



Plan Content and Design Guidance

Oldham County Engineer

STORMWATER PROFILE PLAN GUIDANCE

	<p>Profiles of all proposed stormwater system piping and culverts include the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Piping. <input type="checkbox"/> Location of stormwater facilities (manholes, catch basins, headwalls, inlets, etc.). (Locations include Label, Description, Type, Elevation, Invert Elevation, Rim Elevations, etc.). <input type="checkbox"/> Inlets (type, grate elevation, invert elevation, etc). <input type="checkbox"/> Pipe material, length, diameter, percent grade, invert elevation. <input type="checkbox"/> Headwaters for 10-year and 100-year. <ul style="list-style-type: none"> <input type="checkbox"/> Allowable headwaters as outlined in Ref h – Section 10.3.3.2*. <input type="checkbox"/> Crossings with existing / proposed utilities (sanitary, water, gas, etc.). <input type="checkbox"/> Clearance for all pipe crossings has been shown. <input type="checkbox"/> Hydraulic Grade Lines (HGL) for 10-year, and 100-year design storms (Supporting calculations provided. Details regarding how the starting water surface elevation was obtained has been included). <ul style="list-style-type: none"> <input type="checkbox"/> 100-year HGL is below the ground line or building drain elevation (Ref h – Section 10.3.2.1*). <input type="checkbox"/> Stationing for all piping and structures. <input type="checkbox"/> The limits of the right-of-way have been depicted for piping and culverts that cross a public right of way. <input type="checkbox"/> Design cover has been provided based on pipe material. <input type="checkbox"/> Pipe Chart from the Stormwater Plan is also provided.
	<p>Profiles of all proposed ditches, swales, and open channels include the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Length, percent grade, elevation. <input type="checkbox"/> Flow (Q_{10} and Q_{100}). <input type="checkbox"/> Velocity (V_{10} and V_{100}). <input type="checkbox"/> Flow depth (d_{10} and d_{100}). <input type="checkbox"/> Design depth. <input type="checkbox"/> Shear Stress. <input type="checkbox"/> Stationing. <input type="checkbox"/> Roughness Coefficient (“n” value). <input type="checkbox"/> Flow line elevation at grade changes (PVI).
	<p>Cross Sections for all ditches, swales, and open channels:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Cross sections have been depicted looking up-station. <input type="checkbox"/> Pipe crossings have been shown. <input type="checkbox"/> Utilities, easements, and right-of-way have been shown. <input type="checkbox"/> Cross sections have been shown for every 25-feet and where flow is added.
	<p>Channels and Ditches:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Minimum channel slope, side slopes, depths, and lining conform to Ref h – Section 10.3.5*.
	<p>Pipe Outlet/Outfall Details:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Outfalls into creeks and ditches point downstream. <input type="checkbox"/> Pipe outfall flowline are within one foot of creek flowline. <input type="checkbox"/> Outfall protection has been provided at creek or ditch.



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	<ul style="list-style-type: none"> <input type="checkbox"/> Riprap apron for $V \geq 6.5$fps <input type="checkbox"/> Energy dissipator at headwall and riprap apron for $V \geq 13$fps <input type="checkbox"/> 100-year WSE at outfall for all ponds, creeks, and channels has been shown.
	<p>Outlet/Outfall Details provide the following details:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Type of outlet/outfall indicated. <input type="checkbox"/> Velocity indicated. <input type="checkbox"/> Graded for positive drainage. <input type="checkbox"/> Pipe end treatments have been addressed. <input type="checkbox"/> Outlet protection (i.e., Riprap, etc.) has been addressed. <input type="checkbox"/> Energy Dissipaters has been addressed. <input type="checkbox"/> Flow control devices (length, width, depth, including filter fabric lining) have been addressed.
	<p>Stormwater pipes with grades greater than or equal to 20% have been furnished with pipe anchors at each pipe joint (Ref h – Section 10.3.2.1).</p>