STORMWATER MANAGEMENT SERVICE CHARGE CREDITS TECHNICAL MANUAL

CHAPTER 1. *STORMWATER MANAGEMENT SERVICE CHARGE CREDITS.*

It is the City's intent to encourage sound technical design practices which reduce the negative impact of development on the stormwater drainage system through a simple but effective credit system. Certain policies have been developed to help maintain a balance between simplicity and effectiveness.

Properties whose impact on the City's stormwater drainage system is significantly limited or has been effectively reduced through specific controls should be entitled to a credit adjustment to their Stormwater Management Service Charge. Stormwater management controls are classified as either "Quality Control" or "Quantity Reduction."

A. Quality Control Credit (QCC)

The intent of the Quality Control Credit (QCC) is to encourage reductions in the potential for stormwater pollution. The QCC is available in two forms which may be taken separately or in conjunction with each other and/or with any other credit offered by the City. The two (2) types of QCC are:

1. Stormwater Pollution Prevention (SWP3)

   Facilities with a Stormwater Pollution Prevention Plan (SWP3) on file with South Carolina Department of Health and Environmental Control in conjunction with an NPDES Permit for Stormwater Discharges Associated with Industrial Activity may be eligible for a stormwater management service charge credit. Copies of SCDHEC inspection reports should be provided to the City.

   SWP3 Credit Amount *10%*

2. Best Management Practices (BMP)

   Quality Control Credits may be available to customers who employ Best Management Practices (BMP) on their site for the purpose of reducing or minimizing stormwater pollution. Properties receiving a BMP credit may be subject to periodic inspections. Failure to maintain BMP's at acceptable levels may result in the loss of credit. A list of BMP's shall be maintained by the North Augusta Stormwater Management Utility. Customers may submit alternative BMP's for review and approval.

   BMP Credit Amount *Up to 15%*

3. Quality Control Credit Application

Applications for Quality Control Credits accompanied by an application fee as established by the Stormwater Utility should include:

a. SWP3: Copies of the NPDES permit, the approved SWP3, and the latest DHEC inspection report.

b. BMP's: A full description of the BMP, a site plan identifying the BMP location, and its maintenance schedule.

c. Right-of-Entry: Permission for City representatives to enter onto the owners' property for the purpose of inspecting the facility/structure for which credit is requested.

4. Quality Control Credit Example: See Chapter 3

B. Quantity Reduction Credit (QRC)

Quantity Reduction Credits are available to properties, whose peak stormwater runoff rate is restricted and/or controlled through onsite control facilities such as detention and retention ponds that are designed, constructed, and maintained according to City standards. Credit may also be considered on a case-by-case basis, for other types of facilities or control devices which are designed to restrict and control the volume of stormwater runoff and thus the impact on the City's stormwater system, provided sufficient technical justification is submitted in the application package to make such determination.

1. Levels of Credit

Quantity Reduction Credits are available for stormwater facilities that control post-development peak rate of stormwater at or below the pre-development rates for:

a. 2, 10, and 25-year storm design	Credit Amount – 35%
b. 50-year storm design	Credit Amount – 45%
c. 100-year storm design	Credit Amount – 50%

2. Quantity Reduction Credit Application

Applications for Quantity Reduction accompanied by an application fee as established by the Stormwater Utility should be submitted as follows:

a. New Developments

Application for Quantity Reduction Credits for new developments should be submitted as part of normal development plan review. The application should require:

- Site plan and structural control location diagram
- Locations, dimensions and characteristics of existing and proposed drainage patterns and facilities
- Existing and proposed grading and location of all structures, parking, driveways, and other impervious surfaces
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b. Existing Structures Meeting 2, 10, and 25-Year Storm Design

Applications requesting 2, 10, and 25-year storm design credits should include a certification that the structures/facilities meet current requirements of the Zoning and Development Standards Ordinance for 2, 10, and 25-year storm design.

New calculation and "As-Built Plans' prepared and stamped by the owner's engineer shall be submitted if:

- Existing structures/facilities do not have plans, calculations, and associated documentation on file with the City.
- Existing structures/facilities have changed from the original plans either by design or by time and nature.
- Existing structures/facilities are altered since a previously approved credit review.

c. Existing Structures Meeting 50 or 100-Year Storm Design

Applications requesting 50-year or 100-year storm design credits should include "As-Built Plans" calculations and watershed maps prepared and stamped by the owner's engineer certifying that the system has adequate capacity to meet the design criteria for which the owner is requesting a credit.

d. Retrofitting Existing Structures

Applications for credit as outlined above to provide for or to increase the available credit or retrofitting existing structures should follow the procedures for New Developments.

e. Right-of-Entry

Each application for Quantity Reduction Credit should include permission for City representatives to enter onto the owner's property for the purpose of inspecting the facility/structure system for which credit is requested.

