



CITY OF Boca Raton

UTILITY SERVICES

Utility Services Manual

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1. General

The standards set forth in this document are intended to provide guidance on the requirements set forth by the City of Boca Raton for the development and design of any potable, reclaimed, raw water, gravity sewer, force main, or lift station infrastructure as well as any associated appurtenances that are/will be owned and maintained by the City of Boca Raton’s Utility Services Department, within the City of Boca Raton’s Utility Service Area. The standards herein are supplemental to, but do not supersede, the Code of Ordinances, Boca Raton, Florida, and all applicable Federal, State, County and Local laws and regulations should be considered concurrently with this text.

1.1. Definitions

- City The City of Boca Raton, Florida.
- City Attorney The Department head of the Legal department of the City or their designee; a member of the Florida Bar in good standing.
- City Manager..... The Department head of the City Manager’s department or their designee, as defined by the Code of Ordinance, Boca Raton, Florida.
- Concurrency The adopted level of service standards for potable water and sanitary sewer are and will be maintained when the development impacts occur.
- Construction Coordinator ... The person designated by the Utility Services Department (USD) to supervise the construction activities of utility infrastructure, and who is charged with certain duties and responsibilities by the USD, or a duly authorized representative.
- Department..... A departmental unit as defined by the Code of Ordinance, Boca Raton, Florida. The Utility Services Department, City of Boca Raton.
- Developer The builder, owner, contractor or other individual company or corporation responsible for the construction USD r facilities covered by the guidelines.
- Developer Agreement..... A contract between the City and a Developer providing for USD Concurrency and conditions that the Developer must meet to obtain a commitment for service from the USD.
- Director The Director of the USD.
- Easement Any land reserved for utility, drainage or other public or private use, the fee simple title to which remains in the property owner, subject to the right of use designated in the grant of easement.
- Engineer of Record..... Engineer that certifies that the construction of a project was completed substantially in accordance with the construction permit, approved plans and specifications. Further he/she certifies resident construction inspection was performed by himself/herself or by an inspector or construction coordinator under his/her supervision.
- Indemnity Agreement..... A legal document between the USD and the Property Owner whereby the Owner releases and indemnifies the City against all actions that arise as a result of the presence of the encroachments into existing utility easements.
- Property Owner The person who is vested in the ownership, dominion, or title of real property as recorded in the Public Records if Palm Beach County.

- Service Initiation The date applicable fees are paid for a potable water meter, reclaimed water meter, wastewater connection, or fire sprinkler system.
- Site Plan Approval A review process as described by Section 28 of the Code of Ordinance, Boca Raton, Florida. Site plans shall be prepared by a professional architect, engineer, landscape architect or land planner, to the development services department for review and approval prior to the issuance of any building permit.
- Standard Details..... A comprehensive set of drawings maintained and updated by the USD establishing the minimum requirements for the design and construction of water and sanitary sewer facilities.
- Substantial Completion..... The time at which the work has progressed to the point where, in the opinion of Engineer, is sufficiently complete, in accordance with the Contract Documents, so that the work can be utilized for the purposes for which it is intended.
- Technical Specifications The directions, provisions and requirements contained herein, of a technical nature, setting out or relating to the method and manner of performing the work, or to the quantities and qualities of materials and labor to be furnished.
- USD facilities Any potable, reclaimed, raw water, gravity sewer, force main, or lift station infrastructure as well as any associated appurtenances that are/will be owned and maintained by the City of Boca Raton's Utility Services Department.

1.2. Basis

1. As defined in Sec. 28-1687 of the Code of Ordinance, Boca Raton, Florida, "Utility Services Manual" shall mean the comprehensive set of specifications prepared by the City, establishing minimum requirements for the design and construction of water distribution and sewer collection systems.
2. The requirements of this document shall be applicable in all cases where USD facilities are being constructed or will be constructed, and will be owned, operated, and maintained by the USD. All applicable USD facilities shall be transferred to the USD via a Bill of Sale subject to an unconditional warranty and an acceptable easement as required. The warranty shall cover all materials and labor for a minimum of one year starting on the date of the Bill of Sale. On phased projects, the warranty period for each phase shall begin on the date of Substantial Completion for each respective phase. Lift station pumps and lining and coating systems are subject to a five-year warranty as described in the Technical Specifications.
3. Any cost associated with the repair, relocation or adjustment of existing USD facilities prior to Service Initiation and during the warranty period shall be the responsibility of the Developer/Property Owner. In the event the USD must perform the necessary repair, relocation or adjustment work the Developer/Property Owner will be billed at cost.
4. When standards or specifications are indicated herein by reference, the referenced portion will apply to the most recent edition of the publication and will have the same force and effect, to the extent indicated by the references thereto, as if they were included herein in their entirety.

5. It should be noted that the details contained in this publication are the minimum guidelines allowable within the City of Boca Raton. The City of Boca Raton reserves the right to revise, amend, delete or add to this publication at any time.

1.3. Preparation and Approval of Project Documents

1. It shall be the responsibility of the Developer's engineer to obtain as-built information and prepare plans in accordance with the minimum standards shown herein. As-Built information obtained from record drawings shall be field verified prior to design and confirmed prior to construction by the Developer. If required, a fully executed Development Agreement shall be on file prior to plan approval. All construction plans shall be approved by the USD. This approval does not relieve the Developer of the responsibility of meeting the USD minimum design and construction standards shown herein. No changes shall be made to approved plans without specific written USD concurrence. Revisions which directly or indirectly impact the design of USD facilities (for example: changes in use from retail to restaurant, adding or deleting bays in buildings, site plan changes, etc.) void the plan approval. Revised plans are required to be submitted for review and approval, subject to new plan review fees. No construction shall start prior to a pre-construction meeting with the USD held at a pre-determined location.

