

Engineering Plans Checklist

The following is a checklist of items that will be used by the Engineering Division when reviewing Engineering Plan submittals. The items have been categorized per pertinent plan sheet. These items need to be identified and clearly labeled on the subject plan sheet.

Cover Sheet

- Project Name
- Location map including section, township and range
- Index of plans; label sheet numbers differently than Site Plan submittal
- List of all consultants including contact information
- Include note indicating what datum is used for the plan set (i.e. NGVD 1929, NAVD 1988, etc.)
- Include note: "Construction and materials shall be in accordance with the City of Sunrise minimum design and construction standards."

Demolition Plan

- Illustrate demolition of existing underground utilities, if none do not include this sheet; do not include demolition of above ground features
- Abandoned pipe lines to be grout filled or removed
- Existing asbestos cement pipe on site to be removed or replaced
- All removed material cannot be reused or relocated; fire hydrants cannot be relocated

Paving, Grading, and Drainage Plan

For projects located outside the City of Sunrise corporate limits, but inside the City of Sunrise Utility Service Area must provide Paving, Grading, and Drainage Plans for reference only.

- Show the existing drainage infrastructure; label pipe size and type
- Illustrate and label all existing and proposed above ground structures (i.e. walls, etc.)
- Identify all existing and proposed easements and reference recorded documents (i.e. OR Book & Page)
- Label right-of-way adjacent to parcel including width, street name, and reference recorded documents
- Provide benchmark references
- Provide proposed grades clearly defining direction of storm water runoff
- Provide flow arrows throughout site and in vicinity of driveways
- Provide guardrail adjacent to parking lot which abuts a water body or is within 15-feet of edge of water
- If existing drainage system on site is to remain, add note: "Existing drainage system to be cleaned in its entirety prior to final site approval."
- Add note if applicable: "Existing valves and manholes to be adjusted to City Standards."

Engineering Plans Checklist

- Per City Code, back of sidewalk adjacent to public street must be designed at crown of adjacent roadway
- Provide finish floor elevation for all buildings, both existing and proposed
- Follow South Florida Water Management District standards
- Verify that proposed Landscape and Photometric design does not conflict with proposed Paving, Grading, and Drainage design
- Design must contain all drainage on site
- Delineate between standard asphalt, heavy duty asphalt, concrete, stamped concrete, pavers, etc.
- Illustrate and label all proposed curbing including limits of new curbing and transitions to existing curbing
- Label all proposed drainage pipe sizes and type
- Label all roof drain and/or yard drain pipe sizes, type, and slope
- Provide structure at end of all proposed trench - no dead end pipe or exfiltration trench
- Exfiltration trench must be flat (no slope)
- Exfiltration trench should be clear of laterals, service lines, etc. No utility piping will be allowed to cross through exfiltration trench. If a utility crossing is required, 15-feet of solid drainage pipe will be installed with utility pipe centered over solid drainage pipe at crossing.
- Drainage pipe, trench, and structures shall be located outside of City of Sunrise utility easements; perpendicular crossings are permitted, however, at no time is a structure permitted within a utility easement
- Headwall must follow FDOT standards and be 1-foot above control water elevation
- Headwalls must be concrete
- Label all catch basins and manholes or provide table of structures; include rim, inverts, and pollution retardant baffle (PRB) locations
- Concrete collars are required at catch basins out of roadway
- Provide a minimum sump of 18-inches for all structures
- Provide a minimum of 12-inches from bottom of pollution retardant baffles (PRB) to bottom of structure
- Provide PRBs for all inverts leading to exfiltration trench, outfall, retention areas
- Provide structure large enough to accommodate pipes and PRBs
- PRB sizes shall be adequately designed
- PRBs shall be a minimum of 2-feet from opposite wall of structure, from obstruction, or another PRB
- PRB shall follow City design (contact City to obtain, 954-746-3277)
- Conflict structures to be approved on a case-by-case basis and will require Broward County Public Health Unit (HRS) permitting for each individual structure; conflict structures will not be approved for force main or sanitary sewer main

Paving, Grading, and Drainage Details

- Provide curb details and curb transition details consistent with the Site Plan package; all curb must meet Section 16-142 of the City of Sunrise Land Development Code (curb must meet FDOT standards)

