

Public Records Request #6092

The following materials have been gathered in response to public records request #6092. These materials include:

- Charlotte Water Capacity Assurance Review Application
- Utility Plan – ARB Hospitality, LLC. – CSSU Hotel
- Charlotte Water Domestic Meter Selection Guidelines

This information was provided as a response to a public records request on 10/5/21 and is current to that date. There is a possibility of more current information and/or documents related to the stated subject matter.

Further Information

For further information about this request or the Citywide Records Program, please contact:

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e-mail this application along with utility plan to:
CHARLOTTE WATER
newservicerequests@ci.charlotte.nc.us

Capacity Assurance Review Application

FLOW ACCEPTANCE / WILLINGNESS TO SERVE

All requests require a utility drawing indicating that proposed water/sewer connection point(s) and sizes.

SELECT SUBMITTAL TYPE:

FLOW ACCEPTANCE (RESERVES CAPACITY)

WILLINGNESS TO SERVE (DOES NOT RESERVE CAPACITY)

Requested By

First Name		Last name		Company, HOA, Developer, etc.	
Address				Apartment/Unit #	
City	State	Zip	Email	Phone	

Project Location

Project Name			Phone		
Site Address				Apartment/Unit #	
City	State	Zip	Tax Parcel Number		
Contact Person Name			Email		

Project Information

Complete the following:

1. Project is new modification
2. Type of development (15A NCAC 02T.0114 Wastewater Design Flow Rates)
 - a. Residential, apartment _____ units
 - b. Residential, townhome/condominium _____ units
 - c. Amenity Center (sf) or Pool (people) _____ people
 - d. Residential, single-family _____ lots
 - i. Public Roads? Y N
 - e. Restaurant _____ seats
 - f. Retail or retail with food prep _____ sf
 - g. Office _____ #emp/shift
 - h. Warehouse _____ #loading bays
 - i. Hotel or suites _____ rooms
 - j. School _____ students
 - i. Cafeteria Y N
 - ii. Gym/Locker Rooms Y N
 - k. Other (provide flow calculations) _____
3. Will this project have a pool? Y N
 - a. If yes, pool must have a 4-inch drain line

- 4. Will this project have a private sewer lift station? Y N
- 5. Total wastewater flow requested (average daily flow in gpd, show calculations) _____
- 6. Commercial only: Peak wastewater flow requested (peak hourly flow in GPH): _____
- 7. Average Daily Water Demand: _____
- 8. Peak Water Demand (GPM): _____
- 9. Does this project include a 6-inch or larger private sewer line providing service to multiple buildings? Y N
- 10. Does this project include a 2-inch or larger private water line providing service to multiple buildings? Y N

