

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
- Include cover sheet in index of plans
- List of all consultants including contact information
- Include note indicating that NAVD 1988 datum is being used for the plan set
- Include note indicating the Flood Zone and Base Flood Elevation (BFE) for the project site
- Provide current flood map panel information on plans
- 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; if sheet is provided also include demolition of above ground features to match site plan submittal as applicable
- Abandoned pipe lines to be grout filled or removed
- Existing asbestos cement pipe on site to be removed or replaced. Add note that proper asbestos abatement procedures will be followed.
- 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; drainage structures, rims and inverts
- 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 and work as designed prior to final site approval.”
- Add note if applicable: “Existing valves boxes and manholes rings to be adjusted to City Standards.”
- 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 engineer to verify – do not submit landscape or photometric plans
- Design must contain all drainage on site
- Delineate between standard asphalt, heavy duty asphalt, concrete, stamped concrete, pavers, etc. Label asphalt thickness and type; label concrete thickness; label paver thickness. Provide milling, resurfacing, seal coating, overbuild or overlay sections, details and specifications as applicable. Label all connections from proposed pavement to existing pavement.
- Illustrate and label all proposed curbing including limits of new curbing and transitions to existing curbing
- Illustrate and label all proposed sidewalks including limits of new sidewalk and connections to existing sidewalk
- Label all proposed drainage pipe sizes, lengths and type; Corrugated metal pipe (galvanized steel or CMP) and Bituminous coated corrugated metal pipe (BCCMP) are not approved for use. (RCP and CAP are approved for use in City ROW only, PVC or HDPE is not approved for use in City ROW)
- Show proposed sanitary sewer and water distribution in gray scale as applicable
- Label all roof drain and/or yard drain pipe sizes, lengths, type, and slope; provide concrete collars for yard drains in green areas; Provide 1% minimum slope for roof drains; Show and label roof drain invert at Building
- Provide structure at end of all proposed exfiltration trench - no dead-end pipe with exfiltration trench
- Exfiltration trench must be flat (no slope); label lengths of solid and perforated/slotted piping; include exfiltration trench width and length. Fill in City Detail D-11B as applicable
- 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.
- 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)
- 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/Endwall to follow City of Sunrise Detail D-09; provide top of headwall/endwall one foot above water control elevation
- Label all catch basins and manholes or provide table of structures; include rim, inverts, and pollution retardant baffle (PRB) locations and/or weir location
- All drainage structures to be labeled and sized per City of Sunrise details
- All drainage structures to have one brick minimum to four brick maximum; Type 2 cement to be used for all mud work
- Provide pedestrian grates or covers in all walkways
- Concrete collars/aprons are required at catch basins and manholes out of roadway; catch basin apron per city detail D-18; manhole collars/aprons to be five feet square and 6 inches thick
- 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; verify that structure height will accommodate PRB per City of Sunrise detail; no baffles or weirs permitted in type “C” structures
- PRB sizes shall be designed per City of Sunrise detail D-10; fill in weir information as applicable
- PRBs shall be a minimum of 2-feet from opposite wall of structure, from obstruction, or another PRB
- Conflict structures with water mains 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

- Use unaltered City of Sunrise standard details. (CAD Files available on City of Sunrise Engineering Documents website, <https://www.sunrisefl.gov/our-city/advanced-components/document-central/-folder-182>) Engineer must select the applicable details.
- Engineer may add project non-standard details on a separate sheet using the City title block. All non- standard and site specific details shall be identified as not City standards.
- All details must be consistent with the Site Plan package
- All curb must meet Section 16-142 of the City of Sunrise Land Development Code; design curb per City of Sunrise “Standard Paving and Drainage Details; (special curb details must meet FDOT standards)
- Provide detectable warning and ramp details consistent with the Site Plan package
- City detail “Type 2-Trench and Pavement Restoration-Limited Areas” D-15B must be approved for use before adding to plans
- Provide cross-sections for all property lines consistent with Site Plan package; include specific grades, slopes, property line, berms, etc. Provide grades and lengths/widths in sections
- Provide lake, retention area and canal cross-sections; must adhere to Section 16-182 of the City Land Development Code
- Verify proposed structures can accommodate all pipe connections and PRBs per City of Sunrise details
- Provide connection detail for new pavement to existing pavement
- Provide curb transition details as applicable
- Provide control structure details as applicable; Provide special structure details as applicable
- Provide yard drain details as applicable