1.4. Utility Easement Guidelines

The location and size of utility easements shall be determined using the following guidelines:

1. In new developments, it is the Developer's responsibility to coordinate the location of USD facilities have a minimum of 10' horizontal separation from other public infrastructure or privately-owned irrigation lines when installed parallel, unless specifically approved by the USD. A minimum of 10' horizontal separation is also required from structures, buildings, walls, fountains, and fences, unless specifically approved by the USD in writing. TV cable, phone lines and irrigation lines shall cross USD facilities with a minimum of 12" vertical clearance. Gas mains and electric power cables shall cross USD facilities with a minimum of 18" vertical clearance.
2. Utility easements shall be a minimum of twelve (12) feet wide in order to ensure neither structures nor trees are placed closer than ten (10) feet to USD facilities. The USD may consent to the planting of landscaping closer than ten (10) feet to USD facilities if an approved root barrier system is installed and a minimum distance of six (6) feet clearance from USD facilities is maintained.
3. Any approved encroachment into a utility easement as described above shall require an Indemnity Agreement. This agreement shall be recorded in the Public Records of Palm Beach County. Indemnity agreements shall be required for approved structural encroachments and the use of non-standard surface materials (i.e., pavers, stamped concrete, etc.) in the utility easements.
4. A twelve (12) foot wide utility easement is required parallel and adjacent to all road right-of-way lines and access tracts for Palm Beach County and Florida Department of Transportation roads.
5. Utility easements for fire hydrants shall extend a minimum of 5 x 5 feet around fire hydrants.
6. Wastewater lift station sites and related access drives, unless specifically dedicated through the platting process, are required to be dedicated by easement. The size, location, and configuration of the lift station site and exclusive easement shall require approval by the USD prior to construction.
7. Private roads and access tracts shall require an additional grant of an access easement dedication on plats. The access easements shall be granted to the City prior to Service Initiation.

8. The Developer shall prepare and grant at no cost to the City, utility easements for USD facilities using the City's approved forms. For proposed USD facilities to be constructed on privately owned properties, approved easement dedication documentation shall be provided prior to design approval.
9. A minimum 10' x 10' utility easement and applicable access easements shall be granted for USD monitoring wells.
10. Utility easement sketches shall be prepared in State Plane Coordinate System and shall include PBC Property Control Number(s).

1.5. Project Review Submittal Requirements

1.5.1 Site Plan Approval (PAR)

Approval of USD facilities plans is conceptual at the Site Plan Approval phase unless the Developer has specifically requested a more detailed review which requires design detail meeting all requirement of the Public Works Review process.

In addition to the Project Submittal requirements outlined by Development Services, the following items are required to be addressed in the submittal package for the USD;

1. Confirm whether the existing site is currently served with USD facilities.
2. For projects that require Comprehensive Plan Amendments, complete an "Analysis of Public Facilities and Services" application. Exhibit 5.1 of this document is a filled-out example of the application; blank copies are available on the USD webpage or upon request.
3. Any upgrade to the existing onsite and/or offsite USD facilities necessary to support this project shall be defined. Note, these upgrades will be done by the Developer at the Developer's expense and applicable water and sewer impact fees will be assessed per the City's User Fee Schedule.
4. Estimated increase/decrease in water (domestic and irrigation), reclaimed water, and wastewater services in Gallons Per Day (GPD) shall be included on plans for Site Plan Approval.
5. Any existing utility easements that may need to be abandoned and new utility easements that may need to be dedicated depending on the proposed design shall be identified. All proposed utility easement abandonments and dedications shall be noted on the plans for Site Plan Approval.

1.5.2 Public Works Review (PWR)

PWR approval of the USD facilities plan is conditional on USD review. It is the developer's responsibility to ensure that the USD facilities plan and any subsequent plan revisions that may affect the USD facilities is reviewed and approved by the USD.

In addition to the Project Submittal requirements outlined by Development Services, the following items are required to be addressed in the submittal package for the USD;

1. Palm Beach County Health Permits are required for any new water mains being constructed or existing water mains being modified unless the Engineer of Record can provide documentation from Palm Beach County Health Department stating, no permit(s) required.
2. Provide estimated water (domestic and irrigation), reclaimed water, and sanitary sewer flow demands in Gallons Per Day (GPD) on the civil engineering plans.
3. Include water main pipe marking requirements in separation statement.

4. Include note stating, “All existing sanitary manhole covers, water meter boxes, and valve boxes are to be maintained and adjusted to finished grade” on civil engineering plans.
5. Copy of the Preliminary Demolition Form and listing of existing water meters that will be removed, relocated, or replaced. Customer Services can be contacted to obtain current water meter information. Meters are the property of the USD.
6. Identification of trees located near USD facilities. Such trees shall be limited in size and type. Refer to Section 1.4 for minimum allowed distances. Property Owner shall be required to execute an Indemnity Agreement if existing trees are closer than the minimum allowed distance.
7. Any upgrades to the existing onsite and/or offsite USD facilities necessary to support this project shall be defined. Note, these upgrades will be done by the Developer at the Developer’s expense and applicable water and sewer impact fees will be assessed per the City’s User Fee Schedule.
8. Identify any lift stations needed to serve the proposed development. Such lift stations shall be constructed to the City’s standards at the Developer’s expense and become a USD facility. The lift station shall include adequate lift station and access easements, as well as any required portable generator in accordance with City Standards (Exhibit 6.2).

1.6. Tree Ordinance (Within City Limits)

Any trees located within the City right-of-way require a permit for their relocation and removal prior to construction. Refer to Section 27-66 of Code of Ordinances Boca Raton, Florida. Any on-site improvements may require a permit for relocation or removal of trees; however, these situations should be resolved at time of PWR.

1.7. Construction Permitting

Following PWR approval, all projects are required to file for an Engineering Permit through the City’s Building Department when performing any work on USD facilities. Projects that do not require PWR approval per the Code of Ordinances Boca Raton, Florida but are performing work on USD facilities must also file an Engineering Permit with the City.

