CHARLOTTE COUNTY UTILITIES DESIGN MANUAL

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INTRODUCTION

The standards set forth in this Design Manual are intended to provide a basis for planning and design of potable water, sanitary sewer, and reclaimed water infrastructure within Charlotte County Utilities' (CCU) Service Area. The Design Manual is intended to the compliment the construction and material specifications as described in the approved CCU Standard Specifications and Design Drawings. Applicable Federal, State, and Local laws and regulations must be considered concurrently with this text. Developer must submit any variation from these standards to Charlotte County Board of County Commissioners (BOCC) and obtain their approval prior to construction. The requirements of this document are applicable in all cases where the proposed facilities will be owned and maintained by CCU.

The CCU design standards or specifications referenced herein, refer to the most recent edition of the standards or specifications and have the same force and effect as if they were included herein in their entirety. All referenced material can be found on the Charlotte County website.

CHARLOTTE COUNTY
UTILITIES DESIGN
MANUAL

Definitions & Abbreviations

1. ANALOGOUS WORDS AND TERMS

A. General

For the purpose of this manual, analogous words and terms shall be interpreted to have similar meanings when not inconsistent with the context.

1) Words used in the singular number include the plural, and words used in the plural number include the singular.
2) Words used in the present tense include the future tense.

B. Common Analogous Words

1) The following words shall be interpreted to have similar meanings when not inconsistent with the context.
   a) Constructed – Erected, Built, Installed, Rebuilt and Repaired.
   b) Structure – Building.
2) "Include" is a word of enlargement and not limitation.
3) The word "shall" is mandatory and the word "may" is permissive.

2. DEFINITIONS

Except where specific definitions are used within a specific section of this Design Manual for the purpose of such sections, the following terms, phrases, words, and their derivations shall have the meaning given herein when not inconsistent with the context:

K. GENERAL

ACCESSWAY: Land that is used or intended to be used for ingress or egress to abutting parcels of land and is not dedicated to the public.

AIR GAP (AG): A physical separation between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An approved Air Gap separation shall be a distance of at least two (2) times the diameter of the supply pipe measured vertically above the top rim of the vessel - with a minimum distance of 3 inches.

APPLICANT: Any individual, firm, association, syndicate, co-partnership, corporation,

trust or any other legal entity, or their duly authorized representative conducting activities under these regulations.

ARCHITECT: A professional architect duly registered and licensed by the State of Florida.

BACK PRESSURE: any elevation of pressure in the downstream piping system (by pump, elevation or piping, or stream and/or air pressure) above the supply pressure at the point of consideration which would cause, or tend to cause, a reversal of the normal direction of flow through the backflow prevention assembly.

BACK SIPHONAGE: A form of backflow due to a reduction in system pressure which causes a negative or sub-atmospheric pressure to exist at a site in the water system.

BACKFLOW: The undesirable reversal of flow of water or mixtures of water and other liquids, gases, or other substances into the distribution pipes of the potable supply of water from any source or sources.

BACKFLOW PREVENTION DEVICE: Any one of the following devices used as a means to prevent backflow further described in the Backflow Prevention Devices section found in the current Charlotte County Utilities Standard Specifications.

(1) DOUBLE DETECTOR CHECK VALVE (DDCV): A specifically designated assembly composed of a line size approved double check valve assembly with a specific bypass water meter and a meter sized approve double check valve assembly. The meter shall register accurately for only very low rates of flow and shall show a registration for all rates of flow. This assembly shall only be used on fire lines to protect against a non-health hazard (i.e., pollutant).

(2) DOUBLE CHECK VALVE (DCV): An assembly composed of two single, independently acting, check valves, including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the water tightness of each check valve. A check valve is a valve that is drip-tight in the normal direction of flow when the inlet pressure is one psi and the outlet pressure is zero. The check valve shall permit no leakage in a direction reverse to the normal flow. The closure element (e.g. clapper) shall be internally

weighted or otherwise internally loaded to promote rapid and positive closure. A backflow prevention device consisting of two internally loaded check valves, either spring loaded or weighted, installed as a unit between two resilient- seated shut off valves with properly located resilient-seated test cocks. This assembly shall only be *used to protect against a non-health type hazard*.

(3) PRESSURE VACUUM BREAKER (PVB): An assembly consisting of an independently operating internally loaded check valve, an air inlet valve located on the discharge side of the check valve, with resilient-seated test cocks and resilient-seated shut off valves at each end of the assembly designed to prevent back siphonage. PVBs may not be subjected to back pressure.

(4) REDUCED PRESSURE PRINCIPLE (RPZ): An assembly consisting of two independently acting check valves together with a hydraulically operating, mechanically independent pressure differential relief valve located between the check valves and below the first check valve. These units are located between two resilient-seated shut off valves and are equipped with properly located resilient-seated test cocks. Assembly is to be used for *High Hazard Protection*.

BOARD: The Board of County Commissioners of Charlotte County.

CERTIFIED BACKFLOW PREVENTION ASSEMBLY TESTER: A person who can prove competency to the satisfaction of Charlotte County Utilities (proof may be required). The tester shall have attended and successfully completed an approved course for Backflow Prevention Assembly Testers, or other programs or training acceptable to Charlotte County Utilities.

COUNTY: Charlotte County, Florida.

CROSS-CONNECTION: Any unprotected actual or potential connection or structural arrangement between a public or a consumer's potable water system and any other source or system through which it is possible to introduce into any part of the potable system and any used water, industrial fluid, gas, or substance other than the intended potable water with which the system is supplied. By-pass arrangements, jumper connections, removable sections, swivel, or change-over assemblies and other

temporary or permanent assemblies through which or because of which “backflow” can or may occur are considered to be cross connections.

CROSS CONNECTION CONTROL: Control of connection between a potable water system and a non-potable plumbing and/or water system by proper installation of approved backflow prevention assembly that will continuously protect the potable water system.

CURRENT: The regulations in effect at the time the Developer’s permit application or design plan is submitted to CCU for acceptance or approval.

CUSTOMER: Any person, firm, corporation, or government entity, using or receiving potable water, wastewater, or reclaimed water service from CCU.

DEVELOPER: Any person, corporation, or other legally recognized entity engaged in the business of making utility improvements to serve real property located within the utility service area of Charlotte County as either the owner or the legally authorized agent of the owner of such real property.

DIRECTOR: Charlotte County Utilities’ Department Director or his authorized representative.

DRIVEWAY: An accessway which provides vehicle access from a street to a single parcel of land containing two or fewer dwelling units in a single structure and from which vehicles may legally enter or leave the street in a forward or backward motion.

DWELLING UNIT: A room or rooms connected together, constituting a separate, independent housekeeping establishment for a family, for owner occupancy, or for rental or lease on a weekly, monthly, or longer basis, and physically separated from any other rooms or dwelling units which may be in the same structure, and containing sleeping and sanitary facilities and one kitchen. The term “dwelling unit” shall not include rooms in hotels, motels, or institutional facilities.

EASEMENT: A grant of a right to use land for specified purposes. It is non-possessory interest in land granted for limited use purposes. Where the term “easement” is preceded by the term “street” or any other adjective, the preceding term describes the easement's purpose.

ENGINEER: A professional engineer duly registered and licensed by the State of Florida. ENGINEER OF RECORD (EOR): A professional engineer duly registered and licensed by the State of Florida who is responsible for the preparation, signing,

dating, sealing, and issuing of any engineering document(s) for any engineering service or creative work.

HAZARD: Risk to public health and/or adverse effect on the Public Water Supply, the degree of which is derived from an evaluation of a particular hazard and/or the adverse effect of that hazard upon the public water system. Hazards are divided into 2 Categories:

(1) HEALTH HAZARD: A cross connection or potential cross connection involving any substance that could, if introduced into the potable water supply, cause death, illness, spread disease or have probability of causing such effects. A contaminate.

(2) NON-HEALTH HAZARD: A cross connection or potential cross connection involving any substance that generally would not be a health hazard but would constitute a nuisance or be aesthetically objectionable, if introduced into the public water system. A pollutant.

INDIVIDUAL PUMP STATION: Those pump stations which have design flows up to 10 ERCs.

INDIVIDUAL SEWAGE DISPOSAL SYSTEM OR FACILITY: Those sewage systems which include a septic tank, a system of piping and a soil absorption bed or drain field and as further defined and regulated by Chapter 381 of the Florida Statutes and Chapter 10D-6 of the Florida Administrative Code as may be amended from time to time.

LANDSCAPE ARCHITECT: A professional landscape architect duly registered and licensed by the State of Florida.

LOT FRONT: The distance measured along a line between the points of intersection of the side lot lines with the street right-of-way or easement.

LOT LINE: A line which designates the boundary of a lot.

LOT LINE FRONT: The lot line which divides the lot from a street right-of-way or easement.

LOT LINE SIDE: Any lot line other than a front or rear lot line, dividing said lot from the neighboring lot.

MASTER PUMP STATION: Those pump stations which repump wastewater flow from other pump stations and/or have a discharge force main diameter of 12-inches

or greater.

MULTI-FAMILY RESIDENTIAL PARCEL: Property that contains three (3) or more attached dwelling units, regardless of whether the units are under common or individual ownership.

OWNER: Any person having a legal or equitable interest in property.

PERMIT: Any official document or certificate required or issued by the agency authorizing performance of a specified activity.

PERSON: Any individual, partnership, association, corporation, trust, or other legal entity.

PLUMBING OFFICIAL: A Charlotte County Division of Codes and Building Services Code Enforcement Official.

POTABLE WATER: Water from any source which has been approved for human consumption by the health department.

PRIVATE PUMP STATION: Those pump stations which have one owner, one connection to the station, and are privately owned.

PUBLIC SEWAGE SYSTEM: A sewage system that contains a wastewater treatment plant, is not an individual sewage disposal system, and is not regulated by Chapter 10D-6 of the Florida Administrative Code.

PRIVATE WATER SYSTEM: A water system that is supplied by a well, spring, or other similar source of water, used for human consumption by four (4) dwelling units or less and is regulated by Chapter 381 of the Florida Statutes and Chapter 10D-4 of the Florida Administrative Code as may be amended from time to time.

PUBLIC WATER SYSTEM: A water system that is not a private water system as herein defined, and includes those water systems regulated under Chapter 381 of the Florida Statutes and defined as “Public Water Systems” “Community Water Systems”, and “Non- Community Water Systems” in Chapter 17-22 of the Florida Administrative Code; and defined as “Public Water Systems” not covered or included in the “Florida Safe Drinking Water Act” in Chapter 10D-4 of the Florida Administrative Code, as may be amended from time to time.

PUBLIC STREET: A street that has been dedicated to the public; and the public through use of the street; or the Board through express action at a public hearing, has accepted the offer of dedication. Note: Regardless of the Board's acceptance of the offer of public dedication, the Board may or may not have accepted the street for

maintenance purposes.

RECORD DRAWINGS: Documents that are a compiled representation of the constructed project. If the engineer is relying on information provided by others not under the direct supervision and control of the engineer, then the engineer shall not be required to sign, date, and seal the Record Drawings. If relying on information by others, as a minimum, the following shall be included on the Record Drawings:

(1) Statement that the Record Drawings are a compiled representation of the constructed project.
(2) Listing of the sources and basis of information used in the preparation of the Record Drawings.
(3) Statement that the Record Drawings are believed to be correct to the best of the engineer's knowledge, and that the accuracy of the information cannot be guaranteed.

RIGHT-OF-WAY: A general term denoting land in which the County owns or has a platted or conveyed easement dedicated to, or required for use by, the public.

ROAD: Streets, sidewalks, alleys, highways, and other ways opened or unopened to travel by the public, including the roadbed, right-of-way and all culverts, drains, sluices, ditches, water storage areas, waterways, embankments, slopes, retaining walls, bridges, tunnels and viaducts necessary for the maintenance of travel.

ROADWAY: A general term denoting land, property, or interest therein, usually in a strip, acquired for, or devoted to, transportation purposes including the travel way, shoulders and swales.

SERVICE AREA: The geographical region consisting of the lot(s) being served or being proposed to be served by a public facility, including but not limited to public water or sewage systems.

SERVICE CONNECTION (WATER): The terminal end of service from the public potable water system. That is, it is that point where the CCU loses jurisdiction and sanitary control over the water at its delivery to the consumer. Typically, at the meter installation.

SERVICE CONNECTION (SEWER): The terminal end of service from the public wastewater system. For gravity service connections, this would be a clean-out at the public right-of-way line or a Charlotte County Utilities Easement line. For pressurized main connections (force mains), this would be a plug valve

at the public right-of-way line or a Charlotte County Utilities Easement line.

SEWAGE SYSTEM: A system of pipes, pumps, tanks or wastewater treatment plants and all other appurtenances or equipment needed to treat, transport and disposal of sewage.

STANDARD PUMP STATION: Those pump stations which have multiple unit's wastewater flowing to one station.

STRUCTURE: Any construction or any production or piece of work artificially built up or composed of parts joined together in some definite manner. "Structure" includes "building," as well as other things constructed or erected on the ground, attached to something having location on the ground or requiring construction or erection on the ground. The term "structure" shall be construed as if followed by the words "or part thereof".

SURVEYOR: A professional land surveyor duly registered and licensed by the State of Florida.

TRAFFICWAY: A public street used primarily to facilitate the movement of vehicles. A trafficway includes freeways, expressways, arterials, and collector streets.

WATER METER:

(1) MASTER METER: When multiple units of a mobile home park, apartment complex, townhouse, multifamily building or commercial building are served and billed by a compound meter in order to share the cost of the bill among the tenants.

(2) SUB-METER: Private meters used to separately track and bill usage of each unit within a mobile home park, apartment complex, townhouse cluster, multifamily building or commercial building being served by a master meter.

WATER SYSTEM: A system of pipes, pumps, water treatment plants, or water sources, and all other appurtenances or equipment needed to treat, transport, and distribute water.

3. ABBREVIATIONS:

A. Agencies:

AASHTO: American Association of State Highway & Transportation Officials

ANSI: American National Standards Institute

ASSE: American Society of Sanitary Engineers ASTM: American Society for Testing Materials

AWWA: American Water Works Association

BMP: Best Management Practice

CMOM: Capacity, Management, Operation, and Maintenance Program

USDOT: United States Department of Transportation (Federal)

FEMA: Federal Emergency Management Agency

FDEP: Florida Department of Environmental Protection (State)

FDOT: Florida Department of Transportation (State)

USEPA: United States Environmental Protection Agency (Federal Government)

FCCC & HR: Foundation of Cross Connection Control and Hydraulic Research (University of Southern California)

NCPI: National Clay Pipe Institute NEC: National Electrical Code

NEMA: National Electrical Manufacturers Association

NFPA: National Fire Protection Association

OSHA: Occupational Safety & Health Administration

UL: Underwriters Laboratories

B. General

DIP: Ductile Iron Pipe

fps: feet per second

gpdc: gallons per capita per day

gpd: gallons per day

gpm: gallons per minute

HDPE: High Density Polyethylene

mgd: million gallons per day

psi: Pounds per Square Inch (gauge)

PVC: Polyvinyl Chloride

ROW: Right-of-Way

Sq. Ft.: square feet

Sq. Yd.: square yard

SECTION 1
GENERAL REQUIREMENTS

SECTION 1

GENERAL REQUIREMENTS

The purpose of this manual to set forth the general requirements for the developer's planning and design of proposed utility improvements including water distribution, wastewater collection, and reclaimed systems. Unless otherwise approved or conditioned by CCU, all developer's designs shall be in accordance with Charlotte County Utility's (CCU) design compliance standards, latest edition, posted on the Charlotte County website.

1.1 GENERAL

A. Developer must apply and obtain all other Local, State, and Federal permits applicable to the project (county site plan, dewatering, FDEP, etc.).

1. Charlotte County Pre-construction meeting checklist with all applicable documents submitted for CCU review prior to meeting.
2. All applicable permits to be submitted to CCU prior to the mandatory pre-construction meeting with CCU.
3. Applicable Charlotte County Preliminary and Final Site Plan Approval
   a) Owner shall submit all required documentation per Charlotte County Code.
4. Applicable FDEP Construction Permits
   a) Owner shall submit all required documentation per the FDEP to Charlotte County Utilities.
5. Applicable FDOT Construction Permits
   a) For any work within the FDOT ROW, the Owner shall submit all required documentation to the FDOT for a construction permit.

B. Utility Plan Requirements

1. Refer to the CCU Minimum Drawing and Submittal Requirements for Potable Water, Wastewater, and Reclaimed Water Projects for all General Plan Requirements.
2. Refer to the CCU Standard Drawing Details for all applicable details to be included within plans.

1.2 APPLICATION – RESIDENTIAL AND COMMERCIAL

A. Mandatory Pre-Application Meeting

1. Submit request for a Pre-Application Meeting to: coordinator.engineering@charlottecountyfl.gov
2. Complete the Pre-Application Checklist prior to meeting.
3. Meeting should be attended by the Applicant/Owner and Engineer of Record.

B. Letters of Availability

1. Utility Availability Request Form shall be submitted by Developer to CCU at or prior to Pre-Application meeting.

C. Fire Flow Test Requests

1. Complete Water Flow Test Application found on CCU website.
2. Water Flow Test Application Form shall be submitted by Developer to CCU at or prior to Pre-Application meeting.

D. Design Standards – Refer to the Standard Specifications for each applicable section.

E. Utility Report

1. The Developer's Utility Report shall include sections for Potable Water, Sanitary Sewer (Force Main/Lift Station), and Reclaimed Water.
2. Utility Report must be electronically signed and sealed by the Engineer Of Record ("EOR").
3. Utility Report shall include details of the proposed utility design.
4. All engineering design assumptions made by the EOR in the Utility Report must be clearly identified.
5. All supporting engineered design calculations must be included in the Utility Report.
6. The Utility Report must include all model results with diagrams.

F. Application Submission

1. Developer shall submit the Application electronically.
2. Mid-review meetings during the review procces are encouraged by CCU to help clarify design and streamline reviews.
3. Approval with Conditions.

(1) CCU may grant Application Approvals with Conditions.

(2) All conditions must be satisfied prior to first water meter being

installed.

G. Application Fees

a) Application fee is due at time of initial submittal. One resubmittal for review is permitted without additional cost to Developer.

b) Resubmittal fee for review will be assessed if more than three (3) reviews are needed or requested.

c) Inspection Fee is 5% of the Engineers Opinion of Probable Cost of utility infrastructure, minimum of $500.00 and due at time of Utility Agreement execution in accordance with current fee resolution posted on the Charlotte County website.

H. CCU Staff Review Timelines

1. Initial Review – 30 business days
2. Resubmittal Review – 30 business days

I. Process information, including submittal of master utility plan should be defined here, along with the cost sharing process.

1.3 FDEP PERMIT APPLICATION APPROVAL PROCESS THROUGH CCU

A. DEP Coordination and CCU signatures

1. Refer to CCU website for information necessary to include to submit for FDEP General Use Permit Applications.

a) Submit Permit Approval Request to CCU engineering department at coordinator.engineering@charlottecountyfl.gov

b) An email from CCU requesting additional information or signed Application for submittal to FDEP to be returned to Developer within five (5) business days.

c) Applications must be deemed complete prior to CCU Director sign-off.

B. Mandatory Pre-Construction Meeting

1. Contractor, Owner, and Engineer must be present.
2. Developer must submit Pre-Construction Meeting through Accela.
3. Mandatory Pre-Construction Meeting must be held at least 48 hours prior to commencement of construction.
4. Developer must complete and submit the Pre-Construction Meeting Checklist with applicable documents one (1) week prior to the

Mandatory Pre-Construction Meeting.

C. Shop Drawing Submittals

1. Developer shall submit Shop Drawings one week prior to the Mandatory Pre-Construction Meeting.

2. Submittal package to include, but not limited to:
   a) Valve types
   b) Air Release Valves
   c) Fire Hydrants
   d) Sanitary Sewer Manholes
   e) Lift Station
      (1) Pumps
      (2) Wetwell
      (3) Electrical Components
      (4) Control Panel
      (5) Telemetry Logics
   f) Any and all materials and equipment necessary to complete the project.

1.4 DURING CONSTRUCTION

A. Developer is responsible for maintaining all site BMPs per Standard Specifications and Local/State/Federal requirements.

B. CCU Inspector shall be present (onsite) periodically, however must be present for inspections including, but not limited to:

1. Pressure tests
   a) Potable Water Mains
   b) Force Mains
   c) Reclaimed Water Mains
   d) Gravity Sewer Low Pressure Test
2. Sewer Main TV Inspection (at Inspector's discretion)
3. Hot Taps/Main Tie-In
4. Flushing
5. Hydrant Assembly Inspection
6. Lift Station Startup
7. Utility Walkthrough

C. Developer shall request inspections with 48-hr notice to CCU.

D. Inspections are to be scheduled through CCU for each project.

1.5 POST CONSTRUCTION

A. Record Drawings – Refer to CCU Minimum Drawing and Submittal Requirements for as-builts of Potable Water, Wastewater, and Reclaimed

Water Projects.

