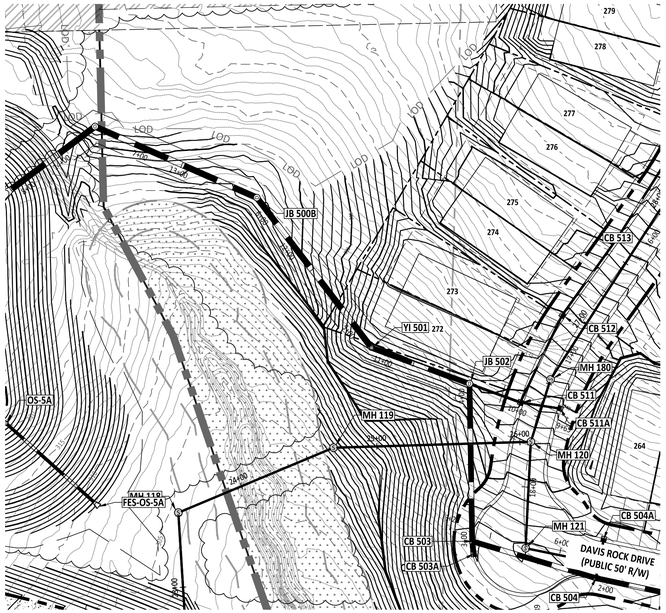
CU-304

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merritt Property 689\dwg_Working Dwgs\Sheets\Construction Set\Sts. CU-300-309 PLAN & PROFILE.dwg

2025-07-02



GRAPHIC SCALE

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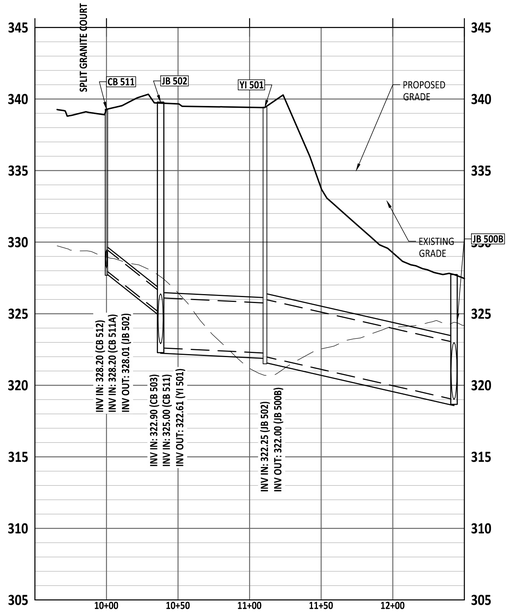
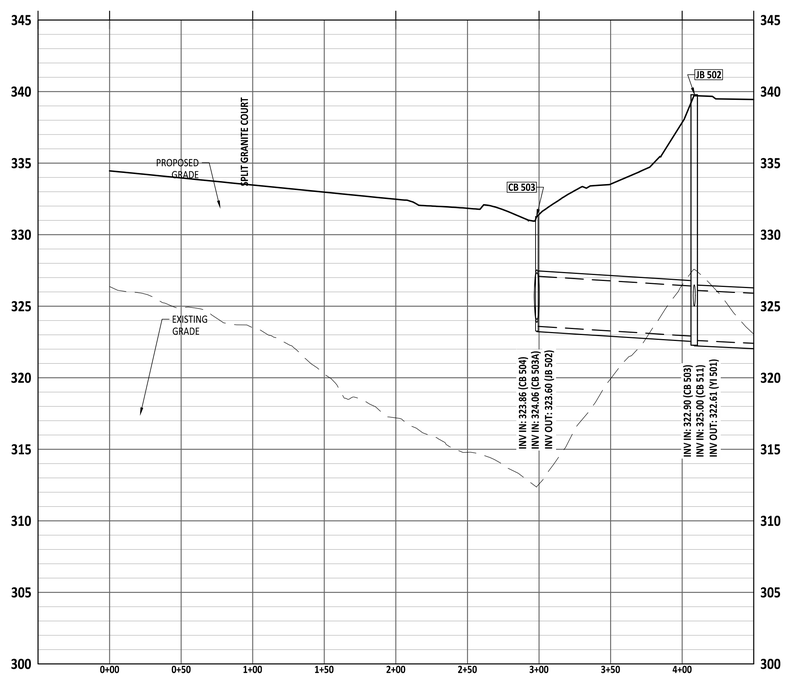
(IN FEET)
1 inch = 50 ft





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NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL
036528
TAYLOR P. KLEIN

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STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
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DATE:	05/01/2025

SHEET TITLE:

STORM OUFALL PLAN & PROFILE

SHEET NO.:

CU-305

North Carolina 811 Call Before You Dig!
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

PROJECT NUMBER = CID-25-02

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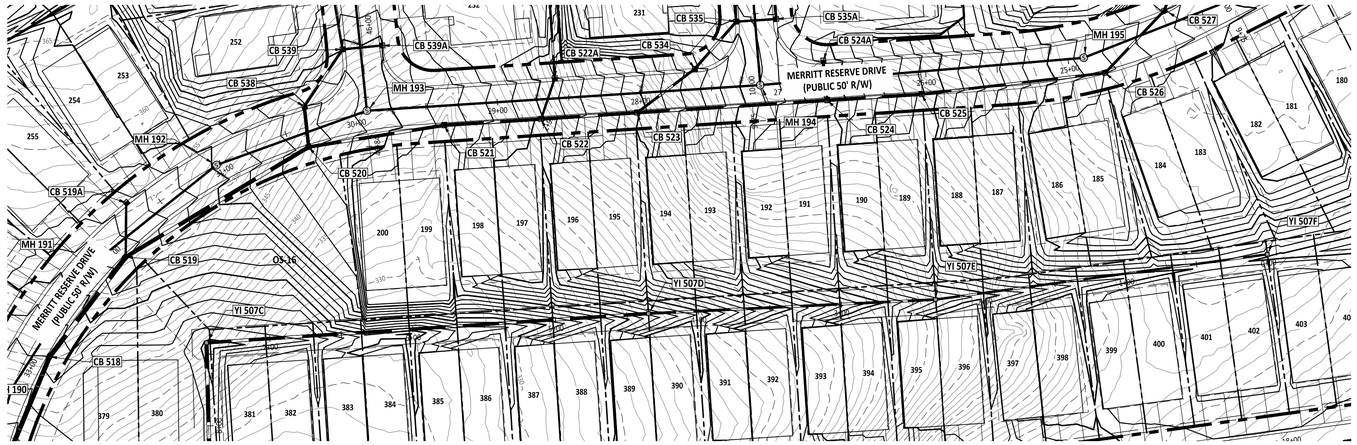
2025-07-02