1.7.1 General Construction Notes

1. The Developer’s selected Contractor is required to file an Engineering permit at the Building Department when performing any work on USD infrastructure within the right-of way.
2. The Developer’s selected Contractor is responsible for verifying the exact location of all underground utilities and is responsible for any damage to City infrastructure caused by their work.
3. Letter of credit or cash bond is required for all projects per Section 28-1762 and Section 26-6 Code of Ordinances Boca Raton, Florida.

1.7.2 Pre-Construction Meeting Requirements

In addition to the items requested by the Building Department, Development Services Department and/or Municipal Services Department, the following shall be submitted in order to receive approval by the USD:

1. Verification of licensure as an Underground Utilities Contractor, Plumbing Contractor or General Contractor, as required by law. A General Contractor shall provide references for previously constructed water and wastewater improvements. Any subcontractor shall be properly licensed. A Horizontal Drill Contractor shall provide references certifying a minimum five (5) years of experience in pressure pipe drilling.
2. One (1) electronic (PDF) copy of the Engineer's or Contractor's cost estimate (labor, equipment, and materials) for USD facilities to be inspected by USD or USD's representative (engineer's seal not required).
3. One (1) paper copy and one electronic (PDF) copy of all shop drawings and specifications for proposed products as identified under Exhibits 6.1 Approved Products List and 6.3 Technical Specifications.
4. One (1) electronic copy of the Florida Power & Light Transformer Layout - if applicable (preliminary approval by FP&L acceptable).
5. Manufacturer approved lining system applicator's license or certification.
6. One (1) paper copy and one electronic (PDF) copy of the Maintenance of Traffic (MOT) plans for affected public roads as approved by the City Engineer and the road owner (i.e., City, PBC, or FDOT). The MOT plans may not be utilized until reviewed and approved by the City. City approval does not constitute a time-specific construction permit, and the City may revoke its approval of the MOT Plan and require re-scheduling of any construction activity within a road right-of-way at any time. MOT Plan is also required for construction in private right-of-ways (shall be coordinated with Owner).
7. Signed and sealed pilot bore plan is required for each proposed horizontal directional drill.
8. CAD/PDF USD facilities plan design file.
9. The Developer is also notified of the following:
 - a. The Contractor shall be responsible for the supply and installation of water main line stops to control the flow of water during tapping, cutting, plugging, or abandonment of existing water main as needed. Installation of line stops shall be coordinated with the USD a minimum of two weeks prior to installation.
 - b. The Contractor shall be responsible for the supply and installation of gravity sewer plugs and bypass systems as necessary to control the flow of existing gravity sewers during cutting, plugging, or abandonment of existing gravity sewer. Installation of any gravity sewer plugs or bypass systems shall be coordinated with the USD a minimum of two weeks prior to installation. All by-pass systems shall have a 24-hour automated notification system and a list of contacts must be provided to the USD.

2. Design Guidelines

2.1 Design Drawings

All USD facilities plans shall be prepared on 24"x36" sheets utilizing the following minimum scales:

1" = 50' horizontal, 5' vertical for gravity wastewater profile sheets

1" = 40' horizontal, 4' vertical for plans with up to two piping systems

1" = 30' horizontal, 3' vertical for plans with up to three piping systems

1" = 10' for lift station site plans

Drawings submitted on other size sheets or at other scales will be returned without review.

In addition, the following items shall be addressed:

2.1.1 As-Built Check List

- Cover Sheet with Location Map.
- The USD's Standard Design Details (Exhibit 6.2) sheets shall be utilized.
- Phase lines and match lines shall be clearly delineated.
- Storm piping system shall be shown shaded on USD facilities plans, including yard drains, roof drains and exfiltration trenches.
- USD facilities plans shall show any covered parking, walkways and building overhangs.
- Paving, Grading, and Drainage design shall be on a separate plan sheet and shall be included in submitted drawings.
- A Key map shall be shown on all plan sheets.
- Large scale detailed drawings shall be provided for areas with poor legibility.
- Field verified data for existing facilities (sizes, materials, elevations and locations) shall be shown.
- Elevations of conflicting pipes shall be shown to indicate top and bottom pipe elevations. Pipes shall cross in perpendicular way wherever possible.
- Sanitary sewer manhole invert and rim elevations shall be shown.
- At a minimum, to-scale plan and profiles shall be provided for all gravity sewer collection mains, mains in major thoroughfares, road and canal crossings, crossings under berms and walls.
- Piping shall be placed in road rights-of-way unless unavoidable.
- The number of building stories shall be stated.
- The number of dwelling units shall be identified.
- Driveway locations for all zero lot line developments shall be shown.
- Each lot, bay, and building shall be identified.

- A Public Works Review (PWR) project number and a legible project location map shall be provided on all USD facilities plan sheets, which shall include the Section, Township and Range.
- If pretreatment sampling is required, the location of the sample points shall be shown on USD facilities plan sheets.
- All sanitary sewer manholes, fire hydrants, and valves shall be numerically identified.
- The type, capacity, and location of grease traps or oil/grease interceptors (OGI's) shall be identified.
- Once the USD facilities plan is approved by the USD all revisions shall be noted in revision block.
- All paved non-asphalt surfaces (pavers, stamped concrete, etc.) proposed over USD facilities shall be identified on plans.
- All meters, backflow (DCDA and RPDA) locations and sizes shall be identified.
- Landscaping plans shall indicate the landscape types and location of perimeter walls, fences, gates, landscape areas, signs, proposed/existing USD facilities and approved root barriers (if applicable). A plan view and profile of root barrier installation detail must be included in landscaping plans. The root barrier shall be located a minimum of six (6) feet from the USD facility and must be a minimum of 36" deep and a minimum of 15' long centered on a tree.
- Any utility changes related to type of uses (for example: retail to restaurant) or building layout (for example: adding or combining bays) void the plan approval and shall be brought to the attention of the USD. Revised plans may be required.
- Utility easement information (easement location and recording data) shall be shown for existing USD facilities within the scope of the project.
- Proposed utility easements for new and existing USD facilities (if applicable) shall be identified on USD facilities plans or on a separate easement plan.
- USD facilities plans shall be prepared in State Plane Coordinate System.
- CAD/PDF USD facilities plan design file is required with final plan submittal.