B. FDEP Certifications – Items to be submitted with checklist:
   1. Record Drawings with surveyed as-built information
   2. Pressure Test Reports
   3. Passing Bac-T Test Results
   4. Sewer TV Tapes
   5. Lift Station Start-Up Form

C. Easements – Requirements of utility easements outside of the Right-of-Way (ROW)
   1. Easement to be 10’ wide if adjacent to the existing ROW.
   2. Easement to be 20' wide for single pressure main outside of ROW and for gravity sewer main up to 10’ deep.
   3. Easement to be 25’ wide for a single gravity sewer main 12’ deep or greater.
   4. Easement to be 25’ wide for two pressure pipes included.
   5. For easements containing a gravity sewer main and one pressure pipe – Add the gravity sewer requirement, based on depth, plus 10’.
   6. The maximum easement width required is 30’ wide, unless otherwise approved by CCU.
   7. CCU Utility forms contain approved easement dedication language.
   8. Standard Lift Stations easements are to be a minimum of 35’ x 35’.
   9. Master Lift Station easements are to be a minimum of 50’ x 50’.

D. Ownership transfer
   a) Utility Forms – https://www.charlottecountyfl.gov/departments/utilities/about-utilities/forms.stml
   b) Bill of Sale
   c) Lien Releases
   d) Easements

   2. Developer must submit Transfer Checklist and all applicable items to CCU.

E. GIS – Reference table below for GIS standard naming convention and required data fields.

Required Feature Class	Feature Class Type	Required Data Fields
Water Feature Dataset		
W_Backflow	Point	Name; Diameter (in); Manufacturer; Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
W_Fitting	Point	Name; Fitting Type (Tee, Bend, etc.); Elevation (ft); Diameter (in); Manufacturer; Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
W_Hydrant	Point	Name; Elevation (ft); Manufacturer; Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
W_Pipe	Line	Pipe Type (Main, Hydrant, Service, etc.); Pipe Shape (Circular, Rectangular, Elliptical, etc.); Width (in); Height (in); Material (PVC, RCP, HDPE, etc.); Length (ft); Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
W_SpotElevation	Point	Elevation (ft); Comments
W_Valve	Point	Name; Valve Type (Plug Valve, Gate Valve, ARV, etc.); Elevation (ft); Diameter (in); Manufacturer; Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
Reclaimed Water Feature Dataset		
R_Backflow	Point	Diameter (in); Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
R_Fitting	Point	Name; Fitting Type (Tee, Bend, etc.); Elevation (ft); Diameter (in); Manufacturer; Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments

R_Hydrant	Point	Name; Elevation (ft); Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
R_IrrMeter	Point	Diameter (in); Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
R_Pipe	Line	Pipe Type (Main, Hydrant, Service, etc.); Pipe Shape (Circular, Rectangular, Elliptical, etc.); Width (in); Height (in); Material (PVC, RCP, HDPE, etc.); Length (ft); Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
R_SpotElevation	Point	Elevation (ft); Comments
R_Valve	Point	Name; Valve Type (Plug Valve, Gate Valve, ARV, etc.); Elevation (ft); Diameter (in); Manufacturer; Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
Wastewater Feature Dataset		
WW_Cleanout	Point	Elevation (ft)
WW_Fitting	Point	Name; Fitting Type (Tee, Bend, etc.); Elevation (ft); Diameter (in); Manufacturer; Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
WW_Forcemain	Line	Pipe Type (Main, Hydrant, Service, etc.); Pipe Shape (Circular, Rectangular, Elliptical, etc.); Width (in); Height (in); Material (PVC, RCP, HDPE, etc.); Length (ft); Manufacturer; Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments

WW_GravityMain	Line	Pipe Type (Main, Hydrant, Service, etc.); Pipe Shape (Circular, Rectangular, Elliptical, etc.); Width (in); Height (in); Material (PVC, RCP, HDPE, etc.); Length (ft); Upstream Invert (ft); Downstream Invert (ft); Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
WW_GreaseTrap	Point	Rim Elevation (ft); Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
WW_Liftstation	Point	Name; Lift Station Type; Elevation (ft); Diameter (ft); Depth (ft); Depth (ft); Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
WW_Manhole	Point	Name; Bottom Type; Rim Elevation (ft); Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
WW_Pump	Point	Lift Station; Model; Impeller; Hp; Bottom Elevation (ft); Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments
WW_SpotElevation	Point	Elevation (ft); Comments
WW_Valve	Point	Name; Valve Type (Plug Valve, Gate Valve, ARV, etc.); Elevation (ft); Diameter (in); I Manufacturer; Install Year; Data Source (Record Drawing, GIS, etc.); SDP Name; SDP Number; Phase; Status (In Service, Removed, Under Construction, etc.); and Comments

F. Warranty – Developer's contractor to warranty all work for one (1) year from CCU's date of acceptance.

G. Water Meter Requests
   1. All necessary FDEP and CCU approvals and certifications are needed prior to submitting for first water meter.
   2. Water meters are to be requested and paid for electronically.

1.6 MISCELLANEOUS

A. Developer may request a CCU Hydrant Meters for temporary construction water onsite.

1. CCU has limited number of Hydrant Meters. If no Hydrant Meters are available for Developer use, Developer may purchase additional CCU approved hydrant meter, provided that CCU shall retain the purchased Hydrant Meter upon completion of project. (No credit shall be given by CCU to the Developer for the purchase of a Hydrant Meter.)

B. Design Waivers

1. Design Waiver Requests shall be submitted to CCU through email to: coordinator.engineering@charlottecountyfl.gov
2. Design Waiver Requests shall be reviewed and decisioned within 5 business days of submission for CCU recommendation.
3. The fee for Design Waiver Request must be paid by Developer at time of Design Waiver Request submission.

C. Field Change

1. Field Changes that are negligible to overall project cost and design intent must be approved by CCU prior to installation.
2. All field changes that are deemed material in nature by a CCU inspector will require a plan modification submission and approval.
3. All changes or revisions to installation that deviate from CCU approved Site Plans shall be noted and clouded on Record Drawings submitted to CCU.

D. 811. Developer's Contractors must call 811 prior to excavation or work commencement.

E. Utility Damages During Construction

1. Developer is responsible for costs related to damages to County Facilities caused by Developer, Developer's Contractor, or anyone under their responsible charge to County facilities during construction.
2. CCU may make any and all necessary repairs to County Facilities damaged by Developer.
3. CCU shall invoice Developer for the costs to make any and all necessary repairs to County Facilities damaged by Developer. Developer shall reimburse necessary repairs to County Facilities damaged by Developer within thirty (30) days of receipt of invoice.

4. If Developer fails to make payment within thirty (30) days of receipt, all future inspections will be held until time of payment.

F. Restoration or repair of other property damages due to construction or material storage will be the Developer's responsibility to complete before final certification is provided from CCU.

G. CAD Standards

1. Current CAD standards and layer templates to be used throughout the design plans are available on the CCU website.

H. Utility Access Availability

1. All utility work is required to follow the standardized and consistent approach to determining access availability to CCU utility systems as described in CCU Policy 5.003 – Utility Access Availability Determination Policy.

SECTION 2
POTABLE WATER

SECTION 2

Potable Water Systems

2.1 GENERAL

This section sets forth the general requirements for design of water distribution and transmission systems for potable water service and fire protection.

2.2 PROGRESS GUIDANCE

A. Developer must design the potable water distribution and transmission system to ensure the development maintains system capacity and operation.

B. Developer must review adjacent and surrounding properties to determine limits of the proposed development's potable water system.

C. Developer must obtain CCU approval of the proposed development service area prior to proceeding with the remainder of the application process.

D. Development Overall Conceptual Plan
   1. Developer shall submit an Overall Conceptual Plan to CCU for approval.
   2. A phasing plan must be submitted detailing the sequencing intended for phased developments.

E. Developer must provide an overall potable water system layout for the CCU approved development service area including:
   1. Based on the full build-out of the development:
      a) All potable water system main locations and sizes; and
      b) All main locations, sizes, and outlet connection points to the existing CCU potable water system; and
      c) All potable water system main locations and sizes to serve adjoining properties within the CCU approved development service area (if applicable); and
      d) The estimated potable water flows and ERCs from the entire proposed development.
   2. Once the Overall Site Plan is approved by CCU, detailed engineering plans, specifications, and the Engineering Report are to be submitted to CCU for review and approval.

a) A CADD file of the approved Site Plan must also be submitted with the complete application package.

2.3 ENGINEERING REPORT

A. A complete Engineering Report shall be submitted to CCU and must include the following:

1. Project Overview, including approved Overall Conceptual Plan.
2. Detailed Potable Water Demand Calculations.
3. Proposed Phase Scenario (if applicable).
4. Build Out Scenario.
5. Potable water pipe capacity calculations.
6. Pressure at the potable water main connection point to the existing CCU system.
7. Model pipe and junction outputs for all scenarios.
8. A hard copy of the modeling results. (An electronic file of the modeling results may be requested by CCU on a case-by-case basis).
9. Hydraulic design computations shall be submitted in conformance with the CCU Water GEMs model using the most current version of software employed by CCU or approved equal.
10. The pipe sizing must be based upon max day peak flows plus fire demands. Specific fire flow demands shall be provided by the Engineer of Record with justification in accordance with NFPA 1.
11. The effect of the proposed potable water capacity needs on the hydraulic capacity of the existing potable water system shall be evaluated by the Developer prior to CCU approval of the connection of the proposed potable water system to the existing CCU system.
    a) A hydraulic analysis shall be performed to demonstrate that the existing CCU system can meet the increase in potable water capacity needs from the development as follows:
        i. Does not negatively affect the existing CCU system normal operating water pressures under maximum day flow plus fire demand conditions,
        ii. Does not negatively affect chlorine residuals and water age.
12. All potable water mains shall be designed for build out conditions.

13. Separate domestic and fire mains are not allowed.

2.4 SYSTEM DESIGN

A. Flow Demands

1. Flow demands for Developer's proposed design shall be calculated on the basis of full development as known or projected. The average daily flow shall be calculated at the minimum rate as follows:

The following usages shall be deemed to be applicable for the purpose of calculating flows for all new connections to the system. Commercial, Institutional, and other units not identified herein shall conform to the Florida Department of Health and Rehabilitative Services section 64E-6.008.	
Types of Buildings	Usage
Apartments	157.5 gpd
Arcades (no food services) *other facilities/services calculated according to appropriate occupancies	3 gpd/seat
Restaurants, Bars, Cocktail Lounges, Fast Food	20 gpd/seat
Bars, Cocktail Lounges or Pubs not serving or preparing food	12 gpd/seat
Beauty Salons/Barber Shops <8 hours/day	50 gpd per chair
Beauty Salons/Barber Shops > or equal to 8 hours/day	74 gpd per chair
Boarding Schools (Students and Staff)	75 gpcd
Bowling Alleys (Toilet Wastes only, per lane)	50 gpd + 20 gpd per bar and restaurant seat
Construction, Manufacturing, or Industrial Equipment operations *other occupancies may apply, subject to reclaimed water applicability	Based on equipment supplier or Engineers design analysis data
Country Clubs (Per member)	5 gpd + 30 gpd per bar and restaurant seat
Day Schools (Students and Staff)	6 gpcd + 4gpcd if shower + 4 gpcd if cafeteria
Factories (With showers)	30 gpcd
Factories (Without Showers)	10 gpd/100 Sq. Ft.
Gas Stations without food outlets, per restroom	225 gpd
Car Wash	Based on equipment supplier data

Hospitals (in-patient services only, with or without laundry) *out-patient labs, medical Center operations and other facilities calculated according to appropriate occupancies	200 gpd/bed
Hotels and Motels	125 gpd/room or unit + 20 gpd per restaurant and bar seat
Laundromats	225 gpd/washer
Mobile Home Park	225 gpd/trailer
Movie Theaters, Auditoriums, Churches (Per Seat)	3 gpd
Churches	3 gpd per seat or per capita if no seat
Nursing Homes	100 gpd/bed
Office Buildings (excludes Medical Offices, Dental Offices, refer to FAC 64E-6-008 for the occupancies)	10 gpd/100 Sq. Ft.
Public Institutions (other than those listed herein)	75 gpcd
Single-Family Residence with (1) 5/8" x 3/4" meter *assumes a 3-bedroom residence. For residences with more than 3 bedrooms or that require larger meter refer to FAC 64E-6.008	225 gpd
Townhouse Residences	225 gpd
Stadiums, Frontons, Ballparks, Etc. (Per Seat)	3 gpd
Stores/Retail operations (Without Kitchen Wastes) *other occupancies may apply	5 gpd/100SQ.Ft.
Speculative Buildings	30 gpd + 10 gpd/100 Sq.Ft.
Warehouse (each unit) *other occupancies may apply. See FAC 64E-6.008 for self-storage units	30 gpd + 10 gpd/1000 Sq.Ft.
Gpd= gallon per day; gpcd= gallon per capita per day a) If use is not specified in the table above, base flow is assumed to be 1,500 gpd/AC. b) Refer to the most current rate resolution on CCU website for meter sizing fees.	

2. A Minimum Day Peaking hour factor shall be 2.5 times the average daily value.

3. The Maximum Day peaking hour factor shall be 1.5 times the average daily value.

4. An Equivalent Residential Connection (ERC) is equivalent to peak flow of 225 gpd.

5. CCU Water Flow Test Requirements

    a) A request to perform the test should be submitted at time of the Mandatory Pre-Application Meeting or to coordinator.engineering@charlottecountyfl.gov. A two-week time frame is required once the initial request is submitted.

    b) Developer is required to pay the current fee in the CCU rate resolution for each test requested prior to any construction.

    c) CCU will perform all water flow tests.

B. System Size Computation

1. Developer shall submit an Engineering Report, signed and sealed by the Engineer of Record, highlighting the water system design and supporting hydraulic modeling for review and approval to CCU. The proposed system size computation must demonstrate no adverse impacts to CCU's overall system performance.
2. The minimum design for water systems shall provide for the greater of the two scenarios below:
    a) Peak Hour Flow (PHF).
    b) Max Day Flow (MDF) + Required Fire Flow.
        (1) Required Fire Flow shall be determined as per the parameters set forth in NFPA 1 Section 18.4 – Fire Flow Requirements for Buildings.
3. The allowable minimum system pressure shall be 20 psi.
4. Design computations shall be completed using a water modeling software and included in an Engineer's Report with the following information:
    a) Project Overview, including overall map.
    b) Water Demand Calculations.
    c) Build-out scenarios including Fire Flows.
    d) Proposed Phasing Scenarios.

e) Max Day plus Fire Flow results.

f) Peak Hour Flow Results.

g) Junction Tables (Peak Hour and Max Day plus Fire Flow).

h) Pipe Tables (Peak Hour and Max Day plus Fire Flow).

i) Connection Point: Pressure and Flow.

*If the project is phased, a master model must be submitted for full build-out of the project.

C. Pipe Sizing (Mains)

1. The minimum size for pipes shall be 6-inches in diameter. Nominal sizes acceptable to CCU are 6-inch, 8-inch, 12-inch, 16-inch, 20-inch, 24-inch, 30-inch, and 36-inch. No other sizes shall be allowed without prior written approval by CCU.

D. Hydraulic Computations

1. Hydraulic calculations shall be prepared for proposed potable water main systems to determine the various operational conditions as follows:
   a) Pipe friction loss shall be calculated using the Hazen-William's Formula.
   b) A conservative coefficient of friction factor (C-factor) of 120 shall be used for all pipes. This will assume all minor losses are accounted for.
      (1) If a higher C-factor is required, the minor losses shall be calculated based on a per foot calculation as an average throughout the system with prior approval by CCU. The design engineer may use a more precise calculation using the following values for "K" coefficients to account for head losses in the system:

Fitting	Coefficient, K
Gate Valves (Fully Opened)	0.77
Swing Check Valves (Fully Opened)	2.50
90* Bends [1]	0.80
45* Bends	0.20

22.5* Bends	0.10
11.25* Bends	0.05
Tees (Straight Run)	0.35
Tees (Branch Run)	1.28
Wyes (Straight Run)	0.30
Wyes (Branch Run)	0.50
Expansion Sudden D2/D1 = 0.75	0.19
Pipe Exit	1.00

[1] Requires special approval from CCU

2. The allowable velocities shall be from 2 feet per second to 8 feet per second.
3. Head loss shall not exceed 10 feet per 1,000 feet of pipe.
4. Multifamily developments composed of buildings with more than six dwelling units per building and exceeding two stories in height shall be served by water mains no less than 8 inches in diameter.
5. All commercial developments shall be served by water mains no less than 8 inches in diameter.
6. All industrial developments and all hazardous storage areas shall be served by water mains no less than 8 inches in diameter.
7. Losses through meters, backflow prevention devices, or other major losses shall be accounted for in the design.

E. Pipe Installation, Location, and Depth

1. Pipes are to be designed on the same side of the road as the existing main unless otherwise approved in writing by CCU.
2. Pipe depth shall be in accordance with the following:
    a) Pipe is intended to be installed at a consistent depth. Deviations to avoid conflict are subject to approval by CCU.
    b) Minimum 36-inch depth from the top of pipe to finished grade for pipes 12- inches diameter and smaller.

c) Minimum 54-inch depth from the top of pipe to finished grade for pipes 16- inches in diameter or greater (Final depth subject to valve stem length requirements) or as approved in writing by CCU.

3. Directional Drilling, other than under waterways, shall be installed at depths consistent with Paragraph D.2. To minimize air pockets, consistency of depth of bury shall be maintained and no depths greater than 8 feet will be accepted. Developer must secure written approval from CCU for any exceptions. For additional information, please see CCU Design Compliance Standards.
4. Vertical and horizontal deflections shall be accomplished with the least amount of bend possible. Pipe deflection is preferred over 11.25-degree bends. 11.25-degree bends are preferred over 22.5-degree bends. 22.5-degree bends are preferred over 45-degree bends. Where pipe deflections are used, they are not to exceed 50 percent of the maximum recommended deflection limits.
5. Typical distance from edge of pavement shall be a minimum of 5-feet, preferred 7-feet.
6. Pipes shall be looped to eliminate dead ends greater than 600-feet within the project unless prior written approval is obtained from CCU.
    a) Dead end mains shall be terminated with an approved fire hydrant assembly.
7. All developments shall have two points of connection to the water system unless prior written approval is received from CCU.

F. <u>Horizontal and Vertical Separation for Mains</u>

1. A minimum of ten (10) feet horizontal separation shall be required between other public and/or private utilities, structure(s), building(s), wall(s), fountain(s), fence(s) and CCU infrastructure unless specifically approved by CCU.
2. Drainage inlets shall be located no closer than five (5) feet from proposed or existing potable water mains.
3. All new light pole foundations shall be a minimum of five (5) feet from any existing or proposed CCU owned and maintained pipeline or facility unless

approved by CCU.

4. The root ball of palm trees shall be a minimum of five (5) feet and the root ball of shade trees shall be a minimum of ten (10) feet from any existing or proposed CCU owned and maintained pipe or facility.
5. TV cable, telephone, gas, electric power, and irrigation lines may cross under CCU facilities with a minimum of eighteen (18) inches of clearance (both horizontal and vertical) from CCU facilities.
6. Where the potable water main, reclaimed water main and force mains cross, unless otherwise approved by CCU, reclaimed water main and force main shall pass beneath the potable water main and the force main shall pass beneath the reclaimed water main.

G. Meter Box

1. All meter boxes to be furnished by CCU and installed by Developer.

H. Meters

1. CCU shall supply the meter(s) and the Developer shall pay for the meter(s) in accordance with the County's latest rate resolution.
2. All meters shall follow specifications stated in CCU Policy 5.001 – Water Meter and Water/Sewer Line Policy and CCU Policy 032 – Commercial Water Connections Policy as found as attachment to this document.
3. Master Meters are not allowed for Single Family developments.
   a) Single Family or Two-Family attached projects may utilize meter banks.
   b) For Commercial applications, one master meter is required for each building.
4. Single-Family Residence: Each single-family residence shall have its own water meter. Master water meters shall not be allowed for neighborhoods or clusters of single-family residences. Water service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water service line(s) shall be the decision of CCU. [2]
5. Duplex: Each dwelling unit shall have its own water meter. Master water meters shall not be allowed for neighborhoods or clusters of duplexes. Water service line(s) shall

not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water service line(s) shall be the decision of CCU. [2]

6. Townhouse:[1] Each single-family living unit shall have its own water meter or be served through a master water meter complying with the requirements outlined in footnote one. Master water meter installations to serve the multiple units of multi-family (multi-townhouse) building(s) may also include a combination of master water meter(s) and individual water sub-meter(s). The final water meter configuration to be implemented is subject to the approval of CCU. Water service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water service line(s) shall be the decision of CCU. [2]

   Special Note: CCU encourages the installation of a separate water meter (sub-meter) for each dwelling unit in a multi-family (multi-townhouse) building(s), if at all possible, to avoid additional costs in the future for re-plumbing in the event individual water meter(s) are desired or required due to ownership changes, etc. Studies show that owners/tenants in individually sub-metered units use 5 to 15% less water than owners/tenants with just a master meter.