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- ❑ Provide sidewalk, detectable warning, and ramp details consistent with the Site Plan package
- ❑ Provide 12-inch subbase for asphalt section
- ❑ Provide a minimum of 8-inch limerock base for asphalt section
- ❑ Provide a minimum of 1.5-inches of asphalt to be installed in two (2) lifts and the second lift shall be S-III
 - Include note on detail that 2nd lift shall not be installed until approval is received from the City
 - If asphalt design is greater than 1.5-inches; final lift must be S-III
- ❑ Provide cross-section details for all pavement systems including material and compaction specifications
- ❑ Provide cross-sections for pipe installation including material and compaction specifications
- ❑ Provide cross-sections for asphalt restoration including material and compaction specifications
- ❑ Provide cross-sections for all property lines consistent with Site Plan package; include specific grades, slopes, property line, berms, etc.
- ❑ Provide lake and canal cross-sections; must adhere to Section 16-182 of the City Land Development Code
- ❑ Provide structure and headwall details
- ❑ Provide a minimum of 1 brick and a maximum a 4 bricks for structures
- ❑ Provide detail(s) for outfall connection
- ❑ Verify proposed structures can accommodate all pipe connections and PRBs
- ❑ Weep holes are not permitted in catch basins
- ❑ Provide yard drain details
- ❑ Provide control structure details
- ❑ Provide exfiltration trench detail, both a profile and cross-section
 - Provide 4-feet of non-perforated pipe at each end
 - Provide 2-foot of overlap for filter fabric at top of trench
 - Use FDOT #4 aggregate from fresh water washed free of deleterious matter; FDOT# 57 is not acceptable
 - Top of trench cannot be located within the pavement section; specific designs will be reviewed on a case-by-case basis if design is not possible

Water/Sewer Plan

The requirements below are from the Community Development Department, Engineering Division and do not include the requirements from the Fire Department. For Fire Department requirements, please contact the Fire Marshall at 954-746-3474. The Fire Marshall shall also be contacted for scheduling of a fire flow test.

- ❑ Illustrate the existing water and sewer infrastructure; label existing pipe size and type
- ❑ Illustrate and label all existing and proposed above ground structures (i.e. walls, etc.)
- ❑ Identify all existing and proposed easements and reference recorded documents (i.e. OR Book & Page)
 - City of Sunrise easements are exclusive and must be 15-foot wide with the main centered in the easement

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- Provide to back side of meter and/or first OS&Y valve of DDCV. Provide 7 ½-feet around all fire hydrants
- No permanent structures such as light poles, dumpsters, large trees*, drainage trench, etc. are permitted in City of Sunrise utility easements. **Only trees accepted within a City of Sunrise utility easement are trees listed as “Trees within Utility Easement” on the City’s Approved Plant List (<http://www.sunrisefl.gov/Modules/ShowDocument.aspx?documentid=582>) and these trees must be a minimum of 5-feet from the main.*
- Siamese or fire department connection must be located outside of utility easement
- ❑ Label right-of-way adjacent to parcel including width, street name, and reference recorded documents
- ❑ Provide benchmark references
- ❑ Include notes:
 - “No valves in curb or sidewalk.”
 - “All water main installations shall comply with the requirements of Chapter 62-555 of the FAC as applicable.”
 - “Restore existing valves and manholes at proposed connections to City standards.”
- ❑ Follow Ten State Standards as applicable for water and sanitary sewer design where it does not conflict with City standards
- ❑ Label size and type of all proposed water, sewer, and force main; minimum size water main shall be 4-inch
- ❑ Label sizes of all valves, fittings, and water main appendages
- ❑ Show and label all private piping outside of proposed easements
- ❑ Size on size tapping is not permitted; provide tee and sleeves for size on size connection
- ❑ Water main taps or connections to be a minimum of 5-feet apart
- ❑ Provide provision for future water main connections to adjacent properties
- ❑ Terminal sections of water mains to end with valve and blow off for future connections or a valve and hydrant for no future connections. Terminal sections of main to be allowed on a case-by-case basis.
- ❑ Number all crossings and provide crossing table
- ❑ Provide top-of-pipe and bottom-of-pipe elevations for all utility crossings including finish grade and separation.
- ❑ Provide minimum vertical separation for utility crossings – 18-inches for sewer crossings and 12-inches for all other (measured from outside of pipe to outside of pipe - account for wall thickness of all pipes)
- ❑ Provide design to minimize the depth of water main and conflicts. Vertical or special utility crossing and conflict boxes to be approved on a case-by-case basis only. Conflict boxes for force main or sanitary main will not be permitted.
- ❑ Department approval needed for water mains to be designed below 5-feet in depth
- ❑ Provide minimum cover of 30-inches for DIP and 36-inches for PVC
- ❑ Provide minimum horizontal separation of 10-feet between water and sewer mains
- ❑ When concrete pavement is approved, control joints are required at easement lines for water and sanitary lines and every 15-feet perpendicular to City of Sunrise utility easements

