Hydromodification Management Plan (HMP) Flow Control Analysis Options

Hydromodification Management requirements for Priority Development Projects (PDPs) are listed in the County of San Diego Best Management Practice (BMP) Design Manual. Chapter 6 discusses flow control facility design which may be accomplished as a project-specific continuous simulation model or by using sizing factors provided in Appendix G of the BMP Design Manual.

Continuous Simulation Hydrologic Modeling

The following software is available:

- EPA SWMM – Storm Water Management Model, distributed by USEPA, public domain. (https://www.epa.gov/water-research/storm-water-management-model-swmm)
- SDHM – San Diego Hydrology Model, distributed by Clear Creek Solutions, Inc. This is an HSPF-based model with a proprietary interface that has been customized for use in San Diego for hydromodification management studies. (https://www.clearcreeksolutions.com/SearchResults.asp?Cat=17)
- HSPF – Hydrologic Simulation Program-FORTRAN, distributed by USEPA, public domain. (http://water.usgs.gov/software/HSPF/)

Note: Third-party proprietary software, such as XPSWMM, PC SWMM, or InfoSWMM, may be used for hydromodification management studies in San Diego, provided that input and output data from the software can interface with public domain software such as EPA SWMM.

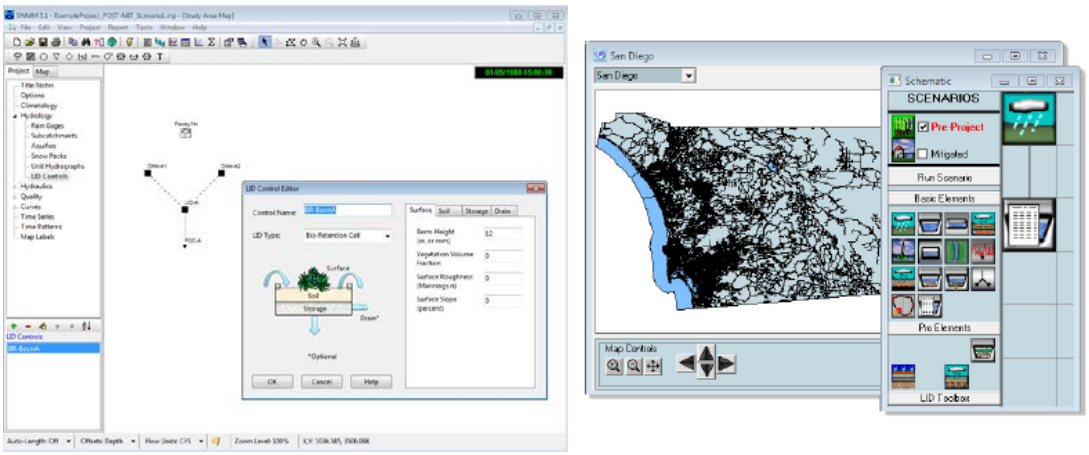

Fig 1. Sample of SDHM screens

Sizing Factors for Hydromodification Management

The sizing factor method is intended for simple studies that do not include offsite area draining through the project from upstream, and do not include offsite area downstream of the project area. Use of the sizing factors is limited to the specific BMPs described in Appendix G of the BMP Design Manual. Sizing factors are available for the following structural BMPs:

- Full infiltration condition: infiltration and bioretention
  - Infiltration
  - Bioretention

- Partial infiltration condition
  - Biofiltration with partial retention

- No infiltration condition
  - Biofiltration
  - Biofiltration with impermeable liner (in the form of "flow-through planter")

Table G.2-3: Sizing Factors for Hydromodification Flow Control Infiltration BMPs Designed Using Sizing Factor Method

Sizing Factors for Hydromodification Flow Control Infiltration BMPs Designed Using Sizing Factor Method						
Lower Flow Threshold	Soil Group	Slope	Rain Gauge	A	V_1	V_2
$0.5Q_2$	A	Flat	Lindbergh	0.040	0.1040	N/A
$0.5Q_2$	A	Moderate	Lindbergh	0.040	0.1040	N/A
$0.5Q_2$	A	Steep	Lindbergh	0.035	0.0910	N/A
$0.5Q_2$	B	Flat	Lindbergh	0.058	0.1495	N/A
$0.5Q_2$	B	Moderate	Lindbergh	0.055	0.1430	N/A
$0.5Q_2$	B	Steep	Lindbergh	0.050	0.1300	N/A
$0.5Q_2$	C	Flat	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	C	Moderate	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	C	Steep	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	D	Flat	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	D	Moderate	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	D	Steep	Lindbergh	N/A	N/A	N/A
$0.5Q_2$	A	Flat	Oceanside	0.045	0.1170	N/A
$0.5Q_2$	A	Moderate	Oceanside	0.045	0.1170	N/A

Fig 2. Sample of HMP Sizing Factors as listed in Appendix G

Potential Critical Course Sediment Yield Area (PCCSYA)

In addition to the flow control requirements as part of hydromodification management, the PDP also needs to protect potential critical course sediment yield areas (PCCSYA). For further guidance on investigating and protecting PCCSYA, please refer to Appendix H of the BMP Design Manual.