   For additional detached structures which will utilize potable water and will be connected to the waste disposal system plumbing, a separate meter and water service connection shall be required. This includes detached garages, workshops, guest houses, etc. No two buildings shall share a meter. An exception is made for detached structures that are located on the same recorded platted lot. A separate meter is not required for this arrangement.

7. Mobile Homes: [1] Each mobile home shall have its own water meter or be served through a master water meter complying with the requirements outlined in footnote one. Master water meter installations to serve multiple mobile home dwelling units may also include a combination of master water meter(s) and individual water sub-meter(s). The final water meter configuration to be implemented is subject to the approval of CCU. Water service line(s) shall not encroach upon adjacent privately

owned parcels/lots regardless of ownership. The final location of the water service line(s) shall be the decision of CCU. [2]

Special Note: CCU encourages the installation of a separate water meter (sub-meter) for each mobile home dwelling unit, if at all possible, to avoid additional costs in the future for re-plumbing in the event individual water meter(s) are desired or required due to ownership changes, etc. Studies have shown that owners/tenants in individually metered (sub-metered) units use 5 to 15% less water.

For additional detached structures which will utilize potable water and will be connected to the waste disposal system plumbing, a separate meter and water service connection shall be required. This includes detached garages, workshops, guest houses, etc. No two buildings shall share a meter. An exception is made for detached structures that are located on the same recorded platted lot. A separate meter is not required for this arrangement.

8. Multiple-Family Building 1: Multiple-family building(s) shall have their own master water meter complying with the requirements outlined in footnote one. Individual water sub-meter(s) for each dwelling unit in a multi-family building are also allowed. Master water meter installations to serve the multiple units of multi-family building(s) may also include a combination of master water meter(s) and individual water sub-meter(s). The final water meter configuration to be implemented is subject to the approval of CCU. Water service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water service line(s) shall be the decision of CCU. [2]

   Special Note: CCU encourages the installation of a separate water meter (sub-meter) for each dwelling unit in a multiple-family building, if at all possible, to avoid additional costs in the future for re-plumbing in the event individual water meter(s) are desired or required due to ownership changes, etc. Studies have shown that owners/tenants in individually metered (sub-metered) units use 5 to 15% less water than owners/tenants with just a master meter.

For additional detached structures which will utilize potable water and will be connected to the waste disposal system plumbing, a separate meter and water service connection shall be required. This includes detached garages, workshops, guest houses, etc. No two buildings shall share a meter. An exception is made for detached structures that are located on the same recorded platted lot. A separate meter is not required for this arrangement.

9. Commercial (all remaining land use types not specifically mentioned above):

   All commercial meter assemblies shall be above ground.

   a. Single Story Building: [1] Each individually leased/owned space in a single story building shall have its own water meter or be served through a master water meter complying with the requirements outlined in footnote one. This requirement shall be true for single story building(s) intended to continue under single ownership, those to be sold individually and those to be sold as condominium commercial/office spaces. Master water meter installations to serve the individually lease/owned spaces in single story commercial building(s) may also include a combination of master water meter(s) and individual water sub-meter(s). The final water meter configuration to be implemented is subject to the approval of CCU. Any changes in use from the originally approved engineering plans, separation of individual leased/owned space into two or more additional spaces, conversion from lease to condominium and any similar event shall be cause for CCU to review the existing agreement(s) and/or water meter configurations and determine what fee adjustments and/or water meter adjustments are required. Water service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water service line(s) shall be the decision of CCU. [2]

      Special Note: CCU encourages the installation of a separate water meter (sub-meter) for each individual leased/owned space in a single story building, if at all possible, to avoid additional costs in the future for re-plumbing in the event individual water meter(s) are desired or required due

to ownership changes, etc. Studies have shown that owners/tenants in individually metered (sub-metered) units use 5 to 15% less water than owners/tenants with just a master meter.

For additional detached structures which will utilize potable water and will be connected to the waste disposal system plumbing, a separate meter and water service connection shall be required. This includes detached garages, workshops, guest houses, etc. No two buildings shall share a meter. An exception is made for detached structures that are located on the same recorded platted lot. A separate meter is not required for this arrangement.

b. Multiple Story Building: Multiple story building(s) shall have their own master water meter complying with the requirements outlined in footnote one. Individual water meters for each individually leased/owned space are also allowed. Master water meter installations to serve the individually lease/owned spaces in multiple story commercial building(s) may also include a combination of master water meter(s) and individual water sub-meter(s). The final water meter configuration to be implemented is subject to the approval of CCU. Water service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water service line(s) shall be the decision of CCU. [2]

This requirement shall be true for multiple story building(s) intended to continue under single ownership, those to be sold individually and those to be sold as condominium commercial/office spaces. Any changes in use from the originally approved engineering plans, separation of individual leased/owned space into two or more additional spaces, conversion from lease to condominium and any similar event shall be cause for CCU to review the existing agreement(s) and/or water meter configurations and determine what fee adjustments and /or water meter adjustments are required.

Special Note: CCU encourages the installation of a separate water meter (sub-meter) for each individual leased/owned space in a multiple story building, if at all possible, to avoid additional costs in the future for re-

plumbing in the event individual water meter(s) are desired or required due to ownership changes, etc. Studies have shown that owners/tenants in individually metered (sub-metered) units use 5 to 15% less water than owners/tenants with just a master meter.

c. Commercial Other:

Guard houses, swimming pools, cabanas, and other similar facilities requiring utilities shall be considered as a separate space and shall require individual water meter(s). If a "Commercial Other" is not included with a commercial development, the rules for Commercial Developments to establish service(s) apply. Water service line(s) shall not cross or encroach on adjacent privately owned parcels/lots regardless of ownership. The final location of the water service line(s) is the decision of CCU. [2]

10. Vacant Lots

A meter maybe installed at a vacant lot without also requiring sewer service, if sewer service is for the purposes of irrigation or for washing boat or other equipment provided that the wastewater produced does not require treatment in accordance with Florida State Environmental Health guidelines.

Note [1]: Approval of a master water meter from Charlotte County Utilities is contingent upon:

1. Any changes in use from the originally approved engineering plans, separation of individual leased/owned space into two or more additional spaces, conversion from lease to condominium and any similar event shall be cause for CCU to review the existing agreement(s) and/or water meter configurations and determine what fee adjustments and/or water meter adjustments are required

2. The system must meet CCU specifications

3. A copy of the organizations' bylaws must be submitted which details the water meter program to be used, how individual properties will be allocated water usage, who is doing the billing, how individual properties will be billed, who is responsible for payment, etc. and these bylaws must meet with CCU's approval

4. Any additional expense to convert the original water meter system to another water meter system, including bringing the system up to CCU's specifications shall be borne totally (100%) by the Owner/Association

5. Signed and sealed Engineering plans must be submitted for original master water meter systems and for any conversions from master water meter systems to individual water sub--meter systems in the future

6. Where master/individual water meter combinations are proposed and thereafter installed, CCU will only be responsible for the infrastructure and assets from the CCU water main to the master water meter located within CCU property and/or CCU easements. Maintenance, meter reading, any and all other associated costs, etc. specific to the additional individual water meters and infrastructure installed from the master water meter to the actual units/spaces served will be the responsibility of the owner or home owner's association

   Note [2] : CCU is only responsible for the infrastructure and assets from the CCU water main to the master meter or individual water meter associated with billing data. CCU is not responsible for sub-meters installed by private developers.

I. Connection to Existing System

1. All connections to existing mains shall be made as authorized by CCU.
2. Existing system capacity shall be evaluated in the Engineering Report.
3. All main extensions of existing utilities are to follow CCU Policy 5.002 – Main Extension and CCU Policy 033 – Transmission vs Distribution Water Main Connection Policy.
4.

J. Tapping Sleeves

1. No size-on-size taps shall be allowed. If equivalent or nominal size mains are proposed to be connected, a cut in tee shall be necessary.
2. Taps shall be a minimum of one CCU approved pipe size smaller.
3. No back-tapping is allowed unless authorized in writing by CCU.

K. Valves and Valve Locations

1. No side actuated valves are allowed.

2. Valves shall be provided at all locations necessary to provide an operable, easily maintained, and repaired potable water system including but not limited to:
    a) Pipe terminations/blow-off
    b) All intersecting mains.
    c) The number of valves at connection points shall be one less than the number of legs (n-1).
    d) Valves shall be placed at extension of right of way lines, immediately adjacent to the fitting, unless otherwise approved by CCU.
    e) Fire hydrants.
    f) On both sides of all subaqueous or bridge crossings.
3. The maximum length of main between valves shall be no greater than:
    a) 1,000 LF for Transmission Mains
    b) 700 LF for Distribution Mains
    c) Additional valve spacing to be reviewed and approved by CCU.
    d) Valves may only be operated by licensed CCU operations staff or someone under the direct supervision of licensed CCU staff.

L. Air Release Valves (ARV)

1. ARVs are required at highpoints in the system or as required by CCU.

M. Fire Hydrants

1. No private fire hydrants are allowed.
2. Fire hydrants and associated isolation valves are to be located within the Right-of-Way and/or permanent utility easement with sufficient access to the fire hydrant and valve for use and maintenance.
3. A 7-foot (7') clear zone in the front and the two sides with a five (5) foot clear zone in the back of the fire hydrant is required.
4. Fire hydrants shall be designed to be located within five (5) feet of Right of Way or property line.
5. Fire hydrants and isolation valves shall be designed to be located a minimum of

one foot beyond the sidewalk and located between the sidewalk and property line.

6. Fire hydrants shall be designed to be located on the 'parcel' side of the water main.
7. Fire hydrants shall be designed to be located a minimum of ten (10) feet away from any street or driveway.
8. Fire hydrants shall be designed to be located along property lines at the Right of Way.
9. Fire hydrant barrels shall be painted AWWA Safety Yellow.
10. Fire hydrant breakaway flange shall be set minimum of two (2) inches and a maximum of six (6) inches above finished ground elevation.
11. Fire Hydrant Spacing and Flow Requirements
    a) Fire hydrants shall be designed to be located in accordance with applicable minimum fire spacing requirements of NFPA Chapter 18, Section 18.5, as amended from time to time.
    b) Fire hydrants shall provide flow in accordance with applicable minimum fire flow requirements of NFPA Chapter 18, Section 18.4, as amended from time to time.
12. Any deviation from these fire hydrant design requirements shall be at the discretion of the Utility Director and Charlotte County Fire Marshall.

N. Joint Restraining

1. Pipe restraints shall be provided on all fittings and valves and where required by CCU.

O. Electrolysis Prevention

1. All systems shall be designed to best avoid electrolytic action through the contact of dissimilar metals.
2. CCU may require preventative action consisting of the installation of insulating or dielectric couplings between the two materials.

P. Backflow Prevention

1. Any property which is served by the Charlotte County Utilities potable water system shall provide for a backflow prevention device at the customer's water service connection in accordance with the current Charlotte County Utilities Cross Connection Control Policy.

Q. Materials

1. PVC pipe shall be used as the primary material for all potable water mains unless otherwise approved by CCU.
2. HDPE is only to be used in trenchless installation applications or as otherwise approved by CCU.
3. Fusible PVC is not an acceptable pipe material in Charlotte County.

R. Water Services

1. Service connections shall be designed at property lines. Service connections shall be made into potable water mains only.
   a. A minimum of one (1) service connection shall be installed to service every property.
   b. CCU prefers one (1) double service for serving two (2) adjoining lots.
   c. Service lengths greater than 75 feet in length shall have a minimum diameter of 2 inches.
   d. Services under roadways shall be installed within a minimum 3-inch casing pipe ending 2.5 feet past the pavement edge.
   e. If double service laterals are unfeasible, single service laterals for each lot may be designed and must be approved by CCU.

2.5 CASING INSTALLATION

The provisions of this section shall represent the minimum standards and referenced sections for the design and installation of casing pipe for mains as well as conditions requiring casing.

A. General

1. Casings shall be installed in accordance with permit conditions of the authority

having jurisdiction.

B. Conditions Requiring Casing

1. When new roadways, turn lanes, acceleration lanes, deceleration lanes, or driveways are proposed; PVC or steel casing pipe with bell restraints and casing spacers shall be installed on any existing PVC main. CCU requires replacement of any existing mains within proposed construction limits to be replaced with new utility mains as part of the overall project construction.
2. New carrier pipe conditions which will require a casing are as follows:
    a) Collector street of more than four (4) lanes or Arterial Roadway.
    b) Controlled Access, Expressway, and Freeway.
    c) Railroads.

    In addition to the above, CCU reserves the right to require casings for new mains if conditions warrant and/or if deemed necessary.

SECTION 3
SANITARY SEWER

SECTION 3

SANITARY SEWER SYSTEMS

3.1 GENERAL

This section sets forth the general requirements for design of sanitary sewer gravity collection system, force mains, lift stations, low pressure sewers, and vacuum sewers.

3.2 PROCESS GUIDANCE

A. Developments shall be designed to minimize the number of lift stations required. Where possible, regional stations to service multiple developments shall be encouraged.

1. New developments with more than one (1) proposed lift station shall provide a master lift station so that only one connection is required to the wastewater collection system. All proposed lift stations on a project shall flow to the master station within the development service area.
2. Lift station service area shall be based upon maximum depths of the lift stations for gravity sewer systems.
3. Service area for vacuum sewer extensions shall be based upon vacuum sewer modeling results.
4. Service area extensions for low pressure sewer shall be based upon low pressure sewer modeling results.

B. Development Overall Conceptual Plan - Copy shall be submitted to CCU for approval.

1. Provide overall sewer system layout for the CCU approved development service area including:
    a. Based on the full build-out of the development.
    b. All sewer system main locations and sizes.
    c. All lift stations with type designated. Also designate each lift station as cascading to another proposed lift station or connecting directly to CCU transmission system.
        1. Calculations shall be provided to demonstrate flow remains aerobic.

d. All main locations, sizes and outlet connection points to the existing CCU sewer system.

e. All sewer system main locations, depths and sizes to serve adjoining properties within the CCU approved development service area.

f. The estimated sewer flows and ERCs from each adjoining property within the CCU approved development service area.

g. The estimated sewer flows and ERCs from the entire proposed development.

h. The estimated sewer flows to each lift station.

i. If the development is to be phased, a separate phasing plan shall be submitted detailing the sequencing intended.

2. Once the Overall Conceptual Plan is approved by CCU, engineering plans, specifications and the engineering report can be initiated for submittal to CCU for approval.

3.3 ENGINEERING REPORT

A. A complete engineering report shall be submitted to CCU including the following:

1. Project Overview, including approved Overall Conceptual Plan.
2. Detailed Wastewater Demand Calculations.
3. Proposed Phasing Scenario.
4. Build Out Scenario.
5. Sanitary sewer pipe capacity calculations.
6. Lift station calculations including wet well sizing, wet well and float switch elevations, head conditions, design flows, and force main piping.
7. Pressure at the force main connection point to the existing CCU system.
8. Pump selection including all pertinent supporting information.
9. Model pipe and junction outputs for all scenarios.
10. A hard copy of the modeling results. An electronic file of the modeling results may be requested by CCU on a case-by-case basis.
11. Hydraulic design computations shall be submitted in conformance with the CCU Sewer

GEMs model the most current version of software employed by CCU or approved equal.

12. For a force main system with only one pump station, the system's head capacity shall be calculated under peak hour flow conditions utilizing:
    a. one pump running,
    b. all pumps running, and
    c. other combinations, if applicable.
13. When connection to the existing transmission system, system head capacity for force main systems with multiple lift stations manifolded together shall be calculated under the maximum head, (i.e. wet well level of the proposed lift station set at the pump off elevation and under peak hour flow conditions), as follows:
    a. Only one station running at a time
    b. All stations running together at the same time
    c. Or other combinations if applicable
        i. The effect of the proposed lift station on the hydraulic capacity of the existing sewer system shall be evaluated prior to CCU approval of the connection of the proposed lift station to the existing CCU system. A hydraulic analysis shall be performed to demonstrate that the increase in wastewater flow from the proposed lift station does not adversely affect the existing CCU system as follows:
        ii. Does not surcharge any existing gravity sewers,
        iii. Does not reduce the design pumping capacity of all manifolded existing lift stations, and
    d. Does not cause the receiving lift station to exceed its design capacity. Designs may be proposed to utilize smaller pumps in an interim situation with larger pumps to be installed at buildout with future phases. Pump replacement shall be at the expense of the developer. A minimum force main velocity of 2 fps shall be met during all phases unless otherwise approved by CCU. The wet well shall be designed to

accommodate the larger pumps.

e. Any impacts to the existing system are to be identified by the developer and discussed as a part of the project review by CCU. Any and all costs associated with the systems upgrade shall be paid for by the developer.

3.4 SYSTEM DESIGN

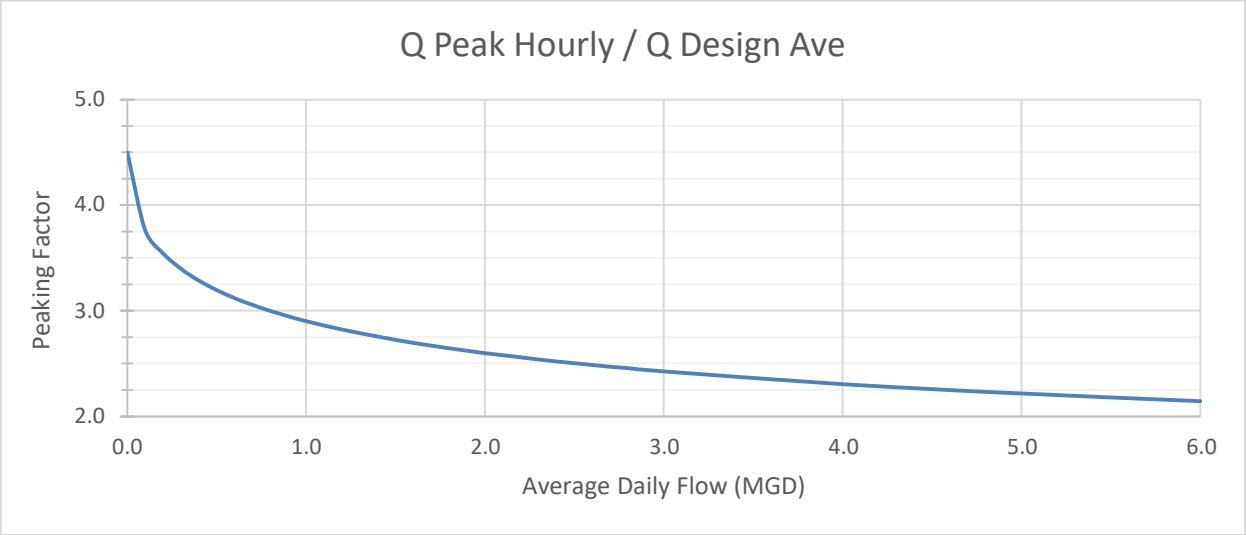
Sanitary sewer systems shall be designed by a Florida Licensed Professional Engineer (Engineer of Record) and constructed in accordance with the design and installation requirements as specified by Charlotte County Utilities (CCU), the Florida Department of Environmental Protection (FDEP), and any other relevant state and local regulatory agencies as well as with the requirements established by the Code of Laws and Ordinances - Charlotte County, FL latest edition.

A. Flow Demands

1. Flow demands for design shall be calculated on the basis of full development as known or projected.
   a. For phased developments, the design shall be based on total build out conditions for the development, or the anticipated service area of the proposed lift station.
   b. Surcharge conditions downstream shall not be allowed in any gravity system design.
   c. The existing system shall be evaluated for capacity as part of the engineering report.
2. The average daily flow shall be calculated at the minimum rates defined in FDEP Section 64E-6.008, TABLE 1.
3. An Equivalent Residential Connection (ERC) is equivalent to an average flow of 157.5 gpd.
4. Sanitary sewer systems shall be sized to provide ample capacity for the required peak flow rates. The maximum required capacity shall be the product of the cumulative average daily flow for the total service area and the peak factor as calculated below in accordance with FDEP requirements (10 State Standards):

$$\text{Peak factor for wastewater} = \frac{18 \ (\frac{Population}{1000})^{\frac{1}{2}}}{4+(\frac{Population}{1000})^{\frac{1}{2}}}$$

5. Minimum Peak Factor per flow graph below.



6. The minimum allowable peaking factor for an average daily flow above 6 mgd is 2.0.

B. Horizontal and Vertical Separation for Mains

1. All main separations, both horizontal and vertical, shall be per FDEP Rule 62-555.314, F.A.C.
2. A minimum of five (5) feet horizontal separation shall be required between other public and/or private utilities, structure(s), building(s), wall(s), fountain(s), fence(s) and CCU infrastructure unless specifically approved by CCU.
3. Drainage inlets shall be located no closer than (5) feet from proposed or existing sanitary sewer mains.
4. All new light pole foundations shall be a minimum of five (5) feet from any existing or proposed CCU owned and maintained pipeline or facility unless approved by CCU.
5. The root ball of palm trees shall be a minimum of five (5) feet and the root ball of shade trees shall be a minimum of ten (10) feet from any existing or proposed CCU owned and maintained pipe or facility.
6. TV cable, telephone, gas, electric power, and irrigation lines may cross under CCU facilities with a minimum of twelve (12) inches of vertical clearance.