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- Air release manholes will be approved or required on a case-by-case basis
- Canal crossings along with jack and bore installations to be approved on a case-by-case basis
- Directional boring to be approved on a case-by-case basis
- For Jack and Bore and drainage conflict structure installation provide ductile carrier pipe for water main and steel pipe for all casings; casings shall be twice the size of carrier pipe. Ductile or PVC pipe for casings to be approved on a case-by-case basis for drainage conflict structure only. All carrier pipes must have cascade spacers or approved equal to center pipe in casing. Spacers to be installed per manufacture recommendations. Ends of casings to be sealed. Provide detail for conflict structure.
- Subaqueous crossings to be approved on a case-by-case basis
- Identify bacteriological sample points consistent with the Health Department Permit and/or 62-555.340 of the FAC
- Provide a looped water system
- Provide top of water main pipe design elevations at a minimum of every 100 feet
- Provide two valves at connection point(s) for testing purposes
- Valve spacing not to exceed 1,000-feet
- Valves shall be located so that only 3 valves are required to isolate any 2 residential lots or 1 commercial block
- Sufficient valves shall be provided on water mains to minimize fire line shut downs during repairs
- Sufficient valves shall be provided for testing and cannon flushing purposes
- Valves shall be located on branch side of tees and within 3-feet of tees
- For fire hydrant lines or fire lines 15-feet or longer or for fire lines not perpendicular to water main, provide two valves - one at either end of line
- Sufficient fire hydrants shall be provided per the Fire Department having jurisdiction
- Fire hydrants must be located within 3 ½ to 5-feet from back of curb
- Fire hydrants must be free of any screening (including landscaping) for a diameter of 8-feet around fire hydrant per City Code Section 15-41
- Show blue RPM for fire hydrants
- Ductile pipe to be used from main to DDCV; minimize size of DDCV will be 4-inch
- Point of service for fire line(s) to be at first OS&Y valve at DDCV per City detail
- DDCV to be located a minimum of 5-feet from sidewalk, curbing or roadway
- Label water meter location and size
- Meter banks are not permitted
- Water meters cannot be located in sidewalks or driveways
- Meters shall be accessible and unobstructed for 5-feet in all directions
- Meters shall not be placed in areas that can be fenced (i.e backyards)
- Water service lines shall run perpendicular to water main, not angled
- Water services shall be designed to minimize the length and shall never exceed 100-feet in length

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- ❑ Water service taps to be a minimum of 3-feet apart from other service taps, valves, and fittings
- ❑ Service line to water meter shall be one-size larger than meter, except for a 2-inch meter shall have a 2-inch service line. Meters larger than a 2-inch will be approved on a case-by-case basis.
- ❑ Water service casings to be two (2) times greater than service line and extend 2-feet beyond the right-of-way, pavement edge, back of curb and/or back of sidewalk - whichever is farthest
- ❑ Potable water and/or meter will not be provided for irrigation
- ❑ Label all manholes or provide table of structures, include rim and inverts
- ❑ Provide outside drop manholes for inverts 2 ½-feet or greater vertically. Inside drop to be less than 1-foot vertically. Invert changes greater than 1-foot vertically and less than 2 ½-feet vertically not to be designed. On outside drop connection-lower pipe in manhole must be a minimum of one tenth and a maximum of five tenths higher than effluent line. Upper pipe must be over lower pipe and enter the manhole at the same angle.
- ❑ Provide a minimum of 0.10-foot invert drop across manhole
- ❑ Provide a maximum spacing of 400-feet between manholes from center to center
- ❑ All gravity mains must end with a manhole
- ❑ Manholes require interior mainstay coating
 - ½-inch minimum , spray application of Mainstay ML-72, Microsilica Cement Mortar, or approved equal
 - A minimum application of 100 mil, spray application of Mainstay DS-5, Ultra High Build Epoxy Coating, or approved equal
- ❑ For a terminal manhole, provide a minimum of 6-feet from the rim to invert. Department approval needed for designing manholes less than 6-feet. Minimum manhole depth to be 4-feet with approval.
- ❑ Provide a minimum of 90-degrees between change in direction of flow for gravity sewer
- ❑ Provide sewer cleanout at property line or utility easement line, change of lateral direction and every 75-feet of lateral length for the portion of lateral publicly maintained (within ROW or utility easement); include note that USF 7635 box is required for cleanouts located in asphalt. Label cleanout invert and size.
- ❑ City maintained cleanouts shall not be located in sidewalk or driveways
- ❑ The portion of the lateral within the utility easement shall be designed with a minimum of a ⅛-inch per foot slope
- ❑ If connecting to an existing sewer stub, add note: “Contractor must TV stub prior to connection. Contractor will be required to remove stub and install new line if stub does not meet City Standards.”
- ❑ A lateral shall be tied to a gravity main not directly to a manhole
- ❑ Laterals shall be a minimum of 3-feet apart and 5-feet from a manhole
- ❑ Show all requirements for water and sanitary service(s) to dumpsters, water features (i.e. fountains), or any other similar items as required by Florida Building Code
- ❑ If a force main connects to a gravity sewer manhole, angle of entry for force main must be 180-degrees to the effluent gravity main. In addition a p-trap must be installed outside the manhole on the force main. Minimum of a tenth and maximum of five tenths to be designed for force main invert above effluent pipe invert. Isolation valve on force main outside of manhole to be installed on a case-by-case basis.

