

**APPENDIX C – PAVEMENT DRAINAGE, STORM DRAINAGE, WATER QUALITY  
AND DETENTION BASIN DESIGN  
DOCUMENTATION FOR DEVELOPERS OR NON-ODOT PROJECTS**

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**Drainage Report**

Drainage calculations, a drainage map, a site plan, construction drawings drawn to scale, and operation and maintenance manual must be submitted to the ODOT Region Technical Center for review and approval. Enough information should be included so the design can be independently verified.

**Drainage Calculations**

The drainage calculations should be done using the same units as the drainage system plans, as much as practicable. This will help assure a timely review. The drainage calculations should contain the following information:

- a. A narrative and tables as needed describing the characteristics of the contributing drainage basin prior to and after the proposed development, including, but not limited to, areas, soil types, vegetation, storage, runoff coefficients, and other runoff characteristics. A description of the changes to these characteristics due to the proposed development should also be included.
- b. Calculations for the time-of-concentration, including slopes, lengths, hydraulic roughness, and other characteristics of the flow components.
- c. A copy of the rainfall intensity-duration-recurrence interval curve.
- d. The detention basin design calculations, printouts, and tables as per Chapter 12 if the simplified rational method is used, or the method described in Chapter 12 if the hydrograph and routing method is used. It should be clearly shown by calculation that the post-construction release rate from detention meets the requirements in Chapter 12.
- e. Prepare pavement and storm drainage calculations, printouts and tables as per Chapter 13. Enough information should be submitted so the design can be independently verified.
- f. Prepare water quality treatment calculations, printouts and tables as per Chapter 14 for improvements made with ODOT right-of-way. Enough information should be submitted so the design can be independently verified.

**Drainage Map, Site Plan, Construction Drawings and Operation and Maintenance Manual**

The drainage map, site plan, construction drawings, and Operation and Maintenance Manual should include but not be limited to the following information:

- a. The drainage basin and sub-basin boundaries with runoff coefficients and soil types if NRCS based methods are used (include on drainage map).
- b. The flow path from the most remote point in the basin that is used to determine the time of concentration (include on drainage map).
- c. The flow paths throughout the site, including directions of flows, points of concentration, and junctions (include on drainage map).
- d. Buildings, landscaped areas, and impervious areas such as parking lots and sidewalks (include on drainage map, site plan, and construction drawings).
- e. Contours of the site prior to development (include on drainage map and construction drawings).
- f. Contours of the site after development (include on drainage map and construction drawings).
- g. Details of the existing and proposed drainage systems including flow line elevations, sizes, materials, lengths, headwater depths for all pipes and ditches, and locations and rim elevations of all inlets and manholes (include on drainage map and construction drawings).
- h. Details of the proposed system that includes the dimensions and bottom elevations of all facilities, and details of the primary and auxiliary outlets. The sizes, types, and elevations of all orifices should be shown (include on drainage map, site plan, and construction drawings).
- i. System Operation and Maintenance Summary should be provided. Reference Section 4.6.6.