2.2 Record Drawings

1. All elevations should be in State Plane Coordinates with a Vertical Datum of NGVD29. If NAVD88 be used it shall be clearly stated on every sheet.
2. The State Plane Coordinate System (x, y, and z) shall be used for all As-Built data locating any USD facilities. In addition, the USD will only accept the addition of station and off-sets along with State Plane Coordinates on any installed USD facilities when it is installed within road right-of-way as part of a roadway permit as required by the road right-of-way permitting Agency. State Plane Coordinates (x, y, and z) shall be shown on all pipes at 100' intervals, and all fittings, as-built elevations for pipe crossings, pipe lengths, and locations, as appropriate, for all USD facilities. As-Built drawings for potable water shall include water services and shall show sample points for bacteriological sampling. As-built data for water services shall include control valves and services taps on all water service

installations no matter if both occur alongside the water main. As-built drawings for gravity sewers shall include pipe lengths, slopes, cleanouts, data for conflict clearances, manhole rims and invert elevations. If the gravity sewer system includes grease traps or oil/grease interceptors the cleanouts located on each end of each interceptor shall be shown with as-built data, specifically the invert elevations. USD facilities are to be shown at the actual location on the record drawing. For an on-site distribution plan, the design alignment shall be deleted, leaving only the as-built alignment on the plan. For any transmission main located within a right-of-way, the original design alignment may remain, appearing together with the as-built alignment. All as-built data shall be bolder than any design and background information on the record drawing. Additional enlarged details to scale may be required to clarify as-built data for hard to read areas. Separate USD facilities record drawings may be required at the USD's discretion so all as-built data will be clearly legible on any record drawing. All USD facilities crossings shall be provided with as-built data at the crossing location. As-Built data shown in table format associated with crossings or for any other USD required data placed is not acceptable. Any such tables will be required to be removed prior to the final As-Built drawings being accepted by the USD.

3. When submitting record drawings, the initial submittal shall consist of two (2) surveyor signed & sealed copies of each USD facilities drawing as applicable for review and one digital copy in AutoCAD and PDF and the as-built check list included in Section 2.1.1 to the USD. Then one (1) surveyor signed & sealed copy of each revised record drawing thereafter and its associated digital copy in AutoCAD and PDF and the as-built check list included in Section 2.1.1 until the As -Built drawings have been accepted by the USD. Preliminary record drawings used for "Construction Water Only" release from the Health Department and submitted for USD approval shall include at a minimum: as-built data on all sample points, all USD facilities information including potable water facilities, potable water main crossings and other water, wastewater, reclaimed water, as well as storm water, gas lines, and all electrical and communication conduits, including both new and/or existing pipes and conduits. When requesting partial "Construction Water Only" release, or partial final DEP/PBCHD Water and/or Wastewater Certification a set of record drawing prints being submitted for review shall be highlighted to reflect the portion of the project that is being requested to be released.
4. As-Built drawings shall address the following:
 - a. All As-Built drawings shall be computer generated.
 - b. All As-Built submittals shall include all original project approved USD facilities plan and profile view drawing notes, location map, etc., along with all As-Built data being shown unless otherwise determined by the USD.
 - c. Record drawing prints shall be signed and sealed by a Professional Land Surveyor or the Engineer of Record provided the engineer witnessed the collection of As-Built data. A "Third Party Disclaimer" will not be accepted (i.e. As-Built data provided by contractor). All As-Built data shall be collected by the same party who is preparing the record drawings. Record drawings signed and sealed by a Land Surveyor shall comply with applicable Florida Statutes.
 - d. Each record drawing sheet shall contain surveyor notes and legend applicable to that drawing.
 - e. The As-Built data on submitted drawings (line work, numerical data) shall be clearly legible, accurate and comply with USD standards. An increase in font size and/or the use of a different font style may be required to improve legibility. Separate USD facilities record drawings may be required for projects with a high density of data and/or poor legibility (i.e., multi-family complexes, commercial centers, etc.).
 - f. If As-Built drawings are for only potable water the drawings shall state "Water Only", and if the As-Built drawings are for wastewater only the drawings shall state "Sewer Only".

