

Water & Sewer Utilities
Miscellaneous Design and Plan Preparation Guidelines
Issued by: Ray Mowla, P.E.
Jefferson Parish Department of Engineering, Utilities Section

The purpose of issuing these miscellaneous guidelines is to relay information. These guidelines shall be used, in conjunction with all other applicable Jefferson Parish Standards and guidelines, to better prepare construction documents.

Items covered herein are amongst the most missed and overlooked items, which we have been commenting on, in recent projects.

Let Us Give Utilities the Respect that they Deserve.

The following list will be updated / revised from time to time to better serve its purpose:

- 1- Drawings and Specifications shall be clearly identified for their percentage of completion. To identify a document simply as “**Preliminary**”, when it might be difficult to identify percent completion, is obviously better than no identification at all.
- 2- Include the Jefferson Parish Public Works Project Number (PW #) on all correspondences, e-mails, plans, specifications, shop drawings, as-built information, invoices, etc. If you have not been given the “PW #”, Please e-mail me the complete title of the project and I will get the “PW #” for you. Thanks!
- 3- Material type and sizes for all proposed pipes shall be indicated on the plans. For example: “REQ'D 6" DR 14, PVC **C-900** S.F.M.” or “REQ'D 8" DR 18, PVC **SDR 26** GRAVITY SEWER”.
- 4- All proposed utilities shall be shown on the **plan** and the **profile** views within the drawing limits. This will include **Water Mains** and **Sewer Force Mains** as well as all **Gravity Lines**.
- 5- All existing utilities, including material type and sizes, shall be shown on the **plan** and the **profile** views within the drawing limits. This will include **Water Mains** and **Sewer Force Mains** as well as all **Gravity Lines**. All of the following sources are suggested to be examined to compile information regarding location, size, material type, etc. of any existing water and / or sewer mains:
 - a) Jefferson Parish Water Unit Sheets.
 - b) Jefferson Parish Sewer Unit Sheets.
 - c) Jefferson Parish GIS mapping system.
 - d) Any available As-Built drawings, which may provide useable information.
 - e) Survey.

The task of depicting the existing Jefferson Parish Owned Utilities on the construction drawings, correctly, is solely the responsibility of the A/E and his surveyor and the fact that Jefferson Parish conducts cursory reviews and provides comments during the design stages will not relieve the A/E from this very crucial responsibility whatsoever.

Typically we do not see a large number of errors in plans depicting the existing Sewer Gravity System (manholes and mains). This is due to the nature of a gravity system that manholes are connected by mains. However, existing Sewer Force Mains and Water Distribution Systems are often shown wrong. We can not simply connect valves to depict the system. The following procedures must be followed:

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- *Start the water distribution topography surveying by having copies of Jefferson Parish Water Unit Sheets in hand. As-built plans may be necessary to fine-tune your plans. { Routinely at the time of pre-design meetings the A/E is given copies of Jefferson Parish unit sheets, as-built plans, GeoMedia maps, etc.} The A/E must obtain these documents from the parish and provide a copy to the surveyor before or at the time that he authorizes the survey.*
 - *Understand the difference between a hydrant valve and a main valve.*
 - *The surveyor shall open valve covers and take elevation shots on existing valve operating nuts. {This helps the A/E in approximating the existing water lines' depths.}*
 - *The A/E must submit {electronic copy is sufficient} an "existing utility" plan showing all existing parish utilities to Jefferson Parish Engineering Department (attn: Ray Mowla) for Jefferson Parish Engineering Department's initial cursory review. At this time the engineering department will compare the actual surveying to the unit sheets and makes comments.*
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6- As part of any project plans, which include water or sewer utility installation and/or modification, please prepare "Water Plans (Water Maps)" and "Sewer Plans (Sewer Maps)". These plans shall be on 1" = 60' scale, similar to what is submitted for new subdivisions. These plans by no means will substitute the utilities shown on the plan and profile sheets. In fact what is shown on these plans shall be identical to what is shown on the plan portion of the plan profile sheets. If the utility modifications are minor and/or limited to the intersections only, these water and sewer plans may be substitute by individual details depicting utility modifications.