GRAPHIC SCALE

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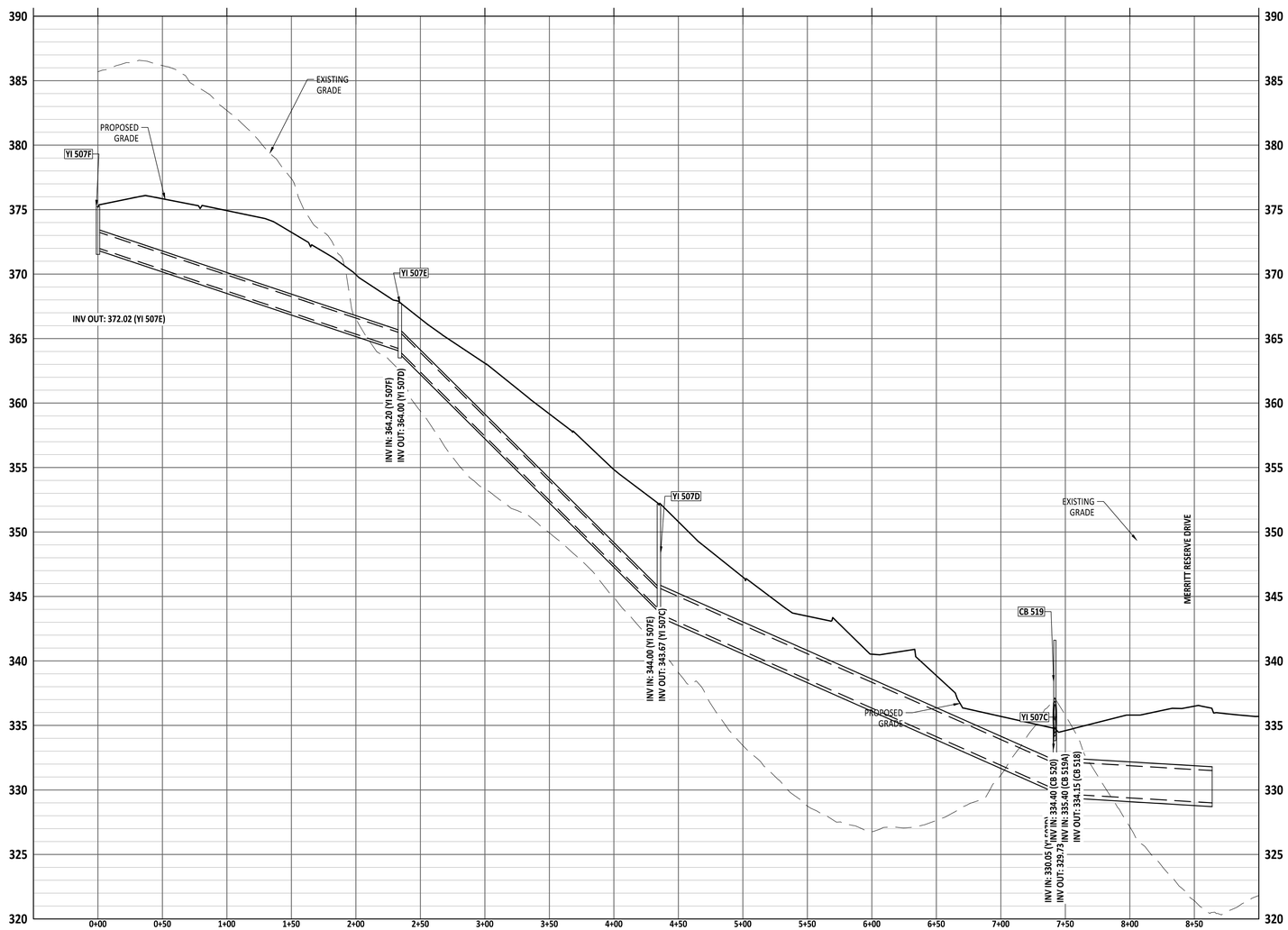
(IN FEET)
1 inch = 50 ft



PROJECT NUMBER = CID-25-02

North Carolina 811 Call 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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NORTH CAROLINA PROFESSIONAL SEAL 36528 ENGINEER JAKOB P. KLEM

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STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
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DATE:	05/01/2025

SHEET TITLE:

STORM OUFALL PLAN & PROFILE

SHEET NO.:

CU-306

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2025-07-02

GRAPHIC SCALE

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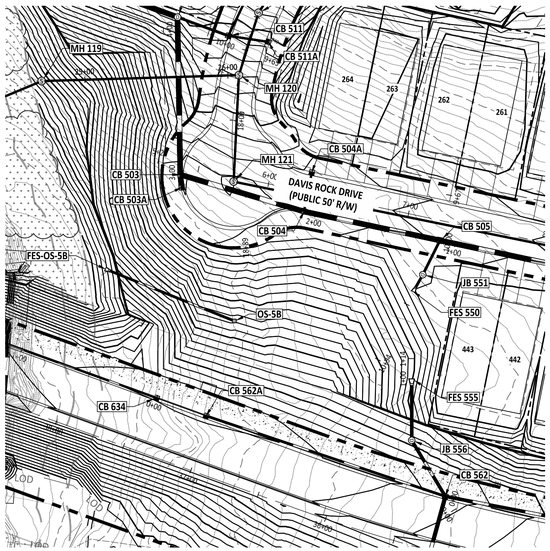
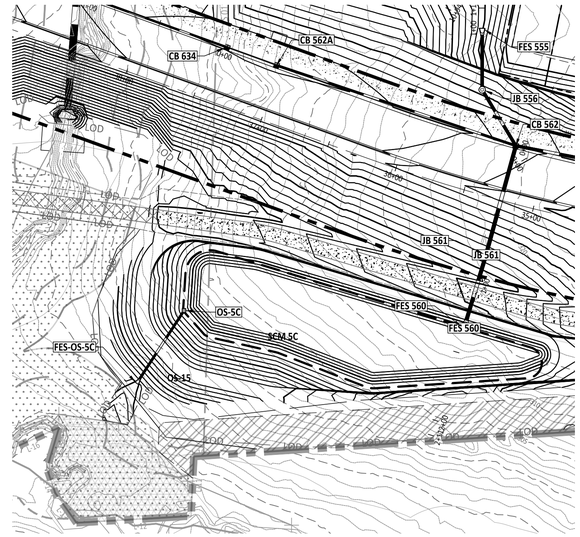
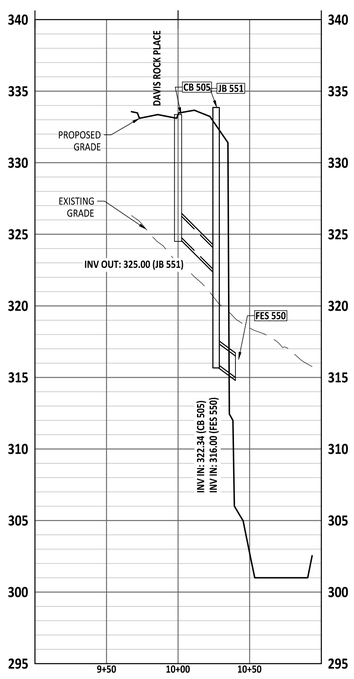
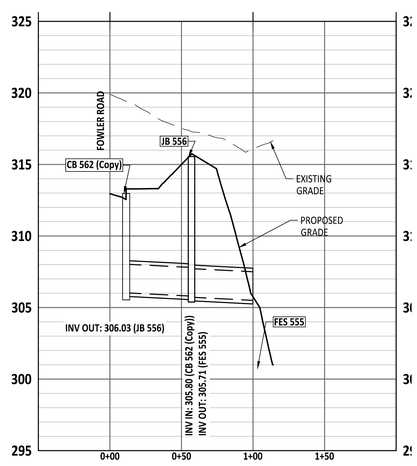
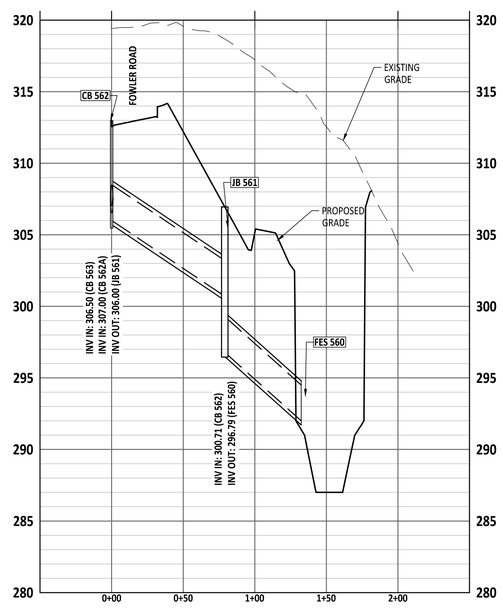
(IN FEET)
1 inch = 50 ft