3. Quantity Reduction Credit Examples: See Chapter 3

C. Education Credit

An education credit may be available to all public and private schools or school systems that agree to teach the "Action for a Cleaner Tomorrow" program, an environmental science curriculum approved by the South Carolina Department of Education, in grades Kindergarten (k) through twelve (12). The educational credit may be up to fifty (50%) percent of the service charge applicable to a school property, and should be proportional to the extent the approved curriculum is taught. The Superintendent of Schools should certify annually to the Stormwater Utility Director, before July 1, the extent to which the curriculum was taught during the school year just ended. Education credits may be taken in conjunction with any other credit available under this section except that maximum credits for all quality control, quantity reduction, and education measures should not exceed seventy-five percent (75%).

D. Credit Summary

Type of Credit	Credit Amount
Quality Control Credits	
SWP3	10%
BMP's	Up to 15%
Quantity Reduction Credits	
2, 10, and 25-year	35%
50-year	45%
100-year	50%
Education Credits	50%

NOTE: Quality Control Credits may combine SWP3 with BMP's and Quantity Reduction Credits up to and including a maximum credit of (50%). Educational Credits may be added to the combined Quality Control and Quantity Reduction Credits for total credits that may exceed 50% but shall not exceed 75%.

CHAPTER 2. *STORMWATER MANAGEMENT SERVICE CHARGE APPEALS.*

Where a non-residential property owner or customer can unequivocally document and demonstrate through appropriate engineering studies that his property's stormwater runoff impact on the public stormwater drainage system is significantly less than suggested by its assigned (gross) ERUs, the City Administrator, upon recommendation of the Stormwater Utility Director, has the authority to make adjustments consistent with the intent of the ordinance establishing charges for stormwater services and with the City's Development Guidelines. The customer may appeal in the following manner:

A. An appeal accompanied by an appeal review fee should be filed in writing with the City of North Augusta Stormwater Utility Director. In the case of service charge appeals, the appeal should include a survey prepared by a registered land surveyor or professional engineer containing information on the total property area, the impervious surface area, and any other features or conditions which influence the hydrologic response of the property to rainfall events.

B. Using the information provided by the appellant, the Director may conduct a technical review of the conditions on the property and respond in writing to the appeal within thirty (30) days.

C. In response to an appeal the Director may adjust the stormwater service charge applicable to a property in conformance with the general purpose and intent of this Article. The adjustment may be downward or upward as appropriate.

D. A decision of the Director, which is adverse to an appellant, may be further appealed to the City Administrator within thirty (30) days of receipt of notice of the adverse decision. Notice of the appeal should be served on the City Administrator by the appellant, stating the grounds for the appeal. The City Administrator should issue a written decision on the appeal within thirty (30) days. All decisions of the City Administrator should be served on the appellant personally or by registered or certified mail, sent to the billing address of the appellant.

E. All decisions by the City Administrator shall be final.

F. An appeal review fee of $10.00 per acre or fraction thereof, should be paid at the time the appeal is filed. The appeal fee shall be refunded, if the appeal is in favor of the appellant.

G. Any adjustment, either downward or upward, in the monthly Stormwater Management Service Charge shall become effective with the next billing cycle for said customer.

CHAPTER 3. *STORMWATER MANAGEMENT SERVICE CHARGE CREDIT EXAMPLES.*

The following examples illustrate the value of each credit discussed in Chapters 1 and 2. All examples are based on a non-residential customer having 50 ERU's and at $4.00/ERU, an initial Stormwater Management Service Charge of $200.00.

Example #1:

The facility performs weekly sweeping/vacuuming of its' parking lot.

Quality Control Credit: 10%

Applied Credit = 10% x (50 ERUs) = 5 ERUs

Applied Credit Adjustment = (5 ERUs) x ($4.00/ERU/Month) = $20.00/ Month

Initial Stormwater User Fee	$200.00/ Month
User Fee Credit Adjustment	$ 20.00/ Month
Final (Adjusted) Stormwater User Fee	$180.00/ Month

Example #2:

COMPARISON OF PEAK RUNOFF RATES

	Pre-development Peak	Post-development Peak w/ Detention
2 year	10 cfs	7 cfs
10 year	20 cfs	20 cfs
25 year	30 cfs	28 cfs

Based on a comparison of the pre-development runoff rates and the routed post-development runoff rates, the detention basin provides control for all the required storm events.