FOR CHARLOTTE WATER USE ONLY

CLT Water Tracking # **Map #**

Basin **Flow amount (gpd)**

Does the flow transmit through a CLT Water lift station? Y N

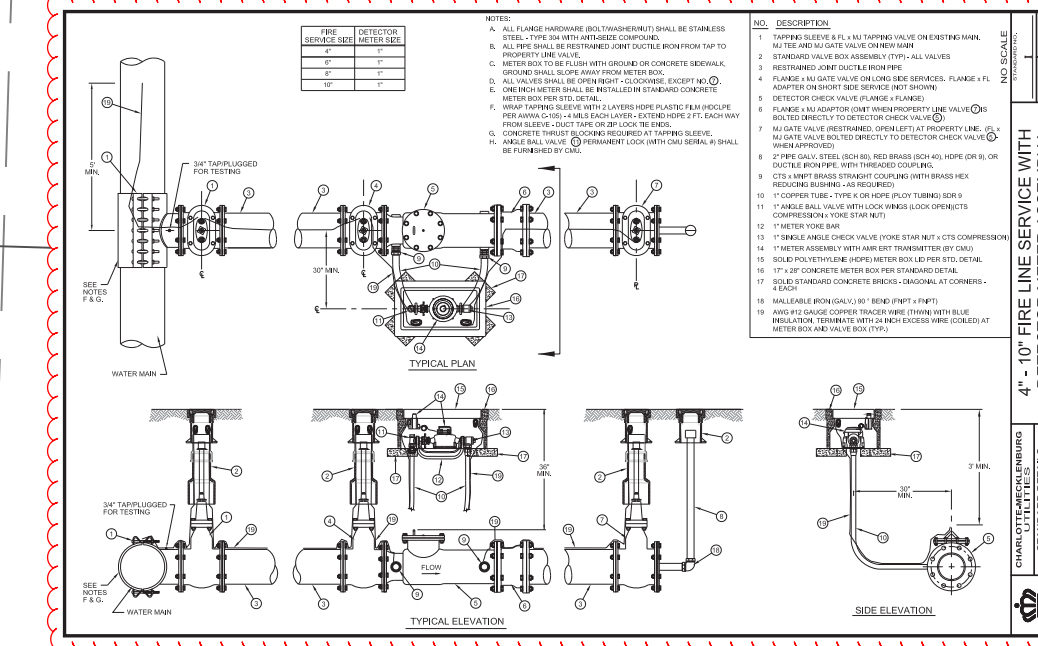
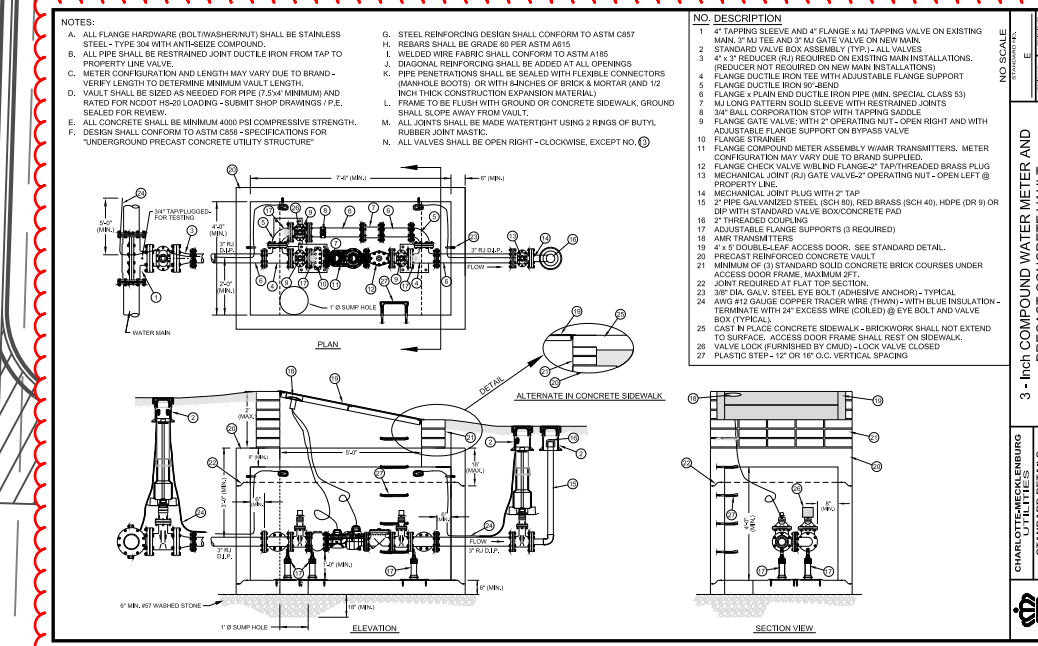
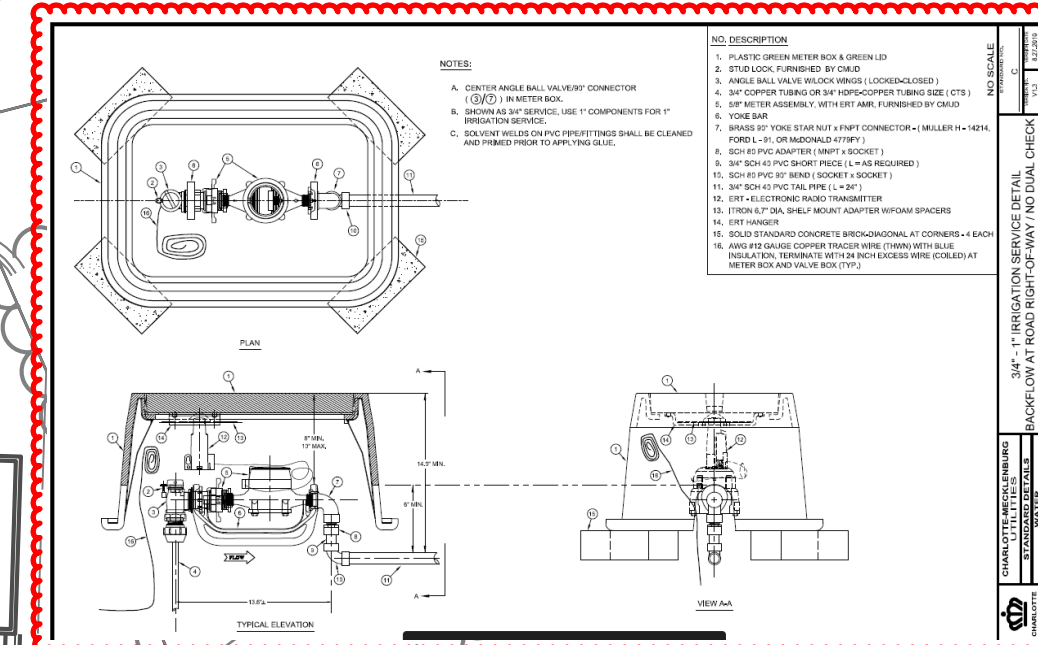
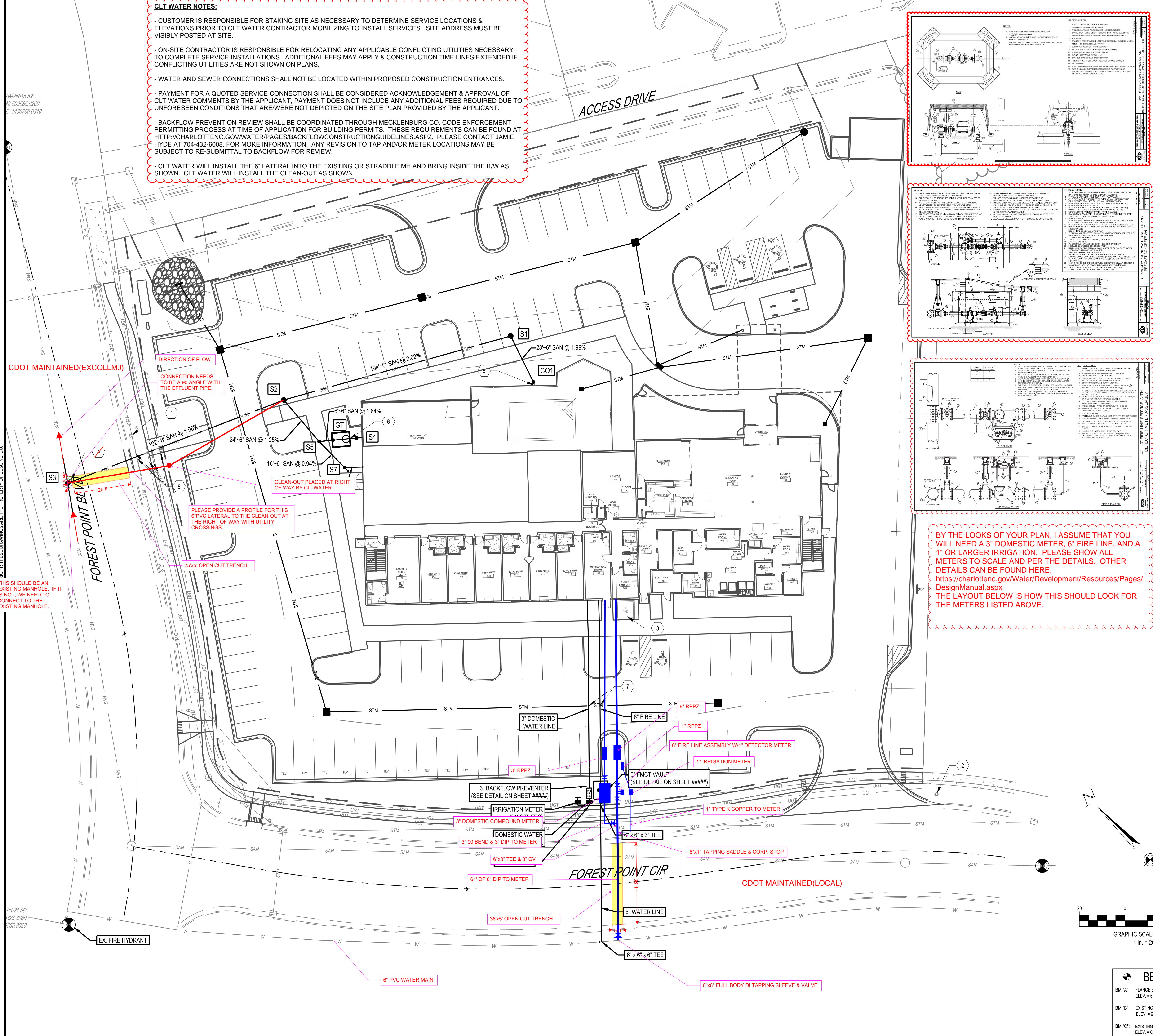
If yes, which station? _____