PROJECT NUMBER = CID-25-02

North Carolina 811 Call 8 Days Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 TAYLOR P. KLEIN

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1	07-01-25	FIRST REVISION SET

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STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

STORM OUFALL PLAN & PROFILE

SHEET NO.:

CU-307

Z:\Jobs\23-0004 Merrit Property (BRD)\dwg_Working Dwgs\Sheets\Construction Set\50s_CU-300-309 PLAN & PROFILE.dwg

2025-07-02

GRAPHIC SCALE

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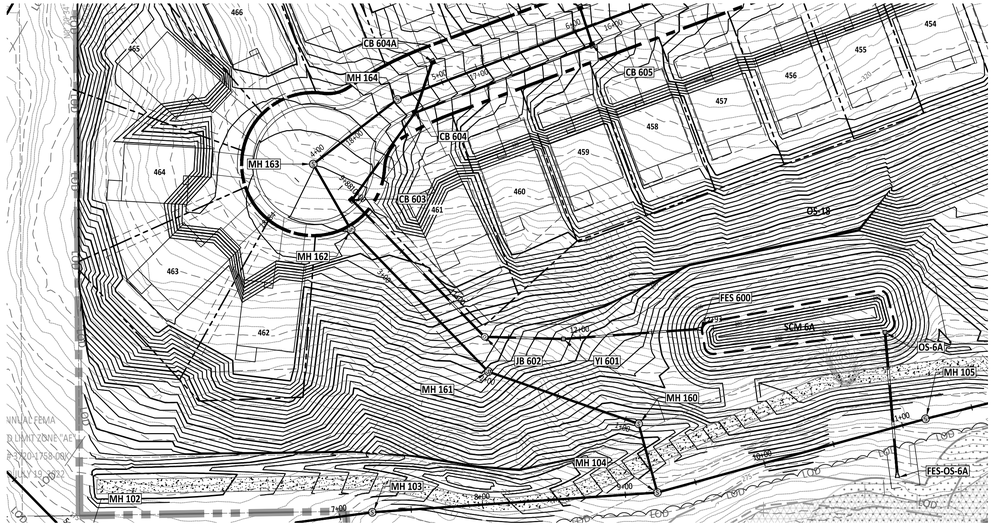
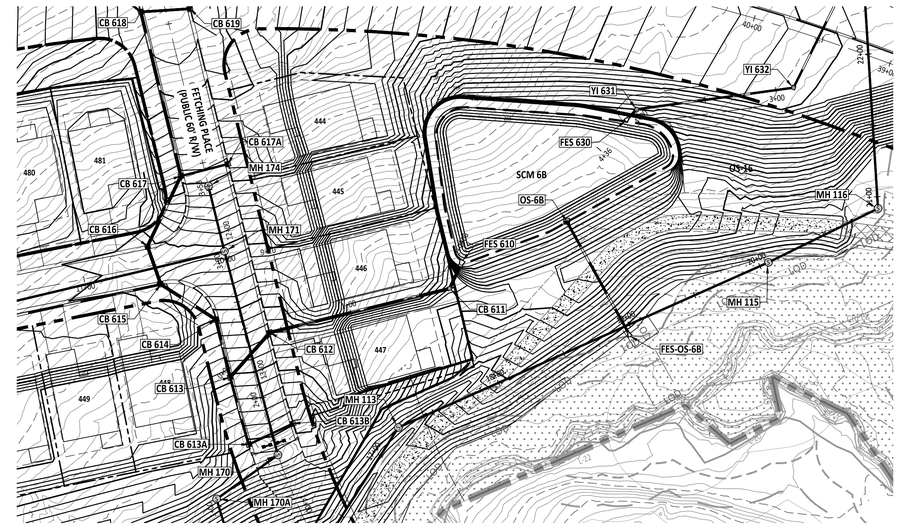
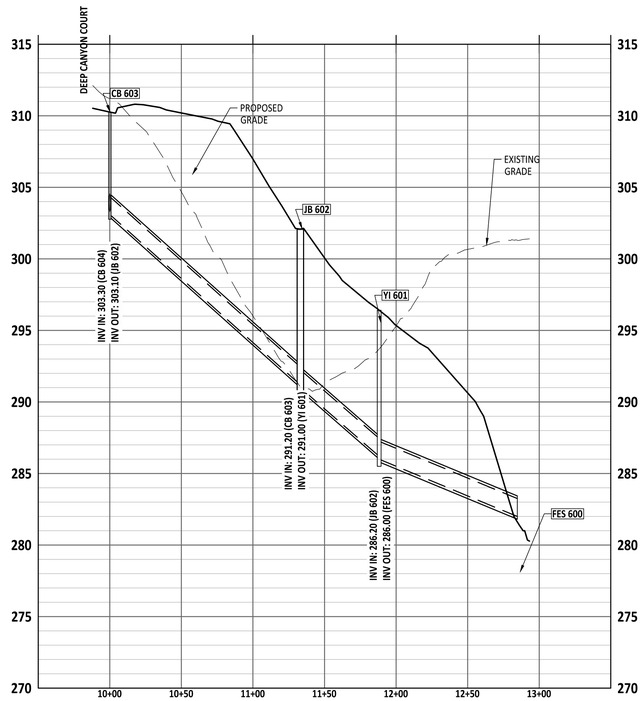
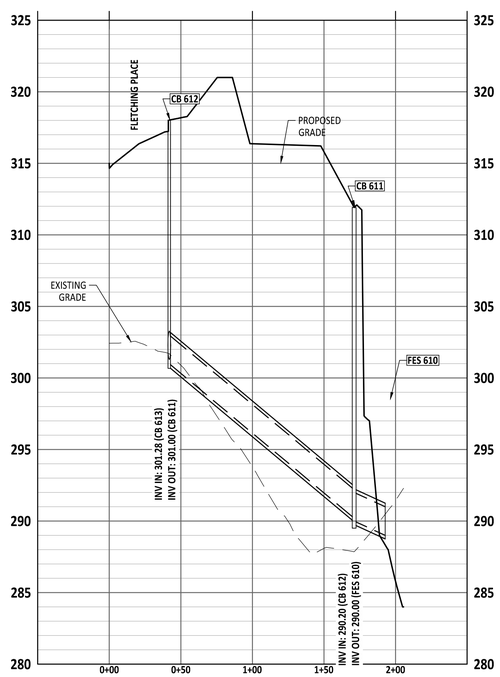
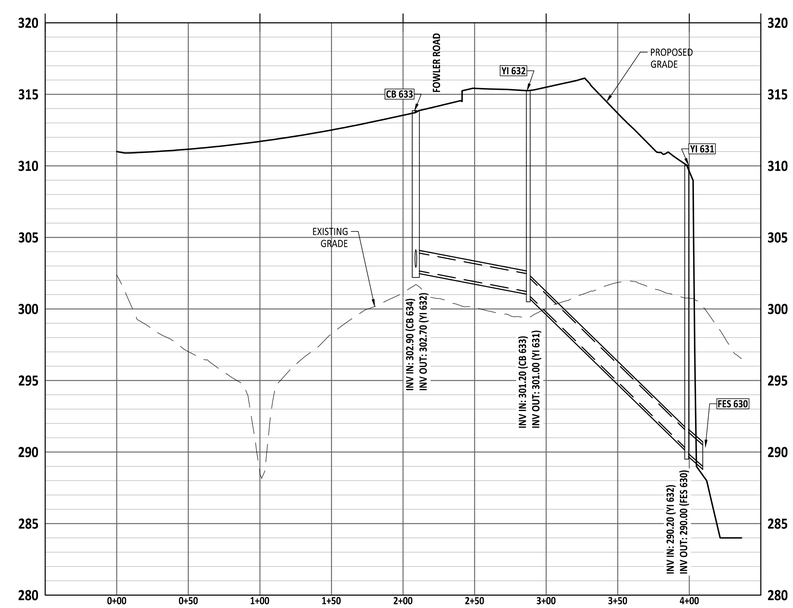
(IN FEET)
1 inch = 50 ft











