APPENDIX A: DEFINITIONS

Best Management Practices (BMPs): Structural controls and/or non-structural controls that temporarily store or treat urban storm water runoff to reduce flooding, remove pollutants, and provide other amenities.

Biochemical Oxygen Demand (BOD): The quantity of oxygen consumed during the biochemical oxidation of matter over a specified period of time.

Design storm: A rainfall event of specified size, duration, and return frequency that is used to calculate the peak runoff discharge rate (e.g., a storm that occurs on the average once every 10 years).

Detention: The temporary storage of storm runoff in a BMP, which is used to control the peak discharge rates and which may provide gravity settling of pollutants.

Detention time: The amount of time water actually is present in a BMP. Theoretical detention time for a runoff event is the average time water resides in the basin over the period of release from the BMP.

Extended Detention Basin: A structural BMP which temporarily holds storm water in order to reduce peak discharge and enhance water quality by allowing particulates to settle out.

Extended Detention/Retention Basin: A structural BMP which holds storm water for a lengthened period of time in order to reduce peak discharge and enhance water quality by allowing particulates to settle out.

Forebay: An extra storage area provided near an inlet of a BMP to trap incoming sediments before they accumulate in a basin BMP.

Freeboard: The space from the top of an embankment to the highest water elevation expected for the largest design storm stored. The space is required as a safety margin in a basin.

Hydrograph: A graph showing variation in the water depth or discharge in a stream or channel, over time, at a specified point of interest.

Impervious area (imperviousness): A surface that, due to its composition or compacted nature, impedes or prevents the natural infiltration of water into soil. Impervious areas include, but are not limited to; buildings, solid decks, streets, driveways, sidewalks, patios, parking areas, and concrete. Driveways and parking lots are impervious even if they are not paved because they are compacted. Wooden slatted decks and the water area of swimming pools are not considered impervious surfaces.

Lag time: The increment of time from the center of mass of rainfall to the peak of the hydrograph (may be assumed to be 0.6 * time of concentration).

Peak discharge: The maximum instantaneous rate of flow during a storm, usually in reference to a specific design storm event.

Pilot channel: A riprap or paved channel that routes runoff through a BMP to prevent erosion of the surface.

Remedial Maintenance: Repair of damaged storm drainage system to restore it to the same functional state it was in when new. Examples include: replacing broken or missing grates, repair/rebuilding broken inlets, repair/rebuilding headwalls, pipe joint repairs, replacing crushed pipes, major repair of erosion control measures, clearing and snagging channels, and any other replacement of any drainage system component with a new component of the same size or performance capacity.

Retention Basin: A structural BMP that retains storm water runoff in a permanent pool for water quality enhancement by settling pollutants.

Retrofit: To install a new BMP or improve an existing BMP in a previously developed area.

Return frequency: A statistical term for the average time of expected interval that an event of some kind will equal or exceed given conditions (e.g., a storm water flow that occurs on the average every 2 years).

Riprap: A combination of large stones, cobbles, and boulders used to line channels, stabilize banks, reduce runoff velocities, or filter out sediment.

Riser: A vertical pipe extending from the bottom of a BMP that is used to control discharge rate from a BMP for a specified design storm.

Routine Maintenance: Maintenance that allows the drainage system to function properly but does not include construction or major repair. Essentially, it consists of work to keep the system clean and free of blockage. Examples include: cleaning grates and inlets, flushing pipes, removing blockages in pipes, removing litter and debris from channels and ditches, minor clearing of overgrown vegetation, and minor repair of erosion control measures.

Runoff coefficient: Ratio of runoff to precipitation.

SCS: Soil Conservation Service.

Spillway: A depression in the embankment of a basin which is used to pass peak discharge greater than the maximum design storm controlled by the basin.

Storm water drainage system: The system of natural and manmade devices for collecting and transporting storm water runoff. To be eligible for credit, the storm water system must carry, in whole or in part, runoff from publicly maintained streets.