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- ❑ Lift station design must follow City details; private lift station design to be approved on a case-by-case basis
- ❑ Provide dedicated water service and water meter to lift station; minimum service size of 1-inch with a minimum meter size of 3/4-inch x 5/8-inch
- ❑ Provide a minimum of a 30-feet by 30-feet utility easement for lift stations
- ❑ Provide DIP for last run of gravity sewer to lift station
- ❑ Minimum elevation for rim of wet well and valve pit shall be at 100-year flood elevation (documentation must be provided to verify)
- ❑ Resilient wedge gate valves required on force mains
- ❑ Gate valve required outside of valve pit on force main
- ❑ Mainstay coating required in wet well and valve pit
 - 1/2-inch minimum , spray application of Mainstay ML-72, Microsilica Cement Mortar, or approved equal
 - A minimum application of 100 mil, spray application of Mainstay DS-5, Ultra High Build Epoxy Coating, or approved equal
- ❑ Provide DIP for first 20-feet of force main outside of wet well
- ❑ Control panel for lift station shall face north or south
- ❑ Provide note on plans stating sanitary sewer mains and laterals to be televised inspected after finish lime rock is approved and again before one year maintenance expires. Cost of televised inspection to be paid for by developer or development.
- ❑ The portion of a private force main that enters the ROW and/or a utility easement becomes public. At this point within ROW and/or the utility easement, force main must be a minimum of 4-inches and a valve must be provided at the ROW or utility easement line for delineation of private versus public maintenance and ownership.
- ❑ Verify that proposed Landscape and Photometric design does not conflict with proposed Water and Sewer design

Sewer Profiles

- ❑ Identify structure identification number, rim, invert(s), pipe slopes, profile grade, elevation over pipe
- ❑ Identify size and type of pipe
- ❑ Identify all utility crossings and the associated bottom-of-pipe or top-of-pipe. Number crossings to match plan sheets
- ❑ Provide a minimum of 0.40% slope for the upper 400-feet

Water/Sewer Details

- ❑ Use unaltered (except changes required by other outside permitting agencies) City of Sunrise standard details

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Stormwater Pollution Prevention Plan

- ❑ Show construction exit
- ❑ Provide turbidity barriers where water bodies on site or adjacent to site
- ❑ Use standard Best Management Practices
- ❑ Illustrate location of concrete washout area and include the following note: “Concrete washout areas, shall be constructed similar to temporary gravel construction entrances with a width of 15 to 20-feet (contractor’s discretion, he/she may need to fit more than one truck at a time) and a depth of 20-feet. Six inches of aggregate over filter fabric is required on the bottom of the washout area. This area shall be surrounded on three sides by a silt fence or earthen dam with the back end a minimum of 12-inches lower to allow for water to pool at the back area. A sign stating “Concrete Washout Area” shall be placed at the site.”

General Items

- ❑ Use City of Sunrise standard title block as required by City Code
- ❑ All sheets must be 24-inch by 36-inch
- ❑ Provide north arrow in upper right-hand corner of plan sheets
- ❑ Provide vertical and horizontal scale as applicable
- ❑ Project phasing if applicable
- ❑ Plans must adhere to Chapter 471 of the Florida Statutes and Chapter 61G15 of the Florida Administrative Code
- ❑ Do not submit Site, Landscaping, Irrigation, Photometric, or Pavement Marking and Signage Plans with Engineering Plan submittal
- ❑ For redevelopment projects, a topographic survey may be required (depends on scope of work)

Other Required Documentation

- ❑ Drainage calculations
 - If a master permit is applicable to the site, must provide copy of master permit
 - Follow South Florida Water Management design standards
 - Must adhere to Sections 16-168 and Article XI of the City of Sunrise Land Development Code
- ❑ Lift station calculations
 - Must include flow and head determinations, establishment of pump curve indicating pump efficiencies, and model number and ratings of all pumps
 - Additional flows from proposed development may require lift station upgrades
- ❑ No revision clouds or notes until plans are approved
- ❑ Additional approvals and permits must be obtained from the applicable outside agencies such as Broward County Public Health Unit (HRS), Broward County Surface Water Management, Broward County Domestic Wastewater Licensing, South Florida Water Management District, Central Broward Drainage District, Army Corps of Engineers. *Please note if a permit is not required from Broward County Surface Water Management, Broward County Domestic Wastewater Licensing, or Broward County Public Health Unit (HRS), documentation indicating such is required.*