PROJECT NUMBER = CID-25-02

North Carolina 811
811 or 1-800-632-4949
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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PRELIMINARY
NORTH CAROLINA
36528
ENGINEER
JAKOB P. KLEIN
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STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
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DATE:	05/01/2025

SHEET TITLE:

STORM OUFALL PLAN & PROFILE

SHEET NO.:

CU-308

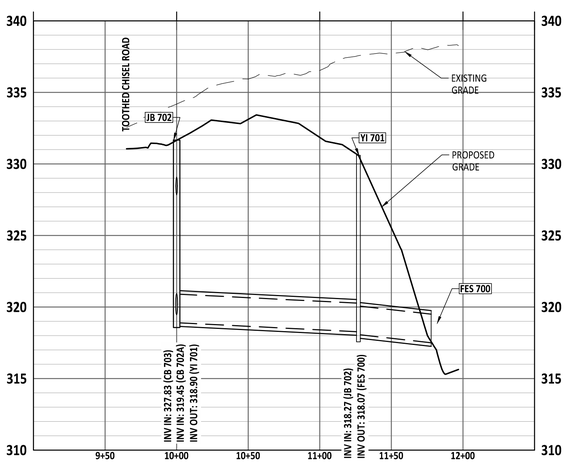
Z:\Jobs\23-0004 Merrit Property (BRD)\dwg_Working Dwgs\Sheets\Construction Set\CUs, CU-300-309 PLAN & PROFILE.dwg

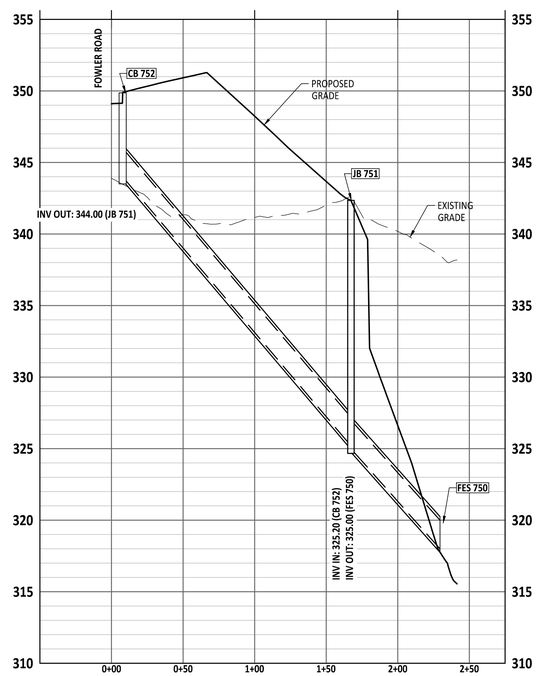
2025-07-02

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft





PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JACOB P. KLEM

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STORM OUTFALL PLAN & PROFILE

ROLESVILLE RD
WAKE COUNTY NC 27312

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DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:

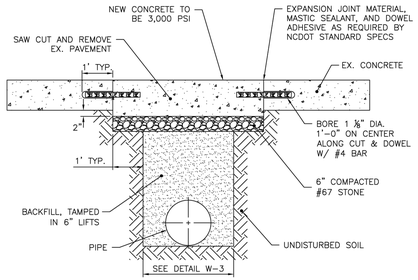
STORM OUFALL PLAN & PROFILE

SHEET NO.:

CU-309

Z:\Jobs\23-0004 Merrit Property (BRD)\dwg_Working Dwgs\Sheets\Construction Set\CU-300-309 PLAN & PROFILE.dwg

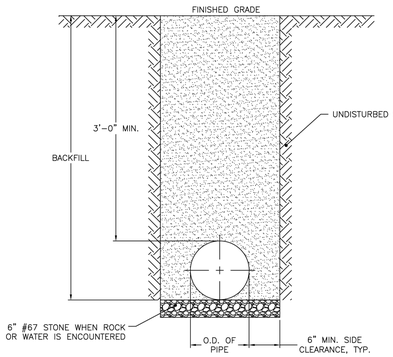
2025-07-02



NOTES:
1. SEE DETAIL W-3 FOR ADDITIONAL TRENCH AND PIPE BEDDING DETAILS.
2. PAVEMENT CUTS WITHIN NCDOT ROW SHALL CONFORM TO THE APPROVED ON SITE ENCROACHMENT PERMIT.
3. THE PAVEMENT CUT SHALL BE DEFINED BY A STRAIGHT EDGE AND CUT WITH AN APPROVED SAW CUT MACHINE.
4. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T 99 AS MODIFIED BY NCDOT.
5. THE FINAL 6" OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO AT LEAST 100% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T 180 AS MODIFIED BY NCDOT.

CITY OF RALEIGH
STANDARD DETAIL

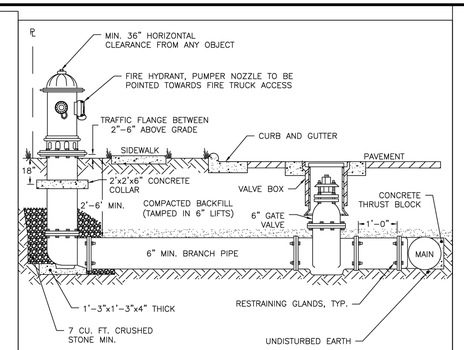
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD CONCRETE PAVEMENT PATCH	
	W-1	



NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.