SWSD: The City of Durham Public Works Department Storm Water Services Division.

TSS: Total Suspended Solids.

APPENDIX B: STANDARD SPECIFICATIONS FOR PEAK/POLLUTION CONTROL BMPs

The City of Durham requires that all storm water BMPs be designed and constructed to allow for ease of maintenance, effectiveness of operation, and aesthetic appearance. Minimum standards for such design are given below. Optional ideas for further increasing the pollution removal capability or improving the appearance or effectiveness of the BMP are also given. Deviations from the specifications may be permitted on a case-by-case basis.

STANDARD SPECIFICATIONS FOR EXTENDED DETENTION BASINS

REQUIRED SPECIFICATIONS

- Pilot channel of paved or concrete material if velocity requires it.
- Side slopes shall be no greater than 3:1.
- Inlet and outlet located to maximize flow length.
- Design to pass the total storm flow safely.
- Riprap protection (or other suitable erosion control means) for the outlet and all inlet structures into the basin.
- One-half foot minimum freeboard above peak stage for top of embankment for design storm.
- Emergency spillway designed to pass the 50-year storm event (must be paved in fill areas).
- Maintenance access (< 15% slope - 10 feet wide).
- Trash racks, filters or other debris protection on control.
- Anti-vortex plates.
- Benchmark for sediment removal.
- Dams requiring State approval must meet State Dam Safety Regulations.
- Sediment forebay (often designed for 10-20% of total volume). Forebay should have separate drain for de-watering.

RECOMMENDED SPECIFICATIONS

- Two stage design (top stage - dry during the mean storm, bottom stage - inundated during storms less than the mean storm event.)
- Top stage shall have slopes between 2% and 5%.
- Onsite disposal areas for two sediment removal cycles.
- Seepage control for the dam and outlet devices.
- Impervious soil boundary.

STANDARD SPECIFICATIONS FOR RETENTION BASINS AND EXTENDED DETENTION/RETENTION BASINS

REQUIRED SPECIFICATIONS

- Minimum length to width ratio of 2:1 (preferably wedge shaped).
- Inlet and outlet located to maximize flow length.
- Minimum depth of permanent pool 2.0 feet, maximum depth of 10.0 feet.
- Design to safely pass flow from entire drainage area.
- Side slopes shall be no greater than 3:1.
- Riprap protection (or other suitable erosion control means) for the outlet and all inlet structures into the basin.
- Minimum drainage area of 10 acres.
- Design dam and outlets for seepage control.
- One-half foot minimum freeboard above peak stage for top of embankment.
- Emergency drain; i.e. sluice gate, drawdown pipe; capable of draining structure within 24 hours.
- Emergency spillway designed to pass the 50-year storm event.
- Trash racks, filters, hoods or other debris control on riser.
- Maintenance access (< 15% slope and 10 feet wide).
- Benchmark for sediment removal.
- Sediment forebay (often designed for 10-20% of total volume). Forebay should have separate drain for de-watering.

RECOMMENDED SPECIFICATIONS

- Multi-objective use such as amenities or flood control.
- Landscaping management of buffer as meadow.
- Design for multi-function as flood control and extended detention.
- Minimum length to width ratio of 3:1 to 4:1 (preferably wedge shaped).
- Use reinforced concrete instead of corrugated metal.
- Provision shall be made for vehicle access at a 4:1 slope.
- Impervious soil boundary to prevent drawdown.
- Shallow marsh area around fringe (including aquatic vegetation).
- Safety bench at toe of slope (minimum 10 feet wide).
- Minimum 25 foot wide buffer around pool.
- Maintain vegetative cover on side slopes and embankments.
- Onsite disposal areas for two sediment removal cycles protected from runoff.
- An oil and grease skimmer for sites with high production of such pollutants.

