

**PLAN REVIEW CHECKLIST
FOR
WATER MAINS AND
SANITARY SEWERS**

Gainesville Department of Water Resources



JANUARY 2013

Project Name: _____
Plans Received: _____
Plans Reviewed: _____
Plans returned with
corrections to be made: _____
Reviewed By: _____

Comments: _____

****ORIGINAL RED-LINE COMMENTS MUST BE RETURNED WITH REVISED
PLANS FOR FINAL PLAN APPROVAL. CONTACT PLAN REVIEWEE AND
SCHEDULE APPOINTMENT FOR PLAN APPROVAL/SIGN -OFF. ****

GENERAL

- 1) _____ 2 sets of preliminary drawings furnished for initial review.
- 2) _____ Plans requiring water or sewer main construction stamped by Professional Engineer or Registered Land Surveyor. (Drawings for fire sprinkler line located outside of building prepared by sprinkler contractor and stamped with "Certificate of Competency" will not be accepted or approved.)
- 3) _____ Legible project location map provided and site visit performed.
- 4) _____ The following fees shall be paid prior to plan approval:
 - a) _____ linear feet water main x \$1.49 per lf = \$ _____.
 - b) _____ linear feet sewer main x \$3.62 per lf = \$ _____.

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- 5) _____ Elevation data referenced to mean sea level (MSL) and survey horizontal data shall be referenced to state-plane coordinate system including all proposed manholes.
- 6) _____ Drawings requiring public water, public sanitary sewer or private fire main construction shall bear the following notes:

“The Gainesville Department of Water Resources shall be notified 24 hours prior to any water or sanitary sewer line construction or repairs. Only contractors approved by Gainesville Department of Water Resources will be allowed to perform construction or repairs connected to said water or sanitary sewer mains. Call Engineering Inspector’s office at (770) 538-2407 prior to beginning construction or to become an approved contractor.”

“All water main and sanitary sewer materials and workmanship shall be in accordance with the City of Gainesville "Standard Specifications for Construction of Water Mains and Sanitary Sewers, latest edition.”

“The Contractor shall be responsible for maintaining a marked-up set of design drawings showing “as-built” conditions. These “record drawings” shall be made available to the designer and/or the City Inspector upon request. The mark-ups shall be at the site at all times and shall be utilized to develop final record drawings. Final acceptance of water and/or sewer main construction will not be granted until as-built drawings have been received by City of Gainesville Department of Water Resources Engineering and Construction office.”
- 7) _____ Water & Sewer details used match City of Gainesville Department of Water Resources standard details, latest edition.
- 8) _____ No trees shall be located within perpetual water or sewer easements or above fire protection water mains in order to prevent pipeline root damage. The City’s Tree Protection Ordinance shall be considered and addressed by the project owners, designers, and contractors as is applicable.
- 9) _____ Minimum 10 feet horizontal distance between water & sewer lines.
- 10) _____ Minimum 18 inch vertical distance between water and sewer lines.
- 11) _____ Where water and sanitary sewer lines cross, the water main shall be 18 inches above the sewer. If the sewer must be above the water main the sewer shall be at least 18 inches above and encased in concrete a minimum of 10 feet on each side of the water main. Joints shall be spaced to provide maximum distance from crossing.
- 12) _____ Where water or sanitary sewer mains cross storm drains, minimum 18 inch vertical separation shall be maintained.

- 13)_____ Minimum cover over water and sewer lines shall be 4 feet. Water mains 12-inches and larger shall have a minimum of 5-feet of cover.
- 14)_____ Water mains and sanitary sewers shall be located outside of paved areas. Locating water mains and sanitary sewers in paved areas will only be allowed when no other alternative exists. No 2" P.V.C. water mains will be allowed under roadways. Bore under existing roadways where possible to prevent pavement damage.
- 15)_____ A post indicator valve and a free standing Siamese fire department connection shall be installed a minimum of 40 feet from the building on all fire sprinkler system water mains. Said valve and connection shall be placed immediately downstream of the double detector check backflow preventer in the same vault and shall be in accordance with NFPA 24.
- 16)_____ A new or existing fire hydrant shall be located within 50 feet up stream of the fire department connection. These requirements will be strictly enforced unless a written variance from the Fire Marshall of jurisdiction is obtained.
- 17) _____ Projects requiring D.O.T. permit for installation of water and/or sewer mains within D.O.T. right-of-way shall provide paper and electronic copy of an 8½" x 11" exhibit for City submittal to D.O.T.