7- Add the following note to the "GENERAL NOTES": Contractor must contact Jefferson Parish Departments of Engineering Utility Section (~~Valerie Thomassie~~,

736-6793), **Water, Sewer, Drainage and Traffic Departments** prior to the commencement of construction.

8- Provide roadway typical sections. These sections shall include all **existing and proposed utilities (including trench details or trench limits for the proposed utilities)**, details of pavement removal and replacement (over the trench), utility poles, trees, etc.

9- Details for items such as canal crossings and tie-ins should be provided to clarify the intended work.

10- When Water Lines and / or Sewer Force Mains cross over or under Drain Lines (pipes, box culverts, etc.) detailed plan and profile or perhaps, sections must be shown to depict all clearances and covers.

11- Jefferson Parish standards and general notes (latest revisions) shall be included in the bid documents and shall be referenced to as applicable throughout the plans and the specifications. Go to <http://www.jeffparish.net/index.cfm?DocID=4775> .

12- If at all possible Water Lines and /or Sewer Force Mains shall not be offset under Drain Lines and / or Gravity Sewer Lines.

13- The contractor shall be advised to exercise extreme caution when working in the vicinity of Concrete Pressure Pipes [Prestressed Concrete Cylinder Pipe (PCCP)] Water Lines and /or Sewer Force Mains. These lines are difficult to offset, relocate, work around, pave over, tap, etc. As a minimum, notes such as **“CAUTION, EXISTING PCCP WATER LINE, NOT TO BE DISTURBED”** shall be included in the plans.

14- Asbestos-Cement (AC) Water Lines and /or Sewer Force Mains are extremely sensitive to construction loads, vibration, earth movement, etc. As a minimum, notes such as **“CAUTION, EXISTING AC WATER LINE, NOT TO BE DISTURBED”** shall be included in the plans.

15- When Sanitary Sewer Lines are parallel to Water Lines, the clearance between them shall be a minimum of 6' - 0"; when perpendicular, clearance shall be a minimum of 1' - 6" with the water Line crossing on top. If these conditions cannot be met, due to field conditions, the **“10 States Standards” ((phone: (518) 439-7286, web site: www.hes.org))** guidelines could be followed with the Jefferson Parish Engineering Department’s approval.

16- Jefferson Parish Sewer Standard Sheet does not cover offsets of “Force Mains”. The offset details and notes included in the Jefferson Parish Water Standard Sheets can be utilized for Force Mains. Please add a note to explain this as you are including the Water Standards in the plans to serve as Sewer Force Main Standards.

17- % Grade and / or slope shall not be specified for Water Mains and / or Sewer Force Mains.

18- When new pavements are proposed, Condition and Maintenance History of existing utility lines, which are located under the proposed pavement, shall be investigated. If the existing condition and / or the maintenance history of any utility

line warrants its removal and replacement, such action shall take place prior to construction of the new pavement. The A/E shall inform, in writing, all parish utility departments (Streets, Water, Sewer & Drainage) directors' offices of the limits, scope, funding and the timing of the project and request information and input with regard to the condition of their utility system within the proposed project limits. This information then can be used to repair, modify or remove & replace the faulty utility as agreed on between the departments and the A/E. Copies of all correspondence shall be sent to the Jefferson Parish Department of Engineering, attn. Ray Mowla [Telephone No. 736-6818], [Fax No. 736-6526], [e-mail, rmowla@jeffparish.net]

Important policy: → all existing Asbestos-Cement (AC) Water Lines and lead joint Cast Iron Water Lines (including fire hydrant leads, fire services, and hydrants, etc.) shall be removed and replaced automatically (regardless of “funding source and/or funding type” of the project) if they will be located under a proposed new roadway pavement.

