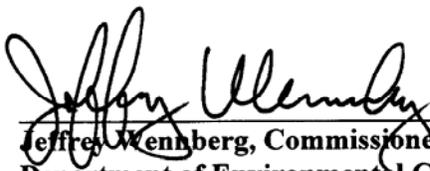


**VTDEC Procedure for Evaluation of Stormwater Discharges and Offsets  
in Stormwater Impaired Watersheds**

**May 5, 2004**

**ADOPTED:**

  
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Jeffrey Wennberg, Commissioner  
Department of Environmental Conservation

5/5/04  
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Date

## **Introduction:**

This procedure describes the process by which regulated stormwater runoff from impervious surfaces will be permitted within watersheds significantly impaired by collected stormwater runoff prior to the adoption of general permits implementing a TMDL or Water Quality Remediation. Plan. This procedure will terminate upon the adoption of rules by the secretary.

This procedure does not apply to the renewal of stormwater permits for existing discharges of regulated stormwater runoff that are in compliance with a currently valid stormwater permit where no physical change in impervious surface is proposed. Nor does it apply to existing discharges of regulated stormwater runoff that were not previously required to obtain a permit under procedures issued by the secretary. This procedure will be applied to the issuance of stormwater permits for new development (including expansion of existing impervious surfaces), and redevelopment (whether or not there is a currently valid permit), and renewal of stormwater permits for previously-permitted discharges with expired stormwater permits. The procedure defines the processes of engineering feasibility analysis for redevelopment and discharges with expired permits, impact fee assessment, and offset project analysis to assure accurate assignment of stormwater impact credits.

The result of this procedure will be the development of stormwater discharge permits and offset permits that result in a net-zero discharge to receiving waters from the statutorily designated baselines. This standard will be achieved through a combination of best practicable on-site treatment and the use of any necessary offsets, either constructed by the discharger or enabled through the collection of impact fee payments to achieve a net zero contribution to the receiving water.

The stormwater impact fee of \$30,000 per impervious acre (which is reduced by credits for pollutant reduction achieved by the applicant) is based upon an assumption for the 'typical' cost of providing stormwater treatment to meet the requirements of the 2002 Vermont Stormwater Management Manual (VSWMM). The stormwater impact fees will be used to fund physical load reduction projects within the same watershed as the discharge in which the impact fees are collected. Payment of necessary stormwater impact fees and assignment of appropriate corresponding load offsets will be made in accordance with 10 V.S.A. § 1264a.

There are two different categories of discharge that will be permitted in accordance with this procedure: New development (including expansion of existing impervious surfaces), and renewal of existing stormwater permits which have expired and redevelopment (whether or not the existing discharge has a currently valid permit). Finally, the procedure defines how offset projects will be permitted and assigned an offset charge capacity (i.e., the total amount of the reduction in sediment loading or hydrologic impact the offset project has achieved and is available to be charged against by discharge projects requiring offsets).

## **Calculation of Impact Fees for New Development and Expansions:**

Development of new impervious surfaces of one acre or more must meet all treatment and control criteria in the 2002 Vermont Stormwater Management Manual (VSWMM). On a case-by-case basis, the secretary may require a stormwater permit for new impervious surfaces of less than one acre if necessary to reduce the adverse impacts of the discharge due to the size of the impervious surface, drainage patterns, hydraulic connectivity, existing stormwater treatment, or

other water-quality-relevant factors. The level of stormwater treatment obtained by compliance with VSWMM is assumed to result in an 80% reduction in loading to the receiving water, and represents the best practicable treatment for new development. The Simple Method Model ( Schueler, T. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban Best Management Practices*. MWCOG. Washington, D.C.) or a similar model will be used to determine both pre-development and post-development loads from the site. Pre-development site conditions will be characterized as the actual, existing site condition. The Department will review the history of land-use at the site where there is the appearance of land-use manipulation for the purpose of artificially increasing loading from pre-development site conditions, and where appropriate adjust existing site conditions to account for any such manipulation. Post-development loads will reflect the 80% reduction in loading to be achieved through application of VSWMM treatment and control criteria.

Results of the Simple Method analysis will be represented as the net percent increase in loading from a site, and will be used to give credit for pre-existing site conditions to calculate the necessary fee payment. In addition, the net increase in sediment estimated by the simple method will be used to represent the total sediment loading that must be offset.

