

BEST MANAGEMENT PRACTICE DESCRIPTIONS

Quantity Control BMPs

Quantity Control Pond

An engineered man-made dry basin designed to accept rain water from the private stormwater system. The dry pond acts as a pond during rain storms and holds water temporarily until the storm has passed. The stormwater is then released slowly back into to the stormwater system such as nearby streams. The purpose of this BMP is to prevent erosion along river banks and flooding of the river. Annual maintenance is required to ensure the pond is functioning as designed. Quantity control ponds may be designed to also provide quality control as described below.

Rooftop Storage

Some commercial and industrial properties have a flat rooftop that is specifically designed to act as a pond that stores stormwater during large rainfall events. The roof contains drains that release the stored water slowly into the City's stormwater drainage system. This practice helps to prevent flooding along rivers and reduces erosion along the banks of our rivers and streams. Roof drains need to be kept clear of debris to ensure stormwater is released from the roof at the designed rate.

Underground Storage

Some commercial and industrial properties store stormwater from rooftops and/or parking lots in underground storage containers (large cisterns) or oversized sewers (super pipes). Underground storage can be used to harvest water for onsite uses, or to promote infiltration of stormwater into the ground where soils permit. The overflow water is slowly released to the city's stormwater system. This practice helps to prevent flooding and erosion along our watercourses. Little maintenance is required, other than to keep debris out of the system and to ensure the pipes are in good condition.

Parking Lot Storage

The parking lots of many commercial and industrial sites are designed to pool a small amount of stormwater on the surface of the parking lot creating ponding up to 0.30 meters deep in low traffic areas. The parking lot drains are designed to release the stored water slowly into to the City's stormwater system. This practice helps to reduce flooding and erosion along the banks of streams and rivers. Little maintenance is required other than to keep debris out of the system and to ensure the system functions as designed.

Infiltration Gallery

Infiltration galleries are located below ground and consist of an excavated area filled with loose stones or a similar material that promotes infiltration of stormwater into the ground. Infiltration galleries are designed to receive clean rainwater from rooftops. In Ontario, an infiltration gallery must be located at least 5m away from the building in order to prevent damage to the foundation. Infiltration galleries may also be called soak-away pits or dry-wells.

Once in the infiltration gallery, rainwater slowly absorbs into the ground and gradually makes its way down to the water table, where it is known as groundwater. In the Region of Waterloo, 80% of our drinking water is supplied from groundwater and infiltration galleries help to replenish our drinking water sources. This practice also helps to reduce erosion along the banks of streams and rivers.

Quality Control BMPs

Quality Control Pond

An engineered man-made pond that accepts rain water from the private stormwater system. Sediments from polluted stormwater settle to the bottom of the pond, filtering out pollutants. Clean water is then slowly released back to the city's stormwater system or nearby streams. Annual maintenance is required to ensure the pond is functioning as designed. Quality control ponds may be designed to also provide quantity control as described above.

Oil/Grit Separator

A stormwater drain located on roads or parking lots that has an engineered unit underneath that is designed to separate oil and grit from stormwater before it enters the city's stormwater system. Oil and grit separators require professional installation and are often located on large commercial properties as a requirement at the time of development. These units can also be installed relatively easily at any point in time. This practice helps improve the quality of water in our streams and rivers. Typically, oil and grit separators require cleaning out on an annual basis.

Filter Strip

A filter strip is a low-tech cost effective method to improve the quality of stormwater runoff. It is a strip of vegetation that is placed along the edges of parking lots or other asphalt surfaces to capture and remove pollution from rain water. Filter strips appear as a row of vegetation and can simply be installed by leaving an area of approximately 10m unmowed where stormwater gets directed to. Reducing lawn areas and increasing an unmowed border is effective for both pollutant reduction and to help stormwater absorb into the ground naturally. This practice helps improve the quality of water in our streams and rivers. A filter strip requires some maintenance, including inspection, reseeding, soil testing and control of trees, bushes and weeds. The grading of the property needs to be designed specifically to direct stormwater to filter strips and they should not be confused with un-maintained property boundaries.

Paved Area Sweeping Program

Regular mechanical sweeping of paved areas can help to reduce the amount of dirt, debris and sediment entering storm drains. To qualify for this practice requires a detailed paved area sweeping plan including areas to be swept, frequency and disposal methods is required. This practice helps improve the quality of water in our streams and rivers. The paved area sweeping program must meet criteria and submission requirements set by the City of Kitchener. To review the requirements for the paved area sweeping program please see the attached insert.

Salt Management Plan

Reducing the use of salt during winter months helps to improve water quality. Approved salt management plans (SMP) require a detailed plan on how salt use will be reduced during winter months. This practice helps improve the quality of water in our streams, rivers and drinking water. The SMP will need to meet criteria and submission requirements set by the City of Kitchener. To review the requirements for the salt management please review the following pages.

Education Credit

You may also receive stormwater credits for your efforts to help us share information about stormwater management and its impact on the environment. To review the requirements for the employee, customer or student education program please review the following pages.

EDUCATION PROGRAM REQUIREMENTS

To receive the stormwater education credit businesses, schools and other non-residential property owners must educate people (employees, tenants, the public, students etc.) on topics related to stormwater management. The maximum credit for stormwater education is a 5% reduction off the stormwater portion of the regular utility bill. All materials including presentations, pamphlets, posted material etc. shall be reviewed and approved by the city before qualifying for the education credit. Further, annual self-certification reports are required and shall be submitted to the city for review and approval.