MAINTENANCE STANDARDS FOR ALL STRUCTURAL BMPs
• Sediment to be removed when 20% of storage volume of the facility is filled (design storage volume must account for volume lost to sediment storage). • Sediment traps shall be cleaned out when filled. • No woody vegetation shall be allowed to grow on the embankment without special design provisions. • Other vegetation shall be cut when it exceeds 18 inches in height unless part of managed landscaping. • Debris shall be removed from blocking inlet and outlet structures and from areas of potential clogging. • The control shall be kept structurally sound, free from erosion, and functioning as designed. • Periodic removal of dead vegetation shall be accomplished. • No standing water is allowed within extended detention basin unless Design #6 (see page A-15) is selected. • An annual inspection is required, reports to be forwarded to SWSD. • The site should be inspected and debris removed after storms of 1" or more. • All special consideration maintenance responsibilities will be listed in the credit application.

PEAK CREDIT CALCULATION STEPS

STEP 1: Calculate the 10-year, 6-hour (or longer) storm runoff peak for undeveloped conditions (Q_1).

This should be done using a City approved methodology. This step gives Q_1. The designer should use the SCS method or other similar means to develop the peak runoff. The following inputs into the HEC-1 model and the resulting rainfall distribution for the 10-year, 6-hour storm, as given below, should be used if the designer chooses the model HEC-1 for the hydrologic calculations (It may be appropriate for the designer to consider storm events with a longer duration than the 6-hour event). The distribution of rainfall is similar to the Soil Conservation Service's (SCS) distribution of rainfall.

10-YEAR, 6-HOUR BALANCED STORM RAINFALL DISTRIBUTION

Time Interval	5 min	15 min	1 hour	2 hour	3 hour	6 hour
Rainfall depth (in)	0.59	1.27	2.38	2.93	3.24	3.76

10-YEAR, 6-HOUR STORM
5-MINUTE TIME INCREMENT

Time (min)	Rain (in)	Time (min)	Rain (in)	Time (min)	Rain (in)	Time (min)	Rain (in)	Time (min)	Rain (in)	Time (min)	Rain (in)
000	.000	065	.016	125	.037	185	.590	245	.030	305	.015
005	.011	070	.016	130	.040	190	.279	250	.028	310	.015
010	.012	075	.017	135	.042	195	.179	255	.027	315	.014
015	.012	080	.017	140	.046	200	.113	260	.025	320	.014
020	.012	085	.018	145	.050	205	.096	265	.024	325	.014
025	.012	090	.019	150	.055	210	.084	270	.023	330	.013
030	.013	095	.023	155	.080	215	.058	275	.019	335	.013
035	.013	100	.024	160	.090	220	.052	280	.018	340	.013
040	.013	105	.025	165	.104	225	.048	285	.018	345	.012
045	.014	110	.026	170	.162	230	.044	290	.017	350	.012
050	.014	115	.027	175	.202	235	.041	295	.016	355	.012
055	.015	120	.029	180	.401	240	.038	300	.016	360	.011
060	.015									365	.000

STEP 2: Calculate the 10-year, 6-hour (or longer) storm total runoff for fully developed conditions without any controls in place (Q3) and measure the total impervious area in the drainage area (I3).

This should be done using the same storm information as above but with appropriately adjusted runoff coefficients and lag or travel times. This step gives Q3 and I3.

STEP 3: *Insert designed controls for the fully developed condition and route the 10-year, 6-hour (or longer) storm through the controls. Calculate the controlled runoff peak (Q2).*

STEP 4: *Calculate the Peak Credit Factor using equation 3 above. If not all of the runoff goes through the control, adjust the effective impervious area accordingly. If the peak credit factor is greater than 1.0, use a peak credit factor of 1.0.*

STEP 5: *Multiply the Peak Credit Factor times 0.35 to obtain the Peak Credit. (0.35 is the maximum credit allowed for Peak).*