Quality Control Credit: 10%
+ Quantity Reduction Credit: 35%
Total Credit = 45%

Applied Credit = 45% x (50 ERUs) = 22.5 ERUs

Applied Credit Adjustment = (22.5 ERUs) x ($4.00/ERU/Month) = $90.00/ Month

Initial Stormwater User Fee	$200.00/ Month
User Fee Credit Adjustment	$ 90.00/ Month
Final (Adjusted) Stormwater User Fee	$110.00/ Month

Example #3:

COMPARISON OF PEAK RUNOFF RATES

	Pre-development Peak	Post-development Peak w/ Detention
2 year	10 cfs	7 cfs
10 year	20 cfs	20 cfs
25 year	30 cfs	28 cfs
50 year	40 cfs	35 cfs

Based on a comparison of the pre-development runoff rates and the routed post-development runoff rates, the detention basin provides control for all the required storm events. In addition, the owner is providing quantity reduction for the 50-year event, therefore, the property qualifies for an additional quantity reduction credit as well.

Quality Control Credit: 10%
+ Quantity Reduction Credit: 45%
Total Credit = 55%

Credit for non-educational institutions may not exceed 50%

Applied Credit = 50% x (50 ERUs) = 25 ERUs

Applied Credit Adjustment = (25 ERUs) x ($4.00/ERU/Month) = $100.00/ Month

Initial Stormwater User Fee $200.00/ Month
User Fee Credit Adjustment $100.00/ Month

Final (Adjusted) Stormwater User Fee $100.00/ Month

APPENDIX A. Stormwater Best Management Practices (BMPs)

Best Management Practices are engineering and non-engineering practices and techniques that mitigate the adverse impact on flooding and surface water quality resulting from land development and urbanization. Engineering practices include the construction of extended detention ponds, infiltration trenches, porous pavements, water quality inlets/outlets, grass swales, filter strips, pollutant/nutrient uptake wetlands, and erosion and sediment controls. Non-engineering practices include working with policies, regulations, construction and maintenance plans, and public education.

1. Parking Lot Sweeping: Routine sweeping/vacuuming of paved surfaces to remove sediment and trash before it is transported by wind or rain into the storm drainage system.

2. Bioinfiltration Swale (Vegetated Swale): A vegetated swale is a broad, shallow channel with a dense stand of vegetation covering the side slopes and bottom. Swales can be natural or manmade, and are designed to trap particulate pollutants, promote infiltration, and reduce the flow velocity of stormwater runoff.

3. Vegetative Filter Strip: A vegetated filter strip is a band of vegetation located between a pollutant source (such as a parking lot) and a stream, pond, or wetland. The key to a successfully functioning filter strip is the use of dense vegetation (typically grass) and allowing only overland sheet flow to cross the strip, avoiding concentrated flows.

4. Sand Filter: Sand filters are devices which filter stormwater runoff through a sand layer into an under drain system which conveys the treated runoff to a detention facility or to the ultimate point of discharge. The sand bed filtration system consists of an inlet structure, sedimentation chamber, sand bed, under drain piping and liner to protect against infiltration.

5. Catch basin Insert: These BMPs are devices installed under a storm drain grate that provide water quality treatment through filtration, settling, or adsorption. Catch basin inserts are commercially available products and are generally configured to remove one or more of the following contaminants: coarse sediment, oil and grease, and litter and debris. Units must be routinely maintained to achieve maximum removal efficiency. Maintenance frequency will vary depending on the amount and type of pollutant targeted.

6. Retention Pond (Wet Pond): Wet detention ponds are stormwater control structures providing both retention and treatment of stormwater. These ponds consist of a permanent pool of water into which stormwater runoff is directed. Runoff from each rain event is detained and treated in the pond until it is displaced by runoff from the next storm. By capturing and retaining runoff during storm events, wet detention ponds control both stormwater quantity and quality. The pond's natural physical, biological, and chemical processes then work to remove pollutants.

7. Extended Detention Pond (Dry): An Extended Detention Dry Pond is designed to drain slowly enough to provide some treatment for water quality but rapidly enough to be empty for the next storm.