*Important policy: → **When new pavements are proposed**, all existing Clay, Concrete, and Armco Truss sewer gravity pipes shall be either removed and replaced or shall be lined. All sewer house connections shall be removed and replaced from the main to property line or to the Jefferson Parish maintenance cleanout, whichever is practical. When sewer lines are being lined, “LMT Wyes or Tees” (or approved equal) shall be used to connect the new house connections to the lined sewer lines. The following sample specifications {Downloaded from LMK Technologies’ site (http://www.performanceliner.com/vacatee/mainline_tap/installation_specs/)} shall be followed for this product:*

Installation Specifications for Mainline Liner Connection
Lined Main Tap™ (LMT™)

1. **INTENT**
It is the intent of this specification to provide a cost effective installation of a sewer lateral tap to a rehabilitated mainline pipe providing a VNLC™ (verifiable non-leaking connection).
2. **GENERAL**
The LINE MAIN TAP™ (LMT™) product and process consists of locating the service connection within the mainline pipe by the most effective means available to the installer. The most common method utilized and associated with the LMT™ process consists of inserting a video camera with an internal sonde either through the lateral service and pushing the camera to the mainline pipe or from main pipe to the service location. Locating the service location is achieved with a receiving unit and marked on the surface. Once the service connection has been located an access pit is made by conventional excavation exposing the main pipe at the lateral connection. Then, a 2-foot section of the original host pipe is broken away, exposing the new stand-alone mainline liner. (Pipe within a pipe, CIPP/Folded Pipe) Prepare the surface of the mainline liner by removing any excess resin or debris to provide a smooth clean surface. Grinding may be necessary.

The opening in the mainline liner may be circular or elliptical to accommodate a WYE or TEE shaped LMT™ saddle. The LMT™ is connected to a new section of PVC pipe (4" or 6" SDR 26 or SDR 35) utilizing a solvent weld or a push gasket joint. An adhesive/sealant is applied to the underside of the LMT™ saddle. The LMT™/PVC pipe assembly is snapped onto the exterior of the mainline liner. The LMT™ saddle is attached to the mainline liner encompassing more than fifty percent (50%) of the mainline liner diameter. The LMT™ saddle is a self-supporting component, which allows the resin to cure without affecting the integrity of the seal to the mainline liner. Then the section of new PVC pipe is connected to the existing lateral pipe using a non-shear leak-free coupling. The excavated access pit is back filled and the site is restored according to the engineers specifications. The process shall be LMT™ (LINED MAIN TAP™) by LMK® Technologies or equal.

3. **MATERIAL**

The material shall be a molded PVC saddle sized to encompass more than 50% of the mainline liner. The saddle boss shall be either solvent welded or a push-gasket bell. The adhesive/sealant shall be designed for structurally adhering to CIPP, PVC, Modified PVC or PE pipe.

4. **FINAL ACCEPTANCE**

Upon completion, the installer will deliver an internal CCTV video of the main/lateral connection to the owner. The owners will review the documentation and the site to determine that the scope of work is complete and the work is satisfactory.

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19- In addition to the above guidelines, the Jefferson Parish Department of Sewerage has requested that sections be added, to the contract documents, to include pre-construction and post-construction video inspections of any ***existing Clay, Concrete, and Armco Truss*** Sanitary Sewer Pipe by the contractor. The purpose of pre-construction video inspection would be to provide additional information about the condition of these lines before the construction. The purpose of the post-construction video inspection would be to reflect any damage caused by the construction. Copies of these videos shall be sent to the Jefferson Parish Departments of Engineering and Sewerage, immediately, as they become available {see Appendix A (Gravity Sanitary Sewer System General Standard Notes, <http://www.jeffparish.net/index.cfm?DocID=4775>)}.

20- Existing sanitary sewer house connections, if disturbed, shall be removed and replaced from the main to the property line or to the Jefferson Parish maintenance cleanout, whichever is practical.

21- Bedding and backfill of the sanitary sewer house connections, **as always, must** be per Jefferson Parish Sewer Standard Detail Sheet Guidelines. **As always, no siphon will be allowed.**

22- Please be advised that we do not adjust or relocate sewer or water service connections. We remove and replace them.

23- The Jefferson Parish Department of Sewerage will not maintain any private sewer grinder pumps on private property.