POLLUTION CREDIT CALCULATION STEPS

The calculation of pollution reduction credits is based on the estimation of annual pollutant loads and the subsequent reduction in those loads. Reductions in pollutant loads will be realized through the use of certain BMPs. Although, without actual measured data, this calculation may not be considered highly accurate in predicting actual pollution runoff per storm, it is considered sufficiently accurate and consistent for the calculation of credit. The reduction in Total Suspended Solids (TSS) is used as an indicator of BMP efficiency. TSS was chosen as the target pollutant because of its variety of different origins, its impact on the aquatic ecosystem, and the numerous structural controls that can be used to reduce its concentration. TSS represents a variety of pollutants including sediment, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), and metals. Therefore, a reduction in TSS will indicate a reduction in several pollutants.

Pollutant loading reduction will be based on the Pollution Credit Chart on page A-10. This chart has been developed to account for TSS removal efficiency of six standard BMP designs, and allows 100% of the maximum pollution credit of 0.25 for any BMP that has an expected TSS removal efficiency of 85%. The pollution credit varies linearly to 0.15 for BMPs that have expected TSS removal efficiency of 60%.

STEP 1: *Determine the design standards that best fit the BMP used.*

This is done by looking on page A-10 at the “Pollution Credit for Six Standard BMPs” table.

STEP 2: *Calculate the appropriate volume of the BMP.*

This is done by applying the design equations for each BMP design criteria.

STEP 3: Determine the Percent of Total Site Impervious Area Routed through the BMP

This is taken from the site plans and/or drainage system plans. Credit will only be given for the actual amount of impervious area that goes through the BMP.

STEP 4: Using equation 4, multiply the Percent Impervious Area Routed times the Design's available credit to get the Pollution Credit. The maximum pollution credit is 0.25.

For all non-standard BMPs (including modifications on standard BMPs) full documentation and background must be supplied upon which you relied for determination of pollutant reductions. Maintenance planning must be supplied and (if requested) a monitoring plan. In all cases, plans and specifications must be supplied according to City of Durham guidance for grading and drainage plans and normal detention.

<u>Standard BMP Designs</u>

The development of types of Best Management Practices (BMPs) and information on the effectiveness of BMPs in removing pollutants is in a state of constant change. The City of Durham is concerned with maintaining the flexibility for designers to develop and use new and innovative BMPs and to modify existing controls.

Initially credits will be granted only for detention basins, extended detention-retention basins, and retention basins which meet the criteria herein. In order to obtain additional credit the designer must provide the City evidence that controls contain features that further remove pollution or evidence, through sampling and monitoring, that a standard design has exceptional capabilities.

POLLUTION CREDIT FOR SIX STANDARD BMPs		
BMP	Design Criteria	Pollution Credit
1. Retention Basin	pool vol = 0.5 inch storage per impervious acre - Vff (see Design 1 below)	0.15
2. Retention Basin	pool vol = 2.5 x volume of runoff from mean storm event - Vm (see Design 2 below)	0.19
3. Retention Basin	pool vol = 4.0 x volume of runoff from mean storm event - Vm (see Design 3 below)	0.25
4. Extended Detention Basin	runoff volume from a half inch storm released over 12 hr - Vh (see Design 4 below)	0.16
5. Extended Detention Basin	runoff volume from a one inch storm released over 24 hr - V1 (see Design 5 below)	0.19
6. Extended Detention/ Retention Basin	permanent pool volume based on 15A NCAC 2H.1000 and runoff volume from a one inch storm released over 48 to 120 hrs - V1 (see Design 6 below)	0.25

Notes: Pollution credits given above are based on the pollution removal efficiencies of each standard BMP design, and the maximum credit of 0.25 for pollution. For other BMPs, the credit given for pollution will be linearly variable, with credit of 0.00 for removal efficiency of 0% TSS to 0.25 for removal efficiency of 85% TSS.