CITY OF RALEIGH
STANDARD DETAIL

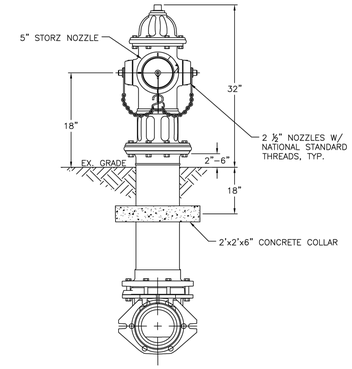
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR DUCTILE IRON	
	W-3	



NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY OR CLOW.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150.
3. 6" GATE VALVE SHALL BE AWWA C500 OPEN LEFT.
4. RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL.
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION.
6. RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE.
7. FIRE HYDRANTS TO BE LOCATED IN ROW OR 2.5 FOOT EASEMENT (ON ALL SIDES OF HYDRANT) FOOT EASEMENT ADJACENT TO ROW.
8. ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

CITY OF RALEIGH
STANDARD DETAIL

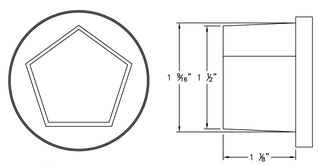
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD FIRE HYDRANT INSTALLATION (RESTRAINT GLANDS)	
	W-4	



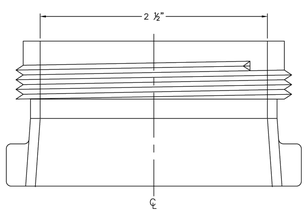
NOTES:
1. ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
2. ALL PRIVATE FIRE HYDRANTS SHALL BE RED.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE	
	W-5	



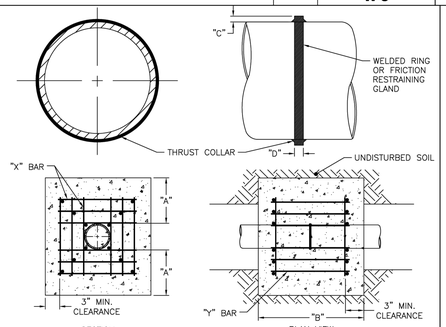
1 9/16" OPERATION NUT



2 ½" NATIONAL STANDARD OUTLET THREADS

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	HYDRANT OPERATING NUT AND 2 ½" OUTLET THREADS	
	W-6	



REINFORCING REQUIREMENTS

I.D. PIPE	REBAR SIZE	"X" BAR LENGTH	"X" BAR WEIGHT	"Y" BAR LENGTH	"Y" BAR WEIGHT	NO. REQUIRED
6"–36"	#5	2'-2"+ O.D. PIPE	1.043 LBS/FT	1'-1"	1.1 LBS. EACH	X–24 Y–12
≥48"	#6	3'-0"+ O.D. PIPE	1.502 LBS/FT	1'-3"	1.9 LBS. EACH	X–24 Y–12

THRUST COLLAR AND THRUST SCHEDULE

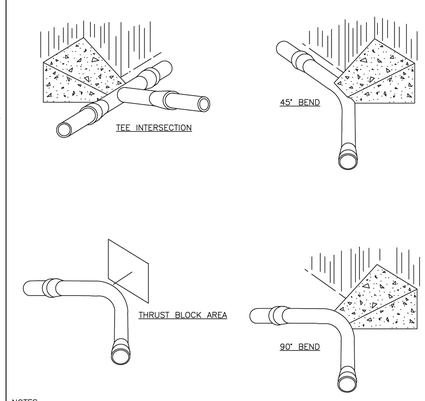
I.D. PIPE	"A"	"B"	"C"	"D"
6"–16"	1'-4"	1'-7"	2"	⅜"
20"–24"	1'-4"	1'-7"	3"	½"
30"–36"	1'-4"	1'-7"	4"	⅝"
≥48"	1'-8"	1'-9"	6"	⅞"

NOTES:
1. SEE DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
2. CONCRETE SHALL BE 3,000 PSI AND TRANSIT MIXED.
3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON DETAIL W-3.
5. BACKFILL TAMPED IN 6" LIFTS, SEE DETAIL W-3.
6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	THRUST BLOCKING DESIGN DATA FOR WATER MAINS	
	W-7	

THRUST BLOCKING



NOTES:
1. CONCRETE SHALL BE 3,000 PSI.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. TRENCHES SHALL CONFORM TO DETAIL W-3.
4. SEE DETAIL W-10 & W-11 (THRUST BLOCK TABLES) FOR AREA OF CONCRETE REQUIRED.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	THRUST BLOCKING VIEWS	
	W-9	

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS BASED ON TEST PRESSURE OF 200 PSI

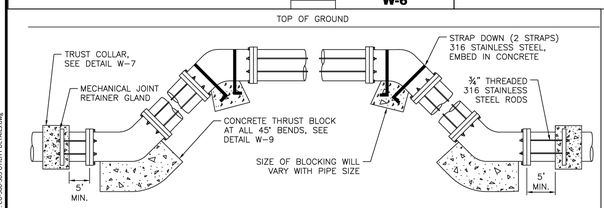
ALL AREAS GIVEN IN SQUARE FEET

SIZE OF BEND	DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4,000 LBS/FT²	SOFT CLAY 2,000 LBS/FT²	1,600 LBS/FT² GRAVEL/ COARSE SAND	8,000 LBS/FT² DRY CLAY (ALWAYS DRY)	SAND, COMPACT FIRM 8,000 LBS/FT²	SAND–CLEAN DRY 4,000 LBS/FT²	SOIL 1,000 LBS/FT² QUICKSAND (VERY POOR)	ROCK–POOR 10,000 LBS/FT²
6"	11 ¼°	1,108	1	1	1	1	1	1	2	1
	22 ½°	2,207	1	2	2	1	1	1	3	1
	45°	4,328	2	3	3	1	1	2	5	1
	90°	7,996	2	4	5	1	1	2	8	1
	PLUG	5,655	2	3	4	1	1	2	6	1
8"	11 ¼°	1,970	1	1	2	1	1	1	2	1
	22 ½°	3,922	1	2	3	1	1	1	4	1
	45°	7,694	2	4	5	1	1	2	8	1
	90°	14,215	4	8	9	2	2	4	15	2
	PLUG	10,053	3	5	6	2	2	3	10	1
12"	11 ¼°	4,433	2	3	3	1	1	2	5	1
	22 ½°	8,826	3	5	6	2	2	3	9	1
	45°	17,312	5	9	11	3	3	5	18	2
	90°	31,983	8	16	19	4	4	8	32	4
	PLUG	22,619	6	12	14	3	3	6	23	3
16"	11 ¼°	7,881	2	4	5	1	1	2	8	1
	22 ½°	15,691	4	8	10	2	2	4	16	2
	45°	30,779	8	16	19	4	4	8	31	4
	90°	56,861	15	29	35	8	8	15	57	6
	PLUG	40,213	10	21	25	5	5	10	41	5

NOTES:
1. REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.
2. USE 6" 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	THRUST BLOCKING DESIGN QUANTITY TABLE	
	W-10	



ROD REQUIREMENTS

SIZE OF 45° BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

STRAP REQUIREMENTS

STRAP WIDTH	STRAP THICKNESS
1"	3/16"
1.5"	3/16"
2"	¼"
2"	½"
4"	½"

RESTRAINT REQUIREMENTS

PIPE DIA	RODDING	RJ GLANDS	THRUST COLLAR	THRUST BLOCKING
<12"	X	X	X	
≥12"	X	X	X	X

"X" DENOTES REQUIRED RESTRAINT.