- g. Add street names and addresses to each lot, building, and unit.
- h. All record drawings that contain plan views shall indicate the recording information associated with project such as the plat, Plat Book/Page, along with any Palm Beach County Utility Easements (PBCUE) recorded by ORB/Page.
- i. Complete title block with current file name (including f/k/a, a/k/a, plat name, etc.). Label drawings "Record Drawing" or "As-Built Drawing" and show appropriate entries in the revision block.
- j. As-Built drawings with plan views shall state the valve manufactures, the fire hydrant manufacturer, year and model, and the root barrier system and applicator as applicable.
- k. Horizontal coordinates shall be rounded off to the nearest tenth of a foot. Elevation data shall be rounded off to the nearest hundredth of a foot (I.E. top of manholes, inverts, top of pipes, etc.). Elevation datum shall be listed on each plan view sheet. Slopes shall be rounded off to the nearest one-ten thousandth.
- l. As-Built data for pressure mains shall include GPS coordinates for valves, fittings, hydrants and top of pipe @ 100-foot intervals. As-Built data shall also include elevations for top of nut on valves, fittings, hydrant main nozzle and on top of pipe@ 100-foot intervals.
- m. All new hydrants and main valves shall be numbered on As-Built drawings.
- n. As-Built data for sewer laterals shall include coordinates for cleanouts (and invert elevations if proposed invert elevation data is shown on the design plan).
- o. As-Built data for water services including GPS coordinates shall include taps and corporation valves for meter sizes 2" or less (PVC and HDPE services). As-Built data including GPS coordinates required on all fittings and valves associated with meter sizes 4" or larger.
- p. As-Built data and GPS coordinates for "wet tap" or "cut-in" connections into an existing pressure pipe system required on tapping sleeve or tee as applicable, new gate valve(s) associated with the connection and the distance to the nearest existing in-line valve(s).
- q. All casings installed require As-Built data on both ends to include both horizontal coordinates and elevation.
- r. As-Built data for grease traps or oil/grease interceptors (OGI's), shall include interceptor type, manufacturer, model number, and capacity. The cleanouts located at each end of an interceptor or grease trap shall be shown with As-Built data on the inverts.
- s. Lift station As-Built information shall contain all information included in the USD Lift Station Standard Details. As-Built data must be shown in the following charts: "Lift Station Data", "Pump Data", and "RTU Wiring Diagram"; as well as on the site plan for each sheet. Refer to Exhibit 6.2 Standard Design Details.
- t. As-Built drawings associated with phasing of project shall clearly state phase number to applicable sheets with the phase limits being clearly defined on all applicable drawings. If As-Built drawings are for only water, the drawings shall state "Water Only", and if the As-Built drawings are for wastewater only, the drawings shall state "Sewer Only". Gravity sewer must terminate at a manhole with a temporary plug being shown for future phase(s). Phased As-Built drawings with lift stations shall include in the first phase As-Built data for the lift station and force main up to the point of connection to the existing wastewater system. Phased pressure potable water mains and wastewater force mains shall end at a restrained valve for future pressure main extension.

5. Once the USD has approved the record drawings a final record drawing package is required to be submitted for permanent USD records. The final record drawing package shall include the following:
 - a. Two (2) surveyor signed & sealed sets of prints (24" x 36").
 - b. Electronic record drawings file submitted on a CD, a flash drive, or another electronic format as determined by the USD. The electronic files shall include the As-Built drawings (AutoCAD Release 2010 version or higher with x-references bounded to files) along with PDF files of the AutoCAD drawings saved to 24"x36" in size and an AutoCAD "Strip" file. The strip file only shows the property boundaries and the associated USD facilities with no text being shown. Note the layers cannot just be turned off but removed thus stripped.

2.3 Project Closeout

Prior to issuance or activation of any water meters associated with a Developer project, all relevant items listed on Form 5.2 Project Closeout Checklist must be submitted for USD approval. Even though the Building Department may choose to issue partial Certificate of Occupancy, the USD will not release or activate the requested water meters without the required documentation as listed on the referred checklist.

2.3.1 Engineer of Record Certification Letter

Before final acceptance of the project the Engineer of Record shall submit to the City a letter certifying that the project is complete and to the best of his/her professional knowledge that all deviations from the Drawings and Specifications are shown correctly and accurately on the record drawings to reflect the work as it was actually constructed. An example of this letter is included as Exhibit 5.3 of this Document

2.3.2 Bill of Sale

All projects when completed require a Bill of Sale, Schedule of Improvements and Owner's Affidavit forms to be submitted for USD review and acceptance. The Bill of Sale form shall be signed by the project's developer/property owner as applicable and shall be notarized. A sample Bill of Sale is included as Exhibit 5.4 of this Document. The Schedule of Improvements form shall be completed and signed by both the project's developer/property owner as applicable along with either the Underground Contractor or General Contractor as applicable. The costs reflected on the Schedule of Improvements form shall only include USD facilities. If a project includes a new USD lift station the lift station number shall be listed on the form along with the emergency generator or emergency pumping unit serial number(s) when applicable. When the Bill of Sale and Schedule of Improvements are submitted and are deemed acceptable those forms will not become officially accepted by the USD until the date the project's final DEP/PBCHD Water Certification and/or DEP Wastewater Certification form(s) have been approved by the USD. If no final DEP/PBCHD Certification is required on the project, then the Bill of Sale and Schedule of Improvements will become officially accepted by the USD when all final required project closeout documents as listed in Section 2.1.1 have been submitted and accepted by the USD. An Owner's Affidavit is required to be completed and signed by the project's developer/property owner as applicable and shall be witnessed by two (2) separate individuals and notarized. The developer shall also furnish affidavits or releases of liens to evidence that all contractors, suppliers, and/or laborers have been paid in full for their added value to the systems.

2.3.3 Warranties

The Developer shall furnish to the USD a guarantee, to remain in full force and effect for a period of one year from the year from the date of acceptance of the project by the USD, which provides that the Developer repair or replace all work performed and materials and equipment furnished that were not performed or furnished in accordance with the approved plans and specifications or that become defective before the expiration date of said period of one year.

Such guarantee will be covered by a surety bond, underwritten by a surety licensed to do business in the State of Florida. Notice to the Developer that any part of the project needs to be repaired, replaced or made good during the guarantee period shall be given in writing by the Director.

If the Builder refuses or neglects to do such work within seven (7) calendar days from the date of service of such notice, or in the event such work requires longer than 7 calendar days for completion and the Developer has not provided satisfactory evidence of his intention to perform such work within the time limit established by the Director, the USD will have the work done by others and the cost thereof shall be paid by the Developer or his surety. The surety bond will not be released until the foregoing obligations have been fully discharged.