DESIGN 1:

The "impervious acreage" is all impervious area draining to the control. The volume Vff is the "first-flush" volume from this acreage and can be calculated as:

$$Vff = (A_{imp})(0.5\ in)(1\ ft\ /\ 12\ in)$$

where: A_{imp} = impervious area in acres
Vff = first flush volume of runoff in acre-feet

DESIGNS 2 & 3:

The mean storm in Durham, based on National Weather Service information is 0.65 inches. The volume from the mean storm event can be calculated as follows:

$$Vm = (0.65\ in)\ R_v\ (A/12)$$
$$R_v = 0.05 + 0.009(I)$$

where: Vm = volume of runoff from the mean storm event in acre-feet
R_v = storm runoff (in) / storm rainfall (in)
I = percent of site imperviousness

A = drainage area in acres

Therefore: Vm = 0.65[0.05 + 0.009(I)]A/12

The volumes for designs 2 and 3 are 2.5 and 4.0 times the mean storm volume respectively.

DESIGN 4:

The volume of the one-half inch storm event can be calculated as:

Vh = 0.50[0.05 + 0.009(I)]A/12

where: Vh = volume of runoff from the one-half inch storm event in acre-feet
I = percent of site imperviousness
A = drainage area in acres

DESIGNS 5 & 6:

The volume for the one-inch storm event can be calculated as:

V1 = 1.0[0.05 + 0.009(I)]A/12

where: V1= volume of runoff from the one-inch storm event in acre-feet
I = percent of site imperviousness
A = drainage area in acres

EXAMPLE #1

Given Information: A site with an existing basin was analyzed with consideration for **peak runoff** control only.

- Site area - 15.7 acres
- Pre-developed land use - woods
- Developed land use - high density residential (percent impervious - 61%)

Step 1: Compute the Base Service Charge using equation 1.

impervious area on site = 0.61*15.7 acres*43,560 square feet per acre
impervious area on site =417,174 square feet

Equation (1): **C** = (417,174/2,400)*$2.70
(round IA/2,400 to integer)

C =$469.80 per month

Step 2: Compute the Peak Credit Factor.

a) First compute Q3, Q2, and Q1. The following peak flows are computed through standard hydrologic and hydraulic calculations. Designers should use methods approved by the City SWSD:

Q1 = 9.0 cfs
Q2 = 20.0 cfs
Q3 = 48.0 cfs

b) Use equation 3 to compute the peak credit factor.

Equation (3): = (Q3-Q2)/(Q3-Q1)
= (48.0-20.0)/(48.0-9.0)
= 0.718
(round this number to three decimal places)

Note: The percent impervious area routed is 100%.

Step 3: Compute the Peak Credit.

Peak Credit =**Q**= 0.35*0.718
Peak Credit =**Q**= 0.251
(round this number to three decimal places)

Step 4: Compute the Adjusted Service Charge using equation 2.

Equation (2): **A** = C*(1-Q-P-M)

Note: P and M are zero because this is a peak control BMP only.

A = $469.80*(1-0.251-0-0)
A = $469.80*0.749
A = $351.88 per month

EXAMPLE #2

<u>Given Information:</u> Design considering **peak** control and **pollution** control.

- Site area - 124.6 acres
- Pre-developed land use - woods
- Developed land use - commercial (percent impervious - 65%)
- Use BMP design # 2
- 100% of impervious area is routed through BMP design # 2

Step 1: Compute the Base Service Charge using equation 1.

impervious area on site = 0.65*124.6 acres*43,560 square feet per acre
impervious area on site =3,527,924 square feet

Equation (1): **C** = (3,527,924/2,400)*$2.70
(round IA/2,400 to integer)

C =$3,969.00 per month

Step 2: Compute the Peak Credit Factor.

a) First compute Q3, Q2, and Q1. The following peak flows are computed through standard hydrologic and hydraulic calculations. Designers should use methods approved by the City SWSD:

Q1 = 143.0 cfs
Q2 = 211.0 cfs
Q3 = 508.0 cfs

b) Use equation 3 to compute the peak credit factor.