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; manholes with rims, inverts and sanitary main slopes
- 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
 - 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 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
- Show and label all private piping outside of proposed easements (i.e. fire line, services, etc.)
- 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.”
- Show proposed drainage in gray scale as applicable
- Follow Ten State Standards as applicable for water and sanitary sewer design where it does not conflict with City standards
- Label size and length of all proposed water, sewer, and force main; minimum size water main shall be 4- inch
- Label type of all water main, sanitary main and force main items per the “City of Sunrise Approved Utility Products List” specifications and requirements; Brand names do not need to be listed on plans; Approval needed for use of items not shown on list

- Label sizes of all valves, fittings, and water main appendages; provide bass I-D tags for all valves and fittings
- 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 and a minimum of 5-feet from valves, fittings and pipe joints
- 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)
- 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.
- 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.
- Provide minimum cover of 30-inches for DIP and 36-inches for PVC
- Department approval needed for water mains to be designed below 5-feet in depth
- Provide minimum horizontal separation of 10-feet between water and sewer mains; water services and sewer services
- 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
- 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 and pipe bursting 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. City detail for conflict structure to be used
- 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; fill and flush connection
- 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 and fire lines 20-feet or longer or for fire hydrant lines and 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 and sidewalks
- 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
- Show and label water service and sanitary service to building or R.O.W. Provide invert for sanitary service
- 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 within utility easement 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
- 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 channel slide 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 mils, 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.”
- If connecting to an existing sewer main with lateral, add note: “Contractor must TV main prior to connection and again at finished lime rock after connection is made”
- 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. Provide detail on plans as applicable
- 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 ¾-inch x 5/8-inch
- Provide a minimum of a 30-feet by 30-feet utility easement for lift stations
- Provide 40 mil epoxy lined 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 or plug type valves required on force mains
- Valve required outside of valve pit on force main
- Mainstay coating required in wet well and valve pit
 - ½-inch minimum, spray application of Mainstay ML-72, Microsilica Cement Mortar, or approved equal
 - A minimum application of 100 mils, spray application of Mainstay DS-5, Ultra High Build Epoxy Coating, or approved equal
- Provide 40 mil epoxy lined 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; engineer to verify – do not submit landscape or photometric plans
- Add manhole collars/aprons in green areas; Collars/aprons to be five-foot square and 6 inches thick

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 detail sheets; City of Sunrise standard title block stamping area required on all detail sheets as applicable.
CAD Files available on City of Sunrise Engineering Documents website:
<https://www.sunrisefl.gov/our-city/advanced-components/document-central/-folder-182>

Storm water Pollution Prevention Plan

Show erosion and sediment control construction ingress / egress; provide detail

- Provide turbidity barriers where water bodies on site or adjacent to site and at outfalls; provide detail
- Use standard Best Management Practices; provide all applicable details
- Illustrate location of concrete washout area and include City detail on Paving, Grading, and Drainage Detail Sheet
- Add note to plan: “Spill kit must be provided onsite during entire duration of project or until removal is approved by City. Spill kit must be appropriate for scope of work and equipment onsite.

General Items

- Use City of Sunrise standard title block as required by City Code
- Add City of Sunrise standard title block stamping area to all sheets that will be stamped by the city; including cover sheet and detail sheets
- 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
- Include Key map on all sheets when multiple sheets are included for design; include Master sheets as applicable to clarify proposed design
- Plans must adhere to Chapter 471 (417.023) 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)
- Prior to the City signing any State or County applications for water or sewer construction, a Utility Service Permit (FKA Developer Agreement) must be executed and associated fees paid
- Engineer of Record must sign and seal all sheets in package including cover sheet

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 Florida Department of Environmental Protection for Public Water Systems (FKA Health Department), Broward County Domestic Wastewater Licensing, Broward County Surface Water Licensing, Central Broward Drainage District, South Florida Water Management District, or Army Corps of Engineers. *Please note if a permit is not required from Broward County Surface Water Management, Broward County Domestic Wastewater Licensing, or Florida Department of Environmental Protection for Public Water Systems, documentation indicating such is required.*