WWTF: McAlpine McDowell Irwin Sugar Mallard Rocky River



CLT WATER NOTES:

- CUSTOMER IS RESPONSIBLE FOR STAKING SITE AS NECESSARY TO DETERMINE SERVICE LOCATIONS & ELEVATIONS PRIOR TO CLT WATER CONTRACTOR MOBILIZING TO INSTALL SERVICES. SITE ADDRESS MUST BE VISIBLY POSTED AT SITE.
- ON-SITE CONTRACTOR IS RESPONSIBLE FOR RELOCATING ANY APPLICABLE CONFLICTING UTILITIES NECESSARY TO COMPLETE SERVICE INSTALLATIONS. ADDITIONAL FEES MAY APPLY & CONSTRUCTION TIME LINES EXTENDED IF CONFLICTING UTILITIES ARE NOT SHOWN ON PLANS.
- WATER AND SEWER CONNECTIONS SHALL NOT BE LOCATED WITHIN PROPOSED CONSTRUCTION ENTRANCES.
- PAYMENT FOR A QUOTED SERVICE CONNECTION SHALL BE CONSIDERED ACKNOWLEDGEMENT & APPROVAL OF CLT WATER COMMENTS BY THE APPLICANT; PAYMENT DOES NOT INCLUDE ANY ADDITIONAL FEES REQUIRED DUE TO UNFORESEEN CONDITIONS THAT ARE/WERE NOT DEPICTED ON THE SITE PLAN PROVIDED BY THE APPLICANT.
- BACKFLOW PREVENTION REVIEW SHALL BE COORDINATED THROUGH MECKLENBURG CO. CODE ENFORCEMENT PERMITTING PROCESS AT TIME OF APPLICATION FOR BUILDING PERMITS. THESE REQUIREMENTS CAN BE FOUND AT [HTTP://CHARLOTTENC.GOV/WATER/PAGES/BACKFLOWCONSTRUCTIONGUIDELINES.ASP](http://charlottenc.gov/water/pages/backflowconstructionguidelines.asp). PLEASE CONTACT JAMIE HYDE AT 704-432-6008, FOR MORE INFORMATION. ANY REVISION TO TAP AND/OR METER LOCATIONS MAY BE SUBJECT TO RE-SUBMITTAL TO BACKFLOW FOR REVIEW.
- CLT WATER WILL INSTALL THE 6" LATERAL INTO THE EXISTING OR STRADDE MH AND BRING INSIDE THE R/W AS SHOWN. CLT WATER WILL INSTALL THE CLEAN-OUT AS SHOWN.



BY THE LOOKS OF YOUR PLAN, I ASSUME THAT YOU WILL NEED A 3" DOMESTIC METER, 8" FIRE LINE, AND A 1" OR LARGER IRRIGATION. PLEASE SHOW ALL METERS TO SCALE AND PER THE DETAILS. OTHER DETAILS CAN BE FOUND HERE, <https://charlottenc.gov/Water/Development/Resources/Pages/DesignManual.aspx>. THE LAYOUT BELOW IS HOW THIS SHOULD LOOK FOR THE METERS LISTED ABOVE.