8. Water Quality Inlets: Water quality inlets, also commonly called oil/grit separators or oil/water separators, consist of a series of chambers that promote sedimentation of coarse materials and separation of oil from stormwater.

9. Porous Pavement: Porous pavement is a special type of pavement that allows rainwater to pass through it, thereby reducing the runoff from a site. In addition, porous pavement filters some pollutants from the runoff if maintained properly. Porous pavement is available in several forms.

    a. Porous asphalt pavement consists of an open-graded coarse aggregate, bonded together by asphalt cement, with sufficient interconnected voids to make it highly permeable to water.

    b. Pervious concrete consists of specially formulated mixtures of Portland cement, uniform, open-graded coarse aggregate, and water. Pervious concrete has enough void space to allow rapid percolation of liquids through the pavement.

    c. Reinforced gravel and turf-paving products consists of concrete blocks or plastic ring mats lain on top of a gravel base. The spaces between the blocks or within the rings are filled with either gravel, or topsoil and grass.

APPENDIX B. Maintenance Standards

In order for stormwater retention and detention facilities to operate as they were intended, maintenance must be routinely performed. Improperly maintained stormwater retention and detention facilities do not reduce stormwater impacts effectively. The following items are the basic minimum maintenance requirements for all stormwater facilities.

1. Sediment shall be removed when about 20% of storage volume of the facility is filled.

2. Sediment traps, if existing, shall be cleaned out when filled.

3. No woody vegetation shall be allowed to grow on the dam.

4. Other vegetation shall be cut when it exceeds 18 inches in height unless part of managed landscaping.

5. Debris shall be removed from blocking inlet and outlet structures and from areas of potential clogging. This is especially important after major storms. Extended detention control devices shall be checked often for debris accumulation and/or clogging.

6. Litter and other “floatables” shall be removed from the pond on a regular basis.

7. The control structure shall be kept structurally sound, free from erosion, and functioning as designed.

8. No standing water is allowed within detention basins without special design provisions.

9. Any bare or eroded areas on the pond slopes shall be stabilized with vegetation or other means.

APPLICATION FOR QUALITY CONTROL CREDIT

Facility Name: _____
Property Owner(s): _____
_____
Mailing Address: _____
Tax Map Parcel #: _____
Phone #: ( ) _____

Gross ERUs, from Utility bill: _____

Description of Quality Control Measures (use additional sheets if necessary)

_____
_____
_____
_____
_____
_____
_____
_____
_____

Check if Attached	Required for Submission by Owner
	Site Plan
	Copy of NPDES Permit (if applicable)
	SWP3 (if applicable)
	Copy of SCDHEC Inspection Report(s) (if applicable)
	Right of Entry Agreement for Department Staff
	Application fee: $10.00 per acre, not to exceed $50.00.

Owner Certification

I certify that the information contained in the application is, to the best of my knowledge, correct and represents a complete and accurate statement. I further understand that the credit determination will be based on the information provided and a later determination that the information provided was inaccurate may result in loss of the credit.

_____ _____
Signature of Owner Date

APPLICATION FOR QUANTITY CONTROL CREDIT

Facility Name: _____
Property Owner(s): _____
_____
Mailing Address: _____
Tax Map Parcel #: _____
Phone #: (____) _____
Gross ERUs, from Utility bill: _____

Registered Professional Civil Engineer (if required):
Name: _____
Registration No.: _____
Company: _____
Phone: (____) _____

Check if Attached	Required for Submission by Owner
	As-Built Drawings
	Routing Calculations through Facility or Control for the 2, 10, and 25 year Design Storms
	Total Storage Volume of Facility of Control
	Principal Outlet Size, Type and Rating
	Emergency Spillway Size, Type, Configuration and Rating
	Maintenance Plan and Schedule
	Right-of-Entry Agreement for Department Staff
	Application Fee: $10.00 per acre, not to exceed $50.00.

Engineer Certification

I certify that the "As-Built Plans" are an accurate representation of the subject storm water facility or control and that the required calculations have been performed in compliance with the Zoning and Development Standards Ordinance.

_____ _____
Signature of Engineer Date

Owner Certification

I certify that the information contained in the application is, to the best of my knowledge, correct and represents a complete and accurate statement. I further understand that the credit determination will be based on the information provided and a later determination that the information provided was inaccurate may result in loss of the credit.

_____ _____
Signature of Owner Date