7. Where the potable water main, reclaimed water main and force mains cross, unless otherwise approved by CCU, reclaimed water main and force main shall pass beneath the potable water main and the force main shall pass beneath the reclaimed water main.

3.5 GRAVITY SEWER COLLECTION SYSTEM DESIGN

This sub-section sets forth the general requirements for design of sanitary sewer gravity mains, sewer manholes and service laterals.

A. Gravity Pipe Size and Slope Computation

1. Gravity sewer pipes shall be sized to provide ample capacity for the required peak flow rates.
2. Infiltration and inflow impacts need to be addressed in these calculations.
3. Gravity sewer mains flow depth in pipe shall not exceed full pipe diameter.
4. The minimum allowable size for any gravity sewer pipes, other than service connections, shall be 8-inches in diameter.
5. All gravity sewers pipes shall be designed at slopes providing minimum velocities of not less than 2 feet per second (fps) when flowing full, based on Manning's formula and an "n" value of 0.013.
   a. The following minimum and maximum slopes for allowable pipe sizes shall be used as a design guideline:

Nominal Sewer Size	Minimum Slope	Max Slope
8 inch	0.40%	10.0%
10 inch	0.28%	6.23%
12 inch	0.22%	4.88%
15 inch	0.15%	3.62%
18 inch	0.12%	2.83%
21 inch	0.10%	2.30%
24 inch	0.08%	1.93%
30 inch	0.06%	1.43%
36 inch	0.05%	1.12%

Note: Slopes less than the minimum slope may be accepted in certain special cases by CCU with proper documentation and FDEP approval is obtained.

b. Minimum acceptable as-built slopes post construction has a tolerance of 5% of the minimum design slopes from above referenced table. Any other variance will require CCU approval.

c. Changes in slope and direction shall only occur at manholes.

d. Sanitary sewer services shall be installed at slopes not less than 1% (1/8 inch per foot) and no more than 15% (1 ¾ inch per foot) unless otherwise approved in writing by CCU.

B. Manholes

1. Manholes shall be located in the center of the roadway (preferred) or in the center of the travel lane unless otherwise approved by CCU.
2. Manhole spacing may not exceed 500 feet.
3. Manholes shall be designed at all changes in pipe size, direction and/or termination of gravity mains.
4. Provide a minimum slope of 1% for all pipes across all manholes.
   a. Variance for less than 1% may be approved by CCU with proper justification.
5. The maximum slope across any manhole shall be no more than 2%.
6. When a smaller sewer joins a large one, the invert of the larger sewer should be lowered sufficiently to maintain the same energy gradient, as per the ten (10) state standards.
7. A drop manhole connection shall be required for all pipes where the inverts are 24 inches or more above the invert of the manhole. The 24 inch drop in sewer shall only be allowed by CCU if the difference cannot be accomplished by a slope adjustment.
8. All drop manholes shall have drop pipe outside of the manhole.
9. Internal drop pipes are not allowed, unless under special conditions approved by CCU.
10. Terminal manholes shall be extended past the last connecting property sanitary sewer service line to minimize the sanitary sewer service lateral length.

11. All sewer services shall be connected perpendicular to the sewer mains.
12. Sanitary sewer service laterals shall not be directly connected to the manhole.
13. Manholes shall not be located in drainage swales or any other low area likely to collect or pond water during rains, unless otherwise approved by CCU.
    a. In cases that this is not obtainable, when approved by CCU, special gasketed and sealed lids shall be applied.
14. All master manholes (last manhole before lift station) shall be a minimum of six feet in diameter and shall be provided as follows:
    a. Within 75 feet of the wet well at all new lift stations unless otherwise approved by CCU.
    b. Shall be in the center of the travel lane adjacent to the lift station.
    c. Master manholes are not required with private lift stations.

C. Pipe Location and Depth

1. Gravity mains shall be designed with straight alignment and uniform slope between manholes.
2. Gravity mains shall have a minimum 5 feet of cover to the top of the pipe unless otherwise approved by CCU.
    a. In all cases where the cover is less than 5 feet, the complete run between manholes shall be constructed of C-900 DR 18.

D. Sanitary Sewer Services

Service connections shall be connected at the designed property lines. Sewer service shall be connected to gravity mains only.

1. Service wyes shall be a minimum of 5 feet from either upstream or downstream manholes.
    a. CCU standard is one (1) common service connection for two (2) adjoining lots..
    b. If double service laterals are unfeasible, single service laterals for each lot may be used and must be approved by CCU.
2. Sanitary sewer clean-outs shall be required at the property line or at edge of utility easement.

3. Service connections shall be a minimum of 6 inches in size for all single and double residential services, commercial, and industrial service.

E. Pipe and Manhole Materials

1. PVC pipe shall be used for all gravity mains unless otherwise approved by CCU.
2. HDPE is only to be used in trenchless installation applications if approved by CCU.
3. Fusible PVC is not an acceptable pipe material in Charlotte County.
4. Manholes shall be precast concrete structures unless otherwise approved by CCU.

3.6 GRAVITY SYSTEM TESTING

A. All gravity system testing shall be by the Developer/Owner at their expense.

B. All testing shall follow requirements in specifications.

3.7 SEWER FORCE MAIN DESIGN

This Section includes the general requirements for design of pressurized sewer force mains.

A. Force Main Sizing

1. Force mains shall be of adequate size to efficiently transmit the total ultimate peak operational flow.
   a. Force mains shall be 4-inch minimum diameter, unless approved by CCU.
   b. Nominal sizes acceptable to CCU are 4”, 6”, 8”, 12”, 16”, 20” and 24”. No other sizes shall be allowed without prior written approval by CCU.

B. Design Considerations

1. Pipe joint deflections are allowed but shall not exceed 50% of the maximum manufacturers recommended deflection limits. If joint deflection cannot achieve result needed, then bends shall be used.11.25-degree bends is preferred over 22.5-degree bends. 22.5-degree bends is preferred over 45-degree bends.
2. In order to provide adequate pipeline cleansing, force main flow velocity shall not be less than 2 fps at minimum pumping capacity, nor greater than 10 fps at ultimate maximum design pumping capacity.
   a. With multiple pumping station systems or phased development, this minimum velocity requirement may be waived by CCU for an interim period of time.

i. To address odor control issues, the force main out letting into the lift station shall meet standard detail requirements.

3. For connection pressures to the existing system, please submit formal request to CCU at time of pre-application meeting with the Pre-Application Meeting Checklist.

C. Hydraulic Computations

1. Hydraulic calculations shall be prepared for proposed force main systems in order to determine the various operational conditions as follows:
   a. Pipe friction loss shall be calculated using the Hazen-William's Formula.
   b. A conservative coefficient of friction factor (C) of 120 shall be used for all pipes. This will assume all minor losses are accounted for.
      i. If a higher C-factor is required, the minor losses shall be calculated based on a per foot calculation as an average throughout the system with prior approval by CCU. The design engineer may use a more precise calculation using the following values for "K" coefficients to account for head losses in the system:

Fitting	Coefficient, K
Plug Valves (Fully Opened)	0.77
Swing Check Valves (Fully Opened)	2.50
90^0 Bends[1]	0.80
45^0 Bends	0.20
Tees (Straight Run)	0.35
Tees (Branch Run)	1.28
Wyes (Straight Run)	0.30
Wyes (Branch Run)	0.50
Expansion Sudden D2/D1 = 0.75	0.19
Pipe Exit	1.00

[1] Requires special approval from CCU

D. Pipe Material

1. PVC pipe shall be used for all force mains unless otherwise approved by CCU.
2. HDPE is only to be used in trenchless installation applications or as otherwise approved by

CCU.

3. Fusible PVC is not an acceptable pipe material in Charlotte County.

E. Air Release Valves

1. ARVs are required at highpoints in the system as required, unless otherwise approved by CCU.
    a. Where the force main profile is such that air pockets or entrapment could occur, provisions for air release shall be provided.
2. Automatic air release assemblies shall be installed at the upstream end of all directional drill installations.

F. Pipe Location and Depth

1. Pipes are to be designed on the same side of the road as the existing main unless otherwise approved by CCU.
2. All main extensions of existing utilities are to follow CCU Policy 5.002 – Main Extension.
3. All force mains to follow CCU Policy 037 – Residential Service Force Main Connection which does not allow residential connections to a into a force main, unless otherwise approved under special conditions by CCU.
4. Typical distance from edge of pavement shall be a minimum of 5-feet, preferred 7-feet.
5. Sanitary sewer force mains shall be designed between the edge of the road pavement and the right-of-way line or within a CCU permanent easement abutting the road right-of-way opposite of potable water mains unless otherwise approved by CCU.
6. The standard minimum cover for pipes shall be the following:
    a. Pipe is intended to be installed at a consistent depth. Deviations to avoid conflict are subject to approval by CCU.
    b. Minimum 48-inch depth from the top of pipe to finished grade.
5. Additional depth for avoidance of conflicts is subject to CCU approval.
6. Directional Drilling, other than under waterways, shall be installed at depths consistent with Paragraph F.4. To minimize air pockets, consistency of depth of bury shall be maintained and no depths greater than 8 feet will be accepted unless approved by CCU.

G. Valve Locations

1. Plug valves shall be installed in force main runs a minimum of every 1,000 feet unless

otherwise approved by CCU.

2. The number of valves at connection points shall be one less than the number of legs (n-1).
3. Where force mains are to be extended in the future, valves shall be placed at the future connection point to preclude line shutdown at the time of extension.
    a. Unless otherwise approved by CCU, these branches are to be restrained by methods other than thrust blocking in order to facilitate said connection without system shutdown.
4. On both sides of all subaqueous crossings.
5. Valve spacing greater than 1,000 feet are to be reviewed for approval by CCU.
6. Valves may only be operated by CCU operations staff or someone under the direct supervision of CCU staff.
7. Connection to Existing System: for discharge of new force main connections to existing manholes or lift station wet wells, the developer shall install a CCU approved liner/coating system for corrosion protection of the existing manhole or wet well structure.

H. Conditions Requiring Casing

The provisions of this section shall represent the minimum standards and referenced sections for the design and installation of casing pipe for mains as well as conditions requiring casing.

1. General
    a. Casings shall be installed in accordance with permit conditions of the authority having jurisdiction.
2. Conditions Requiring Casing
    a. When new roadways, turn lanes, acceleration lanes, deceleration lanes, or driveways are proposed; PVC or steel casing pipe with bell restraints and casing spacers shall be installed on any existing PVC main. CCU requires replacement of any existing mains within proposed construction limits to be replaced with new utility mains as part of the overall project construction.

b. New carrier pipe conditions which will require a casing are as follows:

i. Collector street of more than four (4) lanes or Arterial Roadway.

ii. Controlled Access, Expressway, and Freeway.

iii. Railroads.

3.8 LIFT STATION TYPES

A. There are four classifications of lift stations as follows:

1. Private Lift Station

a. Lift stations are considered private when there is only one building connection to the lift station.

b. Private lift stations are privately owned, operated and maintained by the owner and are not the responsibility of CCU.

c. The stations shall be designed to meet all pertinent CCU, FDEP, and Ten State Standards and Florida Plumbing and Electrical codes.

d. The station shall be designed to pump at a pressure ranging from 5 psi to 70 psi to deliver the wastewater flows to the Utilities sewer connection point.

e. The station shall be designed to provide a sealed system to eliminate infiltration and inflow as well as unauthorized access.

f. The system shall include a shut off valve at the property line/permanent easement, prior to connection with the CCU infrastructure.

g. CCU shall review and inspect the station to ensure conformance with the Standard Specifications and that it will operate and function properly.

h. CCU shall inspect the following portions of the private lift station prior to a Certificate of Occupancy being issued for the project.

i. Station start-up to ensure system operates properly

ii. Inspection of valves to ensure proper placement and operation

iii. Inspection of station to ensure proper seal to prevent infiltration and inflow.

2. Individual Lift Station (Commercial, Mixed-use and Multifamily)

a. Individual lift stations are owned and maintained by CCU. Three or more units within a single building, if individually platted, each unit shall have its own sewer service connection.
b. Lift stations are considered individual when the maximum day design peak flows are less than 10,000 gpd.
c. The minimum discharge piping shall be 2 -inch. Three inch piping is allowed.
d. The minimum discharge velocity is 2 fps.
e. The minimum wet well diameter is 4 feet.
f. Individual lift station site shall include a minimum of 35-foot by 35-foot permanent easement.
g. Individual lift stations shall include SCADA monitoring only.
h. Individual lift stations shall be designed to utilize grinder pumps.
i. The station shall be designed to pump at a pressure ranging from 5 psi to 70 psi to deliver the wastewater flows to the Utilities sewer connection point.
j. The station shall be designed to provide a sealed system to eliminate infiltration and inflow as well as unauthorized access.
k. The system shall include a shut off valve at the property line, prior to connection with the CCU infrastructure.

3. Standard Lift Station

a. Standard lift stations are owned and maintained by CCU.
b. Lift stations are considered standard when the maximum day design peak flows are more than 10,001 gpd but less than 1,000,000 gpd and no other lift stations contribute flow into the standard lift station.
c. The minimum discharge piping shall be 4 -inch.
d. The minimum discharge velocity is 2 fps.

e. The minimum wet well diameter is 6 feet. For lift stations with 20 HP pumps or greater, wet well diameter shall not be less than 8 feet. Final diameter size shall be based upon build out pump size requirements.

f. Standard lift station site shall include a minimum 35-foot by 35-foot permanent easement. Final size to be determined by CCU.

g. Standard lift stations have a maximum overall interior wet well depth of 25 feet, unless otherwise approved by CCU.

h. Standard lift stations shall include full SCADA monitoring and control.

i. A standard lift station does not require odor control equipment (gravity systems only) but does require space for odor control to be added later.

j. Standard lift stations with LPS service connected to the station require odor control.

k. Standard lift station's electrical panel is required to have an emergency portable generator connection.

4. Master Lift Station

a. Lift stations shall be considered master lift stations when they meet one of the following criteria:

i. The discharge force main is 12 inch in diameter or larger.

ii. When the maximum day design peak flows are more than 1,000,000 gpd.

iii. One or more other lift station(s) discharge <u>to</u> the lift station.

b. Master lift station site shall include a minimum of 50-foot by 50-foot permanent easement. Final size shall be determined by CCU.

c. Master lift stations have a maximum overall interior wet well depth of 30 feet, unless otherwise approved by CCU.

d. The minimum wet well diameter is ~~8~~ 6 feet. Lift stations requiring 20hp pumps or greats shall be required to have 8 foot diameter wet wells minimum. Final diameter size shall be based upon build out pump size requirements.

e. Master lift stations shall provide the following:

i. Flow Meter.

ii. Odor control unit

iii. Onsite permanent generator (specifics below)

iv. Full SCADA telemetry control unit

f. Permanent Generators

i. All master lift stations are required to have a permanent generator.

ii. The engine shall be of adequate size to automatically start and operate the pumps required for design flow conditions, lights, controls, and other critical items.

iii. In order to minimize noise levels, the generator shall be equipped with a noise reduction package that shall be approved by CCU. Residential mufflers are recommended.

iv. Generator fuel tanks shall be sized to allow the generator to run a minimum of 72 hours at ¾ load capacity.

B. Lift Station Design Requirements

1. Lift stations shall include a minimum of two (2) pumps.
2. Master Lift stations shall include three (3) or more pumps if the flow conditions warrant them based upon pumping requirements and reliability criteria by FDEP subject to the approval of CCU.

3. Portable backup generators need to be dual voltage to handle 120v, 240, and 480v pump station ratings.

4. All lift stations shall be designed such that the design peak hour flow can be pumped with the largest pump out of service.

5. The selected sewer pump system shall be capable of pumping the design peak hour flow at the maximum computed system total head requirements.
6. If there is only one additional lift station, no portable generator is required.
7. If there is a master lift station and two to four additional lift stations, one portable generator is required to be supplied to CCU.

8. If there is a master lift station and more than four additional lift stations, two portable generators are required to be supplied to CCU.
9. If a new lift station creates a new master lift station, downstream of the new installation, the developer shall be required to upgrade the downstream station to comply with the master lift station requirements, including but not limited to upsizing of pumps, electrical, wetwell and providing a generator.
10. Lift Station connection to the CCU wastewater system shall follow the CCU Policy 042 – Lift Station Policy for proper connection and design considerations.

C. Wet Well Design

1. The wet well shall be circular unless otherwise approved by CCU.
2. The design plans shall include a note that 'All structures shall be constructed level and plumb.'
3. Wet wells shall provide sufficient space for all equipment (mechanical and electrical) and required piping. Documentation needs to be provided in the engineering report.
4. The low operational water level shall provide positive suction head for the pumps.
5. Operating volume in wet well shall be sufficient in size to meet pump cycling that is less than 6 cycles per hour.
    a. The design fill time and minimum pump cycle time shall be considered in sizing the wet well. The effective volume of the wet well shall be based on the build-out design average flow and a filling time not to exceed 30 minutes to prevent septic conditions. When the anticipated initial flow tributary to the pumping station is less than the design average flow whereby exceeding the 30 minute fill time, provisions should be made so that the fill time is reduced by raising the pump-"off" elevation or lowering the pump-"on" elevation or combination thereof. Provisions should be made to prevent septicity.

    b. Pump cycle time is defined as the time required to:
        i. Fill the storage volume in the wet well from the pump "Off" level to the Lead Pump "On" level plus;
        ii. The time required to pump down the wet well to the Pump "Off" level including the continuous flow of wastewater into the wet well at the various

conditions being considered.

iii. For a duplex pump station, the number of pump starts will be one half of the calculated cycles per hour as a result of pump alternation.

c. The minimum depth between the bottom invert of the wet well and the lowest invert of the pipe coming into the wet well shall be as follows:
   i. Individual lift station: minimum 3 feet
   ii. Standard lift station: minimum 5 feet
   iii. Master lift station: minimum 5 feet

d. Pump Cycles
   i. Under average daily flow conditions, the time for one pump cycle is given by the equation.

$$Cycle\ Time, min = \frac{Storage\ Volume, gal}{Pump\ Capacity, gpm - Wet\ Well\ Inflow, gpm}$$

   ii. The time for one pump cycle under peak hourly flow conditions is given by the equation:

$$Max\ Cycle\ Time, \min = \frac{Storage\ Volume, gal}{Pump\ Capacity, gpm\ +\ Wet\ Well\ Inflow, gpm}$$

6. The following are the suggested initial settings for wet well liquid level sensors:
   a. Low Level (All pumps off) – minimum 1.5 feet above the bottom invert of the wet well, unless otherwise directed by CCU.
   b. Lead pump on - distance above low level (all pumps off) sensor required to achieve optimal operating volume as presented above.
   c. Lag pump on - one foot above lead pump on level.
   d. High water level alarm - six inches above lag pump on and a minimum of three inches below lowest influent pipe invert.
   e. A redundant control high level float may be required in special cases by CCU.

D. <u>Pumps And Motors</u>

1. Where two or more pumps are provided, they shall be of the same size.
2. Pumps shall be designed to facilitate easy removal and replacement for inspection

or maintenance purposes without personnel entering or dewatering the wet well.

3. Pumps shall be:
    a) non-clog,
    b) mechanical seal,
    c) capable of handling raw, unscreened sewage, and passing a sphere of at least 3-inches in diameter.
    d) Pump suction and discharge openings shall be a minimum of 4 inches.
4. Pumps shall be provided to pump the required peak hour design
    a) They shall be suitable for operation within the total hydraulic range of operation without overloading the motors.
5. Lift stations with 20 HP motors and greater require soft starters.
6. VFDs are not acceptable unless approved by CCU.

E. Piping Design

1. Lift station piping material shall be as shown in lift station details.
2. Lift station piping, valves and air release valve outside the wet well shall be above ground unless otherwise approved by CCU.
3. Each pump shall have individual piping, as per standard detail sheets.
4. The plug valve shall follow the check valve to facilitate shut-off.
5. All pipes discharging into the wet well shall be designed to discharge above the high level alarm.
    a) This may be accomplished using a drop pipe connection.
6. Where pipes enter structures from the exterior, a flexible infiltration proof connection (mechanical or push-on type joints) shall be provided at the exterior wall face.
7. Flexible connections such as flanged coupling adapters, expansion joints and couplings, etc., shall be provided within flanged piping systems in order to provide for:
    a) expansion and contraction,
    b) differential settlement,
    c) and/or to expedite installation and maintenance.