2.3.4 DEP/PBCHD Certification

When applicable, projects may require DEP/PBCHD Certification for potable water systems and DEP Certification for wastewater systems by the Health Department. When the project requires an applicable potable water permit, DEP/PBCHD "Construction Water Only" Certification is required prior to any pressure testing of the new system and fire hydrant fire flow tests being completed. The USD will approve the DEP/PBCHD "Construction Water Only" Certification form(s) once the project has received passing two (2) day bacteriological tests along with preliminary As-Built drawings being submitted, reviewed and accepted for construction water only purposes as outlined in Section 2.2 - Record Drawings. Only after the project has received "Construction Water Only" certification can the contractor start any type of pressure testing. The project shall receive final DEP/PBCHD Water Certification once the potable water system has passed its required pressure test along with all required fire hydrant Fire Flow Tests and Utility Easements for USD facilities have been recorded by plat and/or by PBC Official Record Book (ORB) and Page. The project shall receive final DEP Wastewater Certification once the wastewater system has passed its required testing including but not limited to gravity main lamping, force main pressure testing, lift station start-up and all applicable spark tests and/or thickness tests for all wastewater structures with an approved corrosion barrier system applied being submitted and accepted by the USD. If the project required an Utility Permit to cross a road right-of-way or a Right-of-Way Permit to cross a canal right-of-way the USD requires written confirmation from the permitting Agency that all work has been completed to their satisfaction prior to the USD approving final PBCHD/DEP Water and/or Wastewater Certification forms.

3 Minimum Design and Construction Standards

3.1 Design and Construction Standards

The USD maintains an approved set of Standard Design Details (Exhibit 6.2) and Technical Specifications (Exhibit 6.3) that are available upon request as well as on the USD web page. The specifications and details describe the construction, materials and equipment requirements for improvements to existing and newly constructed USD facilities. Notwithstanding anything to the contrary herein, the Department Director may authorize deviations from the standards if, in the opinion of the Director, said deviations are

necessary to protect the health, safety, or welfare of the public or to avoid an undue financial and/or maintenance burden on the USD.

3.2 Approved Materials & Equipment List

The materials and equipment set forth in the Approved Materials and Equipment List are approved and shall be used when modifying, working on, or constructing USD facilities. Notwithstanding anything to the contrary herein, the Department Director may authorize deviations from the standards if, in the opinion of the Department Director, said deviations are necessary to protect the health, safety, or welfare of the public or to avoid an undue financial and/or maintenance burden on the USD.

The Approved Material and Equipment List (Exhibit 6.1) is available upon request.

4 Inspection and Authority of Inspectors

USD Inspectors may inspect all construction and materials as well as the preparation, fabrication or manufacture of components, materials and supplies. The Inspector is not authorized to revoke, alter or waive any requirements of the approved USD facilities plans or specifications unless approved by the Department's Director. The Inspector is authorized and shall call to the attention of the Developer's Engineer or Contractor any failure of work or materials to conform to the USD facilities plans or specifications. The Inspector shall have the authority to reject materials or suspend the work until an agreed upon resolution by the Department Director or his designated representative has been reached. The Inspector shall in no case act as foreman or perform other duties for the Project Engineer and/or Contractor, nor interfere with the management of the work. The advice which the Inspector shall in no way be construed as binding to the USD or releasing the Developer, his Engineer or Contractor from performing according to the intent of the plans, specifications and the USD's Technical Specifications (Exhibit 6.3), Standard Design Details (Exhibit 6.2) and Approved Products List (Exhibit 6.1).

Inspections shall be scheduled during regular working hours only, or as agreed upon in advance by the USD. Work involving UDS facilities shall be scheduled for weekends or holidays only upon advanced approval by the USD. Inspectors shall make routine inspections and shall inspect such items as thrust blocks, material on site, and clearances between conflicting lines. Scheduled inspections are required for working including but not limited to jack and bores and pipe slippage through same, filling and flushing of potable water mains, pressure testing (private and USD owned mains), application of coatings to manholes and wet wells, setting of wet wells, installation of lift station grounding rods, installation of base elbow anchors, prior to pouring any concrete, field welding/fusion of HDPE pipe and fittings, gravity sewer main lamping, lift station start-ups, and tie-ins to USD facilities. Density test results shall be submitted to the Construction Coordinator prior to pressure testing or lamping. The contractor shall keep a copy of the current approved plans on the project site at all times. Approved work schedules are required prior to the beginning of construction for main shutdowns or for modifications to operating pipe systems.

It shall be the Developer Engineer's responsibility to schedule inspections and their qualified representative shall be present when required by the USD. A scheduled inspection shall be canceled if said representative is not present. The Developer Engineer's representative shall be present during the entire length of the inspection. The Developer's Engineer shall pre-test pressure tests and lampings to minimize inspection failures. The Developer's Engineer shall prepare accurate record drawings and same shall be submitted to the USD for review and approval before a lamping or pressure test is scheduled. In any case, approved record drawings must be submitted prior to request of a conditional final inspection or service being provided to any phase of a project.

The Department Director and/or authorized representative shall be permitted to enter upon any property without prior notification for the purposes of inspection, observation, measurement, sampling, testing, review and/or photocopying of records, or investigation as maybe necessary for enforcement of the permit or ordinance. Entry shall be made during daylight or operating hours unless abnormal or emergency circumstances require otherwise.

5 Standard Forms and Applications

- 5.1 Analysis of Public Facilities and Services
- 5.2 Project Completion Checklist
- 5.3 Sample Engineer of Record Certification Letter
- 5.4 Sample Bill of Sale

5.1 Analysis of Public Facilities and Services

Project Name: *Example Project & Calculations*

Date: _____

A. Sanitary Sewer Analysis.

(1) Provide the adopted level of service and the current level of service.

(a) The adopted level of service for sanitary sewer (Policy GSSSS 3.2.0) is:

- (i) 144 or (125×1.15) (peak factor) gallons per capita per day (citywide) for wastewater treatment, and
- (ii) 152 or (117×1.30) (peak factor) gallons per capita per day (citywide) for effluent disposal.

(b) Per-unit sanitary demands for the City of Boca Raton include:

- (i) Single Family = 120 gpd x 2.3 persons per unit
- (ii) Multi Family = 90 gpd x 2.3 persons per unit
- (iii) Industrial = 0.10 gpd/S.F.
- (iv) Commercial = 0.10 gpd/S.F.
- (v) Hotel = 36.25 gpd/room
- (vi) Institutional = 0.10 gpd/S.F.

