



Clallam Conservation District

Technical Memorandum

RE: Small Site Drainage Manual

Background

In the Fall of 2006, the Clallam Conservation District, with the assistance of other representatives of the Washington State Conservation District System, began work on a small site drainage manual for Clallam County. The emphasis of this manual was small single home residential development. The intent of the manual was to encourage the implementation of Low Impact Development or “LID” practices by way of simple site planning guidance and drainage design specifications customized to Clallam County’s three major climatic regions. The manual is intended to serve as a guidance manual for small site development activities to the extent it is adopted by the local governments in the District’s area of service, particularly Clallam County.

Current Regulation

Currently there is no comprehensive drainage regulation in the District’s area of service. Several cities and Clallam County have some drainage regulation. The efforts of the Clallam Conservation District are intended to provide a broadly applicable guidance manual that can serve as the basis for an LID based approach to small site development, which will protect the natural resources in the District’s area of service. Specifically, the drainage manual attempts to utilize best available science to address the problems of small site development, which commonly are inadequately addressed by the current patchwork of regulations and guidance documentation.

Methodology

The main modeling was performed based on Port Angeles conditions and practices were modified for the other two regions in Clallam County based on additional analysis. The design methodology for the manual is based on the 2005 wwhm3 model used by the Washington State Department of Ecology, as well as a 60 hour TR-55 based event model. The event model utilized modified type 1-A rainfall hyetographs with two storm peaks with 7 inches of rainfall falling in 60 hours. Both models were run with existing conditions of a mix of forest and pasture with approximately 8% impervious area. This level of impervious cover is associated with low levels of urbanization, which would

have existed in the middle to late 20th century. This level of impervious cover is associated with moderate to moderately high biological integrity of aquatic systems. Post-development conditions are based on small lot impervious cover of approximately 30% and loss of approximately 1/3 of the forested area and an increase of lawn/landscaped cover. When this level of urbanization occurs without stormwater impact mitigation practices such as contained in the manual, significant losses in the biological integrity of aquatic resources are likely. Drainage mitigation BMP's are designed to match the existing flow rates for at least 90% of storm flows from the 2-year through the 50-year event, and to match durations to the extent possible with the simplified small site design approach, which is necessary for non-engineered plans. In addition water quality is significantly improved over unmitigated drainage. The recommended drainage practices along with riparian buffer protection and protection of other critical areas have been identified as the best methods to maintain the health of streams in urbanizing watersheds.

Regulatory Thresholds and Intended Scope

The manual and Best Management Practices contained therein are intended for small site development activities. Small Site development is assumed to encompass projects with 10,000 square feet of new impervious surface or less and clearing and grading of less than one acre. This manual is meant for individual small projects where comprehensive engineering and project planning may be seen as an undue hardship on landowners. This manual is not meant for land subdivisions, large multi-family residential developments, or large commercial developments where individual engineering and project planning should be required. The manual and practices, standards, and specifications therein were developed to give local governments in the Clallam Conservation District's area of service a basis for a practical small site drainage manual utilizing LID approaches. Any local government utilizing this manual should carefully review the document and supplement as necessary any standards and specifications therein.