NOTES:
1. STEEL RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
5. 3' MINIMUM COVER MUST BE MAINTAINED.
6. EXTERNAL RESTRAINT REQUIRED. INTEGRAL BELL RESTRAINT REQUIRES DIRECTOR'S APPROVAL.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD VERTICAL BEND	
	W-12	

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2025-07-01

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEE

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

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MERRITT RESERVE
UTILITY DETAILS
ROLESVILLE RD
WAKE COUNTY NC 27312

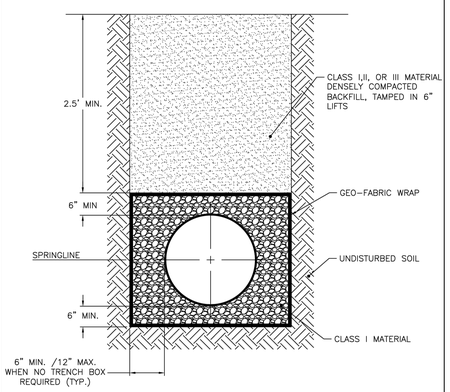
JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:
UTILITY DETAILS

SHEET NO.: **CU-500**

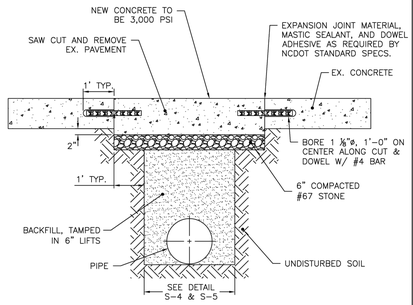
PROJECT NUMBER = CID-25-02

North Carolina 811 Call Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm



CITY OF RALEIGH
STANDARD DETAIL

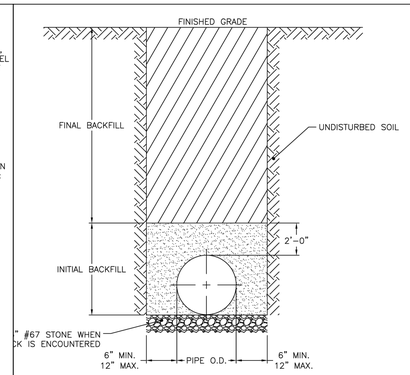
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD BEDDING DETAIL FOR CCFRPM PIPES	
	S-1	



NOTES:
1. SEE DETAIL S-4 & S-5 FOR ADDITIONAL TRENCH AND PIPE BEDDING DETAILS.
2. PAVEMENT CUTS OVER 5'-0" IN WIDTH SHALL BE REINFORCED TO NCDOT OR MERGER COMMUNITY STANDARDS.
3. PAVEMENT CUTS SHALL BE MADE WITH AN APPROPRIATE SAW CUT MACHINE.
4. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T 99 AS MODIFIED BY NCDOT.
5. THE FINAL 6" OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO AT LEAST 100% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T 180 AS MODIFIED BY NCDOT.

CITY OF RALEIGH
STANDARD DETAIL

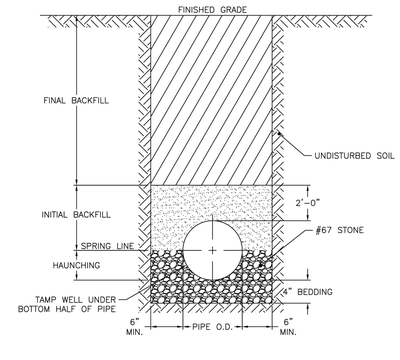
REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	STANDARD CONCRETE PAVEMENT PATCH	
	S-2	



ES:
FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
ACHIEVE 80% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
IF IN EASEMENT, 4" TOPSOIL AND 12" CLEAN SELECT FILL MAY BE REQUIRED.
NO BOULDERS 8" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON	
	S-4	

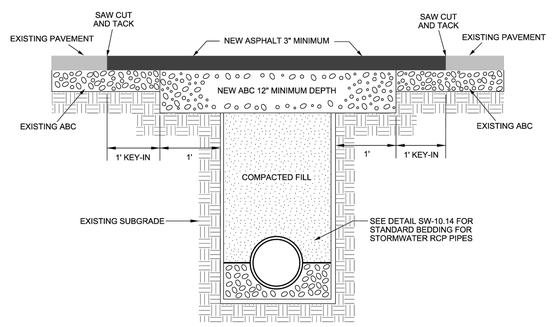


TYPICAL TRENCH BOTTOM DIMENSIONS FOR SDR 35 PVC GRAVITY PIPE

NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS, 4" OR LARGER, TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/18/2025	NOT TO SCALE
	TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN	
	S-5	

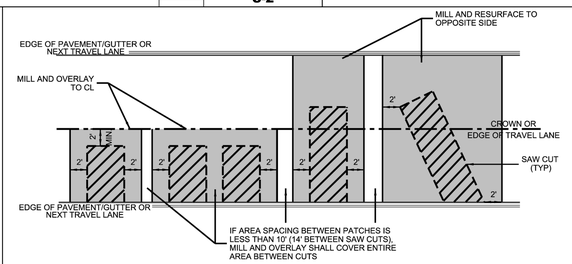


NOTES:
1. THE PAVEMENT EDGE SHALL BE DEFINED BY A STRAIGHT EDGE FORMED BY A MACHINED SAW CUT.
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT.
3. THE FINAL 1' OF FILL SHALL CONSIST OF ABC MATERIAL COMPACTED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT. BITUMINOUS BASE OR BINDER MAY BE SUBSTITUTED IF APPROVED BY TRANSPORTATION DIRECTOR OR DESIGNEE.
4. THE ENTIRE THICKNESS/VERTICAL EDGE OF THE CUT SHALL BE TACKED.
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK.
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED AND COMPACTED THOROUGHLY AND ROLLED WITH A SMOOTH DRUM ROLLER TO ACHIEVE A SMOOTH, LEVEL PATCH.

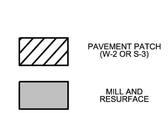
SHEET 1 OF 2

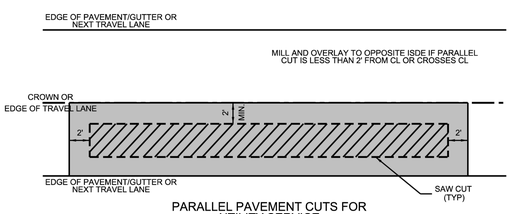
CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 8/2020	NOT TO SCALE
DATE: 08/2023	ASPHALT PAVEMENT PATCH AND RCP PIPE BACKFILL	
	T-10.05.1	



LATERAL PAVEMENT CUTS FOR UTILITY SERVICE





PARALLEL PAVEMENT CUTS FOR UTILITY SERVICE

NOTES:
1. THE PAVEMENT EDGES SHALL BE DEFINED BY A STRAIGHT EDGE FORMED BY A MACHINED SAW CUT OR MILLIING MACHINE
2. THE TRENCH SUBGRADE MATERIAL SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO A DENSITY OF AT LEAST 95% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY NCDOT
3. THE FINAL 1" OF FILL SHALL CONSIST OF ABC MATERIAL COMPCATED TO A DENSITY EQUAL TO 100% OF THAT OBTAINED BY COMPACTING A SAMPLE OF THE MATERIAL IN ACCORDANCE WITH AASHTO T-80 AS MODIFIED BY NCDOT
4. THE ENTIRE THICKNESS/VERTICAL EDGE OF THE CUT SHALL BE TACKED
5. THE SAME DEPTH OF PAVEMENT MATERIAL WHICH EXISTS SHALL BE REINSTALLED, BUT IN NO CASE SHALL THE ASPHALT BE LESS THAN 3" THICK
6. THE ASPHALT PAVEMENT MATERIAL SHALL BE INSTALLED, COMPACTED THOROUGHLY AND ROLLED WITH A SMOOTH DRUM ROLLER TO LEVEL PATCH

