WARREN SIMPSON BUTLER
COUNTY WATER DISTRICTS

Delivering Quality and Commitment in Every Drop

Design Criteria Checklist for Gravity Sewer System

	Hydraulic Analysis & Design Narrative
	Summarize population served, average flows, peak flows, corresponding velocities, etc.
	Identify future phases of development. Verify initial design is adequate to serve future growth.
	Hydraulic analysis and design narratives shall be sealed by a KY-licensed professional engineer.
	* All review comments from DOW, if any, shall be shared with WSB.
	Design Plans - General Information
	Provide electronic file in AutoCAD .DWG in KY State Plane South US Survey Feet (1602) Projection.
	WSB's standard sewer note block shall be attached to any sewer or joint utility plan.
	WSB's most recent standard details shall be attached to the plan set.
	Include a vicinity map. Include a key map for linear or large projects.
	Proposed sewer features shall be bold or green and sewer main shall include stationing.
	Show location of existing and proposed utilities (water, sewer, storm, gas, power, communication, etc.).
	Show faint proposed contours on utility plans.
	Sewer mains shall be proposed at least 10' horizontally from any existing or proposed utilities. Variances to this require DOW approval.
	Profile of proposed sewer main(s), including: all existing and proposed utility and storm crossing(s).
	Show service connections for all lots.
	Show clear depiction of future phases of development with proper tie in location(s).
	When the potential for upstream gravity sewer extensions exists, the alignment, size, and depth of the proposed sewer shall accommodate future upstream development.
	Sewer mains shall be extended to the end of any proposed stub street at minimum slope. End line with a manhole and install a plugged 5' length stub-out of consistent diameter gravity main.
	Proposed sewer laterals, where possible, shall be placed in the center of proposed lot frontage.
	No tree plantings shall be proposed within 5' of any water, sewer, or force mains or services.
	Plan view shall include:
	• Horizontal separation with other utilities.
	• Manhole deflection angles for entering and exiting lines.
	• Stub-out location(s) and elevation(s).
	• Service line location(s).
	Profile shall include:
	• Major and minor gridlines that allow for at least half a foot vertical accuracy.
	• Existing and proposed ground surfaces.
	• Alignment stationing at manholes.
	• Invert elevations for incoming and outgoing lines.
	• Top elevation of manhole cover.
	• All sewer main with a minimum 48" of cover.
	• Existing and proposed crossings with water, sewer, storm, or force mains with 2' of vertical separation or less shall include a dimension stating the vertical separation to the hundredth of a foot on a profile. If 18" cannot be achieved due to site constraints, casing can be utilized down to a minimum separation of 6". Where possible, water mains shall be installed above other utilities at crossings.
	For projects requiring work in state or county rights-of-way, provide ROW Permit.
	Include locations of permanent Utility Easement(s) and temporary Construction Easement(s).

Material & Construction Requirements	
	Plans shall be sealed by a KY-licensed professional engineer.
	* All precast structure submittals must be accopanied by signed documentation from the design engineer verifying that the shop drawings match the design plans.
	Manholes
	• Public sewer mains shall be terminated with a manhole meeting WSB Specifications.
	• Max spacing not to exceed 400-ft. Variances to this require DOW approval.
	• An external drop manhole connection is the standard drop connection configuration. When elevation difference between the inlet and outlet pipe is more than 24", a drop manhole is required. Internal drop connections are not allowed unless approved by WSB.
	• Each manhole should have an elevation drop of a tenth of a foot from the inlet crown to the outlet crown (top of pipe to top of pipe).
	• No manholes shall be proposed in ditch lines, basins, areas on streets with high storm water spread, or any other area where storm water would infiltrate. If site conditions don't allow for this, the manhole lid shall be elevated at least 1 foot above the 100-year elevation for the basin, ditch, etc. Proof of adequate freeboard must accompany the submittal.
	• Any sewer manhole proposed in areas likely to flood (i.e. near proximity to basins, manholes within flood zones, etc.) should have watertight lids.
	Gravity Main Line – Size and Material
	• 8” min. diameter SDR-35 or PS-46 up to 20' depth. At depths greater than 20', use SDR-26 or PS-115.
	• Slope – General minimum slope of 0.50%. Lower slopes may be approved on a case by case basis, but in all cases, meet minimum slopes in ten state standards. Using larger pipes than neccesary to achieve ten states minimum slope will not be allowed. The flow must justify the size of the pipe.
	Service Lines & Cleanouts
	• For single-family residential, each lot shall be served by a service line and cleanout.
	• For multi-family developments, each building shall be connected to the sewer main unless otherwise directed by WSB.
Easements & Property	
	20-ft Utility Easement (10' ESOL) is required for all public gravity sewer mains.
	It is the responsibility of the developer to obtain all needed easements.
	Property for sewer lift station shall be deeded to WSB. Depending on location, WSB may require a dedicated 20-ft wide access easement to pump station.
	Easements are required on service lines that cross private property to service another lot. (This practice will typically not be accepted by WSB).
	Utility Easements or subdivision plats must be recorded before the system will be accepted by WSB.