- 24-** Specify “Sewer Drop Manhole” where it is required by Jefferson Parish Standards.
- 25-** All valves, fittings, PLUGS, reducers, etc., shall have restrained joints. Hydrants, hydrant valves and hydrant TEES SHALL BE RESTRAINED. Unless field conditions and / or special design conditions necessitate, use of thrust blocking shall not be permitted. THRUST BLOCKS ARE PERMITTED ONLY WHEN adequate length of pipe cannot be restrained DUE TO FIELD CONDITIONS and/or for temporary construction. Length of Restrained pipes shall be per manufacturer’s requirements. Jefferson Parish water standard drawings provide some minimum lengths for restrained pipes in offsets. these minimum requirements shall only be used if the manufacturer’s required restrained lengths, based on soil type, trench type, test pressure, safety factor, depth of bury, fitting type, nominal size, pipe material, etc. are less than these minimum requirements.
- 26-** Existing water house service connections shall be removed and replaced from the main to the meter. No splicing of water house service connections shall be allowed even if the connections are brand new.
- 27-** Fire Hydrants shall be supplied by not less than an 8-in. diameter main if the system is not looped. Dead-end mains shall not exceed 600 ft. in length for main sizes less than 10 in. in diameter.
- 28-** The Jefferson Parish Water Department does not wish the contractors to deliver any old hydrants, valves, fittings, pipes, etc. to any of the Water Department’s yards.
- 29-** The term “offset” item for water lines and or sewer force mains shall not be used lightly or loosely. When an item is bid per each, we must make certain that the item can be done one way only. This means sufficient amount of details is provided in the plans and specifications and there is no need to explain or discuss this item during the pre-bid, pre-construction, construction, etc.
- 30-** When intersecting water lines are being removed and replaced within an intersection, complete detail of the proposed water line replacement, including fittings, valves, hydrants, couplings, etc. must be provided. It is often necessary to provide plan and profile views of these proposed water lines on separate detail sheets.
- 31-** Please bid water lines per Lin. Ft., fittings, including reducers, per pound, valves, hydrant assemblies, couplings, per each. Exception → Payment for the hydrant, hydrant valve, lead, and Swivel Tee shall be included in the pay item for the hydrant assembly.
- 32-** Pay item for hydrants shall include the hydrant, 6" valve, swivel tee, hydrant lead, etc.
- 33-** Sanitary Sewer Force Mains shall be bid similar to water lines.
- 34-** Drainage Conflict Boxes are very undesirable and need to be avoided ~~at all costs~~ as much as reasonably possible. Consult with us prior to proposing a conflict box.

Based upon our past reviews, approximately seven out of ten proposed conflict boxes can be avoided.

35- When large drain pipes are being installed, the possibility of conflict between the existing sanitary sewer house connections and the drain pipes must be investigated and dealt with during the design phase. I offer the following suggestions:

- Identify the culprit sewer house connections, which may be in conflict with the proposed drain pipe.
- Determine the elevation of these culprit sewer house connections at the property line. This can be done by the surveyor.
- Design drain lines to either eliminate conflicts or to minimize them.
- Depending on the number of conflicts, it may be necessary to install a secondary gravity line (dual system).
- Sewer house connections can be installed either under or over proposed drain lines. We prefer the house connections to go over the drain pipes.
- If in order to eliminate conflicts it is necessary to encroach into private properties with relocated sewer house connections, provide provisions in the plans and specifications for the contractor to notify the property owners prior to construction of these house connections.
- Conflict boxes shall remain the least desirable solution to conflicts.
- **Notching of the top of concrete drain pipes is permissible to solve conflicts.**

If notching of the top of a concrete pipe is required in order to install a 6" sewer house connection which is crossing over the concrete pipe, use of a Concrete Chain Saw is recommended. Use of Concrete Chain Saws will minimize damage to the pipe and will maximize depth control. The contractor may choose any other notching method that may be acceptable to the owner.

If the depth of the required notch exceeds the thickness of the concrete pipe wall and consequently a hole is created on top of the pipe, the contractor shall seal this hole to the satisfaction of the owner. Use of Plastic Lumber along with "RAM-NEK" type materials, filter fabric, etc. may be required to satisfactory seal the top of the concrete pipe.

36- Drain pipes 36" and larger shall be shown in the plan and profile views in their actual size including the pipe thickness.

37- The A/E must inform the Engineering Department (Ray Mowla) of the time and the location of Pre-Bid Conference.