8. The design shall provide for proper support and restraining where flexible connections are used.

3.9 LIFT STATION GENERAL REQUIREMENTS

A. Site

1. Lift Stations shall be installed outside of any road right-of-way.
2. All lift stations shall be located on a separate parcel of land or within a utility permanent easement. A permanent utility easement for ingress and egress to the lift station from a public right of way and a permanent utility easement for the lift station shall be prepared and recorded before the lift station can be accepted by CCU for operation and maintenance.
3. The site shall be adequate to meet the setback requirements per the Code of Laws and Ordinances - Charlotte County, Florida.
4. A master manhole shall be provided within 75 feet of the wet well as approved by CCU.
   a. This master manhole shall have only one effluent pipe to the lift station.
5. Lift station sites are to be well drained.
   a. Private, Individual, and Standard Stations
      i. The wet well top slab and rim elevation shall be set a minimum of 1.0 foot above the 100-yr flood elevation as determined from the most current FEMA flood insurance rating maps, if applicable, or a minimum of 1.5 feet above the adjacent crown of road elevation, whichever is greater.
      ii. The bottom of all electrical cabinets, vents, generators, if required, and odor control units, if required, shall be a minimum of one tenth of one foot (0.1') above the 500-year flood elevation or 3.1' above the 100-year flood elevation, whichever is greater, in accordance with the Code of Laws and Ordinances - Charlotte County Florida Section 3-2-280 and FEMA Policy 206-21-003-0001. Steps, platforms, and safety rails shall be installed to provide access for safe maintenance and operational activities to meet all pertinent agency requirements. All electrical conduits and generator fuel tank below the 100-year flood elevation shall be water resistant. A licensed surveyor or professional engineer shall submit a 500-year flood elevation and a 100-year

flood elevation, in accordance with county requirements for an elevation certificate, for acceptance by CCU.

b. Master Lift Stations

i. The wet well top slab and rim elevation shall be set a minimum of 1.0 foot above the 100-year flood elevation as determined from the most current FEMA flood insurance rating maps, if applicable, or a minimum of 1.5 feet above the adjacent crown of road elevation, whichever is greater.

ii. The bottom of all electrical cabinets, vents, generators and odor control units shall be a minimum of one tenth of one foot (0.1') above the 500-year flood elevation or 3.1' above the 100-year flood elevation, whichever is greater, in accordance with the Code of Laws and Ordinances - Charlotte County Florida Section 3-2-280 and FEMA Policy 206-21-003-0001. Steps, platforms, and safety rails shall be installed to provide access for safe maintenance and operational activities to meet all pertinent agency requirements. All electrical conduits and generator fuel tank below the 100-year flood elevation shall be water resistant. A licensed surveyor or professional engineer shall submit a 500-year flood elevation and a 100-year flood elevation, in accordance with county requirements for an elevation certificate, for acceptance by CCU.

6. Lift station sites shall be readily accessible by CCU vehicles and shall include:

a. A minimum 16-foot wide concrete driveway with a minimum slope of 1% and maximum slope of 10%.

b. Cross-slopes shall be a minimum of 1% and maximum of 2%.

c. Driveway(s) shall be designed to drain water away from the lift station.

d. Driveway(s) shall be accessible during the FEMA 25-year flood.

7. Sufficient lighting shall be provided for nighttime operation and maintenance work.

a. Provide a 15-foot-tall aluminum light pole.

b. The fixture shall provide a minimum of 200 lumens of light.

<u>B. Lift Station Power</u>

1. Each lift station shall have an electric meter supplied by the company providing power to

the station.

2. A separate power disconnect switch shall be provided at each lift station.
3. Control Panels
    a. The developer shall request service from the appropriate power company. Lift stations shall include appropriately sized transformer to step down the voltage to 120 V to accommodate a minimum of 20-amp circuit in the receptacle.
    b. All wiring shall be color coded and numbered as required by all pertinent agencies.
    c. A waterproof wiring schematic showing the color-coded wiring and corresponding descriptions shall be affixed to the inside of the pump control panel door.
    d. A lightning arrestor shall be provided and sized for voltage, current and phase for particular installation as approved by a licensed electrical engineer.
        i. The lightning arrestor shall be mounted appropriately to provide adequate protection to the lift station.
    e. Lift stations not supplied with permanent generators on site shall include a service generator receptacle of the type and size sufficient to operate all necessary equipment and connect to power via CCU portable generators. See approved CCU details.

3.10 **LOW PRESSURE SEWER (LPS)**

Construction of new Low Pressure Sewer systems are not allowed for new development unless approved by CCU. However, existing LPS systems may be extended if feasible to service new connections. This section sets forth the general requirements for design and extension of existing ~~of~~ low pressure sewer systems.

A. LPS Main Sizing

1. LPS mains shall be of adequate size to efficiently transmit the total ultimate peak operational flow.
    a. LPS mains shall be 4-inch minimum diameter, unless approved by CCU.
    b. Nominal sizes acceptable to CCU are 4”, 6”, 8”, and 12”. No other sizes shall be allowed without prior written approval by CCU.

B. Design Considerations

1. Vertical and horizontal deflections shall be accomplished with the least amount of bend possible. Pipe deflection is preferred over 11.25-degree bends. 11.25-degree bends is preferred over 22.5-degree bends. 22.5-degree bends is preferred over 45-degree bends. Where pipe deflections are used, they are not to exceed 50 percent of the maximum recommended deflection limits.
2. LPS main flow velocity shall not be less than 1 fps at minimum pumping capacity, nor greater than 10 fps at ultimate maximum design pumping capacity.
3. All LPS lines shall discharge directly into a lift station wet well unless otherwise approved by CCU.
4. To address odor control issues, the LPS main into the lift station shall discharge below the liquid low level in the wet well utilizing an appropriate drop pipe as necessary. See CCU Standard Details.
5. For connection pressures to the existing system, please submit formal request to CCU at time of pre-application meeting with the Pre-Application Meeting Checklist.

C. Hydraulic Computations

1. Hydraulic calculations shall be prepared for proposed LPS main systems in order to determine the various operational conditions as follows:
   a. Pipe friction loss shall be calculated using the Hazen-William's Formula.
   b. A conservative coefficient of friction factor (C) of 120 shall be used for all pipes. This will assume all minor losses are accounted for.
      i. If a higher C-factor is requested and approved by CCU, the minor losses shall be calculated based on a per foot calculation as an average throughout the system. The design engineer may use a more precise calculation using the following values for "K" coefficients to account for head losses in the system:

Fitting	Coefficient, K
Plug Valves (Fully Opened)	0.77
Swing Check Valves (Fully Opened)	2.50

90^0 Bends[1]	0.80
45^0 Bends	0.20
Tees (Straight Run)	0.35
Tees (Branch Run)	1.28
Wyes (Straight Run)	0.30
Wyes (Branch Run)	0.50
Expansion Sudden D2/D1 = 0.75	0.19
Pipe Exit	1.00

[1] Requires special approval from CCU

D. Pipe Material

1. PVC pipe shall be used for all LPS mains unless otherwise approved by CCU.
2. HDPE is only to be used in trenchless installation applications or as otherwise approved by CCU.
3. Fusible PVC is not an acceptable pipe material in Charlotte County.

E. Air Release Valves

1. ARVs are required at highpoints in the system as required by CCU.
    a. Where the LPS main profile is such that air pockets or entrapment could occur, provisions for air release shall be provided.
2. Automatic air release assemblies shall be installed at the upstream end of a directional drill on a subaqueous crossing, or other locations as required by CCU.

F. Pipe Location and Depth

1. Pipes are to be designed on the same side of the road as the existing LPS main unless otherwise approved in writing by CCU.
2. Typical distance from edge of pavement shall be a minimum of 5-feet, preferred 7-feet.
3. LPS mains shall be designed between the edge of the road pavement and the right-of-way line or within a CCU Easement abutting the road right-of-way opposite of potable water mains unless otherwise approved by CCU.
4. The standard minimum cover for pipes shall be the following:
    a. Pipe is intended to be designed at a consistent depth. Deviations to avoid conflict

are subject to approval by CCU.

b. Minimum 48-inch depth from the top of pipe to finished grade.

c. Additional depth for avoidance of conflicts is subject to CCU approval.

b) Directional Drilling, other than under waterways, shall be designed at depths consistent with Paragraph F.4. To minimize air pockets, consistency of depth of bury shall be maintained and no depths greater than 8 feet will be accepted. Any exceptions shall be approved by CCU in writing.

G. Valve Locations

1. Plug valves shall be designed in LPS main runs a minimum of every 1,000 feet unless otherwise approved by CCU.
2. Where systems have multiple LPS stations manifolding a singular force main, a minimum of 1 plug valve shall be added at each station connection to the main.
3. Where LPS mains are to be extended in the future, a valve shall be provided at the LPS cleanout assembly.
4. Valves shall be placed at extension of right of way lines.
5. Valves shall be installed on both sides of all subaqueous crossings.
6. Additional valve spacing to be reviewed and approved by CCU.
7. Connection to Existing System: for discharge of new LPS main connections to existing manholes or lift station wet wells, a valve shall be installed prior to a wet well or manhole. Additionally, the developer shall install a CCU approved liner/coating system for corrosion protection of the existing manhole or wetwell structure.
8. Connection to LPS Sewer Main
9. All LPS connections to gravity sewer systems shall be made at a manhole and enter at the existing invert to minimize turbulence of flow and the release of hydrogen sulfide gas. If the LPS sewer main cannot enter at the existing invert, then a restrained joint inside drop shall be constructed per CCU standards.

H. Casing

The provisions of this section shall represent the minimum standards and referenced sections for the design and installation of casing pipe for mains as well as conditions requiring casing.

1. General

    a. Casings shall be installed in accordance with permit conditions of the authority having jurisdiction.

2. Conditions Requiring Casing

    a. When new roadways, turn lanes, acceleration lanes, deceleration lanes, or driveways are proposed; PVC or steel casing pipe with bell restraints and casing spacers shall be installed on any existing PVC main. CCU requires replacement of any existing mains within proposed construction limits to be replaced with new utility mains as part of the overall project construction.

    b. New carrier pipe conditions which will require a casing are as follows:

        a) Collector street of more than four (4) lanes or Arterial Roadway.

        b) Controlled Access, Expressway, and Freeway.

        c) Railroads.

In addition to the above, CCU reserves the right to require casings for new mains if conditions warrant and/or if deemed necessary.

I. LPS Tanks

1. If the LPS tank design is within seven (7) feet of vehicular traffic or parking, a load bearing tank and appurtenances shall be required.
2. All LPS connections to gravity sewer systems shall be made at a manhole and enter at the existing invert to minimize turbulence of flow and the release of hydrogen sulfide gas. If the LPS sewer main cannot enter at the existing invert, then a restrained joint inside drop shall be constructed per CCU Standards.

3.11 VACUUM SEWER

A. General

1. This section sets forth the general requirements for design of vacuum sewer system extensions.
2. Vacuum sewer systems are allowed to be extended from existing systems within planned vacuum sewer service areas. Extension to be approved by CCU.
3. No new vacuum sewer systems allowed for new developments.

B. AIRVAC Specification

1. Add when received

SECTION 4
RECLAIMED WATER

SECTION 4

RECLAIMED WATER SYSTEMS

4.1 GENERAL

A. This section sets forth the general requirements for design of reclaimed water systems for approved reclaimed water use. Reclaimed systems are designed to serve only commercial entities and HOA's. CCU does not provide individual residential service.

B. Reclaimed water systems need to follow the process outlined in CCU Policy 034 – Reclaimed Extension Policy to ensure applicability of services.

4.2 ENGINEERING REPORT

A complete engineering report shall be submitted to CCU including the following:

1. Project Overview, including approved Overall Conceptual Plan.
2. Detailed Irrigation Demand Calculations.
3. Proposed Phasing Scenario.
4. Build Out Scenario.
5. Reclaimed pipe capacity calculations.
6. Pressure supplied at the source main connection point to the existing CCU system.
7. Model pipe and junction outputs.
8. An electronic file of the modeling results may be requested by CCU on a case-by-case basis.
9. Hydraulic design computations shall be submitted in conformance with the CCU WaterCAD model the most current version of software employed by CCU or approved equal.

4.3 SYSTEM DESIGN

The Engineer of Record shall comply with the design and installation requirements of Charlotte County Utilities. Reclaimed water is only provided to the developer through either a pond delivery system (preferred) or a direct feed system. CCU's responsibility ends at the reclaimed water meter. It is the Developer/Owner's responsibility to install booster pumps on the Developer/Owner's side of the reclaimed water meter to ensure the onsite pressure meets the developer's design requirements.

A. Flow Demands

1. Flow demands for design shall be calculated on the basis of full development as known or projected.

2. Irrigation flow demands shall be based upon 1-inch reclaimed water application per acre per week for pervious areas only. Non-irrigation flow demands shall be based upon actual needs for the purpose intended based upon proper documentation.
3. Applicant shall supply CCU with their demand needs. A copy of the Reclaimed Customer & Site Checklist form shall be submitted with this information. CCU will determine the amount of supply to be provided. CCU will determine availability of service.

B. Pipe Sizing (Mains)

1. The minimum size for pipes shall be 4" diameter. Nominal sizes acceptable to CCU are 4", 6", 8", 12", 16", 20" and 24". No other sizes shall be allowed without prior written approval by CCU.
2. The allowable velocities shall be from 2 feet per second to 8 feet per second.
3. Head loss shall not exceed 10 feet per 1,000 feet of pipe.

C. Hydraulic Computations

1. Hydraulic calculations shall be prepared for proposed reclaimed water main systems in order to determine the various operational conditions as follows:
   a) Pipe friction loss shall be calculated using the Hazen-William's Formula.
   b) A conservative coefficient of friction factor (C) of 120 shall be used for all pipes. This will assume all minor losses are accounted for.
      i. If a higher C-factor is required, the minor losses shall be calculated based on a per foot calculation as an average throughout the system with prior approval by CCU. The design engineer may use a more precise calculation using the following values for "K" coefficients to account for head losses in the system:

Fitting	Coefficient, K
Gate and Plug Valves (Fully Opened)	0.77
Swing Check Valves (Fully Opened)	2.50
90^0 Bends[1]	0.80
45^0 Bends	0.20
Tees (Straight Run)	0.35
Tees (Branch Run)	1.28
Wyes (Straight Run)	0.30
Wyes (Branch Run)	0.50

Expansion Sudden D2/D1 = 0.75	0.19
Pipe Exit	1.00

[1] Requires special approval from CCU

D. Pipe Location and Depth

1. Pipes are to be designed on the same side of the road as the existing main unless otherwise approved in writing by CCU.
2. The standard minimum cover for pipes shall be in accordance with the following:
   a. Pipe is intended to be designed at a consistent depth. Deviations to avoid conflict are subject to approval by CCU.
   b. Minimum 48-inch depth from the top of pipe to finished grade for pipes 12-inches diameter and smaller.
   c. Minimum 54-inch depth from the top of pipe to finished grade for pipes 16-inches in diameter or greater (Final depth subject to valve stem length requirements).
   d. Or as approved in writing by CCU.
3. Directional Drilling, other than under waterways, shall be designed at depths consistent with Paragraph C.2. To minimize air pockets, consistency of depth of bury shall be maintained and no depths greater than 8 feet will be accepted. Any exceptions shall be approved by CCU in writing.
4. Vertical and horizontal deflections shall be accomplished with the least amount of bend possible. Pipe deflection is preferred over 11.25-degree bends. 11.25-degree bends is preferred over 22.5-degree bends. 22.5-degree bends is preferred over 45-degree bends. Where pipe deflections are used, they are not to exceed 50 percent of the maximum recommended deflection limits.
5. Typical distance from edge of pavement shall be a minimum of 5-feet, preferred 7-feet.

E. Horizontal and Vertical Separation for Mains

1. A minimum of five (5) feet horizontal separation shall be required between other public and/or private utilities, structure(s), building(s), wall(s), foundation(s), fence(s) and CCU infrastructure unless specifically approved by CCU.
2. Drainage inlets shall be located no closer than (5) feet from proposed or existing

reclaimed water mains.

3. All new light pole foundations shall be a minimum of five (5) feet from any existing or proposed CCU owned and maintained pipeline or facility unless approved by CCU.
4. The root ball of palm trees shall be a minimum of five (5) feet and the root ball of shade trees shall be a minimum of ten (10) feet from any existing or proposed CCU owned and maintained pipe or facility.
5. TV cable, telephone, gas, electric power, and irrigation lines may cross under CCU facilities with a minimum of eighteen (18) inches of clearance (both horizontal and vertical) from CCU facilities.
6. Where the potable water main, reclaimed water main and force mains cross, unless otherwise approved by CCU, reclaimed water main and force main shall pass beneath the potable water main and the force main shall pass beneath the reclaimed water main.

F. Meter Box

1. All meter boxes to be furnished by CCU and installed by Contractor.

G. Meters

1. CCU supplies the meter, and the Developer/Owner pays for the meter in accordance with the latest rate resolution.
2. All reclaimed water services need adherence to CCU Policy 036 – SCADA Requirement for Reclaimed Distribution Connections to identify SCADA (Supervisory Control and Data Acquisition) needs and applicability.

H. Connection to Existing System

1. All connections to existing mains shall be made as authorized by CCU.
2. All main extensions of existing utilities are to follow CCU Policy 5.002 – Main Extension.

I. Tapping Sleeves

1. No size-on-size taps shall be allowed. If equivalent or nominal size mains are proposed to be connected, a cut in tee shall be necessary.

J. Valves and Valve Locations

1. No side actuated valves are allowed.
2. Valves shall be designed at all locations necessary to provide an operable, easily

maintained, and repaired reclaimed water system including but not limited to:

a. Pipe terminations.
b. All intersecting mains.
c. The number of valves at connection points shall be one less than the number of legs.
d. Valves shall be placed at extension of right of way lines.
e. On both sides of all subaqueous crossings.

3. The maximum length of main between valves shall be no greater than 1,500 feet.
4. Additional valve spacing to be reviewed and approved by CCU.
5. Valves may only be operated by CCU staff or someone under the direct supervision of CCU staff.

K. Valve Boxes

1. Valve Boxes shall be furnished and installed by the developer.

L. Air Release Valve (ARV)

1. ARVs are required at highpoints in the system or as required by CCU.

M. Electrolysis Prevention

1. All systems shall be designed to best avoid electrolytic action through the contact of dissimilar metals.
2. Preventative action, if required by CCU, may consist of installing insulating or dielectric couplings between the two materials.

N. Backflow Prevention

1. Any property which is served by the Charlotte County Utilities potable water shall provide for a backflow prevention device at the customer's water service connection in accordance with the Charlotte County Utilities Cross Connection Control Policy.

O. Reclaimed Water Storage

1. It is the intent of the Charlotte County Utilities that all customers that have on-site storage in the form of a tank (s) or pond (s) are required to have an air gap for the delivery of Reclaimed Water. Storage capacity of the on-site facility shall be reviewed and accepted by Charlotte County Utilities.

P. Pipe Material

1. PVC pipe shall be used for all reclaimed water mains unless otherwise approved by

CCU.

2. HDPE is only to be used in trenchless installation applications or as otherwise approved by CCU.
3. Fusible PVC is not an acceptable pipe material in Charlotte County.

Q. Pressure Reducing, Pressure Sustaining Valve

1. This valve shall maintain a constant downstream pressure regardless of fluctuations in demand. When the upstream pressure becomes equal to the spring setting of the pressure sustaining control, the valve throttles to maintain a constant inlet pressure. If the downstream pressure is greater than the upstream pressure, the valve closes automatically to prevent return flow. Solenoid control shall intercept pressure reducing control to close/open main valve. This valve shall be hydraulically operated.
2. The pressure sustaining pilot control shall be a direct-acting adjustable, spring-loaded, normally closed diaphragm valve which opens when upstream pressure exceeds the spring setting. The control system shall include a strainer orifice assembly, and an adjustable opening speed control.

4.3 CASING INSTALLATION

The provisions of this section shall represent the minimum standards and referenced sections for the design and installation of casing pipe for mains as well as conditions requiring casing.

A. General

1. Casings shall be installed in accordance with permit conditions of the authority having jurisdiction.

B. Conditions Requiring Casing

1. When new roadways, turn lanes, acceleration lanes, deceleration lanes, or driveways are proposed; PVC or steel casing pipe with bell restraints and casing spacers shall be installed on any existing PVC main. CCU requires replacement of any existing mains within proposed construction limits to be replaced with new utility mains as part of the overall project construction.
2. New carrier pipe conditions which will require a casing are as follows, unless directional drilling is approved by CCU:
    a. Collector more than 4 lanes or Arterial Roadway.

b. Controlled Access, Expressway, and Freeway.

c. Railroads.

3. In addition to the above, CCU reserves the right to require casings for new mains if conditions warrant and/or if deemed necessary.