### **Calculation of Impact Fees for Redevelopment and Existing Discharges with Expired Permits:**

A site-specific engineering feasibility analysis will be used for maximizing on-site treatment of stormwater runoff from existing impervious surfaces. The basis for this analysis is the VSWMM. The VSWMM was designed to set stormwater management standards for new construction on undeveloped sites and not for retrofits of already developed sites. In lieu of adopting a separate set of standards appropriate for retrofit projects, the secretary will require redevelopment projects and existing discharges with expired permits to meet all practicable requirements on site for three of the five stormwater treatment standards in the VSWMM as defined by the engineering feasibility analysis included in this procedure. The engineering feasibility analysis covers the infiltration, channel protection (hydrology), and water quality treatment requirements in the VSWMM. These projects will not be required to meet the VSWMM requirements for the ten and one hundred year floods. Priority for on-site retrofit implementation is given first to recharge, then hydrological control, and finally wash-off load reduction. The specific treatment and control practices determined through use of this analysis must then be implemented at the site.

The underlying basis for achieving a net zero load discharge standard will be a combination of this required on-site treatment as established through the engineering feasibility analysis, and any on-site or off-site offset project undertaken by the discharger, or payment of an impact fee designed to fund an associated off-site offset project that has the capacity to offset the post-control sediment load from a given site. The impact fee of \$30,000.00 per impervious acre is based upon an assumption for the 'typical' cost of providing stormwater treatment to meet the requirements of the 2002 Vermont Stormwater Management Manual (VSWMM). On-site treatment requirements that are achieved, as determined through this engineering feasibility analysis, will be applied as a continuous sliding-scale credit towards this area-based fee. If an individual treatment or control criteria can be fully complied with, then the maximum credit for that criteria will be applied. Partial compliance with any individual criterion will be credited on a linear basis, calculated by the percentage of total volume able to be treated or controlled.

The existing *site* (including contiguous land owned or controlled by the subject property owner and within the impaired watershed of the discharge) shall be evaluated for its potential to provide treatment towards the 2002 Vermont Stormwater Management Manual. The priority of treatment assessment is provided in Table 1. All necessary considerations for treatment suitability shall be followed, as outlined in the VSWMM. In addition, all required design elements of the VSWMM shall be evaluated and incorporated into the final design of specific stormwater treatment practices. The analysis of a given site's ability to achieve the designated treatment and control practices will be evaluated in the order of priority shown in Table 1. However, all three applicable criteria ( $Re_v$ ,  $CP_v$ ,  $WQ_v$ ) must be assessed, and the stormwater retrofit practices that are determined to be applicable for each criteria must be implemented.

The Simple Method Model (Schueler, 1987) or a similar model will then be used to determine both pre-development and post-development loads from the site. Pre-development site conditions will be characterized as the natural runoff from an undeveloped field or open meadow that is not used for agricultural activity. Post-development loads will reflect the reduction in loading to be achieved through application of the treatment and control practices required by the engineering feasibility analysis.

Results of the Simple Method analysis will be represented as the net percent increase in loading from a site, and will be used to give credit for pre-existing site conditions to calculate the necessary fee payment. In addition, the net increase in sediment estimated by the simple method will be used to represent the total sediment loading that must be offset.

The treatment and control techniques listed in Table 2 will not be required as part of this analysis, although they may be voluntarily considered at the discretion of the applicant. Any resulting treatment and control achieved through the application of these techniques will be credited toward the area-based fee.

**Table 1**  
 Engineering Feasibility Analysis  
 Priority Ranking of Retrofit Analysis

<b>2002 VSWMM Criteria</b>	<b>Specific Analysis Requirements in Order of Priority</b>	<b>Impact Fee Credit</b>
Recharge Volume ( $Re_v$ )	1. Maximize infiltration of rooftop runoff through VSWMM approved non-structural means  2. Maximize infiltration of impervious surface runoff through VSWMM approved non-structural means	Up to 10 %
Channel Protection Volume ( $CP_v$ )	3. Maximize detention of runoff from 1 year storm through re-design, retrofit and/or expansion of existing detention structures	Up to 50 %
Water Quality Volume ( $WQ_v$ )	4. Maximize water quality treatment by routing flows through engineered grass channels whenever possible, or through re-design and expansion of existing detention structures, or through infiltration in excess of the $Re_v$ quantity, or through a combination of these techniques	Up to 20 %
Zero Load	5. If all runoff from the 1 year storm is able to be infiltrated (net zero-loading condition), then no impact fee shall be assessed	100%