WATER

- 1)_____ A 20'-0" permanent easement shall be required on all water mains crossing private property. The main shall be on the centerline of the easement and no buildings or other structures shall be built within easements. Easements shall be shown on all plans including landscape plan and an additional 11" x 17" easement exhibit "A" shall be provided to be included with easement document prepared by City staff. All water main easements shall be fully executed prior to plan approval. Include total area of easement to be dedicated to the City of Gainesville in square feet.
- 2)_____ Developments requiring installation of public water mains or fire hydrants within public right-of-way shall be required to sign a "Facilities Dedication" form prior to plan approval. An 11" x 17" exhibit "A" shall be provided indicating location of facilities and will be included with dedication form prepared by City staff.
- 3)_____ Existing water supply facilities shall have adequate capacity to meet future potable water demands of proposed development.
- 4)_____ Water mains shall be placed in the back 5'-0" of City, County, or D.O.T. Rights-of-Way as applicable.

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- 5)_____ No fire hydrants shall be placed on water mains which are smaller than 8" diameter unless the main is looped or the developer can show the farthest hydrant can maintain a flow of 1250 gpm @ 30 psi. Note: The Fire Marshall of Jurisdiction should be contacted to see if stricter requirements are in order for specific project types.
- 6)_____ No fire hydrant shall be placed on water mains smaller than 6" diameter in any case.
- 7)_____ In commercial and industrial areas, fire hydrants shall be placed such that the maximum hose lay length (as a truck travels) shall be no greater than 300 feet, unless the Fire Department requires closer spacing for specific reasons.
- 8)_____ As a minimum, fire hydrants shall be placed such that the maximum hose lay length (as a truck travels) shall be no greater than 500 feet in single family residential areas and 350 feet in multi-family residential housing complexes. Note: The Fire Marshall of jurisdiction should be contacted to see if stricter requirements are in order for specific project types.
- 9)_____ Blow-off assemblies (or fire hydrants with thrust collar if applicable) shall be placed at the terminus of all dead end lines. Standard terminations shall be installed where water mains will be extended in future.
- 10)_____ Water mains 6" and larger shall be ductile iron pipe, including fire protection water mains.
- 11)_____ Fire protection water mains shall enter buildings at fire riser location and can not be installed horizontally under building slabs.
- 12)_____ Pipe for 2-inch diameter water mains shall be SDR 13.5 PVC with a pressure rating of not less than 315 psi.
- 13)_____ In general, 2-inch diameter PVC pipe will only be allowed around the radii of cul-de-sacs and located outside of paved areas.
- 14)_____ Tapping sleeve & valves shall be shown on plan when connecting to an existing water main. A back tap shall be shown when applicable. If existing water main is located under pavement, an additional gate valve is required outside of pavement.
- 15)_____ In-line gate valves are required every 1800 to 2000 feet.

- 16)_____ Each tax parcel shall be served by separate water meter. Master meters to serve more than one tax parcel will not be allowed including condominium developments. Master meters serving multi-unit buildings such as apartments and commercial retail centers shall also install privately owned and operated sub-meters for water tracking purposes.
- 17)_____ Commercial multi-unit buildings containing units to be leased and used as restaurants or other business types requiring installation of a sanitary sewer pre-treatment device, shall be required to install a separate water meter.
- 18)_____ Deduct meters on private water service lines serving cooling towers are not allowed in any circumstance.