SHEET 2 OF 2

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 8/2023	NOT TO SCALE
	ASPHALT PAVEMENT PATCH AND RCP PIPE BACKFILL	
	T-10.05.2	

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
4020 Westchase Boulevard, Suite 450
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919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3881 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 36528 JAKOB P. KLEE

FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

MERRITT RESERVE
UTILITY DETAILS
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:
UTILITY DETAILS

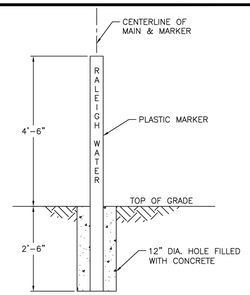
SHEET NO.: **CU-501**

PROJECT NUMBER = CID-25-02

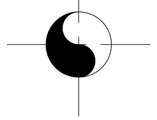
North Carolina 811 Call Before You Dig
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merrit Property BRD\Dwg_Working Dwgs\Sheets\Construction Set\S1-01-500-501 UTILITY DETAILS.dwg

2025-07-01



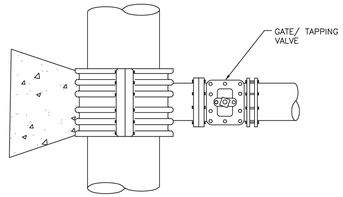
NOTES:
1. POTABLE WATER MARKER TO BE BLUE IN COLOR.
2. POTABLE WATER MARKER TO BE LABELED "RALEIGH WATER"
3. TO BE SPACED ALONG CENTERLINE OF MAIN EVERY 300 FEET.
4. MARKERS TO BE ROUND AND 4" IN DIAMETER.



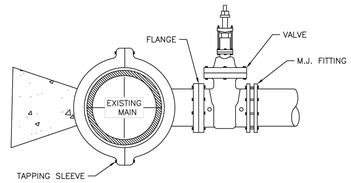
WATER MAIN

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	MAIN & VALVE MARKER FOR POTABLE WATER IN EASEMENTS	
	W-13	



TOP VIEW

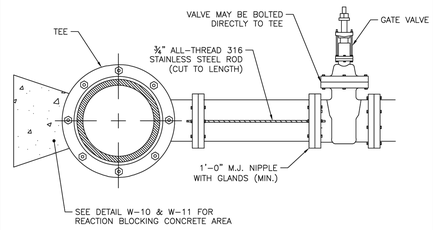


SIDE VIEW

NOTES:
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
2. SEE DETAIL W-10 & W-11 (REACTION BLOCK TABLES) FOR AREA OF CONCRETE REQUIRED.
3. 3,000 PSI SOLID CONCRETE SHALL BE USED AS FOOTING FOR DUCTILE IRON PIPE.
4. FULL CIRCUMFERENCE SLEEVE, STAINLESS STEEL MATERIAL REQUIRED.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	4"–24" STANDARD TAPPING SLEEVE AND VALVE ASSEMBLY	
	W-14	



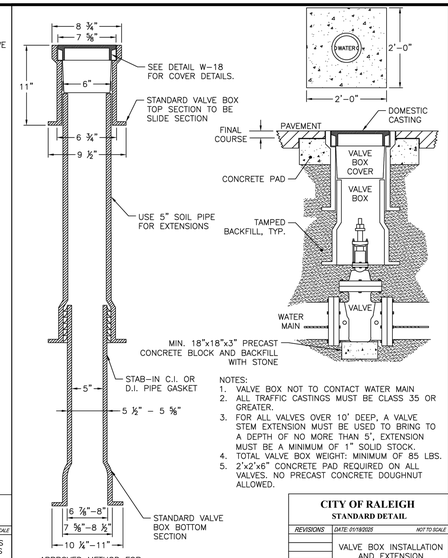
ROD REQUIREMENTS

BRANCH SIZE	NO. OF RODS
4"	2
6"	2
8"	4
12"	4
16"	6
24"	6
30"	8
36"	8

NOTES:
1. STEEL RODS AND BOLTS SHALL BE ¾" 316 STAINLESS STEEL.
2. SEE DETAIL W-10 AND W-11 (THRUST BLOCK TABLES) FOR CONCRETE.
3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL FITTINGS.
4. THIS RODDING REQUIREMENT DOES NOT APPLY TO FIRE HYDRANTS.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	VALVE RESTRAINT AT TEES AND CROSSES FOR LINES (4"–24")	
	W-15	

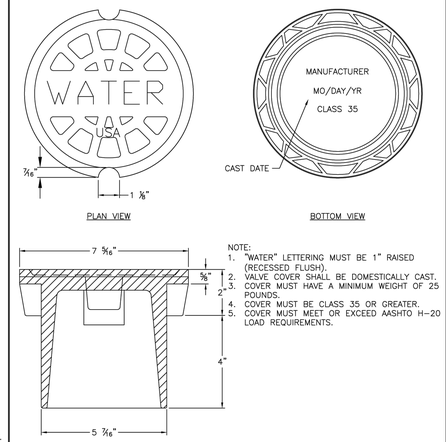


APPROVED METHOD FOR EXTENSION OF VALVE BOX

NOTES:
1. VALVE BOX NOT TO CONTACT WATER MAIN
2. ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER.
3. FOR ALL VALVES OVER 10' DEEP, A VALVE STEM EXTENSION MUST BE USED TO BRING TO A DEPTH OF NO MORE THAN 5', EXTENSION MUST BE A MINIMUM OF 1" SOLID STOCK.
4. TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.
5. 2'x2'x6" CONCRETE PAD REQUIRED ON ALL VALVES. NO PRECAST CONCRETE DOUGHNUT ALLOWED.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	VALVE BOX INSTALLATION AND EXTENSION	
	W-17	

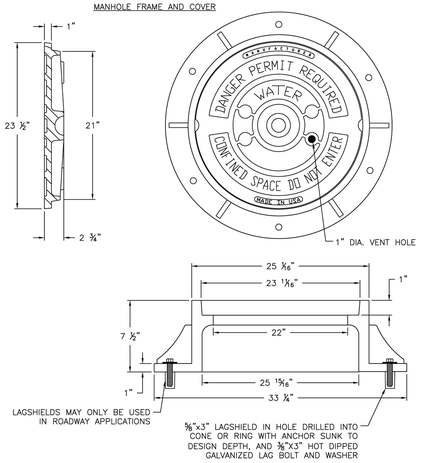


NOTE:
1. "WATER" LETTERING MUST BE 1" RAISED (RECESSED FLUSH).
2. VALVE COVER SHALL BE DOMESTICALLY CAST.
3. COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
4. COVER MUST BE CLASS 35 OR GREATER.
5. COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	5 ¼" VALVE BOX DROP LID WITH 4" SKIRT	
	W-18	