(c) The current level of service for sanitary sewer is 135 gallons per capita per day (17.5 MGD plant capacity / 130,000 population).

(2) Identify the facilities serving the amendment area including the plant capacity, current demand on plant capacity and committed plant capacity.

The Glades Road Wastewater Treatment Plant (GRWWTP) serves the amendment area. GRWWTP has DEP-rated plant capacity of 17.5 million gallons per day. The current demand on the GRWWTP is 13.71 million gallons per day. The City does not reserve plant capacity.

(3) Identify the additional demand resulting from this amendment – provide calculations including assumed demand per square foot or dwelling unit.

Example:

Part S.A. – Sewer demand by proposed land use type:

USE	UNITS OR SQUARE FEET	EST. DEMAND/UNIT (GPD)	TOTAL EST. DEMAND (MGD)
Multi Family	378 units	207	0.0782
Commercial (retail)	11,264 SF	0.1	0.0011
Institutional			

Part S.B. – Sewer demand by existing land use type

USE	UNITS OR SQUARE FEET	EST. DEMAND/UNIT (GPD)	TOTAL EST. DEMAND (MGD)
Multi Family	48	207	0.0099
Industrial			
Commercial			
Hotel			
Institutional			
SUB TOTAL			0.0099

Proposed Sanitary Sewer Demand Change = Part S.A. minus Part S.B. (0.0695 MGD for our example)

The proposed demand for sanitary sewer is _____ % of overall plant capacity. (0.039% for our example)

- (4) Identify the projected plant capacity and demand for the short- and long-range planning horizons as identified within the adopted comprehensive plan – provide demand projections and information regarding planned capacity expansions including year, identified funding sources and other relevant information.

On the planning horizon, demand is projected to be ~16.9 MGD (2025) and capacity is expected to be 17.5 MGD. No plant capacity expansions are planned for the long-range (2030) planning period. Sufficient capacity exists over the long-term planning horizon to accommodate maximum development under the proposed amendment.

- (5) Identify the existing and planned service to site – provide information regarding existing and proposed trunk lines and lateral hookups to the amendment site.

Proposed Service: Describe Proposed Service

B. Potable Water Analysis.

(1) Provide the adopted level of service standard and the current level of service.

(a) The adopted level of service for potable water is:

(i) 334 gallons per capita per day (citywide) water demand.

(ii) Water storage facilities design of 198 gallons per capita.

(iii) Water pressure of 60 psi leaving the plant under normal conditions, and a minimum of 20 psi in the distribution system under drought conditions.

(b) Per-unit water demands for the City of Boca Raton include:

(i) Single Family = 382.03 gpd × 2.3 persons per unit

(ii) Multi Family = 150 gpd × 2.3 persons per unit

(iii) Industrial = 0.3555 gpd/S.F.

(iv) Commercial = 0.355 gpd/S.F.

(v) Hotel = 86.25 gpd/room

(vi) Institutional = 0.20 gpd/S.F.

(2) Identify the facilities serving the amendment area including the plant capacity, current demand and committed demand.

The Glades Road Water Treatment Plant serves the amendment area. The GRWTP has a capacity of 70 million gallons per day. The current demand on the GRWTP is 37 MGD. The City does not reserve plant capacity.

(3) Identify the wellfield serving the amendment area including the permitted capacity, remaining capacity and expiration date of the permit.

All water withdrawn from the City of Boca Raton wellfields is treated at the GRWTP for distribution. The installed wellfield capacity is 87 MGD with a permitted maximum day withdrawal of 64.65 MGD.

Pursuant to Consumptive Use Permit No. 50-00367-W, the City of Boca Raton has a maximum annual allocation of 18,811 million gallons, and a maximum monthly allocation of 1,760.02 million gallons.

The current annual demand on the City’s wellfields is 15,581.990 million gallons. Accordingly, remaining capacity on the consumptive use permit is 3,229.01 million gallons, or an average of 8.8466 MGD.

The Consumptive Use Permit expires on July 10, 2028.

- (4) Identify the additional potable water demand resulting from this amendment – provide calculations including assumed demand per square foot or dwelling unit.

(Example)

Part W.A. – Water demand by proposed land use type:

USE	UNITS OR SQUARE FEET	EST. DEMAND/UNIT (GPD)	TOTAL EST. DEMAND (MGD)
Single Family			
Multi Family	<i>378 units</i>	<i>345</i>	<i>0.130</i>
Industrial			
Commercial <i>(retail)</i>	<i>11,264 SF</i>	<i>0.355</i>	<i>0.004</i>
Hotel			
Institutional			
SUB TOTAL			<i>0.134</i>

Part W.B. – Water demand by existing land use type

USE	UNITS OR SQUARE FEET	EST. DEMAND/UNIT (GPD)	TOTAL EST. DEMAND (MGD)
Single Family			
Multi Family	<i>48</i>	<i>345</i>	<i>0.0165</i>
Industrial			
Commercial			
Hotel			
Institutional			
SUB TOTAL			<i>0.0165</i>

Proposed Potable Water Demand Change = Part W.A. minus Part W.B. (*0.117 MGD for our example*)

Based on the maximum use of the proposed amendment area under the existing future land use designation and the proposed future land use designation, the additional water demand for the amendment area is 0.117MGD. Based on information received from the City of Boca Raton, the increase in water demand that could result from the proposed amendment is approximately 0.35% of the available plant capacity, and 1.32% of the available remaining allocation provided in the City's current consumptive use permit.

- (5) Identify the projected or planned capacity for the short- and long-range planning horizons as included within the adopted comprehensive plan – provide demand projections and information regarding planned plant capacity expansions including year, funding and other relevant information. If additional wellfields are planned, provide status including the status of any permit applications.