**Table 2**  
Engineering Feasibility Analysis  
Voluntary Treatment and Control Practices

1	Analysis will not require installation of sub-surface storage or treatment structures
2	Analysis will not require purchase or acquisition of additional land
3	Analysis will not require demolition of buildings or removal of existing impervious surfaces to point of interference with either the land use or material conditions of any existing land use permits
4	Analysis will not require off-site treatment of stormwater
5	Analysis will not require either site re-grading or site re-contouring to point of permanent interference with either the land use or material conditions of any existing land use permits
6	Analysis will not require pumping or otherwise mechanical re-routing of stormwater runoff.
7	Analysis will not require mechanical or chemical treatment of stormwater
8	Analysis will not allow infiltration where basement flooding or subsurface pollutant plume transport will occur

**Offset Project Analysis and Management:**

Because many dischargers will often find it difficult to meet the net zero treatment standards through a combination of on-site treatment and their own construction of on-site or off-site offsets, physical offset projects developed by third parties will often be necessary to enable both permitting of new development (including expansion of existing impervious surfaces), and redevelopment and renewal of expired existing stormwater permits. The eligibility criteria for offset projects are set forth in 10 V.S.A. §1264a (e)(4). Offset projects will be permitted and analyzed separately from those projects requiring such offsets and may include mitigation activities other than clean up of existing discharges such as culvert replacement and stream corridor improvements. Each offset project will be assigned an offset charge capacity which represents the total amount of the reduction in sediment loading or hydrologic impact that the secretary has determined that the offset has achieved and which is therefore available to be drawn against by an offset charge from a discharger. Impact fees that are calculated as described in the preceding sections of this procedure may be used to fund these offset projects. The discharge and its corresponding offset project must both be within the same stormwater impaired watershed. Subsequent use of the remaining offset charge capacity created by these projects will be tracked by the VTDEC to assure accurate accounting of their designated use as offset credits.

The Simple Method Model will be used to determine allowable offset charge capacity for offset projects that implement or improve treatment or control practices at existing impervious surfaces. This model will be used to determine both pre-development and post-development loads from the site. Pre-development site conditions will be characterized as the actual, existing site condition. Post-development loads will reflect actual reductions in loading to be achieved through application of treatment and control practices. Results of this Simple Method analysis will be represented as a net reduction in pre-development loadings from the existing condition over post-development loadings following proposed treatment. Treatment must be provided that meets, at a minimum, those levels that would be prescribed in the engineering feasibility analysis (Table 1).

For use of non-impervious-surface offset projects, (e.g., culvert replacements, riparian buffer zone acquisition, stream-bank restorations) credit will necessarily be determined on a case-by-case basis by the VTDEC. Use of typical literature values, on-site measurements and monitoring data will be considered when conducting such determinations. An appropriate margin of safety will be used to adjust allowable load credits to reflect the relative uncertainty in defining actual load reductions that will be achieved through use of this type of offset projects.

To facilitate offset projects the Agency will explore the possibility of adopting an offset project general permit. Individual offset projects which meet the terms of an offset project general permit would be eligible to obtain coverage under the general permit with the abbreviated public notice schedule authorized in statute. Offset projects that did not meet the terms of the general permit would still be eligible for an individual permit.

A separate database will be maintained for each impaired watershed to keep track of new permitting actions, impact fee assessment and collection, offset project development and load reductions, and use of these physical offset credits. Each discharge must be associated with an appropriate offset. New or expanded dischargers must identify a completed offset project or one that will be complete by the time the discharger initiates its discharge. A discharge associated with either redevelopment or an existing discharge with an expired permit may also use a completed offset project but may also use an offset project that will be completed within two years of the initiation of its discharge. The Agency will assist dischargers in identifying an appropriate offset project in the watershed of its discharge that received an offset permit or coverage under a general offset permit:

- (1) that is eligible to receive funding from the stormwater-impaired waters restoration fund,
- (2) that has already been completed or will be completed by the time the discharger initiates its discharge, or in the case of redevelopment and renewal of an expired permit, will be completed within two years.
- (3) that has remaining offset charge capacity, and
- (4) that will agree to accept an offset charge from the discharger.

### **Distribution of Funds from the Stormwater Impaired Waters Restoration Fund**

Until such time as rules have been adopted, funds from the stormwater impaired waters restoration fund will be distributed in accordance with the requirements of 10 V.S.A. § 1264b and prioritized on the basis of the following factors:

- Will the offset project be located in a watershed with identified development pressure based on factors including but not limited to: building permit trends; local planning and zoning; availability of sewer, water and other public services; submission of development applications; and economic development surveys?
- Can the offset project be completed quickly?
- Is there partial funding for the offset project from sources other than the stormwater impaired waters restoration fund?

- How does the offset charge capacity of the offset project compare in size to other offset projects in the watershed?
- Is the cost-effectiveness of the offset project (i.e, cost per pound removed) better than other projects in the watershed?