APPENDIX

Charlotte County Utilities Pre-Application DRT (Design Review Team) Meeting Checklist

Name of Applicant/Engineer: _____

Mailing Address: _____

City, State, Zip: _____

Phone Number: _____ **Fax:** _____

Name of Project: _____

Owner of Project: _____

Street Address of Project: _____

Type of Project: _____

STRAP Number: _____

Current Zoning: _____ **Acreage:** _____

Minimum requirements for scheduling a DRT meeting:

Yes	No	N/A	
			Utility Master Plan Design
			Letters of Availability Request Form

POLICIES

	Charlotte County **Utilities** *Policies and Procedures*	Number: Date Issued: Revision Date:	5.001 January 2, 2008 April 10, 2013	No. of Pages: 4
Subject:	**Water Meter and Water/Sewer Lines Policy**			
Approval by: Terri Couture, Utilities Director		*Signature:* Terri Couture		

General Description

This policy defines the number and type of water meter(s) required for various dwelling unit types and/or land uses as outlined in the Code of Laws and Ordinances, Charlotte County, Part III Land Development and Growth Management, Section 3-9-2 and also defines the location(s) of these water and sewer services.

Meter Definitions

Master: When multiple units of a mobile home park, apartment complex, townhouse, multifamily building or commercial building are served and billed by a compound meter in order to share the cost of the bill among the tenants.

Sub-meter: Private meters used to separately track and bill usage of each unit within a mobile home park, apartment complex, townhouse cluster, multifamily building or commercial building being served by a master meter.

Dwelling Unit, Types:

Single-Family Residence: Each single-family residence shall have its own water meter. Master water meters shall not be allowed for neighborhoods or clusters of single-family residences. Water and/or sewer service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water and/or sewer service line(s) shall be the decision of CCU[2].

Duplex: Each dwelling unit shall have its own water meter. Master water meters shall not be allowed for neighborhoods or clusters of duplexes. Water and/or sewer service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water and/or sewer service line(s) shall be the decision of CCU[2].

Townhouse:[1] Each single-family living unit shall have its own water meter or be served through a master water meter complying with the requirements outlined in footnote one (detailed at end of this Policy). Master water meter installations to serve the multiple units of multi-family (multi-townhouse) building(s) may also include a combination of master water meter(s) and individual water sub-meter(s). The final water meter configuration to be implemented is subject to the approval of CCU. Water and/or sewer service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water and/or sewer service line(s) shall be the decision of CCU[2].

Special Note: *CCU encourages the installation of a separate water meter (sub-meter) for each dwelling unit in a multi-family (multi-townhouse) building(s), if at all possible, to avoid additional costs in the future for re-plumbing in the event individual water meter(s) are desired or required due to ownership changes, etc. Studies show that owners/tenants in individually sub-metered units use 5 to 15% less water than owners/tenants with just a master meter.*

For additional detached structures which will utilize potable water or reclaimed water and will be connected to the waste disposal system plumbing, a separate meter and water service connection shall be required. This includes detached garages, workshops, guest houses, etc. No two buildings shall share a meter. An exception is made for detached structures that are located on the same recorded platted lot. A separate meter is not required for this arrangement.

Mobile Homes[1]: Each mobile home shall have its own water meter or be served through a master water meter complying with the requirements outlined in footnote one (detailed at the end of this Policy. Master water meter installations to serve multiple mobile home dwelling units may also include a combination of master water meter(s) and individual water sub-meter(s). The final water meter configuration to be implemented is subject to the approval of CCU. Water and/or sewer service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water and/or sewer service line(s) shall be the decision of CCU[2].

Special Note: *CCU encourages the installation of a separate water meter (sub-meter) for each mobile home dwelling unit, if at all possible, to avoid additional costs in the future for re-plumbing in the event individual water meter(s) are desired or required due to ownership changes, etc. Studies have shown that owners/tenants in individually metered (sub-metered) units use 5 to 15% less water.*

For additional detached structures which will utilize potable water or reclaimed water and will be connected to the waste disposal system plumbing, a separate meter and water service connection shall be required. This includes detached garages, workshops, guest houses, etc. No two buildings shall share a meter. An exception is made for detached structures that are located on the same recorded platted lot. A separate meter is not required for this arrangement.

Multiple-Family Building[1]: Multiple-family building(s) shall have their own master water meter complying with the requirements outlined in footnote one (detailed at the end of this Policy). Individual water sub-meter(s) for each dwelling unit in a multi-family building are also allowed. Master water meter installations to serve the multiple units of multi-family building(s) may also include a combination of master water meter(s) and individual water sub-meter(s). The final water meter configuration to be implemented is subject to the approval of CCU. Water and/or sewer service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water and/or sewer service line(s) shall be the decision of CCU[2].

Special Note: *CCU encourages the installation of a separate water meter (sub-meter) for each dwelling unit in a multiple-family building, if at all possible, to avoid additional costs in the future for re-plumbing in the event individual water meter(s) are desired or required due to ownership changes, etc. Studies have shown that owners/tenants in individually metered (sub-metered) units use 5 to 15% less water than owners/tenants with just a master meter.*

For additional detached structures which will utilize potable water or reclaimed water and will be connected to the waste disposal system plumbing, a separate meter and water service connection shall be required. This includes detached garages, workshops, guest houses, etc. No two buildings shall share a meter. An exception is made for detached structures that are located on the same recorded platted lot. A separate meter is not required for this arrangement.

Commercial (all remaining land use types not specifically mentioned above):

Single Story Building:[1] Each individually leased/owned space in a single story building shall have its own water meter or be served through a master water meter complying with the requirements outlined in footnote one (detailed at the end of this Policy). This requirement shall be true for single story building(s) intended to continue under single ownership, those to be sold individually and those to be sold as condominium commercial/office spaces Master water meter installations to serve the individually lease/owned spaces in single story commercial building(s) may also include a combination of master water meter(s) and individual water sub-meter(s). The final water meter configuration to be implemented is subject to the approval of CCU. Any changes in use from the originally approved engineering plans, separation of individual leased/owned space into two or more additional spaces, conversion from lease to condominium and any similar event shall be cause for CCU to review the existing agreement(s) and/or water meter configurations and

determine what fee adjustments and/or water meter adjustments are required. Water and/or sewer service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water and/or sewer service line(s) shall be the decision of CCU[2].

Special Note: *CCU encourages the installation of a separate water meter (sub-meter) for each individual leased/owned space in a single story building, if at all possible, to avoid additional costs in the future for re-plumbing in the event individual water meter(s) are desired or required due to ownership changes, etc. Studies have shown that owners/tenants in individually metered (sub-metered) units use 5 to 15% less water than owners/tenants with just a master meter.*

For additional detached structures which will utilize potable water or reclaimed water and will be connected to the waste disposal system plumbing, a separate meter and water service connection shall be required. This includes detached garages, workshops, guest houses, etc. No two buildings shall share a meter. An exception is made for detached structures that are located on the same recorded platted lot. A separate meter is not required for this arrangement.

Multiple Story Building[1] Multiple story building(s) shall have their own master water meter complying with the requirements outlined in footnote one (detailed at the end of this Policy). Individual water meters for each individually leased/owned space are also allowed. Master water meter installations to serve the individually lease/owned spaces in multiple story commercial building(s) may also include a combination of master water meter(s) and individual water sub-meter(s). The final water meter configuration to be implemented is subject to the approval of CCU. Water and/or sewer service line(s) shall not encroach upon adjacent privately owned parcels/lots regardless of ownership. The final location of the water and/or sewer service line(s) shall be the decision of CCU[2]. This requirement shall be true for multiple story building(s) intended to continue under single ownership, those to be sold individually and those to be sold as condominium commercial/office spaces. Any changes in use from the originally approved engineering plans, separation of individual leased/owned space into two or more additional spaces, conversion from lease to condominium and any similar event shall be cause for CCU to review the existing agreement(s) and/or water meter configurations and determine what fee adjustments and /or water meter adjustments are required.

Special Note: CCU encourages the installation of a separate water meter (sub-meter) for each individual leased/owned space in a multiple story building, if at all possible, to avoid additional costs in the future for re-plumbing in the event individual water meter(s) are desired or required due to ownership changes, etc. Studies have shown that owners/tenants in individually metered (sub-metered) units use 5 to 15% less water than owners/tenants with just a master meter.

Commercial Other:

Guard houses, swimming pools, cabanas, and other similar facilities requiring utilities shall be considered as a separate space and shall require individual water meter(s). If a "Commercial Other" is not included with a commercial development, the rules for Commercial Developments to establish service(s) apply. Water and/or sewer service line(s) shall not cross or encroach on adjacent privately owned parcels/lots regardless of ownership. The final location of the water and/or sewer service line(s) is the decision of CCU[2].

1. **Footnote One (1)**
   Approval of a master water meter from Charlotte County Utilities is contingent upon:
   - Any changes in use from the originally approved engineering plans, separation of individual leased/owned space into two or more additional spaces, conversion from lease to condominium and any similar event shall be cause for CCU to review the existing agreement(s) and/or water meter configurations and determine what fee adjustments and/or water meter adjustments are required
   - The system must meet CCU specifications
   - A copy of the organizations' bylaws must be submitted which details the water meter program to be used, how individual properties will be allocated water usage, who is doing

the billing, how individual properties will be billed, who is responsible for payment, etc. and these bylaws must meet with CCU's approval

- Any additional expense to convert the original water meter system to another water meter system, including bringing the system up to CCU's specifications shall be borne totally (100%) by the Owner/Association
- Signed and sealed Engineering plans must be submitted for original master water meter systems and for any conversions from master water meter systems to individual water sub-meter systems in the future
- Where master/individual water meter combinations are proposed and thereafter installed, CCU will only be responsible for the infrastructure and assets from the CCU water main to the master water meter located within CCU property and/or CCU easements. Maintenance, meter reading, any and all other associated costs, etc. specific to the additional individual water meters and infrastructure installed from the master water meter to the actual units/spaces served will be the responsibility of the owner or home owner's association

2. **Footnote Two (2)**
   CCU is only responsible for the infrastructure and assets from the CCU water main to the master meter or individual water meter associated with billing data. CCU is not responsible for sub-meters installed by private developers.

Vacant Lots

A meter maybe installed at a vacant lot without also requiring sewer service, if sewer service is for the purposes of irrigation or for washing boat or other equipment provided that the wastewater produced does not require treatment in accordance with Florida State Environmental Health guidelines

	Charlotte County **Utilities** *Policies and Procedures*	Number:	5.002	No. of Pages:
		Date Issued:	April 27, 2011	
		Revision Date:	April 10, 2018	3
Subject:	**Main Extension Policy**			
Approval by: Travis S. Mortimer, Utilities Director (interim)		*Signature:*		

INTRODUCTION

The Main Extension Policy is to provide a basis for determining customer utility access requirements for main extensions to the sanitary sewer, potable water and/or reclaimed water systems owned by Charlotte County Utilities (CCU) within its water and sewer public service areas. This policy shall apply only to CCU-owned system(s) and does not apply to any other Utility certificated services areas within Charlotte County Boundaries.

EXTENSION POLICY

GENERAL

1. Main extension(s) shall consist of one or more new mains and appurtenances which are to be owned by CCU upon final acceptance, including mains lying wholly within a new development or property.

2. For the purposes of this policy, the customer(s) who own the subject property and who are the principals involved in the request for extension, development, redevelopment/expansion and/or site modification shall be designated as the Owner/Developer

3. Consistent with CCU Utility access availability requirements (see Policy # 5.003, Access Availability), Owner/Developers pursuing connection to CCU potable water, sanitary sewer and/or reclaimed water utility systems shall apply to CCU for such connection for a specific development or property. CCU will determine whether main extension(s) is/are required, in which case this Policy shall apply. Utility main extensions may also be required where existing active connections are in place for a development or property but where existing main lines do not currently extend to the limits of the development or property.

4. The Owner/Developer shall be responsible for the cost of all required main extension(s), including engineering, construction, inspection, administrative and legal costs for the sizes, depth and/or length so designated in this Policy.

5. If CCU increases the size, depth and/or the length of a main extension beyond the designated size, depth and/or length required for utility connection of the development or property defined further in this Policy, CCU will be responsible for the increased cost based on terms established in its Uniform Extension Policy and consistent with the design requirement below. CCU shall determine the appropriate cost adjustments for size, depth and/or length as per this Policy.

DETAILS

1. The Owner/Developer shall either submit plans of the proposed main extension to CCU for approval or request CCU to provide such plans at the Owner/Developer's expense.

2. Main extensions shall be designed and constructed in accordance with all current applicable CCU technical and material specifications, policies and requirements located on CCU Utilities website.

3. Main extensions shall be extended to the property limits of the development, or the entire frontage of the property, or to other locations as determined by CCU to meet system requirements. Main extensions may or may not be located on the same side of a public road as the development or property.

   CCU shall be responsible for all main extensions required to connect the development or property to the utility system(s) which must be extended in front of or along side an existing connected property(s). Each utility system will be considered separately and the length of such main extension determined by CCU based upon the latest property records

4. Potable water main and reclaim water main extension(s):

   - The Owner/Developer shall design and construct the required potable water main and/or reclaim water main extension(s) based upon the size determined by CCU. The Owner/Developer shall be responsible for all costs of the potable water main and/or reclaim water main extension(s) as follows: 8 inches or less in diameter for residential developments and 12 inches or less in diameter for commercial developments. CCU will be responsible for the increased incremental materials oversizing cost for potable water main and/or reclaim water main extension(s) for larger diameter mains.

5. Sanitary Sewer main extension:

   - Gravity: The Owner/Developer shall design and construct the required sanitary sewer main extension(s) based upon the size and depth determined by CCU. The Owner/Developer shall be responsible for all costs of the sanitary sewer extension(s) as follows: 10 inches or less in diameter to a depth of fifteen (15) feet for residential developments and 15 inches or less in diameter to a depth of eighteen (18) feet for commercial developments. CCU will be responsible for the increased incremental materials oversizing cost for sanitary sewer extension(s) for larger diameter mains and the increased incremental costs for greater depths than those specified above.

   - Low-Pressure Sewer System (residential only): The Owner/Developer shall design and construct the sanitary sewer main extension based upon the size and depth determined by CCU. The Owner/Developer shall be responsible for all costs of the sanitary sewer extension(s) as follows: 4 inches or less in diameter for residential developments. CCU will be responsible the increased incremental materials oversizing cost for sanitary sewer extension(s) for larger diameter mains.

   - Grinder Pump System (commercial): The Owner/Developer shall design and construct the grinder pump system to conform with FDEP requirements and construct the sanitary sewer extension based upon the size and depth determined by CCU to meet system requirements. Owner/Developer shall be responsible for all costs of the sanitary sewer extension. The Owner/Developer shall design and construct the on-site grinder system and piping to meet the design parameters (pressure and velocity requirements) established by CCU. Owner/Developer will retain ownership of all assets (operations and maintenance of pump(s) and piping) on the private property.

6. All fire hydrants necessary for protection of the development or property shall be installed at the Owner/Developer's expense. See CCU Design Manual and Minimum Drawing Requirements for detailed number, location and other related requirements located on CCU Utilities website.

7. All main extension(s) shall be located in public rights-of-way, non-exclusive utility easements or CCU-owned easements. All easements shall be in compliance with the requirements defined in the CCU Design Manual and Minimum Drawing Requirements.

8. CCU will own all utility assets in the public right-of-way and within easements.

Disclaimer: Utilities Director reserves the right to change or waive the terms of this policy at any time for unique circumstances.

	Charlotte County Utilities *Policies and Procedures*	Number: 5.003 Date Issued: October 4, 2011 Revision Date:	Page 1 of 6
Subject:	Utility Access Availability Determination Policy		
Approved by:	Terri Couture, Utilities Director	*Signature:* Terri Couture	

INTRODUCTION

The intent of this policy is to define, for the various land use types in Charlotte County, a standardized and consistent approach to determining utility access availability to Charlotte County Utilities' (CCU) utility systems. The policy will address CCU's position on the timing, turnaround and methods to determine utility access availability and to satisfy submitted availability requests. This policy does not apply to any other Utility certificated services areas within Charlotte County Boundaries.

CRITERIA AND GUIDE LINES FOR DETERMINING AVAILABILITY

The availability determination requires evaluating numerous criteria. These criteria include but are not limited to:

- The location and type of the nearest utility infrastructure
- The zoning and land-use categorizations of properties
- Availability of adequate permitted capacity to provide access to the utility systems
- The ultimate occupancy type of a property
- The quality/quantity of wastewater flow generated by an occupancy type
- The review of any on-site wastewater flow pre-treatment requirements
- The application of numerous state and local ordinances and policies
- Compliance with regulatory bodies including FDEP

Charlotte County Ordinances and Florida State Statutes Specific to Availability

CCU adheres to local Charlotte County Municipal Code, Florida State Statutes and The State of Florida Administrative Code in order to determine utility access availability, specifically:

- Article V, Sec 3-8-102: Central Sewer Availability
  - see Exhibit 1 on Page 4, CC Definition of Sewer Availability
- Florida Statue 381-0065: Onsite Sewerage Treatment and Disposal
  - see Exhibit 1 on Page 4, State of Florida Definition of Central Sewer Availability
- Article VI, Sec 3-8-193: Reclaimed Water Availability
  - see Exhibit 2 on Page 5, CC Definition of Reclaimed Water Availability
- Article VII, Sec 3-8-232: Central Water Availability
  - see Exhibit 3 on Page 5, CC Definition of Potable Water Availability
- Florida Administrative Code, 64E-6: Standards for Onsite Treatment & Disposal Systems
  - see Exhibit 4 on Page 5, Florida Administrative Code Definition of Establishment

Article II of the Charlotte County Municipal Code applies to non-public utility entities and, therefore, does not apply to CCU which is a public utility.

Other Charlotte County Ordinance

- Chapter 3-10, Comprehensive Plan
  - General Compliance with the plan
  - Sec 3-10-1. WSW Policy 1.2.2: Development Approval
    - See Exhibit 5 on Page 5, WSW Policy 1.2.2: Development Approval
  - Sec 3-10-1. WSW Policy 3.1.1: Concurrent Utility Line Extensions
    - See Exhibit 6 on Page 6, WSW Policy 3.1.1: Concurrent Utility Line Extensions
- Article XIV, 3-5-335: Minimum Requirements for Concurrency
  - See Exhibit 7 on Page 6, Minimum Requirements for Concurrency

Other factors that may impact the final decision on availability

- Department of Health actions/initiatives
- Other regulatory impacts (e.g. FDEP, EPA) relating to an area of the County (e.g. impaired water, etc.)
- Usage/capacity requirements for the property

CCU will make its best efforts in responding to an availability request that may include a field visit to determine actual physical location of utility infrastructure in proximity to the property, verification via geo-database maps, a review of any other external impacts to the location and the application of the necessary ordinance, code, statute, regulation, etc. to apply availability criteria to the subject property.

EXPIRATION

All availabilities, whether commercial or residential, are valid for three months from the issued date posted on the CCU availability response form.

TYPES OF AVAILABILITIES

Availability requests submitted by entities such as real estate agencies, property owners looking to sell their property, or others speculating on property should note that CCU makes no commitments in regard to its availability determinations other than identifying the proximity of the utility system(s) to the property as such relates to the property's current and future land uses. Ultimately, a final determination of availability will be driven by the intended use/occupancy and design plans for a property at the time of development. All instructions and forms are posted on CCU web site located at http://www.CharlotteCountyfl.com/CCU.

a. Residential Availability Requests

1. Residential availability requests apply to single-family and duplex residential homes.

2. Turnaround for single request is generally 5 business days. Additional requests made by a single entity normally add to the CCU response time.

3. Large individual requests for multiple single-family residential properties will be evaluated on a case-by-case basis and turnaround estimates will be communicated to the requestor.

4. If, for any reason, a request appears to be for a need greater than typical of a three (3) bedroom home, further information and clarification may be required from the requestor.

5. CCU will work closely with Engineers and/or property owner representatives to determine a cost effective approach to satisfying any typical connection requirements which may include the need to extend utility mains (see CCU Main Extension Policy and CCU Service Connection Policy).

b. Commercial Property Availability Requests

1. Commercial availability requests include commercial, multi-family, mobile home and residential developments, manufacturing, industrial, and any other non-residential establishments.

2. At the time of pending development, Engineers and/or Developers are required to provide detailed capacity, zoning, land-use and usage/occupancy type information about the development in order to make a finalized availability determination.

3. CCU will then review the information in the context of County ordinance, State Statute, Administrative Code, Governmental Regulation, etc. Concurrency issues will be reviewed and any other factors that may impact the availability of utility access to a property will be considered as well.

4. In general, an availability letter will be issued detailing CCU's determination within 5 business days. Any information deemed necessary will also be included in CCU's response.

5. The response letter may warrant further discussion with CCU and additional planning on the part of the Developer. CCU will work closely with Engineers and Developers to determine a cost effective approach to satisfying any connection requirements which may include the need to extend utility mains (see CCU Main Extension Policy and CCU Service Connection Policy).

Note: CCU reserves the right to change or waive the terms of this policy at any time in response to changing or unique circumstances.

