

Required Restraint Lengths for Single Fittings and Valves for Pipe 6-inches to 12-inches in Diameter (in Feet, Both Directions unless otherwise noted)	6"	8"	10"	12"
45° Horizontal	34'	44'	53'	61'
45° Vertical Up	34'	44'	53'	61'
45° Vertical Down	53'	69'	82'	96'
22½° Horizontal	17'	21'	26'	30'
22½° Vertical Up	17'	21'	26'	30'
22½° Vertical Down	26'	33'	40'	47'
11¼° Horizontal	8'	11'	13'	15'
11¼° Vertical Up	8'	11'	13'	15'
11¼° Vertical Down	13'	17'	20'	23'
Tees (Restrain the Branch)	6" - 111' 115'	8" - 107' 154'	6" - 103' 8" - 151' 10" - 184' 12" - 220'	6" - 88' 8" - 123' 10" - 169'
Reducers (Restrain Larger Pipe)	N/A	70'	10" x 8" - 67' 10" x 6" - 122'	12" x 10" - 68' 12" x 8" - 123' 12" x 6" - 169'
Dead Ends (Caps and Plugs)	126'	165'	198'	232'
In-line Valves				

TOWN OF APEX NOTES:

- NO SITE DEVELOPMENT ACTIVITY INCLUDING, BUT NOT LIMITED TO, TESTING, CLEARING, INSTALLATION OF S&E MEASURES, OR GRADING, SHALL OCCUR UNTIL REQUIRED TREE PROTECTION FENCING HAS BEEN INSTALLED AND INSPECTED. A TREE PROTECTION FENCING INSTALLATION PERMIT MAY BE OBTAINED AT THE PLANNING DEPARTMENT OR ONLINE AT [HTTP://WWW.APEXNC.ORG/215/APPLICATIONS-SCHEDULES](http://www.apexnc.org/215/APPLICATIONS-SCHEDULES)
- TREE PROTECTION FENCING MUST BE PLACED:
 - ONE FOOT AWAY FROM ANY SAVED TREE FOR EACH INCH OF DIAMETER AT BREAST HEIGHT,
 - ALONG THE OUTSIDE LINE OF THE 100-YEAR FLOODPLAIN, AND THE OUTSIDE EDGE OF ANY RIPARIAN BUFFER, AND
 - AT LEAST 10 FEET AWAY FROM ANY OTHER DESIGNATED RCA SUCH AS, BUT NOT LIMITED TO, HISTORIC BUILDINGS AND STRUCTURES, WETLANDS, AND PONDS.
- ALL GRADING AND SUPPORT STRUCTURES ASSOCIATED WITH ANY RETAINING WALL SHALL NOT ENROACH INTO ANY REQUIRED BUFFER OR PROTECTED AREA (I.E. RCA, THE CRITICAL ROOT ZONES OF TREES, PUBLIC UTILITY EASEMENTS AND RIGHTS-OF-WAY), AND SHALL BE CONTAINED ENTIRELY ON SITE.
- SITE ELEMENTS REQUIRED TO SATISFY RECREATIONAL REQUIREMENTS SUCH AS, BUT NOT LIMITED TO, PLAY FIELDS, GREENWAY TRAILS, AND ITEMS TYPICALLY ASSOCIATED WITH THEM (BENCHES, TRASH CONTAINERS, SIGNS, ETC.) MUST MEET ANY APPLICABLE STANDARDS FOUND IN THE TOWN OF APEX TOWN OF APEX STANDARD SPECIFICATIONS AND STANDARD DETAILS AND THE REQUIREMENTS OF THE TOWN OF APEX PARKS AND RECREATION DEPARTMENT.
- PRIOR TO APPROVAL OF A FINAL PLAN OR ISSUANCE OF A CERTIFICATE OF OCCUPANCY FOR ANY DEVELOPMENT WHERE A STORMWATER CONTROL MEASURE (SCM) IS REQUIRED, CONTACT THE ENVIRONMENTAL PROGRAMS MANAGER AT 919-249-3413 TO DEMONSTRATE THAT THE REQUIRED STRUCTURE IS IN PLACE, IS OPERATIONAL AND COMPLIES WITH ALL RELEVANT PORTIONS OF UDD SEC. 6.1.12 ENGINEERED STORMWATER CONTROLS. IF THE SCM IS USED AS PART OF A TEMPORARY EROSION CONTROL MEASURE, THE INSPECTION WILL OCCUR DURING THE APPROPRIATE PHASE OF CONSTRUCTION.