The City recently improved and expanded its existing water treatment facilities. There are no further planned capacity increases in the short- and long-range planning horizons.

Identify the existing and planned service to site – provide information regarding existing and proposed trunk lines and water main hookups to the amendment site.

Proposed Service: *Describe Proposed Service*

C. Non-Potable (Irrigation) Water

The City of Boca Raton's In-City Reclamation Irrigation System (IRIS) is unavailable in the area of this project.

The capacity of the reclaim system is 17.5 MGD. Reclaimed consumption for the past three years has averaged 7.01 MGD with an average peak-month of 9.01 MGD. The City also constructed an additional 5 MG offsite storage tank. The City has identified several projects for the expansion of the reclaimed distribution system targeting customers utilizing Biscayne Aquifer wells and potable water. The resulting increased demand from these projects is 2,929.125 MGY or 8.025 MGD; yielding a total reclaimed use of 5,060.726 MGY or 13.865 MGD.

There are no additional planned capacity increases in the short- and long-range planning horizons.

D. Capital Improvements Element

No public facility improvements required to support the proposed land use change will be financed by the City of Boca Raton.



5.2 Project Completion Checklist

Project Name: _____

PWR#: _____ Date: _____

Site / General:

Document	Required	Date Submitted	Attached	On File
Easements Abandoned/Recorded	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Easements Dedicated/Recorded	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Engineer of Record Certification	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Bill of Sale	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Project Utility Fees	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Project Warranty Letter	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>

Other Agency Approvals:

Document	Required	Date Submitted	Attached	On File
FDOT ROW Permit Approval	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
PBC ROW Permit Approval	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>

Water and Sewer:

Document	Required	Date Submitted	Attached	On File
As-builts (2) 24X36 print, (1) pdf & dwg file, in Florida State Plane Coordinates	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Hydrostatic Test Report	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Bacteriological Reports	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>

Project Completion Checklist

Project Name: _____

Document	Required	Date Submitted	Attached	On File
Health Dept. Clearance	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Manhole Certifications	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
DEP Sanitary Clearance	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Backflow Certifications	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Final Inspection Report	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>

Project is in substantial conformance to the plans and considered complete.

Utility Services Department Representative:

_____ Name

_____ Date

5.3 Sample Engineer of Record Certification Letter

<<USE ENGINEER OF RECORD COMPANY LETTERHEAD>>

Date

Chris Helfrich, Director
Utility Services Department, City of Boca Raton
1401 Glades Road
Boca Raton, Florida 33431

Subject: *Project Name*
Water and Sewer Improvements (or general work description)
City of Boca Raton PWR 45-xx-00

Mr. Helfrich,

As a registered professional engineer in the State of Florida, to the best of my knowledge, information, and belief, it is my professional opinion that the water and sewer improvements (*or general work description*) associated with the above referenced project, based on field reviews under my responsible charge, have been constructed in substantial accordance with the approved Final Engineering plans prepared by Engineering Company matching letterhead (dated _____). Attached is a copy of a signed and sealed record drawing showing the original design in comparison to the actual finished work with all the material deviations noted thereon., in my professional opinion, the deviations, if any, noted will not impair the intended functioning of the improvement.

Please call me if you have any questions or require further information.

Sincerely,

COMPANY NAME

(Signature)

(Affix Profession Engineering Seal)

Engineer of Record Name:

Title:

FL Registration No.:

5.4 Sample Bill of Sale

BILL OF SALE FOR IMPROVEMENTS

THIS INDENTURE, made this _____ day of _____, by _____. Herein called the Grantor(s), and the CITY OF BOCA RATON, FLORIDA, a municipal corporation of the State of Florida, hereinafter called the Grantee:

Witnessed:

That the Grantor(s), for and in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration to them in hand paid by Grantee, the receipt whereof is hereby acknowledged, have granted, bargained and sold to Grantee, its successors and assigns forever, any and all rights of ownership belonging to Grantor(s) in _____, improvements located at (in) _____, City of Boca Raton, County of Palm Beach, State of Florida. The cost of construction of these improvements is set forth in the "Schedule of Improvements". Attached hereto and made part hereof as Exhibit "A".

IN WITNESS WHEREOF, Grantor(s) have hereunto set Grantor(s) hand the day and first above mentioned.

(Signature)

(Title, Firm)

SATE OF FLORIDA
COUNTY OF _____

I hereby as a duly authorized officer authorized in the State and County aforesaid to take acknowledgements, personally appeared _____ known to me to be the person described in and who executed the foregoing instrument and acknowledge before me that he/she executed same.

WITNESS my hand and official seal in the County and State last aforesaid this _____ day of _____, _____.

Notary Public
State of Florida

SCHEDULE OF IMPROVEMENTS
EXHIBIT "A"

Summary of Construction Costs

IMPROVEMENTS	CONSTRUCTION COSTS
WATER DISTRIBUTION	\$
SANITARY SEWER	\$
FORCE MAIN	\$
LIFT STATION	\$
TOTAL	\$

Water System Totals

TOTAL LENGTH/COUNT	UNIT/SIZE
	ft. 4-inch
	ft. 6-inch
	ft 8-inch
	ft. 10-inch
	ft. 12inch
	ft. _____ (other)
	fire hydrant

Sanitary Sewer (Gravity) Totals

TOTAL LENGTH/COUNT	UNIT/SIZE
	ft 8-inch
	ft. 12inch
	ft. _____ (other)

Force Main Totals

TOTAL LENGTH/COUNT	UNIT/SIZE
	ft. _____ (other)
	ft. _____ (other)

Lift Station Totals

TOTAL LENGTH/COUNT	UNIT/SIZE
	ea.

Developer/Property Owner

(Signature)

(Title, Firm)

Underground or General Contractor

(Signature)

(Title, Firm)

6 Exhibit List (Available Upon Request)

6.1 Approved Products List

6.2 Standard Design Details

6.3 Technical Specifications