References:

CCU SOP on Processing Residential Availability Requests
Utility Availability Request for Residential Property Single – Family & Duplex Form
Utility Availability Request for Vacant Property Commercial & Multi-Family Form

EXHIBITS

Exhibit 1: Sec. 3-8-102. Wastewater Collection and Treatment, Definitions
Available. Sewer is available as defined by section 381.0065, Fla. Stat. 381.0065 Onsite sewage treatment and disposal systems; regulation.

(1) LEGISLATIVE INTENT.--It is the intent of the Legislature that where a publicly owned or investor-owned sewerage system is not available, the department shall issue permits for the construction, installation, modification, abandonment, or repair of onsite sewage treatment and disposal systems under conditions as described in this section and rules adopted under this section. It is further the intent of the Legislature that the installation and use of onsite sewage treatment and disposal systems not adversely affect the public health or significantly degrade the groundwater or surface water.

(2) DEFINITIONS.--As used in ss. 381.0065-381.0067, the term:

(a) "Available," as applied to a publicly owned or investor-owned sewerage system, means that the publicly owned or investor-owned sewerage system is capable of being connected to the plumbing of an establishment or residence, is not under a Department of Environmental Protection moratorium, and has adequate permitted capacity to accept the sewage to be generated by the establishment or residence; and:

1. For a residential subdivision lot, a single-family residence, or an establishment, any of which has an estimated sewage flow of 1,000 gallons per day or less, a gravity sewer line to maintain gravity flow from the property's drain to the sewer line, or a low pressure or vacuum sewage collection line in those areas approved for low pressure or vacuum sewage collection, exists in a public easement or right-of-way that abuts the property line of the lot, residence, or establishment.

2. For an establishment with an estimated sewage flow exceeding 1,000 gallons per day, a sewer line, force main, or lift station exists in a public easement or right-of-way that abuts the property of the establishment or is within 50 feet of the property line of the establishment as accessed via existing rights-of-way or easements.

3. For proposed residential subdivisions with more than 50 lots, for proposed commercial subdivisions with more than 5 lots, and for areas zoned or used for an industrial or manufacturing purpose or its equivalent, a sewerage system exists within one-fourth mile of the development as measured and accessed via existing easements or rights-of-way.

4. For repairs or modifications within areas zoned or used for an industrial or manufacturing purpose or its equivalent, a sewerage system exists within 500 feet of an establishment's or residence's sewer stub-out as measured and accessed via existing rights-of-way or easements.

Exhibit 2: CC Definition of Reclaimed Water Availability

Sec. 3-8-193. Availability of service

The term "available" means that a functioning reclaimed water distribution main is located within five hundred (500) feet of the property to be serviced or, in the alternative, that it is cost effective for the county to extend a reclaimed water distribution main to within five hundred (500) feet of the subject property. However, regardless of proximity to a distribution main, the county reserves the right to make a final determination of the availability of service to a property based on the practicality, economics and clear and measurable benefits of providing said service, as determined by the director.

Exhibit 3: CC Definition of Potable Water Availability

Available shall mean the county-owned water system that is capable of being connected to the plumbing of a residential subdivision lot, single-or multifamily residence, commercial or business establishment as follows:

(1) The central water system has adequate permitted water capacity to provide potable water.

(2) For a residential subdivision lot, single-or multifamily residence, or for an establishment that has an estimated water usage of one thousand (1,000) gallons per day or less, a water line exists in a public easement or right-of-way that abuts the property of the subdivision lot, residence, or establishment, and is within one hundred (100) feet of the property line of the establishment as accessed via existing rights-of-way or easements; and

(3) For estimated water usage flows exceeding one thousand (1,000) gallons per day, with the exception of a residential subdivision lot, or single-or multi-family residence, a water line, or booster facility exists in a public easement or right-of-way that abuts the property of the establishment and is within two hundred (200) feet of the property line of the establishment as accessed via existing rights-of-way or easements.

Exhibit 4: Florida Administrative Code Definition of Establishment

(22) Establishment – a multi-family housing, apartment, condominium or townhouse complex, a mobile home park or recreational vehicle park, a non-residential commercial or institutional development or places of business or assembly. An establishment includes all buildings or structures, and the land appertaining thereto and shall have an owners association or other legal entity which is responsible for maintenance and operation of the development's sewage treatment and disposal facilities.

Exhibit 5: Comprehensive Plan WSW Policy 1.2.2: Development Approval

The County shall not issue any development orders or permits unless the necessary facilities and services are in place and available to serve the new development or the necessary facilities and services are guaranteed to be in place and available to serve new development under an enforceable development agreement or development order.

Exhibit 6: WSW Policy 3.1.1 Comprehensive Plan, Concurrent Utility Line Extensions

The County shall require all utilities that provide both centralized potable water and sanitary sewer service to extend potable water and sanitary sewer lines concurrently. Lines may be extended separately only if the service area is primarily composed of one type of service line and it is determined by the utility to be non-feasible to require concurrent extensions.

Exhibit 7: Sec. 3-5-335. Minimum Requirements for Concurrency

For a development to be found in compliance with the concurrency management system, prior to final development approval, it must be established that LOS standards will be met for all impacted public facilities and services in accordance with the following conditions:

(1) *Potable water, wastewater, solid waste and drainage.* In order to obtain a development order the applicant shall show and the county must find that, at the time of the issuance of a certificate of occupancy or its functional equivalent:

a. The necessary facilities and services will be in place and available to serve the new development; or

b. The necessary facilities and services are guaranteed to be in place and available to serve new development through the existence of an enforceable development agreement, such as one developed pursuant to F.S. section 163.3220, or an enforceable agreement or development order issued pursuant to F.S. Ch. 380.

Charlotte County **Utilities** *Policies and Procedures*	Number: **032** Date: **August 21, 2018** Revision:	No. of Pages: 2
Subject: **Commercial Water Connections Policy**		
Approval by: Craig Rudy, Utilities Director	*Signature:*	

Introduction

The intent of this policy is to define the responsibilities on accessing the potable water system mains for commercial properties not covered under a developers' agreement. Access and availability are covered under a separate Policy found under the Utilities Policy and Procedures Guidelines.

Criteria

Charlotte County Utilities (CCU) will provide a water service and water meter connection to the commercial property within the County Right-of-Way (ROW) at the property line. The water meter will be set at the property line within the ROW or county owned easement. CCU will own and maintain said meter connection from the water main up to and including the billing face of the water meter. The commercial property owner will own and maintain the water service from the billing face of the meter to the building. All commercial water service connections must have an approved backflow prevention device after installation of the water meter. The backflow prevention device will be maintained by the commercial property owner.

Location

The location of the water meter service shall be at the property line in the County ROW as determined by the Utility.

Size

The water meter size will be determined by the Utility Engineering Services division through the Plan Review and Utility Service Agreement process. The water tap size at the main will also be determined by the Utility.

Timing

The Utility estimates that the installation process will take 90-120 days after full payment has been received and an agreement has been fully executed.

Cost

The fee for the installation of meters 2" and below are identified in the most current Utility rate resolution. The fee for meter connections 3" and above will be actual cost of construction. Restoration cost of the County ROW and road repairs will be included for existing commercial properties. Sod and restoration in the ROW for installation of water service for new commercial construction is the responsibility of the property owner and their contractor.

Fire Line Connection

A dedicated fire line connection for commercial properties will be provided upon request by the Commercial property owner. The Utility will construct the connection to the water main and provide an isolation valve within the County ROW, in close proximity to the property line that the property owner can connect their fire line to. The County will maintain ownership of the fire line from the water main to the valve in the county ROW. The property owner will own and maintain the fire line from the valve location in the county ROW to his property. The property owner is responsible for the entire cost of materials, installation and restoration of the fire line. The fire line is required to be a separate independent connection to the water main. The potable water service will not be connected to the fire line.

Disclaimer: *CCU reserves the right to change or waive the terms of this policy at any time in response to changing or unique circumstances.*

CHARLOTTE COUNTY Utilities	**Policies and Procedures**	*No:* 033
	Utilities	*Date:* February 15, 2023
Subject:	**Transmission vs Distribution Water Main Connection Policy**	
Approval by: E. Dave Watson, Utilities Director	*Signature:*	

Introduction

The intent of this policy is to define the restrictions on connecting to the potable water system mains and identify the differences in the Distribution System and the Transmission System.

In most cases, it is the Utilities desire to have all water service connections tied in at Distribution mains. The Utility considers many factors that could impact that desire including a limited Right-of-Way (ROW), distance to the nearest distribution main and the limited size of some distribution mains.

The Utility preference is to install a distribution main that is connected to the transmission main for any service or fire line connections.

Definitions

Transmission Main is defined as a larger pipe, typically 20" or larger that is designed to move large quantities of water from the source of supply to the Distribution system mains.

Distribution Main is defined as a network of pipes, typically 16" or below designed to carry water to commercial and residential properties. Some distribution mains may be larger than 12" as designed for support of larger developments.

Connections

Water service and fire line service connections shall be connected to water distribution mains in most circumstances. A limited number of connections may be made to transmission mains as approved by Utility Director on a case-by-case basis.

The Transmission main system is not designed to provide water service to commercial or residential sized water meters. To provide adequate flow and pressure to supply these water meters the connections are required to be oversized. The final sizing of the tap at the water main as well as the service line from the main to the meter connection will be decided by the Utility.

To limit connections to transmission mains all taps and meter connections will be provided as close to the property lines as possible in the ROW or easement to provide a future service connection for the next property. Location of the tap and meter set will be at the Utilities discretion.

Disclaimer: *CCU reserves the right to change or waive the terms of this policy at any time in response to changing or unique circumstances.*

	Charlotte County **Utilities** *Policies and Procedures*	Number: **034** Date: **October 11, 2018** Revision:	No. of Pages: 1
Subject:	**Reclaimed Extension Policy**		
Approval by	Craig Rudy, Utilities Director	*Signature:*	

The intent of this Reclaimed Extension policy is to clarify the process by which the Charlotte County Utilities Department determines eligibility for reclaimed extension service.

Application for reclaimed service must be made in writing to the Charlotte County Utilities Department, Business Services Division. Feasibility of connection shall be determined based on proximity within 500 feet to a functioning reclaimed water distribution main with adequate capacity to deliver bulk reclaimed water to the property. Engineering Services shall provide Business Services with an engineering report of availability based on the above criteria to be provided to the customer. Charlotte County Utilities Department does not guarantee continuous flow or consistent pressure to delivery systems. Every reasonable effort will be taken to ensure consistent service.

Reclaimed water, bulk delivery shall be provided in accordance with the Utilities Department reuse expansion initiatives. Bulk delivery means to a pond or tank. Delivery system (irrigation) design shall be at the developers cost. Operation and maintenance of the irrigation system shall be the customer's responsibility.

New users will receive reclaimed water delivery only after a contract is signed and a full legal description of the site, including a completed "Reuse Site Check List" is received by the Treatment Facilities Division and a final site inspection has been performed by a Reclaimed Specialist.

In accordance to Water District guidelines, the County shall require that non-potable water uses shall be met with reclaimed water whenever possible.

Fines or discontinuance of service may result from failure to abide by stated policy.

Excerpt from County 2050 plan:

> ***WSW Policy 4.2.9: Reclaimed Water Systems***
> *The County shall require all new large developments to connect to reclaimed water supply systems for non-potable uses, when such systems are made available. "Made available" means that the reclaimed water utility has adequate capacity to serve the development and a functioning reclaimed water distribution main is located within 500 feet of the property or that it is cost effective for the utility to extend a reclaimed water distribution main to within 500 feet of the property. Individual single-family, duplex, or triplex buildings shall not be required to connect.*
>
> ***WSW Policy 4.2.10: Appropriate Water Quality for Use***
> *The County shall require that non-potable water uses shall be met by reclaimed water supplies whenever possible. If reclaimed water sources are not available, non-potable water uses shall be met by groundwater sources.*

CHARLOTTE COUNTY Utilities	***Charlotte County*** **Utilities** *Policies and Procedures*	Number: **036** Date: **April 30. 2020** Revision:	No. of Pages: 1

Subject: **SCADA Requirement for Reclaimed Distribution Connections**

Approval by: Craig Rudy, Utilities Director *Signature:*

Introduction

The intent of this policy is to define the requirements for SCADA (Supervisory Control and Data Acquisition) for connections to the reclaimed water distribution system. Access and availability are covered under a separate Policy found under the Utilities Policy and Procedures Guidelines.

Reclaimed water connections are for commercial use only. No reclaimed service connections shall be provided by the Utility directly to individual residential homes.

Criteria

Charlotte County Utilities (CCU) will provide a reclaimed water service and reclaimed water meter connection to the property within the County Right-of-Way (ROW) or designated County Utility-owned easement.

Direct Feed Connections - CCU will own and maintain the reclaimed meter connection from the reclaim water main up to and including the billing face of the reclaim water meter and associated SCADA equipment, if required as noted below. The property owner will own and maintain all reclaim water infrastructure after the billing face of the meter. Should there be a secondary water source connected to the customers reclaim system, a reduced pressure principle backflow prevention device (RP) is required on both sources. The backflow prevention devices will be maintained by the property owner.

Pond Fed Connections - CCU will own and maintain the reclaimed meter connection and associated SCADA equipment from the reclaim water main up to and including the discharge point. If there is a secondary water source connected to the customers reclaim pond, an air gap or a reduced pressure principle backflow prevention device must be installed on that source. The backflow prevention device will be maintained by the property owner.

Flow

A site requesting reclaimed water whose flow exceeds 100,000 gallons per day, is required to install a CCU approved SCADA system.

Location

Direct Feed Connection - The reclaimed water meter will be set within the ROW or designated County- Utility owned easement at the property line.

Pond Fed Connection - The reclaim water meter will be set within the ROW or designated County-Utility owned easement at the pond site.

CHARLOTTE COUNTY Utilities	***Charlotte County*** **Utilities** *Policies and Procedures*	Number: **037** Date: **April 30. 2020** Revision:	No. of Pages: 1

Subject: **Residential Service Force Main Connection**

Approval by: Craig Rudy, Utilities Director *Signature:*

Force Main – A pipe greater than 4 inches in diameter that conveys untreated sanitary sewerage under pressure.

It is the policy of the Utility not to allow residential connections into a force main, except under special conditions.

Under special conditions, approved by the Director, a waiver may be granted for residential force main connections, subject to the same conditions as commercial force main connections. The request for a waiver to the Director must include a detailed description and reason of the hardship/special condition being requested.

Prior to design and payment of fees, the Director's waiver approval shall be required for residential sewer service to properties abutting wastewater force mains.

If a waiver is approved by the Director, residential properties connecting to force mains shall be treated as Commercial properties and shall be covered under a Utility Agreement (UA). Access and availability are covered under a separate policy found under the Utilities Policy and Procedures Guidelines.

Disclaimer: *CCU reserves the right to change or waive the terms of this policy at any time in response to changing or unique circumstances.*

Size

Direct Feed Connections - Any reclaim meter size greater than 2' inches will be required to install a SCADA system as specified in Section 7 – CCU Reclaimed Water Details. SCADA that will be installed shall be compatible and approved by CCU.

Pond Fed Connections – All sizes will be required to install a SCADA system as specified in Section 7 – CCU Reclaimed Water Details. SCADA that will be installed shall be compatible and approved by CCU.

Multiple small service connections to the same development to avoid the installation of SCADA equipment will not be allowed. The proposed single development service connection shall be based on the entire development reclaimed area to be served.

Disclaimer: *CCU reserves the right to change or waive the terms of this policy at any time in response to changing or unique circumstances.*

CHARLOTTE COUNTY Utilities	**Policies and Procedures** **Utilities**	*No:* 042 *Date:* June 21, 2021
Subject:	**Lift Station Policy**	
Approval by: Craig Rudy, Utilities Director	*Signature:*	

Introduction:

The intent of this policy is to define the requirements for all wastewater lift stations connecting to Charlotte County Utilities' (CCU) wastewater system including ownership, design elements, controls, SCADA, location, service area, access, easements, power and all other related requirements.

CCU supports and works closely with Developer/Owners and local planning authorities to prepare workable and economical solutions regarding new wastewater needs. The CCU Design Review Team (DRT) meetings held during the preliminary design phase of the project will identify project related issues and allow for exchange of information between Developer/Owner and CCU.

Policy:

CCU's objective is to minimize the number of new lift stations to be added to the CCU wastewater system to the extent possible. Developer/Owner shall first determine if an adjacent or nearby lift station exists or is proposed which has or can be utilized and/or modified to have sufficient capacity and depth to serve their project. Discharge to an adjacent or nearby lift station by any other means than gravity is not acceptable unless specifically approved by Utilities Director or designee. If no alternative is available, a new lift station shall be installed including a new force main extension to a CCU wastewater transmission system.

CCU requires all new lift stations that will serve single family homes, duplexes/twin homes, commercial property (multi-family, mobile home and multi-family residential developments, manufacturing, industrial, and any other non-residential establishments) of more than one dwelling or occupied unit to be owned and operated by CCU.

Definitions:

Developer/Owner: For the purposes of this policy, the property Owner or their authorized representative of the development, redevelopment/expansion and/or site modification shall be designated as the Developer/Owner.

Wastewater Facility and Lift Station Requirements:

All new lift stations shall conform to the most current CCU Design Compliance Standards and shall be conveyed to CCU in accordance with the utilities conveyance policies and procedures and Developer/Owner's Utility Agreement.

The effect of the proposed wastewater flow for the development on the hydraulic capacity of the existing CCU wastewater system must be evaluated prior to CCU approval for connection to the CCU wastewater system.

The hydraulic capacity analysis must be performed to demonstrate what effect the increase in wastewater flow from the proposed lift station will have on the CCU wastewater system including:

(1) surcharging any existing gravity sewers, (2) reducing the design pumping capacity of all manifolded existing lift stations, (3) causing the receiving lift station to exceed its design capacity and (4) ability to accommodate pumping against future build-out flows within the manifolded force main system. CCU shall perform required hydraulic modeling at its discretion.

All new lift stations shall comply with the regulations established by the Florida Department of Environmental Protection (FDEP). Additionally, the criteria provided in CCU Design Compliance Standards and the latest edition of the "Ten State Standards - Recommended Standards for Wastewater Facilities", shall be utilized as design guidelines, if not in conflict with State, County or other regulatory agency requirements.

Lift stations shall be installed in readily accessible sites and shall have adequate area provided for operation and maintenance of the facility.

Mechanical and Electrical Design:

The bottom of all electrical cabinets, generators and odor controls shall be a minimum of one tenth of a foot (0.1') above the 500-year flood elevation. Height requirements may require steps and platforms to be installed to provide access for safe maintenance and operational activities.

Controls:

Controls shall be designed in accordance with the most current CCU Design Compliance Standards.

SCADA:

All new lift stations shall be equipped with SCADA and related appurtenances. For an existing lift station that will be utilized for a new development, SCADA shall be required and shall meet the most current CCU Design Compliance Standards.

Access:

Lift stations shall be designed to be accessible during a 50-year flood event. Site preparation, pavement, and walkways shall be provided for all weather operations. For new lift stations, the minimum maintenance area for lift stations, exclusive of access road and landscaping, shall meet current CCU Design Compliance Standards requirements. Lift stations shall be installed in readily accessible sites and shall have adequate area provided for operation and maintenance of the facility. The site shall be well drained.

Easements/Land Requirements:

See current CCU Design Compliance Standards for easement and land area requirements for new lift stations.

Stand-by Power:

An emergency on-site generator shall be provided if a generator is required by FDEP Rule 62-604.400(2)(a) or the most current CCU Design Compliance Standards.

Fencing:

Fencing shall be required in accordance with the most current CCU Design Compliance Standards. Unfenced sites may require fencing if flows from a new development are being discharged into an existing lift station.

Odor Control:

Where odor problems are a concern of CCU, odor control may be required based on the most current CCU Design Compliance Standards.

Pretreatment:

Where pretreatment is a concern of CCU, pretreatment may be required based on the most current CCU Design Compliance Standards. Pretreatment improvements shall be owned and maintained by the Developer/Owner.

Wet Well Design:

The top of the wet well shall be a minimum of five-tenths of a foot (0.5') above the 100-year flood elevation if located within the FEMA 100-year flood zone.

The top of the wet well shall meet or exceed the fifty (50) year flood elevation in all areas outside the FEMA 100 year flood zone or shall be a minimum of one and one-half foot (1.5') above the crown of the adjacent access road whichever is greater.

Facility Adjustments:

During the course of CCU's review of construction plans and hydraulic calculations, CCU shall also review for the possibility of increasing the size of main and facilities and/or depth of gravity sewer mains, manholes, and facilities of a proposed development to serve existing or future customers. Such upsizing and/or lowering of mains and facilities may be accomplished through means of an agreement entered between CCU and the Developer/Owner.

STANDARD OPERATING PROCEDURE (SOP)

Name of SOP:	**New Construction Low Pressure Sewer (LPS) Installations**
Prepared by:	Construction Coordinator, Mike Martindell MM
Approved by:	Engineering Services Manager, Bruce Bullert BRB
	Utilities Director, Terri Couture TC
Date Approved:	March 23, 2015

GENERAL PROVISIONS: All LPS installations shall be constructed in conformance with Charlotte County Utilities (CCU) Design Compliance Standards dated November 1, 2011, which can be found at the following link: http://www.charlottecountyfl.com/CCU/Engineering/DesignCompliance.asp.