- ALL WATER AND SEWER LINES SHALL BE INSTALLED WITH A MINIMUM OF THREE (3) FEET OF COVER.
- MAINTAIN 18 INCHES OF MINIMUM VERTICAL SEPARATION BETWEEN UTILITIES.
- VERIFY ALL ILLUSTRATED UTILITY CROSSINGS PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF CONFLICTS ARE ENCOUNTERED.
- CONTRACTOR SHALL COORDINATE UTILITY RELOCATION OR ABANDONMENT WITH LOCAL UTILITY COMPANIES AS REQUIRED.
- ALL METERED CONNECTIONS TO TOWN POTABLE WATER SHALL HAVE A TOWN-APPROVED BACKFLOW PREVENTION ASSEMBLY INSTALLED.
- WATER AND SEWER SHALL BE SEPARATED AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWERS, WHERE LOCAL CONDITIONS PREVENT A SEPARATION OF 10 FEET, THE WATER MAIN MAY BE LAID CLOSER, PROVIDED THAT THE ELEVATION OF THE BOTTOM OF THE WATER MAIN IS AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER WITH A HORIZONTAL SEPARATION OF AT LEAST THREE (3) FEET.
- ALL NEW PUBLIC WATER AND SEWER LINES CONTAINED WITHIN A TOWN OF APEX PUBLIC UTILITY EASEMENT WILL REQUIRE A WATER DISTRIBUTION EXTENSION PERMIT AND/OR A GRAVITY SEWER EXTENSION PERMIT PRIOR TO THE RELEASE OF CONSTRUCTION DRAWINGS. ALL WATER DISTRIBUTION EXTENSION PERMIT APPLICATIONS SHALL BE ACCOMPANIED BY A SEALED ENGINEER'S REPORT PER THE TOWN OF APEX STANDARD SPECIFICATIONS AND STANDARD DETAILS. CONTACT THE ENGINEERING DIVISION AT 919-249-3394 TO OBTAIN THESE PERMIT APPLICATIONS.
- A PLUMBING PERMIT ISSUED BY THE BUILDING INSPECTION DIVISION IS REQUIRED FOR ALL PLUMBING SYSTEMS, INCLUDING STORM DRAINAGE SYSTEMS, INSTALLED OUTSIDE THE PUBLIC RIGHT-OF-WAY OR A PUBLIC UTILITY EASEMENT. THESE SYSTEMS SHALL BE INSPECTED AND APPROVED BY THE PLUMBING INSPECTOR PRIOR TO COVERING. CONTACT THE BUILDING INSPECTIONS DIRECTOR AT 919-249-3381 FOR INFORMATION INCLUDING THE UTILIZATION OF A THIRD-PARTY INSPECTION AGENCY.
- IT IS THE RESPONSIBILITY OF THE OWNER OR HIS REPRESENTATIVE(S) TO LOCATE AND IDENTIFY ALL EXISTING AND PROPOSED UTILITIES AND TO CLEARLY IDENTIFY THEM ON THE APPROVED PLANS.

HATCH LEGEND:

	OPEN SPACE		WETLAND
	RESOURCE CONSERVATION AREA		DRY UTILITY EASEMENT
	PLAY LAWN		

UTILITY NOTES

- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH TOWN OF APEX AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
- CONTRACTOR SHALL COORDINATE THE LOCATION OF THE ELECTRIC, GAS AND TELEPHONE SERVICE WITH THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL PROVIDE CONDUITS AS REQUIRED FOR THESE UTILITIES UNDER PAVED AREAS.
- THIS PLAN IS DIAGRAMMATIC AND REPRESENTS THE APPROXIMATE LOCATION OF UTILITIES UNLESS SPECIFICALLY DIMENSIONED. THE CONTRACTOR SHALL COORDINATE THE ACTUAL AND PROPOSED LOCATION OF UTILITIES TO AVOID CONFLICTS.
- CONTRACTOR SHALL COORDINATE THE LOCATION OF THE WATER AND SEWER SERVICE TO THE BUILDINGS WITH THE PLUMBING CONTRACTOR AND THE BUILDING PLANS.