Equation (3): = (Q3-Q2)/(Q3-Q1)
= (508.0-211.0)/(508.0-143.0)
= 0.814
(round this number to three decimal places)

Note: The percent impervious area routed is 100%.

Step 3: Compute the Peak Credit.

Peak Credit =**Q**= 0.35*0.814
Peak Credit =**Q**= 0.285
(round this number to three decimal places)

Step 4: Determine the Pollution Credit.

The Pollution Credit is taken from the "Pollution Credit for Six Standard BMPs" table in Appendix C. For design #2, the Pollution Credit is 0.19.

Pollution Credit = **P** = 0.19

Step 5: Compute the Adjusted Service Charge using equation 2.

Equation (2): **A** = C*(1-Q-P-M)

Note: M is zero, since this is a peak and pollution control BMP only.

A = $3,969.00*(1-0.285-0.19-0)
A = $3,969.00*0.525
A = $2,083.73 per month

Example #3

<u>Given Information</u>: Design considering peak control and pollution control. Credit is given for an approved maintenance plan for the drainage system.

- Site area - 25.0 acres
- Pre-developed land use - - woods
- Developed land use - industrial (percent impervious 72%)
- Use BMP design #1
- 100% of impervious area routed through BMP design #1

Step 1: Compute the Base Service Charge using equation 1.

impervious area on site = 0.72*25.0 acres*43,560 square feet per acre
impervious area on site = 784,080 square feet

Equation (1): **C** = (784,080/2,400)*$2.70
(**round IA/2,400 to integer)**

C = $882.90 per month

Step 2: Compute the Peak Credit Factor.

a) First compute Q3, Q2, and Q1. The following peak flows are computed through standard hydrologic and hydraulic calculations. Designers should use methods approved by the City SWSD:

Q1 = 15.0 cfs
Q2 = 31.0 cfs
Q3 = 58.0 cfs

b) Use equation 3 to compute peak credit factor.

Equation (3): = (Q3-Q2)/(Q3-Q1)
= (58.0-31.0)/(58.0-15.0)
= 0.628
(round this number to three decimal places)

Step 3: Compute Peak Credit.

Peak Credit =**Q**= 0.35*0.628
Peak Credit =**Q**= 0.220
(round this number to three decimal places)

Step 4: Determine the Pollution Credit.

The Pollution Credit is taken from the "Pollution Credit for Six Standard BMPs" table in Appendix C. For design #1, the Pollution Credit is 0.15.

Note: 100% of the impervious area is routed through the BMP.

Pollution Credit =**P**= 0.15*1.00
Pollution Credit =**P**= 0.15

Step 5: Maintenance Credit

Applicant submitted an acceptable maintenance plan for the drainage system on the applicant's property.

Maintenance Credit = **M** = 0.15

Step 6: Compute the Adjusted Service Charge using equation 2.

Equation (2): **A** = C*(1-Q-P-M)
A = $882.90*(1-0.220-0.15-0.15)
A = $882.90*(0.480)
A = $423.79 per month

Example #4

<u>Given Information</u>: Example design considering peak control and pollution control. Only 25% of impervious area is routed through the detention basin.

- Site area - 40.0 acres
- Pre-developed land use - - woods
- Developed land use - - high density commercial (percent impervious 80%)
- Use BMP design #4
- 25% of impervious area routed through BMP design #4

Step 1: Compute the Base Service Charge using equation 1.

impervious area on site = 0.80*40.0 acres*43,560 square feet per acre
impervious area on site = 1,393,920 square feet

Equation (1): **C** = (1,393,920/2,400)*$2.70
(**round IA/2,400 to integer)**

C = $1,568.70 per month

Step 2: Compute the Peak Credit Factor.

a) First compute Q3, Q2, and Q1. The following peak flows are computed through standard hydrologic and hydraulic calculations. Designers should use methods approved by the City SWSD:

Q1 = 29.0 cfs
Q2 = 62.0 cfs
Q3 = 73.0 cfs

b) Use equation 3 to compute peak credit factor.

