CITY OF CORCORAN

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Stormwater Guidelines for Development Review

Issue

Cities changing from rural to urban development are challenged by the additional stormwater generated due to construction of impervious surfaces, along with the offsite infrastructure, or lack thereof, to manage effectively. To standardize the modeling and review process, the guidelines below were created for efficiency.

Note: A watershed approval is required per Elm Creek WMO rules, which also reviews flow rates, water quality and volume management.

MODELING

Watershed Information

- Provide an aerial photo of the development that includes the overall watershed and subwatershed boundaries
- Provide a summary of the acreage to each discharge point leaving the site. Any increase (or decrease) shall be identified.
- Show any floodplain adjacent to project or within the project
- Show downstream water bodies and flow paths
    - Downstream flow paths and water bodies typically need to have elevations, inverts, and condition identified.

Subwatersheds

A HydroCAD model (typically used) has some inputs that can vary. To minimize review time and effort, the following data shall be utilized.

- Electronic model shall be submitted
- Hydrologic Soil Group (HSG) shall be lowered one category due to the mass grading and compaction of the soils. For example, an existing B soil, shall be modeled as a proposed C soil (unless it remains undisturbed)
- Wetlands, filtration basins, and ponds shall be modeled at CN of 98
- Identify peak rates for storm events and proposed shall be equal or less than existing rates.
    - Note: There are certain conditions where at City's discretion the off-site conditions require a reduction in flow rate from existing rates.
- SWMM (i.e. EPA-, XP-, or PC-) models can be submitted for review, however these increase review time.

Model Setup for Outlet Control Structures, NWLs and Infiltration

- The model's flow control structures (OCS, culverts, etc.) shall match the construction plan information. During the plan and model review both may be modified and revised
- Individual detail plates are required for each OCS, and individual plates shall have inverts identified
- A pond or wetland NWL (and model starting elevation) shall be set at the constructed outlet control elevation.
    - No live storage shall be utilized below the controlling OCS elevation.
    - No live storage shall be used for filtration shelves on ponds below controlling OCS elevation
- If a pond or wetland has an NWL (wet surface), infiltration shall not be used in flood routing.

- If a pond has filtration BMP causing drawdown below the NWL, this drawdown elevation shall not be used as the NWL for flood routing. (Filtration has a slower release time and during wet periods is not available as live storage).

CONSTRUCTION PLANS

Catch Basins

- Street drainage shall be sufficient to manage the 10-year event
- Typical a CB inlet capacity is 2 to 2.5 CFS, and CBs shall be spaced accordingly
- Three inches (0.25 feet) of head on a CB will inundate a street centerline (2% slope).
- Spacing is 200 to 250 feet using longitudinal street dimensions of 40 feet from road centerline to half the house footprint (assumes rear half of house drains to rear yard). Dimensions equal 10,000 SF.
- CBs may be required on both sides of ped ramps to capture flows

Natural Drainage Features

- Waterbodies receiving urban drainage (wetlands, ditches, gullies) may need to have OCS installed, erosion protection, or reduced flow rates to allow the feature to function over the long term due to more consistent flows from impervious via development
- Offsite work may be necessary and City will assist with coordination, easements, etc.

HWLs and EOFs

- The freeboard requirements are:
    - Low Opening is a minimum of two feet above the HWL
    - Low Opening is a minimum of one foot above the EOF
- EOFs shall be accurately shown and as builts are required. The highest point shall be the EOF (for example top of curb) since this is the controlling elevation
    - In certain instances, channel calculations of the swale may be required to show the EOF has capacity to manage estimated flow
    - A second pipe may serve as an EOF at City's discretion

Rear Yards

- Rear yards or swales less than 2% shall have draintile

Typically, every two to three lots will require rear yard CBs. Alternative materials such as "golf course" drains and PVC may be allowed at City's discretion.

Sump Connections

- Houses adjoining a wetland or pond do not need individual sump connection
- Others are preferred to have a rear yard connection to storm sewer