GENERAL NOTES

- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF APEX, WAKE COUNTY, AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
- CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4849) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
- BOUNDARY, TOPOGRAPHY AND UTILITY INFORMATION IS TAKEN FROM A SURVEY BY JOHN R. MCADAMS, DATED JUNE 21, 2023. ADDITIONAL PROPERTY INFORMATION IS TAKEN FROM WAKE COUNTY GIS AND HAS NOT BEEN FIELD VERIFIED.
- TREE LOCATION, SPECIES, AND DBH ARE TAKEN FROM A SURVEY BY SUMMIT COASTAL PLLC, DATED AUGUST 17, 2023.
- ALL CONSTRUCTION SHALL CONFORM TO A.D.A. STANDARDS.
- NO HISTORICAL STRUCTURES WERE IDENTIFIED ON-SITE.
- GUEST PARKING SPACES ALONG THE PUBLIC STREETS SHALL BE MAINTAINED BY THE HOA.

SYMBOL LEGEND

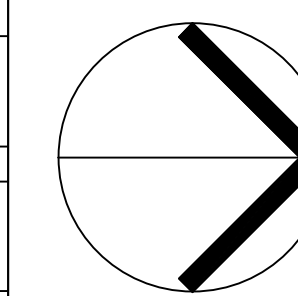
- EXISTING IRON PIPE
- IRON PIPE SET
- CATCH BASIN
- WATER MANHOLE
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- CLEAN OUT
- ELECTRICAL BOX
- LIGHT POLE
- TELEPHONE HANDHOLE
- SIGN
- EXISTING TREE

LINE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT LOT LINE
- STREET CENTERLINE
- EXISTING EASEMENTS
- RIPARIAN BUFFER LINE
- EX. SANITARY SEWER LINE
- EX. WATER LINE
- EXISTING STORM DRAIN
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED STORM PIPE

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these Construction Plans.

<p>N/A</p> <p>rdalton 07/09/2024 2:59:32 PM</p> <p>Transportation Engineering</p>	<p>Approved</p> <p>Julian 07/09/2024 3:47:16 PM</p> <p>Planning</p>
<p>N/A</p> <p>sevens 07/11/2024 10:43:12 AM</p> <p>Building Inspections</p>	<p>N/A</p> <p>joones 07/09/2024 10:40:48 AM</p> <p>Planning - Transportation</p>
<p>Approved</p> <p>weber 07/09/2024 10:42:53</p> <p>Water Resources-Utility Engineering</p>	<p>Approved</p> <p>khueqatich 07/09/2024 2:55:39 PM</p> <p>Fire</p>
<p>N/A</p> <p>hbahr 07/09/2024 11:03:57 AM</p> <p>Water Resources Stormwater and S&E</p>	<p>N/A</p> <p>lgumright 07/16/2024 2:48:51 PM</p> <p>Parks, Recreation & Cultural Resources</p>
<p>Approved</p> <p>weathman 07/17/2024 1:31:01 PM</p> <p>Electric</p>	



**NORTH
UTILITY
PLAN**

SCALE: 1" = 40'



NC ENGINEERING LICENSE NO. P-0803



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CONSTRUCTION PLANS FOR:
**ROBERTS CROSSING
PHASE 2**
7019 ROBERTS ROAD
APEX, NORTH CAROLINA

Drawn By: **CJB**
Checked By: **SRN**

DATE:
02 JAN 2024
REVISED:
07 MAR 2024
18 APR 2024
03 MAY 2024

CONSTRUCTION PLANS

UTILITY PLAN

Job Code: **PPRC**

Dwg No. **SITE 400**

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