Equation (3): = (Q3-Q2)/(Q3-Q1)
= (73.0-62.0)/(73.0-29.0)
= 0.250
(round this number to three decimal places)

Step 3: Compute Peak Credit.

Peak Credit =**Q**= 0.35*0.250
Peak Credit =**Q**= 0.088
(round this number to three decimal places)

Step 4: Determine the Pollution Credit.

The Pollution Credit is taken from the "Pollution Credit for Six Standard BMPs" table in Appendix C. For design #4, the Pollution Credit is 0.16.
The percent impervious area routed through the basin is 25%.

Pollution Credit =**P**= 0.16*(0.25)
Pollution Credit =**P**= 0.04

Step 5: Compute the Adjusted Service Charge using equation 2.

Equation (2): **A** = C*(1-Q-P-M)

Note: M is zero, since the applicant did not apply for maintenance credit.

A = $1,568.70*(1-0.088-0.04-0)
A = $1,568.70*(0.872)
A = $1,367.91 per month

Example #5

Given Information: Extended detention/retention basin design. Credit is given for an approved maintenance plan for the drainage system.

- Site area - 150.0 acres
- Pre-developed land use - woods
- Developed land use - industrial (percent impervious 72%)
- Use BMP design #6
- 100% of impervious area routed through BMP design #6

Step 1: Compute the Base Service Charge using equation 1.

impervious area on site = 0.72*150.0 acres*43,560 square feet per acre
impervious area on site = 4,704,480 square feet

Equation (1): **C** = (4,704,480/2,400)*$2.70
(**round IA/2,400 to integer)**

C = $5,292.00 per month

Step 2: Compute the Peak Credit Factor.

a) First compute Q3, Q2, and Q1. The following peak flows are computed through standard hydrologic and hydraulic calculations. Designers should use methods approved by the City SWSD:

Q1 = 135.0 cfs
Q2 = 199.0 cfs
Q3 = 541.0 cfs

b) Use equation 3 to compute peak credit factor.

Equation (3): = (Q3-Q2)/(Q3-Q1)
= (541.0-199.0)/(541.0-135.0)
= 0.842
(round this number to three decimal places)

Step 3: Compute Peak Credit.

Peak Credit =**Q**= 0.35*0.842
Peak Credit =**Q**= 0.295
(round this number to three decimal places)

Step 4: Determine the Pollution Credit.

The Pollution Credit is taken from the "Pollution Credit for Six Standard BMPs" table in Appendix C. For design #6, the Pollution Credit is 0.25.
100% of the impervious area is routed through the BMP.

Pollution Credit =**P**= 0.25*1.00
Pollution Credit =**P**= 0.25

Step 5: Maintenance Credit

Applicant submitted an acceptable maintenance plan for the drainage system on the applicant's property.

Maintenance Credit = **M** = 0.15

Step 6: Compute the Adjusted Service Charge using equation 2.

Equation (2): **A** = C*(1-Q-P-M)
A = $5,292.00*(1-0.295-0.25-0.15)
A = $5,292.00*(0.305)
A = $1,614.06 per month

APPENDIX E: WATER QUALITY INSPECTION CHECKLIST

OBSERVER:		**OUTFALL I.D.**	
DATE:	**TIME:**		**APPROX. DAYS SINCE LAST RAINFALL:**
Is a dry weather flow present?		**Is there standing water present?**	
Record any observations.			
ITEM	**YES**	**NO**	**COMMENTS**
COLOR			
ODOR			
CLARITY			
FLOATING SOLIDS			
SUSPENDED SOLIDS			
FOAM			
OIL SHEEN			
OTHER INDICATORS			