LEGEND

EXISTING
REFER TO C1.00 FOR EXISTING FEATURES

PROPOSED

	BUILDING
	CONCRETE CURB
	PAVEMENT/WALK
	STORM SEWER LINE
	SANITARY SEWER LINE
	DOMESTIC WATER SERVICE LINE

Water Demand Calculation Results:

Meter	Demand Type	Demand Flow (gpm)	Corresponding Meter (CLT Water Meter Chart)
Meter - 1	3" DOMESTIC METER		
Meter - 2			
Meter - 3			

- CATCH BASIN
- STORM MANHOLE
- SANITARY CLEANOUT
- ELECTRICAL TRANSFORMER PAD
- HEADWALL

SANITARY SEWER STRUCTURE SCHEDULE

NO.	STRUCTURE	RIM	INVERT
CO1	8" CO	620.70	616.75 (6") N
GT	GREASE TRAP	620.38	616.50 (6") SE 616.50 (6") NW
S1	48" MH	620.07	616.30 (6") S 616.20 (6") NW
S2	48" MH	619.72	614.10 (6") SE 615.70 (6") S 614.00 (6") NW
S3	48" MH (DOGHOUSE)	616.29	612.00 (6") SE 610.91 (8") SW 610.85 (8") NE
S4	8" CO	620.88	617.00 (6") NW
S5	8" CO	620.26	616.75 (6") S 616.40 (6") SE 616.00 (6") N
S7	8" CO	620.66	616.90 (6") SE 616.90 (6") N

UTILITY CROSSING SCHEDULE

NO.	UTILITY	ELEVATIONS	DIFF.
1	6" PVC (SANITARY)	B.O.P. = 613.59'	1.02'
	15" RCP (STORM)	T.O.P. = 612.57'	

- CODED NOTES:**
- CONTRACTOR TO COORDINATE WITH UTILITY COMPANY AND PROTECT LIGHT POLE AS NEEDED.
 - EXISTING LIGHT POLE TO BE RELOCATED. CONTACT UTILITY PROVIDER TO COORDINATE LOCATION.
 - TRANSFORMER PAD.
 - SANITARY DOG-HOUSE/ STRUCTURE-OVER-PIPE. SEE DETAIL SHEET C7.03.
 - PROVIDE POOL DRAIN BLOW-DOWN CONNECTION
 - GREASE TRAP. SEE SHEET C7.03 FOR DETAIL.
 - CONTRACTOR TO ENSURE 2-FT SEPARATION WATER UNDER STORM.
 - CONTRACTOR TO VERIFY EX. UTILITY DEPTHS FOR SANITARY CROSSING. REPORT CONFLICTS OR INSUFFICIENT CLEARANCES TO ENGINEER AS SOON AS POSSIBLE.

BENCHMARK DATUM: NAVD88

BM "A": FLANGE BOLT ON FH
ELEV. = 621.59', N: 509585.0260, E: 1430788.0310

BM "B": EXISTING SANITARY MANHOLE RIM
ELEV. = 615.59', N: 509585.0260, E: 1430788.0310

BM "C": EXISTING SANITARY MANHOLE RIM
ELEV. = 622.38', N: 509338.6340, E: 1430887.1860

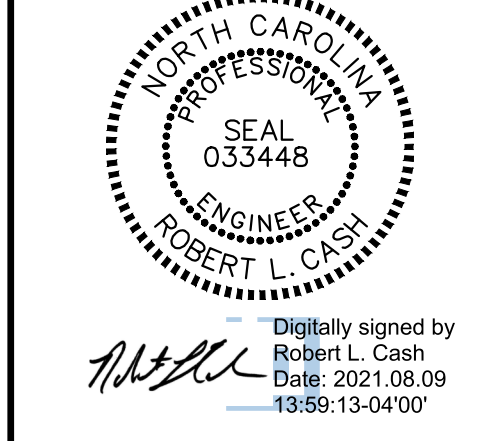


FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTORS SHALL NOTIFY THE FOLLOWING AGENCIES: NORTH CAROLINA UTILITIES PROTECTION SERVICE AT 811 OR 1-800-632-4949 AND ALL OTHER AGENCIES WHICH MIGHT HAVE UNDERGROUND UTILITIES INVOLVING THIS PROJECT AND ARE NONMEMBERS OF NORTH CAROLINA UTILITIES PROTECTION SERVICE



REVISION DESCRIPTION

NO.	DATE	REVISION DESCRIPTION



ARB HOSPITALITY, LLC
CSSU HOTEL

ADD ADDRESS AND PARCEL NUMBER

UTILITY PLAN

ISSUE:
NOT FOR CONSTRUCTION
DATE: 07/28/21

JOB NO.: 759297
DESIGN: CSG
DRAWN: JTT
CHECKED: RLC

SHEET NO.
C6.00



CHARLOTTE WATER DOMESTIC METER SELECTION GUIDELINES

****doesn't account for head loss****

The following calculation methods shall be used to calculate domestic water demand flow:

- **Residential Developments (Single Family/Multi-Family)**
 - IAPMO (International Association of Plumbing and Mechanical Officials) Water Demand Calculator
- **Commercial Developments**
 - AWWA M-22 Manual

The following table shall be completed and included on all plan submittals including 1.5” and larger domestic water services:

<u>Water Demand Calculation Results:</u>			
	<u>Demand Type</u>	<u>Demand Flow (gpm)</u>	<u>Corresponding Meter (CLT Water Meter Chart)</u>
Meter - 1			
Meter - 2			
Meter - 3			

New Service Connection and System Development fees may be referenced in the “Service Connections” section of the Charlotte Water Website.

Backflow requirements may be referenced in the “Backflow Prevention” section of the Charlotte Water Website.

- Service line head loss from water main through backflow may be referenced in **AWWA M-22 – Third Edition – Figure 5-2.**
- Steps for determining pipe, meter and other fitting sizes may be referenced in **AWWA M-22 – Third Edition – Figure 5-3.**

Split service allowances:

- Split services are not allowed on short side services. Short side services shall connect directly to the public water main.
- Split services are not allowed from dedicated domestic service lines 1-inch and larger.
 - This includes, but not limited to, ultrasonic meters intended and sized for domestic use only.
- Split services are are allowed from combination fire/domestic service lines and dedicated fire lines.
 - This includes, but not limited to, ultrasonic meters intended and sized for both, domestic and fire use

***Fire protection demand determinations are outside the scope of these guidelines and should be calculated appropriately by the design Engineer.*

***Service lines/meter locations subject to City Code/State requirements and CLT Water design standards and specifications.*



Select Meter in below chart that achieves calculated domestic demand flow per methods indicated above. Calculated demand flow shall not exceed selected maximum rate for continuous operations (gpm).

RESIDENTIAL/COMMERCIAL

<u>Meter Size/Type</u>	<u>DOMESITC</u> <u>Maximum Rate for Continuous</u> <u>Operations (gpm)</u>
4-inch FMCT w/1-inch at Crossover	15
6-inch FMCT w/1.5-inch at Crossover	35
6-inch FMCT w/2-inch at Crossover	35
8-inch FMCT w/2-inch at Crossover	40
10-inch FMCT w/2-inch at Crossover	45
12-inch FMCT w/2-inch at Crossover	45
1.5-inch Positive Displacement	100
2-inch Positive Displacement	160
3-inch Compound (Class II)	350
3-inch Ultrasonic	500
4-inch Compound (Class II)	600
4-inch Ultrasonic	880
6-inch Compound (Class II)	1350
6-inch Ultrasonic	1400
8-inch Compound (Class II)	1600
8-inch Ultrasonic	2800
10-inch Ultrasonic	4500
12-inch Ultrasonic	5500

- **1.5-inch minimum required for 6 or more multi-family units**
- **1-inch minimum required for 3 – 5 multi-family units (single parcel, i.e. triplex/quadrplex)**
- **5/8" may serve up to 2 units (single parcel, i.e. duplex)**



Domestic Meter Sizing Examples:

Multi-Family Residential (Use Latest Version [IAPMO Water Demand Calculator](#)):

40 Unit Complex with 40 2-Bath

2 Bath Units (40)

Fixture	Count
Combination Bath/Shower	80
Faucet, Lavatory	80
Water Closet, Gravity Tank	80
Dishwasher	40
Faucet, Kitchen Sink	40
Clothes Washer	40

- Peak Domestic Demand: **32.7 gpm**
 - Minimum Meter Size Options:
 - Dedicated Domestic Only (cannot split services)
 - 1.5-inch
 - Dedicated Fire
 - Fire line appropriately sized to meet fire flow demand
 - Domestic/Fire Combination (can split services)
Note: Plumbing requires individual backflow preventers at private fire hydrants
 - Ultrasonic sized to meet fire flow demand
 - 6-inch or larger FMCT sized to meet fire flow demand



120 Unit Complex with 40 1-Bath, 40 2-Bath and 40 3-Bath

1 Bath Units (40)

Fixture	Count
Combination Bath/Shower	40
Faucet, Lavatory	40
Water Closet, Gravity Tank	40
Dishwasher	40
Faucet, Kitchen Sink	40
Clothes Washer	40