Time Commitment:

- a) Devote fifteen minutes per quarter (or an hour annually) to educating on topics related to stormwater management. Additionally, provide basic stormwater management information to new employees;
- b) For educational institutions devote two hours per half year, (four hours annually) to educating one grade level of students (or split between two grade levels).

Information Dissemination:

- a) Stormwater educational information and literature must be obtained from the city, provincial/federal environmental agencies, or from any other reputable educational resource center.
- b) Program topics (flood protection, pollution reduction etc.) must rotate on at least an annual basis. For educational institutions topics may become part of the curriculum for the same grade level each year;
- c) Post clearly visible information in employee frequented areas and/or distribute pamphlets/brochures etc. on a quarterly basis;
- a) Use high traffic area kiosks, advertised special events, customer mailings, product label advertisements, public service announcements, advertisements, educational curricula, or other mass distribution techniques.

Annual self-certification report submission shall include:

- a) All Materials distributed, agendas, programs topics covered, posted and otherwise provided during the year surveys pre and post sessions is recommended as well;
- b) Locations stormwater educational information will be posted (provide picture if possible);
- c) How the information will be disseminated;
- d) The number of attendees, time(s), place(s), and confirmation that a 50% employee participation goal was met.

Useful Links to education materials:

1. Understanding Stormwater Management: An Introduction to Stormwater Management Planning and Design (Downloadablefile): http://www.ene.gov.on.ca/environment/en/resources/STD01_076381.html
2. Educating Young People About Water (EYPAW) guides and water curricula database provide assistance for developing a community-based, youth water education program: <http://www.uwex.edu/erc/ey paw/>
3. United States Environmental Protection Agency: Stormwater Outreach Materials and Reference Documents: <http://cfpub.epa.gov/npdes/stormwatermonth.cfm>
4. Teacher resources for introducing urban stormwater quality concepts to the classroom - including example lesson plans meeting Colorado standards for science, geography and civics: <http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheadername1=Content-Disposition&blobheadername2=ContentType&blobheadervalue1=inline%3B+filename%3D%22Resources.pdf%22&blobheadervalue2=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251807348727&ssbinary=true>

SALT MANAGEMENT PLAN REQUIREMENTS

In order to receive the quality control credit for a salt management plan a property must become a 'Smart about Salt Certified' site. The maximum credit for meeting the salt management plan requirements is a 5% reduction off the stormwater portion of the regular utility bill. Annual self-certification reports are required and shall be submitted to the city for review and approval.

What is "Smart About Salt"?

Smart About Salt is an award winning **not-for-profit** program designed to promote improved safe snow and ice control practices on parking lots and sidewalks in an effort to reduce the amount of road salt entering the environment.

Companies in the snow and ice control business and **Facilities** that have been certified under the Smart About Salt Program are dedicated to using proven practices that will create safe winter site conditions while using only the amount of salt needed to do the job.

The Smart About Salt Council is an initiative of the Regional Municipality of Waterloo, Building Owners and Managers Association of Ottawa and Landscape Ontario.

Smart about Salt Certified Program Requirements

You, or your staff, can become certified to meet the program requirements or you can work with Smart about Salt certified contractors who can assist in getting your facility certified under the Smart about Salt program. In either case the following steps are required:

1. Initial training: Training provides key aspects for managing how much salt is applied to your parking lots and sidewalks during the winter.
2. Implementation of a Smart about Salt Program at your facility which includes:
 - a. Self-assessment of your facility and it's needs
 - b. Salt Management Plan which includes conduction your own site evaluations and creating an effective plan for your facility.
 - c. Tracking of the materials used and reporting on the program.
3. Certification: Your company must provide information and reports to confirm the above has been successfully implemented at your facility.

Annual self-certification report submission shall include:

- a) Reciepts or proof that the property was a 'Smart about Salt Certified' site over the previous year.

Useful links for the Smart about Salt Program:

To learn more about how to enroll in the Smart about Salt Progam please visit:

http://www.smartaboutsalt.com/Resources/Documents/SAS_OVERVIEW%20for%20contractors%20and%20facilities.PDF

To learn more about this program in general please visit: www.smartaboutsalt.com

PAVED AREAS SWEEPING PROGRAM REQUIREMENTS

Power sweeping and vacuuming of paved areas increases the longevity of asphalt and reduces materials such as gravel, sand and dirt which may accumulate on your property and pollute stormwater as it runs over your property.

A clean and debris free parking area increases your property value, creates a favorable impression for your customers and is one of the best management practices for managing runoff from your property . The maximum credit for meeting the paved areas sweeping program requirements is a 5% reduction off the stormwater portion of the regular utility bill. Annual self-certification reports are required and shall be submitted to the city for review and approval.

Annual self-certification report submission shall include:

In order to receive the quality control credit for a Paved Area Sweeping Program the following minimum criteria must be satisfied:

- a) Submit a detailed paved area sweeping plan to include definition of areas to be swept, frequency of sweeping (minimum twice per year), debris disposal method, and type of sweeper used
- b) Provide documentation of plan implementation, such as copies of paid invoices or employee timesheets, or a certification of work accomplished, prepared and signed by an officer of the sweeping company.