SEWER

- 1)_____ Developments proposing to connect to City of Gainesville sanitary sewer system shall be annexed into the City of Gainesville or sign agreement to annex once property becomes contiguous. Annexation or execution of agreement must be fully executed prior to plan approval.
- 2)_____ A 30'-0" permanent easement shall be required on all 8-inch through 18-inch diameter sanitary sewers with up to 20' - 0" of cover and a 40' - 0" permanent, recorded easement shall be required if cover is over 20' - 0". A 40' - 0" permanent, recorded easement shall be required on all 24-inch diameter sanitary sewers regardless of depth of cover. The sewer shall be on the centerline of the easement and no buildings or other structures shall be built within easements. Easements shall be shown on all plans including landscape plan and an additional 11" x 17" easement exhibit "A" shall be provided to be included with easement document prepared by City staff. All sanitary sewer easements shall be fully executed prior to plan approval. Include total area of easement to be dedicated to the City of Gainesville in square feet.
- 3)_____ Developments requiring installation of public sewer mains within public right-of-way shall be required to sign a "Facilities Dedication" form prior to plan approval. An 11" x 17" exhibit "A" shall be provided indicating location of facilities and will be included with dedication form prepared by City staff.
- 4)_____ Proposed average and peak sanitary sewer flows shall be submitted prior to plan approval to determine if all downstream wastewater facilities including wastewater treatment plant, gravity sanitary sewer lines, and wastewater pumping stations shall have adequate capacity for future wastewater flows from proposed development.

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- 5)_____ All stream buffer encroachment variances shall be obtained from Georgia Environmental Protection Division (E.P.D.) and/or U.S. Army Corps of Engineers Permit prior to plan approval.
- 6)_____ Minimum slope for 8-inch and larger gravity sanitary sewer pipe shall be 0.50%, the maximum slope shall be 15.0%.
- 7)_____ Gravity sanitary sewer pipe material shall be SDR 26 PVC unless depth of cover is 20' or greater, less than 4', or the sewer is to be laid in fill area. In these cases, the pipe shall be ductile iron, Class 50 with Protecto 401 interior coating.
- 8)_____ Bedding for sanitary sewers shall be Class B or greater.
- 9)_____ Sanitary sewer force mains shall be ductile iron pipe, Class 50 with Protecto 401 interior coating.
- 10)_____ Service lateral pipe material shall be SDR 26 PVC or Ductile Iron sewer pipe as required. If connection to an existing vitrified clay (VC) sewer pipe is required, connection shall be made with an appropriate bell donut. The bell donut shall be equivalent to those manufactured by Fernco, Inc.
- 11)_____ Cleanouts shall be placed on all building service laterals at the point at which City maintenance terminates. This point shall be the curb line, the property line, the right of way line, or the easement line as applicable. Cleanouts shall be 6-inch and have a brass cap. Cleanouts shall not be placed in pavement areas if at all possible. If required, use traffic-grade cleanouts when located within pavement areas.
- 12)_____ All service lines shall be connected to gravity sewer pipe if at all possible. If connection to manhole is required, the invert of building service lines shall be placed at or above the crown of the City sewer but not to exceed 2-feet above the crown of the City sewer.
- 13)_____ Buildings proposing to connect to sanitary sewer shall be connected by a separate sanitary sewer tap.
- 14)_____ The minimum diameter of sanitary sewer pipe shall be 8-inches with the exception of building service laterals which may be 6-inches.
- 15)_____ Manholes shall be placed at all changes in direction and grade of sanitary sewers. Manholes shall be spaced such that the distance between manholes does not exceed 350 feet. The minimum angle between lines entering and exiting a manhole is 90⁰.