5 gov/departments/utilities/engineering/design-compliance.stml

Builder/Developer shall be responsible to mount the LPS electrical panel to CCU standard details. The dedicated electrical circuit feeding the LPS panel is to enter the back or bottom of panel only. No light switches, disconnects, electrical outlets, electrical boxes, J boxes, switches, or any other connections of any kind shall be installed on this dedicated circuit. The 1-1/2"electrical conduit shall be installed straight (vertically and horizontally) and strapped to exterior wall with a conduit clamp/strap.

Supplementary Special LPS Provisions:

After CCU has collected all connection fees for the property to be served, CCU shall install a new LPS service lateral from the LPS force main to the property line (in accordance with CCU standard details) unless a service lateral already exists. CCU shall install a two (2) inch ball valve at the property line with a sewer 3M id locate ball installed on top of the two (2) inch ball valve. CCU shall also install an additional one (1) foot tail into the property.

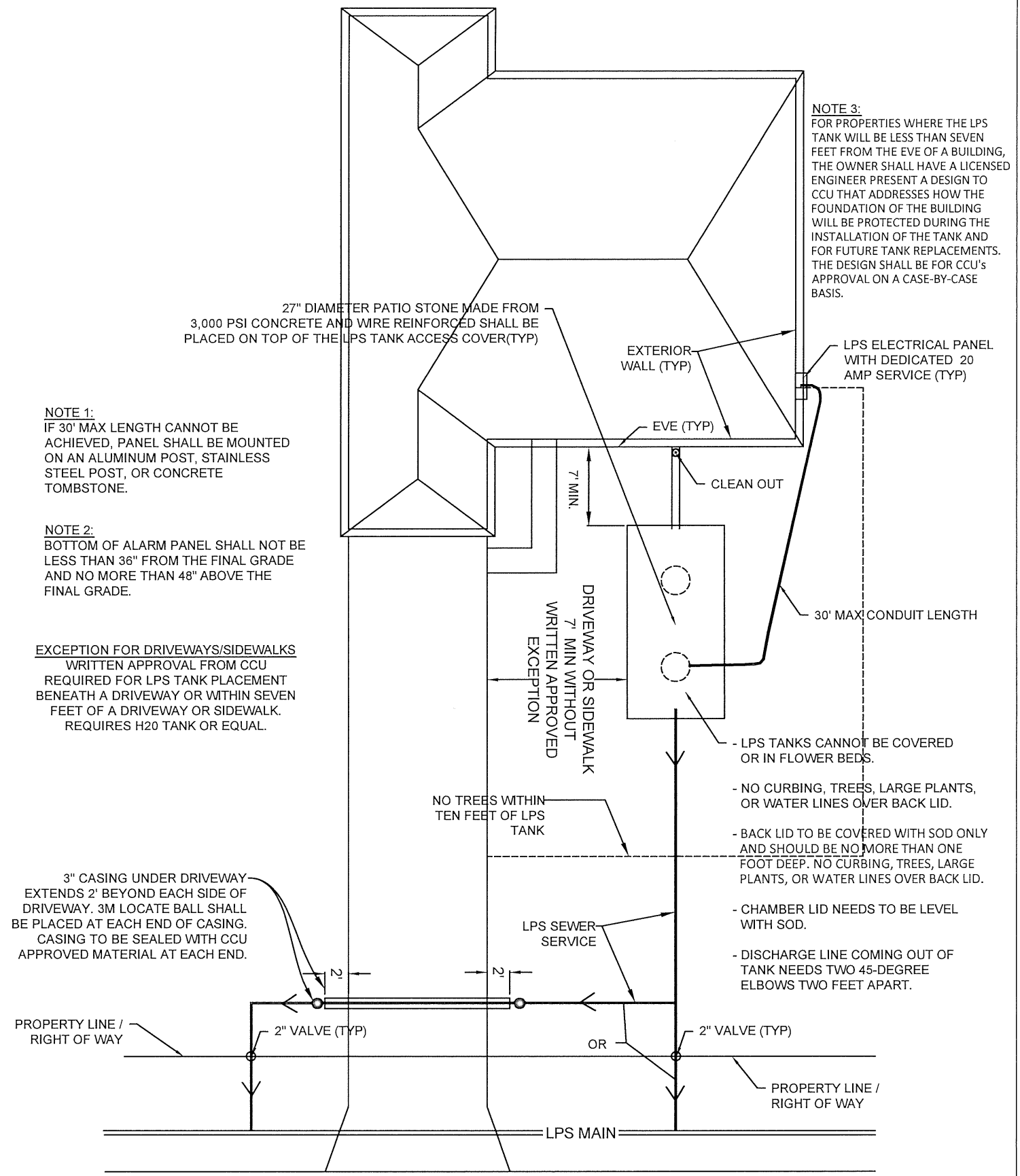
Builder/Developer shall install or hire a licensed contractor or sub-contractor to install the LPS system and service lateral to the property line/one foot tail. Builder/Developer shall be responsible to make the connection to the LPS service lateral tail at the property line (new LPS service) or for any existing LPS service laterals in the county right-of-way (ROW) or easement if needed. If the LPS Installer does not have the proper license to work within the ROW, the Builder/Developer shall be responsible to make the connection.

Builder/Developer shall be responsible to make sure the LPS system is set to proper grade. No trees shall be planted within ten (10) feet of the LPS system. This ten (10) foot clearance extends from the side walls of the LPS tank not just the patio stone (NO EXCEPTIONS). The LPS system tank shall maintain at least seven (7) feet of clearance from the building structure. This seven (7) foot clearance also applies to the side walls of the LPS tank from the structure, overhang, and/or driveways. Special exceptions can be made on a case-by-case basis for LPS systems installed under the driveway. Prior written approval from CCU is required before construction of an LPS tank under the driveway since this can increase the overall cost associated with installation due to the additional components.

Builder/Developer and/or Installer shall notify CCU Engineering Construction Coordinator a minimum of 48 business hours prior to the installation date to allow for scheduling of the installation inspection of the LPS system. CCU will schedule an inspector to be on site for all LPS installs. Installer is required to obtain an installation approval date from CCU prior to the LPS system being installed. Noncompliance with this requirement will result in a failed C/O inspection. A clean, safe, and dry excavation must be maintained during installation of the LPS tank.

A concrete patio stone, twenty seven (27) inches in diameter and two (2) inches thick, with a smooth or light broom finish made from 3000 psi concrete with wire reinforcement is required for all LPS systems and shall be placed on top of the LPS tank access cover prior to the Certificate of Occupancy (C/O) inspection. The water meter and meter box shall be set to CCU specifications prior to the final Building Construction Services final C/O inspection.

Builder/Developer shall be responsible for notifying CCU Engineering Construction Coordinator of the C/O inspection final date. CCU suggests that the notice be provided at the time of final grade inspection, giving at least one week for all parties involved to address any issues prior to the Building Construction Services final C/O. CCU will not release any C/O prior to a passed LPS and water meter inspection (NO EXCEPTIONS).



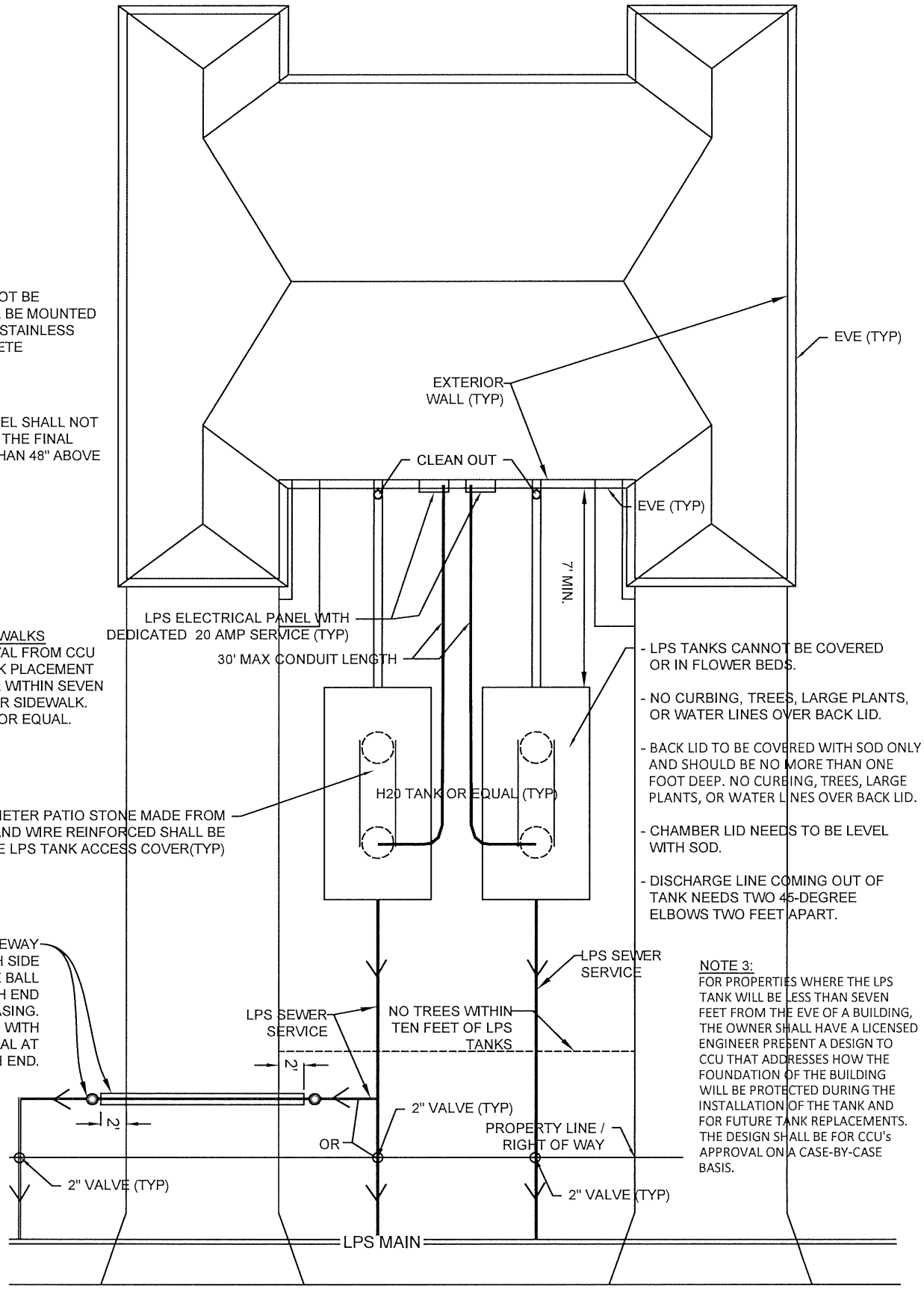
DATE: 08/23/2024	# TYPICAL TANK INSTALLATION	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: JRM		65
APPROVED BY:	CHARLOTTE COUNTY UTILITIES	ID: LPS REV 8-22-24.dwg

DWG: C:\Users\Melton.JI\Desktop\LPS\LPS REV 8-22-24.dwg

NOTE 1:
IF 30' MAX LENGTH CANNOT BE ACHIEVED, PANEL SHALL BE MOUNTED ON AN ALUMINUM POST, STAINLESS STEEL POST, OR CONCRETE TOMBSTONE.

NOTE 2:
IBOTTOM OF ALARM PANEL SHALL NOT BE LESS THAN 36" FROM THE FINAL GRADE AND NO MORE THAN 48" ABOVE THE FINAL GRADE.

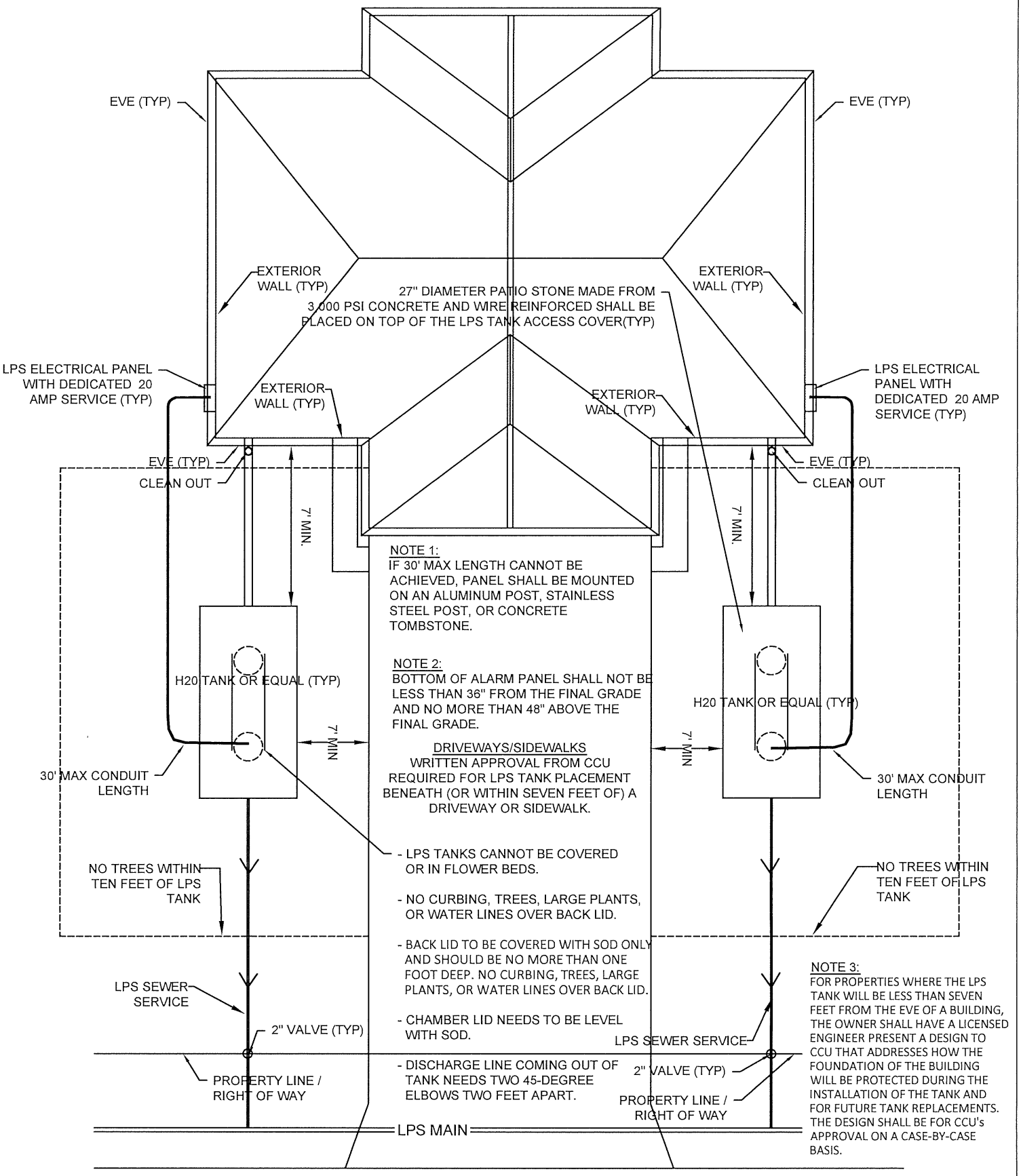
DRIVEWAYS/SIDEWALKS
PRIOR WRITTEN APPROVAL FROM CCU REQUIRED FOR LPS TANK PLACEMENT BENEATH A DRIVEWAY OR WITHIN SEVEN FEET OF A DRIVEWAY OR SIDEWALK. REQUIRES H20 TANK OR EQUAL.



NOTE 3:
FOR PROPERTIES WHERE THE LPS TANK WILL BE LESS THAN SEVEN FEET FROM THE EVE OF A BUILDING, THE OWNER SHALL HAVE A LICENSED ENGINEER PRESENT A DESIGN TO CCU THAT ADDRESSES HOW THE FOUNDATION OF THE BUILDING WILL BE PROTECTED DURING THE INSTALLATION OF THE TANK AND FOR FUTURE TANK REPLACEMENTS. THE DESIGN SHALL BE FOR CCU's APPROVAL ON A CASE-BY-CASE BASIS.

DATE: 08/23/2024	# TYPICAL TANK INSTALLATION - DUPLEX I	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: JRM		65
APPROVED BY:	CHARLOTTE COUNTY UTILITIES	ID: LPS DUPLEX 1 8-22-24.dwg

DWG: C:\Users\MeltonJ\Desktop\LPS\LPS DUPLEX 1 8-22-24.dwg



DATE: 08/23/2024

DRAWN BY: JRM

APPROVED BY:

TYPICAL TANK INSTALLATION - DUPLEX II

CHARLOTTE COUNTY UTILITIES

PROVIDED FOR INFORMATIONAL PURPOSES ONLY.
NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.

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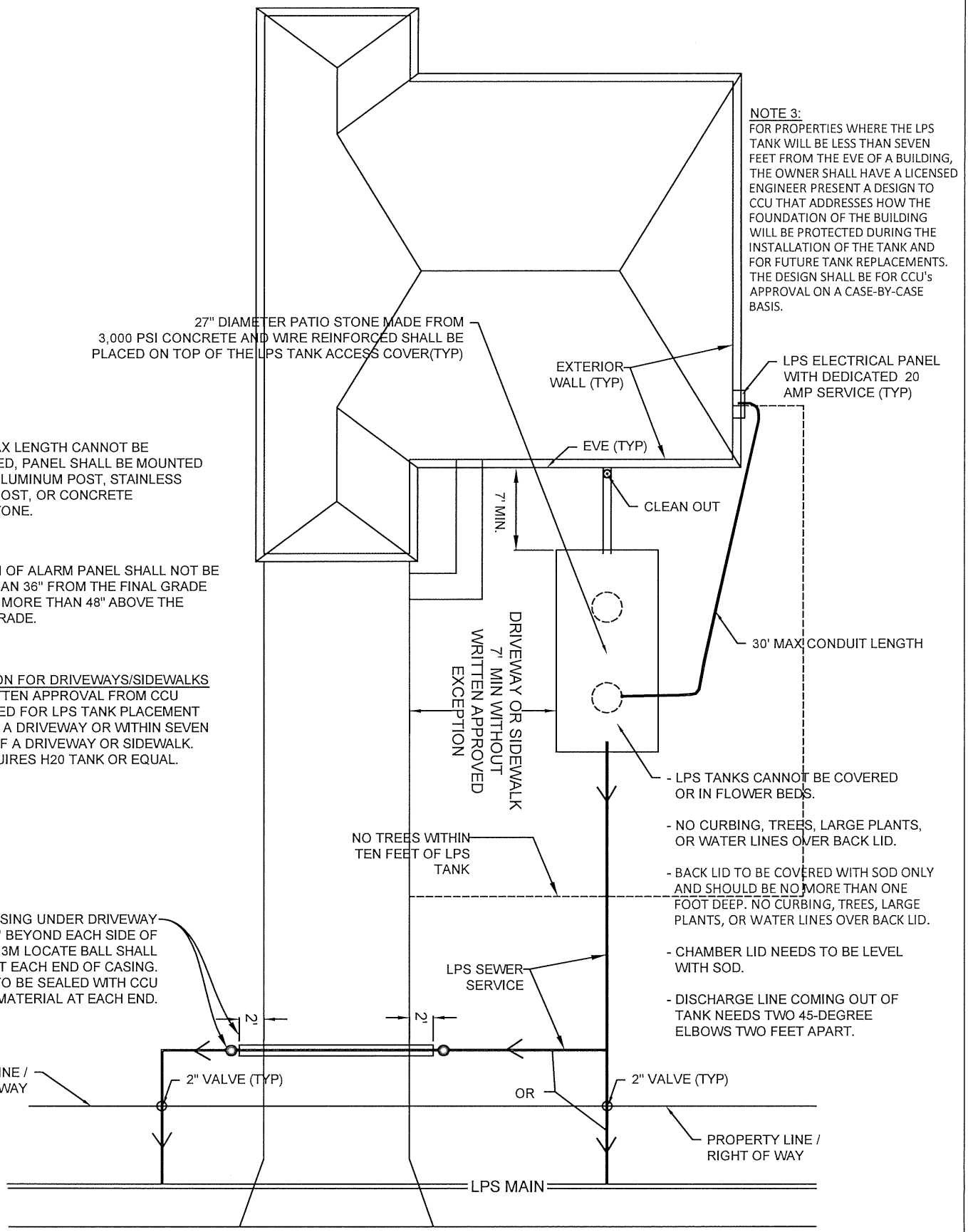

DATE: 08/23/2024	# TYPICAL TANK INSTALLATION	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: JRM		65
APPROVED BY:	CHARLOTTE COUNTY UTILITIES	ID: LPS REV 8-22-24.dwg

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