2 Bath Units (40)

Fixture	Count
Combination Bath/Shower	80
Faucet, Lavatory	80
Water Closet, Gravity Tank	80
Dishwasher	40
Faucet, Kitchen Sink	40
Clothes Washer	40

3 Bath Units (40)

Fixture	Count
Combination Bath/Shower	120
Faucet, Lavatory	120
Water Closet, Gravity Tank	120
Dishwasher	40
Faucet, Kitchen Sink	40
Clothes Washer	40

Total Units Served by meter

Fixture	Count
Combination Bath/Shower	240
Faucet, Lavatory	240
Water Closet, Gravity Tank	240
Dishwasher	120
Faucet, Kitchen Sink	120
Clothes Washer	120

- Peak Domestic Demand: **60.9 gpm**
 - Minimum Meter Size Options:
 - Dedicated Domestic Only (cannot split services)
 - 1.5-inch
 - Dedicated Fire
 - Fire line appropriately sized to meet fire flow demand
 - Domestic/Fire Combination (can split services)
 - Note: Plumbing requires individual backflow preventers at private fire hydrants
 - Ultrasonic sized to meet fire flow demand



500 Unit Complex with 200 2-Bath and 300 3-Bath

2 Bath Units (200)

Fixture	Count
Combination Bath/Shower	400
Faucet, Lavatory	400
Water Closet, Gravity Tank	400
Dishwasher	200
Faucet, Kitchen Sink	200
Clothes Washer	200

3 Bath Units (300)

Fixture	Count
Combination Bath/Shower	900
Faucet, Lavatory	900
Water Closet, Gravity Tank	900
Dishwasher	300
Faucet, Kitchen Sink	300
Clothes Washer	300

Total Units Served by meter

Fixture	Count
Combination Bath/Shower	1300
Faucet, Lavatory	1300
Water Closet, Gravity Tank	1300
Dishwasher	500
Faucet, Kitchen Sink	500
Clothes Washer	500

- Peak Domestic Demand: **177.3 gpm**
 - Minimum Meter Size Options:
 - Dedicated Domestic Only (cannot split services)
 - 3-inch Ultrasonic
 - 3-inch Compound
 - Dedicated Fire
 - Fire line appropriately sized to meet fire flow demand
 - Domestic/Fire Combination (can split services)
 - Note: Plumbing requires individual backflow preventers at private fire hydrants
 - Ultrasonic sized to meet fire flow demand
 - 3-inch Ultrasonic (minimum per domestic needs)



Commercial (Reference Latest Edition [AWWA – M22 Manual](#)):

- Peak Domestic Demand: **700 gpm**
 - **Minimum Meter Size Options:**
 - Dedicated Domestic (cannot split services)
 - 4-inch Ultrasonic
 - 6-inch Compound
 - Dedicated Fire
 - Fire line appropriately sized to meet fire flow demand
 - Domestic/Fire Combination (can split services)
Note: Plumbing requires individual backflow preventers at private fire hydrants
 - Ultrasonic sized to meet fire flow demand
 - 4-inch Ultrasonic (minimum per domestic needs)

FREQUENTLY ASKED QUESTIONS

What is the purpose of domestic meter sizing guidelines?

- Starting July 1, 2021, Charlotte Water will offer ultrasonic meter installations for water services between 3 and 12-inches. Ultrasonic meters offer domestic and domestic/fire combination services through one single measuring device (no bypass meter). Charlotte Water’s Customer Service Team piloted a program for the replacement of aging large meter services as well as targeted replacements of FMCT’s that were being incorrectly used to supply domestic water through the fire-side service with ultrasonic meters. These ultrasonic meters provide increased accuracy in water demands and associated billing and are now ready for new water service installations. Because of the variety of meters now available, Charlotte Water Staff has provided guidance for those involved in sizing meters following the recommendations of AWWA standards. For questions regarding the guidance, please, reach out to Charlotte Water’s New Services Team: CLTWaterNewServices@charlottenc.gov.

Why are maximum continuous operational rates so low for FMCT meters?

- The FMCT flow rates indicated in the chart are the points in which the crossover between the small meter and large meter begins. The crossover range increases incrementally for each FMCT. Meter reading accuracy is decreased by up to 15% when flow rates are within this crossover range.

What is an Ultrasonic Meter?

- A combination domestic/fire rated meter with a single body assembly. It’s extremely accurate with all-digital technology and no moving parts or crossover.