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- 16)_____ Outside drop connections shall be constructed at manholes on all influent sewers where the invert elevation is greater than 2 feet over the invert elevation of the effluent sewer. Outside drops shall not exceed 10 vertical feet. Slope of incoming pipe into outside drop manhole may not exceed 10%.
- 17)_____ Sewage pumping stations will not be permitted unless the developer can demonstrate extreme hardship would result if the station were denied. Pumping stations will be discouraged and therefore, only permitted on a case by case basis. All pumping stations shall be located above the 100 year flood plain and out of storm drainage flow paths.
- 18)_____ All sewage pumping stations shall have an auxiliary power source. Additionally, they shall be provided with a remote telemetry system compatible with the City's existing system and a potable water service including a yard hydrant for wash down purposes with a reduced pressure zone (RPZ) backflow preventer.
- 19)_____ Pumping stations shall be assigned an official name and number by Public Utilities prior to plan approval.
- 20)_____ Plans and profiles showing all utility and pipeline crossings as well as existing and proposed grades shall be provided for all sanitary sewers. Building services are excepted.
- 21)_____ Sewer maintenance access shall be maintained on all existing and proposed sanitary sewer easements. Maintenance access is defined as grades, soil compaction and cross slopes which will allow a sewer jet truck (weighing approximately 50,000 lbs.) to navigate easily. Maximum slope shall not exceed 20% and easement contour lines shall be shown on grading plans. Minimum of 2' contour intervals shall be used. Access to existing sanitary sewer easements located within proposed construction areas shall be maintained during all phases of construction.
- 22)_____ Sanitary sewers over 20'-0" in depth will not be permitted unless the developer can demonstrate no other alternative exists. Each instance will be reviewed on a case by case basis.

BACKFLOW PREVENTION AND PRETREATMENT

- 1)_____ Projects requiring Backflow Prevention Installation shall bear the following notes:

“Prior to backflow preventer installation, contact Backflow Inspector at (770) 297-5443”.

“Backflow prevention device installation requires a plumbing permit to be obtained from City of Gainesville Building Inspections Department at (770) 531-6570 by a master plumber”.
- 2)_____ As a minimum, commercial, industrial, institutional establishments, and multi-family housing shall install and maintain double check valve assemblies immediately downstream from the City meter in a separate meter box or vault as applicable.
- 3)_____ All water service lines installed for landscaping and/or irrigation purposes shall have a double check valve assembly installed in them immediately downstream from the City’s meter.
- 4)_____ Establishments determined to present a high hazard backflow potential, including swimming pools, doctor’s offices, car washes, and sanitary sewer pump stations shall install and maintain reduced pressure zone (RPZ) backflow preventers in above ground, non-freezing enclosures. Water service lines serving sanitary sewer pump stations shall also install a pressure reducing valve (PRV) prior to the backflow preventer.
- 5)_____ Double detector check valves shall be installed on all fire sprinkler mains. Valves shall be housed in a vault as close to the City main as is possible. A water meter that reads in cubic feet equipped with a touch read/radio read device compatible with the City’s water meter and billing system shall be required.
- 6)_____ Projects requiring Pre-Treatment shall bear the following note: “Prior to Pre-Treatment device installation, contact Pre-Treatment Inspectors office at (770) 532-7462.”
- 7)_____ Sand traps and oil separators with sample station manholes shall be installed in all sanitary sewer service lines from service stations, garages, car washes, and similar operations. Proposed pretreatment devices shall be specifically designed for required pretreatment and details for premanufactured devices shall be pre-approved by Department of Water Resources and included in permitted drawings.

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- 8)_____ Grease traps and sample station manholes shall be installed in process waste lines of all sanitary service sewers for commercial, industrial, and institutional establishments with food preparation areas.
- 9)_____ Lint traps and sample station manholes shall be installed in all sanitary sewer service lines from laundry mats.
- 10)_____ Hair traps and sample station manholes shall be installed in all sanitary sewer service lines from veterinary clinic/animal control facilities.
- 11)_____ Domestic sewage shall not pass through pretreatment devices or sample stations.
- 12)_____ If dumpster pad drains are to be tied onto the sanitary sewer, a grease trap and sample station manhole shall be placed between the pad and the City sewer. Domestic wastewater shall be excluded from the trap. Food process waste streams may utilize the same trap if sized appropriately.
- 13)_____ Rainwater shall be prevented from entering the sanitary sewer at all dumpster pad locations. Method must be detailed on drawings.
- 14)_____ Grease trap and oil separator details shall appear on the project drawings and shall be approved prior to installation.
- 15)_____ Oil separators shall be sized to handle two (2) times the expected flow rate.
- 16)_____ Grease traps shall be sized as necessary with the minimum allowable size being 1500 gallons.
- 17)_____ Sample station manholes may be required on commercial, industrial, and institutional sanitary service sewers. Domestic sewage shall not pass through sample station manholes.