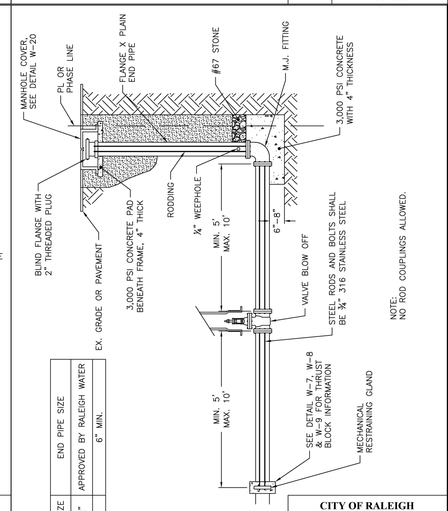
MANHOLE FRAME AND COVER



NOTES:
1. ALL MANHOLE FRAMES SHALL BE DOMESTICALLY CAST.
2. FRAME SHALL BE A MINIMUM WEIGHT OF 182 LBS.
3. COVER SHALL WEIGH A MIN. OF 120 LBS.
4. MANHOLES WITHIN PAVED SURFACES SHALL BE CONSTRUCTED ACCORDANCE WITH DETAIL S-29.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	STANDARD MANHOLE COVER	
	W-20	

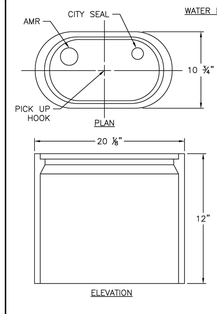


MAIN SIZE	END PIPE SIZE APPROVED BY RALEIGH WATER
6"–12"	6" MIN.
≥16"	

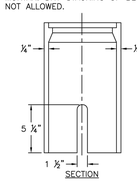
CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	TEMPORARY WATER MAIN BLOW OFF ASSEMBLY	
	W-21	

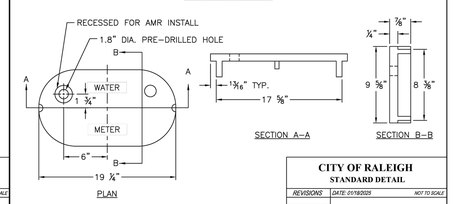
WATER METER BOX



NOTES:
1. COVER WEIGHT: 13 LBS ± 5%.
2. LIDS TO BE COATED WITH BITUMINOUS COAL TAR COATING.
3. HOLE SHALL BE FITTED WITH A METAL GROMMET.
4. BOXES AND LIDS MUST BE MANUFACTURED FROM THE SAME DOMESTIC FOUNDRY.
5. HEIGHT ADJUSTMENTS ALLOWED BY PRECAST RISERS OR BRICK AND MORTAR. DRY STACKING OF BLOCK IS NOT ALLOWED.

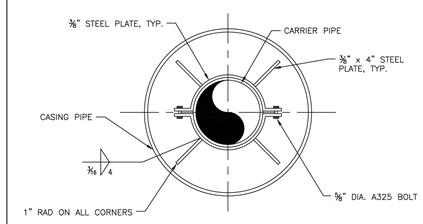


WATER METER COVER



CITY OF RALEIGH
STANDARD DETAIL

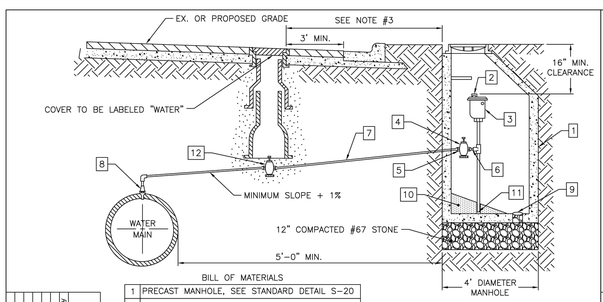
REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	WATER METER BOX	
	W-25	



NOTE:
USE A MINIMUM OF TWO SPIDERS PER PIPE JOINT ONE FOURTH OF THE PIPE JOINT LENGTH IN FROM BOTH THE BELL AND SPIGOT ENDS.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	PIPE ALIGNMENT GUIDE	
	W-40	



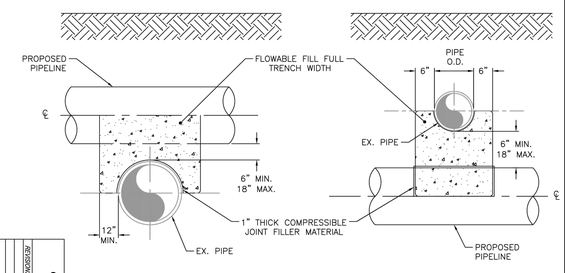
BILL OF MATERIALS

1	PRECAST MANHOLE, SEE STANDARD DETAIL S-20
2	TRASH HOOD
3	2" AIR RELEASE VALVE
4	2" CURB STOP BALL VALVE
5	ADAPTER
6	2" MECHANICAL JOINT BRASS PIPE AND FITTINGS
7	2" TYPE "K", SOFT COPPER WITH FLARED ELBOW
8	CORPORATION COCK
9	6" DIAMETER DRAIN
10	GROUT, 1/8" TO 1'-0" MIN. SLOPE TO DRAIN
11	PIPE CAP
12	2" GATE VALVE

NOTE:
1. AIR VALVE TO BE P-20 WITH VACUUM CHECK BY CRISPIN OR VAL MATIC VM 45.
2. THE AIR RELEASE MANHOLE SHALL BE INSTALLED IN THE SHOULDER OR AS DIRECTED BY THE ENGINEER.
3. FOR MAINS LOCATED OUTSIDE OF STREET RIGHT-OF-WAYS THE MAXIMUM DISTANCE BETWEEN THE MANHOLE AND THE VALVE BOX SHOULD BE 3 FEET.
4. MAIN SHALL BE DEEP ENOUGH TO ACCOMMODATE INSTALLATION AS SHOWN.
5. SEE DETAIL W-3 TO INSURE PROPER BACKFILL.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	WATER AIR RELEASE VALVE	
	W-19	



PROPOSED PIPELINE OVER EXISTING PIPE

PROPOSED PIPELINE UNDER EXISTING PIPE

NOTE:
NO ENCASEMENT REQUIRED FOR SPACE GREATER THAN 18" FOR WATER LINES.

CITY OF RALEIGH
STANDARD DETAIL

REVISIONS	DATE: 01/16/2025	NOT TO SCALE
	CONCRETE CRADLE PROTECTION FOR WATER LINE CROSSINGS	
	W-41	

AMERICAN Engineering
American Engineering Associates - Southeast, P.A.
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Raleigh, NC 27607
919-469-1101

NORTH CAROLINA AMERICAN ENGINEERING ASSOCIATES SOUTHEAST C-3861 CERTIFICATE OF AUTHORIZATION

PRELIMINARY
NOT FOR CONSTRUCTION
FOR INFORMATION, ONLY

NO.	DATE	REVISION:
1	07-01-25	FIRST REVISION SET

STIPULATION FOR REUSE

MERRITT RESERVE
UTILITY DETAILS
ROLESVILLE RD
WAKE COUNTY NC 27312

JOB NUMBER:	23-0004
CHECKED BY:	BH
DRAWN BY:	DH/RC/SM/GE/MA/LL/JB
DATE:	05/01/2025

SHEET TITLE:
UTILITY DETAILS

SHEET NO.: **CU-502**

PROJECT NUMBER = CID-25-02

North Carolina 811
*** 3 Days Before Digging ***
North Carolina 811
811 or 1-800-632-4949
Remote Ticket Entry
http://nc811.org/remoteticketentry.htm

Z:\Jobs\23-0004 Merritt Property (BR)\Dwg_Working Dwgs\Sheets\Construction Set\S1_CU-500-503 UTILITY DETAILS.dwg

2025-07-01